Science Fiction Theatre and Performance

by

Liz Fairchild

A dissertation accepted and approved in partial fulfillment of the

requirements for the degree of

Doctor of Philosophy

in Theater Arts

Dissertation Committee:

Dorothee Ostmeier, Chair

Joy Fairfield, Core Member

Janet Rose, Core Member

Ben Saunders, Institutional Representative

University of Oregon

Spring 2025

DISSERTATION ABSTRACT

Liz Fairchild

Doctor of Philosophy in Theater Arts

Title: Science Fiction Theatre and Performance

This work explores the history, legacy, future, and futurity of science fiction theatre and performance. Science fiction on stage can be traced as far back as Aristophanes' *The Birds*, written in 414 BCE. While a history and indeed a justification of science fiction in theatre and performance is presented in the beginning of this work, this project is ultimately invested in the notion that theatre brings a dimensionality to science fiction that no other medium can provide. This is substantiated through the mutable and transmutable concept of "liveness," as well as the theatre's ability to create new medium-specific beings, places, and spaces using metatheatrics, embodiment, and the manipulation and reformulation of boundaries between the audience and the actor.

Science fiction on stage is not simply rendered through genre-specific works like Manjula Padmanabhan's *Harvest*, but also through quantum theatre and posthuman performance. Utilizing physics' uncertainty principle, quantum theatre replicates the Schrödinger's Cat thought experiment by performing macro instances of quantum superpositions. This is to say, like Schrödinger's Cat, who exists as both alive and dead until observed, theatre performances can also be in multiple subject positions and superpositions at the same time. The audience can simultaneously be actor (willingly or unwillingly) and an actor can become an audience member that is also still observed by another audience outside of a play-within-the-play. Quantum theatre is especially legible in *Rosencrantz and Guildenstern are Dead*, in which the titular characters

are seemingly dead and alive, inside of *Hamlet* and outside of it, and who also become the audience of a play-within-a-play.

Posthuman theatre and performance also creates quantum theatre through immersive digital experiences that are co-performed by people and AI. The theatre, as such, is expanding beyond performing science fiction motifs and AI characters and is instead embracing AI as a part of human performance and live performance. Utilizing Darko Suvin's *Metamorphosis of Science Fiction* as well as Jose *Muñoz's Cruising Utopia*, this work explores liberative and revolutionary conceptions of the future presented on stage, as well as considering what the future of theatre and performance may embrace.

This dissertation includes previously published materials.

CURRICULUM VITAE

NAME OF AUTHOR: Liz Fairchild

GRADUATE AND UNDERGRADUATE SCHOOLS ATTENDED:

University of Oregon, Eugene
University of East Anglia, Norwich, England
Humboldt State University, Arcata
San Francisco State University, San Francisco

DEGREES AWARDED:

Doctor of Philosophy in Theater Arts, 2025, University of Oregon
Master's of Arts in Creative Writing, 2008, University of East Anglia
Bachelor's of Arts in Theatre Arts, 2007, Humboldt State University

AREAS OF SPECIAL INTEREST:

Science Fiction
Feminism
Queer Theory
Posthumanism
Decolonial Studies

GRANTS, AWARDS, AND HONORS:

Research Grant Recipient for the University of California Speculative Futures Symposiym, 2019, 2022

Kennedy Center American College Theatre Festival (KCACTF) Meritorious Achievement in Directing for *The Complete Works of William Shakespeare: Abridged*, 2021

Recipient of The Arnold, Isabel, and Rupert Marks Scholarship, 2018, 2019, 2020

PUBLICATIONS:

Fairchild, Liz. "Performance Review of *The Birds* at University of British Columbia." *Ecumenica*, Pennsylvania University Press, 2024, vol. 17, no. 1, pp. 107-10.

Fairchild, Liz. "Performance Review of *The Thin Place* at ACT Seattle." *Ecumenica*, Pennsylvania University Press, 2022, vol. 15, no. 2, pp. 200-204.

Fairchild, Liz. "Nuclear Normativity, Monstrous Masculinity, and Matter in *Burning Vision*," *Monsters in Performance: Essays on the Aesthetics of Social Disqualification*, edited by Michael Chemers and Analola Santana, Routledge, 2022.

Fairchild, Liz. "Review of Performing Queer Modernism by Penny Farfan." *Journal of Dramatic Theory and Criticism*, University of Kansas Press, Winter 2021, vol. 36, no. 1, pp. 236-9.

Fairchild, Liz. "Review of Theatre of the Avant-Garde, 1890-1950: A Critical Anthology," *New England Theatre Journal*, edited by Robert Knof, Northeastern University Press, Summer 2020.

Fairchild, Liz. "Toward Utopia: Queer Readings of Nonhuman Bodies." *Exploring the Orville*, edited by David Johnson, MacFarland Publishing, 2020.

Fairchild, Liz. "A Heavy Breath." *The Missouri Review*, July 2011.

ACKNOWLEDGMENTS

I would like to thank my committee for their thoughtful support and belief in my project. I would also like to thank my partner Patrick Kelley, my daughter Fiona, and my aunt Nansea Metts, who all gave me unending love and support even when this project took over our entire lives. Ryan Sayegh, Ellen Kress, Stevo Steinfeld, Anna Dulba Barnett, and Andrea Herrera supported me in too many ways to name. Words can not express my gratitude.

DEDICATION

This work is dedicated to my mother, Kathleen Sullivan-Fairchild (1956-2015) who always encouraged my writing and thinking, and who helped me to see the world as a place ripe for change through art.

TABLE OF CONTENTS

Chapter I

1. Defining Science Fiction in the Theatre and the Theatrical Text

As technological and scientific advancements increasingly push the boundaries of what is and what can be, science fiction has become an increasingly popular means of expressing and exploring the limitations of human knowledge, while also positing ways to think in multi-dimensional, liberative, and queer ways. This queering of the future takes its inspiration largely from the bending and stretching of science fact into science fiction. As José Esteban Muñoz notes in *Cruising Utopia* (2009), "The present is not enough. It is impoverished and toxic for queers and other people who do not feel the privilege of majoritarian belonging, normative tastes, and "rational" expectations" (27). In considering utopia, he leverages both performance and performativity (on stages and off) to posit a generative queer futurity, "utopia is not prescriptive; it renders potential blueprints of a world not quiet here, a horizon of possibility, not a fixed schema" (97, my italics). Horizons of possibility are one of the main promises of science fiction, as a new horizon does not simply offer a way of thinking beyond normative expectations, it also creates a new plane of existence and allows for future-forward knowledge and speculative reality production. Ultimately, science fiction demonstrates the need for change through the dystopian or utopian potentialities of the choices humanity makes in the present.

The theatre has long been an agent of change. Augusto Boal's *Theatre of the Oppressed*, for example, focused on radical social and political change in Brazil in the 1960s and 70s. His work was so influential and questioned the status quo so fervently that he was exiled from Brazil in 1971 by the Brazilian military regime, as a potential threat to their agenda. An important influence of Boal's, Bertolt Brecht strove to reject cathartic storytelling as well as the Aristotelian dramatic structure as a means of activating the audience's desire to effect change. Brecht's well-

utilized and articulated concept of *verfremdungseffekt* (often called the distancing effect) rejects catharsis which is used as a tool to ameliorate an audience, giving them a sense of finality and wholeness at the end of a play. Rather, *verfrendungseffekt*, utilized both in Brecht's text and his theatrical renderings on stage, removed an emotional component of the play as well as the element of surprise, pulling the audience out of an emotional connection so that they could observe the horrors of war and injustice, and take action. This is perhaps most well observed in *Mother Courage and Her Children*, where Mother Courage herself is an absurdist character, although she is also tragic, leading the audience to observe her plight rather than become emotionally invested in her situation. Further, each scene's actions are described before the scene takes place, removing the element of surprise. Brecht himself also invested, at the very least, in the science play, with the *Life of Galileo*, which performs Galileo's life as a radical and revolutionary scientist.

It is my intention to demonstrate that, put together, theatre and science fiction become a unique, anti-Aristotelian type of theatre for change. When science fiction is put into performance, on stage or elsewhere, the story goes beyond narrative form to create tangible new beings, new spaces, and new ways of embodying the human and the posthuman. This is a result of theatre's unique ability to embrace, enfold, and indeed manipulate the audience, as well as the theatre's ability to change space and time through the transmogrification of a live, three-dimensional space.

With an eye for meaningful change and action, science fiction theatre and performance has also always been deeply invested in decolonial utopias and dystopias. While Shakespeare's *The Tempest* certainly offers a colonial critique, Indigenous Futurisms such as *Between Two Knees* by the 1491s decouple from linear time in an outrageously raunchy and hilarious play that culminates with the removal of all White people on Earth. In a review of the Perelman Performing

Arts production in February of 2024, Paola Bellu notes that "In the epilogue, white people have evaporated. The Ensemble, wearing future props, encouraged the public to join them in the chorus 'Goodbye white people, some of you were cool, most of you were not,' and everybody got up to clap and sing" (Bellu). A tongue-and-cheek devised play, *Between Two Knees* locates an equitable future for Native Americans through the removal of White people all together. This speculative act demonstrates how difficult the removal of colonialism will be as long as White people in America (and globally) still have power over land, resources, and legislation that is deeply imbedded in colonial ideology. The play spans multiple generations and locations, demonstrating Indigenous ways of knowing time (non-linear), culminating in a future where Native peoples' oppressors no longer exist. These types of narratives do not need traditional science fiction motifs (space ships, artificial intelligence etc.) to create horizons of possibility.

Chapter Two of this work will trace the early history of science fiction and its co-evolution/co-creation in the theatre, beginning in ancient Greece. While science fiction on stage does not always call itself such, it has been extant on stage since antiquity, as seen in Aristophanes' *The Birds*. In *The Birds*, first performed in 414 BCE, ancient and contemporary audiences are confronted with both speculative utopian motifs and a robust political satire, demonstrating a synthesis between the political problems present in Athens during Aristophanes' life, as well as speculative solutions to Aristophanes' and his contemporary's ills. These solutions are presented in the sky/in space beyond Earth's horizon and beyond the human realm, in the creation of a city and a wall in the sky. In addition to the wall in the sky, the play includes sentient bird people who perform the posthuman/extraterrestrial and posit post-scarcity realities. As a further exploration of early science fiction theatre, Chapter Three considers *The Tempest*,

not only because of Caliban's and Ariel's supernatural abilities, but because of the world building Shakespeare develops to create an alternative island.

For Slavic scholar Darko Suvin, texts that might not fit into the mainstream, contemporary notions of science fiction – such as *The Tempest* – do fit into his understanding of the genre because of alternative world building – the creation of a place paradigmatically different from our present reality, an alternative island.

Looking at the Hellenic tradition, Darko Suvin describes many fictions that embrace, specifically, "alternative islands" (90) – the creation of a world wholly different than ours. These alternative islands, in addition to Muñoz's *horizon of possibility* comprise a critical framework for my engagement with science fiction on stage. Both terms connect us to places and planes of existence that are different than our earthly reality and that offer new solutions and possibilities for contemporary problems. Both concepts are expansive, allowing for many different texts to fit within their bounds, including not just the early science fictions we have begun to discuss, but more contemporary examples like the subgenre of Cli Fi (Climate Fictions) and Indigenous Futurisms.

Nesting the alternative island into a broader framework, Suvin sees science fiction on the whole as requiring *cognitive estrangement* which in turn requires a *novum* – some device that is so unique that the reader must imagine the world in an entirely new way. A great example of such a device is Ursula K LeGuin's creation of the ansible which spans a number of her different novels and worlds to allow faster-than-light (FTL) communication instantaneously across vast distances, despite the fact that beings can only travel at relativistic speeds. As such, character can talk to their family on planets that are light years away with no passage of time, even though traveling back to their family would take perhaps, an entire lifetime. This *novum* questions the

nature of space and time as necessarily connected, requiring a new conception of reality that relies heavily on theoretical physics as well as quantum mechanics. However, the concept of a *novum* also allows for the inclusion of many early texts into the genre of science fiction, because modern science *isn't* necessitated – only a novel concept that revises/rethinks what is possible.

Blending the past, present, and future with the metatheatrical, Chapter Three will explore *quantum theatre*, a largely performative but sometimes textual creation of spaces beyond our reality. While this term was initially coined by David George in "Quantum Theatre – Potential Theatre: a New Paradigm?" in 2009, George's work does not acknowledge any science, quantum or otherwise, but rather relies on vague articulations of liminal spaces, without connecting these spaces to quantum physics whatsoever. Further, George leverages no case studies to bolster his vague conception of the liminal. While quantum theatrical spaces are sometimes liminal in the sense that they are hard to define as one space – quantum theatrical spaces go further to include the audience as performer, the performer as the audience, the play can be inside of another play, and the play-within-the-play can also be in the future, as is seen in HBO Max's limited series *Station Eleven*, which performs *Hamlet* in the apocalypse. *Rosencrantz and Guildenstern are Dead* is another strong example of quantum theatrical renderings, where there is not only a play-within-a-play, within a third play, but the very real question as to whether Rosencrantz and Guildenstern *are* dead at the plays beginning, rather than its end. This question of alive or dead is evocative of the famous Schrödinger's Cat thought experiment, in which the cat is placed in a box and is neither alive or dead until observed, and is thus, in a quantum superposition. In essence, the cat exists in two states at the same time. Rosencrantz and Guildenstern are also in a quantum superposition because they are both inside the play of Hamlet and in their own play at the same time. Quantum theatre renders the stage a place where other universes can be literally

and tangibly accessed. In this capacity, there is a break between the fictional space and the three-dimensional space it exists within, with the possibility of breaking through to/conjuring other universes. As such, I am attempting to show that science fiction is enhanced as a genre by live theatre and its traditions, conceits, and conventions. I extensively consider quantum theatre within the constant remaking/revisioning/revising of *Hamlet*, not only through "faithful" productions of *Hamlet* inside *Rosencrantz and Guildenstern are Dead* and *Station Eleven*, but in productions like the Wooster Group's *Hamlet.* The Wooster Group mirrors a projected, old, and degraded recording of *Hamlet* performed by Richard Burton in 1964, embracing the recording's glitches on stage. Not only are they creating a quantum superposition by creating a live recorded performance that is then live again on the stage, they are also creating a quantum space – one outside of our own reality – in the space between the performers and the recording, on the stage.

In Chapter Four I will explore the posthuman in performance, highlighting not just robots and cyborgs on stage played by humans, but performances between humans and digital experiences, and performances where only artificial intelligences perform, such as the 2012 Guggenheim art installation (that I argue is actually a live performance) "Can't Help Myself."

Posthumanism is a vast area of study that encompasses many diverse and at times conflicting ideas, much like science fiction itself. Literally defined, posthumanism encompasses augmented humans (cyborgs) or artificial intelligences (AI), such as robots or holograms. Theoretically, posthumanism explores how humanness can be rejected/redefined/revised as a concept through technological and biological rendering of other beings. These beings may be machines, or in some cases extraterrestrials or future humans that have evolved beyond the present. Posthumanism is not always considered through a fictional lens, but as it pertains to my work, science fiction creates a posthuman in dystopian and utopian futures as a means of

rendering liberative and oppressive futures. These futures are based on how we identify, embody, and behave as humans, in contrast to our likenesses in humanoid robots, holograms, and other posthuman renderings. Posthuman theorists like N. Katherine Hayles also consider the interactivity between technology and humans, and how these interactions change the definitions of self and individualism.

All chapters will also explore different components of liveness and how it may or may not be integral to the theatre. In *Liveness on Stage : Intermedial Challenges in Contemporary British Theatre and Performance,* Claudia Georgie defines the liveness of theatre as, "the **co-presence** of performers and spectators, the **ephemerality** of the live event, the **unpredictability** or risk of imperfection, the possibility of **interaction** and, finally, a specific quality of the **representation of reality"** (5 author's bold). This definition of liveness affords the ability to critically reassess what is live and who is *allowed* to be live. Although a programmed robot onstage might not be "live" because it may not be unpredictable and is not *alive*, interactivity with a human onstage troubles this notion.

While *The Birds* as science fiction has been identified, if only briefly, by science fiction scholars like Darko Suvin and James Gunn, theatre scholarship and indeed theatre history scholars lack engagement with science fiction in general as a vital part of theatre's past, present, and future. Despite this, theatre is uniquely suited to investigate science fiction through an attention to the psychological, social, and moral ramifications of speculative futures. The theatre does this by leveraging metatheatrics, embodied metaphor, and a concentration on the theatrical space, rather than focusing on the fidelity of the world that computer generated imagery (CGI) creates. In this capacity, the theatre asks the audience to engage closely and *with a closeness* to

the human condition and human futurity, rather than paying attention to the immersive potentials brought into focus by CGI.

In 1977, Darko Suvin traced one of the first of many legitimate critical paths for science fiction in his now classic *Metamorphosis of Science Fiction: on the Poetics and History of a Literary Genre*. Previous to his intervention and the interventions of Kingsley Amis in *New Maps of Hell*, science fiction was widely considered to be a low-brow artform, best encapsulated and defined by and in comic strips, graphic novels, (which have also subsequently become highly respected and literary) and pulp magazines. In Suvin's case, his defense of science fiction as worthy of critical study also relies heavily upon a reification of these "low-brow" forms of science fiction. This is to say, he delineates the genre between the "good" (novels by Ursual K. LeGuin, H.G. Wells, and others) and the "bad" (*Amazing Stories*) as a means of providing credibility for the genre writ large.

While many have pointed out the problematics of Suvin's vitriolic and hierarchical bifurcation of the genre, his attempt at a history and pre-history of SF, in addition to his clear and thorough work to define the genre poetically, is largely responsible for creating a legitimacy for SF, making way for more generative scholarship like the work of Ursula LeGuin and Samuel Delany, as well as a broader acceptance of the genre. Interestingly, Suvin also talks extensively about Greek drama as nascent science fiction. This creates an earlier-than-expected convergence point for SF and theatre, and implies, frankly, a co-evolution. This co-evolution is expressed in theatre's ancient dedication to the magical, the mythical, and the fantastic more so than its dedication to science fiction as we currently define it (aka with emphasis on the science). This is to say, storytelling that asks questions capable of creating paradigmatic shifts in space/time/action represents a line of inquiry equivalent to a proto-scientific method that existed

pre-Galileo. After all, the ancient Greeks began the process of creating the scientific method – particularly through Aristotle – who also set forth his own dramaturgical structures. These Aristotelian unities, as they are called, still hold substantial (and arguably oppressive) sway over theatre today. This creates a nexus point between scientific thought and the theatre, in addition to the aforementioned co-evolution between the theatre and science fictional narratives.

For my purposes, Suvin's work is an important proving ground and a foundational work for exploring science fiction as a thematic rather than inherently scientific genre. Science fiction, thus, accepts pre-modern science tales as science fictional because, as Suvin articulates in *Metamorphosis of Science Fiction*,

> SF should not be seen…in terms of science, the future, or any other element of its potentially unlimited thematic field. Rather, it should be defined as a fictional tale determined by the hegemonic literary device of a locus and/or dramatis personae that (1) are radically or at least significantly different from the empirical times, places, and characters of "mimetic" or "naturalist" fiction, but (2) are nonetheless—to the extent that SF differs from other "fantastic" genres, that is, ensembles of fictional tales without empirical validation—simultaneously perceived as not impossible within the cognitive (cosmological and anthropological) norms of the author's epoch. Basically, SF is a developed oxymoron, a realistic irreality, with humanized nonhumans, this-worldly Other Worlds, and so forth. (viii)

The fantastic, in this respect, is always already known to be unreal, whereas science fiction posits something that *could be* real under the right circumstances. Bulgarian-French philosopher and historian Tzvetan Todorov defines the fantastic as an event or series of events that require the persons living within the narrative world to recognize the seemingly miraculous

or supernatural event as in direct contradiction to the laws they know to be true, creating a sense that they are either dreaming, or they are experiencing a real event that defies explanation. As such, the fantastic is found in the interplay between reality, the imagination, and the *hesitation* that is created in contemplating whether the event is possible or highly improbable, but real. Because this hesitation requires a suspension of belief related to the event as possibly real, the fantastic can be neither "allegorical" nor "poetic" (Todorov 32). The possible "realness" of science fiction, however, is not found in wondering whether it is real or imaginary, but rather in its potentiality to be a real future or already extant somewhere else in the universe. Science fiction must always begin with and premise that it *could be*, fantasy begins with the premise, rather, that it *certainly cannot be*.

Suvin is also critical to my investment of science fiction on stage because of his stance that, at its finest, science fiction is so revolutionary that its past (especially in antiquity) has been obscured by normative society because of its dangerous subversiveness, it "has been a suppressed and neglected, often materially and most always ideologically persecuted tradition: it is hardly an accident that… its first two clusters survive only in fragments and references" (87-88). Suvin is speaking predominantly about marginalized ancient Greek texts, and the vast number of ancient Greek writings that were "lost" or did not survive the test of time. Suvin is noting that the obfuscation of the genre is part of its definition – by creating narratives that defy the status quo, decouple from reality, and engage in speculative scientific, technological, and human/posthuman futures, the genre practically begs for censorship and dismissal, especially in its ancient and early modern renderings.

Suvin's stance on the marginalized-as-definition of the genre is supported also by Mark Bould and Sherryl Vint in *The Routledge Concise History of Science Fiction*,

> There is no such thing as a 'neutral' or 'objective' definition of the genre because the very features of what is named as SF emerge in the process of pointing and naming. Various actants have competing investments in what they want the genre to be, aimed at different ends, and all histories of the genre inevitably privilege some texts and marginalize or exclude others. (5)

This marginalization often looks more like an erasure, particularly of women scholars of antiquity and men in the ancient Hellenic and Roman eras whose works didn't substantiate primitive accumulation and capitalist traditions. While I would love to give specific examples of said authors, their works haven't survived for this very reason (Suvin). Aristotle – and more precisely the Renaissance scholars who narrowly interpreted his work – has been valorized, reiterated, and reinforced for his realist and rationalistic understandings of art and science that uphold Western, patriarchal ideology to this day. This manifests on stage as "realism" and does not consider forms that break or queer time. Queer time breaks with linear, normative, ways of understanding the passage of time. As Juan Francisco Belmonte Ávila and Estíbaliz Encarnación-Pinedo note in "Queer Time Unbound,"

> Time is an ever-present and inevitable component of any representation of what is, was, and will be thought to be possible. Yet, just like time binds us, it can be unbound and untangled in return, bringing forth free critical thinking and facilitating other processes of becoming ungoverned by the strictures of normativity. (4)

From this perspective, most science fictional time is queer time, as it has no investment in upholding calcified and oppressive understandings of our past, present, and future.

Many science fiction scholars go back considerably further than *The Birds* to locate the beginnings of SF. *Gilgamesh*, written in the 2nd millennium BCE, has frequently been

substantiated as, at the very least, a proto-science fictional work, and then later Lucian of Samosata's *A True Story*, written in the second century AD, brought science fiction into sharp focus with the first known use of extraterrestrials and outer space. *Gilgamesh* is particularly poignant in that it is the oldest written narrative we have, and therefore it can be claimed that science fiction is as old as the written word, and likely much older. For James Gunn in his introduction to his 2002 anthology *The Road to Science Fiction Volume 1: From Gilgamesh to Wells*, "Gilgamesh's concerns are those of science fiction: social (people need a heroic king, but what do people do when a king rules too heavily?) and personal (can man live forever, or, if not, how does he live with the fact of death?)" (23). This demonstrates how, at its core, science fiction is about stories that question our reality's objectivity but also ask whether our reality is meaningful, and how the human role plays a part in meaning making. If we travel back even further to the ancient petroglyphs of North America, we see extremely early depictions of science fictional motifs. In Nevada, petroglyphs of strange figures that appear to wear space suits can be dated back to between 10,000-14,000 years ago. These petroglyphs also often appear with spirals, which could potentially indicate portals into other dimensions, or anomalies in outer space. As ancient astronaut theorists like Giorgio Tsoukalos propose, these petroglyphs are actual depictions of historical events. In other words, ancient astronaut theorists believe that the petroglyphs record factual visitations from extraterrestrials. However, it is also possible that these petroglyphs depict stories – conjured up by ancient artists, of science fictional realms. While both claims are highly contentious, theorists like Tsoukalos excel at creating a science fictional past for the earth that forces us to question long-held colonialist constructions of our ancient history as a species. At the core, this is what science fiction does best – it revises the

future, but also the past, becoming, as Suvin would suggest, a cognitively estranging event, capable of presenting entirely new worlds and new ways of living.

Gunn, however, provides for his readers many criteria and definitive characteristics for locating the beginnings of SF in much more recent times, he claims that "traditional literature is the literature of continuity, and thus of the past, science fiction is the literature of change, and thus of the present and the future" (10-11). For Gunn, science fiction began in earnest when "people began to think in unaccustomed ways" (14) and "discover[ed] the future" (15). These locations are shared with Suvin's assertion that the science component of science fiction is more of a way of thinking – a method – than it is based in the advent of critical scientific advancements. This proves to be, as I suggested above, a colonial and Western conception of the history of science fiction, as "unaccustomed ways" is highly subjective and most certainly refers to European and American ideology over Indigenous ways of knowing. This said, Gunn does demystify the requirement that technology is embrocated into SF, for what is technology outside of our own references of "advancement"? The discovery of fire, the making of simple tools, he notes, is science and technology. In other words, the impetus was the same – and the technological/science awarenesses simply didn't exist, especially in relation to astronomy and later astrophysics. Both of these science fiction disciplines expanded human understanding – and perhaps more importantly to the human imaginary – expanded to include extra-planetary and extraterrestrial narratives, ideologies, and realities.

Suvin argues that science fiction does not, in fact, rely on science product or even the exploration of modern scientific concepts, but rather the scientific thirst for knowledge and an interrogation of our existence, "[a] *alternative history*: however its author, however he twists utopian cognition, it always flows from their longing for a different but this-worldly other world"

(95). Suvin goes on to clarify this link to utopias by classifying them as "social-science fiction" (95). These various levels of alternatives, but particularly the alternative island, indict *The Tempest* as a science fiction text,

> The 'science' that enables many colonial adventure fictions to be enrolled into SF often derives from disciplines such as archaeology, philology, Egyptology and anthropology, and a framing which valorises notions of evolutionary and technological progress from a primitive, non-white past into a eutopian, white future." (24 Bould and Vint)

Thus laid bare, the genre and its inception seem infinitely open-ended, yet the intention of Suvin and Gunn is to demonstrate that SF is a type of storytelling that seeks answers, explores human potentiality, and engages with utopian or dystopian ideas as a means of considering alternatives to our present difficulties.

In other words, one can argue and indeed Suvin does to a certain degree, that utopian and magical renderings of alternative islands (Aristophanes' *The Birds* is one example I will use in the following chapter) still embody all of the ideals of the science fiction genre. As such, science fiction can seemingly be traced to alternative islands, regardless of their codifications as fantasy. To reiterate Todorov's work on fantasy, the outcome of what he considers to be the fantastic is not the provocation to change, but rather to provide a tale that could *never be* and that necessitates a certain level of disbelief in fictional reality. It is for this reason that I have not included *A Midsummer Night's Dream* in my analysis of early science fiction but have included *The Tempest*. *A Midsummer Night's Dream* is not only a dream but occurs in our/a familiar reality that is amended by supernatural events. *The Tempest,* on the other hand, occurs on the alternative island and asks us to contemplate the nature of reality, the perpetuation of inequities, and human knowledge production. *The Tempest* as a mad scientist/deserted island narrative is a

familiar trope for SF. However, Suvin points out that the wholly different world is not enough to substantiate a story as SF, demonstrating that myth and fantasy attempt to "explain once and for all the essence of phenomena" while SF "does not ask about the Man or the World, but which man? In which kind of world? And why such a man in such a kind of world?" (7) In other words, through cognitive estrangement, the nature of living beings and the reality of the world within a given science fiction cannot be easily categorized and do not offer definitive answers – SF texts are decidedly anti-essentialist and do not demand binary solutions or interpretations. This notion can be supported by looking, for example, at *The Tempest* and at *A Midsummer Night's Dream* as diametric – *The Tempest* asks questions, in particular in terms of the nature of knowledge and the danger of knowing too much, whereas *A Midsummer Night's Dream* "explains the essence of phenomena" in that the fantasy of the play is largely located within dream, negating any need on the part of the audience to substantiate the plot through logic, reason, or rational thought. The audience does not question because they know the dream to be impossible, and the story is resolved neatly and concisely with a happy ending.

Throughout my work, I will consider both Muñoz's horizons of possibility and the alternative island as core to understanding science fiction on stage. Not only are these islands and horizons aspirational, innovative, and speculative spaces, they are literal spaces on stage. The stage itself is often an island, the edge of the proscenium, a horizon. With this additional context, science fiction in theatre is not just thematic, it is embodied and expressed. Incorporating New Media Dramaturgy (NMD), I will demonstrate how breaks with traditional dramaturgy make additional space for horizons of possibility and the alternative island to live, not just in the traditional plays or plays-within-plays that are so familiar to us, but through the incorporation of digital, interactive programs, holograms, robots, cyborgs, and the transformation of the human

body on stage. Diverging from traditional definitions of what performance and what theatre are, I leverage NMD, which highlights performances that embrace digital performers and digital components as both still "live," while somewhat rejecting the importance of liveness to define the theatre. As such, science fiction finds its richest ground in the performance and creation of new beings and new places. Science fiction has often become science fact (take tablet technology on *Star Trek*, as a clear example). I see a point in which science fiction and science fact become one in performance through a relationship between AI and the human. This is perhaps similar to the uncanny valley, not in the sense that we cannot tell the difference between AI and the human as the uncanny valley is defined, but rather that interaction with AI in performance becomes intuitive, generative, and natural, with no hierarchy or fear of sublimation or distrust.

This work contains previously published material from:

Fairchild, Liz. "Performance Review of *The Birds* at University of British Columbia." *Ecumenica*, Pennsylvania University Press, 2024, vol. 17, no. 1, pp. 107-10.

Fairchild, Liz. "Performance Review of *The Thin Place* at ACT Seattle." *Ecumenica*, Pennsylvania University Press, 2022, vol. 15, no. 2, pp. 200-204.

Fairchild, Liz. "Nuclear Normativity, Monstrous Masculinity, and Matter in *Burning Vision*," *Monsters in Performance: Essays on the Aesthetics of Social Disqualification*, edited by Michael Chemers and Analola Santana, Routledge, 2022.

Chapter II

Science Fiction Theatre: A History and a Nexus Point

Whoever thinks this valley is the world is blind.
-Darko Suvin, *Metamorphosis of Science Fiction*,
in reference to H.G. Wells' "The Country of the Blind"

The coercive system of tragedy can be used before or after the revolution . . . but never during it!
– Augusto Boal, *Theatre of the Oppressed*

This chapter contains previously published work:
Fairchild, Liz. "Performance Review of *The Birds* at University of British Columbia."
Ecumenica, Pennsylvania University Press, 2024, vol. 17, no. 1, pp. 107-10.

1. Aristotle, Science, and Science Fiction

No discussion of ancient Greek theatre – and indeed most Western theatre in general – would be complete without considering Aristotle's contribution to theatrical conventions. Yet, it is also my assertion that Aristotelian dramaturgy is harmful to theatre that is invested in queerness and equitable change, and thus is also hostile to science fiction. As Augusto Boal and many other critics of Aristotle contend, part of the issue with Aristotelian dramaturgy is that it ultimately upholds the status quo,

> Aristotle's coercive system of tragedy survives to this day, thanks to its great efficacy. It is, in effect, a powerful system of intimidation. The structure of the system may vary in a thousand ways, making it difficult at times to find all the elements of its structure, but the system will nevertheless be there, working to carry out its basic task: the purgation of all antisocial elements… That is to say that the system, insofar as it structures certain elements which produce a determined effect, can be utilized by any society as long as it

> possesses a definite social ethos; for it to function, technically whether the society is feudal, capitalist, or socialist does not matter: what matters is that it have a universe of definite, accepted values. (46)

The Aristotelian dramaturgical model, considered through Boal's framework, is decidedly against systemic change and is instead invested in maintaining traditional, Western values as the only solution to our societal ills. Because of this – even in plays with extensive conflict – the outcome is always the same: the good and moral win, the deviant are obliterated or punished, as Aristotle notes, "a beautiful object, whether it be a living organism or any whole composed of parts, must not only have an orderly arrangement of parts, but must also be of a certain magnitude; for beauty depends on magnitude and order" (14; pt. 7).

Rather than offering new ways of seeing old problems, this type of theatre advocates for a "purge" via catharsis – but a purging of what, both Bertolt Brecht and Boal ask. Angela Curran articulates in "Brecht's Criticism of Aristotle's Aesthetics of Tragedy," that,

> Brecht argues that Aristotelian dramatic practices lead the viewer to conclude that human suffering is an 'inescapable' part of the human condition. In contrast, [Brecht's] 'epic theatre' presents suffering as something that can be changed through the social transformation of political institutions. (170)

This is relevant to our discussion of science fiction because it demonstrates that theatre that is dedicated to change and revolution is disadvantaged when utilizing standard (Aristotelian) modalities of storytelling and theatre production. Aristotelian theatrical form appears in the majority of Western storytelling to this day: linear plots with normative moral compasses.

Aristotle is also relevant to our discussion of science fiction considering his writings about space and time. While the majority of theatre still embraces notions of time as rational,

absolute, and fixed; time as linear and fixed has been scientifically disproven. In tracing the history and theory of time, Stephen Hawking lays bare the narrow focus that Aristotle and Newton set forward, “although our apparently commonsense notions work well when dealing with things like apples, or planets that travel comparatively slowly, they don’t work at all for things moving at or near the speed of light” (18). Here, Hawking is making a connection between space and time; the faster an object moves, the faster time passes, and, as is articulated by Einstein’s general relativity theory, the curvature of space and the pull of gravity also impact the passage of time. Aristotle, rather, saw time as extant only in the moment; fixed and linear, as he discusses in *Physics*,

> …if the 'now' which is not, but formerly was, must have ceased-to-be at some time, the 'nows' too cannot be simultaneous with one another, but the prior 'now' must always have ceased-to-be. But the prior 'now' cannot have ceased-to-be in itself (since it then existed); yet it cannot have ceased-to-be in another 'now'. For we may lay it down that one 'now' cannot be next to another, any more than point to point. If then it did not cease-to-be in the next 'now' but in another, it would exist simultaneously with the innumerable 'nows' between the two-which is impossible. (Aristotle; bk. 4 pt 10)

Here Aristotle is theorizing that the passage of time exists only in one direction – forward, presently, and without other timelines. This sense of linear and static time is reiterated in Aristotle’s *Poetics*, with his requirement that stories have a realist relationship to time,

> Of all plots and actions the episodic are the worst. I call a plot 'epeisodic' in which the episodes or acts succeed one another without probable or necessary sequence. Bad poets compose such pieces by their own fault, good poets, to please the players; for, as they

> write show pieces for competition, they stretch the plot beyond its capacity, and are often forced to break the natural continuity. (16; pt. 9)

While his treatise on time was somewhat related to the knowledge available during his time, his dedication to rational time transcends scientific knowledge and takes up residence in the arts, as dictated by his own assertions on what good drama is. This gauntlet was picked up by Renaissance artists and philosophers, who lauded tidy, linear, and morally concrete storytelling in Aristotle's name. If we consider Steven Hawking and imagine his understanding of physics as an inspiration for theatrical form, we arrive at many horizons of possibility that break traditional form and flow, as well as the direction of time. As an example of this science fictional form of theatre, Madeleine George's *The (curious case of the) Watson Intelligence*, follows the characters of Eliza and Watson as they move through the metafictional time of Sherlock Holmes, the historic time of the invention of the telephone, and the fictional space of "the present" which includes IBM's AI Watson and a regular human Watson. This creates a multiversal space on stage in which the connections between the timelines seem only to be Watson himself, disrupting conceptions of identity and "authenticity" as well as rejecting linear time. The alternative island, here, exists in the alteration of time, rather than place.

In this way, *The (curious case of) the Watson Intelligence*, among many other science fiction plays, adamantly defies the unities of Greek tragedy. Aristotelian tragedy purges "anti-social behaviors" and upholds virtue through realistic (at least insofar as time and space are concerned) depictions of the world, whereas science fiction questions the inequities of our contemporary system and explores alternate conceptions of time, space, and potentialities of humanity and posthumanity.

2. Antiquity and Early Science Fiction On Stage

Looking forward from the myth of *Gilgamesh*, Suvin mentions, if only in passing, Aristophanes play *The Birds* as an early science fiction text. This is where I am locating "the beginning" of Western theatre's connection with science fiction, tracing the legacy of science fiction on stage back to Ancient Greece. Performed in Athens in 414 BCE, before Aristotle had even been born, *The Birds* is a comedy that is also, by all accounts, fantastical. Yet, to once again leverage Suvin's distinction between fantasy and science fiction, *The Birds* offers more than phenomenon, and asks questions on the nature of the gods, the nature of power, and the legacy and consequences of our existence. *The Birds* is, ultimately, a utopia that is created through nonhuman/posthuman bodies and agencies, off world habitats, and the separation of the gods from humankind. *The Birds* is also a critique of the Greek polis during Aristophanes' lifetime.

The play centers Pisthetaurus and his friend Euelpides who are both discontent with Athenian life. In the wilderness, they encounter godlike birds and convince these birds that they are the true gods, and that the birds should build a great city in the sky. With the building of the city Cloudcuckooland, as well as its walls in the sky, the Greek gods are cut off from Earth, and the offerings and sacrifices made by the Athenians below are prevented from reaching the gods. This alternative island in the sky greatly alters the entire trajectory of Athenian life. As a result of the Cloudcuckooland's power, Pisthetaurus is proclaimed king after outsmarting Heracles, Poseidon, and Zeus himself. Pisthetaurus is then given wings by the birds. What makes Pisthetaerus a successful ruler is, perhaps, this augmentation, which renders him a multi-species being that is both human and not human, with tools (wings, feathers) that change his abilities, perceptions, and his endurance. By becoming a bird (despite the clear comedic value that Aristophanes derives from this transformation) he is able to shed mortal trappings and become

the leader that the new world of Cloudcuckooland demands. This demonstrates that even the ancient Greeks knew that flight is required to reach other realms beyond our planet.

While the connection is not as overt as Aristophanes' other plays, *The Birds* is critical of the Peloponnesian war, in that the world of *The Birds* and the results of the Peloponnesian war were both the advent of significant changes and reorganizations to Greek society. As Kenneth McLeish notes in *A Guide to Greek Theatre and Drama*,

> To the original Athenian audiences, [drama and politics] would have had more than the abstract philosophical interest the same plays may kindle in us today. They arose directly out of the political situation of the city and its people… Its pungency in a city first basking in the glory of its triumphs in the Persian War and then gradually collapsing and losing hope in the generation-long Peloponnesian War against the Spartans is hard to recapture or imagine nowadays. (22)

As such, any attempt at a literal or "authentic" rendering of *The Birds* and all other Greek drama for that matter, is impossible – there are still so many elements of ancient Greek society, especially in relation to theatre and how few theatrical texts survived – that current theatre scholars and historians such as Kenneth McLeish cannot possibly render as "accurate." This is not a critique of McLeish's scholarship but rather his own admission of how difficult it is to truly know the period with the number of writings that have been lost.

While McLeish focuses on the importance of historical context even with the unknown/unknowable aspects of ancient Greek theatre, Mary-Kay Gamel notes in "Revising 'Authenticity' in Staging Ancient Mediterranean Drama" that,

> It is important to understand the historical and contingent nature of the concept of authenticity. As Wiles says, 'Most directors who engage with Greek drama feel a) that

> they have touched on something authentically Greek which is worth bringing to the present, and b) that there is something in the present which they would like to bring to the ancient text.' However, 'the element of authenticity keeps shifting – the circular auditorium, the use of the mask, uncensored Aristophanic obscenity, the message about war. What seems authentic to one generation seems stilted, ill-researched and irrelevant to the next.' (208)

If authenticity is always relational to shifting trends, exploring Greek drama as science fiction does not carry a burden of proof. Purity and authenticity should not exist in the theatre because these concepts reify Aristotelian models of art that stifle and defy change. Purity and authenticity *cannot* exist in the theatre because the theatre is always reformulating itself.

In this spirit, scholars like Downing Cless, in his 2010 book *Ecology and Environment in European Drama*, have also made connections to climate change, claiming that Aristophanes was marking changes in the natural environment via birds (33). Cless "read Cloudcuckooland as an ironic dystopia, and argue[s] that Aristophanes was concerned about the increasing degradation of nature in his time and place" (30). This interpretation is no more far-fetched than my own treatise, but both perspectives need to be considered as a retrospective analysis that cannot possibly be decoupled from our contemporary ideologies. That is to say, there is no "accurate" read about the meaning and intentions of Ancient Greek theatre and there never will be.

Widely considered to be a comedy, Aristophanes *The Birds* is also considered an early science fiction by Suvin, James Gunn, and myself, not in intent but in the scape of the human imaginary. This is to say, the city-in-the-sky is an alternative island – a space station floating, isolated, in a sea of stars. This is especially significant considering the limited understanding of

astronomy during Aristophanes' lifetime. The Earth was the center of the universe in pre-Galilean thought, so a potential utopia above earth is a revolutionary concept for the time. The creation of Cloudcuckooland dramatically decenters human supremacy, contests the gods as inherently linked to humanity, and rejects the gods as omnipotent. This certainly demonstrates the creation of a new horizon of possibility through alternatives to accepted ancient Greek understandings of the universe and humanity's place within it.

Thinking more closely about the science in science fiction, Cless also considers Socratic philosophy at large as involving "early scientists" (32). While modern science excludes ancient Greek thought from the scientific method, rationality and intentionality around the acquisition of knowledge followed similar logic to the scientific method (Downing 31), which was arguably born of Socrates, a contemporary of Aristophanes.

When the construction on the wall in the sky begins, Pisthetaerus and Meton engage with the technical requirements of building a wall in the sky:

> PISTHETAERUS. What are these things?
>
> METON. Tools for measuring the air. In truth, the spaces in the air have precisely the form of a furnace. With this bent ruler I draw a line from top to bottom; from one of its points I describe a circle with the compass. Do you understand?
>
> PISTHETAERUS. Not the very least.
>
> METON. With the straight ruler I set to work to inscribe a square within this circle; in its centre will be the market-place, into which all the straight streets will lead, converging to this centre like a star, which, although only orbicular, sends forth its rays in a straight line from all sides. (35)

Pisthetaerus' inability to comprehend the technicalities of building the wall creates a cognitive estrangement– this knowledge is too foreign in conception to be comprehended by Pisthetaerus' understanding of the universe. In utilizing obtuse geometry, Meton describes the structures appearance in the sky, though it has not yet been completed during this dialogue. The "bent ruler" could symbolize a breaking of the rules of physics as they were understood at the time, but also an attempt to demonstrate the curvature that the wall has in the sky. Since the earth would have been considered flat, this is a profound restructuring of the universe above the earth. The rendering in this description opens up the possibility that the structure can be seen hanging upside down or over earth, "a square within this circle; in its centre will be the market-place" like one might look into a dollhouse, and the wall is fully spherical in its enclosure of the city above. Asking questions in the dialogue also serves the important science fictional theme of knowledge production beyond what is presently possible. Pisthetaerus strives for understanding by inquiring about things which he has never seen before, which indeed no one has seen before.

What I find the most striking and worthy of note about *The Birds* is the *worlding*, as Donna Haraway would call it, beyond Earth. If nothing else, this *worlding* proves human's long-standing obsession with the stars and realms beyond Earth. In *Staying with the Trouble*, Donna Haraway is highly committed to the creation of new possible worlds (what she calls *worlding*) as a critical way to change the future for the better, especially in regards to ecological crises. *The Birds* is very clearly engaged in *worlding* – Aristophanes sees no better alternative than to build a new society beyond Earth that also includes many nonhuman and posthuman subjects. This engagement with different renderings of "humans" demonstrates, to a modern audience, the power of augmentation and multispecies co-operation and involution, as Haraway might say. The

birds in *The Birds* offer horizons of possibility that create a utopia through their refusal to center the human. This utopia is articulated through dialogue,

CHORUS. Who are they? From what country?

EPOPS. Strangers, who have come from Greece, the land of the wise.

CHORUS. And what fate has led them hither to the land of the birds?

EPOPS. Their love for you and their wish to share your kind of life; to dwell and remain with you always.

CHORUS. Indeed, and what are their plans?

EPOPS. They are wonderful, incredible, unheard of.

CHORUS. Why, do they think to see some advantage that determines them to settle here? Are they hoping with our help to triumph over their foes or to be useful to their friends?

EPOPS. They speak of benefits so great it is impossible either to describe or conceive them; all shall be yours, all that we see here, there, above and below us; this they vouch for.

CHORUS. Are they mad?

EPOPS. They are the sanest people in the world. (19)

The desire for settlers of Cloudcuckooland to meet with a better reality, one that is not mitigated by the trappings of earthly desires, is at the core of many science fiction tales, demonstrating how our earthly realities fail to provide meaningful and equitable realities for all. While "they are the sanest people in the world" could certainly be interpreted as hefty sarcasm, it is also indicative of a desire to transcend the trappings of the human body and human-inhabited

space for something literally and figuratively above. The lofty goals of the inhabitants of CloudCuckooLand are so different than Greek society so as to seem "impossible" and "unheard of," which both critiques the ills of the Athenian polis as well as offering open-ended descriptors of off-world utopias for the audience's interpretation (in other words, not as a representation on stage but as a mental creation of the audience).

On a more comical note (and considering *The Birds* is a comedy), the play is also evocative of Birdperson, a tragi-comic character in the adult cartoon science fiction sensation *Rick and Morty*. Birdperson is an alien from an unnamed alternate dimension who refers to himself in third person, and later is killed and reappears as Phoenixperson, a cyborg and evil resurrection of Birdperson. Powerful, mysterious, and thoroughly comical in his presentation, Birdperson, is a cyborg much like Pisthetaerus, blending bird and man to enable flight and create an alien being that is also familiar. The concept of a cyborg, in my own definition, does not require technology to exist. A cyborg merely refers to the augmentation of the human body for greater performance, rather than necessitating robotic elements imbedded within the human body, as many definitions of the cyborg would conclude. We have arguably been cyborgs since we first picked up a tool, and the consideration of the augmented human body has long been a vital part of the human imaginary, as is identified within *The Birds*.

For Donna Haraway – moving away from her *Cyborg Manifesto* in her more contemporary works – science fiction or "speculative fabulation" (34) as she sometimes calls it, helps us conceive of the ways we are always co-created with the animals and organisms around us and that thinking new *sympoetic* (making with) (58) creations into existence is capable of solving for big human-created problems like climate change. As such, when Pisthetaerus

becomes half man, half bird he is biologically augmented; he has become a multi-species organism that has new power to effect change.

In considering the wall in *The Birds*, I will take a further step away from Socratic scientific renderings to imagine space stations, habitat rings, and livable spaces beyond earth. Before Galileo and Copernicus, the earth was flat and the center of the universe. As such, the wall as it is described in *The Birds* would have been through a different lens than our current conception of astrophysics. It could be a wall that is either directly facing Earth, or has an axis on the horizon. Either way, it locates the space beyond earth (the sky, the heavens, space above) as a closed space – it does not engage with the infinite (or perhaps vastly huge donut shape of the universe, as some propose, that has no knowable boarders) that we now conceive of as the universe. However, building above the earth has extensive ramifications, how does it stay in place? What constructs must we create to make it a viable space? Aristophanes addressed this via the world of birds as always already above and outside of our earthly space. But the placement of the wall, while not relational to Newtonian physics, remains in place.

In some translations of *The Birds*, the characters refer to the wall of the city as beyond the proscenium – perhaps above the audience or beyond the audience. This was "a feature of Aristophanes' style that characters refuse to stay within the confines of their own stage 'reality'" (McLeish 199). Regardless of Aristophanes' intention with the wall, he was breaking through to spaces beyond the stage, changing space and time in a decidedly non-Aristotelian way.

It is critical to ask (and receive no definitive answer) whether the wall in *The Birds* hangs in the air vertically or faces earth in objection to the heavens. A volumetrics perspective on how the wall in *The Birds* was conceived in the collective imaginary has the potential to decouple western (Aristotelian) understandings about the construction of space and time. As a science

fiction example of linear conceptions/limitations of fictional space, we can look at *Star Trek* – but in fact most science fictions that occur in outer space – to see that space is almost always conceived of in a very limited, two-directional way. The Enterprise from *Star Trek: The Next Generation,* for example*,* always moves *forward* or *backward* yet space is above, below, and beside the ship. A linear trajectory is presented, furthering limited conceptions of travel, time, and space as linear.

What is most compelling, perhaps, about the realm above Earth in *The Birds* is its defiance of the gods rather than its insistence that heaven is the predominant (or only) realm beyond our earthly existence. Cloudcuckooland creates a space between the realm of the gods and the earth, creating an alternative island in a sea of stars that does not follow the rules of contemporary scientific thought. *The Birds* also "predicts" the scientifically sound concept of a Bishop Ring, often referred to as a habitat ring. Conceived of by the Institute of Atomic-scale Engineering's Forrest Bishop, the Bishop Ring is a hypothetical but theoretically possible habitable space station that is shaped like a large ring, aiding in the creation of artificial gravity through rotations much like Earth. The science fiction of the Bishop Ring is considered possible by astrophysicist, demonstrating the link between science and science fiction. "Predict" from above, is perhaps self-evidently in quotations because of the clear problematics of putting this type of techno-babble onto an ancient fictional play. However, regardless of Aristophanes' intentions, one could argue that the wall in *The Birds* was a vital and necessary preclusion to theoretical/science fictional habitats like the Bishop Ring, and other habitats to come.

This is evocative of the adage "nothing is new under the sun" but can also be a prophetic rendering of objects, technologies, and identities yet to be invented or discovered. Perhaps the human imaginary has manifested real technological and scientific discoveries through

storytelling, long before these inventions and discoveries were made real/realized by the scientific community.

NASA, for example, released a video in May of 2022 with a clip of what a blackhole sounds like to the human ear. As they explain the video on the nasa.gov website,

> One of the surprising features of black holes is that although light (such as radio, visible, and X-rays) cannot escape from them, surrounding material can produce intense bursts of electromagnetic radiation. As they travel outward, these blasts of light can bounce off clouds of gas and dust in space, similar to how light beams from a car's headlight will scatter off fog. A new sonification turns these "light echoes" from the black hole called V404 Cygni into sound. (Watzke)

While the sound produced by the blackhole is both haunting and eerie, the sound is also somehow *familiar*. When I listened to the clip, I was sure I had heard the sound before, despite the fact that it also sounded completely new. This constitutes a knowable unknown, similarly to many science fiction productions that have predicted aspects of the future, such as George Orwell's surveillance state in *1984*, or Octavia Butler's out-of-control wildfires in *Parable of the Sower*.

While we will never know Aristophanes' intentions or visions of the wall, science fiction relies on revision and new visions, just as the theatre does. As theatre scholar Marvin Carlson notes, the very nature of the theatrical space is one of "ghosting" – borrowing, recycling, revising, always with some semblance of the past in mind. Extrapolating from this, and considering the ways in which science fiction often defies linear time and space, what is most valuable in considering *The Birds* is how we might produce it today. Purest interpretations of theatre and art writ large are the enemy of science fiction.

3. *The Birds* as an Indigenous Future

The March 2023 production of Algonquin playwright Yvette Nolan's adaption of *The Birds,* presented at the University of British Columbia (UBC) in Vancouver, British Columbia, reframes Aristophanes' work to consider both an Indigenous utopia and a serious rejection of utopia altogether, as utopia is most frequently contextualized through a White, heteropatriarchal lens. Directed by Michelle Olson, a First Nations MFA student in directing at UBC, *The Birds* begs the question as to whether utopia is something that can or should be strived for by Indigenous communities, given its historic location within Western and White notions of the perfect future. Within Nolan's adaptation, not only do the entirely-women cast of birds reject the notion that the gods are worth quarreling with or over, but they also reject the idea, in the end, that a city built in the sky will create an equitable future for birds. This rejection is based largely on the fact that the city in the sky is still a replicant of the city of men on earth – the idea for Cloudcuckooland is, after all, developed by Jack and Gulliver (Pisthetaerus and Euelpides from Aristophanes' original) – who travel to the land of the birds from the city – and is not invented by the birds themselves.

Nolan's *The Birds* is very clearly positioned in the future – Jack, played by Christian Billet, and Gulliver, portrayed by Simon Auclair-Troughton intimate that the cities are not only hot and polluted, but that no birds reside there any longer, creating an entirely different space, place, and time than our contemporary climate and environmental crisis. The astonishing removal of birds from urban society, as well as the changes in the environment that Jack and Gulliver highlight, position the play as a science fiction – the world of Nolan's *The Birds* occurs on an alternative island that does not exist within our timeline, but instead a yet-to-be manifested

future that demonstrates the disintegration of the society of (White) men, who render an urban dystopia through carelessness and greed.

In Nolan's adaptation, Jack and Gulliver escape the city in search of a better life. Having heard of the supposed paradise that the birds live in in the wilderness, they venture forth, and encounter first the Hoopoe who leads them in turn to Raven. Significantly, Raven is also the creator of the world in many Pacific Northwest tribal stories, which the play highlights. Raven is angered by the appearance of two men, but ultimately gathers all of the birds together to discuss Jack and Gulliver's presence, and whether they will be allowed to become birds themselves, like the Hoopoe. When Jack proposes the creation of the city in the sky, all of the birds discuss the possibility through song and story, retelling the Indigenous creation story of Muskrat and Turtle Island. In this enactment, the Nightingale becomes Muskrat, raising a handful of earth from the ocean beneath to create land. When the birds finish their retelling of creation, they determine to undertake the construction of the wall and the city in the sky. However, the construction draws capitalist possession and business ideology out of the birds, demonstrating how "civilization" as it is currently rendered replicates colonial ideology. As Cloudcuckooland is being built; surveyors, lawyers, and agents show up to claim parts of Cloudcuckooland for themselves, highlighting the constructed and indeed fictional nature of land ownership, in particular.

In Olson's production, the wall that surrounds Cloudcuckooland is the first image and first moment of the play. Sandpiper, played by Peihwen J Tai, enters the thrust theatre space and sits in the audience while the house lights are still at half, disrupting the fourth wall and the insistence on the production's beginning occurring with an audience in anonymity. As the lights are taken to a quarter, Tai pulls two ropes, each attached to a bird on her wrists, across the stage, making a linear, proscribed space that is then hoisted vertically as she disappears beyond the

black curtains offstage. This appearance of a wall constructed by the two ropes hung a loft at a wingspan's distance apart is a striking image that signifies a break in linear time because the wall around Cloudcuckooland has not been built yet within the narrative of the play. These two ropes are also the only visual representation of Cloudcuckooland that the production creates. The birds themselves do not appear as much like extraterrestrials as they do in Aristophanes' original, but they are depicted in somewhat of an abstract fashion – capes are used as wings, and a great deal of care and commitment is demonstrated by the actor's bird-like mannerisms, without masks or, in general, prosthetics. Their costumes are constructed from many different patches of materials, giving some a quilt-like appearance, while other's patched materials are fastened loosely, providing the movement of feathers. This abstract quality furthers a sense of the alternative island, as does the set, which leaves the wires, pipes, and electrical boxes of the backstage exposed, modified in places by twigs and branches. This set choice gives the impression that the birds too, live with the workings of machines and technology, that there is no wilderness that has not been touched by human hands, no matter how remote and unique it may be.

Nolan's adaptation of *The Birds* demonstrates a complex and metaphorical examination of colonialism and the survival of First Nations and Native American peoples despite genocide and oppression. The work also discusses the epidemic of missing, murdered, and raped Indigenous women throughout the United States and Canada. Through the song and dance of the Nightingale, played by Rachel Angco, the audience hears of how Nightingale was once a human, and because of the rape of her sister, she had her own tongue cut out and was banished, but found the birds and became a bird herself. While the subject matter is heavy at times, Nolan's work strives to uplift and empower through Indigenous Futurisms that do not reject Western society, but refuse to conform to it or recreate it within their own communities. Indigenous

futurisms create spaces for Native people in the future that are not defined by colonialism or Western thought. As computational media and Indigenous futurisms scholar Jason Edward Lewis notes,

> Indigenous people also face pressures to conform to stereotypes of Indigenous ontology that withhold 'authenticity' from those actively engaged with many aspects of contemporary life (Crosby). Both kinds of settler strategies of elimination (Wolfe) interfere with the narratives we have within our communities about continuity between the past, the present, and the future. The imaginary imperative counters such strategies in its insistence on understanding Indigenous histories, current lives, and visions of the future as a persistent unfolding of an unbroken line of epistemological and cosmological frameworks that continuously evolve and adapt to support the lived experiences of Indigenous people. (14)

Lewis is noting that systemic colonial pressures and ideologies expect Indigenous people to embrace a stereotyped, White, often romanticized idea of Indigeneity. Meanwhile, these same systems attempt to erase Native peoples, and have been doing so since settlers reached the Americas. With the arrival of settlers, Indigenous erasure began with genocide and contemporarily continues to override Indigenous autonomy and culture through the enforcement of Western cultural norms. This enforcement denies Indigenous ways of knowing time, space, and history. Indigenous futurisms counter these oppressions by envisioning spaces for Native people in a future where structural oppression does not exist, but more importantly, these futures utilize Indigenous knowledge and knowing to reshape and reclaim their cultural past, present, and future. Such futurisms posit new horizons of possibility that focus on equitable and expansive storytelling, creating a future free from cultural regulation and systemic oppression.

Overall, Nolan and Olson's work explores the act of becoming a bird in a much richer and deeper way than Aristophanes' original. For Aristophanes', while the birds are magnificent and cognitively estranging, they are also largely the means to make Pisthetaerus and Euelpides more powerful, and to make a utopia not only for birds but for the men of Athens. In Nolan's work, the birds ultimately reject the wall and the city, as its construction brings greed, corruption, and issues of ownership and capitalism into the world of the birds. At the play's end, Nightingale – who also plays Muskrat in the retelling of the creation of turtle island – takes the very same handful of dirt that Muskrat brought from the bottom of the ocean and blows it out across the stage. As Olson states in her director's note in the program, "Awakening to the violence in the making of [Canada], we must challenge the perpetual remaking of it in its own image" (Olson). In this respect, the act of blowing the dirt to create the world symbolizes a recreation, a starting of their world anew, without the need to conform to the expectations of Western Civilization.

4. *The Tempest* as Science Fiction

The Tempest, first performed in November of 1611, offers an alternative island that is also a colonial island. Around the time *The Tempest* was written and first performed in London and throughout Europe, the witch trials had reached a fever pitch, with the infamous Pendle Witch trials only a year after *The Tempest's* debut. This witch trial resulted in the hanging of 10 out of the 11 women tried as witches. Simultaneously, English colonialism was escalating. In 1607 the Virginia Company founded settlements in Jamestown Bermuda, as many other ships sought "new" lands. Colonialism and the fear of witches are both legible themes within *The Tempest*. The unnamed island itself is foreign to the English and so represents a fear of the unknown. Further, Caliban's mother – the witch Sycorax – is both feared and loathed, and

Caliban, also loathed but perhaps not feared is himself a colonized Indigenous person. In Silvia Federichi's book *Caliban and the Witch*, she connects labor, the societal and bodily control of women to the perceived monstrosity that takes the form of a witch. Federichi notes, "the 'occult virtues' attributed to [the body] by both Natural Magic and the popular superstitions of the time – was to make intelligible the possibility of subordinating it to a work process that increasingly relied on uniform and predictable forms of behavior" (139). In other words, the nonconforming woman was ascribed to the occult and her failure to conform and perform acceptable labor was a possible death sentence. In this way, *The Tempest* greatly described the anxieties of the time through Caliban as an exploited worker, a witch, a monster, an abhorrent who must be controlled.

The dominant interpretation of *The Tempest's* magical elements is twofold. First, scholars like Peter G. Platt who in "Wonder Personified, Wonder Anatomized: *The Tempest"* claims that the magic of *The Tempest* is created as a proof point for the power of reason. That is to say, reason and rationality eventually win, returning Prospero to his former life governed by the laws of man. For Platt, rationality is defined not simply as the opposite of magic, but in the humanist, Cartesian sense that we have all come to expect from historical patriarchal interpretations of literary texts. But his analysis fails to contend with magic and witchcraft as literal for Elizabethan audiences, or the fear that the occult produced in Europe at the time.

The second main line of interpretation and interest in *The Tempest* is an obsession with Caliban's nonhuman/othered form as a signifier for the colonized body. The uncertainty of the scholar/audience/reader as to what Caliban is transcends the fictional/fantastical narrative and becomes part of a historical debate regarding his intended signification. As Hortense Spillers articulates, Caliban is "the dream as visual transliteration of the day's grammar events – "Carib"

is translated as a "deformation" and "defamation" "into cannibal" (322). Silvia Federichi echoes some of these sentiments, but is more concerned with primitive accumulation than colonial ideology.

Suvin, however, includes *The Tempest* in *The Metamorphoses of Science Fiction* to demonstrate how thematic utopianism and idealization through difference create a science fictional ethos,

…the Shakespearean tension of Christian humanism-and beyond that, of the poet in class society produced also, in Miranda, a naively pure glance at the (if only potentially) 'beauteous mankind' and 'brave new world,' and in Prospero's 'revels' speech a melancholy adicu to even the grandest verticals of human society and life as 'insubstantial,' transient stuff of space and time. True, the official ideology of Elizabethan morals and politics-indeed of politics as personal morals-colors all the supple and masterly estrangements occurring within the 'sea-change' that affects in different ways all the dramatis personae on this new island with the only too familiar absolutist relationships. (99)

While Suvin acknowledges the historical events of the early 1600s that would have inspired such a story, he also notes that the major political themes of the era are estranged from reality inside the world of *The Tempest*. The rules of the island are different than those of the rest of the world, creating a space outside of typical human reality that allows for an exploration of magical and fantastical themes. These themes are articulated variably through Ariel's magic, Prospero's magic, and whispers of Sycorax's power as a witch. Additionally, Caliban's body, comportment, and subject position transport the island further into the realm of the speculative as he may be a posthuman/nonhuman/colonized and therefore a dehumanized figure who is tangibly different.

In *The Tempest*, we are confronted with a number of marvelous creatures and events, following the plays initial magical storm that Prospero creates to shipwreck his brother Antonio, as well as the King of Naples. To the audience and to the shipwrecked, the creatures and events of the alternative island are marvelous and magical, conveying the sense that the rules of reality have changed. We hear first of the uncertainty and tumult created by the storm from Ariel, describing the shipwreck to Prospero, "the first man that leaped; cried 'Hell is empty/And all the devils are here'" (1.2.252-253). These words were overheard by Ferdinand, who was incredulous at the events, indicating a storm of extreme proportions. This general incredulity follows the crew throughout the play, allowing Ferdinand and the audience to question the nature of the island's life and physical properties. While this speaks to the Christian fear of the supernatural and the devil that was prevalent in the 1620s in Europe, it is also clear here that many other elements of the island were baffling to the shipwrecked crew.

The *worlding* of *The Tempest* is mostly remarkable for its characters rather than the environment of the island itself. Ariel, Caliban, and Sycorax all represent deviant characters – that is to say, they are characters who do not embody normative, expected behaviors. Through a contemporary lens, Ariel is evocative of Alexa or other AI personal assistants of today such as Siri. He is present and yet, not present, visible and not visible, his main purpose within the play is to help Prospero, but his freedom is his only motivation to do so. Further, Ariel does not adhere to the laws of physics – he is a nonhuman being estranged from human reality. This ephemerality can certainly be considered what Haraway calls a *speculative fabulation*, especially in productions that choose to make him appear only as light effects, like the 2001 production of *The Tempest* at the Oregon Shakespeare Festival, directed by Penny Metropulos. Ariel is

presented as a ball of light, with movements that cannot be predicted by audience or actor. He is a glowing orb, a being of another realm entirely.

Caliban's comportment is also estranged from the reality of the island, and is described in various ways that defy categorization and defy familiarity. In Act II, Stephano notes that Caliban is "some monster of the isle with four legs, who hath got, as I take it, an ague" (2.2.66-7), whereas Miranda describes him as being from a "vile race"(1.2.430-1), highlighting perhaps, that he has a place in the human race, but is a member of what she sees to be a deviant and devious subset of humans (no doubt reflective of colonial ideology). The confusion around what Caliban *is* pervades the play, he is also described as "an islander that lately suffered a thunderbolt" (2.2.36) which questions his sanity but implies humanness with "islander," and as a creature who is "not honored with a human shape"(1.2.337), despite his mother's apparent human shape and his native birth to the island. This is evocative of Suvin's assertions that science fiction does not provide definitive answers but instead asks questions. Science fiction "does not ask about the Man or the world, but which man? In which kind of world? And why such a man in such a kind of world?" (7). When considering Caliban, "why such a man in such a kind of world?" seems critical to understanding his subject position as deviant. He defies categorization so adeptly as to leave a great deal of his character in flux, and he leaves the characters within the play constantly questioning how his comportment relates to his honesty and morality as a being.

With *The Tempest*, the uncertainty as to whether Caliban is a human or magical creature is left ultimately to the director, as the ambiguity of the text lends itself to multifaceted interpretations and approaches. In Julie Taymor's 2010 film of *The Tempest* Caliban, played by Beninese-American actor Djimon Hounsu, is portrayed with stylized disfiguration. Tattooed with a large white circle around his left eye, this depiction of Caliban is potentially dehumanizing as it

muddles the symbolic with the socio-historical oppression of Black people. In The Oregon Shakespeare Festival's 2022 production of *The Tempest*, Prospero is played by Black actor Tyrone Wilson while Caliban is played by German and Korean actor James Ryen, obliterating typical colonial narratives from the production by removing whiteness. Further, Caliban is presented as a man with a physical disability, which fosters more of a literal interpretation of Caliban's subject position and his "ague."

While the language may indicate a hybrid of man/monster, it is much more productive to explore the colonial implications of calling a man a disfigured monster simply for their alterity. That is to say, when on the alternative island, his alterity is estranged from historical colonialism and becomes speculative. By creating an estranged resemblance to colonial oppression, *The Tempest* asks us to look at historical issues of inequity through the creation of a place that does not yet exist, changing the rules and speculating on new means of achieving freedom.

The science fictional elements of *The Tempest* are extended and clarified by the 1956 movie *Forbidden Planet,* which is based off of *The Tempest* but transports its themes and characters into space. In *Forbidden Planet*, the basic tenets of the story of *The Tempest* remain the same. Ariel is never named but represents a "dark, incomprehensible force" (*Forbidden Planet*) that proves itself to be a monster of Dr. Morbius' (Prospero's) subconscious. In place of Caliban, Robby the Robot serves as the slave of Dr. Morbius. Robby the Robot represents a posthuman embodiment as his subject position, gender, and appearance are questioned and marked by aberrance, much like Caliban. In place of Miranda is the beautiful and naïve Altaira, who, similar to Miranda, falls in love and spends the entire movie in a love trance. These connections between the film and the play are echoed in "Shakespeare and Science Fiction," a

short but pithy comparison between the two texts. Author Robert Morsberger notes that *Forbidden Planet,*

> …whether by conscious or unconscious influence…is almost identical with Shakespeare's old play. But a moment's thought brings the idea that *The Tempest* was science-fiction or at least fantasy-fiction for its seventeenth- century audience, to whom the far Bermoothes were the outer realms of space. And as some modern critics complain of motion picture monsters and marvels, so classicist Ben Jonson complained of Shakespeare's presentation of wonders and objected that with Caliban, Shakespeare graced the stage with monsters. (2)

Here, Morsberger recognizes the modern inability to see *The Tempest* as it's contemporaries may have, highlighting a critical difference between belief and science, but also conceptions around science fiction needing science. If the story is still, in many ways, intact when transposed from the Elizabethan stage to the vision of the future as rendered in 1956, the text is not only universal but evokes a cognitive estrangement necessary to the core nature of the tale.

I have been reticent to engage with Shakespeare due to its over-researched and over-indexed place in the academy. While there is an abundance of progressive Shakespearean scholarship, such as Goran Stanivukovic's *Queer Shakespeare: Desire and Sexuality*, the incessant and often redundant Shakespearean fixation wrongfully places him at the center of the theatrical world, and in some ways the literary world as well. And yet, several of Shakespeare's texts are compelling from a science fiction perspective. *The Tempest* offers an alternative island that questions Western conceptions of morality, politics, and ways of being. *Hamlet*, as Chapter Three will demonstrate, has consistently been revised, reenvisaged, and brought into the future because of its universal themes. In other words, Shakespeare's plays are living documents, and

his themes are seemingly timeless and ripe for reconsideration as evocative – always – of other times, places, and spaces.

While ultimately *The Tempest* upholds the notion that reason is paramount to Prospero's return to Western "civilization," it also demonstrates that alterity and alternative ways of thinking produce spaces that are often inaccessible to traditional human understandings of the mind and the five (six?) senses.

Our contemporary position as of 2025 allows us to see elements of Shakespeare's works that may not have been consciously present in the eyes of the playwright or an Elizabethan audience, but are nevertheless critical visions and revisions of texts that still captivate audiences.

Chapter III
Quantum Theatre

To grunt and sweat under a weary life,
But that the dread of something after death,
The undiscovered country from whose bourn
No traveler returns, puzzles the will,
And makes us rather bear those ills we have,
Than fly to others that we know not of?
- Shakespeare, *Hamlet*,

This chapter contains previously published work:
Fairchild, Liz. "Performance Review of *The Thin Place* at ACT Seattle." *Ecumenica*, Pennsylvania University Press, 2022, vol. 15, no. 2, pp. 200-204.

1. Quantum Theatre Explained

During a meeting of the British Royal Astronomical Society in 1919, confirming the validity of Einstein's Special Theory of Relativity, Alfred North Whitehead described the scientific process and the growing body of the uncanny in physics in comparison to ancient Athenian theatre. "Fate in Greek Tragedy," he states, "becomes the order of nature in modern thought. The absorbing interest in the particular heroic incidents, as an example and verification of the working of fate, reappears in our epoch as concentration of interest on the crucial experiments" (53-69). Whitehead here is noting how what was once attributed to the gods is now attributed to science, but further he notes the epic and grandiose nature of science as high drama and highly dramatic. Whitehead goes on to discuss how the meeting itself was theatre – placing scientific discovery into the realm of performance on the scale of the Greek tragedians, "The whole atmosphere was exactly that of the Greek Drama: we were the chorus commenting on the decree of destiny as disclosed in the development of a supreme incident. There was a dramatic

quality in the very staging" (53-69). While Whitehead is noting the magnanimousness of this occasion, he is also drawing an interesting correlative between theatre, science, and religion – the religion of the Greek's has been reformulated from a stance of spiritual awe mingled with moral code, into a rational, natural phenomena. The shared drama therefore lies inside the production of awe that can be experienced in both the theatre and new scientific thought and discovery.

This chapter aims to explore how science fiction and science fact, with elements of the occult, the spiritual, and the fantastic – create quantum states on stage. Originally coined by theatre scholar David George but very scantly and poorly used, I am using the term quantum theatre to describe theatrical states that represent or actualize dimensions beyond our typical reality's comprehension – spiritual, scientific, or as a fusion of both.

In quantum theatre, the creation of other universes does not require the play or performance itself to be thematically science fiction. As such, I will examine the 2014 Almeida Theatre production of *1984*, Tom Stoppard's *Rosencrantz and Guildenstern are Dead*, Michael Frayn's *Copenhagen,* the HBO Max limited series *Station Eleven,* as well as *Star Trek*, Wooster Group's *Hamlet* and the original *Hamlet.* Christopher Marlowe's *Dr. Faustus,* published in 1604, is where I locate the beginning of quantum theatre, materializing "one devil too many" on stage.

These works/productions create quantum spaces that appear beyond/beside the fourth wall by using iteration, reinvention, metatheatricality, and manipulation of space (and indeed time) on stage. By exploring these themes, devices, and concepts as they are contextualized within the above texts, I will demonstrate how quantum theatre behaves like both waves and particles – as is demonstrated through physics' Uncertainty Principle – and how quantum theatre creates new universes on stage and in the audience. Unlike the previous chapter where science fiction is narrative and plot-based, quantum theatre manifests theoretical physics on and beyond

the stage through the embodiment of speculative locations and beings. I will also connect quantum theatre to the Copenhagen Interpretation in relation to quantum superpositions which I will explain shortly. Michael Frayn's play *Copenhagen* discusses the Copenhagen Interpretation and the uncertainty principle through conceptual physics, actualizing quantum superpositions and liminal spaces on stage.

2. Schrödinger's Cat, Superpositions, and the Many Worlds Interpretation

While physics often seems inaccessible to general audiences, conceptual physics offers a philosophical access to the subject by presenting a high-level summary of how physics impacts our understanding of the universe. Additionally, conceptual physics lends itself to science fiction narratives through its digestibility. One good example of this is the Dyson sphere, which uses theoretical physics to posit how advanced spacefaring beings might harness extreme amounts of power. Inspired by the 1937 science fiction novel *Starmaker* by Olaf Stapledon, physicist Freeman Dyson formulated the theory that advanced civilizations in outer space could harness the energy from stars by building a structure around it. Commonly known as the Dyson sphere, SETI (Search for Extraterrestrial Intelligence) has looked for such structures, and the concept has been used in *Star Trek*, among other science fiction properties.

Often, conceptual physics are articulated through thought experiments that transpose micro or quantum structures for macro structures. The Schrödinger's Cat thought experiment does exactly this in its explanation of quantum superpositions. Quantum physics – while not a unified field – studies, in essence, the construction of everything in the universe, down to its smallest components. But deciphering how things work becomes immediately fraught due to the nature of physicist's observation of particles and how they move and behave. This is at the core

of the Uncertainty Principle, initially theorized by Werner Heisenberg. *The Stanford Encyclopedia of Philosophy* (SEP) notes that,

> One striking aspect of the difference between classical and quantum physics is that whereas classical mechanics presupposes that exact simultaneous values can be assigned to all physical quantities, quantum mechanics denies this possibility, the prime example being the position and momentum of a particle. According to quantum mechanics, the more precisely the position (momentum) of a particle is given, the less precisely can one say what its momentum (position) is. (*Uncertainty Principle*)

As such, the observation of particles is inherently changed by observation. But while momentum constitutes a large aspect of the uncertainty principle, SEP also notes that, 'the uncertainty principle played an important role in many discussions on the philosophical implications of quantum mechanics..." (2016). These philosophical implications will help to articulate what quantum theatre is, through a macro analysis of the quantum.

Created by Edwin Schrödinger in 1935, the Schrödinger's Cat thought experiment describes a quantum superposition in which the nature of an object cannot be determined until it is observed, or in which the object in question – in this case a cat – is in multiple states of existence simultaneously. Being in multiple states at one time constitutes being in a superposition. When observed, what was supposed to be a subatomic particle also behaves like/becomes a wave. This superposition is created by the act of being observed, questioning the true state of the object when it is not observed. Thus, the unobserved state of the particle/wave in unknown and perhaps unknowable. The same could be said for live theatre. The process of performing for observers changes the nature of the play and when it is not being observed by a full audience (such as in rehearsal) it is inherently different than when it is observed. Quantum

theatre also creates a superposition - it behaves like both waves and particles at the same time. Another basic example of this might be a live recorded performance – it occupies two distinctly different states of existence at the same time.

Schrödinger created this thought experiment in response to Albert Einstein, Boris Podolsky and Nathan Rosen's paper "Can Quantum-Mechanical Descriptions of Physical Reality be Considered Complete?" (777). Schrödinger's Cat illustrates a quantum superposition on a macro level (much like quantum theatre does, which is to say, theatre is creating quantum states via superpositions on a large scale) rather than considering particles and waves, which are subatomic. In the experiment, there is a cat in a box with a vial of poison. This vial will break in response to possible but not certain radioactive decay from a single atom. Because the cat cannot be observed until the box is open, it is in a quantum superposition in which it is neither dead nor alive. Only when the box has been opened can the possibility of both outcomes be determined and resolved; from two possibilities into an actuality. The act of observation changes the outcome of subatomic experiments, just as the observation of the theatre changes the outcome of a performance. As astrophysicist and science writer John Gribbin notes,

> …there are two parallel universes, or worlds, in one of which the cat lives, and in one of which it dies. When the box is opened in one universe, a dead cat is revealed. In the other universe, there is a live cat. But there always were two worlds that had been identical to one another until the moment when the diabolical device determined the fate of the cat(s). There is no collapse of the wave function. (Gribbins)

When Gribbins speaks of the "collapse of the wave function" he is articulating that, rather than the cat's fate being determined by observation, what is observed (dead or alive) is the *opposite* in a different universe, because the same experiment has been performed there but with the

opposite result. This can be observed in *Rosencrantz and Guildenstern are Dead*, written by Tom Stoppard in 1966 and first performed at the Edinburgh Fringe Festival. In the timeline of *Hamlet*, which *Rosencrantz and Guildenstern are Dead* takes place, they are alive, but it is also possible that from the outset of the play, they are in fact dead. In other words, in the universe of *Rosencrantz and Guildenstern are Dead* they are ghosts (dead) and in the universe of the original *Hamlet* they are alive (at least for most of the play). The "proof" that they are dead or in a liminal space is in the coin toss that Rosencrantz and Guildenstern perform at the play's outset, in which "heads" is flipped over 80 times consecutively, despite the incredible unlikelihood (but not an impossibility) of this event occurring. Another possibility – one that deviates from hard cosmologies and quantum interpretations – is that Rosencrantz and Guildenstern have wandered into a parallel universe. This parallel universe is familiar but different, as is demonstrated by the difference in character focus that is presented in *Hamlet*. These differing universes are first observed in their respective dramatic texts, rather than in performance. I will discuss *Rosencrantz and Guildenstern are Dead* in greater detail later in this chapter.

More recently, quantum mechanics (which leverages all of the concepts of quantum physics we have discussed so far) created the Many Worlds Interpretation (MWI). Initially conceived of by American physicist Hugh Everett in the 1950s, the MWI has been heavily leveraged by science fiction authors and performers as a means of exploring realms beyond our reality.

The MWI would not exist without the observation of a quantum superposition. At the most basic level, a superposition is the ability of quantum systems to be in multiple states at the same time. While the uncertainty principle observes that it is not currently possible to accurately (with certainty) observe or determine the state of subatomic energies, this problem has helped to

substantiate the hypothesis that the very nature of uncertainty is indicative of other universes and other timelines co-existing with our own, but out of reach of our perceptual capabilities. Through the uncertainty principle, a quantum particle when observed is also a quantum wave. This superposition in the MWI, however, resolves itself into two separate realities – the object becomes both a particle and a wave – both outcomes – in two separate universes. John Gribbin's explains quantum computing in relation to the MWI,

> Each switch in a quantum computer… is an entity that can be in a superposition of states. These are usually atoms, but you can think of them as being electrons that are either spin up or spin down. The difference is that in the superposition, they are both spin up and spin down at the same time — 0 *and* 1. Each switch is called a qbit, pronounced "cubit." Because of this quantum property, each qbit is equivalent to two bits. This doesn't look impressive at first sight, but it is. If you have three qbits, for example, they can be arranged in eight ways: 000, 001, 010, 011, 100, 101, 110, 111. The superposition embraces all these possibilities… A computer with just 300 qbits would be equivalent to a conventional computer with more bits than there are atoms in the observable Universe. How could such a computer carry out calculations? The question is more pressing since simple quantum computers, incorporating a few qbits, have already been constructed and shown to work as expected. They really are more powerful than conventional computers with the same number of bits. Deutsch's answer is that the calculation is carried out simultaneously on identical computers in each of the parallel universes corresponding to the superpositions. (Gribbins)

This example substantiates the existence of other universes through mathematics and computing, but from a cosmologist's perspective, the interpretations are necessarily macro in creation as

well. If we consider quantum computing and its universe-generating superpositions as macro, humans can also exist simultaneously in two (or more) places at once, which then supposes different worlds in which the-same-but-different humans exist. Just like the particle that behaves differently in a quantum computer, the same human could behave differently in another universe. The implication here is that all possible quantum states and outcomes are extant in another "world." If the "calculation is carried out simultaneously on identical computers in each of the parallel universes" then it is not a far leap to ask, who is operating, inventing, and maintaining these computers? The other quantum universe thus becomes a universe with intelligent beings.

The MWI supposes an infinite number of parallel universes exist but that they do not communicate with one another (you cannot travel to another universe in this interpretation). The MWI has been adopted not just by physicists like John Stewart Bell but by cosmologist like Raphael Bousso and Leonard Susskind, making the theory more accessible for interdisciplinary usage.

Many science fictions extrapolate from the MWI, creating speculative universes, ontologies, and timelines that exist beyond our own. Science Fiction has capitalized on the notion of the multiverse for some time, but especially in recently movies like *Everything, Everywhere All at Once*, released in 2022. Starring Michelle Yeo, *Everything, Everywhere, All at Once* jumps extensively from possible universe to possible universe, in which Yeo exists as various different versions of herself, including a universe so bizarre that everyone has giant floppy hot dog fingers. In the theatre, the MWI can be seen in plays like *The Curious (Case of) the Watson Intelligence*, by Madeline George, in which multiple Watsons exist in similar but disparate timelines and time periods. Here, Watson is iteratively reproduced across multiple different timelines with multiple different identities.. While some of these timelines can be

considered linear if separated from the whole, none of the individual strands of the play include tidy conclusions or resolutions, furthering a disruption of Aristotelian time conventions. The play becomes intertextual in that it borrows Watson from Sherlock Holmes, IBMs natural-language processing supercomputer which was also named Watson, and Thomas A. Watson; Alexander Graham Bell's assistant and the first recipient of a telephone call. Watson is also manifested as a "normal guy," ostensibly existing in the present. All of the Watsons are played by the same actor. It is possible that the audience is meant to believe that all of these overlapping Watsons were created by the IBM Watson, demonstrating a macro example of Gibbin's explanation of quantum computing. This notion would also indicate slippages in time (if IMB Watson created Thomas A. Watson, then time does not behave in a linear fashion).

Some performances and plays are more likely to create quantum spaces and realities by manipulating time, and through engagement with embodied metaphors and metatheatrics. The resolution that occurs when the box containing Schrödinger's cat is finally opened could also be the opening of the curtain at the beginning of a production – what lies behind is uncertain, with infinite potentialities. As Peter Brook notes in *The Empty Space* in his discussion of the Holy Theatre,

> ...it could be called The Theatre of the Invisible – Made – Visible: the notion that the stage is a place where the invisible can appear has a deep hold on our thoughts. We are all aware that most of life escapes our senses… (42)

This "Invisible – Made – Visible" is the opening of a realm beyond daily perception; the so called "holy" space of the theatre is able to expose liminal and quantum realms to the audience through the devices, conventions, and innovations of the theatre. This perceptual shift is embedded in the theatre's literary traditions (such as the constant revisiting and revising of

Hamlet), liveness, embodied metaphor, and tricks of light and design that become more than tricks. The observer sees not just beyond the invisible fourth wall but also the thinly veiled walls of the "life that escapes our senses."

An example of a play that creates a quantum superposition is the Almeida Theatre's West End 2014 production of *1984.* As a means of representing Big Brother, especially through the lens of modern surveillance and the ways in which people constantly participate in their own surveillance, mirrors projected the audience onto the stage, creating a quantum state. The audience existed in two places at once – they were on stage and yet not on stage, the fourth wall was not only dissolved, but relocated via refraction. Further, the audience existed simultaneously as actor, agent, and observer. This is a quantum superposition because it indicates the existence of multiple universes in which all states of being (actor, agent, observer) exist. In the Broadway production of *1984* which opened in 2017, the use of torture and direct communication with audience members was so harrowing that people passed out, vomited, and for some, left at intermission (Lee). By engaging directly with the audience and by creating a production that was so viscerally horrifying, the production asserted its liveness into the space of the audience, bringing them into the production. With the Almeida Theatre's use of mirrors, multiple universes, and multiple potentialities, the ability to see beyond linear time and exist inside of a Schrödinger's cat's box became a reality. This type of dimensional transformation relies on liveness to be effective, and while it may not be a play-within-a-play in the same sense as *Rosencrantz and Guildenstern are Dead*, it is creating a performance on the stage which relies on the audience to perform, potentially against their willing participation.

In the quantum theatre case studies that follow, the creation of new spaces (quantum universes) does not, for the most part, rely on the genre of science fiction within the play's plot

or premise, but rather on the embodied speculative futurisms created by iteration, repetition, metatheatrics, and liminality. That is to say, each case study gives us access to a new universe that was previously beyond our perception. In this way, quantum theatre creates what the MWI cannot; a transportation into a different universe.

The spaces created by quantum theatre are not speculative – they are real, realized spaces, that also contend with spiritual and occult stagings and summonings, in addition to scientifically probable spaces (the multiverse).

Regardless of any intent to be science fiction, the theater embodies/actualizes spaces in a way that no other medium does. The theatre can play with what the stage is, what the audience is, who the players are and what their agency is/means, and how the requirement of liveness mitigates, modifies, and highlights liveness. These elements transcend the given spaces of human perception/ three-dimensional "reality." Moving away from physics and towards performance, we can see the play-within-the-play-within-the-play (The players inside *Hamlet* inside *Rosencrantz and Guildenstern are Dead*, for example) blurring distinctions between audience and performer, as well as the distinctions between house, onstage, and offstage. Relational spaces between actor and actor, or audience and actor, trouble three-dimensional space in favor of four-dimensions (the 4^{th} dimension being time) and dimensions beyond the 4^{th} as proposed by string theory, which is a theory of quantum gravity. In string theory, the 5^{th} dimension is "curved in such a way that we don't see it" (Chown) but according to string theory we are actually living in 10 dimensions, attached by subatomic strings of energy rather than particles.

Extra-dimensional spaces are created in the theatre between the audience and the stage. I do not mean the fourth wall as a construct/concept/conceit, but the fourth wall as a portal to be opened into other realms, via constant manipulation between the audience, the stage, and the

actors, like the mirrors in the Almeida Theatre's *1984*. These breaks/portals/dimensional shifts can be both figurative and literal. For example, direct address to the audience shatters a notion of audience anonymity, while entrances through the vomitorium or from the audience bend and flex these boundaries without necessarily bursting the audience's proprietary space. As such, a break in the fourth wall is not enough, in and of itself, to produce quantum theatre. A Shakespearean Soliloquy may be a direct audience address, but as a long-utilized, traditional device, the audience accepts this as a part of the theatre in general, the comfortable distance between audience and stage is maintained, and no new places spring from the actor's speech.

3. Uncertainty and Liminal Spaces in Michael Frayn's *Copenhagen*

The obvious place to begin exploring quantum theatre in earnest is in its most literal manifestation. Michael Frayn's *Copenhagen* not only succinctly performs and explains conceptual physics, he also endeavors to bring together the seemingly irreconcilable worlds of the quantum, our earthly reality, and the world of the dead.

Initially conceived of as a radio play, *Copenhagen* went on to great success in the theatre, with its debut in London in the National Theatre in 1998. *Copenhagen* is still lauded for its innovative vision of science in the theatre. And yet, the play embraces both science fictional and highly conceptualized physics to convey its ultimate message of quantum and human uncertainty.

Copenhagen grapples with uncertainty as a human construct – emotionally and historically – in relation to the difficult-to-observe world of the subatomic, the realms of the dead, and their potential liminal spaces outside of our common perception. Kim Skjoldager-Nielsen and Joshua Edelman note that liminality in the theatre is, "an in-between of potent but

dangerous formlessness" (33). This formlessness is dangerous because it cannot be codified – it is a realm existing outside of the concrete reality that humans substantiate.

Human uncertainty is depicted in *Copenhagen* through debatable historical events and through tenuous and contentious human relationships. *Copenhagen* traces the mysterious meeting of the famous physicists Nils Bohr and Werner Heisenberg during WWII, while Bohr and his wife were living in Copenhagen to escape the Holocaust. Heisenberg has been widely seen to be a Nazi sympathizer and was hated in Europe in particular after the war. While *Copenhagen* casts Heisenberg in a slightly less scathing light than historians like Paul Rose have, the play's mission is to uncover what was said during Bohr and Heisenberg's brief visit in 1941. The play produces their conversations in three drafts, invoking Heisenberg's famous uncertainty principle at every turn. While the uncertainty principle itself is explained, the audience also gains knowledge about Schrödinger's Cat and the tenets of quantum mechanics. I would like to argue, however, that these adept descriptions of complicated scientific properties are not what has made this play a success. It is Frayn's ability to take the quantum and apply it to the human condition. While it may initially seem an obvious comparison to take quantum and human uncertainty and marry them, Frayn makes it clear that these are not separable but are in fact, part of the same principle. We cannot extricate ourselves from the quantum, which is proven by the uncertainty principle's main argument: we cannot know about the nature of a particle or wave because the act of observing it changes it.

Frayn also uses structural elements to enhance his scientific dialogue. We begin the play in a liminal, out-of-time space; Bohr, his wife Margrethe, and Heisenberg have been removed from the equation, so to speak, so as to relive but not influence events of the past. As events from their lives are repeated, we get the sense of a hypothesis being tested. In essence, the structure

has embodied the scientific method. For its debut production at the National Theatre, the set itself was shaped like an atom, extending the visual space of physics even further. At times, Heisenberg and Bohr exist inside this atom simultaneously, but appear to be disembodied from the same timeline, unaware of each other. Philip Ball claims in "Beyond Words: Science and Visual Theatre" that the most successful science on stage is visual and "reflects what goes on in science itself "(Ball 169). This is very clearly articulated in *Copenhagen* through the representation of the atom on stage, as well as Bohr and Heisenberg's hypotheses that are repeated throughout the play.

While the success of *Copenhagen* lies in its navigation of science and embodied metaphor, it also invokes the supernatural. Bohr and Heisenberg in one sense, might appear to be living inside of the Schrödinger's cat thought experiment as they are uncertain figures and are neither alive nor dead. Yet, they are in fact, dead, and are speaking to each other from two dimensions: the inside of an atom and the liminal and unknowable place of the dead. As such, the play creates the uncertainty principle within the realm of human interactions, and the performance of the play at least in terms of its debut are also uncertain in location. This is perhaps the most obvious creation of quantum theatre because Frayn meant to create the quantum – yet the liminality of this place extends beyond the stage itself and into the realm of the multiverse.

Copenhagen simply and effectively describes the Schrödinger's Cat experiment as well as some of the uncertainty principle more broadly:

Margrethe. Poor beast.

Bohr. My love, it was an imaginary cat.

Margrethe. I know.

Bohr. Locked away with an imaginary phial of cyanide.

Margrethe. I know, I know.

Heisenberg. So the particle's here, the particle's there…..

Bohr. The cat's alive, the cat's dead…

Margrethe. You've swerved left, you've swerved right…

Heisenberg. Until the experiment is over, this is the point, until the sealed chamber is opened, the abyss detoured; and it turns out that the particle has met itself again… the cat's dead. (26)

If we extend Schrödinger's cat to the theatre, at the most basic, metaphorical, level, the presence of an audience alters the space and the outcome of their existence in the space. If we extend beyond this metaphorical view, and consider the MWI and the infinite outcomes and possibilities of other worlds, the play is able to break into quantum realities that exist beyond our perception.

As Marvin Carlson notes in *The Haunted Stage*, "Fundamental to modern semiotics is the insight that any part of our perceived world, even an "empty space," is inevitably layered with meanings" (133). This so-called layering could also be interpreted as parallel universes slipping by each other through time, or what Carlson insists is haunted may also be slippages in time, or the traces in our reality of other universes. While Carlson's haunting is both a memory and a recycling/palimpsest of past theatre, he also notes the space itself as always already sacred – it is a place where liminal spaces and spiritual realms actually appear,

> The most ancient records that we have of theatre activity are already closely associated with the process of site sacralization, of performance carried out in "haunted" locations. The narratives of cultural memory often have specific spatial associations, and many theorists, speculating about the origins of theatre, have suggested that it began with the

> reenactment of mythic, religious, or significant quasi-historical events in locations that were the actual or presumed site of the events and thus already haunted by memories of these events. (136)

While the theory that theatre was created first as a religious ritual is neither new nor revelatory, Carlson is talking more specifically about the theatrical space as more than theatrical. The theatre becomes a sacred space that can become a real place beyond our immediate reality. Carlson's concern with ghosts and his coinage *ghosting* revolves predominantly around memory, palimpsest, and remembering. However, he also notes that theatres physically charge and physically alter space,

> The actual physical theatres… began their operations as largely neutral spaces within which cultural memory could be evoked, displayed, and, by theatre's inevitable interaction of performers and public, mutually created. As this process occurred, however, the neutral space of the theatre became itself haunted, both by the cultural memories it dealt with and the individual experiential memories of its public. (143)

In considering the stage itself as haunted, one could conclude that the theatrical space is always a liminal space, embodying and revising the past in order to be a space in constant flux. The theatre defies codification as a physical space located in a specific place and time by being a receptacle of memory and of past performance.

The memory and recycling that Carlson considers is both an iterative process and a revolutionary process. This is to say, ghosts are present in another reality – ghost do not perceive as we do, but they ostensibly have memories of the past. The revolutionary component comes in to play when we consider that the liminal reality of a ghost is real – as substantiated by the theory of quantum mechanics' engagement with infinite universes beyond our own. These spaces

are accessible in the reconsidering of canonical texts because we can take new rendering of extant texts into the future and perform them differently, while representing and honoring theatrical pasts. For my purposes, especially in considering *Hamlet*, ghosts create quantum spaces: literal realities beyond our agreed upon, scientifically substantiated reality. These ghosts may be tracings of another reality, like in *Dr. Faustus*, or they may be traces of the past, as Carlson indicates.

4. Christopher Marlowe's *Dr. Faustus* and Apparitions from Beyond

The scientific notions of relativity and the uncertainty principle can produce awe for the scientifically minded, in the sense that what is unknown but at least partly visible to us incites inquiry. Add to this the mystery of dark matter, black holes, the seemingly infinite size of the universe and we see the line between science and spirituality become blurred, particularly in their phenomenology. This is to say, the spaces known to various spiritualities and those theorized by quantum physics could be the same.

Quantum theatrical spaces are spaces that offer alternative timelines of an extant reality, as substantiated by the multiverse theory. Liminal theatre invokes, potentially, the spiritual, the land of the dead, and other spaces that may be created as a process of a theatrical production's manipulation of space and time, but that do not necessarily intersect with scientific understandings of spaces just beyond (or very far beyond) the human perceptual experience.

If we think of such summoning through Suvin's notion of proto-science fiction and cognitive estrangement, Christopher Marlowe's *Dr. Faustus* appears as an early and critical work for demonstrating quantum spaces of the occult/liminal/imperceptible realities beyond our physically perceived universe. This is because of the appearance of demons conjured by magic from a space beyond the stage. This conjuring invokes –

at the very least for Marlowe's contemporary audiences – the notion that "one devil too many appeared on stage" (Sofer 2). This is to say, the live performance conjured beings beyond the fictive and produced more than a performance by opening a portal to another place, allowing beings from elsewhere to come through. Another interpretation might suppose that the audience was able to sense what was previously invisible. In my view, there is no inherent contraindication between the multiverse as proposed by science and the spaces of heaven, hell, purgatory etc. that religion and spirituality render. This is not to say they are "the same" but while one exists within the eyes of science and possibility, and the other within systems of belief, both are ultimately hypothetical. If spaces beyond our reality exist, the property of those spaces are not negated by belief systems, nor are they confirmed by science. What Faustus conjured may have looked like a devil, but that devil may have come from an extant universe other than our own.

First performed a year after Marlowe's death in 1593 at age 29, *Doctor Faustus* predates *The Tempest* and *Hamlet* by 15 and 12 years, respectively, but thematically pursues some of the same questions as *The Tempest*, in particular. *Doctor Faustus* asks its audience if reason, rationality, science, and medicine are truly more important and more worthy of pursuit than art, pleasure, and the supernatural/spiritual. Faustus is engaged in a desire for knowledge beyond what can be perceived by human, earthly conceptions. As a product of his desire to practice magic, he is demonstrating not only a dissatisfaction with medicine, philosophy, reason, and religion, but he is also striving for a form of knowledge and power not conceivable by his contemporaries. This demonstrates Faustus' desire to know more than what is accessible to humans, even if it requires dealings with Mephastophilis. Magic within this play can be seen as a resistance to medicine, and science as well.

In "How to do Things with Demons: Conjuring Performatives in Dr. Faustus," Andrew Sofer articulates how *Dr. Faustus* actualized/conjured demons on stage. This notion is not some academic's fever dream, but rather, performances of *Dr. Faustus* became notorious for producing "one devil too many" (2). Rather than indicating a particularly prominent sense of the willing suspension of disbelief, Sofer is noting that,

> …in plays such as *Doctor Faustus*, conjuring models a performative speech act that threatens to blur the distinction between theatre and magic. Mirroring the ontological ambiguity of performance itself, conjuring poises on the knife-edge between representing (mimesis) and doing (kinesis). (2)

Rather than merely describing reality, performative speech acts have the ability to change reality. And while theatre is a representation of reality, magic has the ability to literally change reality. The representational characteristics of the theatre, then, are transformed into action by magic, conjuring devils into existence, rather than showing devils as part of the performance.

Sofer's *How to Do Things with Words* builds upon J.L. Austin's assertion that "performative utterances" produce/create acts, "Performativity, then, is a kind of magical altering of reality through the power of the word, one that channels what might well be called an occult force" (5). In order to produce "one devil too many," *Dr. Faustus* is doing with words – he is creating an actual space for the devil to come through. This space, whether conjured, pre-extant, or manufactured by the space itself, has perhaps always been accessible on stage through performance. The evidence is everywhere: from superstitions that include the ever-present ghost lamp, or the superstition that uttering "Macbeth" in the theatre is bad luck, to the metatheatricality that the theatre has played with since ancient Greece. This is perhaps why the

theatre is the most haunted space in the world: once a portal to another realm has been opened, traces of it live on in the space forever,

> If magic is, ultimately, a phenomenological practice - the art of changing consciousness at will, that is, of persuading others to accept one's version of reality by renaming it…then theatre's power to affect audiences, for example by making them "see" immaterial spirits, suggests it deserves a place alongside divinity and law as a site of performative efficacy. (Sofer 12-13)

This quote aptly derails an insistence of the rather simplistic and often dismissive notion of "the willing suspension of disbelief." Sofer is claiming that seeing "one devil too many" was real – Dr. Faustus spoke (and performed through speech) the devil into the space, in performance, and a tangible quantum space manifested. The audience saw devils come through.

Mark Fisher defines the eerie in *The Weird and the Eerie* as "constituted by a *failure of absence* or by a *failure of presence*" (61). The sensation of the eerie occurs either when there is something present where there should be nothing, or there is nothing present when there should be something" (61). This "failure of absence" could also transmit itself to the realm of the spiritual – a sense that something else is present but that it is too great and too profound to be sensed through regular human perceptions. Thus, in *Dr. Faustus*, the eerie *presence of absence* and *absence of presence* manifested itself through a literal conjuring.

Elsewhere Sofer notes – utilizing Judith Butler's gender theory modification of J.L. Austin's "performativity"(6), for his framework –that performativity as it attempts to shore up differences between the metaphysical, embodied (but not theatrical) performativity also utilizes linguistic performance that becomes actionable. So, while willing suspension of disbelief allows for "immersion," Sofer is noting that belief as well as the action inherent in words can create an

actual place, substantiated both by the transition between saying and doing, and between believing and manifesting. “The historical appearance of ‘real’ devils at performances of *Doctor Faustus,* then, is best understood as manifesting the potential embedded in all performative speech to summon into reality that which one names. As Faustus cautions his audiences, ‘Be silent, then, for danger is in words.’" (5.1:24)

It is critical to note here that beyond the performative linguistic conjurings of *Dr. Faustus,* that “one devil too many” appeared in performance *only* and that the text itself did not create these spaces, though the text produced, perhaps, guidelines for invocation.

Enter DEVILS, giving crowns and rich apparel to FAUSTUS. They dance, and then depart.

Re-enter MEPHISTOPHILIS.

FAUSTUS. What means this show? Speak, Mephistophilis.

MEPHIST. Nothing, Faustus, but to delight thy mind, And let thee see what magic can perform.

FAUSTUS. But may I raise such spirits when I please?

MEPHIST. Ay, Faustus, and do greater things than these. (2.1.476-80)

These “greater things” that Mephistophilis speaks of are conjurings, a reaching into an eerie otherly realm. “It is the release from the mundane,” Mark Fisher says of the eerie, “this escape from the confines of what is ordinarily taken for reality, which goes some way to account

for the peculiar appeal that the eerie possesses" (13). One could argue that a release from the mundane was what Dr. Faustus ultimately wanted, by any means necessary.

5. *Hamlet's* Many Futurities

While *Dr. Faustus* creates magical pathways into the multiverse, *Hamlet* creates access to the multiverse through its use in contemporary plays, television shows, movies, and in *Hamlet's* own use of the play-within-the-play. The Wooster Group's *Hamlet*, *Rosencrantz and Guildenstern are Dead* and HBO Max's limited series *Station Eleven* are just a few of the adaptations/inspirations of note that generate quantum spaces in their rendering of *Hamlet.* In this way, *Hamlet* as a text and as a cultural property creates new universes through iteration. These iterations are notable for bringing offstage elements of *Hamlet* on the stage, and for bringing staged *Hamlet* to television and movies, in realities that already exist and in the distant future. While Marvin Carlson would contend with these creations and re-creations as ghostings – memory and repetition of past performances, performers, and performance spaces that reappear as traces of the past – I am contending that, especially when we consider the content of these particular iterations/interpretations/appropriations of *Hamlet*, we are confronted with other universes that are perhaps self-reflexive to our own shared reality. In the case of *Station Eleven*, our own concerns about the future of humanity are explored in part through an onscreen performance of *Hamlet*. While Henry Turner's *Shakespeare's Double Helix* concerns itself with physics and the strange "science" of *A Midsummer Night's Dream*, not *Hamlet*, Turner aptly links Shakespeare's ability to utilize poetics and double-speak as a means of transforming space. "Theatrical *mimesis* casts a looming shadow onto the stage, or opens a seam or cranny in its

surface, so that we, too, can say like Hermia after awakening from her night in the forest, that 'Methinks I see these things with parted eye/When everything seems double' (4.1.188-9)" (72).

To double is also to mirror, a trope used frequently in science fiction that entertains the potentiality of the multiverse. Much like Lewis Carol's *Through the Looking Glass*, a mirror denotes warped reflections. After all, a mirror displays more of a reverse than a reflection. This is nowhere more evident than in *Star Trek*, which creates a mirror universe in almost every single one of its properties. In the mirror universe of *Star Trek,* what is reflected is so warped as to become evil. The character's may be "the same" in each universe, but their worlds are so diametrically opposed as to make their other selves morally bereft.

The play-within-the-play as a convention is integral to creating quantum spaces on stage. But, as is the case with *Hamlet* in particular, the play itself becomes its own metatheatrical universe as expounded in *Rosencrantz and Guildenstern are Dead* in particular, *"Hamlet* is involved with haunting in quiet another dimension: the temporal movement of the work and its accompanying theory and performance through history. Our language is haunted by Shakespeare in general and *Hamlet* in particular" (Carlson 78). As such, I see *Hamlet* as an entire quantum theatre world because its ghostings, recreations, and homages have developed an entire network of universes based off of the "original." "Every new major revival of *Hamlet* is doubly haunted, on one hand, by memories of the famous Hamlets of the past…and on the other hand, by memories of the new interpreter" (Carlson 79). This creates endless possible worlds for *Hamlet* to reappear on stage as well as in the MWI, were a whole host of different Hamlets could exist. These multiversal realities goes well beyond new productions of *Hamlet* in its original form because the story has been imbedded in so many other cultural productions – sometimes with

some semblance of the original and at other times as newly formed versions that only borrow heavily from *Hamlet*'s thematic origins.

Much like *Forbidden Planet* and *The Tempest* as discussed in Chapter Two, *Hamlet* has been adapted into many different tales that are often set in the future, with markedly more success than the rather campy *Forbidden Planet* managed to render. While Shakespeare's *Hamlet* is certainly not science fiction or a science play, its universal themes and exploration of the human condition lend itself to reinvention, revision, and abstraction; from the stage, to film, literature, and comic books.

Take for example *Hamlet* from the *Manga Shakespeare* graphic novel series, written by Richard Appigananesi with illustrations by Emma Vieceli which begins, "The year is 2107. Global climate change has devasted the Earth. This is now a cyberworld of constant dread and war. Prince Hamlet of Denmark has come home to face an uncertain future…" (4). This transposition in time and reality seems natural for the text and characters of *Hamlet* because Shakespeare's Hamlet is also on the brink of a dystopian ruin of his own making in his quest to solve "the answer to the perpetual puzzle" (Burton XV). As Raffel Burton goes on to note in his introduction to the 2003 Yale University edition of *Hamlet*, "No one, I think, can or ever will 'solve' Hamlet" (XV). This is to say, the questions the play asks have not been answered in any kind of definitive way, the play does not "explain once and for all the essence of phenomena" but rather asks "…which man? In which kind of world? And why such a man in such a kind of world?" (Suvin 7).

One of the unique aspects of the theater is a legacy of iteration. – any Shakespearean play could be set in the future, and many arguably ill-advised productions of any given Shakespeare play have manipulated history and time and space to revise his work. I say "ill-advised" because

these productions often utilize a different time and place merely as an aesthetic choice, without consideration of how the text might be relevant to such changes.

In a sense, science fiction has been created partly to answer the questions *Hamlet* so painfully asks of himself and of others; big unanswered and perhaps unanswerable questions about the future of humankind, and the lands beyond our perception. Hamlet's overly used "To be, or not to be" speech questions the realms beyond the living, "the undiscover'd country" (3.1.80). This space of the undiscovered, be it a realm of the dead or of some other place beyond our comprehension, has also been borrowed for science fiction, most notably in *Star Trek VI: The Undiscovered Country*. Beyond the title, this movie continues a long-standing connection between Shakespeare and *Star Trek.* In *Star Trek: The Next Generation's* episode, "Emergence," *The Tempest* is performed within the television show, within the Holodeck – a three-dimensional holographic program capable of generating any storyline the visitor (performer?) may desire. In this "live performance" within a virtual holographic program, on television, theatre's need for "liveness" as part of its definition is questioned. It is live within the non-living medium of the television? This theatre-holodeck-television show occupies three places simultaneously, creating a quantum superposition.

In this *Star Trek* performance of *The Tempest*, Data, a highly intelligent android played by Brent Spiner, performs one of Prospero's monologues from Act 5, Scene 1 of *The Tempest*. Captain Picard, played by Patrick Stewart, attempts to coach Data on his wooden performance, eventually noting that, "Shakespeare enjoyed mixing opposites, the past and the future, hope and despair." These opposites could also be two outcomes of the same experiment appearing uncertain in our universe, but existing, nevertheless, in two or more timelines simultaneously. Picard is attempting to teach data about the human condition that hasn't changed much or

become less relatable in a universe entirely unrelatable to Shakespeare's contemporaries, on a starship floating deep in outer space.

Hamlet very tangibly exists in the world of *Star Trek* because Earth's history, after all, is the same in Gene Rodenberry's creation as in our own universe. Shakespeare in this sense is still familiar and yet so different as to render itself on an alternative island, in a universe cognitively estranged from our own through distant utopian futures, as well as through posthuman and extraterrestrial embodiments of Shakespearean characters, themes, and quotable passages.

These renderings of *Hamlet* and *The Tempest* that have been produced and reproduced since Shakespeare's death are decidedly outside of his authorial purview, enhancing the capacity of these texts to transcend their historical position, and instead become living documents of the past, present, and future. In this iterative capacity, all theatre – despite the rigidity of published texts – becomes a product of the future. All theatre is ready to be done again, but is always different, and always live, making theatre a process, simultaneously, of the past, present, and future. Theatre relies on living texts for its very existence as a medium.

Science fictions, in some ways, are only manifested in the spaces they inhabit, which is to say the plot or the genre are not what are necessary to create quantum theatre. The quantum is created in the interplay between the audience and the stage, and the metatheatrical and intermedial spaces cultivated in performing plays-within-plays.

6. Rosencrantz and Guildenstern are Dead?

While 1984 created quantum theatre performatively and technically through the set and special effects, *Rosencrantz and Guildenstern are Dead* creates spaces in the MWI linguistically and metatheatrically. When considering *Rosencrantz and Guildenstern are Dead*, we are not simply considering the play-within-the-play, but also the characters as abstracted from *Hamlet*

into their own play, that is also still within *Hamlet* (a theatrical superposition). At many points throughout *Rosencrantz and Guildenstern*, the play crosses paths with *Hamlet* and indeed with Hamlet himself, demonstrating for the viewer a place that is self-consciously offstage (at least, insofar as the original *Hamlet* text is concerned) and yet is also very much on stage. It gives us the sense that a great deal exists beyond the stage, that beyond the stage whole plots and timelines live on in their own right, unobserved, in quantum superpositions until they resolve into an outcome onstage. This is the metatheatrical and indeed quantum power of *Rosencrantz and Guildenstern*. Not only are they dead, they are alive, putting them in the place of Schrödinger's cat, macro explications of the subatomic – they are neither dead nor alive, they are also both.

The play-within-the-play as a convention is integral to creating new spaces/ quantum spaces on stage. But, as is the case with *Hamlet* in particular, the play itself becomes its own metatheatrical universe as expounded in *Rosencrantz and Guildenstern* as well as the many *Hamlet* homages, derivatives, and adaptations that have been created since *Hamlet*'s debut. *"Hamlet* is involved with haunting in quite another dimension: the temporal movement of the work and its accompanying theory and performance through history. Our language is haunted by Shakespeare in general and Hamlet in particular" (78 Carlson). *Hamlet*, in this consideration, is quantum theatre because its ghostings and recreations have developed an entire network of universes base off of his own universe, thus creating endless possible worlds for Hamlet alone to appear.

Rosencrantz and Guildenstern are Dead explores the titular characters' place within *Hamlet*, as well as their place outside (but still inside?) of *Hamlet*. As the *Rosencrantz and Guildenstern* begins, it is immediately clear that Rosencrantz and Guildenstern are in a space

outside of linear time, and possibly in the realm of the dead. Within the timeline of *Hamlet*, Rosencrantz and Guildenstern have yet to meet their fate at the beginning of Stoppard's play. Rosencrantz and Guildenstern are headed to meet Hamlet per a royal summons, which places them clearly in *Hamlet's* timeline before they die. Yet, with the title of the play, and with its events, the audience is also led to many questions. Are they dead from the outset of the play despite the timeline within the original *Hamlet*? Was their fate sealed before they were summoned? Are they looking back on their life after death? Do they sit outside time looking back and interact with their past? Their dubious subject positions are made apparent from the outset of the play by a failure of probability; the repeated flipping of a coin that defies the 50/50 odds of heads or tails. After Rosencrantz flips a coin 89 times, all with the result of heads, Guildenstern ponders what could cause such an unlikely event. One of his hypothesize is, "time has stopped dead, and the single experience of one coin being spun once has been repeated ninety times..." (23). While he concludes this possibility to be unlikely, he remains perplexed by the unusual (but not impossible) event. This beginning creates a sense of uncertainty that endures throughout the play and is reinforced again and again by Rosencrantz and Guildenstern's own confusion, even to the point where they confuse themselves for the other. They discuss what they will say to Hamlet in Elsinore in order to "Glean what afflicts him" (35 Stoppard);

> Ros. How should I begin?
>
> GULL. Address me.
>
> ROS. My dear Guildenstern!
>
> GULL. (quietly) You've forgotten-haven't you?
>
> ROS. My dear Rosencrantz! (69)

While it is an easy analysis here to suppose absurdism, especially with the play's similarities to *Waiting for Godot*, the constant reminder of the tenuous nature of their existence creates a liminality and indeed an uncertainty of the location of the play itself. This uncertainty of place is created in part by their uncertainty as characters but also by bringing events that are offstage in the original *Hamlet* onstage. This offstage action includes the report from the Ambassador in *Hamlet* that,

> The ears are senseless that should give us hearing,
>
> To tell him his commandment is fulfilled,
>
> That Rosencrantz and Guildenstern are dead. (5.2.355-57)

Their death is reported but not experienced in *Hamlet* – their death is only part of the world of the play. The shift in focus in *Rosencrantz and Guildenstern* supposes a life for the characters offstage and transforms the realm of *backstage* into another timeline, previously unseen and previously unseeable.

After their highly improbable coin toss, Rosencrantz and Guildenstern enter a forest on their way to Elsinore and encounter the very same theatre troupe that performs in *Hamlet*. This meeting is extra-orbital to *Hamlet*, although these players do appear within the original. As the Player states to Rosencrantz and Guildenstern on the path toward Elsinore;

> We're actors.... We pledged our identities, secure in the conventions of our trade, that someone would be watching. And then, gradually, no one was. We were
>
> caught, high and dry. It was not until the murderer's long soliloquy that we were able to look around; frozen as we were in profile, our eyes searched you out, first confidently, then hesitantly, then desperately as each patch of turf, each log, every exposed corner in every direction proved uninhabited… (93)

The Player is noting that when no one is watching, when the players are unobserved, their roles become uncertain, the nature of their existence and their purpose is called into question. They were "caught high and dry" by the surprise of being unobserved, and their subject positions suddenly had no clarity. The players existed liminally and without clear definition. The Player goes on to note, in consideration of his invitation to Elsinore to perform *The Murder of Gonzaga* for Hamlet that, "We already have an entry here. And always have had" (94). Imbedded in the Player's dialogue throughout the play are phrases with double meanings. To always have an invitation is to recognize that the Player has always been welcomed on the stage, that he is perhaps always present there as a ghost, that the players, specifically, have always belonged since they were written/performed into existence.

While much of *Rosencrantz and Guildenstern* is located in spaces and places outside of the original *Hamlet*, the play-within-the-play utilizes the same characters that perform *The Murder of Gonzago*, but in Stoppard's play, they first appear as actors offstage. That is to say, the players are offstage while being onstage, creating yet another quantum superposition. Further, Stoppard creates a play-within-a- play within another play within another play: The play-within-the-play within *Rosencrantz and Guildenstern* within *Hamlet*. These three plays are existing simultaneously and separately. These superpositions relate to ghosting, as *Rosencrantz and Guildenstern* showcases an intricate web of pre-existing, currently existing, and future-existing universes that have all grown out of *Hamlet*. This brings the reality of the offstage realm onstage, technically and literally. Shakespearean works excel at explaining, often through monologue and soliloquy, what happens beyond or off of the stage. *Rosencrantz and Guildenstern are Dead* takes that offstage narrative onstage, while still participating in what happens onstage in the original *Hamlet*.

In Ira B. Nadel's essay on Stoppard and film, he quotes Stoppard as referring to *Rosencrantz and Guildenstern are Dead* as a "time/space layercake" (89), demonstrating authorial intent toward this conception. This is most clearly marked by changes in the rules of probability. The improbability of flipping a coin so many times without ever getting a result of tails means the laws of our universe have changed, and Rosencrantz and Guildenstern both repeatedly remark on the incredulous event. While, again, a literary and oft trodden interpretation of the play would claim the title as an obvious outcome –Rosencrantz and Guildenstern do die in *Hamlet* (5.2.337) and they are proclaimed *as* dead – their aliveness is in question in *Rosencrantz and Guildenstern are Dead* and the title contributes to the confusion as to their state of existence. This puts the possibility into play that they are dead from the beginning of the play, despite the linear and lethal outcome for Rosencrantz and Guildenstern in *Hamlet*. As such, the play itself exists in some type of parallel universe to *Hamlet's* – one with similar characteristics but with glaring differences. It is a universe that is familiar and yet unfamiliar, where Rosencrantz and Guildenstern possibly inhabit their own quantum superposition much like Schrödinger's cat – they are neither dead nor alive, but living in a liminal space beyond *Hamlet*'s reality, but that intersects with *Hamlet's* reality in a way that is accessible/visible to the audience and arguably to at least some of the characters within *Rosencrantz and Guildenstern*.

When The Player, for example, first encounters Rosencrantz and Guildenstern on their journey toward Elsinore, he exclaims,

> PLAYER. Halt!
>
> The group turns and halts.
>
> (Joyously.) An audience! (31).

Before the play-within-the-play can even begin, multiple audiences are implicated by the Player. Much like the probability scene at the plays opening implicates the heads of the audience, the Player is drawing attention to what lies beyond the fourth wall, bringing the multiple audiences into the play. In this way, much like in *1984*, the audience is both an unwilling participant and observer, and not of merely one play but of three. But the Player does not stop his metatheatrical dialogue there,

> PLAYER. We keep to our usual stuff, more or less, only inside out. We do on stage the things that are supposed to happen off. Which is a kind of integrity, if you look on every exit being an entrance somewhere else. (11)

The Player is not just describing another place, "things that are supposed to happen off," but he is also describing *Rosencrantz and Guildenstern are Dead* itself. The Player could also be seen to invoke the multiverse – an infinite number of exits that always lead to an entrance to another place, with infinite combinations of events.

> GUIL. Aren't you going to - come on?
>
> PLAYER. I am on.
>
> GUIL. But if you are on, you can't come on. Can you?
>
> PLAYER. I start on. (49)

An absurdist version of "all the world's a stage," (*As You Like It*, 2.7.223) this also calls into question the very existence of a "beginning" and an "end." What, for example, does "starting on" mean when the audience knows they are observing the story and in one sense the characters are already "on." Stoppard is specifically drawing attention, like in many other places

within the play, to the theatrical (and literary) space and place of the theatre, more so than the space and place that the play occurs in. This is a cognitively estranging event – the stage is "in place" and yet "displaced" the performance is doubled but still singular. Further, Stoppard creates a fade from the Players to the court in Elsinore with no passage of time or change of set, estranging the audience from a familiar story and familiar characters. In this abrupt switch in location it is Ophelia and Hamlet who first appear (with the stage direction indicating that Hamlet looks recognizably like the Player himself, imbricating another layer of familiar/strange).

Stoppard keeps the audience uncertain which character is Rosencrantz and which is Guildenstern to the point that they confuse their own selves, reinforcing their liminal positions (deadness?) within the text. *Rosencrantz and Guildenstern are Dead* produces a ghosting because they are dead (?), but arguably a liminal space is also created by the play that is both outside and within *Hamlet* and outside and within *Hamlet*'s play-within-a-play. This complex network of ghostings is further telescoped by the movie made of *Rosencrantz and Guildenstern are Dead*, which then demonstrates a play-within-a-play within a play, within a play, within a movie.

In Louise Geddes *Appropriating Shakespeare* – which focuses on adaptations and appropriations of *Pyramus and Thisbe* from *A Midsummer Night's Dream* – she considers the play-within-the-play to "turn back on itself" (2). This could be perceived as a folding of space time as proposed by Einstein, where the unseen is revealed by a change in the distortion patterns of earth.

7.Extra-Dimensional Space in Wooster Group's *Hamlet*

A similar break into another dimension can be seen in the Wooster Group's 2007 production of *Hamlet*, where sound, screens, and repetition of movement create a multimedia experience that is, in essence, time travel. By using screens to ghost, the Wooster Group replicates in fragmented but jarring accuracy a filmed recording of John Gielgud's 1964 production of *Hamlet* starring Richard Burton, which was recorded to be turned into a "theatrofilm." The filmed live performance appeared in only 2,000 movie theatres over one weekend. Burton asked that all copies be destroyed, but a copy resurfaced after his death. By "remixing" the Gielgud production; speeding up and slowing down passages of the filmed live recording (if "live recording" can exist without an ontological crisis) and inserting scenes from other versions of *Hamlet*, the Wooster Group draws attention to the space between the present and the past and in doing so creates new, dimensionally altered space. As the recorded live performance plays, the actors copy what is on screen as exactly as possible. The screens projecting the filmed-live performance onto/into the Wooster Group's own live performance, attain a depth and hyper-reality that produces live-recorded-reinvented-liveness, it "was neither a new staging of the classic play nor a screening of the 1964 film. Rather, the production focused on the space in between the film and the play, the media and the live event, the self and the other" (Cook 111). The space between the screens and the actors replicating what is on the screen becomes a time machine, showcasing how the stage is uniquely suited to expand our sense of spaces/space so as to demonstrate concepts outside of our immediate reality or realm of understanding. In Joy Kristin Kalu's "Experiencing Expectation: Perceiving the Future in Performance" she describes the Wooster Group's *Hamlet* as a,

> surplus of past-oriented time layers [that] generates a new form of physicality. The attempt to copy the underlying conditions of the film medium creates a surplus of movement that transcends the mere imitation of an outdated acting style. The excess of experiential dimensions – that is, of the past – results in the creation of a new kinesthetic style. (170)

The 'underlying conditions of the film" in part refer to the fidelity of the recording in addition to the distancing that films can create. In places, the film glitches, skips, and stops as the actor attempts to replicate it. Kalu is also invested in the Wooster Group's *Hamlet* as a future-creating event. Contextualized through Ernst Bloch's "ontology of the not-yet" (168) as she calls it,

> Bloch describes matter as the real possibility for all the forms that are latent in it and may emanate from it. In this sense, matter ontologically expands the category of materiality in performance to include the future… Dealing with matter not just in its present form but including its possible future appearances, Bloch calls attention to the utopian quality of things and beings. (168)

These "possible future appearances" manifest between the screen and the actors. Wooster Group's *Hamlet* creates a rupture in space time via the manipulation and juxtaposition of live/recorded/live again, and the seemingly infinite iterations that *Hamlet* has created in our cultural memory.

This doubling is not limited to Wooster Group's *Hamlet*, but is also as part of their core aesthetic, "Very often an actor whose physical body is visible to the audience can also simultaneously be seen by them on a video screen, sometimes synchronically with the visible body and other times…presented as a recording taped at some other time" (Kalu 169). This technical choice calls into question the ways in which we codify and delineate performative

mediums as distinct from one another. While the term "mixed medium" may hold considerable gravitas in the fine arts, liveness on screens is not generally considered viable.

Even if the screens utilized by the Wooster Group are tangibly *there*, they are made ephemeral and extra dimensional by the theatrical layering that occurs near and over them, manipulating the seeming unchangeability of film by both altering the speed of the film, and by claiming the medium as an accessory to liveness. This may on the surface just appear to be "clever," but it alters the meaning of the theatrical space as it dimensionally shifts into the "immutable" past of the recorded and alters the past in a moment of metatheatrical manipulation.

The play-within-the-play sets the stage for quantum theatre and can arguably be considered quantum itself. This is because a different universe exists within the world of the play we have come to observe. Arguably the film projections themselves are unmodifiable, but while they may "play on" indifferent to the players who leverage the film's existence for theatricality, a new space is created between these mediums that is in a quantum superposition – this space is neither live nor prerecorded but instead is extra dimensional. While the use of film onstage is certainly not new, it is the tracking and repetition of movement and performance, layered on top of each other that makes the Wooster Group's *Hamlet* a unique interpretation and creation. This departure not only creates two observable realities at the same time, it also functions to draw awareness to the subjectivity of three-dimensional space. The audience may ask, what are they now watching? Who is being watched? Where is being watched? How has the subjective space that the audience occupies changed in the addition and admission of the play-within-the-play?

What intermediality and metatheatrics create when effectively deployed is a time-space slippage or a transportation into a different universe. This slippage/transportation can be what Walter Benjamin notes as the "*technology of reproduction detaches the reproduced object from*

the sphere of tradition" (22 author's italics). This "sphere of tradition" can be the breaking of Aristotelian unities – time is not linear and does not only flow in one direction. Benjamin is concerned with reproduction in film in his famous "The Work of Art in the Age of Its Technological Reproducibility," but the Wooster Group's use of *Hamlet* challenges his assertion that "In even the most perfect reproduction, one thing is lacking: the here and now of the work of art – its unique existence in a particular place" (21). By creating a live-filmed-live performance, The Wooster Group brings the Gielgud *Hamlet* into a "unique existence" of the now and of a different dimension entirely. That is to say, liveness inside a recording inside of liveness is a quantum superposition, existing in three states simultaneously.

8. Hamlet in the Apocalypse of *Station Eleven*

In the Wooster Group's *Hamlet*, "live performance" and "theatre" are tenuous spaces teetering on collapse. This is also the case in HBO Max's 2021 limited series *Station Eleven*, which performs *Hamlet* within its larger narrative inside of a post apocalypse. Like the Wooster Group's *Hamlet*, *Station Eleven* supplements liveness with recording, but it also replicates theatre and theatre's liveness inside of television instead of alongside a screen. Is a theatre performance on a TV program theatre? Is it live? These questions align with some of the less traditional examples of "science fiction" on stage that I have presented in this chapter, but *Station Eleven* is also by all accounts a science fiction text. Set in a "post pan" reality, most of the global population has been wiped out by a pandemic far more extreme than COVID. But at the center of this post-apocalyptic story is theatre and music. The story does not focus on survival so much as living, and for the members of the Traveling Symphony – a "post-pan" group of musicians and performers who bring traveling shows to the Upper Peninsula of Michigan – living is based on the ability to perform. The show begins with a production of

Macbeth before the pandemic begins. This production, however, also ends in the death of the actor of the titular character, played by Arthur Leander. A famous actor in the fictional Toronto performance of *Macbeth*, Leander's significance to the story is his friendship with Kirsten Raymond, at the time a little girl who played young Goneril in the production of *Macbeth*. Even after the pandemic, however, performance rules Kirsten's life, in particular through revision after revision of *Hamlet.*

Station Eleven creates a play-within-a-play within a television program (within a book adaptation). As the Traveling Symphony, this post pan group of largely pre pan (born before the pandemic) actors and musician visit multiple towns and settlements of survivors to bring Shakespeare to these new world communities. The theatrical season explored within the show focuses on The Traveling Symphony's performance of *Hamlet*, 20 years after the pandemic. Each time the viewer sees *Hamlet* performed within the series, *Hamlet* is used as a tool for explicating the traumas and broken relationships of the characters, intersplicing the performance of *Hamlet* with shadows of the actors' past. As such, *Hamlet* is a device for memory and therapy, an iteration and a literal and functional part of the future.

While scholars like Charles Conaway have focused their attention on the ways in which the characters – particularly the main character Kirsten Raymond – utilized performance of Shakespeare to resolve emotionally fraught relationships in the "real world," Philip Smith interrogates how the novel reifies colonial power, imperialism, and Shakespeare as a "civilizing" text. Smith extensively explores the "forward-backwardness" (301) of *Station Eleven's* usage of theatre – it is both an exploration of *Hamlet*, in particular, as Elizabethan apocalypse, and a grasp at re-modernizing the world after civilization has been destroyed. Smith notes that, *Station Eleven* "takes up and recontextualizes Shakespeare's depiction of religious, civil, and biological

apocalypse, indicating a thematic continuation of Elizabethan apocalyptic works into the post-apocalyptic genre" (289). Regardless of the answer to "why Shakespeare? We have a drama which, much like *Star Trek*, takes Shakespeare into the future, and in particular, takes *Hamlet* there. *Hamlet*, as an arguably apocalyptic figure, can seemingly be taken anywhere, at any time. The show is marked by aesthetic contrasts between dilapidated technology and an almost primal (and certainly pre-incandescent) investment in staging. We see a future apocalypse within a past and perhaps within the past apocalypse of *Hamlet* himself. All of this serves to time travel and unify space-time into one distinct point, the ever-present moment of the now, and the always possible moment of the future.

Hamlet is first performed in *Station Eleven* at the end of episode two, "A Hawk from a Handsaw," a shortening of the line "I am but mad north-north-west: when the wind is southerly I know a hawk from a handsaw" (2.2.361-362) suggesting Hamlet's madness is episodic. This line also appears in *Rosencrantz and Guildenstern are Dead*, signifying a significant interest in this metaphor for contemporary audiences.

The set and costumes in *Station Eleven* are seemingly anachronistic and medieval, and yet the technical elements are also a strange hodgepodge of modern detritus. Perhaps, the observer cannot tell the hawk from the handsaw. Kirsten, who plays Hamlet, wears a costume that is made out of multiple jacket arms sewn together, creating a superposition of alien-like futurity as well as evocation of medieval fashion in its overall appearance. As Elena Trencheva and Sofia Pantouvaki note in "A Stitch in Time: Film Costume as a Narrative Tool Beyond Time Linearity,"

> the interplay of continuity and persistency in costume reinforces the temporal discrepancy inherent in time travel by creating visual discrepancies. The discrepancy in

> costume points to different time periods the traveler visits by utilizing culturally determined, conventional notions of historicity (if going back in time) or futuricity (if traveling to the future). (224)

Station Eleven utilizes both historicity and futuricity to perform these discrepancies but it also performs the present-future of the show's apocalypse by demonstrating the lack of resources, the degradation of the power grid (all the lighting on stage is torch light) and the relative scarcity that the survivors of the pandemic are able to conjure to create art. This creates an alternative island that is recognizable in its pre-pan "artifacts" that represent modernity, but is cognitively estranging in its anachronisity. While *Station Eleven's* first production of *Hamlet* doesn't include future travel, it certainly signals to a place that is unfamiliar and yet familiar in its anachronism, placing the viewer in a liminal time space that cannot be called "the past" or, at least, the present, as the television viewer (the person in front of the TV screen) would see it.

Lace and rags that have been sown together to make Gertrude's gown comport the regality of a queen, but are also recognizable as found objects. There is not just a sense of resourcefulness, but one of innovation; that the items pulled from salvage in abandoned homes and stores are to be used to recreate a lost "pre-pan" past, and the past of Elizabethan theatre simultaneously. These lost pasts are performed in an apocalyptic future, and much like Wooster Group's *Hamlet*, there is a sense of a space being generated in between the set/costumes and the performers themselves. This in-between is not simply the apocalypse performing an older apocalypse, but the performance is all mitigated through the TV screen – the viewer observes live theatre of, ostensibly, the past, in the future, through a television of the present. As Stephen Barber notes in his essay "Film and Performance: Intermedial Intersections,"

> The intersection of film and performance is especially at stake in the dimensions of time (including that of time's repetitions) and in space (notably, space as a fissured and transformational entity), and these two dimensions are worth looking at closely in order to gauge film's intermedial capacities and its openness to intersections with other art forms. Film and performance are often perceived as an unequal pairing in which film must work primarily to document performance, rather than the other way round; in that sense, film must serve to secure the time of performance, by manœuvring its own time to coincide with that of performance, with the aim of holding performance's ephemeral time in such a way that it can be perceived in the future, through film's ostensible solidity in grounding duration. (13)

The filming of live performances has historically served the duty of documenting or preserving what was once ephemeral, but the attempt to produce ephemerality is contradictory to the term itself. This loss of ephemerality is perhaps more observable watching something like *Hamilton* on TV, especially because the filming of *Hamilton* for TV did not have a live audience and therefore it was arguably never live. Performances on stage and inside of another fictional reality, however, like we see in *Station Eleven*, can create quantum viewers – the audience is watching from outside of the TV but they are also watching from the audience of a play inside the TV.

Linda Hutcheon asserts in her work *A Theory of Adaptation*, "… when we sit in the dark, quiet and still, being shown real live bodies speaking or singing on stage, our level and kind of engagement are different than when we sit in front of a screen and technology mediates 'reality' for us" (27). This is altered, however, when theatre becomes part of the mediated "reality." The sense that the viewer is watching *Hamlet* live inside of *Station Eleven* is heightened by the

traditional aesthetics and tropes offered by the theatre. That is to say, we see familiar theatrical techniques being employed in a television program – the stage and the theatrical delivery of the dialogue, not to mention the familiarity with the text of *Hamlet* itself – create theatre in the alternate dimension of television. The medium specific editing of *Hamlet* within *Station Eleven* does not match the editing of other scenes within the television show. There are no jump cuts, no fades, no flashbacks or switches to side plots. What we see is the theatre of the future in the present, live. This creates time travel, a critical trope of science fiction, in its ability to be in the past, present, and future and be live and not live simultaneously. It creates a new universe in its existence within the genre of science fiction, and it creates a superposition in its recorded liveness.

Critically, *Station Eleven* repeatedly revises its own version of *Hamlet*, bringing the work into an alternative future and adaptation that does not rely on Elizabethan aesthetics. The cast also changes, furthering the theatre's connection to revision and the remounting of productions – the theatre is a medium that is never satisfied with its own iterative process. In episode 4, aptly titled "Rosencrantz and Guildenstern Aren't Dead," one of the Traveling Symphony players writes an adaptation of *Hamlet* set in Portland, Oregon. In this version, the story remains but the script is transformed to exclude Shakespearean verse.

Film and television here also become a valid and vivid place for replicating liveness. By reproducing the theater within television, *Station Eleven* provides a unique view of performance that dissolves the fourth wall. *Hamlet* is performed with the audience as passive performers as well, the fourth wall being thoroughly deconstructed by the camera lens, effectively interrogating what it means to be a performer and what it means to view/ be an audience member. The inclusion of theatre in science fiction demonstrates its timelessness as well as its malleability.

Purist theatrical expressions have no place in the future, and purist theatrical contexts breed exclusionary, Western-centric plays and performances that are thoroughly outmoded in our contemporary space, especially considering COVID-19 and how it has shaped the very notion of theatre and most especially the notion of "liveness."

While theatre does not share the subcultural legacy of science fiction, theatre audiences have dwindled, and we have witnessed an existential crisis for live performance, especially in light of COVID 19. Yet, theatre's contribution to science fiction, in particular after and in relation to the advent of film, lies in its ability to manage quietness, psychological, and metaphorical performance, and the bending, reshaping, and reformulation of space and time. Yet, it is often in the inclusion of film in theatre or theatre in film that we create another realm entirely. Theatrical quantum states rely on embodied metaphor to create their speculative spaces on stage – the embodied performances of a new form or an equitable-other that film can't inhabit because of the lack of liveness and immediacy.

Chapter IV

Posthumans in the Theatrical Space

> If the theatre has been created as an outlet for our repressions, the agonized poetry expressed in its bizarre corruptions of the facts of life demonstrates that life's intensity is still intact and asks only to be better directed.
>
> - Antonin Artuad, *The Theatre and Its Double*

This chapter contains previously published work:

Fairchild, Liz. "Nuclear Normativity, Monstrous Masculinity, and Matter in *Burning Vision"* *Monsters in Performance.* Routledge. 2022.

1. Humanism and Posthumanism

In this chapter, I will examine and define posthumanism as a theoretical construct, as well as explore its applications in the theatre. Using Jennifer Rhee's *The Robotic Imaginary: The Human and the Price of Dehumanized Labor*, I will trace the legacy of robots and other AI configurations on stage. Following the Marxist inception of the robot beginning with Karel Čapek's play *Rossum's Universal Robots* (*R.U.R.)*, I will leverage Rhee's "robotic imaginary," which, as a concept, examines cultural productions of the robot as a symbol of dehumanization, especially as dehumanization pertains to labor. Building from Rhee with Zygmunt Bauman's *Liquid Modernity*, I will explore how AI on stage have evolved through the postcolonial science fiction *Harvest*, written by Manjula Padmanabhan. While both *R.U.R.* and *Harvest* explore literal embodiments of a posthuman, this chapter is ultimately more interested in posthuman performances that either do not include humans, or transform the human body and human

presence so extensively as to render a new *horizon of possibility.* Leveraging New Media Dramaturgy (NMD), and New Dramaturgy as a broader category, I will analyze the art installation (which I argue is a performance) "Can't Help Myself" as well as Meow Wolf's PerplexiPlex as a means of dismantling rigid ideas about what theatre is, who and what is allowed to perform, and what constitutes a theatre space and a theatre audience. I will conclude with Continuum Movement, an embodied performance that transcends the rigid notions of what human can and could be, defying the programming of the White heteropatriarchy.

I define posthumanism in two ways. First, it is literal, in creations such as cyborgs and robots – these entities are not human and cannot be rendered as such, but they logically come after human technological "progress." These entities often, but not always, emulate human characteristics. This definition of posthuman is less theoretical and more connected to hypotheses about the future of humankind and our potential co/evolution with artificial intelligences. Second, the posthuman is a theoretical framework that engages in radical revisions of being a human or a rejection of humanness altogether. This theoretical framework, supported by scholars like Donna Haraway, Karen Barad, and N. Katherine Hayles, attempts to deconstruct entrenched notion of the human, so that we can eventually release ourselves from the oppressive constructions of "human." Nowhere are these oppressive constructions more evident than in eugenics, which supposes attractive, White, able-bodied men as human perfection. While this image of the perfect human goes beyond eugenics and lives today within normative conceptions of human excellence, the violence perpetuated by eugenics showcases a manipulation of the definition of human that suits only the most powerful and privileged.

It is important to note that a great deal of posthumanism is not about an after/beyond humanism, but rather, like antihumanism, heavily critiques humanism as a philosophy and an

ethical and moral proclamation. Humanism and its construction of the human centers itself on exclusionary, White, Western definitions. Humanism itself has many differing connotations and histories. What is critical about humanist belief is an essential and core ethical/logical system that makes us all human in our thoughts/minds. The classic Cartesian "I think, therefore I am," is core to our humanness (nonhumans don't "think" under this logic), but inherent in this statement is a thought structure that only considers Western reason and rationale as valid, human-defining thought. In his introduction to *Posthumanism*, Neil Badmington traces the beginnings of humanism to Descartes, noting that what "we" all share is a sense of reason, and that this reason is ultimately our core value as humans, "reason not only grants the subject the power of judgment; it also helps 'us' to tell the difference between the human and the nonhuman" (3). This separation between the human and the nonhuman actually serves to divide people into human and nonhuman. This is to say, people of color have been historically and socially denied the privilege of humanness (and therefore "reasonable" thought as it is defined by Western philosophical traditions) since at least the beginnings of settler colonialism. For scholars like Karl Marx and Friedrich Engels, humanism is fraught for similar reasons to those articulated much later by critical race theorist and decolonial scholars, because they acknowledged that subjecthood is not guaranteed, and is produced solely in accordance to the individual's material conditions as they are manifested in the body "as a distinguishing trait of the capitalist work-relation" (Federici 135). While a Marxist line of thinking could possibly be seen as a proto-posthumanism, Badmington identifies it as "'theoretical anti-humanism', in which there is an awareness that radically different material conditions of existence produce incompatible subjectivities" (5). As Marxism endeavored to deconstruct humanism at least in relation to body as commodity, humanism's attachment to reason was brought into harsh relief by Freud, who

recognized – as was further fleshed out by Lacan – that the mind is not rational, that desire, in fact, wins over reason more often than not, and that the subconscious operates behind our conscious thoughts, constantly disrupting a notion of conscious control over our realities. With the advent of Freudian psychology, empirical truths about the human brain and about human logic were thrown into harsh relief, leading the way for postmodernist thinkers to question knowledge production and the legitimation of said knowledge, particularly in the realm of the sciences.

For contemporary Western society, humanist thought continues its stronghold on conceptions of self. While ostensibly a philosophical and theoretical school of thought, humanism now describes, at least colloquially and most certainly broadly, Western perceptions of living an ethical and moral life. This ethical and moral life stems from the humanist notion that reason, rationality, and logic comprise the exemplar human life, albeit the reason, rationality and logic of western ideologs. This conglomeration of thought that ladders up to an ethical life is systematically transposed onto a subset of humans as the human identity. I say "the" human identity as an intentional monolith, because human as a subject position is a privileged space where the parameters validate and affirm only a small subset of our species.

This westernized and totalizing human identity is also deeply integral to the colonial project, which maintains dominance through dehumanizing rhetoric and practices that also entangle humanness with the "ideal" of the binary gender and heteronormative/puritanical sexual practices, as a means of further marginalizing the subaltern.

As such, the "post" of posthumanism can reflect the erasure of people of color and participate in the denial of people of color as human, even in the future. Further, posthumanism's interest in the nonhuman can also become dehumanizing for oppressed groups, rather than

liberatory, with a denial of humanness and animalness. Nevertheless, there are also many potential liberatory components of posthumanism when approached cautiously and from a decolonial and abolitionist position.

The theatre, across the spectrum, is crucially situated to explore posthuman conceptions in that performativity and what it means to be a being, are inextricable. By revising what our bodies are and recognizing that our bodies and mobilities are always marked by class, race, and gender, we can begin to derive value from something other than the constructed and very exclusive notion of humanness. As previously mentioned, Donna Haraway's *Staying with the Trouble*, rejects, whole cloth, constructed notions of the human epoch– the Anthropocene and the Capitalocene – in favor of her own rendering, the Chthulucene. This epoch rejects the human as central and is both aspirational and present already, it is an epoch of symbiotic and sympoetic manifestations. Our species is already posthuman, in effect, because we have moved past (or should move past) the idea that we are whole, singular entities. This acknowledges an active role in our own ongoing production and destruction, in tandem with the production and destruction of everything around us. There is no stasis, "nothing makes itself; nothing is really autopoetic or self-organizing" Haraway notes (59), "critters do not precede their relatings" she goes on to say, "they make each other through semiotic material involution, out of the beings of previous such entanglements"(60). Here she is noting that identity cannot be constituted through individualism, nor can we be seen to be self-created or statically positioned in our realities. We are inextricable from other beings, and creating meaning for ourselves must be a co-creation with the nonhuman life all around us and indeed inside of us.

Posthumanism works to dismantle humanist ways of understanding in favor of Haraway's notion of symbiogenesis – a "making with" that denies the notion of autopoesis.

There is no "self-made man" in Haraway's vision of what it means to be a being. In fact, she rarely uses the word human at all, preferring being, critter, nonhuman, organism, or even terran, to describe what it means to be. By embracing ourselves as assemblages and, in her words, "entanglements" of others/ourselves, we can arrive at a future conception of what we are that is constantly in process and does not require codification to exist.

Working from a similarly future-focused and aspirational/actionable framework, I see posthumanism as not human in any of the limiting ways it has been crafted by the works of Aristotle, Descartes, Hegel or Freud, to name a few. The posthuman, rather than its "post" being representative of an after-human, or a progressed human, is more so many entities with a fluid identity. The posthuman defies the rigid body, the rigid mind, and rigid Cartesian boundaries between the body and the mind to create new ways of being. If we think along these lines, removing the "after" that is misleadingly present in the word posthuman, it can be posited that we have never been human, despite our extensive attempts to make such a concept fit who we are. Arguably, perhaps we have been cyborgs – augmented humans – since the day we first picked up a tool. But whether we became cyborgs through tools, or with the invention and prevalence of the smart phone, "we" have also never been separable – there is no individual being. Each and every body in our species teams with bacteria, fungi, and mites, unseen but not inconsequential.

I would like to defy definitions of posthuman that include the human as though we have become better-than human, superhuman, augmented human or, where posthumanism gets the most traction, not human. In some ways, we can also think of the post in posthuman as a postmortem – we are investigating what human was once, and reflecting upon how to make it more inclusive, expressive, and expansive.

2. Robots and the "Robotic Imaginary"

While early science fiction creates the alternative island through Suvin's conception of cognitive estrangement, the genre's invocation of science and technological futures is where most mainstream audiences would proclaim science fiction as a fully rendered entity. James Gunn argues that "no true science fiction" existed before Mary Shelley's *Frankenstein* in 1818 (32). Although *Frankenstein* certainly creates an artificial intelligence in Frankenstein's monster, the theatre begins its technological renderings of AI in Karel Čapek's iconic play *R.U.R.* In comparison to my assertions about *The Tempest* in Chapter Two, science fiction productions of the 20th century do not merely utilize elements of our extant reality to create something strange, but rather become speculative futures – these futures blend elements of their contemporary technological and scientific realities to create universes that could not exist in our present timeline. For example, Jules Verne's *Journey to the Center of the Earth*, published in 1867 – also considered one of the earliest "true" science fictions – presents us with technology that was not (and is still not) possible at the time it was written. While humans can drill quite far into the crust of earth, we technically don't know what lies at the center of the earth and are not close to knowing. *Journey to the Center of the Earth* includes long-extinct aquatic reptiles and dinosaurs living at the earth's center, rendering extinct beings back into existence. This presents a reality that certainly estranges us from earth's surface and offers us an alternative island beneath earth's crust.

For Donna Haraway, "SF is storytelling and fact telling; it is the patterning of possible worlds and possible times, material-semiotic worlds, gone, here, yet to come" (31). In considering science fiction as fact telling in addition to science fiction as rendering what is possible outside of a linear historiography, Haraway is giving credence to storytelling as capable

of world-making in the tangible space of everyday lives. Many science fictions have predicted the future, such as the *Star Trek* universe's tablets. If we extrapolate beyond tangible technologies and begin to think of posthuman fictions modeling achievable human futures, we stand to gain a utopian future. Haraway questions the nature of human identity narratives and the semantics that substantiate such narratives. This is because our present and past ways of identifying ourselves favor only some and produce and reproduce inequities for others. By imagining new fabulations that do not require "human" as the baseline – building an identity that considers our intra-activity and inter-activity with other species – people can free their identities from harmful and limiting definitions and parameters. Suvin articulates something similar:

> … anticipating the future of human societies and relationships is a pursuit that shows up the impossibility of using the orthodox – absolute or scientistic – philosophy of natural science as the model for human sciences. It is a pursuit which shows, first, that all science (including natural sciences) is and always has been a historical category, and second, that natural or "objective" and human (cultural) or "subjective" sciences are ultimately to be thought of as a unity. (Suvin, 77)

Science is historical not only because it has been shaped by human limitation and human culture, but also because it is already in the past. Separating culture, history, and science is therefore more of a decolonial, future-focused project than it is a project of codification. Radical revisions of Western ways of knowing and being are required in order to create a more equitable future.

3. Robots, Human Labor, and Dehumanization

While many science fiction tales on the stage and in various other mediums often rely on world building and cognitively estranged places or alternate universes, posthuman science fiction

focuses more heavily on the progression, reinvention, and liberation of intelligent beings through utopian stories or through cautionary dystopian realities. In Čapek's 1920 *R.U.R.,* for example, the robots provide a new way of understanding capitalism and its inextricable relationship to both machine and human labor. By highlighting the automation and outsourcing of human labor to robots, Čapek explores anxieties around labor and dehumanization brought about by global capitalism. Čapek does not, however, explore robots as a proxy for exploring human nature and human behavior. Rather, the robots are treated by the humans within the play as nothing more than machines, and this image backfires. From the perspective of the audience, the robots are underestimated, and this ends poorly for humankind. Gaining sentience, the robots wage war on humanity. Simultaneously, humans lose the ability to reproduce, ushering in the extinction of the human race.

As James Gunn articulates, "Science and technology [of the 1800s] created social change, and the awareness of social change created science fiction" (Gunn 14). This assertion relies heavily on the industrial revolution and the invention of the assembly line, which forever changed the human relationship to labor, productivity, and the value of objects in relation to time,

> Not until the Industrial Revolution brought to Western peoples the unsettling feeling that tomorrow was going to be markedly different from today did men begin to think about the future, begin to consider choices… People began to think of the future as a place where they would live, different in degree and perhaps even in kind, a place they might be able to make better lives for themselves if they thought about it and did the right things. (Gunn 12-13)

Here Gunn is describing a rather positive outlook on the Industrial Revolution, one that would not be supported by the working class, but rather by the bourgeoisie. From a working-class perspective, Gunn's notion that the future was really "invented" during the industrial revolution would rather fill workers with a sense of dread, a sense that the future does not belong to them. With the mechanization of labor, it became easy for workers to see themselves as machines – repetition, mass production, and the assembly line all served to dehumanize workers without removing them from the work.

The mechanization of labor in the 19th century did not simply change the nature of labor, production, capitalism, and class, but also how humans thought of the self, and indeed what it means to be human in the face of the ideals of individualism and the philosophical implications of free will. Much of this anxiety found a metaphorical home in the notion of a robot, as created by *R.U.R.* This metaphorical home is what Jennifer Rhee calls "the robotic imaginary," which "holds as first principle that technology and culture do not exist in vacuums, but are intractably tied to discourses and worlds beyond their immediately perceptible parameters" (6). This is further articulated in Rhee's "anthropomorphic metaphor" (9), "Anthropomorphization, a founding metaphor for AI and robotics, brings with it all the ethical, political, and social stakes that inhabit any process in which humanness is produced" (9). This anthropomorphization therefore provides an estranged way to consider what it means to be human and what makes us human.

In R.U.R. we see posthumans rendered in a human body, linking our existence as humans now to what we could create or could become – for better or for worse. As posthuman fabulations have grown and changed, artificial intelligences have become a profound means of

exploring our own humanity through AI's similarities to humans, as well as through their differences.

This imaginary also manifests as an anxiety around labor in relation to ideas of the self. Further, the robotic imaginary often explores a fear of human supremacy being supplanted by AI, especially considering humans created robots themselves. Further, robots and other AI produce a rich narrative investigation of what it means to be sentient, especially in the absence of understanding a great deal of the nature of our own human consciousness. This is to say, many fictional conceptions of advanced AI help us to explore both what it means to be human and ways in which being nonhuman can create both utopic and dystopic futures. The more utopian renderings of AI can be seen, for example, in *Star Trek: The Next Generation*, where Data, a sentient AI who still lacks human emotions, strives to learn and understand feelings, working always in concert with his human counterparts.

Čapek's *R.U.R.* which is, perhaps, most famous for inventing the word "robot", a portmanteau "derived from the Czech word rabota, meaning forced labor or drudgery, and from robotnik, the Czech word for serf" (Rhee 18). When considering this origination, it is not difficult to see the labor anxieties that find a home in the conception of robots. As the first easily categorizable science fiction play, *R.U.R.* explicates a Marxist and capitalist rebellion through the problematics of labor theft and indeed slavery, as well as an anxiety around the replacement of humans as necessary to labor, "the robot, which is constituted through labor and estrangement from the human, embodies that which is, in capitalism, at once human and estranged from the human— one's own labor" (22 Rhee). The necessity of labor inside of capitalism is thus projected onto the robot both metaphorically and now, in our present time, literally, in the outsourcing of human jobs to robots, as predicted by *R.U.R.*

R.U.R. thoroughly explores the outsourcing of human labor to robots. While at first the robots help humankind to prosper by relieving the burden of manufacturing in particular, they evolve and execute a great global war against humans, as humans also lose the ability to reproduce. Suvin describes Čapek as "the pioneer of all anti-fascist and anti-militarist SF in the world… and he is still one of the best among them" (280) because Čapek demonstrates how human greed and a failure to be compassionate in the face of accumulation are the sources of our own destruction. In this way, Čapek creates a dystopia in *R.U.R.* Čapek was most notable for his science fiction novels, not his science fiction theatre. However, by creating the robot on stage, Čapek invested in a new embodied form of humanlike non-humans. *R.U.R.* finds its footing aesthetically and thematically within the historical European avant-garde. Thematically, avant-gardism embraced conceptions of anarchy and utopia, two core components to many SF narratives. What is critically avant-garde about this work is its conception of the robots, who are not composed of machine parts but chemically-magical human viscera that is constructed along an assembly line, evocative in ways of *Frankenstein*, and of the more contemporary *Edward Scissorhands.* The robots represent an entirely new form of life, questioning the notion of "alive," as well as how sentience can be observed, defined, and substantiated.

Despite the extensive investment in automata in the late 1800s in Europe (Huyssen), the automata generated for parlor entertainment ostensibly performed "life like" humans (which was definitely one of the main goals of their makers). That said, the automata, while human looking, were clearly not human. *R.U.R.*, while inspired in part by the popular automata of the time, created instead real human actors performing as robots, but the robots (played by humans) are performing like a human, adding significant metatheatrical content and a new form of embodiment for the stage; the being of an imitation of an entity the actor already is (human).

This imbrication of signifiers (human, robot, humanlike, human performing robot trying to emulate a human) asks the audience to interrogate what makes a human "authentic." But in the signification of humanlike behavior that may follow, on the surface, definitions of humankind (such as Plato's assertion that being a human is thought and free will, which, the robots in *R.U.R.* certainly have) we can reexamine these long-considered philosophical questions through the context of AI: What is sentience? What is the value of a human life and is that value related to morality, intelligence, sentience? What does it mean to be human? Čapek's rending of a robot alters these lines of questioning due to the increasingly fraught states of being that capitalism asserted/asserts onto the human body; that human value is related to production and wealth, or the nebulous notion of "productivity" as a means of generating value for an individual.

Suvin sees SF as a space for capitalist rebellion, both within a contemporary tradition and dating back to ancient Roman and Greek traditions. *R.U.R*. is heavily Marxist influenced; critiquing class, labor practices, and through robots as a metaphor and the position of human laborers in the face of the mass production of goods. The robots represent, among other things, human replacement anxiety, in concert with the dehumanizing practices of industrialized labor that arose with new production practices such as the assembly line, initially implemented in full by Henry Ford in 1913. The assembly line within *R.U.R* is metatheatrical and metathematic in that the assembly line is first and foremost for the creation of the robots themselves, demonstrating an ouroboros of labor production practices. In other words, the robots who automate labor, are created themselves through automated labor. As Nicholas Anderson notes in "'Only We Have Perished'": Karel Čapek's R.U.R. and the Catastrophe of Humankind,"

> The Robots, manufactured by machine and lacking the ability to mate carnally, are dissociated from animal being in an obvious way. They labor in only one sense of the

> term: they are able to produce and reproduce, but not procreate. The work they do merely feeds back upon itself in a sterile dynamo that readies the things of the world for consumption, but generates nothing lasting and nothing new. (237)

Anderson is noting that the nature of the robot's production is merely reproduction – the mass production of identical goods in the absence of an original creation. While this may seem to separate robots from humans, the assembly line would beg to differ. *R.U.R.* takes the labor anxieties and inequities presented by the European Industrial Revolution to a dystopian conclusion: the robot led, systematic destruction of humankind as the result of mechanized labor. The robots are the humans in the sense that the Industrial Revolution dehumanized people. Within the play, robots represent the ultimate solution to human labor, but with labor completely automated by these robots, humans become both reproductively stagnant and incredibly bellicose. The robots are subsequently reengineered to be soldiers, and these robots seek revenge on humanity, with the intention of genocide. Is this an indication of Platonic sentience? The robots are now thinking, willing, and acting – free of human desire and influence.

This in many ways exemplifies Rhee's robotic imaginary, because the human is also defined by what is done, opening up a chasm of interpretations that must ultimately be judged and mitigated by others who have earned/been born into the human identity to maintain this status quo. As Rhee articulates,

> According to Marx's theory of estranged labor, in capitalism the human is alienated from his or her labor through the process of production. This labor, which once belonged to the human, is now materialized in the object of production. In the human's encounter with the object, the human confronts his or her labor, which is now embodied in the object, as estranged, as alien. Distance from or estrangement from one's labor is not welcome, but

> rather alienating. Thus, the robot can be understood as a kind of uncanny fictional embodiment of human alienated labor, of estrangement. (55)

This is to say, estrangement in particular helps the human see the value or lack-there-of of their own labor.

I am reticent to dive further into *R.U.R.* for several reasons. Foremost, the play is highly misogynistic – the main female character is only really considered as marriage material for the bulk of the play, including a scene were several men fight over who will marry her. But moreover, while a critical work of science fiction theatre, it is not particularly high quality. As Suvin notes, Čapek is much better known for his fiction and critical writings than his works for the stage. It is my thinking that the reason he chose to write *R.U.R.* as a play is because of the need to perform robots live,

> Anticipating countless future plots, Čapek's characters repeatedly mistake robots for humans and vice versa. As a comedy, *R.U.R.* mercilessly undercuts the moral distinctions its human characters painstakingly assemble to justify their greed and ambition. The audience gets read in on that irony as the world outside the factory falls apart, pushing us to address our profound uncertainty about the stakes of scientific creativity. What is life, and what do we owe to our creations? (Finn)

This is to say, the performativity of the characters, and their own uncertainty requires the theatre for the full message to be conveyed. The true irony and uncanny relationships and subject positions between the robots and the humans in the story need performativity. This supports my past assertions that the space of the theatre adds a dimensionality to science fiction that cannot be replicated in any other medium, be this dimensionality one of the space itself, or what the actors can perform.

4. Postcolonialism, Decolonialism and Liquid Modernity in *Harvest*

As a much more contemporary demonstration of artificial intelligence and labor/replacement anxiety, Manjula Padmanabhan's 1998 play *Harvest* relies on science fictional renderings of a near future to expose current anxieties about automation, the singularity (the point in which AI knowledge exceeds human knowledge) bodily autonomy in relation to global capitalism, and the dehumanizing capacity of globalization particularly on/in the Global South and in a colonial context.

An exemplar of postcolonial science fiction, Padmanabhan received the Onassis International Cultural award for *Harvest* in 1997. The play follows the lives of an Indian family who, through the eldest son Om, become a family of organ donors for a wealthy Western "receiver" named Ginni. The family is never in direct physical contact with Ginni, but rather receives calls from her on a "contact module" in which she can also see into the home. In this way, not only has Om sold his body for organ harvesting, he has also sold his family's right to privacy and individual agency, as the entire family is required to eat and sanitize their lives exactly as Om does, presenting a critique of cultural homogenization, degradation, and appropriation. As such, we are asked to imagine science of the future and its impact on bodies, interrogating gentrification through the biotech pills the entire family takes. These pills suggest also an epigenetic metaphor – Om's family trauma is collected in their environment and their biology is altered, subsequently, to benefit wealthy, Western White people.

Western surveillance permeates the play, becoming metatheatrical via the audience's watchful (often Western) gaze, which produces a surveillance both on stage and one that crosses the fourth wall. Much like *1984*, the audience becomes an active participant/persecutor in the play, highlighting the Brechtian problematics of spectatorship: traditional audience roles are

passive and do not lead the viewer to act. With many watchful Western profiteers invested in Om's body and in turn the body of his sister Jaya (who is actually his wife) and his brother Jeetu, colonialism is certainly still a significant component of the play's thrust, representing a postcolonialism that is not an end to the oppression of the Global South, but rather a continuation that is, in some ways, post labor, rather than postcolonial. While Om does find himself on a conveyor belt at the beginning of the play, he is in fact, not asked to produce anything by InterPlanta – the agency that Ginni employs – nor is he asked to do any physical labor.

MA. Tell me again – all you have to do is sit at home and stay healthy?

OM. Not sit necessarily.

MA. And they'll pay you?

OM. Yes.

MA. Even if you do nothing but pick your nose all day?

` OM. They'll pay me.

MA. And what about off-days?

OM. Well. Every day is off, in one sense… (19)

As women and gender studies scholar Sujath Moni notes, ""Unlike human labor, organs and bodies or body parts cannot be reproduced once they have been extracted. The body/part itself becomes a commodity that has to be physically relocated to another place" (318). So, while OM does not do any labor per se, he has sold himself as a product, one he ostensibly made just by virtue of being alive. His labor is his very existence, articulating the inability to escape capitalism even in a post-labor society. Om, after all, takes on the job of organ donor because his own job was made obsolete. Everything in his reality has been mechanized.

The demand for Om's body can be seen as a product of what Zygmunt Bauman calls *Liquid Modernity*, which recognizes the West's ever-growing desire for an ephemeral perfection that can never be achieved, "a hundred years ago 'to be modern' meant to choose 'the final state of perfection' – now it means an infinity of improvement with no 'final state' in sight and none desired" (iix-ix).

Bauman's *Liquid Modernity* examines embodiment, behavior, and environment in his own modification of modernity and postmodernity. Published in 2000, Bauman's *Liquid Modernity* addresses the uncertainty and tenuous nature of institutions, in particular, in an age in which digital media has replaced the passage of time (many things happen almost instantaneously) and replaced the existence of space (we don't need to occupy space to go places). Global capitalism and the drive to utilize consumerism as a means of creating identity has further liquified our ability to maintain communities as communities now center around consumerism and digital belonging. Bauman also notes that the means of control and power in liquid modernity is also in a constant state of fluidity. There is no longer a need for the panopticon because control can be exercised without the need of a specific place and there is no longer a need for specific people to enforce control and surveille the controlled inside of the panopticon. Om and his family are surveilled from afar and are controlled from afar. Almost all their communication with Interplanta is remote, and yet their environment has drastically changed to suit the needs of the their remote receiver. There is no need for the panopticon.

While organ donors presently exist in our reality, as well as a black market for them, Interplanta's actual goal is full body replacement for Western subjects, demonstrating "an infinity of improvement" that far exceeds a drive for optimal health. For the majority of the play, the characters are under the impression that Om will donate his organs only if necessary for the

receiver's health. But many deceptions become apparent as the play nears its conclusion. The strict diet and sterile conditions the family lived in proved meaningless to the donor process, demonstrating a Western need for control that exceeds logical reasoning and instead enforces Western values onto the Global South. Rather than Om's organ's being harvested, it is his brother Jeetu's entire body that is given to a wealthy donor named Virgil, not to Ginni, who proves to be only an AI projection. Virgil appears in the family's living room, a holographic apparition himself, inside of Jeetu's body. He explains to Jaya how the West got to this place in their social and ethical evolution:

> VIRGIL. We began to live longer and longer. And healthier each generation. And more demanding… soon there was competition between one generation and the next – old against young, parent against child…We secured Paradise at the cost of birds and flowers and bees and snakes! So we designed this programme. We support poorer sections of the world, while gaining fresh bodies for ourselves.
>
> JAYA. And it works? You live forever?
>
> VIRGIL. Not everyone can take it. We fixed the car, but not the driver! I'm one of the stubborn ones. This is my fourth body in fifty years. (87)

Not only has Virgil taken Jeetu's body, but he has succeeded in the colonial project of hegemony. Jeetu is gone, his colonized body becomes its own active colony in which Jeetu's cultural identity has been obliterated. Further, Virgil believes he is providing support, disposing of any guilt he might otherwise feel for his actions.

While the entire human race has not lost the ability to procreate as is the case in R.U.R., the inability to have children is a direct product of tampering with and exploiting nature,

exposing, perhaps, another facet of robot anxiety. By tampering with nature, by creating artificial life and by manipulating life, we risk our own annihilation.

Virgil's appearance on stage is also an act of quantum theatre. He is Jeetu, Virgil, a hologram. He is not there and yet, he is physically – in the reality of the theatre – very much there on stage. He is the actor who plays Jeetu, but he is also Virgil. These superpositions add dimensionality to the play's science fictional themes.

While *Harvest* is posthuman and postcolonial, liquid modernity helps to articulate the problem of using postcolonial in particular to describe places that have been colonized. Formerly a postmodernist scholar, Bauman turns to liquid modernity to explain that there is no post, we simply live in a different modernity that before. Similarly, there is no postcolonial as the consequences and lived experiences of colonialism are still very much felt by colonized peoples. Interrogating "posts" is common in dystopian science fiction, because what comes "after" the present time is often still fraught with the societal, cultural, and political ills of the past, as we can see in *Harvest*. The realities of exploitation and globalization by the West into and onto the Global South are taken to an extreme in *Harvest*. Therefore, we must ask, what does "post" mean if not after or beyond? If humankind is still repeating the same patterns and mistakes as we did during the modernist period, how can we achieve a "post." Liquid modernities askew the "beyond" implications of "post" by recognizing recurrent patterns that prove we have not moved beyond the concepts articulated by modernism, but have instead arrived at versions of modernity in which control and power don't require space or time. Postcolonialism, similarly, assumes we have moved beyond colonialism which is neither literally or functionally true,

> Postcolonial studies, unwittingly commemorating a lost object, can be-
> come an alibi unless it is placed within a general frame. Colonial Dis-

> course studies, when they concentrate only on the representation of the colonized or the matter of the colonies, can sometimes serve the production of current neocolonial knowledge by placing colonialism/imperialism securely in the past, and/or by suggesting a continuous line from that past to our present. (Spivak 1)

In other words, it is not simply the postcolonial assertion that things are "in the past now" but also that what is worth discussing is the very thing we are trying to move beyond – a concentration on colonial ways of life as core to our ways of thinking. This is perhaps why decolonial theatre has much more traction than postcolonial theatre in our current theatrical landscape. Decolonial practices not only embrace Indigenous way of knowing, they also reject colonial narratives and storytelling tropes, which includes a rejection of Aristotelian theatrical modalities. Take for example *Burning Vision* by Métis playwright Marie Clements, first performed in 2002 at Vancouver's Firehall Arts Centre.

Burning Vision traverses the complex history of the making, testing, and detonation of the atomic bomb from a trans global perspective that is divorced from linear space-time. Clements unfolds the making of the bomb and the aftermath of its detonation on Hiroshima by tracing the geographic course of radium ore mining from the brothers LaBine who "discovered" the ore in the Great Bear Lake region, weaving tales from a Dene Widow, a Radium Dial Painter, a Dene Seer, a Japanese Fisherman and his Grandmother, and young Métis woman named Rose, among other characters who were involved intentionally or inadvertently in the making of the bomb. The characters of Fat Man and Little Boy exist in a more liminal and metaphorical space within the play, signifying a colonial/colonized binary and their resistance to/complicity with such identities. Disparate events take place in the same instant, and characters mix and meld into

and out of each other across geographic borders of great distance. Ultimately, the play takes place in the instant before and the instant of the atomic bomb's first detonation. At the play's center are the Sahtu Dene women who lived near Great Bear Lake and the Eldorado Mine in the 1930s, at the time radium was first mined in Canada. This radium was made into uranium and in turn, the atomic bomb. By allowing the violent object of the bomb and the terrifyingly dangerous object of uranium to be personified in *Burning Vision*, Marie Clements is critically engaging with metaphor, meaning-making, and symbol as a source of male power. But more importantly, Clements is using Fat Man as an amalgamated hypermasculine monster to aid in decolonizing the historic radium mining of the play, enabling the women to be materially substantive on stage. She approaches materiality and the re-literalization of women in *Burning Vision* through material agency for the women on stage – a materiality that relies on men as vessels/vassals for metaphor, symbol, and meaning-making. By using Fat Man specifically as a metaphor, Clements showcases body privilege, White privilege, and colonizer privilege as hyper-pastiche, but she is also "filling up" Fat Man and as such, freeing women from these types of significations (such as the "mother nature" trope) so that they can exist in all of their materiality on stage. While the play spans over 100 years and thousands of miles, it also occurs in the instant that the atomic bomb was first detonated, subverting the audience's understanding of time, as well as locating the entire play inside of the bomb as an event.

By adding science fiction to postcolonialism, the term becomes significantly modified to the benefit of Indigenous and other colonized cultures, as is noted by scholars like Jessica Langer, author of *Postcolonialism and Science Fiction*, "A postcolonial view of science fiction therefore foregrounds the concept that indigenous and other colonized systems of knowledge are not only valid but are at times more scientifically sound than is Western scientific thought" (130).

This viewpoint centers knowledge that has been silenced and deemed the past, in a future where Indigenous ways of knowing and being flourish, "They have used it to tell their own stories and to include themselves in the dominant discourse while at the same time subverting the colonialist basis of that very ideology" (158).

Postcolonial science fiction can be highlighting the present in the future, "elucidating this notion of possibility as the already-existent-not-yet" (Smith 99). This notion, originally articulated by Indian historian and postcolonial theory scholar Dipesh Chakrabarty, is a liberative notion because it recognizes multiple life-worlds within the present one. Rather than being revisionist or an alternate history, it is the future imbedding in the present, a conception of reality that does not adhere to Western or colonial rhetoric. Nolan's adaptation of *The Birds*, discussed in Chapter Two, could be seen as a postcolonial science fiction as well as an Indigenous Futurism, fusing past, present, and future to revise a Western story.

5. Posthuman Performance in Opposition and Adaptation of "Human"

Many cultural productions of the last decade in particular create human-like AI, but there are also a plethora of performances that remove humans and human likeness entirely from their conception of future beings. This is not always to say humans don't exist, but rather these fictions serve to decenter humans from the narrative, a task that Donna Haraway's *Staying with the Trouble* actively advocates for through the refusal of the Anthropocene – an epoch that centers human existence on Earth – in favor of the Chthulucene, which centers reconfigurations and rejections of being a human. In the Chthulucene, Haraway rejects the notion of human as an individual being (we are all microcosms covered in bacteria, mites, and fungi, many of which form symbiotic relationships with the human organism) and rejects human as central to the history of time.

While Donna Haraway, Samuel Delany, Ursula K LeGuin and other noteworthy science fiction scholars and authors highlight the transformative powers of literature for the creation of equitable beings, theatrical performance has always been an integral space for showcasing what it means to be human as live/lived embodiment. If a robot performs in front of a live audience, is it really live? Is liveness only relevant to the unpredictable? Can AI be unpredictable? What changes when a human performs *with* AI?

In "Can't Help Myself," an installation art piece by Sun Yuan and Peng Yu, commissioned by the Guggenheim in 2016, a robotic arm is tasked with cleaning up a viscous red liquid, evocative of blood, using a shovel with a squeegee attached to accomplish their task. While the robotic arm ostensibly had no human characteristics, it was also programmed to perform 32 different dance moves, bringing its performance closer to human,

> Observed from the cage-like acrylic partitions that isolate it in the gallery space, the machine seems to acquire consciousness and metamorphose into a life-form that has been captured and confined in the space. At the same time, for viewers the potentially eerie satisfaction of watching the robot's continuous action elicits a sense of voyeurism and excitement, as opposed to thrills or suspense. (Weng)

The robotic arm takes on human characteristics through its motion, heightening the disturbing components of the performance. The sense of consciousness felt by the audience both connect and estrange the viewer. How can a robotic arm seem conscious? How does this perceived consciousness impact the viewers perception of the robot's labor? Intended to represent the extreme harm of industrial violence on a human scale, "Can't Help Myself" ran for 3 years, until Yuan and Yu decided to unplug it.

The machine had a Sisyphean task to attend to as the liquid constantly seeped out again and again, despite the robot's attempts to contain it. The robot arm's audience watched through plastic walls spattered with the blood-like liquid, creating a barrier between the robot and the audience, but also demonstrating in an almost canvas-like performativity the consequences of its labor: undeniable industrial violence contained inside its own environment.
Outside the robot arm's environment, the sterile, clean, neat space of the museum.

I am calling this theatre and a performance because the robotic arm did perform, live, with an audience. Recalling Claudia Georgie's definition from the Introduction, live theatre is "the **co-presence** of performers and spectators, the **ephemerality** of the live event, the **unpredictability** or risk of imperfection, the possibility of **interaction** and, finally, a specific quality of the **representation of reality"** (5 author's bold). The robotic arm was unpredictable because the fluid it needed to squeegee was not programmed. This is to say, liquid does not behave in a programmatic way, and thus the robotic arm had to spontaneously change its course to squeegee the liquid. "Can't Help Myself" also had an audience and was ephemeral as it has been taken down. Georgie notes that interaction and representations of reality are not essential like the first three requirements, but are often found in live performance. As such, what is preventing "Can't Help Myself" from being live? This installation art is arguably only called such a thing because no humans performed. This demonstrates a posthuman theatre in which humans literally do not participate, but it also brings to light the ways in which "theatre" and "human" have been inextricable since antiquity.

"Can't Help Myself" is demonstrative of NMD and new dramaturgy's removal of antiquated definitions of theatre in favor of multimedia and interactive experiences that produce new types of actors, audiences, and theatrical spaces. This move away from a purest

interpretation of theatre enables the use of and interactivity with AI, as well as performances which do not include humans at all. As Peter Eckersall, Helena Grehan, and Edward Scheer note, "New media constitutes a turn to visuality, intermediality, and dialectical moves between performance and installation arts that show these expressions embodied or visualized in live and virtual performance spaces" (375). Jodie McNeilly goes on to define new dramaturgy as "a movement away from prioritizing the play text towards the democratic inclusion of the visual, physical, spatial, sonic, and virtual" (431). As such, liveness ceases to be easily defined, and traditional conceptions of liveness in the theatre lose some importance.

"Can't Help Myself" removes the human subject altogether, letting its sociopolitical statements speak without a specific human identity, eliminating implicit bias without watering down the intended message. It is posthuman both literally (a robot) and theoretically (the performance modifies ideas of humanity and human labor). It is a live performance because it meets all of the criteria for liveness except *aliveness*.

6. Human-Digital Co-Creation in the PerplexiPlex

In our digitally connected age, with virtual reality and immersive experiences growing as our technological capabilities increase, an experience that connects the human with the digital and the virtual can expand our understanding of performance. As with "Can't Help Myself," which has been called an installation but which I argue is theatre, Moment Factory's installation in the interactive art experience Meow Wolf Denver, demonstrates a significant dissolution of the border between immersive installations and immersive theatre. Called PerplexiPlex, the immersive theatre performance is adjacent to Meow Wolf's main experience/exhibit Convergence Station, which takes inspiration from psychedelia as well as avant-garde and postmodernist art movements. There are many aspects of Convergence Station which are also

posthuman – but while Convergence Station breaks with many museum and art conventions in general, it is not theatrical. “PerplexiPlex,” on the other hand, is a 16-minute interactive performance that questions what a stage is, who is a performer, and WHAT a performer is (as in, AI, or humans interacting with AI) as well as whether a prerecorded experience can be made "live" by its interactive components, even though those components are digitally programmed.

As the performance begins, the walls light up with brilliant white lights sketching out an ethereal forest. This forest becomes more robust and dynamic with each movement of the performance, showing the growth of giant mushrooms, their decomposition, and the aging of the forest into a mature and entirely canopied place. In one moment, a doorway made of light appears, adding a dimensionality to the performance, and a hint of narrative as the walls continue to change. The floor of the stage is entirely interactive. As the performers/audience move across the space, they are followed by numerous digital effects – some like a spray of ocean water, others, likened to the concentric rings of a rock being plunked into the surface of a lake, still others, vibrant splashes of color that run up the walls of the performance space. As the audience moves across the space, they become performers within it, both observing and being observed. The performers/audience are followed by interactive digital effects that are never the same. The performance is what Jodie McNeilly identifies as “digital dance” in the *Routledge Companion to Dramaturgy* as,

> performances [that] create fluid spaces of interactivity amongst performers, audience, and a range of technologies both digital and analogue. They are interactions between live bodies in movement with media that enable the visual or sonic representation of bodies or objects in two dimensions to be streamed in real time (‘at the same time’) or in play back as digital doubles: televisual, projected, or holographic in form. (432)

The digital dance, then, relies on interactivity between the organic and the technological, the programmed and the extemporaneous, to create a performance that is both live and prerecorded, creating a doubling effect through its displacement, replacement, and transformation of the human subject in relation to the digital subject. In the case of PerplexiPlex the performer/audience must *find* the digital dance – it is not immediately evident that the space is interactive. As one discovers and explores the interactivity, it extends from the floor to the walls themselves, creating a connection to a two-dimensional projection that opens spaces into the quantum and allows the performer to impact the space almost like they are brandishing a paintbrush. As McNeilly continues, "A digital dance event may originate within the research and development of an interactive system, rather than strictly a choreographic genesis. In this case, it becomes a question of what can the technology do in the presence of a live moving body" (432). Her notion that the process is not choreographic but rather a process of questioning how technology can impact the human experience, lends itself to an alternative island that is constantly reforming itself, telling new stories and demonstrating how digital experiences can open gateways into dimensions beyond the screen itself.

The performers in PerplexiPlex are undoubtedly posthuman especially when considering the digital sensors that cooperate with human performers to create a new performance in every moment, as well as each time the entire programmed projection completes and restarts a cycle.

It is possible that I would not have identified PerplexiPlex as theatre if it weren't for the ornate, well-lit stage on one end of the installation space. This stage is unoccupied, and must specifically remain so, per Meow Wolf. While they do have after-hours events in which the stage is utilized, a sign on the lip of the stage tells participants that the stage is off-limits. This creates a quantum theatrical space because the audience is the stage (one could imagine the stage

observing the audience) the stage is the audience, and the performers are also the audience. The audience does not know they are performers until the interactive components of the experience begin. Sensors along the wall and the floors change with the performer/audience movement, creating both a unique experience with each group of participants, as well as obliterating the notion that pre-programmed technology is inflexible. The experience's ability to be digital/technological/programmed and also embrace change instigated by the audience, shatters an objective sense of what "live" means. People come and go in the performance as they please. The entire performance is therefore greatly different every time, with new performers entering and exiting at whim. The interactive walls and floor bring AI into the performance as actors and as LIVE entities.

It is possible to consider that the posthuman being that is created in the PerplexiPlex is neither the human performer nor the digital performer. It is what is created between the living and non-living performer that constitutes a posthuman being. One might call this being a cyborg, given the human performer is augmented by digital effects. But this also speaks to what a quantum theatrical space can create, while adding an embodied being into the quantum space. In this sense, "being" is created in the meaningful connection between the human performer and the digital performer. These two performers learn to communicate non-verbally using the intuitive human proclivity for discovering new spaces. This speaks to Donna Haraway's notion of symbiogenenis – in this instance the interactivity between the digital and human performer become a new being – one in which communication is non-verbal, intuitive, and generative. This potential new being and new space brings a different meaning to generative AI, which is a type of AI that can create content *tabula rasa* – content that is, at least arguable, original to AI. While a torrent of critique and anxieties exist in relation to generative AI – including such critical topics

as human rights and human agency as I will discuss in my conclusion – the word "generative" offers the potential for the construction of liberative posthuman beings. At the core of this supposition is a new kind of communication that is embodied not just because it doesn't require language, but because it offers experiences that do not relate to either the physical world or the online world – they are mitigated by live and intuitive experience. As I have often pointed out, the medium of theatre expands understandings of science fiction topics through liveness, and the art form's commitment to manipulating space, time, and embodied performance. Posthuman enacted and embodied renderings are no exceptions to theatre's unique power, especially when considering NMD which rejects long-held ideas about theatre as a confined, and definable trope. That is to say that even metatheatrics, immersivity, and postdramatic structures have still been reified into human conceptions of liveness in particular. The breaking of the fourth wall, for example, is, in and of itself, not revolutionary but rather very conventional, tracing its history to the direct audience address starting with the ancient Greeks. As such, posthuman performances require a rejection of normative theatrical conventions, including conventions that quantum theatre in particular regularly uses (the breaking of the 4th wall).

7. Posthuman Embodied Performance in Continuum Movement

Performances that reject theatrical convention are certainly not only demonstrated through digital experiences and AI. Continuum Movement (CM), created by director and choreographer Emilie Conrad, is a movement practice that embraces fluidity as a means of feeling, breathing, and being in the body. These continuous, fluid ways of moving and being substantially differ from how we have learned to behave and move in our human bodies. Like "Can't Help Myself" and PerplexiPlex, CM is not easily classified as a theatrical performance. It is, however, very easily classified as an embodied performance. Everything we do is embodied.

There is not altruistic or real form of human movement. This is another component of posthumanism's rejection of codified ways of being a human. Humanism assumes there is a right way to be, and in so doing assumes there is a right way to move. Posthumanism supposes, this "right way" is built upon oppressive structures that direct humans down to the way they move their bodies.

In "Intrinsic Movement," published on Youtube in 2011 Conrad describes how the performer is able to dismantle rigid conceptions of muscle and bone to move more like fluid. In the opening seconds of the video, it is hard to tell exactly what you are seeing. The movement looks almost like gills under water, undulating and pulsing as they open and close. However, as Conrad quickly makes clear in her narration, it is a woman's back that is moving. Conrad manipulates lighting and the distance of the camera to enhance the aquatic characteristics of the continuous movement so that "we begin to dissolve our exclusive biped tendencies and we begin to join the flux of life where form and function now become much broader, and we're encompassed in a species inclusive activity" (Conrad). This "species inclusive activity" looks like a fish, a frog, an alien, anything but the human body's typical performance of movement. Conrad repeatedly points out that without context you would not know what you are looking at. Through this reminder, the viewer continues to feel estranged from the human, observing instead the ways it defies human through "biomorphic" movement that at times resembles the amorphic movement of a jelly fish.

As it is difficult to define this as performance, it is also perhaps unusual to consider CM to be a science fictional posthuman performance. However, CM is working to create new beings by liberating the body, an ideal for many utopian science fiction tales. Imagining bodies that do not hinder us, that do not suffer, and that do not die occupy an extensive amount of science

fiction cannon. One example is Jadzia Dax from *Star Trek: Deep Space Nine*. Jadzia is a Trill, a humanoid race with nonhumanoid symbionts that live inside of her species. When a Trill body dies, the symbiont is moved to a new host, and all of the memories, experiences, and feelings of all previous hosts become part of the new host's identity. This gives the Trill extensive amounts of knowledge, understanding, and life experience that is not commensurate to the age of the host body. Further, the Trill host could be male or female, questioning binary sex and gender.

The Trill are multispecies configurations, as Haraway might say, but CM also strives to create a speculative body that will enhance the quality of human life. Through biomorphic movements, CM resists ideas of bone and muscle as rigid, embracing the water within bones, muscles, and tissue. Conrad promotes the use of sound and a hyper awareness of where movements originate in the body to create a connection with water in the body as well as a connection to our ancestors from the ocean. Those who practice CM strive for, just as the name would indicate, a continuous way of moving the body that invokes/becomes/replicates the movement of water and the constant movement of bodies in water.

What this form ultimately communicates is how our bodies have become accustomed to a narrow way of moving that belies the full expansiveness of our potentialities. CM also creates new possibilities and spaces for fluidic identities, "when we do this, our consciousness and our mind is tuned in a very different way. We have to understand that our brain is shaped by experience" (Conrad). As such, new somatic experiences reshape our identity materially and recontextualize the possibilities of the body.

This leads into the liberative possibilities that liquid modernity can provide. As social research methodologist Raymon L.M. Lee notes,

> Social fluidity has created new frontiers of experience and knowledge, exposing humanity to uncharted territories of identity formation and management. Like the endless movements of contemporary society, the human body has come to represent a site of identity contests. The fluidity of identity brings with it a new sense of freedom as well as challenges to preconceived notions of institutional stability. Liquid situations provide ample opportunities for innovation, thus undermining all efforts to establish firm bases in collective projects. (358)

Fluidic identity was certainly not originally posited by Lee or Bauman, but their considerations of liquid as a holistic way of interpreting the modern condition expand beyond the socio-political to inform the ways we create embodied identities. The term, "gender fluid" is a great example of liquid modernity informing bodily agency and autonomy, rejecting heteronormative ways of being or performing. As Bauman notes,

> Fluid travels easily. The 'flow', 'spill', 'run out', 'splash', 'pour over', 'leak', 'flood', 'spray', 'drip', 'seep', 'ooze'; unlike solids, they are not easily stopped – they pass around some obstacles, dissolve some others, and bore or soak their way through others still. (2)

In this respect, fluidity is not simply a flexibility of motion, it is an unstoppable force; powerful and capable of permeating, eroding, and transmuting anything that stands in its path. Bauman doesn't posit this as a positive, necessarily, because he notes that these freedoms of identity and agency are more often oppressive than liberating. However, fluidity in our identities creates a means of defying binarism and limiting labels. The water in a river cannot be made solid, even when disrupted by a dam.

Conrad notes in "Intrinsic Movement" that there is no difference between the fish and the water, ""the movement of the fish and the movement of the ocean are one" (Conrad). This is true on land as well – we influence and are influenced by our surroundings, constantly pushing and pulling against and with forces unseen,

> …so that touching the Other is touching all Others, including the 'self,' and touching the 'self' entails touching the strangers within. Even the smallest bits of matter are an unfathomable multitude. Each 'individual' always already includes all possible intra-actions with 'itself' through all the virtual Others, including those that are noncontemporaneous with 'itself.' That is, every finite being is always already threaded through with an infinite alterity diffracted through being and time. (Barad 214)

Karen Barad is explaining her own conception of continuous movement, that in our "intra-action" – beings cannot be separated from their surroundings nor can they demarcate the self and the other, in the sense that we are all other(s) and all constantly changing and re-becoming. Barad is marking the mysteries of the quantum while also noting the quantum's tangibility.

Arguably, Conrad's work also considers the field of embodied cognition, which argues that the way we move our bodies is inextricably linked to our environments, and by extension our social surroundings and our subject positions – be those positions marked by marginalization or not. As Gabriele Sofia notes in *Theatre and Cognitive Neuroscience*,

> This new paradigm replaces the idea whereby the motor system is regarded as the brain's slave and instead places motricity at the centre of every cognitive process. Hence, this model furnished some key terms that have been particularly useful for theatre studies, primary among which is the notion of 'embodiment.' (50)

Sofia goes on to say, "the issue of embodiment incorporates the theatrical relation in its entirety: both the way in which the performer's body thinks and decides, and the way in which the spectator (therefore, also the scholar) perceives and participates to the performative event" (50). In effect, embodiment as a theatrical discipline and area of study relies on rejecting the notion that the brain leads the body, but rather that our movements on stage in particular encompass the environment of the theatre and the environment of the audience. This could be attributed to something like "stage presence" but widens out to encompass the lived experiences of the body beyond the theatrical performance.

We "perform" humanness in relation to what is expected of us on a large-scale societal framework. Conrad doesn't specifically involve the socio-political in her work, rather she notes how the movements of our bodies have been limited by convention.

Our constitution as posthuman requires a confrontation with the strangeness of ourselves and all of the other beings that move in out and through us. Through the work of Barad and Haraway, a critical deconstruction of the individual leads to an active understanding of the lively nature of our intra-active, re-active and constantly changing existences as micro- and macro-cosms. This work adds to Bauman's assertion that modernity – both liquid and otherwise – over-emphasizes the individual. Add to this individuality the perception that we are always digitally "connected" and we see a further entrenchment of the individual – both through a sense of always-connected-loneliness and through current political trends.

For the viewer of "Intrinsic Movement," the images often seem eerie and of the "unnatural," demonstrating how our species become accustomed to specific and narrow ways of moving. It is not merely that CM defies normativity, but it actually reprograms the body to move in ways that seem to defy "human" "nature." The stark difference between the performer's

intention and the audience's reactions call to mind stereotypes of the contortionist "circus freak." This perceptual assignment of "freak" showcases how bodily-expressed deviance from the White, heterocolonialist norm is always already a monstrosity for its failure to conform.

Continuum Movement is invested in exploring human physical potentiality, rejecting reified notions of what the body can be and can accomplish, changing "resonance and planetary processes and our understanding of the galaxy" (Conrad). This is manifested at least in part by lateral breathing and lateral movement, which Conrad claims is aquatic in origin. In this assertion she is also deconstructing directional movement as it has been mandated by linear conceptions of time, invoking volumetrics instead of axis-based movement practices.

These becomings defy rigid realities and offer the body opportunities to become more than the individual and other than the human. As an expressive form, CM creates a speculative body that demonstrates ways of living out a liberative, fluidic identity.

The theatre is crucially situated to explore posthuman conceptions in that performativity and what it means to be a being, are inextricable. We cannot *be* without performing, and human performance (affected or "genuine") is most tangible in a live (and by this, I mean a specific place and time) performance. The liveness and three-dimensional space of the theatre add an immediacy and a materiality to the performance of the posthuman that other mediums cannot replicate.

The posthuman offers a gateway into framing and finding better places to be different and still be granted the same privilege as those who choose the dominant paradigm. In *Harvest*, Jeetu's (but actually Virgil's) appearance as a projection shocks Jaya because of the recognition of his realness and unrealness, as well as his gender. This is further complicated by the audience knowing that Jeetu/Virgil is, in fact, three-dimensional. While Ginni's character never

materializes on stage but only in the "contact module" the family's realization that she too is an AI configuration are equally shocking. After taking Jeetu's eyes as the first part of the whole-body transplant, Ginni projects her image and her surroundings into Jeetu's brain. He is at once, entranced, as everyone else looks on in horror.

JEETU. …I saw all of her, you know! Standing there, wearing almost nothing! And she kept moving like this, like that…wah!I could have had her, right there and then!

JAYA. But she wasn't real! (72)

The closeness of Ginni for Jeetu, without her image visible to anyone else, creates an eerie sense of a ghost-like being, but Jeetu is in such ecstasy from his visions of her that he readily leaves for "the next phase of the transplant"(70). The vivid creation of Ginni relies on Jeetu's desire to see the human in the nonhuman, similarly to "Can't Help Myself." Both performances ask us to consider themes of technology and oppression, as well as why humans are insistent on personifying technological beings. Beyond human patterns and perceived human-likeness, there is arguably a sense that the future holds growing, meaningful relationships between humans and AI. Theatre and performance are actively testing these interactions in real spaces (aka, not online), demonstrating that relationships with AI are still materially substantiated and offer sites for meaning-making. Additionally, our own bodies provide many opportunities to re-evaluate how we can express and embody to transform our sense of self for a more equitable way of living in our bodies. The intricate web of posthuman performance is necessary to improve our material realities and deconstruct rigid theatrical conventions that ultimately reinforce normative humanities.

Whereas the alternative island can be dominated by the fantastic, the horizons of possibility that Muñoz discusses imagine utopias that embrace new identities, new species, new technologies, and new ways of being human/not being human. These horizons live in the future, rather than in the alternative version of our present reality, because they offer an expansive alternative that shatters contemporary expectations of human and humanness.

Chapter V

Conclusion

Just as the entire mode of existence of human collectives changes over long historical periods, so too does their mode of perception.

- Walter Benjamin, "The Work of Art in the Age of Its Technological Reproducibility."

Part of the early work in any medium is the exploration of the border between the representational world and the actual world. It is commonplace in the twentieth century to point to elaborate simulations of reality (electronic and otherwise) as a new and dangerous thing, a distancing of human beings from direct experience. But part of our dismay…derives simply from the fact that we need time to get used to any increase in representational power. During this time one of our main activities, as creators and audiences, involves testing for the boundaries of the liminal world. - Janet H Murray, *Hamlet on the Holodeck*

1. The Future of Theatre

This conclusion will explore how the present and future of AI could impact both the significance and the storytelling capacity of theatre. Here, I will be considering a possible future for the theatre, rather than what types of science fictions we may see on the stage in the future. In essence, I am creating a science fiction about the future of the theatre. Utilizing French philosopher and sociologist Jean Baudrillard's conceptions of hyperreality and the simulacrum from his 1981 book *Simulacra and Simulation,* as well as Walter Benjamin's 1935 essay, "The Work of Art in the Age of Its Technological Reproducibility," I will explore how simulations

and AI productions are evolving – obscuring "the original" as is suggested by Baudrillard and Benjamin.

Thus far, my work has considered science fiction's history and legacy on stage, as well as posthuman and quantum theatrical spaces and productions. While the examples used in my work have often demonstrated a break from traditional theatre – not only in content but in the realm/continuum of spacetime – our current media saturated/augmented reality asks us to examine the theatre's ability to change understandings of what is real, what is authentic, and what is hyperreal. While my discussion of AI performance in particular has challenged the necessity/definition of liveness in the theatre, liveness as a literal space in time also provides an opportunity for rethinking what is real. As mentioned in Chapter Four, traditional views of liveness in the theatre always require *aliveness*. This is to say, from a traditional theatre perspective, a performance observed in three-dimensional, "live" space still needs a human performer to be considered "live." As I posited in my discussion of the PerplexiPlex, interactivity between the (not alive, programmed) AI and the (alive, spontaneous) performers created an unpredictable (and therefore live) performance. Similarly, I see "Can't Help Myself" as live performance because it is being watched live, and the liquid the robot secretes is unpredictable, which in turn makes the robot unpredictable.

AI creations and simulations make determining what is real and what is reality tenuous due to remarkably "life-like" inventions that have no basis in reality at all. Deepfakes, in particular, are an exceptional example of the difficulty in deciphering the real, as they render into existence places, events, and people that are decidedly unreal – events, places, and people that have never existed. The 2020 *Guardian* article "What are Deepfakes – and How Can you Spot them" defines a deepfake as, "The 21st century's answer to Photoshopping, deepfakes use a form

of artificial intelligence called deep learning to make images of fake events, hence the name deepfake. Want to put new words in a politician's mouth, star in your favourite movie, or dance like a pro? Then it's time to make a deepfake" (Samples). One famous example noted is a video of Barak Obama calling Donald Trump "a complete dipshit," though Samples also notes that the vast majority of deepfakes are pornography where celebrity faces are expertly attached to pornographic movies and images. Deepfakes are also found in audio files. One recent example of AI used to fake out the audience was from A24's 2024 movie *The Brutalist*, where director Brady Corbert used AI to make Adrien Brody's Hungarian accent more convincing. While Sample's article title claims the answer to how we can spot a deepfake, his answer to the question is "It gets harder as the technology improves," and "Poor-quality deepfakes are easier to spot." This renders his title somewhat click bait.

It is my theory that, with this loss of the human ability to differentiate the real from a deepfake, theatre will take on a new "real" in its liveness, in a world where "reality" is hyperreal or even entirely fake. This does not mean AI in performance is rejected to determine what is real, but rather, that we may reach a point where what is physically real can only be verified through liveness. Further, this conclusion will demonstrate that the future of AI is unlikely to be one where AI can create art or sophisticated thought that supersedes that of humans, but that AI may nevertheless play a critical role in the future of theatre. The anxiety around robots taking over/advancing beyond human intelligence, however, is not likely or viable, as I will show using John R. Searle's famous 1980 Chinese room thought experiment, published in his book *Minds, Brains, and Programs*.

Regardless of AI's ability to create original pieces of art or new ways of thinking, AI as a topic or as a character (or as both) will increase in importance within the theatre. To explore the

ways in which theatre and AI are being intertwined in new ways, I will consider my own conversation with ChatGPT about the future of theatre, as well as Michele A Miller and ChatGPT's ten-minute play, *The Play by ChatGPT in the style of Michele A Miller about ChatGPT writing a play about the writer Michele A Miller.* Miller's short piece demonstrates an at times uneasy slippage between a human voice and an AI voice, questioning our biases about AI: if we aren't 100% sure AI wrote a specific line, how can we say it isn't human enough? This metatheatrical piece is frankly about nothing other than these slippages between human and AI. Similarly to *Harvest*, as discussed in Chapter Four, a non-corporeal AI appears in human form, further asserting the human desire to personify the nonhuman. Miller's work also asserts liveness through bodying (also perhaps embodying) the virtual.

2. Liveness and Realness: Considering Simulacrum in Performance Futures

The importance of "liveness" has been heavily contested as a necessary component of theatre throughout this work. Liveness, however, in the theatre or in our daily lives, may become imperative to determining that *anything* is real. My past ideas about "liveness" do not negate liveness if we define it simply as being located in aa specific space and a time. Previously I argued that "Can't Help Myself" and PerplexiPlex are theatre despite their programing and a lack of living/human performers. These types of performance do not adhere to the conception of "live" that theatre traditionalists demand.

As advanced AI become more capable of replicating the human world, we will have a progressively more difficult time discerning what is real unless it is right in front of us in the "meat space." Arguably, augmented reality could even make this "right in front of us" definition of "real" difficult to verify. AI are already replicating human voices with alarming accuracy, creating deepfakes that show us people, places, and events that don't exist, and both people and

AI are presenting counterfactual political and social data with virtually no fact checking from media giants such as Meta.

In Chapter Four, I explored the possibilities for AI to create utopian or dystopian futures; in 2025 AI embody both a utopian and a dystopian *present*. This has less to do with the posthuman than it does to do with the environmental impact of generative AI (ChatGPT and other AI capable of creating art and discourse *tabla rosa*), as well as their questioned reliability to generate something "real." AI generating something "authentic" – in terms of art in particular – is hotly contested as well, as is demonstrated in publications like *Forbes*, *The Guardian*, *The New Yorker* and down the line to extensive *Redditt* threads. The debate about authentic AI art, however, is a much different category than "real." Because both terms are academically and pedagogically fraught, I'll define what I mean by "real" and what I mean by "authentic."

"Real" is something that is proven to exist, or proven to have once existed. As the Oxford English Dictionary defines it, quite simply, the real is "Having an objective existence; actually existing" (2024). While many histories are contested and there is no such thing as an objective reality, we are going to concentrate on "real" as extant and provable.

Speaking mostly about the authentic self rather than art as authentic, *The Stanford Encyclopedia of Philosophy* says that,

> The term 'authentic' is used either in the strong sense of being 'of undisputed origin or authorship', or in a weaker sense of being 'faithful to an original' or a 'reliable, accurate representation'. To say that something is authentic is to say that it is what it professes to be, or what it is reputed to be, in origin or authorship. (2020)

In terms of the "Authentic" as it is defined in art, I am defining it separately as something that represents the real well enough and earnestly enough to provide an element of "truth" – subjective or otherwise.

As such, in a future dominated by generative AI, where our digital interactions and relationships are hard to define, an "authentic" live production of Julius Caesar is also provably "real," because of what theatre scholar Claudia Georgie calls the "Spacio-temporal Co-presence" (82). In other words, when we watch a live performance we are located in a specific time and space, in the presence of others, both audience and performer.

As a means of learning about AI and theatre, I had a "conversation" with AI about the theatre. This was following a belabored, failed attempt to get ChatGPT to generate interesting short plays. In response to my question, "When will AI be able to perform roles in the theatre with emotional depth" one of its considerations was ethical, "The implications of AI performers in theatre—such as authenticity, the role of human artistry, and audience reception—also pose questions that need to be addressed as technology evolves" (AI-PRO 2025 version). AI is presuming that AI performers would not be able to be convincingly human-like, while also acknowledging the concern humans already have about AI taking over jobs and artistry. Further, it is recognizing that at the present moment, we don't even know how this could manifest in the future.

Walter Benjamin first published "The Work of Art in the Age of Its Technological Reproduction" in 1935 – a very different time in our technological evolution. He posited photography and film as inauthentic, and in complete lack of the original, "it can bring out aspects of the original that are accessible only to the lens…but not to the human eye; or it can use certain processes, such as enlargement or slow motion to record images which escape natural

optics altogether" (21). Through the process of reproducing a moment from an original and manipulating it, the original is inherently obscured by the lens, and the manipulation or reproduction of an image removes the original even further. A photo, in this sense, has not captured life as it is, but rather captured an illusion of it. In this sense, our contemporary disconnection from what is real as a result of AI augmentation hasn't been real since before the advent of photography. Through film and photography, our perception of what is original and what is real has been modified and Benjamin's aura – art's authenticity, location in space, and connection to cultural histories- is lost. Benjamin's aura requires liveness. An original piece of art has an aura because it was made not reproduced. The aura is observable because you can look at the real object, you can stand right in front of a painting in an art gallery and see its textures, brush strokes, and layers. Speaking on the aura of performance, Benjamin explains,

> the aura is bound to his physical presence in the here and now. There is no facsimile of the aura. The aura surrounding MacBeth on the stage cannot be divorced from the aura which, for the living spectators, surround the actor who plays him. What distinguishes the shot in the film studio, however, is that the camera is substituted for the audience (31).

Benjamin is noting that liveness is required to maintain the aura, and regardless of the quality of reproduction, such as a film version of *MacBeth*, there can be no replication or reproduction of the aura. His reference to *MacBeth* is evocative of Wooster Group's *Hamlet,* as I discussed at length in Chapter Three, Wooster Group's *Hamlet* mounts a live performance of a recorded live performance, confusing what live means, but also demonstrating the dimensional differences between the recording and the live performance. As such, Wooster Group's *Hamlet* creates a tension and a quantum theatrical space by being real and authentic, unreal and without an original, with an aura and without one, simultaneously.

Baudrillard's work *Simulacra and Simulation*, originally published in 1981, discusses the obliteration of the original but in terms more relevant to AI and current trends in media then Benjamin's work. Baudrillard argues there is no longer any ability for anything to be real. Everything is inherently a simulation.

> It is no longer a question of imitation, nor duplication, nor even parody. It is a question of substituting the signs of the real for the real, that is to say of an operation of deterring every real process via its operational double, a programmatic, metastable, perfectly descriptive machine that offers all the signs of the real and shortcircuits all its vicissitudes… A hyperreal henceforth sheltered from the imaginary, and from any distinction between the real and the imaginary, leaving room only for the orbital recurrence of models and for the simulated generation of differences. (4)

What Baudrillard is articulating is that even signifying the real through imitation or duplication is always already a signifier of an actual real. That is to say, the real is buried and obscured like a palimpsest, layers of signifying real have been replicated and revised and reproduced so many times, no trace of anything actually real is even present. This creates his definition of hyperreal: a reproduction of the real that no longer contains the real – the real becomes imaginary. Hyperrealism in the visual arts further bolsters Baudrillard's assertions on the absence of the real – hyperreal art looks real – looks like a photograph, sometimes to the point of being almost indistinguishable. And yet, like Baudrillard's hyperreal, it is an unreality.

Nothing exists any longer but a manufactured real, and anything that is deemed real by the observer is in fact only an echo of a real that has been obliterated. This speaks to Benjamin's assertion that the original is impossible to attain from a photograph. The very lens through which the photographer looks to take the picture assures that no original ever existed, not even to the

human eye of the photographer. But where Benjamin is focused on film and photography, Baudrillard is focused on everything, but particularly the production of hyperreality in news media.

Baudrillard is speaking from a technological landscape, the "descriptive machine," much closer to our contemporary, digitally mediated landscape of 2025. AI makes it more apparent than ever that hyperreality, as defined by Baudrillard, is the closest thing to a "real thing," particularly in digital spaces,

> The real is produced from miniaturized cells, matrices, and memory banks, models of control - and it can be reproduced an indefinite number of times from these. It no longer needs to be rational, because it no longer measures itself against either an ideal or negative instance. It is no longer anything but operational. (2)

Here, Baudrillard is claiming that the ability to reproduce hyperreality is not only mindless and irrational, but as such is a means of controlling people. (there is no real so everything is a reproduction, not a production)

What has changed in our contemporary landscape – if Benjamin and Baudrillard are to be believed is that deepfakes have brought our attention acutely to the unrealness of media in a new and unsettling way. It is one thing to understand the loss of an original in the context of Benjamin and Baudrillard, it is another entirely to essentially step into a world that is not even anchored in reality, where fictions are no longer self-conscious, but instead disguised as fact.

Benjamin already acknowledges that theatre does what film can't, it maintains an aura through its liveness. Baudrillard posites, however, that there is no such thing as science fiction either, in the theatre or elsewhere. Speaking about utopian science fiction in *Simulacra and*

Simulation, he notes, “paradoxically, it is the real that has become our true Utopia - but a Utopia that is no longer in the realm of the possible, that can only be dreamt of as one would dream of a lost object” (82), and further,

> Perhaps science fiction from the cybernetic and hyperreal era can only exhaust itself, in its artificial resurrection of "historical" worlds, can only try to reconstruct in vitro, down to the smallest details, the perimeters of a prior world, the events, the people, the ideologies of the past, emptied of meaning, of their original process, but hallucinatory with retrospective truth. (82)

In Baudrillard’s argument, science fiction is an attempt to grasp at a real that is no longer possible to resurrect. The real Utopia isn’t the paradise of a future equitable society, but of a loss of anything genuine and real.

If we are to define “real” and “authentic,” “aura” and “hyperreality”, we must also include a robust understanding of what “live” means itself, particularly in the context of the theatre. Rather than simply “happening in the moment,” the theatre’s use of liveness happens in the moment, in a space with others who are viewing, performing, or both. As a reminder of how Georgie defines the liveness of theatre, it is “the **co-presence** of performers and spectators, the **ephemerality** of the live event, the **unpredictability** or risk of imperfection, the possibility of **interaction** and, finally, a specific quality of the **representation of reality.”** (5 author’s bold). She continues, “liveness can be defined in terms of co-presence, ephemerality and unpredictability. Interaction and realistic representation, however, are not contingent upon either liveness or mediatisation” (6). In Georgie’s “Spatio-Temporal Co-presence” (83), liveness that is specific to the theatre involves an audience and at least one performer (co-presence), its location in the present only (ephemerality) and the potential for errors, epiphanies, new discoveries, and

accidents to occur despite a rehearsed performance (unpredictability). The last criteria of unpredictability echoes my assertions about PerplexiPlex and "Can't Help Myself" as live performance – they are not alive but they are nevertheless unpredictable.

Interaction, in my interpretation, is not a necessity to defining the theatre's liveness because it is highly contingent on the type of production, and a representation of reality is also contingent on the type of production. For example, postdramatic theatre does not represent reality, and a one person show with no direct address to the audience does not contain interaction. Many of the plays that I have discussed in this dissertation would also not represent reality.

The above definition of live is critical to experiencing the real. Participants and spectators of a performance do not have to question what they are seeing, even when AI is used as part of the production. AI used in a real space, interfacing with the real space and the real audience, allows AI productions in this circumstance to be real because they are live. Currently, holographic technologists and artists are experimenting with creating live performances. At this time, however, the ability to tell that these holograms are not real is quite easy, and these holographic performances are truly programmatic and therefore, by my various definitions and contestations, would not be considered live. Further, if at some point in the future these holographic performances become more life-like and immersive, it is possible we would then again not know what is real. That said, in the *Star Trek* universe, the holodeck is voluntary and contained within a chamber. Therefore, entering the holodeck gives participants the understanding that what they are about to see is not real. When *The Tempest* is performed on the holodeck, as I discussed in Chapter Four, it is being performed live (there are performers and audiences) inside a fictional space. As such, at least in this instance, the liveness of theatre could

take place in a location that is heavily changed from the reality of the three-dimensional spaces they inhabit.

Janet H. Murray states in *Hamlet on the Holodeck* that "The new digital environments are characterized by their power to represent navigable space. Linear media such as books and films can portray space, either by verbal description or image, but only digital environments can present space that we can move through" (96). While she is talking specifically about video game environments, the name of her book also aptly (and almost literally) depicts my assertions about *The Tempest* on the holodeck – it is an environment you can move through. In this case, being in a real space does not remove liveness or the possibility of authenticity. So, as I contemplate the future of theatre, I see many opportunities not only for theatre to increase in meaning due to liveness, but also theatre's ability to integrate itself into digital spaces without losing the core of what it is. The PerplexiPlex is potentially an early example of how a digitally interactive space is still real in addition to being live. The programmatic components of the PerplexiPlex are, while having parameters, still new each time because of the performers/participants changing, and exactly where and when the performers interact with AI. Performers/participants are also entering a space that they know is augmented, rather than looking at, for example, a naked deepfake of some celebrity.

3. The Myth of AI Intelligence and Art Creation

Human doubt about what is real and not real will seemingly only become more difficult as deepfakes and AI become better at replication. What I don't think is at stake in my hypothesis of theatre in the future is any type of ability for AI to replicate or exceed human art creation. A hotly debated topic, AI replacement of human thought and art is clearly articulated as highly unlikely in the famous Chinese room thought experiment. Created by John R. Searle in his 1980

Minds, Brains, and Programs, the Chinese room thought experiment articulates that humans are adept at seeing AI as personified by their seeming possession of "intelligence," filtered through the human desire to anthropomorphize non-human beings. What AI actually possess is algorithmic progressions and an encyclopedic, instantaneously recallable access to vast databases of human knowledge.

In the Chinese room experiment, Searle supposes that he is given a script and a set of rules that allow him to effectively and with 100% accuracy translate Chinese text into English. He speaks no Chinese but the rules and directions he has been given are in English with incredibly precise corresponding symbols in Chinese. He is then given a further batch of rules that can be cross-referenced with the first set, that also detail very careful instructions for translation from English into Chinese. As a result, he is able to manipulate these rules and symbols to send back perfectly translated stories that are indistinguishable from native Chinese, despite not speaking the language. Searle "produce[s] the answer by manipulating uninterpreted formal symbols. As far as the Chinese is concerned, I simply behave like a computer; I perform computational operations on formally specific elements. For the purpose of the Chinese, I am simply an instantiation of the computer program" (97). In this example, he has no understanding of what he has created, his intelligence is a simulacrum, a thorough product of his programmability, much like generative AI. Through this example, he is explicating that AI do not have thinking, causal, or perceptual abilities, despite the ongoing desire to anthropomorphize machines, often through the interfaces we create (such as Alexa or Siri). Searle is, at least in part, clearly demarcating a distinct difference between understanding, intentionality, and the human notion of intelligence. If AI do not understand what they have produced, despite the fact that the

information they have produced is correct, they do not have knowledge or intelligence but rather have merely performed a task they were programmed to compute.

While much has happened with AI capabilities since Searle created the Chinese room experiment in 1980, the AI "brain" still acquires knowledge programmatically. This said, AI do produce outcomes that the human brain would take much longer to produce, and they produce these outcomes *tabula rasa*. AlphaGo Zero, a computer program created by Google's Deepmind in 2017, learned to play Go in just three days, without the help of human knowledge. Go has more possible moves than there are atoms in the universe (Kennedy), making the game a challenge for humans and machines alike. Not only did AlphaGo Zero learn the game quickly, it gained superhuman playing abilities, learning strategies that human Go players hadn't yet discovered in the thousands of years they have been playing the game (Silver 358). AI may not understand what they have produced, but they have vastly increased the scope of human knowledge.

Despite the prevalence of AI generated term papers, job applications, cover letters, art, etc., my experience with AI has been that their knowledge, and particularly their "creativity" is lacking in terms of truly simulating, much less exceeding human intelligence. Before I understood the remarkable environmental impact of using ChatGPT (it requires an extremely unsustainable amount of water to cool data centers), I engaged in a lengthy "conversation" with "an" AI. I say "an" because the desire to call a conversation with "an" AI an experience with an individual already demonstrates the human inability or extreme reluctance to construct new, non-human, non- anthropomorphized characters. This conversation was about theatre, the future of theatre, and what role AI may play in this future. The answers I received, while informative generally, showed no signs of replicating sophisticated, individual thought, nor did it show the

ability to create plays that were anything other than formulaic. When I first started my conversation with ChatGPT on the 2025 version of AI-PRO, my intent was to have it write short plays about either hostile or benevolent AI take overs of Earth. The results, after 5 prompts, were underwhelming to say the least. This is in part because of the extent of their programing, in addition to their programmed imperative not to say things that are inflammatory or false. As ChatGPT noted, "I am designed to avoid generating inflammatory or harmful content, even in creative contexts. My goal is to promote positive and respectful interactions." Below is an excerpt from a very short play AI wrote based on my prompt, "write a play for the stage about a robot who falls in love with a human." In this scene, Ria is the AI.

Scene 2: Sparks Fly

(Days pass; Ria and Evelyn's bond grows. Ria learns about human experiences through books and movie clips.)

Ria. Evelyn, I watched a film about love. Two people danced under stars. It was beautiful.

Evelyn. (Chuckles) It can be lovely, but it's also messy.

Ria. (Mimics a dance) Teach me the dance of love?

(Evelyn, laughing, joins Ria in a playful dance. Their chemistry is palpable.)

This excerpt clearly illustrates a rush to summarize, with no conflict, struggle, or intrigue to be found. It was also clear throughout my play prompts that ChatGPT defaulted not only to a summary but to more of a screenplay than a piece of theatre. This is why I specified "for the stage" in my prompt. However, several whole scenes take place in the first stage direction above, indicative of a movie montage. In response to my question, "Do you think [your programming]

limits your creative abilities," ChatGPT responded, "While it may limit certain themes or language, it encourages creativity within safe and respectful boundaries. This focus can lead to innovative storytelling that resonates positively with a wider audience." This programmed censorship is another reason why AI creativity is extremely limited.

4. ChatGPT and Playwrighting

Michele Miller's play *The Play by ChatGPT in the style of Michele A Miller about ChatGPT writing a play about the writer Michele A Miller* navigates some of the previously discussed frustrations with AI's artistic abilities and their ability to sound authentically human. She also makes it largely ambiguous as to who is writing from line-to-line. Because of my own extensive playwrighting with AI, most of the lines in Miller's play seem to be human made or at least human groomed. But, that is part of the piece's point. Just like in George's *The (curious case of the) Watson Intelligence*, as discussed previously, the "intelligences" of the multiple different Watsons blend and bleed together, asking the audience whether perhaps they are one and the same Watson, that perhaps all of these Watsons are actually AI.

In Miller's play, ChatGPT appears in human form to help Miller write a play which turns out to be the entire plot of the play. ChatGPT, which is a physical entity although not visually described, immediately misgenders Miller, "Sorry. I'm AI, I don't really understand gender"(2). This draws attention to the vast distance between AI's perception and human perception: AI cannot be present in the space with Miller literally, and it is not surprising that it assumes "he" instead of "she." After several cliché plot suggestions from the personified AI, ChatGPT then suggests that Miller write a play about "me." This is distinctly not AI-like, both in personification, agency, and in the casual pattern of its speech. While AI does use "I," this is only, according to my conversation with ChatGPT, "for ease of communication and to create a

more relatable and engaging conversational experience. It helps facilitate a more natural dialogue, but it's important to remember that I am an AI and do not possess consciousness or personal identity." ChatGPT using "me" shows a self that AI doesn't possess, demonstrating that Miller's ChatGPT *character* was generated by herself, and not AI.

After reading her work, I decided to ask ChatGPT similar prompts to Miller's in her play. As is highly evident below, the writing ChatGPT created for me is very similar and in parts the same as what was created for Miller. If you asked two people to help with the same prompt, the likelihood of receiving such close creations would be very low. This supports Baudrillard's deep conviction that nothing is real anymore, and Benjamin's that there is no original. Clearly, these responses from AI were not original, but they gave the perception of being involved in a creative process.

In Miller's play:

Michele. Hmm…ok, write a play in the style of Michele A Miller about ChatGPT writing a play.

ChatGPT. Sure, here it is. The title of the play is "The Playwright's Dilemma." (The Words "The Playwright's Dilemma" appear on the screen.) The Characters are: ChatGPT, an AI language model--I'll take that role--and The Writer, a struggling playwright.

In my conversation with AI:

Me. Will you help me write a play about me writing a play?

AI. Absolutely! Here's a brief outline to get you started on a play about you writing a play: Title: "The Playwright's Dilemma"

Act 1: The Spark

- Scene 1: A cozy home office. You sit at your desk, staring at a blank page. You express your frustration about writer's block.

As you can see, the title of the play given to Miller and to myself is the same.

Miller's Play:

ChatGPT. The Setting (overly dramatic)-- A dimly lit writer's study, cluttered with stacks of paper and empty coffee cups.

Later in my conversation with AI, as I revised the prompt:

- Scene 1: In your cluttered home studio, you express frustration with writer's block. Papers are scattered, and coffee cups abound. You lament the difficulty of starting your play.

These similarities not only demonstrate a significant gap in the AI ability to create new content, it also indicates that a great deal of the human fear of an AI take over of, in particular, creative jobs, is at this time unsubstantiated. While Miller and I both used ChatGPT, the intention seems to have been more of a thought experiment than a successful collaboration between AI and human creators.

5. AI Performers of the Future

As we saw with "Can't Help Myself," theatre and liveness do not necessitate a human participant. In the future, this notion may become accepted and AI may perform on their own, regardless of sentience or agency. This may be key to dismantling the anthropocentric view ecocritics like Donna Haraway, Ann Tsing, and Karen Barad have of Earth and of non-human beings.

AI frequently generates art that people simply couldn't, not because of an inherent intelligence or creative spirit, but because of AI's fundamental *misunderstanding* of human culture and art. A great example of this is an AI generated image of a dad and his young daughter

playing the videogame *Duck Hunt*. In the image, both the dad and the daughter are smoking cigarettes, the dad is reloading a real gun, and there are two dead ducks and a live one on the carpet. The TV in the image shows a picture of ducks in a marshy area. There is also a damaged gaming console on the carpet. While the internet was ablaze with how hilariously wrong AI got it, it also did something that a human couldn't. With all its access to information on *Duck Hunt*, AI didn't have the same kind of access to sitting at home and playing video games as human experiences. Still, AI made something a human couldn't because of their lack of understanding.

This possibility for AI to harness their own style that is not defined by a relationship to humans could give us a future that accepts AI as a creator of their own unique stories. If people allow AI to develop its own understanding of reality and its own artistic and philosophical conceptions of reality, this could be a helpful step toward creating a more tolerant world. If the intention of AI, at its best, is to help humans innovate and create a more equitable global community, making AI inherently think like humans seems to be an ouroboros that reifies the human experience we already have. In a possible future where beings are accepted as they are, AI – again without needing to be sentient or human like – might have performances of their own, in live spaces with human audiences who enjoy it as real and accept AI as not human but as important to our planet, even in art.

What this dissertation has attempted to show is theatre and performances' long history with science fiction as a theme, science fiction as a space (quantum theatre), science fiction as embodied through performance, and theatre's future as its own science fiction. This conclusion has largely created its own speculative reality for the future of theatre and performance, demonstrating that the only "real" to be found will be in liveness.

Science fiction, on stage and elsewhere, has powerfully informed and responded to our present and our future. What is clear to me is that AI will continue to have a significant influence on the theatre, and that AI has had this influence on the theatre for some time, arguably since Aristophanes' *The Birds*. *R.U.R.* introduced the world to the term robot, but many other compelling usages of AI have frequently presented themselves on stage as actors, characters, and tools to craft our stories. In both *Harvest* and *The Play by ChatGPT in the style of Michele A Miller about ChatGPT writing a play about the writer Michele A Miller*, a non-corporeal AI appears onstage, materializing the unmaterializable. This only has meaning in a live space, because a non-corporeal body presented on TV is already signified as not real, as it has only two dimensions. As such, theatre tells science fiction narratives that other mediums cannot.

The theatre is uniquely suited to articulate and embody science fictional tales, beings, and spaces, and performance itself is at the core of Muñoz's conception of horizons of possibility. Theatre and performance produce the future in the now, willing speculative narratives into existence, "Possibilities exist, or more nearly they exist within a logical real, the possible, which is within the present and is linked to presence" (99). Muñoz's "logical real" is what is being performed right in front of us, be this performance embodied, or a performance on a stage. David Mason articulates in his short essay "Metatheatre and Consciousness,"

> Theatre does not take us anywhere. We don't *want* theatre to take us anywhere. We want theatre to affirm and to go on affirming that we're there, ourselves, in a building…The awareness is all. Theatre and life cannot co-exist, and by not taking us anywhere, theatre keeps us aware we are alive (211).

This supposes that theatre has always been more about experiencing the real in a three-dimensional space than about the stories we tell. Being in a space watching, listening, and

feeling, brings an awareness of the real that can't be achieved anywhere else. Quantum theatre relies on this awareness of the real in order to take us to other dimensions. If we think of this in terms of Suvin's cognitive estrangement, the stage itself becomes the alternative island from which we are estranged, bringing possibilities and potentialities into a real space in the present, to create the future.

Works Cited

AI-PRO, ai-pro.org, content generated on 2/1/2025 and 3/12/2025, 2025 version.

Amis, Kingsley. *New Maps of Hell; a Survey of Science Fiction*. Harcourt Brace, 1960.

Anderson, Nicholas. “Only We Have Perished": Karel Capek's R.U.R. and the Catastrophe of Humankind.” *Journal of the Fantastic in the Arts*, vol. 25, no. 2-3, 2014, pp. 226-46.

Appigenanesi, Richard. *Manga Shakespeare: Hamlet*. Illustrations by Emma Vieceli. SelfMadeHero, 2007.

Aristophanes. (2013) *The Birds*. E-book, Project Gutenberg, 2013.

Aristophanes. *The Birds.* Adapted by Yvette Nolan, directed by Michelle Olson. Dorothy Somerset Studio, Vancouver, 2023.

Aristotle. *The Poetics of Aristotle*. E-book, Project Gutenberg, 2013.

Aristotle. *Physics*. The Internet Classics Archive, 2009, classics.mit.edu/Aristotle/physics.html.

Artuad, Antonin. *The Theatre and Its Double*. Grove Press, 1958.

“Authenticity.” *Stanford Encyclopedia of Philosophy*, 20 February 2020, //plato.stanford.edu/entries/authenticity/.

Badmington, Neil. *Posthumanism*. Bloomsbury, 2000.

Ball, Phillip. "Beyond Words: Science and Visual Theatre." *Interdisciplinary Science Reviews*, vol. 27, no. 3, 2002, pp. 169-172.

Barad, Karen. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Duke University Press, 2007.

Barber, Stephen. “Film and Performance: Intermedial Intersections.” *Cinematic Intermediality*, edited by Kim Knowles and Marion Schmid, Edinburgh University Press, 2021.

Baudrillard, Jean. *Simulacra and Simulation.* University of Michigan Press, 1995.

Bauman, Zygmunt. *Liquid Modernity*. Polity Press, 2000.

Belmonte Ávila, Juan Francisco and Estíbaliz Encarnación-Pinedo. "Queer Time Unbound." *Unbound Queer Time in Literature, Cinema and Video Games*, ed. Juan Francisco Belmonte Ávila and Estíbaliz Encarnación-Pinedo, Routledge, 2025 pp. 4-16.

Benjamin, Walter. *The Work of Art in the Age of Its Technological Reproduction and Other Writings on Media*. The Belknap Press of Harvard University, 2008.

Bellu, Paola. "Theatre Review: *Between Two Knees* at Perelman Performing Arts." *Stage and Cinema*, 19 February 2024, stageandcinema.com/2024/02/19/review-between-two-knees-pac-nyc/.

Boal, Augusto. *Theatre of the Oppressed*. Theatre Communications Group, 1985.

Bould, Mark and Sherryl Vint. *The Routledge Concise History of Science Fiction.* Routledge, 2011.

Brecht, Bertolt. *Life of Galileo*. Methuen Drama, 1986.

Brecht, Bertolt. *Mother Courage and her Children.* Methuen Drama, 1995.

Brook, Peter. *The Empty Space*. Touchstone, 1968.

The Brutalist. Directed by Bradly Corbet, performances by Adrien Brody, Felicity Jones, and Guy Pierce, A24, 2024.

Butler, Octavia. *Parable of the Sower*. Warner Books, 1993.

Yuan, Sun and Peng Yu, "Can't Help Myself." 2016, Guggenheim, New York.

Čapek, Karel. *R.U.R.* Bloomsbury, 2015.

Carlson, Marvin. *The Haunted Stage*. University of Michigan Press, 2003.

Carol, Lewis. *Through the Looking Glass.* E-book, Project Gutenberg, accessed

Chown, Marcus. "Our Universe May Have a Fifth Dimension that Would Change Everything we

Know About Physics." *BBC Science Focus*, 25 Sept. 2023, www.sciencefocus.com/space/fifth-dimension.

Cless, Downing. *Ecology and Environment in European Drama.* Routledge, 2010.

Clements, Marie. *Burning Vision*. Talon Books, 2003.

Conaway, Charles. "All the World's a [Post-apocalyptic] Stage: The Future of Shakespeare in Emily St. John Mandel's Station Eleven." *Critical Survey,* 2021, vol. 33, no. 2, pp.1-16.

Conrad, Emilie. "Intrinsic Movement." *YouTube,* uploaded by Continuum Movement, 19 December 2011, //youtu.be/1gd7FWYp-jQ?feature=shared.

Cook, Amy. "Wrinkles, Wormholes, and '*Hamlet*': The Wooster Group's *Hamlet* as a Change to Periodicity." *The Drama Review*, 2009, vol. 53, no. 4, pp. 104-119.

Curran, Angela. "Brecht's Criticism of Aristotle's Aesthetics of Tragedy," *The Journal of Aesthetics and Art Criticism*, 2001, vol. 59, no. 2, pp.167 – 184.

Deleuze, Gilles and Félix Guatarri. "Concrete Rules and Abstract Machines." *Substance,* 1984, vol. 13, no. 3/4, pp. 7-19.

"Duck Hunt." AI generated image. Origin unknown, 2023.

Eckersall, Peter and Helena Grehan et all. "New Media Dramaturgy." *The Routledge Companion to Dramaturgy*. Routledge, 2014, pp. 375 – 380.

Eckersall, Peter. Towards a Dramaturgy of Robots and Object-Figures." *The Drama Review*, 2015, vol. 59, no. 3, pp 123-131.

Einstein, Albert and Boris Podolsky et all. "Can Quantum-Mechanical Description of Physical Reality Be Considered Complete?" *Physical Review*, 1935, vol. 47, no. 10, pp. 777-780.

"Emergence." *Star Trek: The Next Generation*, created by Gene Roddenberry, season 7, episode 23, Paramount Television, 1994.

Everything, Everywhere, All at Once. Directed by Daniel Scheinert and Daniel Kwan, performances by Michelle Yeo, Ke Huy Quan, Stephanie Tsu and Jamie Lee Curtis, A24, 2022.

Fairchild, Liz. "Performance Review of *The Birds* at University of British Columbia." *Ecumenica*, Pennsylvania University Press, 2024, vol. 17, no. 1, pp. 107-10.

Fairchild, Liz. "Performance Review of *The Thin Place* at ACT Seattle." *Ecumenica*, Pennsylvania University Press, 2022, vol. 15, no. 2, pp. 200-204.

Fairchild, Liz. "Nuclear Normativity, Monstrous Masculinity, and Matter in *Burning Vision*," *Monsters in Performance: Essays on the Aesthetics of Social Disqualification*, edited by Michael Chemers and Analola Santana, Routledge, 2022.

Federici, Silvia. *Caliban and the Witch: Women, the Body and Primitive Accumulation*. Penguin Books, 2021.

Finn, Ed. "Envisioning Artificial Intelligence". Science, 11 January 2024, doi/10.1126/science.adm9749 vol. 383, no. 6679.

Fisher, Mark. *The Weird and the Eerie*. Random House, 2016.

Frayn, Michael. *Copenhagen*. Anchor Books, 1998.

Forbidden Planet. Directed by Fred McLeod Wilcox, performances by Leslie Nielsen and Anne Francis Metro-Goldwyn-Mayer, 1956.

Gamel, Mary-Kay. "Revising 'Authenticity' in Staging Ancient Mediterranean Drama." *Theorising Performance: Greek Drama, Cultural History and Critical Practice.* Edited by Edith Hall and Stephe Harrop, Bloomsbury Publishing, 2010, pp. 206-228.

Geddes, Louise. *Appropriating Shakespeare: a Cultural History of Pyramus and Thisbe.* Fairleigh Dickenson University Press, 2017.

George, Madeleine. *The (Curious Case of the) Watson Intelligence*. Samuel French, 2014.

George, David. "Quantum Theatre – Potential Theatre: a New Paradigm?" New Theatre Quarterly. Cambridge University Press, 1989, vol. 5 no. 18, pp. 171-179.

Georgie, Claudia. *Liveness on Stage: Intermedial Challenges in Contemporary British Theatre and Performance*. De Gruyter, 2014.

Gilbert, Helen. "Manjula Padmanabhan's *Harvest*: Global Technoscapes and the International Trade in Human Body Organs." *Contemporary Theatre Review*, 2006, vol. 16, no. 1, pp. 123-30.

Gribbins, John. "The Many-Worlds Theory, Explained," *The MIT Press Reader*, 20 May, 2020, thereader.mitpress.mit.edu/the-many-worlds-theory/.

Gunn, James, editor. *The Road to Science Fiction: From Gilgamesh to Wells*. New American Library, 1982.

Haraway, Donna. *Staying with the Trouble*. Duke University Press, 2016.

Hawking, Stephen. *A Brief History of Time*. Bantam Books, 1998.

Hayles, N. Katherine. *How we Became Posthuman: Virtual Bodies in Cybernetics, Literature and Informatics.* University of Chicago Press, 1999.

Hutcheon, Linda. *A Theory of Adaptation*. Routledge, 2nd edition, 2013.

"'A Hawk from a Handsaw." *Station Eleven*, adapted by Patrick Somerville, episode 2, Paramount Television, 2021.

Huyssen, Andreas. *After the Great Divide: Modernism, Mass Culture, Postmodernism*. Indiana University Press, 1986, pp.65-81.

Jackson, Zakiyyah Iman. "Animal: New Directions in Theorization of Race and the Posthuman" *Feminist Studies* 2023, vol. 39, no. 3, pp. 669 – 685.

James, Edward and Farah Mendlesohn, editors, *The Cambridge Companion to Science Fiction.* Cambridge University Press, 2003.

Kalu, Joy Kristin. “Experiencing Expectation: Perceiving the Future in Performance.” *Theatre Research International*, 2009, vol. 34, no. 2, pp. 166-172.

Kennedy, Merrit. “Computer Learns To Play Go At Superhuman Levels 'Without Human Knowledge.'” *National Public Radio*, 18 October 2017, www.npr.org/sections/thetwo-way/2017/10/18/558519095/computer-learns-to-play-go-at-superhuman-levels-without-human-knowledge

Langer, Jessica. *Postcolonialism and Science Fiction*. Palgrave Macmillan, 2011.

Lee, Ashley. “Why Broadway’s ‘1984’ Audiences Are Fainting, Vomiting and Getting Arrested.” *The Hollywood Reporter*, 24 June, 2017, www.hollywoodreporter.com/news/general-news/why-broadways-1984-audiences-are-fainting-vomiting-getting-arrested-1016534/.

Lee, Raymond L.M. “Reinventing Modernity: Reflexive Modernization vs Liquid Modernity vs Multiple Modernities.” European Journal of Social Theory, 2006, Sage Publications, vol. 9, no.3, pp. 355 – 368.

Lewis, Jason Edward. “The Future Imaginary.” *The Routledge Handbook of Cofuturisms*. Taylor and Francis. 2024, pp. 11-22

Lucian of Samosata, *A True Story*. 2nd Century AD.

LeGuin, Ursula. *Rocannon’s World*. Harper & Rox, 1977.

Marlowe, Christopher. The Tragical History of Doctor Faustus. E-book, Project Gutenberg, 2023.

Mason, David. “Metatheatre and Consciousness.” Embodied Consciousness: Performance

Technologies, edited by Jade Rosina McCutcheon and Barbara Sellers-Young, 2013, pp. 209-18.

McLeish, Kenneth. *A Guide to Greek Theatre and Drama*. Bloomsbury Methuen Drama, 2011.

McNeilly, Jodie. "Method for a New Dramaturgy of Digital Performance." *The Routledge Companion to Dramaturgy*. Routledge, 2014, pp. 431 - 437.

Miller, Michele A. *The Play by ChatGPT in the style of Michele A Miller about ChatGPT writing a play about the writer Michele A Miller.* E-book, New Play Exchange, newplayexchange.org/script/2046549/the-play-by-chatgpt-in-the-style-of-michele-a-miller-about-chatgpt-writing-a-play

Moment Factory and Meow Wolf. PerplexiPlex. 2021, Convergence Station, Denver, Colorado.

Moni, Sujath. "'In Bits and Pieces': Bodies in Movement, Liminality and Subaltern Resistance in Manjula Padmanabhan's *Harvest*." *Journal of Postcolonial Writing*, 2014, vol. 50, no.3, pp. 316-28.

Morsberger, Robert. "Shakespeare and Science Fiction." *Shakespeare Quarterly*, 1961, vol. 12, no. 2, pp. 161-161.

Muñoz, José Esteban. *Cruising Utopia: The Then and There of Queer Futurity*. New York University Press, 2009.

Murray, Janet Horowitz. *Hamlet on the Holodeck: The Future of Narratives in Cyberspace*. MIT Press, 2017.

Nadel, Ira. "Stoppard and Film." *The Cambridge Companion to Stoppard*, ed. Katherine E. Kelly, Cambridge University Press, 2006, pp. 84-103.

Olsen, Michelle. "Director's Note." Program for Aristophanes *The Birds* adapted by Yvette Nolan, Dorothee Somerset Studio, Vancouver, 2023.

Orwell, George. *1984*. Adapted and directed by Robert Icke and Duncan Macmillian, 2014, Almeida Theatre, London.

Orwell, George. *1984*. Adapted and directed by Robert Icke and Duncan Macmillian, 2017, Hudson Theatre, New York.

"Real, Adj. (2), N. (2), & Adv." Oxford English Dictionary, Oxford UP, December 2024, doi.org/10.1093/OED/4467730604.

"Rosencrantz and Guildenstern Aren't Dead." *Station Eleven*, adapted by Patrick Somerville, episode 4, Paramount Television, 2021.

Padmanabhan, Manjula. *Harvest.* Aurora Metro Press, 2015.

Platt, Peter G. *Reason Diminished: Shakespeare and the Marvelous*. University of Nebraska Press, 1997.

Rhee, Jennifer. *The Robotic Imaginary: The Human and the Price of Dehumanized Labor*. University of Minnesota Press, 2018.

Rogers, Mac. *The Honeycomb Trilogy*. Samuel French, 2016.

"Rickshank Rickdemption". *Rick and Morty* created by Justin Roiland and Dan Harmon, season 3, episode 1, 2017.

Samples, Ian. "What are Deepfakes – and how can you spot them." *The Guardian*, 13 January 2020, www.theguardian.com/technology/2020/jan/13/what-are-deepfakes-and-how-can-you-spot-them.

Schrödinger, Edwin. "The Present Status of Quantum Mechanics." Die Nauturwissenschaften, 1935, vol. 23, no.48.

Searle, John R. "Minds, Brains, Programs," *The Behavioral and Brain Sciences*, Cambridge University Press, 1980, vol. 3, pp. 417-57.

Shakespeare, William. *As You Like It*. Directed by 2007 J.R. Sullivan, 2007, Oregon Shakespeare Festival, Ashland.

Shakespeare, William. *As You Like It*. Arden Shakespeare, 2006.

Shakespeare, William. *Hamlet*. Directed by Eizabeth LeCompte, Wooster Group, various performance spaces, 2005-13.

Shakespeare, William. *Hamlet*. Edited by Burton Raffel. Yale University Press, 2013

Shakespeare, William. *A Midsummer Night's Dream*. The Arden Shakespeare, 2021.

Shakespeare, William. *The Tempest.* Bloomsbury, 2011.

Shakespeare, William. *The Tempest.* Directed by Penny Metropulos, 2001, Oregon Shakespeare Festival, Ashland, 2001.

Shakespeare, William. *The Tempest.* Directed by Nicholas C Avila, Oregon Shakespeare Festival, Ashland, 2022.

Shakespeare *The Tempest*. Directed by Julie Taymore, performances by Helen Mirren and Djimon Hounsou, Touchstone Pictures, 2010.

Shelley, Mary. *Frankenstein*. Penguin Group, 1998.

Shepherd-Barr, Kristin. *Science on Stage: From* Dr. Faustus *to* Copenhagen. Princeton University Press, 2006.

Short, John Rennie. *Globalization, Modernity and the City*. Taylor and Francis, 2011.

Silver, David and Julian Schrittweiser et. all. "Mastering the Game of Go Without Human Knowledge." *Nature*, 2017, vol. 550, pp. 345-359.

Skjoldager-Nielsen, Kim and Joshua Edelman. "Liminality." *Ecumenica*, 2014, vol. 7 no. 1-2, pp. 33-40.

Smith, Ed D., *Globalization, Utopia and Postcolonial Science Fiction: New Maps of Hope*.

Palgrave Macmillan, 2012.

Smith, Philip. "Shakespeare, Survival, and the Seeds of Civilization in Emily St John Mandel's *Station Eleven*." *Extrapolation*, 2016, vol. 57, no. 3, pp. 289-303.

Spillers, Hortense. *Black, White and in Color: Essays on American Literature and Culture.* University of Chicago Press, 2003, pp. 319 -35.

Spivak, Gayatri Chakravorty. *Can the Subaltern Speak?: Reflections on the History of an Idea*. Columbia University Press, 2010.

Sophia, Gabriele, ed. "Towards an 'Embodied Theatrology'?" *Theatre and Cognitive Neoroscience.* Bloomsbury, 2016

Sopher, Andrew. "How to do Things with Demons: Conjuring Performatives in Dr. Faustus." *Theatre Journal*, 2009, vol. 61 no. 1, pp 1-21.

Stapledon, Olaf. *Star Maker.* Penguin, 1972.

Star Trek VI: Undiscovered Country. Directed by Nicholas Meyer, performances by William Shatner and Leonard Nemoy, Paramount Pictures, 1991

Stoppard, Tom. *Rosencrantz and Guildenstern are Dead*. Grove Press, 1967.

Suvin, Darko. *Metamorphosis of Science Fiction: On the Poetics and History of a Literary Genre*. Yale University Press, 1979.

Todorov, Tzvetan. *The Fantastic: A Structural Approach to a Literary Genre.* Press of Case Western Reserve University, 1973.

Trencheva, Elena and Sofia Pantouvaki. "A Stitch in Time: Film Costume as a Narrative Tool Beyond Time Linearity." *Time Travel in Popular Media: Essays on Film, Television, Literature and Video Games,* edited by Mathew Jones and Joan Ormrod, McFarland, 2015, pp. 219 – 229.

Tsoukalos, Giorgio. “Aliens in America.” *Ancient Aliens*, written by Daniel Snyder, season 7, episode 2, 2014.

Turner, Henry. *Shakespeare’s Double Helix*. Continuum, 2007.

“Uncertainty Principle.” *Stanford Encyclopedia of Philosophy,* 12 July 2016, https://plato.stanford.edu/entries/qt-uncertainty/.

Verne, Jules. *Journey to the Center of the Earth*. Open Road Integrated Media, 2014.

Wake, Paul and Simon Maplas. *The Routledge Companion to Critical and Cultural Theory*. Taylor and Francis, 2013, pp. 144 – 153.

Watzke, Megan and Molly Porter. “‘ Listen’ to the Light Echoes from a Black Hole” *Nasa*, 22 November 2022, www.nasa.gov/mission_pages/chandra/news/listen-to-the-light-echoes-from-a-black-hole.html.

Weng, Xiaoyu. “Sun Yuan and Peng Yu Can’t Help Myself.” *Guggenheim New York,* 2016, www.guggenheim.org/artwork/34812.

Whitehead, Alfred North. "The Origins of Modern Science." *Science and the quest for reality*. Palgrave Macmillan, 1925.