THE TRAGIC END OF HUMANITY AND HOW TO DEAL WITH THE COSMIC
JOKE OF CHAOS: ISAAC ASIMOV’S Foundation PREQUELS AND DAN
SIMMONS’ Hyperion CANTOS IN CONVERSATION WITH COMPLEXITY
THEORY

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Chapter 1. Introduction

"It should be the pleasure of a poem itself to tell how it can. The figure a poem makes. It begins in delight and ends in wisdom. The figure is the same as for love. No one can really hold that the ecstasy should be static and stand still in one place. It begins in delight, it inclines to the impulse, it assumes direction with the first line laid down, it runs a course of lucky events, and ends in a clarification of life – not necessarily a great clarification, such as sects and cults are founded on, but in a momentary stay against confusion... It finds its own name as it goes and discovers the best waiting for it in some final phrase at once wise and sad – the happy-sad blending of the drinking song.

Robert Frost, “The Figure a Poem Makes”

Dan Simmons quotes Robert Frost in an interview with Philip Purser-Hallard in an attempt to describe how his *Hyperion* novels evolved. For Simmons, Frost’s sentiments also represent the “ecstatic” way in which “the tale carried [him] away with it” with the goal of creating “a sense of being transported elsewhere” (“A Momentary Stay”). Having read Simmons’ *Hyperion* novels, I would agree that Frost’s quote perfectly articulates the very same sensation I had while reading – it captures the delight inherent in the work because events transpire as a matter of chance along the journey rather than seemingly forced by the author. The culmination of these fictional events does not intend to create an overarching, reified truth but rather a brief insight into the moment. All of this is a description of the effects of Simmons’ novels, but it does not present the how or why. Furthermore, it does not present an explanation for why the figure made by Simmons’ *Hyperion* novels even matters. This thesis investigates those questions, with Frost’s quote functioning as a clue – specifically, the figure construed by Frost (that serves as inspiration for Simmons) is one of vital dynamism that outstrips static means to render reality. There is a broader context for the figure of his novels, as these books work in conversation with cultural, literary, and scientific shifts in thought within a specific historical context and over the course of time. The specific image rendered by Simmons novels is a direct result of how he interprets these fluid concepts.
I will situate the *Hyperion* novels at the cusp of a shift in scientific and cultural attitudes. If we were to consider the shift as a fork in the road, with one path leading into the future and the latter path meandering back into the past, we can situate Simmons’ novels alongside Isaac Asimov’s *Foundation* prequels. Both sets of novels are written around the same time (Simmons: *Hyperion* 1989, *Fall of Hyperion* 1990; Asimov: *Prelude to Foundation* 1988, *Forward the Foundation* 1993) and attempt to navigate the burgeoning field of chaos theory – the point of note is that each set of novels ultimately diverge in their interpretation of the shifting landscape of scientific theory. Arguably, that is because chaos theory was instigating a shift in the broader understanding of the scientific theories that ordered reality as it was then understand by mathematicians and scientists, and then subsequently, by the rest of humankind. These authors were wandering into territories that were just becoming charted, and therefore their literary contributions reflect the push and pull that exists when old concepts are forced to adapt to new knowledge and ways of perceiving. In that sense, this project attempts to depict a historical transitionary stage through the science fiction literature written at that juncture. Simmons embraces the complexity inherent within the new domain of chaos theory, while Asimov’s novels recodify the limitations of the traditional model of science even as he attempts to use chaos as the crux of plot development.

The larger stakes at hand are the questions surrounding how these authors address the specific question of how humankind comes to terms with the possibility of its imminent demise as a species (and within that more abstract concept, the specific horror of individual mortality). This project will consider how Asimov and Simmons construct the arc of character development as befitting their specific scientific and cultural attitudes towards chaos, and how that contributes to their considerations on how best to orient oneself to the concept of human destruction.
1.1. Mapping the Scientific Landscape Upon Which the Fiction is Constructed

It is important to map the scientific dialogue that Asimov and Simmons are operating within to better understand how they construct their science-fiction worlds. At the barest minimum, chaos theory is a field of mathematics that attempts to understand the complexity of reality. Chaos theory grew out of an established tradition of scientific inquiry, and therefore it does not present a clear break from previous ways to perceive the world. Ultimately, the history and trajectory of chaos theory is just as complex as the theory itself, and so it should be caveated that it is too simplistic to suggest that Asimov and Simmons mark a clear break between the traditional approach to science and a modern approach that incorporates chaos. What they really seem to represent is the messiness inherent in interpreting a shifting reality.

To attempt to render the traditional field of science before the implications of chaos theory, it is important to have a basic understanding of how scientific theories are made. Scientists build theories of what constitutes reality upon mathematical formulas. They interpret these formulas to paint an understanding of what reality actually is. To illustrate this concept, Ivar Ekeland presents the example of Euclidean geometry – the mathematical principles of Euclidean geometry are “necessarily true” (140) but “do not pretend in any way to be applicable to the physical, biological, or social world” (139). Galileo took these linear formulas and applied them to his discernable reality in an attempt to measure distance across space. His approach is representative of the traditional model of science, and he functions within a greater scientific tradition that builds theories of the world upon the backs of rational mathematical constructs – this is the essence of the scientific method. The specific nuance to Galileo’s approach is that he is operating upon the assumption that there is a one-to-one correlation between reality and these linear, Euclidean formulas. Galileo preludes the work of Isaac Newton, which provides the
“‘common sense’ perspective” (Hayles 16) that the constituent parts of reality can be measured through the linear changes of inductive and deductive reasoning for which Bacon had argued in the *Novum Organon* (Hayles 17). Katherine Hayles argues that this ultimately led to the inference that the world, like a machine, had a fixed and static form” (17). There is thus established a one-to-one correlation between the means to perceive reality and the actual structure of reality – unchanging and forever quantifiable by humankind. It is with the introduction of chaos that this model of reality begins to be questioned.

Ekeland notes that “chaos theory, like Euclidean geometry or the theory of numbers, is a set of mathematical statements, which has its own existence independent of whether it is applicable to any observed phenomena” (140), thus reiterating the fact that these formulas need to be interpreted against reality and tested for the veracity of their applicability (which is how theories are constructed). Chaos theory simply chooses to use different mathematical formulas and applies them differently to an observable reality. Specifically, it recognizes that the linear approach of mathematics could not accurately assess unpredictable behavior in any exact means. Chaos theory attempts to apply the rigor of the scientific method to unpredictable behavior in order to more accurately model reality. It ultimately is a broadening of the mathematical theories that attempt to comprehend reality, delivering humankind “from that closed universe where nothing can happen, where there exists neither the unknown nor the novel” (Ekeland 144). The bifurcating dialogue in the sciences was essentially wrapped around how reality could be measured and understood, with chaos branching outward from the traditional approach to science that understood linear, objective, progressive means to knowledge of the world. Chaos theory rejected the static, fixed version of reality, and it ultimately brought into question humankind’s objective means to knowing anything at all – it called for a new, nonlinear mathematical
language to even begin this endeavor. As the sciences accommodated theories of chaos into its methodology and make-up of the world, it also triggered a shift in the understanding of what chaos meant for humankind in a broader, cultural sense. Essentially, chaos theory revealed the limitations of a supposedly objective ontology and spurred a cultural movement that tried to decipher a much more complex rendering of reality. And, it is upon this shifting scientific landscape where I will situate both Asimov’s and Simmons’ novels.

1.2. Mapping the Literary Landscape Upon Which the Science is Constructed

Given that the traditional model of science believes in a linear, rational, one-to-one correlation between observed phenomena and reality, it is meaningful to consider that language predisposes humans towards treating reality in such an ordered manner. Language itself is a linear medium “composed of discrete units joined together” that is “sequential, and articulated” (Cosmic Web 21). There are a fixed number of organizations with which language can create logical meaning, and therefore it constrains the kind of reality that can be comprehended. But, it presupposes a certain level of objectivity as language needs to have relatively fixed correlates in order to mean anything at all. In that way, it is very similar to linear mathematical formulas in that it attempts to objectively define reality. The paradox about language is that variances of human subjectivity complicate its objectivity, just as relativity complicates linear mathematics.

Hayles points out that individuals are inclined to treat any object that is observed as functioning independently of themselves (Cosmic Web 9), and therefore the object that they describe is a static entity that can be quantified by linear, rational means – whether it is through mathematics, or through language. They stand apart as if they are a clinical scientist viewing an experiment that is occurring within a laboratory, and then extrapolate the observed results to indicate facts about a broader reality – whether they are actual scientists, or simply authors
describing a perceived reality. To illustrate this point, the traditional model of science would use a formula to model an object’s movement through space, and assume that that model could be universally applied to reality. This model works when the observed phenomena is so simplistic and the individual is removed from the field of events – essentially, within a laboratory environment. Poincaré’s “three body problem” illustrates that the moment you introduce three or more moving bodies into the mix, the linear mathematics cannot effectively predict their behavior – ultimately, the real world is much more complex and “Nature and human affairs are seldom obliging enough to obey linear models” (Stewart 4704). In the manner of the three body problem, the moment a writer begins addressing human affairs, they cannot assert objectivity over events through their language as their body becomes inextricably involved in a myriad of complex situations that are filtered through subjectivity. They are not addressing a sterile, laboratory experiment – it is not possible to attribute the model (the literary piece) to actual reality in any totalizing way. The problem is that the formula that humans have to describe reality (linear language) cannot adequately map onto a complex reality in absolute ways.

To address the issue at hand bluntly and simply, the dilemma rests on how humanity may attempt to understand reality through what tools it may have at hand. Chaos theory introduced the possibility that these tools are in fact crude and limited, and Hayles applies these concepts to how humanity tangles with the exact same questions in literature. These questions were not simply introduced into the cultural Zeitgeist as the traditional model of science started shifting towards the chaotic model of science. Literature has addressed chaos well back to the to the original myth of all creation. This project seeks to build on Hayles’ work and specifically look at how Asimov’s and Simmons’ novels accomplish two ends: 1) how they depict the cultural shift in understanding chaos given that the traditional model of science begins to accommodate the
concepts of chaos theory; 2) how they tangle with questions of human knowing in a chaotic world that have been discussed by literature well prior to the advances of science.

Given that the concept of chaos has been historically fluid, I want to identify three major shifts in the definition of chaos within the literary and cultural realm. The first introduces the mythopoetic concept of chaos at the point of creation as the “unformed, the unthought, the unfilled, the unordered” (Hayles 19). Literature begins speaking about chaos in conjunction with creation, and it is important to point out that this definition has a reproductive connotation at the heart of it – order grows out of chaos. In that sense, chaos is positive because of its generative qualities. It also admits the unquantifiable aspects of reality as just as valid as those quantifiable portions – they are two sides of the same coin.

The second shift begins as literature begins to treat chaos as “the antagonist to order” (Hayles 21). This shift is allied with the traditional model of science as both mandate a quantifiable, controllable reality. I would argue that this shift occurs because humankind has become accustomed to the progressive power of science – it has improved conditions of living and even prevents death. The well-ordered world has become safe, and the horrors of human suffering can be managed through linear, rational science. As such, that which is unknown or disordered threatens human life, and therefore, chaos becomes the antagonist. This is also why the regenerative aspect of chaos is lost – chaos has now become allied with death.

The third shift formally occurs when chaos theory becomes more prevalent in the field of scientific theory, which once more allies itself with the necessity to include the “unformed, the unthought, the unfilled, the unordered” (Hayles 19) in its depiction of reality, as well as the regenerative powers that come after destruction. Chaos now once again includes the unknown and horrifying events that humanity may not necessarily have the means to comprehend, or even
want to confront. Human suffering and death, while a part of this reality, are not catastrophic—human concerns are but one small part of a significantly more complex reality. As a matter of definition, the third shift allies the word “complexity” with chaos as it addresses the interaction of multiple complex systems that render linear equations too simplistic a tool to measure a highly complicated reality that already contains inherent bits of chaos (Rickles et. al. 934).

I identify the third shift as a “formal” shift simply because the sciences have now caught up to literature that had already began addressing the unknown. In literature, authors and poets were grappling with these very same questions before the sciences began formally addressing them in the mathematical formulas that undergird reality. For instance, John Keats’ poetry (relevant to Simmons’ novels) begins addressing how humans must confront complexity well before mathematicians began forming the seminal concepts of complexity theory. There is a natural union between genres of literature and science, as such, and this is why I wish to look at science fiction novels for this project — they explicitly can address the mathematics of chaos while simultaneously bringing the literary background into the dialogue. Both Asimov’s and Simmons’ work are important because they are working during a time when they are trying to make sense of the scientific theories and bring them back into conversation with literature that already had begun addressing the necessity to include the unknown in an understanding of reality. Asimov does not succeed in breaking from the second definition of chaos, while Simmons transitions into a combination of the first and third definition. These definitions structure their fictional worlds and produce very different attitudes on how the protagonists of the novels handle death and destruction. Because of this fact, this project will do in-depth studies of how the characters are constructed in order to consider the best means to confront a complex, chaotic reality.
1.3. Asimov’s Alliance to the Second Shift in Definition of Chaos

As a matter of prefacing the discussion on Asimov, a bit of background on the novels’ plot must be presented: Hari Seldon is a mathematician who is seeking a formula that would give predictive power to guide the actions of humankind and save it from devastation. His project is named “psychohistory” and this is the mathematical algorithm that will give him predictive power to best plan out humanity’s future actions. The scene that I wish to start with occurs before Seldon has actually concretely established the axioms of the formula. He visits the planet Mycogen in an attempt to find actionable laws underlying human action in order to build this formula: “I want something from which I can, after manipulation through some system of mathematized logic, say… [that] when humanity meets with these stimuli, it will react with these responses” (*Prelude* 213). Given that fact, we can understand Seldon’s interactions with society as an information-gathering process to determine the underlying meaning behind any given human action. Seldon thus sees the functions of human society as something objectively definable and quantifiable, and only needs a proper depth of analysis to uncover the axioms that govern human choice. These axioms can be then extrapolated upon to create a model of humankind as is. The reader of these novels can thus similarly approach Asimov’s descriptions of his fictional human societies as clues to determine the shape of Asimov’s version of humankind in the *Foundation* novels – this is not an argument to say that Seldon is an author-surrogate that presents insight into what Asimov the individual thinks and feels, but rather is an argument that Seldon is a construct that Asimov creates and manipulates to represent a very specific worldview.

In Mycogen, Seldon visits a microfarm and learns how the farms function – these farms house all sorts of microscopic animals that create the finest food upon the planet. These farms
are managed within controlled environments, but occasionally, viral infections spread throughout the harvest. He asks Raindrop Forty-Three how the farmers react when they fail to control for such negative events, to which she responds:

There is usually no recourse but to destroy the spoiled batches, even those that are merely suspected of spoilage… We test constantly for any mutations that may spring up, any new viruses that may appear, any accidental contamination or alteration of the environment… The trouble is that even the most careful forethought and the most cleverly designed computer programs can’t always predict what is essentially unpredictable. (Prelude 228)

Upon hearing this explanation, Seldon feels a shudder go through him, for “it was as though she was speaking of psychohistory – but she was only speaking of… a tiny fraction of humanity, while he himself was considering all the mighty Galactic Empire” (Prelude 229). The impossible computer program that Raindrop Forty-Three references is the literal project that Seldon is working on (i.e. psychohistory) in an attempt to predict the future. Seldon recognizes the allegorical power of the anecdote, and the reader can similarly interpret the microfarm management technique as a model upon which Seldon can build upon to perfect his own model for governing human society. Asimov thus lays out the problem (the inability to control for complex, unforeseen circumstances), the goal (to be able to predict potential threats before they occur), and the method (psychohistory!) that is the core of the Foundation novels.

At face value, this microfarm scene suggests that humankind is limited in its ability to control for adverse circumstances. The best that humanity can do is to try and account for all factors that can potentially create negative consequences. Humankind’s evolutionary growth is configured as an evolution towards better means to manage the future. Seldon thinks that it is possible to account for that which “is essentially unpredictable” and ultimately bring chaos within the realm of human control. He wishes to go beyond the model set by Raindrop Forty Three, which is limited in its ability to predict and deal with potentially destructive unknowns.
Instead, Seldon envisions the means to predict and suppress any chaotic shifts within their closed system of society to prevent humanity’s destruction.

All of this is from a very literal reading of this scene, but it is possible to read further. Given that Seldon is drawing a comparison between a microfarm (composed of masses of algae, bacteria, and saprophytes) and humanity, the imagery bleeds between the two constituents of the parallelism. Humanity loses its individuality when compared to a conglomerate of unthinking, unfeeling, and non-acting forms; it becomes faceless and only gains significance through the assemblage it creates when constituted as a whole. Even with that, the organic matter of the microfarms does not exist independently – it is curated and managed by the more intelligent and purposeful Mycogenian farmers. When Asimov draws a parallel between the organic matter of the farms and humankind, he creates a power differential by which humankind is required to be cultivated and pruned as determined by a wiser faction of society. Portions of humanity can thus effectively be excised in a “surgery” by which one “cut[s] out the diseased tissue” (Prelude 228), as this may be determined to be the most pragmatic decision by the shapers and movers of humankind. This presents a very sterile version of humankind, even whilst sapping humanity of that which some might argue is essential to its characteristics – individualism. This is also one of the many moments that the character-construct of Hari Seldon is arguably presented in a detestable light – even though he is the protagonist, his pragmatic sterility towards humanity makes it hard for a reader to empathize with him. It creates doubt that his worldview is correct. While Seldon thinks that he is correct, it is possible consider that perhaps Asimov is purposely constructing him as someone that may be mistaken in his understanding of reality.

In returning to a consideration of the microcosm of the Mycogenian farms, it is meaningful to note that the Mycogenians have nearly perfected the system to promote organic
growth. This arguably reveals a resistive attitude towards change (given that its society already knows what is best for its saprophytic constituents). It is not perfect, however – there are still threats that can shatter this order. To draw a parallel to the discussion on how to manage the Galactic Empire, Seldon similarly wishes to sharpen humanity’s knowledge of best means of societal governance (through psychohistory) to treat chaotic change as that which threatens a perfect order and as ultimately as that which needs to be engineered away. This process enables an intelligent engineer to manage the undifferentiated parts of a greater assemblage to further these specific goals. Humans come forth as the most powerful individuals in this version of the future, even if it is just a handful of humans. While the vision is pure in that it wishes to equip humanity with the best means of survival, its means towards achieving that goal contain a kernel of darkness – if the microfarm is the model that Seldon wishes to build upon, he is arguably creating a model of society within which people can exterminate factions of society that do not contribute to the broader goals of humanity; this is similar to the excision of spoiled batches of organic matter. He is also arguably enabling a model of society where individuals are not equal and the lesser individuals are collated into mindless hordes of organic matter.

If we were to set aside the problems of Seldon’s ideal model of society (that functions using the guiding beacon of his psychohistory), it is important to at least address the threat that Seldon is responding to. His project is primarily in response to the end of humankind as it is known. Specifically, it is in response to a condition of generalized stagnation in society that seems to invite the potential for destruction (Prelude 63). Stagnation thus sets the stage for Asimov’s novels, and the Emperor Cleon notes: “Well, these are not the old days when science and mathematics were all the rage. That sort of thing seems to have died down somehow, perhaps because all the discoveries have been made, don’t you think?” (Prelude 4). We do not
see growth in this society, as if it has hit the peak of its achievements. This condition is further
diagnosed as a “general weariness” in which “it’s quiet, not because people are satisfied and
prosperous, but because they’re tired and have given up” (Prelude 63). The human drive towards
growth seems to have died within the Galactic Empire, and as such, society begins to decay.
Stagnation has specific resonances with complexity theory, given the links to theories of entropy,
which suggest that in closed, fixed systems, “the system becomes inert or reverts to randomness
and disorder” (Slethaug xvi). There is no energy entering the system, and therefore “work will
cease” (Slethaug xvi). Gordon Slethaug makes it very clear that closed systems are not natural –
these are man-made (xvi). There is a constant movement from these static, closed systems to
greater complexity and chaotic conditions, which is the natural state. Given that Asimov points
out that stagnancy is the condition of their society, it raises images of a man-made closed system
that is now threatening to unravel as a result of the natural progression of entropy.

Eto Demerzel, Cleon’s advisor, later discusses how he wanted “psychohistory as a way of
preventing that decay and failure or of bringing about a renewal and reinvigoration if the decay
and failure must run its course” (Prelude 467). Seldon provides additional context to their
project, suggesting that Demerzel (also known as Chetter Hummin) is ultimately saying that “the
Empire is decaying, that it will collapse, that psychohistory is the only hope for saving it – or
cushioning it or ameliorating it – and that without it humanity will be destroyed, or, at the very
least, go through prolonged misery” (Prelude 214). At face value, all of these statements made
by the characters seem to be suggesting that the Galactic Empire is being stripped of the process
of “becoming” that would otherwise spur on innovation and growth. With regards to this process
of “becoming”, Leah Hadomi references Ernst Bloch and Martin Heidegger as philosophers who
felt that “becoming” was essential to the utopian ideal. These philosophers saw “human reality as
a process” in which the essential characteristic of the present lies in “its incompleteness, its restlessness and openness to future possibilities” (Hadomi 86). In conceiving humanity as a process, it is possible to break free from stagnation and allow room for meaningful growth and change. This process of becoming also enables any myths of progress, by which an incomplete humanity may eventually become perfect and complete through progressive improvement.

Asimov’s characters identify the missing component of their society as the process of “becoming” but it seems that their hierarchy of priorities has not set “becoming” as the primary goal. In the above quotes, it is made clear that “preventing that decay and failure” or even “cushioning or ameliorating” adverse events is the primary goal of humankind. Simply put, Asimov presents a conservative vision by which humankind must preserve its achievements – if destruction becomes inevitable, only then should society take steps to reinvigorate and renew. It almost seems to suggest that if the entropic conditions were to progress forward and unravel their society, a newer and better closed system must be reinstated at the end of it all in order to save humankind. Progress is thus configured as putting a hold upon entropic unravelling, and rather building upon the closed system to make it a sturdier structure.

A paradox is thus being created by Asimov’s novels – on one hand, Seldon and the various characters diagnose the problem as stagnation and decay, and yet their primary goal remains in maintaining human society. The characters are not recognizing that the perfect preservation of humanity is not possible when closed systems are constantly besieged by chaos. The common thread throughout these novels is that chaotic, potentially destructive events must be managed, and in the event that chaotic conditions do outstrip humankind’s efforts to control, humanity must act decisively towards saving as much of their society as possible. Just as a matter of definition, I want to reiterate that chaos can be ascribed different values – good, bad,
and neutral; Asimov is depicting chaos as an antagonist to order, but chaos is not necessarily a destructive event – it is simply a condition of extreme complexity that outstrips humanity’s capacity to comprehend and complicates their neatly ordered worlds. Chaos blinds and handicaps Asimov’s characters from planning for the future down to the smallest minutia that would disrupt human activities, and therefore, these characters sanction drastic measures to account for the complexity of chaos. As in the Mycogenian microfarms, a surgery must be initiated to cut out those parts of the greater whole that threaten the overall livelihood of the system. Chaos is the threat, and humans are the pieces to be moved to further the goal of survival.

1.4. Simmons’ Alliance to the First and Third Shift in Definition of Chaos

Dan Simmons, while writing about how humanity comes to term with chaos, presents a slightly different version of events from Asimov. His world is conceivably set in a future further from Asimov’s, particularly because this human society already has access to a technology similar to psychohistory. Man has created AIs (artificial intelligences) that collectively are known as the TechnoCore, which have subsequently created a system capable of prediction that guides all human action. It is very similar to the kind of technology we see configured in Seldon’s psychohistory. Like in Asimov, we have a structure of society within which beings of greater purported knowledge can present the best courses of action to guide the most beneficial future. Even despite that supposed success, the foundational premise of the novels begins with the same kind of stagnation that Asimov’s characters diagnose in their world:

For all of our talk of expansion and pioneering spirit these past five centuries, we all know how stultified and static our human universe has become. We are in a comfortable Dark Ages of the inventive mind; institutions change but little, and that by gradual evolution rather than revolution; scientific research creeps crablike in a lateral shuffle, where once it leaped in great intuitive bounds; devices change even less, plateau technologies common to us would be instantly identifiable - and operable! - to our great-grandfathers. (Hyperion 189)
Given that stagnation is the condition that needs to be solved for, Simmons characters’ approach towards chaos is different from Asimov’s characters – there is less pointed resistance against the onslaught of chaotic change. Once again, it is useful to turn to an allegory used by Simmons as a way to demonstrate his representation of chaos, as enacted by the character Martin Silenus. Silenus is a poet who is attempting to write a series of epic poems called the *Hyperion Cantos*, which simultaneously function both as a mirror of the plot structure of Simmons’ novels as well as a mirror of the poet John Keats’ own *Hyperion* fragments. The analogy that can be harvested from Silenus’ poems presents a microscopic model of Simmons’ broader fictional construction. Silenus describes his *Cantos* thusly:

It was not about the planet but about the passing of the self-styled Titans called humans. It was about the unthinking hubris of a race which dared to murder its homeworld through sheer carelessness and then carried that dangerous arrogance to the stars, only to meet the wrath of a god which humanity helped sire. (*Hyperion* 224)

Silenus further clarifies that “what was at stake was not the mere passage of one set of deities to be replaced by another, but the end of a golden age and the beginning of dark times which must spell doom for all mortal things” (Simmons 168). Stagnation is the condition, but change and destruction are the inevitable results once all things fall apart – Silenus recognizes the function of entropy in reality by which closed systems eventually unravel. While this allegorical narrative does not so explicitly paint itself as the heart of Simmons’s narrative, it stages the drama in the form of a pre-existing narrative. This lineage of meaning is carried from the original Greek myths about the Titans, through John Keats’ *Hyperion* fragments that reinscribe the myths of the Titans, through Simmons’ take on the Titans as voiced by Martin Silenus, and maintains a common essential thread through each telling of the tale. The myths mined by John Keats in his *Hyperion* fragments are thus re-presented in a manner relevant to Simmons’ overarching goals in addressing chaos. This also reiterates the point that the discourse
on chaos is one that predates the dialogue occurring in the scientific field of complexity theory – given the science-fiction format of Simmons’ novels, he can force the confrontation of the literary concept of chaos with the scientific concept of complexity theory.

Silenus’ Cantos depict change as the passing of humankind and suggests that that change as triggered by that society’s own choices. This passing is one that carries the promise of impending doom. The threat of destruction that lingers over Simmons’ human society is similar to Asimov’s in that it promises suffering, but the tone within which this suffering is presented is vastly different from Asimov’s. Simmons seems to suggest that humankind deserves some of the consequences that it is to face – partly because of humanity’s own actions, and partly because these consequences are a part of the inevitable cyclical entropic exchange of order into disorder, and then potentially, back into a new form of order. Asimov’s characters are less interested in the responsibility inherent in the adverse conditions that they are to face – they are more interested in how they will overcome adversity in order to reassert order over their reality. This distinction is what creates the harshest contrast between the two authors’ depiction of chaotic change. Once again, it is meaningful to reiterate that chaos is not simply anything that is destructive – chaos implicates all that is complex, incomprehensible, and shifts the order of the human world as it is known. Simmons is interested in how humanity approaches such shifts in power and order, and how it comes to terms with its own will to power in the face of a reality that may not be necessarily brought to heel. Most importantly, Simmons is interested in the “hubris” involved in this desire for progress that is wrapped up in all human endeavors. He highlights the fact that perhaps, humans are not so important in the face of a greater, complex, shifting reality.

If we were to step back from Simmons and consider the fallen Saturn in John Keats’ “Hyperion” and his lament (“But cannot I create? / Cannot I form? Cannot I fashion forth/
Another world, another universe, / To overbear and crumble this to nought? / Where is another chaos? Where?" (Keats, “Hyperion”, I. 141-145), we see the same kind of hubris that Silenus denounces. This lament simultaneously holds the reproductive capabilities of the first shift in the definition of chaos outlined in Section 1.2, but it also contains the implicit anthropocentric belief of individual agency over reality, representative of the second shift in the definition of chaos. Saturn wishes to make chaos the medium that will enable him to shape, control and conquer, and ultimately, stay the process of unravelling into disorder. This will to power is similar to Asimov’s characters as they try and overcome their society’s destruction by controlling chaos.

In Keats’ poems, the Titans do not succeed in solidifying their power. Given that Simmons is using these myths as an allegorical framework for his own stories, it is possible to come to an understanding of Simmons’ orientation towards chaos. For instance, Simmons takes the name “Hyperion” from Keats’ poems and transfers it onto his fictional planet of Hyperion; this planet is configured as a chaotic element that defies the technology that helps them predict the future. In that way, the resonances of Hyperion become emblematic of chaos that cannot be quantified, known, or controlled for. This sentiment can be extrapolated into a broader philosophical stance that chaos cannot be controlled by humankind. As per Silenus’ digs at human hubris, attempts to control chaos reveal a frailty of human character that is inclined towards arrogance, given the inherent handicaps on humanity’s ability to make such decisive impacts upon an elusive and complex reality.

In Keats’ poems, chaos is simultaneously the unravelling of one order (the Titans) and the unknown that faces the new order (the Olympians). It thus contains the reproductive power of the first definition of chaos. This is an age-old myth that Simmons takes on for his novels, configured as a plot contrivance by which humankind is being threatened by both aliens and AI.
He frames the drama as a question of, if the human regime should fall, what would the new order look like, and how could humanity orient itself to its own demise? To draw a parallel to Keats’ poetry once again, “Hyperion” ends with Apollo’s shrieks (Keats, “Hyperion” III. 134-135), thus creating the formless and wordless enunciation of what the new regime of power looks like. Heidi Scott suggests that “like a lexical supernova, the ending… reasserts chaos from the order of Apollo’s body… it smashes the coherent myth into an antilingual chaos of asterisks” (169). Explicitly, Apollo cannot articulate what his new regime will look like, and he is overwhelmed by the very attempt to do so. The future is frightening, incomprehensible, and Apollo is but one individual faced with the magnitude of the feat that he supposedly must achieve. Apollo is required to make order out of complexity, but Keats stops before that actually is enacted by language. And, significantly enough, Simmons actually has commentary on language’s attempts to order reality, voiced through the character of Silenus:

    But [words] are also pitfalls of deceit and misperception. Words bend our thinking to infinite paths of self-delusion, and the fact that we spend most of our mental lives in brain mansions built of words means that we lack the objectivity necessary to see the terrible distortion of reality which language brings… even in our self-deception, we become Gods. (Hyperion 191)

Silenus suggests that world-ordering occurs through the shaping of words into reductive frameworks of supposed truth, and in that creative process, there is a *distortion* of actual truth. And, along with these misperceptions comes a deluded sense of power that makes an individual feel God-like. The Gods being mentioned in the quote harken back to the fallen Titans, and thus once again brings up images of arrogance, failure, and destruction, despite their supposed power. The pitfall of language reveals a deluded sense of control, which is at odds with reality. Furthermore, it highlights the limits of objectivity, which may not be capable of adequately measuring up an exact representation of reality. Simmons thus has greater interest in the
uncertainty invoked by the complexity of chaos – it is neither good nor bad; it is simply that which is yet unknown. In that sense, he is allied with the third definition of chaos – it recognizes the limitations of humankind’s ability to perceive and define truth, despite concerted attempts to enact order. Both John Keats and Dan Simmons halt before trying to establish order out of their complex reality, but they are simultaneously writing out the process of attempting to make sense of disorder. Despite writing and existing on two historical points of time, their work straddles the scientific work on complexity theory.

The literary, scientific, and cultural context of both Asimov’s and Simmons’ work is thus summarized briefly. The dilemma at hand is two variant approaches to chaos, whilst simultaneously responding to the threat of human destruction. What that ultimately looks like for both writers’ work varies based on their depiction of the science of chaos that undergirds the complex reality that humankind must come to terms with. Both writers are responding to the human desire to control. Asimov’s characters take it for granted as that which is possible and necessary, while Simmons’s characters bring the entire endeavor into question. Chaos becomes implicated so far as to present the language of how humankind struggles to come to terms with events and circumstances that may lie outside of its control. How this dilemma plays out in both writers’ literature creates a very specific figure – in keeping in line with Robert Frost’s “The Figure of a Poem”, both writers are grappling with the truth of their own moments in the broader scientific and cultural milieu, but only Simmons captures the spirit of Frost. Asimov commits to depicting a world that is definable and knowable – in doing so, Asimov’s protagonist comes to rule a static, two-dimensional rendition of reality that does not actually capture the vitality of a complex, incomprehensible reality. His world is small and does not contain the possibility for the volubility of life that inspires art or literature – this is important because this project is
considering how literature addresses very specific scientific attitudes, and Asimov is specifically depicting a fictional world that does not inspire creativity. Simmons’ fictional world, on the other hand, does not attempt to constrain complexity through feeble human means – in that sense, it presents a closer approximation towards reality and enables the hopeful – if not melancholic – perspective of Frost. Hope and melancholy are important for literature that attempts to confront the possibility of human destruction – it merges a positive stance on the future with the gentle sadness that comes with ends, and it also presents the means for creative production into futurity.

Chapter 2: Philosophies of Science

To better understand Asimov’s and Simmons’ science fiction novels, it is useful to establish their attitudes towards the field of science itself – their opinions on its value, as well as their understanding of how science provides the means to perceive and understand reality. These beliefs inform and shape the value systems that order their fictional worlds. In a broader sense, this study of Asimov and Simmons also presents a case study of how scientific concepts of chaos may translate into the literary and cultural realms. Specifically, this project will define Asimov’s and Simmons’ beliefs about science as their “philosophies” of science, or, in other words, the ontological framework upon which they build fiction influenced by the field of science.

Both Simmons and Asimov have taken public attitudes towards the field of science, thus providing the material necessary to gain insight into their views. When asked on how essential science is to science fiction, Simmons says, “sf has evolved both in the shadow of the scientific method and as a speculative extension of rationalism – Enlightenment trust in some sort of reason… most good sf is highly realistic – at least in the sense that it is consistent within the social, scientific, and technological universe it inhabits” (“A Momentary Stay”). He thus grounds his literary pursuits within a firmly entrenched scientific and cultural field of thought that
suggests that there is some consistent form of reason by which reality can be perceived. Asimov is of a similar bent, saying science fiction “is the only literature of relevant ideas, since it is the only literature that, at its best, is firmly based on scientific thought” (“When Aristotle Fails” 585). He thus finds a positive alliance between his fiction and a tradition of science. He clarifies that science is not “the only path to Truth”, but rather “the scientific method offers a way of determining the False” (“When Aristotle Fails” 585). So, while science does not make pretenses towards claiming overarching, global truths, it does allow a linear, rational method of elimination to get closer to that truth with a capital “T.” In that sense, it is also bound by a system of reason. Both of these writers are supportive of science because of its proximity to a knowable reality, but how these writers define what science is, and how it can be used, does slightly vary. These differences spell out different understandings of what reality actually looks like, and how human beings may interact with this perceivable reality. This also determines how human beings can begin to approach the bigger picture question of how does one save humanity in the face of potential decline and destruction?

In the Introduction, I identified Asimov’s novels as allied with the second shift in definition of chaos – as in, they are opposed to those chaotic elements that would threaten order. In reading Asimov’s personal writings, it does appear that these novels are informed by his own philosophy of science – he attempts to reduce the complexity inherent in chaos into non-complex, manageable forms and render reality comprehensible through the empirical, scientific means of linear mathematics. Simmons’ philosophy of science, on the other hand, joins the first definition of chaos with the third, thus uniting the regenerative aspects of chaos (and embracing the eventuality of destruction) with the necessity for including the unknown in any understanding of reality – all of this is still addressing the science of reality through empirical, scientific means.
that are now strengthened by the non-linear mathematics of complexity theory. These
philosophies of science have to be considered in light of the fact that both authors are trying to
address the human condition in a reality that is being threatened by existential ends – the primary
agents of action within the plots are incredibly complex human beings, that, while are predictable
beings to a statistical extent, may still surprise both the casual and scientific observer. Given the
chaotic tendencies of human nature, as well as the chaotic tendencies of a broader reality that is
not yet fully understood, these two different philosophies of science can address the human
condition to varying levels of success, with, arguably, Asimov less equipped to address
complexity due to his antagonistic attitude towards chaotic forces. In order to demonstrate this, I
will begin by unpacking the philosophies of both authors.

2.1. Asimov’s Practical Philosophy of Science

Asimov presents an interesting distinction between the Greek model of science and the
modern model of science. Based on his evaluation, “the educated Greek hoped to appreciate the
design of the universe, almost as though it were a geometric figure conceived by a divine
mathematician, rather than handy device which impious man could seize and use to increase his
own comfort” (“Social Science Fiction” 162). He further describes the Greek point of view as
“beautiful… but sterile, also” (“Social Science Fiction” 162). For Asimov, science is a practical
tool to benefit humankind, and therefore is not “sterile” – science is productive. He is thus
painting a difference in the philosophy of science, taking offense with the Greek version due to
its impractical nature. But, the question arises as to what constitutes a “practical” science. I
would define it as that which provides concrete means to measure and shape reality in absolute
ways. These sentiments are expressed in what Asimov calls his “chess game” metaphor, which
he uses to define the kind of science fiction stories that the Foundation prequels fall under.
Asimov states that a chess game starts with “1) a fixed number of pieces in a fixed position, and 2) the pieces change their positions according to a fixed set of rules” (“Social Science Fiction” 178). The analogy Asimov draws from this conventional game is that “the rules by which the pieces move, may be equated with the motions and impulses of humanity… Presumably, these will not change while mankind remains Homo sapiens… The only modifications from our own society is that certain technological innovations are allowed…” (“Social Science Fiction” 178-179). By this, the impulses of humankind are fixed and knowable by the rational observer, and so humans are predictable like tokens that are moved in a game.

A couple of points come to the forefront from Asimov’s various statements expressing his philosophy of science, as well as from his chess game metaphor: Asimov values the scientific method due to its proximity to the truth and reason; two, Asimov values science fiction due to its proximity to a practical science; three, he believes that humanity functions in a linear, predictable manner. Humanity functions in a predictable manner for Asimov because it is tied to a tradition of reason that ascertains certain logical, rational axioms that govern a discernable reality. Similarly, the mathematics of the chess game relies upon a practical, rational, linear mathematics and thus highlights all of these values.

If we unpack the chess metaphor, we know that there are a set number of calculable moves, but this number is so incredibly vast that it is not inherently calculable or knowable. And yet, Asimov constrains the possible chess moves to the known “motions and impulses” of humankind, listing “hate, love, fear, suspicion, passion, hunger, lust and so on” (“Social Science Fiction” 178). These are determined to be the typical impulses of humankind, working upon the principle that “mankind will not fundamentally change, that basic human drives are universal and eternal” (Elkins 33). Thus, Asimov constrains humanity within quantifiable means. Within the
mathematics of the chess game, there is a similar attempt to constrain the number of possible moves within quantifiable means – this is known as the Shannon number, which is $10^{120}$ possible rational games of chess that can be played. These are the number of games that would make sense if played with the intention of getting a check mate to achieve the goal of the game. This number can be further reduced to $10^6$ to find the best possible moves to quickly and efficiently complete the game. These numbers represent a “bounded rationality” (Simon 161) that works with concrete, actionable variables, and constrains the possibilities within a range that humanity can use in a linear, deterministic manner. The complexity of the situation is thus reduced to knowable factors in order to rationally proceed forward. Asimov is similarly constraining humanity to a fixed set of “moves”, in that humankind is constituted by “our kind of people with our way of thinking about things” (“Social Science Fiction” 179), in order to practically predict future human behavior. What he has effectively done is forced the unknowns of complexity into a fixed, linear, and knowable form. And, all of this is done in the name of a very specific philosophy of science.

The model of science that Asimov is working from is the Newtonian model. Ekeland describes the model as one in which we have “on one side the physical system and on the other the mathematical model and between the two a mysterious correspondence” (142). By this model, $1 + 1$ will always equal 2 in predictable ways, and therefore becomes a practical way to measure and comprehend reality. This constitutes a deterministic model: “if one can resolve the equations, one can predict future states and reconstitute previous states” (Ekeland 143). Katherine Hayles further unpacks this model, describing it as one in which “the world was composed of interlocking parts, that the parts could be detached from one another, and that an intelligent observer could deduce the function of the machine from the workings of its parts”
This is reminiscent of Hari Seldon’s attempts to sleuth through the planet of Trantor and find the algorithms that guide human interaction that can then be fed into a supercomputer. The resultant answers would then be able to predict the future courses of humankind. Hayles mentions the necessity of the “intelligent observer” for determining how the system works (17), which is also in line with Seldon’s paternalistic model of humanity where the intellectual elites know how best to manage society. In turning back to Asimov’s chess game model, it is meaningful to unpack what this linear model of science means for chaos.

Ekeland suggests that chaos is that which can be approached in a deterministic fashion, but there are “strict limits to predictability” (145) caused by the amplification of effects to initial conditions. That is to say, it is difficult to back-through a series of complicated events to find an initial cause. As such, there is no clear cut cause and effect model that can allow for predictability, which Hayles sums up thusly:

… the usual distinction between cause and effect breaks down because linear sequences of causality depend upon being able to define a one-way interaction between the event regarded as a ‘cause’ and that considered as an ‘effect.’ But when the interaction is multidirectional – whenever cause is simultaneously an effect, and every effect is also a cause – the language of cause and effect is inadequate to convey the mutuality of the interaction. (19-20)

Hayles thus highlights the limitations of linear equations (suggesting that non-linear equations are required as per complexity theory!) (9) and shows the difficulty in quantifying the effects given the exponential volume of change that ripples through the cascades of interaction. What Hayles is demonstrating is how complexity outstrips humankind’s ability to comprehend. Asimov’s chess game model, however, is a simple linear model of fixed moves and predictable equations. The only similarity to a chaotic system that he achieves is that we are dealing with exponential possibilities, but for Hari Seldon, these are ultimately knowable through his sci-fi mechanism of psychohistory. He contains the exponential possibilities only within recurrent,
known forms through his “bounded rationality.” Asimov essentially is creating a static system, despite his own admission that “human societies, history shows, must… grow and develop or they will suffer. There is no standing still” (“Social Science Fiction” 190).

Asimov thus understands chaos as a “calculation problem” (Miller 189) that needs to be overcome. Due to the rippling cascade of cause and effect, by which through feedback loops an effect can once again become a cause (Hayles 14), it becomes impossible to keep track of all the possible scenarios a single choice may unfold. As such, “any thorough list of consequences will be extremely long, arguably running on until the collapse of the universe”, and so “we would lack adequate time to determine the rightness or wrongness of [an action]” (Miller 191).

Furthermore, “even if we confine ourselves to maximizing expected utility, it is hard to know with reasonable certainty what the probabilities of each consequence would be” (Miller 191), thus highlighting the fact that probabilities aren’t certainties. These are mathematical problems that humankind is not technologically equipped to resolve – it is not practical, given how time consumptive and complex the process would be. Asimov overcomes these calculation problems of chaos through the mechanics of his novels (i.e. psychohistory), specifically because his philosophy of science ascribes to a deterministic, linear scientific methodology that can whittle down these problems into nonexistent issues for predicting the best choices for humankind as a whole. And, as it is not possible to ignore, Asimov has made it blatantly clear that he likes his science fiction to mirror reality, and so, his perception of reality is thus laid out to be influenced by a very specific philosophy of science; this is a philosophy of science that simplifies complexity into logically graspable forms, even if it means excising complexity from the equation completely. Of course, I do want to caveat that while Asimov formally constructs his Galactic empire stories using this model of science, he does express reservations about its...
limitations in the very final pages of *Forward the Foundation* – these reservations are important, as it addresses the complexity that he cannot bring within the realm of his practical, linear science. This seems to suggest that Asimov is aware of the limitations of the linear, rational model of reality. These reservations will be further addressed in Chapter 3.

### 2.2. Simmons' Non-rational Philosophy of Science

Simmons presents his philosophy of science through the world-ordering drama that backgrounds the main plot. Simply put, there is a cosmic battle occurring between the AI-created\(^1\) Ultimate Intelligence, and a human-created Ultimate Intelligence. Both these UIs are equivalents of Gods, with the AI UI described as a "God machine" (Simmons 282) and the human UI described as "an accretion of god-parts/ a house added onto over time/ an evolutionary compromise" (Simmons 286). The distinction that Simmons creates between these two UIs (with the AI UI being the antagonist and the human UI being the protagonist) depicts the value system that Simmons is championing, which is specifically built upon the two different approaches to science that Asimov and Simmons present.

Before getting into the nuances between the two UIs, it is meaningful to briefly touch upon how the novel communicates these differences. Ummon, a member of the AIs, recounts the narrative history of the two UIs in the form of Buddhist koans. Koans function on the premise of "an inherent nonrational relationship between the descriptive elements [of the riddle] and the referent" (Zug 81). The purpose of these riddles is to invoke enlightenment within the pupil by encouraging the psychological framework of Zen Buddhism (Zug 82). It attempts "to baffle the intellect" by frustrating the novice's "attempt to find... a rational relationship" between the descriptive elements of the koan. Charles Zug suggests the koan is purposefully structured to fail

\(^1\) AI, as in artificial intelligence.
rational logic. The process by which the novice solves the koan is not one that can be explained, "since the experience itself is intrinsically inexplicable" and is rather "a profound and moving religious experience" by which there "is a movement from intellect to intuition... [to an] apprehension and knowledge of reality" (Zug 84). Zug clarifies that there is not an infinite number of answers to a koan, but that there is a “classic” answer to be found where “a definite relationship exists between the descriptive elements and the referent. The problem for the Western observer is that this relationship is not the rational one which he expects and uses so frequently, but rather, an intuitive one" (Zug 84). So, there is an answer to the truth about reality, but it simply cannot be accessed through the linear, rational logic.

There is in fact meaning to be found within the koan for those who are capable of solving it, and the koans are not irrational but rather simply nonrational. That is to say, they have a different structure of conveying meaning that does not function upon rational means to knowledge. This parallels the deficits indicated in the traditional, rational model of science, and gestures towards the need for complexity theory to account for chaotic conditions through a new, non-linear mathematical language. There is logic that underlies a chaotic understanding of reality, but it is simply one that cannot be successfully accessed through the traditional model of science. Simmons thus uses the Ummon koans to suggest that rational approaches towards knowledge will fail to capture an appropriate understanding of reality.

With that being said, Ummon discusses the nature of the human UI in the form of a koan. Given the intention of a koan to defy linear, rational logic, and that the human UI is the protagonist of Ummon’s narrative, it is meaningful to read the characteristics of the human UI as aligned with a non-rational frame of reference:

[Not a watchmaker
but a sort of Feynman gardener]
tidying up a no-boundary universe
with his crude sum-over-histories rake/
idly keeping track of every sparrow fall
and electron spin
while allowing each particle
to follow every possible track
in space-time
and each particle of humankind
to explore every possible
crack
of cosmic irony] (Simmons 286-287)

There are a couple of things that need to be unpacked from this koan, as it immediately makes an explicit differentiation between the traditional model of science (“not a watchmaker”) and the complexity theory model of science (“a sort of Feynman gardener”). To start, the “watchmaker” harkens back to Isaac Newton’s understanding that “the physical laws he had uncovered revealed the mechanical perfection of the workings of the universe to be akin to a watchmaker, wherein the watchmaker is God” (McMahan 79). A watchmaker is an individual that requires the linear, rational methodology of mechanics to construct the working mechanism of a clock, and is thus firmly entrenched within the traditional model of rational science that functions upon bounded rationalism. The human UI rejects this model and instead embraces a “no-boundary universe” that resists finite enclosures of knowability. The human UI also rejects Newton’s understanding of a tinkerer God that maintains his perfect mechanism – Newton championed a God "actively involved in the mechanical world", as by his view, "the only way that a mechanistic universe could possibly be run... was by continual divine providence" (Frankenberry 105). Instead, the human UI allowed each particle to pursue all potential possibilities without a paternalistic, maintaining hand. At most, “He visits the human past / now meddling / now watching / now not interfering / now interfering with a will / which approaches pure perversity / but which actually is pure naïveté \" (Simmons 285). This is not a paternalistic
model (similar to Hari Seldon’s watchmaker model for the *Foundation* novels), but is significantly more free-form. There is no agenda driving the actions of human UI, and he does not function in a rational manner. There is something inherently non-rational about his actions that cannot be reduced to simplistic mechanizations that can be grasped in a rational manner.

What we see here is the rejection of Newtonian atomistic thinking, which Hayles unpacks as the modus operandi of classical mechanics as per the traditional model of science:

… the physical world was considered to be composed of isolated objects separated from one another in an empty space that was rigid and unchanging, with a universal ‘now’ pervading all space at any given moment. Because time was handled as though it consisted of a succession of universal moments, there was never any ambiguity about the order of events. Hence causality could be unidirectional and absolute.” (42)

This model creates the space for predictability in the same way that a clock can steadily and methodically quantify time, but the human UI defies this framework of knowable causality, and ultimately, is likened to a “Feynman gardener”.

Richard Feynman was a theoretical physicist who was integral to work on quantum mechanics, and he was able to sum up the question of unpacking causality in very simplistic terms: “Are all the laws of physics reversible? Evidently not! Just try to unscramble an egg!” (Feynman). He further suggests that “irreversibility… does not come from Newton’s laws” (Feynman), and uses the example of chaotic collisions to illustrate his point. He uses the example of a box that has a barrier between white and black molecules, separating the two colors. Once the barrier is removed, the two types of molecules will inevitably mix. He defines it as an "irreversible process which is completely composed of reversible events" (Feynman) in that if each individual collision of molecules was monitored, you would see that they follow strict physical laws, but you would not be able to undo the mixture. The reason for this is that there was an ordered arrangement in the beginning, but "due to the chaos of the collisions, it becomes
disordered” (Feynman). So, Newton's equations are reversible because they are ordered, but once disorder is introduced (chaos), it is not possible to work backwards. The complexity of the scenario would outstrip human capabilities.

What Feynman is illustrating is the fact that there is order at the heart of the universe, but chaos grows out of this order, making it harder for humankind to understand cause and effect rationally: “we… conclude that the universe is not a [seemingly random] fluctuation, and that the order is a memory of conditions when things started. This is not say that we understand the logic of it” (“Order & Entropy”). The past contains relatively more order than the present (as chaos grows), and that is why humanity “remember[s] the things which are closer to that moment in the history of the universe when the order was higher than now, and why [humanity is] not able to remember things where the disorder is higher than now, which we call the future” (“Order and Entropy”). This is also why humanity tends to look back at the past and present as a means to analyze the future – these more recent and less disordered events are the only means of knowing that humanity has access to, limited as it may be. What escapes human capability is the ability to grasp the future.

Feynman is ultimately suggesting that humanity is not equipped to understand the logic of complexity that comprises the universe. And yet, the behavior of the universe “cannot be completely understood until the mystery of the beginnings of the history of the universe are reduced still further from speculation to scientific understanding” (“Order & Entropy”). There is still an urge to know that drives the process of scientific inquiry, and one that can be presumably sharpened over time with a greater understanding of complexity. What is required is a broadening of the lens with which humankind perceives the world as a broader network of interrelations and perspectives than what is offered by the traditional Newtonian rationalistic
model. It is therefore significant that Simmons describes the human UI as a “Feynman gardener”, as this conjures up the parallels to Feynman’s work on quantum theory, as well as the image of the idle curation of a garden of complexity. This is also not a neatly ordered garden, either, as the tool he works with is a “crude sum-over-histories rake,” which is a reference to the theory of the sum over all possibilities – this notes that classical physics thinks that one plus one would always equal two, while quantum mechanics takes into account all the variations of that equation that exist outside of linear logic. The sum of all possibilities is the sum of all the probable answers, which gives you a probability, and not a certainty of what the answer is (Possel). The answer lies outside of the realm of human calculation, and even though humanity may attempt to use its current mathematics to solve for the answer, the tools are crude at best.

Ummon comments on how the AI UI wants to bend reality to the Newtonian model, and “wishes to regulate all this / reduce it to some reason / less affected by the vagaries / of passion / and accident / and human evolution” (Simmons 287-288). The concept of evolution captures the kind of mixing of white and black molecules referenced by Feynman – it follows a logical progression of change, but one that becomes exponentially more complicated over time and space that it cannot be unpacked into simplistic cause and effect. Furthermore, Ummon references passion and accident – more things that cannot be quantified. The AI UI wants to reduce complexity, in a manner similar to Seldon with his algorithm of human impulses that can be quantified and plugged into his psychohistorical model of humankind. If we were to step away from this limited, rationally bound model of reality, it would require an understanding of the world where complex human emotions and impulses would have to find a place within the complexity of reality. Hayles does point out that “if the world is a dynamic, living whole, it cannot be entirely understood through reason alone” – reason would otherwise seek to reduce the
world into mechanical parts where 1 plus 1 would equal two. I would argue that human emotions and impulses would not neatly fit into a rationalistic model that would enable a summation of what constitutes a human – there is nuance to each individual feeling and these feelings are not stable across all humans and circumstances. Hayles further elaborates that “if a living being is dissected, the essential quality of life is destroyed; the remaining parts will never add up to the original whole” (17), which belabors the point that humanity is not that which can be quantified per rational, linear means. So, humanity cannot be reduced to objectively knowable means, but it is still necessary to find a way to incorporate these human impulses into our understanding of the complex reasons for how human reality functions.

To conclude on Ummon’s narrative of the battle between the human UI and the AI UI, the battle is staged “across battlefields beyond even Ummon’s imagination \"", but ultimately, the human UI “had no more stomach for it” (Simmons 288). Ummon notes that the human UI is actually composed of three parts, and as a result of the battle, the triune shatters into its constitutive parts – the part named “Empathy” flees the war. The battles cannot continue until the triune is whole once again, and this serves as the overarching conflict for the Hyperion novels. Ultimately, the part known as Empathy is not easily found and reinserted into the triune, which reiterates Hayles’ sentiment that a living thing cannot be neatly broken into constitutive parts and cobbled back into a working whole. Simmons thus presents the crux of his novels’ conflict as a battle between two understandings on how reality can be constituted, with each warring side being constituted by a specific philosophy of science and means to know the world. The anxiety that is created by this conflict of perspectives requires a literal search for human empathy – a component that cannot be so clearly defined and captured.

This chapter of Ummon’s koans thus highlights Simmon’s philosophy of science, that still
believes in following the scientific method started by Enlightenment traditions of rationalism, but functions upon a model that expands the field of knowledge that is required to get an accurate representation of reality. This philosophy of science expands to address non-rational components of reality and suggests that there needs to be a new algorithm to address these components. Complexity theory uses non-linear mathematics to address complexity, while Simmons uses literature to depict complex human beings in an attempt to do the same.

2.3. On Empathy and Other Human Emotions: Non-rational Components in a Complex Reality

Both Asimov and Simmons touch upon human emotions and internal motivations as necessary factors in determining the shape of reality, but there is a very distinct nuance in their discussion of human emotions within their literature. For Asimov, these concepts are static components that consistently produce similar results when plugged into a standard algorithm of human behavior (as per his chess game model). For Simmons, however, these concepts of human emotion are not so neatly contained – we have “Empathy” described as a living, missing piece of a greater whole, that cannot be so neatly inserted back. Simmons does not do away with the calculation problems that are inherent in working with complex human beings, and instead, he embraces this messiness. “Empathy” becomes a troublesome character that defies capture, not only by the AI UI, but also by definition – he is ultimately construed as a complex being that is not a simplistic sum of unitary emotions and impulses.

What makes Simmons’ discussion on empathy – its disappearance as well as its inability to define – interesting is that it merges two simultaneous discussions: 1) what kind of empathy is needed to address the potential destruction of humankind, and 2) the complexity inherent in humankind’s internal experiences that outstrips linear, rational attempts to understand anything
about themselves or the reality within which they operate. The reason that I mention the first point is because the plot of the novels circles around the problem of dealing with humanity’s existential threats – I would argue that empathy immediately becomes implicated when trying to ascertain the best means to save society, or even plan for the best future for the coming generations. There is a level of care for other human beings required to even begin tangling with questions about saving humanity as a whole, and therefore the concept becomes relevant to literature that addresses those questions. The second point speaks to the fact that the moment empathy becomes implicated, it adds a factor that cannot be quantified or predicted through linear, rational means of knowledge. Of course, this is from the perspective of Simmons’ philosophy of science – Asimov also is trying to address the need to save humankind, but he frames humanity as something that is quantifiable. Asimov treats humanity as that which is predictable and fixed, while Simmons addresses the complicated variances of individual human experience that makes any broader generalizations about humanity too complex a calculation.

What we have is an issue of scale – Asimov gets rid of complexity when stepping so far back that his perspective does not differentiate between people and rather sees all individuals as part of a more significant, simplistic whole. Arguably, this makes it harder for Seldon to have empathy for all of humanity (by which he can enact “surgery” upon society and “cut out the diseased tissue” [Prelude 228]). This does not mean that Asimov is devoid of humanity – he still is interested in addressing the broader question of how one saves humankind from destruction, and that is the cornerstone of his fictional project. Simmons, on the other hand, gets up close and personal with the nuances of human complexity and makes it a point to address them – empathy becomes the crux of his fictional world. Asimov and Simmons are thus enacting two different versions of empathy, which spells different levels of success in their attempts to portray the
fictional means to save humankind. I would argue that heightened empathy is required to properly address any questions about how best to save humankind. I would also argue that the ability to truly be empathetic requires an appreciation for the complexity of human experience. Moving forward, this thesis will work to establish how both Asimov and Simmons’ series depict the means to save humanity as well as how humanity can come to terms with complexity that threatens the means to control for the unknown events that might threaten human well-being.

Chapter 3: Gaps in Asimov’s Foundation Prequels

I want to clearly state that Asimov does not lack care for humanity. The plot of his Foundation prequels is driven by a desire to depict how humankind may be saved, and Asimov states that the genre of science fiction specifically works to “accustoming its readers to the thought of the inevitability of continuing change and the necessity of direction and shaping that change rather than opposing it blindly or blindly permitting it to overwhelm us” (“Social Science Fiction” 196). He is thus interested in using his literature as a way to serve humanity in its better interests. Joseph Miller suggests that Asimov is essentially engaging in a utilitarian project by which he is ultimately trying to solve the question of the greatest good for the greatest number of people (189). Miller argues that Asimov’s model solves for calculation problems that prevent a full grasp of complexity that would otherwise impede human efforts towards progress (191). Psychohistory enables humanity to grapple with the vast amounts of data that comprises complexity and access predictive power to build a future containing the greatest happiness.

Asimov’s desire to constrain chaos within rational means is not dissimilar from what theorists of complexity attempt to do, as they too are trying to find empirical means to comprehend complexity. David Byrne discusses how it is possible to comprehend chaos in a “realm of determined chaos” (26). This is not in the kind of simplification enacted upon the
chess board, however – this is more about the embracing complexity and understanding it on its own terms. Byrne acknowledges that “any system that obeys rules – even if the behavior is chaotic – can be controlled once the rules are known” (24). This is reminiscent of the non-rational Buddhist koans discussed in Chapter 2 – there is an underlying set of rules that govern the riddles, but they simply function on a set of rules that are different from the standard, linear rules – this would involve the non-linear mathematics of complexity theory. Byrne’s desire to solve the calculation problems link his ambitions with those of Asimov, and ultimately, both men seek the rules that govern a complex reality in order to gain predictive power.

Byrne notes that “once we can predict, we can engineer the world and make it work in the ways we want it to” (19), and this is directly tied to his desire to have actionable knowledge to shape a better world. Byrne and Asimov are linked in their desire to create a better world by mapping a better understanding of the world, and Byrne concludes that control of a system “requires knowledge of what to do, and a belief in the efficacy of the actions” (41). The issue is that Byrne’s model of knowledge is that of complexity theory, but Asimov’s model of knowledge is still influenced by linear models. The philosophy of science that undergirds Asimov’s understanding of reality does not address the complexity of human experience, and therefore, there is an inherent gap in the scientific language that Asimov can use to address the complexity of experience. As such, when Asimov constructs Seldon as a character that understands reality through linear models, he is also simultaneously demonstrating the limits of the linear, rational model of science – Seldon ultimately struggles to truly understand the human beings that he attempts to save, and so it can be argued that Seldon is not capable of really making the best choices for the future of humanity. As much as the plot of the novels end with Seldon’s so-called success of psychohistory, I will be arguing that Seldon ultimately fails. I will
now work to demonstrate the development of Seldon’s character as determined by the traditional model of linear mathematics fails because of his inability to account for human complexity.

3.1. Seldon’s Excision of Human Complexity and Other Chaotic Elements That Would Threaten his Causal Models of Reality

Seldon is constructed as a character that values knowledge above all else. He wonders, “Why… did so many people spend their lives not trying to find answers to questions – not even thinking of questions to begin with? Was there anything more exciting in life than seeking answers?” (Prelude to Foundation 281) – Seldon’s driving force can thus be characterized as the pursuit of knowledge. Given that the plot of the novels involves finding a psychohistorical solution “for the sake of those millions of worlds, billions of cultures, and quadrillions of people… for humanity” (Prelude to Foundation 67), it is meaningful to note “[Seldon] had promised… to work out a practical psychohistory, but that had been a promise of the mind and not the emotions” (Prelude to Foundation 92). We know that Seldon is driven by the pursuit of knowledge, and so it is possible read this as Seldon being interested in solving the mathematical problem of psychohistory because of the satisfaction he can derive from solving an intellectual hurdle – his emotions are not necessarily being triggered by invocations for humanity.

The feelings that Seldon is capable of articulating well are those that surround his psychohistorical project – these feelings are visceral. He becomes so caught up in the process of solving this intellectual puzzle that he unflinchingly abandons his previous life to begin the search for a psychohistorical solution for humanity. The narrator says, “Psychohistory – his nebulous theory that he had, such a short while ago, despaired ever of proving – loomed larger, more real. Now he had to believe that it was possible; he could feel it in his gut” (Prelude to Foundation 280). The narrator’s italicized emphasis shows a possessive clinging to of the theory
of psychohistory, and the gut feeling shows a visceral response to the prospect of solving this intellectual puzzle. We do not, however, see a similar twisting of the gut at the prospect of humanity’s destruction. Seldon is driven by the mind and his ego and not by his heart. This is not to say that he does not care about humanity but simply that its salvation is not the primary calling that drives his actions. As he is not emotionally invested in humanity (that is, having empathy for its circumstances), it is what may arguably enable him to treat humankind as something that could be surgically pruned into perfection – it is what sanctions his ability to cause harm to humanity for the sake of some abstract, greater good.

Seldon is not the most emotional of characters in general, and this can be seen in his interactions with individual humans throughout his journey. The first person that he truly connects to is Dors Venabili, who is assigned as his protector. Apart from sexual attraction, he respects Dors for her intelligence, her support in solving the problem of psychohistory, as well as her utility in protecting him (Prelude 490). He can voice and rationalize all of these qualities about Dors, and yet struggles to find a way to express a deeper reason for why he wants her company: “[Seldon] weighed the matter and tried to think rationally. Then he gave up. He wanted what he wanted and he wanted it beyond thought and rationality” (Prelude 492).

Seldon’s feelings cannot be articulated, and they cannot be grasped rationally, but they exist.

The most important facet of Seldon’s character is that there is a certain evasiveness when it comes to emotions. Later, when asked how he had met Dors, he says, “There’s nothing romantic or significant in the meetings” (Prelude 438). The lack of significance that he attributes to these meetings suggests that the conditions surrounding his relationships are irrelevant, and therefore, can be dismissed from the conversation. Given that we know that Seldon is looking for the laws that govern human action, it is meaningful to pause and consider the circumstances under which
Seldon dismisses potentially relevant information about human interaction. Coupled with the evidence that suggests that Seldon cannot rationally comprehend the feelings of his heart that may incline him to certain relationships with individuals, it seems almost as if Seldon is marking as irrelevant all that which he deems to be non-rational.

Seldon’s aversion to romanticism or emotions seems to be because he cannot effectively quantify these elements of reality. He is also quick to disregard myths and legends, and he ultimately deems them irrelevant to psychohistory. There is a specific legend about an origin planet that humankind was born on, but “it didn’t matter. So little was known… and that little so obscured by myth and legend, that there was no hope of making use of psychohistory in connection with [it]” (Prelude 469). Myths do not provide concrete, actionable variables for Seldon to plug into his algorithm, and so he determines that as “[the planet] can’t be located, it can’t be defined, so it can’t be spoken of sensibly, so it effectively doesn’t exist” (Asimov 162). Seldon excises all non-rational components of reality from his algorithm in an attempt to constitute reality as it is – this seems paradoxical and not particularly scientifically rigorous.

Seldon’s project of psychohistory is based on a rational approach to a quantifiable reality, by which he attempts to solve the calculation problems of chaos. He sums up the problem and solution of chaos thusly:

In many systems, the situation is such that under some conditions chaotic events take place. That means that, given a particular starting point, it is impossible to predict outcomes. This is true even in some quite simple systems, but the more complex a system, the more likely it is to become chaotic. It has always been assumed that anything as complicated as human society would quickly become chaotic and, therefore, unpredictable. What I have done, however, is to show that, in studying human society, it is possible to choose a starting point and to make appropriate assumptions that will suppress the chaos. That will make it possible to predict the future, not in full details, of course, but in broad sweeps; not with certainty, but with calculable probabilities. (Prelude to Foundation 11)

This quote constitutes the modus operandi of psychohistory and reiterates the traditional model
of science (as outlined by Hayles) that worked on a linear, causal model – it attempts to apply this traditional line of mathematics to comprehend chaos. Seldon acknowledges that probabilities are not certainties, however, and therefore recognizes the limitations of his model. Despite the inadequacies, he moves forward with his psychohistorical model as the best means to save humankind. Seldon is ultimately ignoring complexity that would otherwise confound his calculations. This is highlighted by the fact that he realizes he can have a working psychohistory “if [he] dealt with a much simpler Galactic society” (Prelude to Foundation 171). This principle of simplification plays into the chess game model Asimov had outlined with the concept of bounded rationality - Seldon similarly only works with those factors he can rationally grasp. So, instead of dealing with the millions of planets in the Galactic Empire, he decides to look at one planet and extrapolate a broader formula from that.

Seldon’s principles of psychohistory thus effectively reiterate the points of a traditional model of rational, linear science that does not take into account the true extent of complexity. As mentioned a couple of times, there is an inclination towards the suppression of chaos by ignoring any factors that are not quantifiable, which is actually where Asimov and Byrne diverge in their desires to work with a “determined chaos” (Byrne 16) that provides predictive power. For Byrne, “complexity/chaos offers the possibility of an engaged science not founded in pride, in the assertion of an absolute knowledge as the basis for social programmes, but rather humility about the complexity of the world coupled with a hopeful belief in the potential of human beings for doing something about it” (Byrne 45). While both men are interested in the actionable power of understanding chaos, Byrne is of the belief that it might not be possible to come to terms with the breadth of complexity that makes up reality. The difference is a matter of attitude – Byrne is capable of making a pause before conceptualizing the kind of power with which Asimov equips
Hari Seldon. Seldon makes an arrogant leap into a future that he already seems to know best, even *before* his psychohistory is fully fleshed out or finalized. Once more, I think it is important to reiterate that Seldon is *not* Asimov – the hubris of Seldon is not necessarily that of Asimov. Instead, it may be better to read Seldon as demonstrative of the kind of attitude that comes with a worldview shaped by linear, rational models of science. His tendencies become symptomatic of an attitude and a cultural ethos that Asimov is depicting through fictional means. In that sense, Asimov is also capable of depicting the paradoxical holes in Seldon’s argument that will threaten it with a complete collapse.

### 3.2. Seldon as a Chaotic Force for Change

Seldon’s arrogance seems to be directly linked to his faith in his ability to solve psychohistory, and that psychohistory is the most decisive tool that can guide humanity into a better future. I would argue that Seldon is essentially championing for a revolutionary change, one that is in line with Asimov’s previously stated intention to equip his readers with the ability to shape change rather than become the victim of it. And yet, this requires Seldon to break from the current algorithmically predictable society and construct a completely new model – it presents a flaw in his psychohistorical model of society by threatening the internal consistency of the mathematical logic that orders his world as his actions become the chaotic factor that diverges from the mathematical norms.

To demonstrate this, I want to address the scene in which the character Davan tries to recruit Seldon to become a revolutionary leader. Seldon notes that with revolutions, “one ruling class is replaced by another,” and expresses a level of cynicism that any decisive change can be enacted when history is so cyclical. Furthermore, he feels that with revolutions, the “poor and downtrodden… become even worse off” (*Prelude* 392). This is where Devan interjects with his
faith in Seldon’s psychohistorical project as the arbiter of that decisive change. Furthermore, he castigates Seldon’s cynicism: “That which may exist in the future is merely potential. If we are always to draw back from change with the thought that the change may be for the worse, then there is no hope at all of ever escaping injustice” (*Prelude* 392).

There are two main points to be drawn from this interaction with Devan. On one hand, Davan is suggesting that it might be possible to break from the cyclical turns of history. If anything, he is arguing for a chaotic break from a stable system, and he is suggesting that Seldon is that chaotic break. Psychohistory would thus become the tool that would change human behavior into a more beneficial pattern, thus presenting the framework to build a new and better society. It is almost a paradoxical notion to have a man working on the pretense of order to build a model for knowing the world, when he himself is going to be the impetus for revolutionary change that would fashion a new society to succeed a failing one. It behooves the question that if psychohistory requires an algorithmically understandable reality, how can it accurately predict the future once the chaotic element of Hari Seldon is tossed in the mix? This paradox is particularly frustrating to resolve, especially given Seldon’s own sentiments about paradoxes: “A paradox arises only out of an ambiguity that deceives either unwittingly or by design. I don’t like that in science and I don’t like that in casual conversation, either, unless it is meant humorously” (Asimov 23). The fact that Seldon saves humanity by the end of the novels justifies the paradoxical necessity for a chaotic event to set the stage for a non-chaotic society, but it does not resolve the inherent fallacy within the psychohistorical model of reality.

The other point that can be drawn from the scene with Davan is the fact that Seldon is cautioned against worrying about suffering that may be caused by any decisive actions that are taken. Basically, he is concerned about the cascading effects of one choice, where a supposedly
altruistic action may lead to catastrophic change as the cause ripples forward with unpredictable effects. It is meaningful to note that this is not the first time such a concern arises in the *Foundation* novels – the robots in these novels are constrained by the three laws of robotics in order to prevent this very situation that may lead to potential human suffering (*I, Robot*). The robots do not act decisively because they are crippled by the “principle of minimalism,” which is outlined as follows by a robot: “You must have minimalism because every change, any change, has myriad side effects that can’t always be allowed for. If the change is too great and the side effects too many, then it becomes certain that the outcome will be far removed from anything you’ve planned and that it would be entirely unpredictable” (Asimov 24). Seldon agrees with this and says, “Right. That’s the essence of a chaotic effect. The problem is whether any change is small enough to make the consequence reasonably predictable or whether human history is inevitably and unalterably chaotic in every respect” (Asimov 24). Despite this admission, Seldon ultimately says, “I am not bound by the Laws of Robotics. I need not concern myself obsessively with minimalism” (Asimov 26). Seldon thus reasons himself to the conclusion that he does not need to worry about potential destructive side effects of his choices and unabashedly strides forward into the future with his own chaotic decisions.

3.3. Seldon’s Practical Performance of Empathy

Once Seldon shakes off the shackles of minimalism, he can act in chaotic, decisive ways. He builds his psychohistorical algorithm on the principle of simplification, using the planet Trantor as a model upon which he can extrapolate all the laws to understand all the other planets and circumstances in the entire universe. Once the other planets are excised from the workings of his formula, Seldon comes to the conclusion that he does not care about what happens to these other planets in the Galactic Empire – “We must keep Trantor stable, if for no other reason that
we’re here… What good will it do to us to keep the Periphery intact if conditions on Trantor force us to stop work on psychohistory?” (Asimov 121). He can cast the other periphery planets to the potentially adverse circumstances of chaos without flinching as “concern was what Seldon could not make himself feel. The Outer Worlds, with all their disorders and misfortunes, were like a great ocean on a peaceful day, with a gentle swell and minor heavings” (Asimov 59). What is ultimately being conveyed is that Seldon has written off these adverse conditions as irrelevant to his broader goals. Seldon justifies the potential harm to others as it only would serve to hinder his broader project of preserving “humanity” – he can suffer a couple human sacrifices if it means that he can still save the broader humanity that is worth saving. Essentially, Seldon is enabling some violence as long as it does not cause greater harm to humankind as a whole, and is ultimately cruel in his cold distillation of humankind into pawns on an unfeeling chess board.

Seldon’s empathy seems to function on an abstract level, where he can intellectualize the best means to promote humanity’s interests as a whole because he is emotionally removed from the means to achieving this goal. Miller points out that he is functioning on the zeroeth law of robotics, which is an expansion of the original three laws of robotics (195) – this law states that “No Machine may harm humanity; or, through inaction, allow humanity to come to harm” (I, Robot 216). This allows a stepping-back from the first law that says that a robot cannot harm a single human being (I, Robot 51), and rather is considering the broader abstraction that is humanity itself. By this, the “greatest good… now outweighs the good of the individual” (Miller 196). This law originated as a way to work around the limitations invoked by the principle of minimalism, by which the robots were becoming crippled into inaction because of their fear of harm caused to any individual human being as an unrelated consequence of their actions. The zeroeth law allows them to harm some individuals if it means that they are preserving humanity
as a whole. An interesting parallel is thus established, where Seldon is working off of the principles of robots, rather than principles that would necessarily guide a human. His practical form of empathy thus allows potential harm to humans. His empathy is for “humanity,” but there are quite a few humans that do not fall within the realm of statistical significance worth saving.

3.4. Faults in the Success of Psychohistory

The end of the prequels involves Seldon having solved for psychohistory and the means for humankind’s survival. In a closing scene, Seldon looks over the planet Trantor and reflects:

Below the gleaming metal cover, the lives of forty billion people were being conducted, with all the attendant pain, joy, and drama of human life. It was an image he loved dearly – this panorama of human achievement – and it pierced his heart to know that, in just a few centuries, all that now lay before him would be in ruins… He shook his head in sadness, for he knew there was nothing he could do to prevent that tragedy. But… he also knew that from the ground laid bare by the last battles of the Empire living shoots would spring and somehow Trantor would reemerge as a vital member of the new Empire. The [Seldon] Plan saw to that. (Asimov 421)

Seldon thus envisions the better future that will be brought about as a result of psychohistory, but in doing so, he paints a static frieze of humanity. He explicitly describes this as an “image”, which dilutes the dynamism that might be otherwise be found within humanity. I would argue that this is a result of his abstract approach to humanity – it exists as a concept for Seldon, rather than as a living, breathing force that might outstrip the constraints of a two dimensional image. The people that he mentions in this scene are stripped of individuality as they are simply gestured at as the “billion[s]” that Seldon looks (literally) down upon, almost as if he were the watchmaker that orders their lives. He thus positions himself as separate from the lives of others – a lonely vantage point from which to view society.

In his old age, on the day of his eventual death, Seldon reflects upon the past: “Was I so concerned with the grand sweep of psychohistory that the people and events that intersected my life sometimes seemed inconsequential by comparison?” (Asimov 431). Throughout his closing
thoughts, he reflects upon his loneliness. These thoughts are interspersed with reflections upon psychohistory and its contributions to humankind: “What I see before me, around me, is the future of humanity… This – *this* – was my life’s work. My past – humanity’s future. Foundation. So beautiful, so alive. And nothing can… Dors!” (Asimov 434). We see opposing forces fighting Seldon within this sentence – he is trying to articulate his achievement of psychohistory, and it seems almost as if he is trying to say that nothing can be more important than his work. His thought is abruptly interrupted by the vision of his dead wife, and that is the last word that he speaks in his waking life. His personal relationship with an individual human being intercedes and claims his attention, perhaps for the first time in his life.

Seldon’s death is a tragic one, particularly because of how Asimov depicts an old man who dies alone. His closest family and friends are alive, but are far away and tending the greater psychohistorical project. There is a despondent finality to Seldon’s words when he says things like “I’ll be dead by then, of course” (Asimov 431), or “I am utterly alone” (Asimov 432). Seldon recognizes that he perhaps could have done more to keep his friends and family in his life: “Perhaps I neglected to make some small incidental adjustments here or there that would have in no way compromised the future of humanity but might have dramatically improved the life of an individual dear to me” (Asimov 431). These realizations only come to him moments before dying, and therefore he is never afforded the opportunity to do better for himself, or for others. His lack of empathy for individual human beings creates a deficit in his overall quality of life, and this is something that he can only address in retrospect.

The tale ends with a hollow echo and an overriding sense of melancholy. Seldon has effectively lived his entire life trying to control for adverse conditions for all of humanity, when he could not protect himself or his loved ones. The reader is left with the feeling that his attempts
to control complexity have ultimately failed because of these crucial emotional lacunae in his approach to reality. At the same time, it is understandable why these gaps exist in Seldon’s life, given that his approach to understand reality requires a translatable, linear cause-and-effect correlation between his mathematical models and reality. The ability to observe that cause-effect correlation requires an objective, exterior point of view where one is not implicated in the cause-effect cascade. Hayles points out that such a position cannot truly exist, as “there will always be one place we can never see at all – the spot we are standing on. Like the figure in a painting who wishes to gesture toward the painting that contains him, we can never arrive at a complete and unambiguous description of this reality because we are involved in what we would describe” (20). The fact that Seldon’s psychohistorical project is so influenced by the ability to discern cause and effect can explain why Seldon had instinctively tried to remove himself from the actual workings of the world that he was trying to save. This explains why he did not have many empathetic connections to others. This also explains why he ends his tale feeling regretful.

It is easy to be dismissive of Asimov’s novels because the reader is presented with a protagonist that callously sums up humanity into simplistic, broad swathes of faceless men and women. He is arrogant and over-confident of his abilities and his right to govern humankind. Most importantly, Seldon finds difficulty in relating to others, and therefore makes it difficult for the reader to necessarily relate with him – empathy does not bind him to the humanity that he claims the right to speak for. Given Seldon’s failings, it is meaningful to consider them as an intentional construction on the part of Asimov in order to depict the shortcomings of Seldon’s worldview. Asimov suggested that science fiction is a way of “looking sensibly toward the future” (“When Aristotle Fails” 590) and that “no generation has had to face the appalling certainty that if the advance of science isn’t judged accurately, if the problems of tomorrow
aren’t solved before they are upon us, that advance and those problems will overwhelm us” (“When Aristotle Fails” 587). Given that he is writing during the time of an actual advance of science (as complicated by complexity theory), his novels depict what would happen if societies truly fail to embrace complexity, and rather rely upon the traditional, linear approach to science. Asimov is able to paint the gaps in Seldon’s picture of reality, revealing a static representation that fails to accommodate the full dynamism inherent in humanity.

**Chapter 4: A Compensatory Desire for Order**

Asimov has revealed a desire to utilize the sciences (as well as his literature) as a way to prevent humankind from being overwhelmed by external circumstances. This process conjures the image of a species that withstands the tests of time and can continue to propagate into the future, especially because the *Foundation* novels strive to map a path for future human societies. The process contains the momentum of forward movement, and therefore becomes linked with the need for progress. On the one hand, the necessity for progress can be understood as an attitude that results from the culmination of years of scientific improvement – “later scientific theories are better than the earlier ones… we have reason to suppose that our descendants will know even more than we do… The advancement of science, incomparable to that of any other human practice, is largely responsible for the shapes our contemporary lives have taken” (Mladenović 136-137). Given that science has improved humanity’s ability to understand reality, as well as improved the livelihoods of humankind, it makes sense that there is a cultural expectation that greater scientific achievements are necessary. Progress is thus linked to scientific sophistication, and it is easy to link this to a human necessity due to the tangible benefits of its progressive advances. This thus establishes the necessity for forward momentum into the future.
The necessity for progress is also a response to counter the potential for species death, which would otherwise retard the forward momentum of progress. Asimov links this back to the study of evolution, in which “it turns out that organisms which do not change to meet a changing environment become extinct… Human societies, history shows, must also grow and develop or they will suffer. There is no standing still” (“Social Science Fiction” 190). This quote again reveals a fixation with momentum, suggesting that humankind has to keep moving or else it will be left behind. Suffering and decay threaten to undermine this process, creating the conditions of stasis that Asimov’s *Foundation* novels ultimately are reacting to. Asimov is approaching these concepts of death and suffering from the broader species level, and he attempts to resolve these issues through the sharpening of linear, rational scientific means to comprehend and control reality. Most importantly, Asimov’s protagonist claims almost god-like omniscient powers that would protect humankind from destruction and give them the tools to forge forward and into the future – this plot contrivance is the means by which humanity supposedly breaks free from entropic cycles that eventually lead to either inertia or systemic breakdown (Slethaug xvi), and instead, puts them on an upward, progressive trajectory towards a better future.

In a sense, Asimov is enacting the paradoxical dilemma outlined by Castano et. al., who argue that “humans struggle between the god-like characteristics of [their] mental capacities and the shortcomings of [the] physical body, which will inevitably decay and die” (603). Asimov’s characters demonstrate that very same god-like mental abilities that seem to solve all of humankind’s problems, but cannot actually a) prevent Seldon’s lonely demise, or b) actually save all of humankind – Seldon can only rescue those portions of humanity that fall within the perimeters of psychohistory. There are limitations to the amount of death and suffering that he can realistically prevent, showing the shortcomings of Seldon’s model. Despite those flaws,
Seldon obstinately claims that he has saved humanity – successes that really feel more like feeble attempts to assert dominance over circumstances that actually lie outside human control.

Castano et. al. argue that humankind engages in the act of “terror management” as a means to come to terms with the human condition (i.e. mortality) (603). They suggest that humans deal with the knowledge of their mortal condition by “imbu[ing] their universe with meaning and striv[ing] to place themselves in the center of that universe – or at least to get a decent seat” (603). This process of creating meaning is a way to order the world, as it gives reality a discernable structure and a logic for its operations – very similar to Seldon’s impulse towards psychohistory. When reality is understandable, it gives a semblance of control over the circumstances of human mortality. This process of “striving” that Castano et. al. reference also harkens to this drive for progress as a way to stay an inevitable demise. All of these processes of meaning making and striving situate humankind at the forefront of the universe’s drama, similar to how Seldon treats humanity’s rescue as the most important action, and most telling of his own psychological needs, how he places himself at the center of the solution for humankind – this justifies and ultimately validates the preeminence of broader human concerns as well as the more specific concerns of the individual. It resounds as a means to compensate for inherent human frailty, in the face of a complex universe where human goals may not necessarily take precedence, and human death and suffering may very well be necessary components of reality.

Asimov’s novels only briefly address the feelings of the individual in the face of impending death in Seldon’s closing moments, but Simmons has a greater focus on the psychological impacts of the limitations of humankind and their paradoxical desire to order and control for circumstances that would expose their mortal coils. As such, it is useful to conduct a character study of Simmons’ novels to continue the discourse begun by Asimov’s work.
4.1. Father Duré’s Disillusionment With a Religious Order

Simmons’ *Hyperion* novels involve pilgrims who each recount their backstory. The first pilgrim is Father Lenar Hoyt, a Jesuit priest, who reads aloud from the diaries of another Jesuit – Father Paul Duré – as a means to reveal why he personally is on the pilgrimage. Duré’s narrative is the first to address the question of human striving and meaning making.

To set the scene, Duré is a priest that was exiled to the planet Hyperion for falsifying evidence that a Christian sect pre-dated its Earth origins and existed on a different planet. If he could have proved that Christianity existed on other planets and in earlier times, Duré could argue for its universal and absolute veracity. Duré had lied so as “to arrest that slide into oblivion which the Church seems destined for” (*Hyperion* 32) – this language echoes the entropic slide into disorder that is implicated in complexity theory. Duré could not find empirically verifiable evidence for the ideological underpinnings of a Christian reality and begins to lose his faith. Duré had initially accepted his exile in the hope that “[his] travels would stir [his] old beliefs in St. Teilhard’s concept of the God in Whom the Christ of Evolution, the Personal, and the Universal, the *En Haut* and the *En Avant* are joined, but no such renewal is forthcoming” (*Hyperion* 37). The saint that Duré is referencing is Simmons’ fictional construction based upon the historical Jesuit Philosopher, Pierre Teilhard de Chardin. The relationship between Duré and Teilhard becomes significant because Teilhard’s ideology highlights the interplay between complexity and a desire to progress and overcome the limitations of a very mortal humanity.

Teilhard de Chardin interpreted evolutionary theory through a Christian lens and believed that humans expressed a desire to “persist in being and develop greater organic complexity” (Grumett 522). That is to say, that humans would continue to evolve and mature as a species as a means to get closer to a more perfect Godhead. Teilhard suggests to “envision [the species]
ending in terms of some paroxysmal state of maturation which, by its scientific probability alone, must illumine for us all the darkest menaces of the future” (Teilhard 301-302). So, Teilhard is advocating for greater complexity as well as necessity for progress as it directly leads to a superior vision for humankind that is better equipped to handle the horrors of reality. It is meaningful to note that while Teilhard embraces complexity, the Christian God provides the means to understand that complexity as well as give it purpose.

The reason why Teilhard clings to evolutionary theory is because it “afforded a scientific justification of faith in progress” (299) – he is trying to bridge theology with science in order to give it greater validity, similar to what Duré attempts in *Hyperion*. This bridging of science and philosophy is also important for the broader goals of this project. Teilhard unfortunately misinterprets evolutionary theory and suggests that there is an innate drive towards perfection of a species in the natural process of evolution. He attributes to humanity the “creative and redemptive process in which the world is drawn toward an ever-closer unity and self-consciousness that it originally lacked” (Grumett 524). Teilhard further justifies his vision because he believes that man “is becoming capable of modifying, or even creating, his own self” (*Toward the Future* 181), thus citing increasing technological sophistication as evidence that man is evolving towards greater refinement. Teilhard thus justifies his ordering of reality in science and progress, but there is a “pessimistic and obscure thread” in his philosophy, that notes that “humankind also contemplates its finitude and fragility, the prospect of decline and the possibility of disaster” (Grumett 530). He is forced to confront the fact that in reality, there are species that have died out – a potential fate for humankind as well. Teilhard eventually resolves this issue by suggesting that humanity, “by its intelligence, has succeeded in removing all danger of serious competition and even in attacking the causes of senescence at the root” (300). The
myth of progress comes in to save humanity once again, justifying its successful future.

Teilhard has clearly embraced complexity, but he glosses over death and rescues humankind from annihilation by suggesting that they will eventually be saved by God and granted immortality. He thus excises death from his ordering of reality as it would only serve to complicate the logical framework of his model. Teilhard’s theological model is thus flawed, and given Duré’s loss of faith, it is meaningful to consider how he fares in a world where he can no longer rely on St. Teilhard and is forced to confront suffering and death.

Duré confronts three dead men on the planet Hyperion. The first man “‘was a bleached corpse, a bloated, white parody of a man’ (Hyperion 38), and is thus presented with ironic, perceptual distance that separates Duré from the reality of death. The second dead man was pulled from burning wreckage, and Duré reflects, “I confess with shame that I began to salivate when the air filled with the rich, frying fat odor of burned flesh” (Hyperion 38). The smells of cooking meat divorces Duré from the horror of death and is now twisted to the point of perversity by conjuring visions of cannibalism. The third man is killed before Duré with a bullet, and he “lurched as if his foot had slipped, spun toward [Duré] with a quizzical look on his face, and fell sideways” (Hyperion 38). This last scene trivializes the magnitude of death to a slip of the foot and a puzzled glance; it does not gesture to the violence of a gunshot wound.

Duré reads all of these deaths through a lens of ironic distance that prevents him from fully confronting the atrocities he sees, and he repeats aloud, “There has to be more than this” (Hyperion 39). He cannot see the purpose behind the deaths that he is still ironically separated from. These scenes are particularly illustrative of Duré’s complicated relationship with a Teilhardian theology, which would otherwise attempt to create purpose out of human experience that could not justify the kind of violent death and suffering that Duré encounters. Duré, no
longer shackled to a consistent philosophical foundation, finds himself haunted by the lack of sense in the world and the horrors of a senseless mortality.

4.2. The Need for Faith in Order in the Face of Great Horror

Duré becomes jaded to religion and attempts to create his own purpose on Hyperion by discovering and studying a mythical tribe known as the Bikura. The odd discovery about this tribe is that they claim to “belong to the cruciform and follow the way of the cross” (Hyperion 56), which leads Duré to think that they may actually be of a Christian religion that predates the Earth following. His religious faith seems to revive at this point as this society seems to pre-date the Earth’s Christian traces, but ultimately, it is revealed that Duré is misinterpreting the evidence and the truth is actually much more perverted and meaningless.

Duré discovers that the secret of the Bikura lies not in a Christian faith – rather, the tribespeople worship a cross-shaped parasite that, once implanted upon the body, prevents them from dying – once the physical body dies, the parasite will reincarnate it. With each reincarnation, there is a degeneration of the mental faculties. Duré is horrified by what he finds, wondering, “Why has God allowed this obscenity? Why have the Bikura been punished this way?” (Hyperion 91). The turn of events does not seem to be in line with the kind of world-order that he thought his God had ordained. Duré’s narrative reflects a perverted vision of Teilhard’s theology, with the individual cheating death in the culmination of a pseudo-Christian following in which humanity does not become greater or more complex – instead, these immortal beings lose any semblance of intellect, individuality, and future progress. The vision of progress that Teilhard claims is thwarted as the act of cheating death only leads to stagnation and eventual degeneration, which Duré is well aware of: “The Bikura have realized the human dream of immortality and have paid for it with their humanity and their immortal souls” (Hyperion 90).
Duré’s horrific experiences now trigger a regeneration of his faith: “I now understand the need for faith – pure, blind, fly-in-the-face-of-reason faith – as a small life preserver in the wild and endless sea of a universe ruled by unfeeling laws and totally indifferent to the small, reasoning beings that inhabit it” (*Hyperion* 90). To sum up, Duré realizes that since reason is not sufficient to make sense of suffering and death, these alternative means to make sense of the world (like religion) are necessary as a way to combat the horror. Duré is looking for purpose as well as better means to equip his soul with the possibility of death – religion has found ways to assuage those fears by presenting the possibility of “rebirth in Christ” (*Hyperion* 91). Duré reflects, “I must go into the darkness not willingly but well – bravely and firm of faith… if not hopefully, then prayerfully that there is some reason for it all, something worth the price of all that pain, all those sacrifices. All those before us have gone into the darkness without assurance of logic or fact or persuasive theory, with only the slender thread of hope” (*Hyperion* 91). What Duré is ultimately advocating for is a certain stoicism in the face of death, and embracing it even though it is frightening and potentially painful. He cannot logically explain the process but simply has to have faith in there being some sort of order underlying it all. Duré is illustrating the limitations of human intelligence in understanding reality, but he is also intoning towards the necessity for the acceptance of those limitations.

4.3. Pockets of Order Amidst Chaos

Duré’s renewed faith in order amidst chaos implicitly enters him into conversation with others that have pondered the same questions on how to deal with suffering and pain in the world. When he suggests that religion is a “life preserver” for him in a wild sea of an unfeeling reality, he echoes imagery conjured by Friedrich Nietzsche in *The Birth of Tragedy* (quoting Schopenhauer in *The World as Will and Representation*):
Just as the boatman sits in his little boat, trusting to his fragile craft in a stormy sea which, boundless in every direction, rises and falls in howling, mountainous waves, so in the midst of a world full of suffering the individual man calmly sits, supported by and trusting the *princípiun individuationis*. (16).

The *princípiun individuationis* is the way in which reality is “parceled up” into differentiated components (Nietzsche 119), and rationally ordered by humankind into that which is much more digestible (as compared to the chaos of reality). The boat that is conjured by both Duré and Schopenhauer is not real, but it serves to protect the human psyche. The boat represents a pocket of order amidst an expansive chaos that threatens to swallow up the individual completely.

Nietzsche’s allegory of the boatman sits on two sides of a conceptual binary, with the boat allied with an Apollonian tradition and the threatening ocean allied with a Dionysiac tradition – the boat is the “fictionalized self and world” (Sandy 15) that protects humanity from “the horror and absurdity of existence” (Nietzsche 40). These horrors may incline humanity towards the “wisdom of Silenus”\(^2\) that suggests that death is the only way to deal with the suffering of reality, but the Apollonian tradition presents a comforting fiction in the form of a “rich and triumphant existence” (Nietzsche 22) for humanity to overcome these horrors. For example, Duré’s “boat” is his religion, which protects him from a terrifying reality and gives his life meaning and sense.

Nietzsche also explicitly suggests that the Apollonian tradition influenced the realm of science, by which there was faith in the “explicable nature of things” by which humankind “attributes the power of panacea to knowledge and science, and sees errors as the embodiment of evil” (74). This tradition thus favors science for its ability to make reality comprehensible, but it also rejects the “pain and contradiction” of a Dionysiac reality (Nietzsche 29) as it is “something

\(^2\)“Miserable, ephemeral race, children of hazard and hardship, why do you force me to say what it would be much more fruitful for you not to hear? The best of all things is something entirely outside of your grasp: not to be born, not to be, to be *nothing*. But the second-best thing for you – is to die soon” (Nietzsche 22)
utterly irrational, full of causes without apparent effects, effects without apparent cause; and all so diverse and many-hued that it would repel a sober treatment, but dangerously inflame sensitive and susceptible souls” (Nietzsche 67). This is to say, it rejects those aspects of reality that cannot be understood by the means of a linear, rational science, but it also rejects those aspects of reality that are too painful for “sober” appraisal by the individual. In essence, this is a reiteration of what Hari Seldon attempted to do with his psychohistorical project in his rejection of events that would undermine his linear algorithm as well as those complicated human emotions that could not be empirically quantified within the constraints of his mathematics.

Nietzsche recognizes the need for world-ordering fictions as a means to cope with the horrors of reality as long as “the simulacrum is understood properly” (xi), but the problem is that the Apollonian influences on science have evolved to don the connotation of truth. This tradition suggests that reality is knowable by science, and this “set[s] up the millennia-long belief in progress through reason” (Nietzsche xx). Nietzsche suggest that eventually, the logic of science will fail and “[man] finds himself staring into the ineffable” (Nietzsche 75). Nietzsche is thus addressing the limits of attributing these world-ordering myths to reality, which is similar to how a rational, linear science failed to quantify reality in Asimov, and also similar to how a Teilhardian theology failed to create purpose for Duré’s reality. Duré does eventually recognize the utility in his world-ordering myth, even if it is not that which can be grounded in evidence-based logic, and therefore, he understands the “simulacrum” for exactly what it is – “a healing balm of blissful deception” (Nietzsche 102).

Nietzsche suggests that while Apollonian fictions are useful, it is still necessary to confront the paradoxical horrors of a reality that humankind is unequipped to understand or deal with. He suggests that humanity needs to “look at the terrors of individual existence, [but] not to be
petrified with fear… see the struggles, the torment, the destruction of phenomena as necessary, given the constant proliferation of forms of existence forcing and pushing their way into life, the exuberant fertility of the world will” (Nietzsche 80). This is the essence of the Dionysiac spirit, and it embraces the complexity and potential suffering of reality as constitutive parts of said reality. This stoicism is incredibly similar to how Duré eventually comes to terms with death and suffering. Nietzsche is thus advocating for a very specific attitude by which humanity can come to terms with reality – it requires the recognition that human attempts to order and rationalize are intended to protect against the horrors of a complex, unfeeling cosmos, but each individual has to eventually confront pain, suffering, and death.

4.4. Framing Proper Attitudes to Face the Unknown

It has been established that attempts to order a complex reality are limited in their applicability, and even at its best, may be illusory attempts to define and control. The real cultural question at the heart of this model is how humanity might mentally orient itself towards embracing the unintelligible darkness ahead of it. The limitations of science have been evidenced, but poetry and literature have also simultaneously sought the means to express the inexpressible, as “such is the power of creative imagination, a seeing, reconciling, combining force that seizes the old, penetrates beneath its surface, disengages the truth lying slumbering there, and, building afresh, bodies forth anew a reconstructed universe in fair forms of artistic power and beauty” (Thorpe 126). This quote by Clarence Thorpe suggests that literary works may provide the language to conceptualize a new perspective on reality and truth, and perhaps grant access to things that the current rational, empirical understanding of reality may not be privy to. Thorpe speaks with reference to the poet John Keats, who also inspires Simmons. Simmons notes, “Little did I know at the outset… how well the themes with which I wanted to
deal – the evolution of life toward some critical turning point… – would dovetail with the obsessions of John Keats” (“Shapeshifters” 400). As such, it seems meaningful to unpack the obsessions of the poet in order to better understand how Simmons orders his world.

Keats, like Duré and Nietzsche, also has a boat allegory to represent reality: “With shatter’ed boat, oar snapt, and canvass rent, / I slowly sail, scare knowing my intent; / Still scooping up the water with my fingers/ In which a trembling diamond never lingers” (Keats, “To Charles Cowden Clarke”, 17-20). For Duré, religion gave a semblance of safety on a tempestuous sea. For Nietzsche, the Apollonian spirit provided world-ordering fictions that steadied the tempest. For Keats, however, the poet sails a rickety boat without destination, and fails to find that thing of value that his words seek to capture. If that journey can be conceived of as life itself, the poet still contains the desire for something greater (literally, the diamond, but metaphorically, gesturing towards a greater beauty and truth that his words fail to capture), but recognizes the limitations that hinder his ability to achieve this goal or even perceive it.

Keats’ boat is an allegory for his writing process and his own attempt to use poetry as a world-ordering fiction. At the same time, Keats was aware of the limitations of reductive thought that sought to reduce reality into something reason and rationality could grasp. He recognized “the futility, in a universe of uncertainties, of the brief, assertive postures we assume” (Bate 237), and instead attempts to use poetry as a means to address a complexity that outstrips reductive means to knowing. Keats suggests that he would be able to do so as a “camelion [sic] poet”, a creature that “is everything and nothing – It has no character – it enjoys light and shade; it lives in gusto, be it foul or fair, high or low, rich or poor, mean or eleveated [sic]” (Keats, “Letter to Richard Woodhouse, 295). In that sense, he is embracing the Dionysiac spirit of Nietzsche that address the contradictory forces of reality.
Keats thus looks at both good and bad aspects of reality, pointedly addressing those darker aspects that humankind had traditionally avoided looking at in its attempts to cling to myths of progress and myths of human power and control. Even those painful experiences become necessary, and Keats ultimately suggests that “a World of Pain and troubles is to school an Intelligence and make it a soul” (Bate 483). Instead of treating pain and death as that which would end an arch of development, Keats can perceive these things part of a bigger process that simultaneously enables life. This can be seen in his poem “Ode on Melancholy,” where in “the same process in which death is implicit is also leading things into existence and fostering them toward fulfillment” (Bate 522). Life is thus conceptualized as a cycle of life and death rather than simply as an upward trajectory towards a better life – the ‘camelion poet’ perceives reality completely different from the Asimovian or Teilhardian enthusiasts that would seek to erase death. The inclusion of painful, foul, and potentially death-invoking experiences becomes included into reality as simply a natural part of the cycle of life.

The “camelion poet” enacts “negative capability,” which is “the ability to negate one’s own identity, to lose it in something larger or more meaningful than oneself” (Bate 18). In dissipating differences in experience and differences in individual people, Keats is still seeking a universal truth to unify this complex, variant reality. Even then, Keats recognizes that his poetry is limited in its descriptive power and is but an illusion; he asks of the poet, “What benefit canst thou do, or all thy tribe, / To the great world? Thou art a dreaming thing” (Keats, “Fall of Hyperion”, I. 167-168). The poetry becomes illusory when equated to a dream, and thus Keats addresses the limitations of the poet in concretely capturing reality, something that he had similarly done when he described the boating poet fishing fruitlessly for diamonds in the water. Keats’ poetry thus present the juxtaposition between a desire for truth and the limitations evinced in the pursuit of
that truth. His poetry of negative capability never provides “complete explanations of the universe” (Sandy 24), but rather “an imaginative openness of mind and heightened receptivity to reality in its full and diverse concreteness” (Bate 249). Just as complexity theory attempts to map reality through a more expansive, non-linear understanding of reality, Keats uses the language of poetry to map the contradictory - sometimes painful – variances of reality.

Keats’ negative capability and his dislike for reductive truths provides more context for why Simmons was fascinated with the Robert Frost quote that heads the introduction of this thesis. The writing process becomes a journey without destination, expressing a momentary truth that finds validity in the context within which it is voiced. The figure that the literary piece makes is a clarification of life that does not seek to make a reified truth but rather presents a pocket of truth in a broader, complex reality. Given that the first pilgrim’s narrative that Simmons invokes is that of Father Duré, his narrative becomes a pocket of truth that attempts to address the limitations and strengths of theological attempts order a complex, perverse reality. Duré loses and reclaims his faith in God over the course of his narrative, but he is simply one pilgrim amongst many – Simmons’ other pilgrims are atheists, devout followers of other religions, and men who try on different religions like seasonal fashions. Each character represents a different ideological underpinning of reality, and yet Simmons fleshes them out as containing kernels of individual truths. Together, they stitch together a significantly more complex rendering of reality. This reiterates Simmons’ own interest “in the necessity of some degree of ‘annulling self’ in the creation of all real literature” (“Shapeshifters 402), by which the writer takes on the skins of others and translates the complex experiences into literature.

In a manner similar to how modern mathematics strives to make sense of complexity through a broader, expansive theory of chaos, Simmons, Keats, and even Nietzsche, all attempt
to use language as a means to grasp complexity without reducing reality into a narrow, constrictive framework. Simmons takes on the impetus to address complexity in the modern era by picking up where Keats left off with his unfinished “Hyperion” and “Fall of Hyperion” poems, translating the pursuit of complexity into the novel-form *Hyperion* and *Fall of Hyperion*. Ultimately, Simmons brings Keats’ concerns into the modern era through the genre of science fiction, intertwining the philosophical pursuits of literature with the modern language of mathematics that was simultaneously trying to make sense of complexity in its respective field.

In comparing Simmons’ approach to Asimov’s, we see Asimov focusing primarily on the structure of a fictional future environment as shaped by linear mathematics, with less concern for the aspects of his narrative that would flesh out the humanity of his characters – in doing so, he demonstrates what a world would look like when stripped of its complexity. Simmons expands past that approach to simultaneously hold the nuances of human experience alongside the modern science of complexity theory that undergirds his fiction. The human drama becomes a necessary means to address complexity, and therefore, integral for language of complexity theory to function as more than just sci-fi set-dressing - the mathematics become demonstrative of the literary and cultural reality that it is seeking to depict.

**Chapter 5: Simmons and the Regenerative Tragicomedy of the Human Drama**

Simmons configures complexity as the nuances of human drama – with all its pain and its seemingly contradictory illusions to protect against that pain. In configuring the narrative as a drama, it allows us to approach the fictional story with the question: how should the drama conclude? This question of conclusions is vital to the more abstract question on how humanity must confront its own conclusion. Traditionally, it may be easy to consider a narrative that details the destruction of humanity as a tragedy. Borrowing from Nietzsche, we can consider the
tragedy as a means to depict the horrors “from a base of pessimistic knowledge [that] recommends no cure for the pains of existence, only a public recognition of their depth and power” (Dienstag 87). Dienstag also notes that “Nietzsche considered tragic theater to be an outgrowth of this view of the universe as something constantly in flux, constantly in the process of becoming, and, thus, constantly in the process of destroying” (87). In that sense, Nietzsche is aligning tragedy with the kind of complexity that both literature and science attributes to a universe within which the cycle of destruction and creation is constant and inevitable. There is a level of acceptance that this is the nature of reality, and humankind must bear the burden of an existence in which it will eventually be wiped out. All of this is relevant to any sort of narrative that deals with the destruction of humankind, but this narrative structure does not really open itself to answer how humanity may still find happiness despite the horror of destructive ends. This is where Simmons’ merging of tragedy with comedy becomes important.

A comedy “deals with the need for social regeneration, a process that is often symbolized by the transfer of control from one generation to the next” (Denvir 826). Comedies thus orchestrate the means for moving past death and beginning anew – they suggest that death, suffering, and change are inevitable, and perhaps humanity could laugh at those circumstances instead of being frightened. Generations die, and new ones are born, and reality moves along in some, incomprehensible fashion. As such, a tragicomedy may be better equipped to address how humanity as a broader whole can begin to address the possibility of species death.

To highlight the difference between tragedy and comedy, I want to once more turn again to the figure of Apollo from Keats’ “Hyperion” fragment as mentioned in the Introduction – Apollo is at the cusp of a new Olympic order that materializes out of the chaotic destruction of the previous Titanic order. Apollo is entrusted with the responsibility of making shape out of that
chaotic unknown and impress order upon it, but when faced with this unintelligible future and his own limitations, the fragment ends with Apollo’s horrified shrieks. Apollo is supposed to confront the finitude of an old order, and envision a new life – he terror paralyzes him within the constraints of this poem. Presumably, the Apollonian tradition would eventually rescue him with beatific forms to make sense of the chaos, but Keats has already been demonstrated as reticent of making “brief, assertive postures” (Bate 237) and thus refrains from rescuing Apollo. Simmons now enters at this juncture and spins new life into the fragment with his Hyperion novels. His tragicomedy can simultaneously confront the horrors of chaos that Apollo is incapable of articulating in Keats’ poem, and he also finds a way to laugh in the face of that horror. Specifically, he achieves it through the humorous satire of the poet-comedian, Martin Silenus. To conclude this project, I will unpack the dual elements of tragedy and comedy as spun by Silenus to show how Simmons depicts the best means to confront chaos and the horrors of the future.

5.1. The Failed Bakhtinian Carnival

Silenus is unarguably a funny character. He is one of the pilgrims that recounts his backstory, but unlike the sober recollections of Father Duré, Silenus’ narrative takes the form of drunken poetry and wisecracks at the expense of the other pilgrims. He begins his tale in the City of Poets on the planet Hyperion where he uses technology to embrace his namesake and literally turn his body into that of a satyr so that he was “formed in flesh as mirror to [his] soul” (Hyperion 180). He describes his time in the City of Poets thusly:

Peasant girls, indigenies, the wives of our true-blue city planners and pioneers – all awaited a visit from Hyperion’s only resident satyr or arranged one themselves. I learned what ‘priapic’ and ‘satyriasis’ really mean. Besides the unending series of sexual contests, I allowed my drinking bouts to become legendary and my vocabulary to return something approaching the old poststroke days.” (Hyperion 216)

The kind of carnival that Silenus describes is reminiscent of Mikhail Bakhtin’s carnival in
Rabelais and His World, which is an important event within a regenerative comedy. Specifically, Bakhtin saw the carnival space as a one in which social norms and social order broke down to offer “a completely different, nonofficial, extraecclesiastical aspect of the world, of man, and of human relations” (6), which signified “moments of death and revival, of change and renewal, [which] always led to a festive perception of the world” (9). In that sense, he saw the breakdown of order as a joyous, momentous occasion. This is in opposition to Asimov’s approach that would otherwise treat the dismantling of order as a sign of entropic decline that needed to be resisted. Bakhtin does note that the carnival is simply a “temporary liberation from the prevailing truth and from the established order” (10), as a new order would form from the chaos.

At face value, Silenus’ time in the City of Poets can be read as the traditional carnivalesque breakdown of societal order. We have both peasants and high society wives coming to engorge upon sexual appetites, rather than staying within boundaries of class and decency. We have the sanctioning of Silenus’ “legendary” obscene language that instigates the “creation of special forms of marketplace speech and gesture, frank and free, permitting no distance between those who came in contact with each other and liberating from norms of etiquette and decency imposed at other times” (Simmons 216; Bakhtin 10). All of these taboo forms of behavior are sanctioned within the Bakhtinian carnival space as “the material bodily principle, that is, images of the human body with its food, drink, defecation, and sexual life, plays a predominant role… in its all-popular festive and utopian aspect” (Bakhtin 18-19) – that is, the utopian aspect is that all of these taboo behaviors present the opportunity for procreative acts as well as the reframing of constrictive social orders that otherwise would not allow room for social change. The utopian aspect is the regenerative powers of the festival, but oddly enough, Simmons constructs Silenus’ carnival as anything but regenerative.
Silenus specifically had come to the City of Poets in hopes of finding his poetic muse, but ultimately fails within this carnivalesque space. Silenus says, “No muse appeared. My verse continued to be technically proficient and dead as Huck Finn’s cat. I decided to kill myself. But first I spent some time, nine years at least, carrying out a community service by providing the one thing new Hyperion lacked: decadence” (Hyperion 216). The nine years in the City of Poets is thus configured as a prolonged carnival but the grotesque realism of bodily functions exhibited in this carnival does not contain the “fertility, growth, and a brimming-over abundance” (Bakhtin 19) that is required to inspire his poetry into creation.

Silenus mentions that he made the decision to kill himself, which echoes the “wisdom of Silenus” as invoked by Nietzsche (22). It is meaningful to note that Silenus is essentially a paradox – he is simultaneously the satyr of the regenerative carnival (in myth, he is the companion of Dionysus, who is representative of the “principles of festivity, inversion, relative sexual freedom, and travesty that we find in comedy” [Stott 4]), and the satyr of nihilistic impulses that are aligned with death. This irony becomes even more poignant given the fact that Silenus’ carnival is truly a farce that contains no regenerative power. Irony is a form of comedy that allies Silenus with satire, but Bakhtin suggests that satire “does not capture the ‘positive, regenerating power of laughter’” (45). We thus have another contradiction where Silenus is comedic, but not making the kind of jokes that foster regeneration.

Silenus has inextricably paralyzed himself into a contradictory knot of bad jokes and failed carnivals. This forms the beginning of his narrative arch and is representative of his very early stages of development as a self-aware character. The reason that his carnival fails is because he is only mirroring a Bakhtinian carnival on the surface. A true Bakhtinian carnival would require a breakdown of the overarching societal order and present the conditions for change – this would
require Silenus’ carnival (“decadent” and promiscuous, but ultimately stagnating) to be different from the conditions of the broader Hegemony of human societies in Simmons’ fictional universe. In fact, Silenus’ carnival faithfully mirrors the lived reality within the Hegemony of Man – in this fictional future, man has improved technology to travel across galaxies, extend their lives into multiple generations, and afford all the comforts and excesses of life. Decadence is the norm in the Hegemony, and so Silenus’ carnival does not present anything new. Even despite technological progress, Silenus notes, “We all know how stultified and static our human universe has become” (Hyperion 189) – the myth of progress has failed for the Hegemony and stagnation results out of lazy comfort. In totality, the Hegemony is configured as a grander scale carnival whose regenerative power is broken, just like Silenus’ carnival in the City of Poets.

Given that Silenus is not spurring on regeneration, either through his carnival or through his ironic humor, it is important to consider what he does succeed in doing. As Bakhtin noted, satire is not regenerative (45), but it does have the power to “expose and criticize prevailing foolishness, especially as a form of social or political commentary” (“satire, n.1.a”). In that sense, Silenus is still criticizing broader conditions of the Hegemony – he thus is able to instigate the process that may allow for the breakdown of societal order so that it may enter into the carnival space. He is necessary to vocalize the faults of their system, as well as address that which it is lacking. The very reason that he even went to the City of Poets in the first place was because he was sick of the static, overly-gratifying conditions of the Hegemony – he could not even write about these circumstances successfully. His editor rejects poetry about indulging in the excesses of technological pleasure, suggesting that “what comes across is loneliness, displacement, angst, and a cynical look at humanity… no one wants to pay for a look at another person’s angst” (Hyperion 200). The editor’s comments relay Silenus’ underlying unhappiness.
despite technological advances, but it also suggests that the market forces of the Hegemony would have no interest in narratives of personal pain. One review of Silenus’ poetry describes it as “indecipherable… archaic… irrelevant to all current concerns” (Hyperion 204). It almost seems to suggest that pain has become an alien sentiment to the humans of the Hegemony, and Silenus is in a dissonant position where he struggles to articulate that pain despite it all.

Silenus thus tries to articulate that which is lacking within their society – human pain, both physical and emotional. In that sense, he addresses the real tragedy of his era – the silencing of suffering. If he truly wanted to create a successful carnival, he would have to create a space within which he could engage in taboo behaviors that were not sanctioned by society – in the traditional form of the Bakhtinian carnival, that taboo was sex, alcohol, and obscenity, but Bakhtin suggests that the bodily element of the carnival is more than just that; this element is “something universal, representing all people” (19) and something that can “liberate from the prevailing point of view of the world, from conventions and established truths… to have a new outlook on the world, to realize the relative nature of all that exists, and to enter into a completely new order of things” (34). Pain is universal to human experience, and yet it is excised from both the Hegemony as well as Silenus’ carnival in the City of Poets. If Silenus were able to create the conditions by which pain could enter their society, it would threaten the relative order of their world and force a reorientation of what reality might be.

Bakhtin’s carnival spirit is very much in line with complexity theory, as it similarly wishes to expand past reductive human attempts to order the world – it contains the same spirit of expansiveness as a means to better represent a complex reality. Furthermore, it configures the carnival as a process that is “an as yet unfinished metamorphosis, of death and birth, growth and becoming” (Bakhtin 24) – there is no room for stagnation, and death is necessary for the elixir of
regeneration. This metamorphosis requires a depth of engagement with a complex reality where death is integral, and requires humankind to shatter preconceptions of reality that strive for immortality (technological, religious, or otherwise). So, when Simmons portrays Silenus as transforming into a literal satyr to reinvigorate his muse, his satirizing the failure of technology in simply changing the surface rather than developing the interior spirit of the individual. In a broader sense, he is literalizing the sustained satire on the values and goals of a futuristic society that overtly relies on technology to suppress the full range of human feeling and experience by substituting pleasure for pain. Simmons therefore advocates for greater complexity, even if it may hurt or frighten the human psyche.

5.2. Silenus’ and Simmons’ Satire

Silenus pointedly ridicules his surrounding world through his comedy, and in that sense, he is aware of the satire that he creates. At one point, he sarcastically quotes Keats’ poem “The Fall of Hyperion,” saying, “‘There is no death in all the Universe!’… abruptly [breaking] off and [pouring] more wine” (Hyperion 16). His commentary is upon the broader conditions of the Hegemony in which people prolong life, and he himself is over a hundred years old. At the same time, this statement is still an exaggeration given that people do die in the Hegemony, but an exaggeration that is intended to pinpoint the general trend within the Hegemony. The one interesting (and incredibly ironic) aspect about Silenus’ commentary is that he incorrectly recites the later lines of the verse: “No smell of death, there shall be no death” (Hyperion 16). The actual quote from Keats is “No smell of death – there shall be death” (Keats, “Fall of Hyperion”, I. 424). Given that Simmons has so intentionally used Keats’ work to build his own version of Hyperion, it feels inappropriate to attribute this error to inadequacy or lack of attention on Simmons’ part. I would argue that this can be read as an intentional error on the part of Simmons
to satirically ridicule Silenus’ own blindness to the death that actually still exists within the universe.

The misquote by Silenus occurs very early in the first *Hyperion* book and therefore represents the early development of Silenus on his path to greater awareness. Silenus’ misquote highlights a naïve point of view of reality, an embracing of the illusion that wraps their Hegemony in a semblance of immortality as a result of their technological advancements. This is an illusion, however, as the opposite of what Silenus says (“there shall be death”), linked to the true quote by Keats, reveals the truth of reality. People still die, and no amount of technology can permanently erase that fact. Silenus’ misquote constitutes an ironic distance from reality, given that he is so incredibly close to the truth. The irony is that despite all of his biting self-awareness, he is not aware of how his actions re-inscribe the failing societal order of the Hegemony and prevents him from grasping the full extent of the truth of suffering.

Silenus functions as the comic figure of the fool as configured by Bakhtin, who “stood on the borderline between life and art, in a peculiar midzone as it were; [fools] were neither eccentrics nor dolts, neither were they comic actors” (Bakhtin 8). The fool can be comical and absurd, but speaks relevant truths that cannot be otherwise voiced by the common man. Simmons configures Silenus as aware of (and viciously mocking) the stultifying conditions – what Silenus is not aware of is how he re-inscribes those very same conditions through his decadent depravity. His self-awareness is limited, and in that sense, he is a wise fool. Humor is found in this ironic division – Silenus can simultaneously see the absurdity of his world while

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3 Silenus is a character that frequently makes pointed insults that contain truth, whether it is directed at himself (“You might already be able to tell that I was born with a silver spoon up my ass. I offer no apologies” [*Hyperion* 182]), the other pilgrims, or even at the author, Simmons: “Marvelous melodrama… A real-life, Christ-weeping Sargasso of Souls and we’re for it. Who orchestrates this shitpot of a plot, anyway?” (*Hyperion* 19). Humor becomes the vehicle of Silenus’ social commentary.
still engaging with it. In that sense, he is capable of balancing the paradoxical and conflicting nature of a complex reality. Unfortunately, his inability to see his inadvertent repetition of the failures of the broader Hegemony traps him within a static and lifeless carnival.

Silenus, while trapped in a world where his creative muse cannot flourish, can acknowledge that life in the Hegemony is not necessarily a life that is good. He realizes that constantly being plugged into the WorldWeb “meant either staying home or turning into a walking zombie… I would turn into an All Thing sponge like so many millions of other slugs around the Web” (*Hyperion* 199). The image of the zombie perfectly captures the image of a static, deathless world. More importantly, he uses words like “sponge” and “slug” to qualify the nature of his fellow humans – this echoes far back into the world of Asimov when Seldon was trying to model humanity off of a Mycogenian farm of microscopic plant and fungal matter, a model that I have suggested strips humanity of individuality and rather equates them to mindless organic matter. Sponges and slugs are not that far advanced from microscopic plant and fungal matter, either. Silenus does not think highly of the conditions of life for humanity, and from that contempt for other humans stems his contempt for pain and death. When the pilgrims wonder who will win the space battle above them, he asks, “Who fucking cares?,“ “laughs derisively,” and continues: “Oh, that would be terrible, wouldn’t it? To die before we discover death? To be killed before we are scheduled to be killed?” (Simmons 21). Ultimately, Silenus does not find value in life and therefore he is off-the-cuff about death. Furthermore, death is not threatening in a world where humankind has tamed it through technology. When the pilgrims are waiting for the Shrike monster to confront them (all else who have faced it have died or disappeared), Silenus becomes so impatient as to say, “I know that anticlimax is the warm and woof of the world… But this is fucking ridiculous. All dressed up with nowhere to die” (Simmons 21).
humor raises ironic distance between Silenus and the reality of death, which becomes a punchline to Silenus’ jokes – almost to the point that it is more apathetic than even humorous.

Silenus’ derisive humor is characteristic of satire, and Bakhtin points out why this is not regenerative humor: “The satirist whose laughter is negative places himself above the object of his mockery, he is opposed to it. The wholeness of the world’s comic aspect is destroyed, and that which appears comic becomes a private reaction” (12). This explains the contempt that bleeds out of Silenus’ jokes, but there is deep pain and sadness that lies underneath all the mockery – Silenus is aware of that sadness and it bubbles up in his poetry. Silenus’ melancholy is a result of his awareness of the stagnant nature of the world and his inability to break free from this fruitless, deathless carnival. Any satisfaction that he can get only comes from his jokes mocking the state of the humanity – he mocks society and sees himself as above it, but he is still trapped within it. Silenus is thus split between his contempt for his reality and his inability to extract himself from the conditions that he denounces. Michael Ure notes that “this splitting not only produces the self-laceration of depression (melancholia) and the self-forgetfulness of elation (mania), but a dark, sardonic, wicked humor” (204). Ure quotes Nietzsche to describe the attitude of the melancholic: “Whoever despises himself still respects himself as one who despises” (206). Silenus’ attitude mirrors this, and it is his protective salve against a world that deeply troubles him. He straddles the fine line between tragedy and comedy – laughing at death, but ineffectively – his fear bleeds through the jokes. At this stage, Silenus’ development is not somewhere where he can adequately confront the potential death of humankind.

The division between depression and elation is perfectly captured in Silenus’ description of his time at the City of Poets: “It was fucking wonderful. It was fucking hell” (Hyperion 216). Keeping in mind that Silenus still wished to kill himself, it reveals that any pleasure that he feels
is insubstantial. As such, “melancholic humor is thus a sick laughter, or the laughter of sickness; an orgiastic, impatient yielding to the opposite impulse in a desperate attempt to escape self-revulsion” (Ure 207). Elevating melancholia to the level of sickness further implicates the degenerative decay of a stagnant world and reveals that Silenus is truly failing to enact a regenerative carnival. His humor “has the ability to cut through untruths” but it does not provide the fodder for renewal as it “does not provide coherent counter-arguments and its efficacy as a platform for change is questionable” (Stott 14). Melancholic laughter is also evasive and does not address the pain that Silenus feels. Silenus’ comic arch is important because he is facing a melancholic struggle to address pain and escape the loop that traps him in the lifeless carnival of the universe, all the while protecting himself inadequately through the veil of black humor.

Before the events of the Hyperion novels, Silenus’ upbringing is that of a wealthy, protected youth and his first confrontation with suffering was when he came across a beggar: “…like the Buddha, I was almost grown before I saw my first hint of poverty… My friends thought it was hysterical. I threw up” (Hyperion 182-183). The revulsion that he feels is exactly what the melancholic tries to avoid, and the laughter of his friends protects them from confronting the reality of the beggar’s suffering. It is much later in Silenus’ life that he encounters personal pain when he has a stroke on the planet known as Heaven’s Gate. Silenus describes it thusly:

Indigenies breeding like… like humans, I suppose… eyeless cripples, lungs burned out with air rot, siring a nest of a dozen offspring, the children’s scabrous by age five-standard, their eyes watering incessantly from the sting of atmosphere which will kill them before they’re forty, their smiles carious, their oily hair rife with lice and the blood bags of dracula ticks. Proud parents beaming… Heaven’s Gate: my new home. (Hyperion 187). While Silenus is describing the horrifying conditions of Heaven’s Gate, he is also describing
joyful human beings that are regenerating. Love and pain are simultaneously configured, and as absurd as the conditions seem, this becomes the true Bakhtinian carnival. Bakhtin notes that an effective carnival is supposed to contain those elements that do not exist within the dominant order, depicting a degradation, “that is, the lowering of all that is high, spiritual, ideal, abstract; it is a transfer to the material level, to the sphere of earth and body in their indissoluble unity” (Bakhtin 19-20). That is literally what we see depicted here as the idealistic conditions of the broader Hegemony break down in Heaven’s Gate and allow room for new life to form. This becomes the baseline of Silenus’ first taste of complex human experience, and while he may see these things as repulsive, he also sees love and joy. There is vitality even within a space of poverty and pain but, most importantly, this space can be configured as regenerative because of the pain – it is only on Heaven’s Gate that Silenus first finds his creative muse.

Silenus spends his time on Heaven’s Gate engaging in backbreaking labor, and this suffering gives him the clarity and the experience necessary to craft his poetry. Personal suffering helps him create, and it guides him towards achieving a lifelong goal:

From my earliest sense of self, I knew that I would be – should be – a poet. It was… like the dying beauty all about breathed its last breath in me and commanded that I be doomed to play with words the rest of my days, as if in expiation for our race’s thoughtless slaughter of its crib world. So what the hell, I became a poet. (Hyperion 184)

Silenus is echoing Keats’ “negative capability,” which translates the universal experience into poetry (Bate 18). Silenus presents himself almost as if he were a martyr for a bigger cause. At the same time, his “what the hell” belies an attitude that does not feel personal responsibility towards humankind. All of his life, he had simply been a wealthy fop that played with words because he was inclined to the luxurious freedom to do what he wished with life. Even the pain he
experiences in Heaven’s Gate is a personal trial and does not implicate other people’s needs or concerns. Silenus says that a universal spirit was forcing him to write for humanity’s sins, but he himself does not have any personal allegiance to humanity. I have already indicated his contempt for humanity, as well. His satirical sense of humor is emblematic of that contempt, and therefore, this is still the failure of the Bakhtinian carnival. Bakhtin notes that universalism is necessary for a successful regenerative carnival as it has “the people’s ambivalent laughter, [which] expresses the point of view of the world; he who is laughing belongs to it” (12).

At this point in Silenus’ development, he knows some personal pain, but he does not feel a universal pain. There is still a gap in his representation of reality by which he cannot connect to humanity, and Simmons seems to construct Silenus’ character in such a manner to show the frailties of the man. This is very similar to how Asimov had constructed Seldon at the end of his Foundation prequels, but Asimov never provides the fodder to rescue Seldon from such a fate. Simmons, is able to write Silenus into true redemption by allowing room for growth. Silenus’ redemptive growth towards universalism is necessary as that is what enables him to become a true “camelion poet” (Keats, “Letter to Richard Woodhouse, 295) capable of truly understanding and expressing the variant and complex fluctuations of experience.

5.3 Silenus’ Negative Capability and Ability to Embrace Complexity

At the culmination of the Hyperion novels, Silenus is caught by the Shrike monster and impaled upon its “Tree of Pain” and he experiences “pain beyond human endurance and the boundaries of suffering” (Simmons 254). While impaled, he can see for miles, and gazes upon a “a frozen, papier-mâché diorama of the Valley of the Time Tombs and desert beyond. Even the dead city and the distant mountains are reproduced in plasticized, sterile miniature” (Simmons 255). His description presents the distant world as a static, lifeless image, and fails to capture the
vitality of a regenerative world. As Silenus views this two-dimensional image of reality, he recalls a crucifixion joke that he had told his friend, Amalfi Schwartz: “Young Martin had spread his arms wide, crossed his legs, lifted his head, and said, ‘Gee, I can see the whole town from up here.’ Amalfi had roared” (Simmons 255). In contrast to the black humor that had once made him laugh at crucifixion, upon the Tree of Pain, “Silenus screams” (Simmons 255). His jokes cannot protect him from the pain as the horror is no longer abstract and separated from him by ironic distance. Silenus is forced to confront suffering.

Silenus is not alone on the Tree of Pain. Numerous other people are impaled alongside him. His shared pain forces him to confront that he is not alone in suffering, and this enables him to tap into a new depth of human empathy. While impaled, he quotes Keats’ *The Fall of Hyperion*’s reference to the “dreamer poet” who “venoms all his days, bearing more woe than all his sins deserve” (Simmons 256). Essentially, he recognizes the burden of channeling the variegated experiences of the human spirit – “the universe’s gift to a poet. [The pain on the tree] is a physical reflection of the pain he has felt and futilely tried to set to verse, to pin down with prose, all those universal years of life. It is worse than pain; it is unhappiness because the universe offers pain to all” (Simmons 257). He is forced to truly understand human complexity that his poetry only made the pretense of grasping, and now sees the pain that *all* experience. The distant world no longer looks like papier-mâché to him. He “sees that the sky is real, the desert real, the Tombs glowing, the wind blowing, and time begun again. There is no lessening of torment, but clarity has returned. Martin Silenus laughs through tears, ‘Look, Mom!’ he shouts, giggling, the steel spear still protruding a meter beyond his shattered chest, ‘I can see the whole town from up here!’” (Simmons 258). There is a change in the kind of laughter that Silenus engages in, distinctly different from when he had made the joke as a youth. It is triumphant – he
can finally see the universal spirit of mankind that renders the world real to him.

Ure describes “this species of humor” [as one] in which we make light of the threats, dangers and harshness of reality,” and is characterized by the “tranquil, untraumatized spirit of Stoicism” (207). Pain is still present for Silenus, but he can now laugh despite the pain, rather than simply laugh at it from a place removed from truly experiencing it. Ure points out how this “‘humor’ is ‘transformation of narcissism’ which enables us ‘to tolerate the recognition of [our] finiteness in principle and even of [our] impending death” (211). Silenus’ comic arch shows how his melancholia had trapped him in a deathless world and how his sacrifice upon the Tree of Pain is necessary to free him from the static image of the lifeless carnival. The satire that he had initially weaved in the earlier stages of his development are equally as necessary as his later stoic laughter as it is a necessary prelude that guides one into the space of the regenerative carnival – the satire reveals the shortcoming of a society that needs regeneration, and the carnival allows for the lack in society to be given expression and ultimately, to better represent the complexities of reality. Comedy is a process, and so the Bakhtinian carnival is not even the end goal – it is just one step that allows for humanity to devolve and re-assemble into a new configuration and a better approximation of reality. The combination of satirical humor with stoic humor is similar to the blending of tragedy and comedy, with the former outlining the horrors of existence and the latter providing the means to deal with it in a positive manner.

5.4. Refusals to Concretize the Future

John Bruns notes that “the comic plot is not a particular type of narrative; it is an activity. The comic plot… is not to be found, it is to be made; it is like any other plot, to be ‘actualized in the reading process’” (xviii). Simmons’ novels similarly defy a fixed form in that they map an evolution of the characters through the plot line, ending in an open universe where prior
structures of society and governance are destroyed. In the face of this destruction, however, a clean slate is left for the future. At the close of *Fall of Hyperion*, the pilgrim Brawne Lamia reflects on what the future might look like, and “she could not imagine it. This was a universe her child might see… or her grand-children” (512). This plays directly into the spirit of open-endedness that comedy requires, as it contains the possibility of a future that cannot be predicted or defined. Northrop Frye points out that the new society that emerges at the end of a comedy shows movement from “a society controlled by habit, ritual bondage, arbitrary law… to a society controlled by youth and pragmatic freedom,” and this is ultimately “a movement from illusion to reality. Illusion is whatever that is fixed or definable, and reality is best understood as its negation: whatever reality is, it’s not *that*” (Frye 169-170). In that sense, a comedy encapsulates the goal of this entire project – it resists the impulses to define, regulate, and control reality.

Silenus notes that when “viewed from the inside, [reality] is always a dark, digestive mess, far different from the easily recognizable copy viewed from afar by historians” (*Hyperion* 189-190). This quote by Silenus is also powerful as it brings us back into conversation with Asimov, who ordered and controlled chaos and complexity with the use of “psychohistorians” that quantified humankind into predictable motions and behaviors - Silenus pointedly shows that these methods are simply reductive and an unrealistic representation of humanity. In thinking back to Asimov, it is also meaningful to bring back the image of Seldon looking over Trantor at the end of the novels and “it was an image he loved dearly – this panorama of human achievement” (Asimov 421) – this is a static frieze reminiscent of Silenus’ view when he first recalls the crucifixion joke. Seldon never has the enlightening moment that Silenus has that renders the image life-like – his narrative concludes with the static, lifeless image.

Simmons’ novels thus enter into conversation with Asimov’s, but Silenus present’ the
possibility for a more empathetic futurity than the one that Seldon could have afforded for the Foundation. Silenus’ empathic view of humanity addresses the full complexity of reality and snaps humanity out of the reductive hubris that aims to quantify reality with the crude tools of science or philosophy. It embraces pain and death, and it contains the hope for futurity. This is not a dismissal of Asimov’s novels, however – it cannot be forgotten that by the end of *Forward the Foundation*, Seldon dies alone struggling with the realization that his project failed to save the people that he loved the most. If anything, Asimov highlights the unfortunate consequences of reductive means of approaching reality. It leaves the reader feeling that “whatever reality is, it’s not *that*” (Frye 170), which is still one step closer towards embracing complexity.

While Asimov and Simmons’ novels are written around the same time, it becomes a useful experiment to read Asimov first, and then Simmons, to feel the full force of the arch of development – reading these authors in successive order shows how being exposed to concepts of chaos/complexity theory require a reorientation in how humanity orients itself to reality. Asimov represents the initial tension in the face of needing to break from reductive means to order the world. Simmons represents the final breaking away from a reductive, illusory reality and presents the unabashed confrontation with the unknown. Rather than a simplistic contrast between the two authors, it is more meaningful to read them as an active interplay between a historical context and the evolution of a modern perspective on how humankind should approach a potentially frightening and disastrous reality. More importantly, the shift we see with Asimov and Simmons is not new – the fact that Keats, Teilhard, and Nietzsche are equally relevant to the dialogue suggests that questions about how to approach death and complexity are timeless.

Complexity theory simply presents the modern context for these questions.
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