

ESTRANGEMENT AND COGNITION – TIME TRAVEL PARADOXES AND SOCIAL ENGINEERING IN ISAAC ASIMOV’S *THE END OF ETERNITY*

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ABSTRACT: Science fiction has been described as a genre of estrangement and cognition. Having *The end of eternity* (1955), by Isaac Asimov, as a case study, we demonstrate that temporal paradoxes and moral criticism, common themes of time travel stories, generate such effects. Our analysis is primarily based on authors such as Csicsery-Ronay, Jr. (2008), Nikolajeva (2009), and Suvin (1972).

Keywords: The end of eternity; Time travel; Paradoxes; Social Engineering; Estrangement and cognition.

RESUMO: Tem-se descrito a ficção científica como o gênero do estranhamento e cognição. Empregando *The end of eternity* (1955), de Isaac Asimov, como estudo de caso, demonstramos que paradoxos temporais e crítica moral, temas característicos de histórias de viagem no tempo, geram tais efeitos. Nossa análise se baseia precipuamente em autores como Csicsery-Ronay, Jr. (2008), Nikolajeva (2009) e Suvin (1972).

Palavras-chave: *The end of eternity*; Viagem no tempo; Paradoxos; Engenharia social; Estranhamento e cognição.

1. Introduction

Isaac Asimov’s oeuvre has contributed incommensurably to the expansion of science fiction (henceforth SF) as a genre and even to scientific and philosophic thinking in general. New sub-categories have originated from some of his best fictional writings, which include *Foundation* (1942-1950), *I, Robot* (1951) and *The end of eternity* (1955), the latter of which constitutes the scope of the present paper.

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The end of eternity (1955), an SF novel with thriller fragments, is a story that deals with creative time travel paradoxes and the controversial moral issue of despotic social engineering. Eternals, participants of the time-changing authority called Eternity, set mainly in the 482nd, 575th, and 2456th centuries, always interfere with both past and future in order to protect their interests; even at the expense of innocent lives. The daring story starts *in media res* and leaves the readers to situate themselves in what is exactly going on. Andrew Harlan, the protagonist, sort of an antihero, is a technician responsible for a few changes in the timeline as well as for the core conspiracy of the plot – the story hence unfolds around him and his love affair with Noÿs Lambent.

Although a profound philosophical debate about the (im)possibilities of time travel can be quite tempting, we focus this paper's discussions mainly on the paradoxes and consequent moral issues generated throughout the story as Asimov's wherewithal to structure the narrative and communicate with his audience, providing, at the same time, the cognitive estrangement peculiar of SF texts. The readings of Csicsery-Ronay, Jr. (2008), Nikolajeva (2009), and Suvin (1972), among some others are of utmost applicability for our exploration.

2. On the paradoxes of time travel

“To travel in time is to travel some temporal interval in a time less than the duration of that interval” (HORWICH, 1975, p. 433). That is the first paradox that stems from the concept of ‘chronomotion’. Time travel paradoxes, however, are not much more than oddities, loose ends in a story that cannot be explained or developed adequately to make perfect sense. “Not all science fiction writers are clear-headed, to be sure, and inconsistent time travel stories have often been written”, says David Lewis (2016, p. 357). Some paradoxes, nonetheless, are intentional and meant as a thought-experiment, as a pun or even as a plot device. The title of the novel makes it clear that such paradoxes play an essential role in the story since it is an ambiguous wordplay in itself: Can ‘eternity’ have an end?

Evidently, the strongest case of time travel paradox is the logical impossibility of someone existing in the past or the future when that person has not been born yet or has already died. One way Asimov and most SF writers who approach the same theme deal with

it is by splitting time into two separate and independent dimensions: external and personal time (LEWIS, 2016).

In *The end of eternity* (1955), Harlan and Finge talk indirectly about those two dimensions named (a) ‘physiotime’, which refers to the natural impact of passing time on someone’s body as opposed to (b) “Time”, the ordinary reality where non-Eternals live (ASIMOV, 1955). Incidentally, this kind of conversation, in which characters seem to clarify matters that should have been relatively basic to them is but a common artifice to communicate that specific piece of information to the reader.

Besides those two dimensions, Asimov also distinguishes a third ‘time-dimension’: the temporal field, ‘when’ the Eternals live, a sort of time bubble – ‘Metatime’ – where they are consequently immune to the timers’ time. That is undoubtedly one of the underlying paradoxes in the story – existence out of time. It is another usual pretence applied by writers to make it possible for time travellers to remain intact amidst changes in the, say, ‘current’ timeline while everybody else is affected; the voyagers never cease to exist, and their memories of the previous timeline are always preserved. Other examples thereof, encompassing both literary and filmic texts worth mentioning include *Back to the Future* (1985) by Robert Zemeckis, *Slaughterhouse-Five* (1969) by Kurt Vonnegut, *Time Enough for Love* (1973) by Robert A. Heinlein, *Timeline* (1999) by Michael Crichton, *The Time Machine* (2002) by Simon Wells, and *The Edge of Tomorrow* (2014) by Doug Liman.

As it is proper of the genre, SF overlaps actual science in many ways in the construction of the narrative, which hardly ever fails to involve a type of thought-experiment or imaginary test, in which logic and unrealities supplement each other. Csicsery-Ronay, Jr. writes the following on such so-called thought experiments: “An idealization which transcends the particularity and the accidents of worldly human activities in order to achieve the generality and rigour of a demonstrative procedure” (CSICSERY-RONAY, JR., 2008, p. 121) In effect, he maintains, “the science of SF must violate known science if it is to be science-fictional” (CSICSERY-RONAY, JR., 2008, p. 128).

The science in an SF text is but a means to an end, an allegory, a skeleton that supports the composition of the plot, it is, so to speak, a storytelling technique. It serves the purpose of creating the interaction between the “estrangement” effect and “cognition”, “whose chief

formal device is an imaginative framework alternative to the author's empirical environment” (SUVIN, 1972, p. 375). Csicsery-Ronay Jr. (2008) describes it as the “sense of wonder [and] sublimity” that SF texts are supposed to contain. Such “sense of wonder” must constitute “a powerful expansion of quotidian awareness to the insight that the physical universe involves far more than anyone can imagine” (CSICSERY-RONAY, JR., 2008, p. 146). For Freedman, a summary of Suvin’s allegations on the definition of SF as a genre is:

The *dialectic* between estrangement and cognition determines science fiction. The first term refers to the creation of an alternative fictional world that, by refusing to take our normal environment for granted, implicitly or explicitly performs an estranging critical interrogation of the latter (FREEDMAN, 2000, p. 16).

Likewise, Spiegel (2008) points out that SF frequently produces an effect that is at least analogous to that described by Suvin. Whether it is about travelling in time or into the unknown, or new inventions that change Earth, or terrifying beasts on an attack, whenever a sense of wonder is introduced into an apparently credible world, a conflict strikes between two structures of reality, generating the estrangement effect.

Accordingly, there are never enough details explaining how the technology presented in the stories works. Some particulars, it seems, are better left as too high to be comprehended by laymen or the people of today. This technique often provides the means to add elements like drama, and mystery or to use poetic license. SF, then, is more about deviating from realistic fiction than describing technology and science. In *The end of eternity*, Asimov only explicates that the Eternals travel in objects that he calls “kettles”, time machines, “up and downwhen”.

Explaining how time travel works by means of a machine constitutes an apparent attempt to keep the plot minimally plausible according to scientific thinking. Such is parenthetically a core requirement of the genre and a feature that distinguishes SF from fantasy literature, for which magic would power time travel. Asimov’s text reproduces that, whereas it promotes philosophical and moral discussions rather than pragmatic considerations that are taken seriously by real-life scientists.

Revising the paradoxes engendered by travelling through time, and thus, providing the so-called sense of wonder, and the cognition effect SF texts are to carry, Asimov writes some dialogues that have no indispensable relevance to the plot but deliver such effects:

[...] It was a natural tendency to crowd it as far down when as he could. A foolish risk, too, though. He might easily have miscalculated and entered Time before he had left it physiohours earlier. What then? It was one of the first rules he had learned as an Observer: One person occupying two points in the same Time of the same Reality runs a risk of meeting himself. Somehow that was something to be avoided. Why? Harlan knew he didn't want to meet himself. He didn't want to be staring into the eyes of another and earlier [or later] Harlan. Beyond that it would be a paradox, and what was it Twissell was fond of saying? "There are no paradoxes in Time, but only because Time deliberately avoids paradoxes." (ASIMOV, 1955, p. 106)

The conversation between two or more characters about scientific matters related to the story is repeatedly used by writers also to bring about the estrangement and cognition described by Csicsery-Ronay Jr. and Suvin. As defended, it does not add much valid information about the plot or the narrative; it only gets the reader wondering. We can state it is part of the aesthetics of the SF prose, and more specifically time travel prose, a quasi-subgenre of SF – if not a proper subgenre.

In line with that, there is a mention of a device called 'the mass duplicator', which 'eternals' wipe out of reality, causing it to have never existed, but somehow still preserving it in Eternity. This mention does not contribute significantly to the rest of the storyline. However, as we have stated, it constitutes a narrative tool designed to provide the reader with the 'sense of wonder', something also noticed in many space operas such as *Star Trek* (1966), and *Star Wars* (1977). Science fictional prose also serves "an immersive function", which seeks to set the reader's internal narrative voice into a position of presumed acquaintance with the fictional world, besides also filling gaps in the plot, most emphatically in SF films (STOCKWELL, 2014, p. 9). As Stockwell (2014) points out, SF plots are usually end-directed, or a "page-turner", with a resolution, impasse, or calamity to be realized or prevented, hardly ever ending in the type of aporia that is distinctive of much modernist short story writing and postmodern novels.

Stockwell's description seems accurate for the most part. Nonetheless, hard SF novels like *The end of eternity* (1955) include the feature Suvin, and Csicsery-Ronay Jr. define a sublimity or sublime, which also comes in the shape of another scientific debate that justifies the central theme surrounding the plot. In the case of time travel stories, this often comes as an intricate temporal paradox. In such situations, a dialogue between two or more characters does no longer directly have the intention of immersing the reader in the imaginary world or causing a sense of wonder but rather to make them think about the plausibility of the pseudoscience (mixed with 'real science', to some extent) that the text presents. One way Asimov does that is by applying allegedly convoluted logical inconsistencies, like the classic grandchild paradox and more:

“[...] I believe there were speculations of sorts in some types of escape literature. [...] I believe a recurrent theme was that of the man who returned in Time to kill his own grandfather as a child.”

[...]

“[...] in every apparent paradox of Time-travel, Reality always changes to avoid the paradox and we conclude that there are no paradoxes in Time-travel and that there can be none.” (ASIMOV, 1955, p. 152-154)

Another way he does that is chiefly through the conversation between Harlan and Twissell about how Eternity comes into existence:

“Eternity could never have been established without Mallansohn's discovery of the Temporal Field. Mallansohn could never have accomplished this without a knowledge of Mathematics that existed only in his future. [...] Meanwhile, here in Eternity at this moment, there is a Cub who was selected as an Eternal against all the rules, since he was overage and married, to boot. [...]

“I say that [...] It is your intention to have the Cub, Cooper, teach Lefebvre equations to Mallansohn [...].”

“[...] Much more so, boy. Cub Brinsley Sheridan Cooper *is* Vikkor Mallansohn!” (ASIMOV, 1955, p. 157-158)

The primary time paradox of the story is the key to its climax (more on that ahead). What happens in it is similar to *All You Zombies* (1958) by Robert A. Heinlein, and its later filmic adaptation, *Predestination* (2014) by Michael and Peter Spierig (a possible intertextual dialogue). The story features a young man (subsequently revealed to be a hermaphrodite) who

is taken back in time and tricked into impregnating his younger self (before undergoing surgical sex reassignment); he thus turns out to be the offspring of that union, with the paradoxical result that he is both his own mother, and father. In *The end of eternity* (1955), the basis for the creation of Eternity is laid by Vikkor Mallansohn who himself is an Eternal trained and sent back in time to establish the organization. He then leaves behind a ‘memoir’, more appropriately a guide on how to build Eternity:

“The memoir tells the story of a man named Brinsley Sheridan Cooper, born in the 78th [century], inducted as a Cub into Eternity at the age of twenty-three, having been married for a little over a year, but having been, as yet, childless.

Having entered Eternity, Cooper was trained in mathematics by a Computer named Laban Twissell and in Primitive sociology by a Technician named Andrew Harlan. [...] he was sent back to the 24th [century] to teach certain necessary techniques to a Primitive scientist named Vikkor Mallansohn.” (ASIMOV, 1955, p. 161)

As the story further unfolds, the original Mallansohn from that timeline dies. Cooper then assumes his identity and plays his role as the ‘founding father’ of Eternity. Therefore, the organization is the result of a paradox; it has created itself in an eternal loop, a chain of events initiated while it already existed in order to cause its existence – a classic case of *creatio ex nihilo*. Time-loop narrative structures are internally inconsistent in a causal logic. Still, the inconsistency is not always as evident as in Heinlein’s story (LEM, 1974, p. 145). That is sometimes referred to as “backwards causation,” that is, the causation of previous events by future events.

According to Sider (2016), the intricacy of the paradox is a means to examine the aesthetics of ‘chronomotion’ stories. As an example of poor time travel writing, he mentions *Back to the Future* (1985), despite its reasonably good reception both by the audience and critics. In the film, Martin McFly travels back in time and inadvertently attracts his mother. As the union of his parents becomes less and less likely, Martin McFly and his siblings begin to fade away into inexistence. He continues:

That McFly begins to fade away into nothingness shows that the writers of *Back to the Future* were aware of the problem. However, the fade-out solves nothing. Suppose McFly fades out completely after preventing his parents

from meeting. He still existed before fading out (it is he, after all, who prevents his parents from ever meeting). Where then did he come from in the first place? Whatever its literary merits, as a work of philosophy *Back to the Future* fails miserably (SIDER, 2016, p. 354).

As an example of a carefully written time travel story, Sider (2000) mentions *Terminator I* (1984) by James Cameron. The plot tells of a war between humans, who are commanded by John Connor, and machines. On the verge of defeat, the machines send a “Terminator” back in time to kill John Connor’s mother before Connor is born. Humans send Kyle Reese also back in time to fight the Terminator and protect John’s mother. Reese eventually succeeds and dies, but not before impregnating John’s mother and becoming his father. Sider defends that the story does not contradict itself. It would, though, if the Terminator succeeded in killing John’s mother since the story tells at the beginning that she lived and had a son – John Connor – whose future achievements are the reason of the presence of the Terminator in the past.

The chief paradox of *The end of eternity*, the one about the creation of Eternity, bears some resemblance to *Terminator I*, at least at first sight. Both plots work perfectly fine provided that no detail changes. They have to be in a perfect loop in order to keep happening *ad eternum*. Temporal paradoxes are extraordinarily captivating and intellectually engaging. As beings who are limited by time, having a beginning at a fixed point in time and necessarily having an end under the same circumstances, we tend to look at everything searching for the location in time. Consequently, our minds have difficulties processing paradoxes like Mallansohn’s. It is exceedingly hard to tell when the loop or circle initiates. It is like an Ouroboros, a complete eternal cycle. That is as well the same reason why it generates both estrangement and cognitive effects.

3. On the moral criticism

The next snippet, although still about Mallansohn’s mission in the past, suggests a slight deviation in the focus of the plot onto moral criticism, that is, the issue of social engineering:

“The intention of the circle in Time is to establish the knowledge of Time-travel and of the nature of Reality, to build Eternity, ahead of its natural Time. Left to itself, mankind would not have learned the truth about Time before their technological advances in other directions had made racial suicide inevitable.” (ASIMOV, 1955, p. 164)

Although the main focus of *The end of eternity* is time travel and the engaging consequences thereof, Asimov used the narrative to debate on social engineering, recurrently promoted by big totalitarian governments, and the moral issues that ensue from that. Social engineering is a massive interference of a government in society in order to change core characteristics in people so that the authority can protect its interests. This social criticism is also a relatively common side topic approached by many time travel SF texts, especially when those texts seek to establish a dystopic character.

There are many prominent examples of dystopian time-travelling or futuristic stories. H. G. Wells’s *The Time Machine* (1895), for instance, depicts the stratification of human society into two new species, one of which bred the other in order to feed on it. That represents the social exploitation in modern society. Philip K. Dick’s *The Minority Report* (1956) presents an elite that supposedly predicts crimes and indicts people before they commit any crimes. *Dr Futurity* (1960), also written by Philip K. Dick, describes a society, in which all births must be allowed by the government. Finally, Marge Piercy’s *Woman on the Edge of Time* (1976) tells a story about governmental interventions in a futuristic anarchist society.

In effect, Eternity, the foremost ruling authority on Earth, plays a similar role to that of George Orwell’s Ingsoc in *1984* (1949). Andrew Harlan, as it turns, performs an almost identical task to that of Winston Smith in the same novel. Both of them have the mission of erasing the past. Harlan has to physically travel in time and change it, while Winston has to modify old registers, photos, and newspapers (NIKOLAJEVA, 2009). Regardless of differences in their missions, the objective was still alike: keep absolute control over the population. About that, Nikolajeva observes:

Eternity in Asimov’s novel, published right in the middle of the Cold War, is a creation of a perverted totalitarian mind. [...] In *The End of Eternity*, the social system is based, like all totalitarian regimes, on the prosperity of a small ruling elite that pretends to be working for the good of all humanity. The slogan is “M.N.C. for M.D.R.,” Minimum Necessary Change for

Maximum Desired Response. Still, it is never specified, whose desires (NIKOLAJEVA, 2009, p. 186).

Asimov does not mention verbatim whose specific desires “Reality Changes” actually fulfil; the text only implies that they are Harlan’s and the chronocrats’. Thus, the totalitarian character of the Eternals is always made clear. The fates of individual people are never taken into account. “What in Time did he care for fifty billion people?” remembers Harlan (ASIMOV, 1955, p. 8). Supposedly, the changes performed by Eternals eliminate the world’s evil, from nuclear wars and natural catastrophes to excessive profligacy and depraved fashion. Sometimes, good things are sacrificed in the process, “ranging from electro-gravity space travel to masterpieces of art and literature” (ASIMOV, 1955, p. 18).

Hardly anyone would argue against the fact that having the power to change the past and alter the future is too much authority to be left unquestioned, yet, as explained in the previous paragraphs, the Eternals exist in a sort of ‘Metatime’, or out of time. Thus, eternals have no concerns as to how reality changes since they are never affected. When reality finally threatens their existence, they promptly alter the timeline, deleting useful and revolutionary inventions like space travel. Because of the constant interferences of the Allwhen Council, humanity never spread to other planets, and subsequently dies as a species in a remote future. In consonance with that, Harlan reveals the expenses of Eternity’s “protection”,

“[...] I know this much: species evolve only to meet the pressures of new environments. In a stable environment, a species may remain unchanged for millions of Centuries. Primitive man evolved rapidly because his environment was a harsh and changing one. Once, however, mankind learned to create a pleasant and stable one, so he just naturally stopped evolving” (ASIMOV, 1955, p. 236).

Harlan is in a similar situation. He has no concrete reason to question his job of altering timelines since he never expects to be personally affected; once that fact changes, he begins to question the morals of time modification. When a mission threatens to modify his lover Noÿs, Harlan breaks the Eternity’s laws, abstracting her ‘upwhen’; his own private reality change, demonstrating, once again, how authoritarian his line of thinking is (ASIMOV, 1955, p. 107).

Back to the climactic paradox of the story, we mentioned previously; Harlan and Noÿs also decide by themselves to make a final and crucial reality change, with no further consideration of ordinary 'timers'. Noÿs identifies herself as a 'timer' from the hidden centuries, inaccessible even to Eternity's most advanced technology. She then reveals she has an assignment that includes preventing Harlan from accomplishing his Mallansohn mission:

“Why Earth is empty of mankind after the 150,000th [century]? [...]”

Unfortunately, however, we are not alone in the Galaxy. There are other stars with other planets, you know. There are even other intelligences. None, in this Galaxy at least, are as ancient as mankind, but in the 125,000 Centuries man remained on Earth, younger minds caught up and passed us, developed the interstellar drive, and colonized the Galaxy.

“When we moved out into space, the signs were up. *Occupied! No Trespassing! Clear Out!* Mankind drew back its exploratory feelers, remained at home. But now he knew Earth for what it was: a prison surrounded by an infinity of freedom ... And mankind died out!” (ASIMOV, 1955, p. 245)

In the face not of such cataclysm, but out of fear of losing his lover, Harlan selfishly decides to jeopardize his mission, and subsequently puts an end to Eternity, interrupting the loop, and making room for what Asimov calls “Infinity”! One more reality change allegedly made for a greater good, without questioning whose greater good, or whose lives are involved!

4. Final Comments

The issues that stem from the narrative, time travel paradoxes, and social engineering, are obvious SF allegories. Both of them do stand out as providers of estrangement, cognition and social criticism. They serve the purpose of rationalizing highly fantastical points of the plot employing scientific ideas. They are the perfect narrative figurations and a fundamental part of its compelling nature. However, in the end, Asimov's story can be read as a product of its time, the Cold War, and as a typical dystopia, which we maintain, is a subgenre of SF. The opposition Eternity-Infinity is an apparent duality produced to contrast controlled and free society, and that resembles the political clash between the free world and communist world.

Conversely, as it is proper of most utopian and dystopian texts, the part of the story that is allegedly perfect or better also ends up being considerably despotic. In the case of *Infinity*, the noble cause involves setting humanity free from the yoke of the Eternals to let them evolve up to the point of creating space travel rather than time travel. Despite that, changing Eternity's timeline also involves terminating or altering billions of lives without questioning. From a moral standpoint then, there is not sufficient ethical improvement in the new free society Noÿs ultimately envisions.

REFERENCES

- ASIMOV, Isaac. **The end of eternity (1955)**. New York: Tom Doherty Associates, 2010.
- CSICSERY-RONAY, JR., Istvan. **The seven beauties of science fiction**. Middletown: Wesleyan University Press, 2008.
- FREEDMAN, Carl. **Critical theory and science fiction**. Middletown: Wesleyan University Press, 2000.
- FULMER, G. Understanding Time travel. **The southwestern journal of philosophy**, v. 11, n. 1, p. 151-156, 1980.
- HORWICH, Paul. On some alleged paradoxes of time travel. **The journal of philosophy**, v. 72, n. 14, p. 432-444, 1975.
- LEM, S. The time-travel story and related matters of SF structuring. **Science fiction studies**, v. 1, n. 3, p. 143-154, 1974.
- LEWIS, D. The paradoxes of time travel. In: SCHNEIDER, S. **Science fiction and philosophy: From time travel to superintelligence**. 2016. ed. Malden: Wiley & Sons/Blackwell, 2016. p. 357-369.
- NIKOLAJEVA, M. Time and totalitarianism. **Journal of the fantastic in the arts**, v. 20, n. 2, p. 184-192, 2009.
- SIDER, Theodore. Time. In: SCHNEIDER, S. **Science fiction and philosophy: From Time Travel to Superintelligence**. 2016. ed. Malden: Wiley & Sons/Blackwell, 2016. p. 343-356.
- SPIEGEL, S. Things Made Strange: On the Concept of "Estrangement" in Science Fiction Theory. **Science Fiction Studies**, v. 35, n. 1, p. 369-385, 2008.

STOCKWELL, Peter. The problem of a science fictional aesthetic. In: LATHAM, R. **The Oxford Handbook of Science Fiction**. New York: Oxford University Press, 2014. p. 35-46.

SUVIN, Darko. On the Poetics of the Science Fiction Genre. **College English**, v. 34, n. 3, p. 372-382, 1972.