

Exploration of Scientific Principles in *Schild's Ladder* for the Pursuance of Human Desire

Rajendra Tambile

Research Scholar

*Chhatrapati Shivaji College, Satara
(Autonomous)(M.S.) India*

Dr. A.M. Sarwade

Professor and Research Guide

*Department of English
Shivaji University, Kolhapur, (M.S.) India*

Abstract

Greg Egan is a science fiction writer who crafts his novel perfectly into the genre of science fiction. His novels are dealt with scientific laws and rules; in them some are fictitious and some are real. As human beings use science for the prosperity of mankind, human beings expect luxury and fulfillment of their desire from science. Mankind's dreams come into reality through science. Sometimes, it takes years and years for such inventions and discoveries. For example, the man wanted to fly in the air in the past. He attempted it through several inventions and discoveries. At last, he prepared a plane, for the fulfillment of his desire. Before such invention, several literary works used imaginary techniques for fulfillment of desire. Authors of such literature attempt fulfill the desires of the readers through imaginary scientific laws and rules. The present paper also attempts to analyze how the author has given treatment to scientific laws and rules used to fulfill the desires of mankind.

Keywords: scientific principles, Schild's Ladder, human desire

Introduction:

Greg Egan's writing expects intellectuality from the reader to know about his stories. He expects an intellectual reader who understands the concept of science fiction which is imbibed in the novel. The plot of his novel always revolves around the scientific concept which makes the novel science fiction. His art of narration always implies new technique which emphasizes on reader's mind to know about the story. But all things are basically related to the reader. He expects capable readers to understand the concepts of science because the person who is unaware of the science and scientific laws remains away from the root of the story and the intended purpose of the author. It does not mean the author only dwindles in science; he uses scientific

laws and rules to convey a humanitarian attitude.

The title *Schild's Ladder* indicates the process of transportation from one place to another of the object as Lorenzi M, in his article '*Schild's Ladder* for the Parallel Transport of Deformations in Time Series of Images' attempted to prove that- "we propose the *Schild's Ladder* framework as an effective method to transport longitudinal deformations in time series of images in a common space using diffeomorphic registration" (2011:1). This novel is also based on the concept of transportation and travel. It becomes clear through the word of Tchicaya and his father's conversation- "it's beautiful, isn't it?", his father said. 'This is called *Schild's Ladder*. All throughout geometry, all physics, and the same idea shows up in a thousand different guises. How do you

carry something from here to there, and keep it the same? You move it step by step, keeping it parallel in the only way that makes sense. You climb ‘*Schild’s Ladder*’ (239). Egan novels are always character oriented. The protagonist's character is closely associated with science and introduces the reader prominently to the scientific concept. Characters are the soul of his narration. Without the characters, the reader never understands the scientific laws which pervaded the whole novel. In the present novel, he acquaints the reader with the fictitious scientific concept of ‘the Sarumpaet rules’ and about the Big Bang and the Diamond graph. The reference to the Big Bang brings closure to the reader to the space and the theory of the origin and evolution of the universe. In short, he rejuvenates the hope to know about the universe. American science fiction writer Kim Stanley Robinson in his article ‘What Will It Take for Humans to Colonize the Milky Way?’ wrote that- “The idea that humans will eventually travel to and inhabit other parts of our galaxy was well expressed by the early Russian Rocket scientist Konstantin Tsiolkovsky, who wrote, “Earth is humanity’s cradle, but you’re not meant to stay in your cradle forever”. Since then the idea has been a staple of science fiction, and thus become part of a consensus image of humanity’s future”. (January 13, 2016) It is true fact that human wishes to travel to space, to stars. His wishes come into reality through science fiction. As the inventions and discoveries come, it looks like, his dream will come true and the words of the Rocket scientist will come into reality. The novelist Egan also catches the same thread to vent human desires. He makes the reader inquisitor like his characters- Cass

and Tchicaya about the new knowledge. He wrote at the beginning of the novel as:

“In the beginning was graph, a more like diamond than graphite. Every node in this graph was tetravalent: connected by four edges to four of these nodes. By a count of edges, the shortest path from the node back to itself was a loop six edges long. Every node belonged to twenty-four such loops, as well as forty-eight loops eight edges long, and four hundred and eighty that were ten edges long. The edges had no position; the graph consisted only of the fact that some nodes were connected to other. This pattern of connections, repeated endlessly, was all there. *In the beginning?* Waking more fully, Cass corrected herself: that was the version she remembered from childhood, but these days she preferred to be more cautious. The Sarumpaet rules let you trace the history of the universe back to the vicinity of the Diamond Graph, and everything you could ask for in a Big Bang was there; low entropy, particle creation, rapidly expanding space. Whether it made sense to follow these signposts all the way back, was another question”. (3-4)

The author introduces finely the scientific concepts and sets the ground for the reader to travel into a fictitious world along with his protagonist character Cass. Originally, ‘Sarumpaet rules’ is a fictitious scientific concept. It is a set of fundamental equations in the Quantum Graph Theory. It conveys that the physical existence of anything is an expression of the complex construction of mathematical graphs. The Quantum theory is associated with gravity. In physics, Loop Quantum Gravity is known as quantum theory. Its purpose is to assimilate the quantum mechanics and general activity through the

inclusion of matter of the standard model into the framework which is established for actual quantum gravity issues. Even, the author in reference tells about it as “Quantum Graph Theory is fictitious, but the spin networks on which Sarumpaet’s work is based are part of the real theory, known as loop quantum gravity, discovered by Lee Smolin and Carlo Rovelli” (327). It is observed that the author introduces at the very beginning the psyche of the protagonist character which included the scientific laws and rules. The curiosity of the character becomes the curiosity of the reader. He crafted the novel plot in a manner, where the reader gets easily involved with the scientific concept. He heightened the interest of the reader in science. The novel took place twenty thousand years in the future when Cass a humanoid physicist travelled to an orbital station in the locality of star Mimosa. She started his experiments to test the limits of fictitious Sarumpaet rules. These experiments came resulted in the creation of the ‘vacuum’ which is more efficient than the ordinary vacuum. It is dubbed as ‘novo vacuum which expands the outer side at half of the speed of light. But the ordinary vacuum collapses to the new state at the border. These experiments suggest the other general laws which are beyond the ‘Sarumpaet rules’. The expansion of the border made the local population turn toward the other distant stars. There were two opinions came mentioned related to the galloping of stars by the vacuum. One is who is a preservationist and wants to stop the expansion and preserve Milky Way. And other is Yielders who think that novo-vacuum would be important to destroy without any understanding. It would revive a civilization which has lost its charm.

Here, the author relates the reader to the present condition and opinions about scientific discovery. It is the reality that people of the present world are marching towards the different stars and Milky Way through scientific discoveries. Sometimes, such inventions and discoveries brought calamities to the present world or planet Earth. Still, we are living in which Milky Way, it is not polluted, as it will pollute or disturb its frame and control in future due to the intervention of mankind’s scientific innovations. Author finely makes aware the reader of the upcoming calamity in human beings' world through his fictitious world and setting of the novel. In the non-fictitious world or real-world scientists are launching new stations in space and experimenting.

When Rindler, a vessel matched velocities with an ever-expanding novo vacuum region at the border. A group of inhabitants wanted to know about the novo-vacuum to understand the science behind it because they knew that the novo-vacuum galloped two thousand inhabitants. Tchicaya came to the ship to join Yielders, but Mariama, who was a childhood friend of his, inspired him. He came to know that she was going to help the preservationists search for a way to destroy novovacuum. The characters of Tchicaya and Mariama were compelled into union, which was not suitable for both of them, but they travelled through the border. The tension between two factions, Yielders and Mariama, is part of the author’s narration to emphasize the attitude of humans towards the problem and to narrate scientific laws. The author deliberately narrates the romance of Tchicaya and Mariama, who were separated from each other; to give space to

the feelings of the reader within scientific experiments. At last, in the novel, fulfillment desires took place for the characters and reader. At the end of the novel, he writes, that's what I went looking for', she said, 'A glimpse of that. I never expected I'd come this close. And I never thought there'd be so much else attached'. She smiled uncertainly, and then pushed the graph away.

'I think I'm ready to go to home.' (326).

The plot of the novel is largely concerned with the space station. The description of the space station is fascinating and entices the mind of the reader. The bright alter-vacuum, with its drifting vines and air flowers, engages the mind of the reader. This is the discovery of Tchicaya and Mariama. They discovered it when they were trapped in a space capsule together. The notable fact is that Mariama's Qusp is embedded in Tchicaya's kidney. These things attract and fascinate the reader's imagination. Science fiction has romance, but this romance is strategically attached to scientific activities. In this novel, sex is used to show the difference between existing forms of humans. Yann is not serious about sex. Sex only suggests friendship and community and it is not part of the romance in the novel. The attraction between Mariama and Tchicaya took place due to the mystery of the cosmos. The novel is about the relationship between mankind and the universe. After four thousand years of waiting, everyone expects the protagonists to fall into each other's arms. As the author Egan notes, "Nothing could have survived up to four thousand years of waiting except perhaps an original theorem" (246). In the conversation between Yann and Tchicaya

about love, sex, and romance, Egan introduces the theorem. Yann is an acroporeal character who tells corporeal character Tchicaya about what acroporeals do to show their love and romance to someone. He says that they gave the original theorem as a gift.

The plot of the novel is centred on the idea of a futuristic galactic civilization. In this civilization, humanity is divided into two groups: the people who want to live in their own bodies and the people who like to be part of 'acroporeality' and live as the information in multifaceted data banks. It means that a person who travelled at the speed of light returns to see the people whom he left behind by crossing centuries and millennia. It can be proved through the description related to Mariama and Tchicaya's four thousand-year wait. The novel is about the journey. Generally, humans expect the fastest speed to reach a specific station. So he invented new types of engines for aeroplanes and trains. In this novel, Egan provides the fastest speed for travel, which is the speed of light. The speed of light for travel is just imagination, but it lures the mind of the reader. Even Egan, by using scientific rules, made it real to the reader.

Egan attempted to show the scientific laws and rules as real ones through his description, which is helpful to create new things for the welfare of mankind in a fictional world. And outside of it, the reader gets satisfied because his inert feelings are fulfilled. As he writes about QGT: "QGT as a description of the dynamics of the universe with the minimum possible algorithmic complexity; QGT as a topological re-description of some basic results in categorical theory—a mathematical setting in which rules of

arithmetic apply; QGT as the most probable underlying system of physical laws, given any substantial database of experimental results that spanned both nuclear physics and cosmology (10).

Egan has used the idea of CP4. CP4 becomes real through the description of its Although it has an imaginary touch, Egan gives control to the character to explain the CP4. His character Yann tells about the memories related to the CP4 as follows: "My earliest memories are of the CP4—that's a Kahler manifold that looks locally like a vector space with four complex dimensions, though the global topology's quite different. But I didn't really grow up there; I was moved around a lot when I was young to keep my perceptions flexible. I only used to spend time in anything remotely like this—he mentioned the surrounding, more-or-less Euclidean space—for certain special kinds of physics problems. And even most Newtonian mechanics is easier to grasp in a symplectic manifold; having a separate, visible coordinate for the position and momentum of every degree of freedom makes things much clearer than when you cram everything together in a single, three-dimensional space" (61). Egan uses Newtonian mechanics in the novel to maintain scientific theory, which is related to theory.

Conclusion:

Greg Egan is a well-trained craftsman who considers human mentality.

References:

1. Egan, Greg. *Schild's Ladder*. Gollanz, 2002. Print.
2. Braidotti, Rosi. *The Posthuman*, Polity Press, 2013 Print.
3. Burnham, Karen. *Modern Masters of Science Fiction: Greg Egan*. University of Illinois Press, 2014. Print

He uses not only fictitious but also real scientific laws in his novel. He is aware of human predicaments and desires, so he maintains a balance between real and fictitious scientific laws. But it does not affect his narrative strategy or his intended purpose as the author. He shows the reader the future of mankind and warns him about the upcoming dangers in human life. *Schild's Ladder* is hard science fiction that never betrays the norms of the scientific genre while the writer is attempting to fulfill human desires. Egan introduces journey as a prominent aspect of the novel. He makes travel faster through the speed of light; it creates a mood of joy for the reader. He makes the reader forget about reality and dive into a fictional world. The ancient Indian mythology's concept of telepathy and the travelling of the soul from one place to another without taking the human body bring closure to Egan's character's travel from one place to another. QGT, or Quantum Graph Theory, is a proper description of the reality of the beginning of the universe. It is a true and correct theory. But everyone is surprised in the novel when things go wrong while experimenting, which produces an expanding 'Novo-vacuum' which holds strength to gallop the existing fictional world. This idea shows that Egan has the intention to make the reader aware of scientific invention and its effects, which drag humans into disaster.

4. Hayles, N. Katherine. *How We Became Posthuman: Virtual Bodies in Cybernetics Literature and Informatics*. The University of Chicago Press, 1999, Print
5. Vint, Sherryl. *Science Fiction: A Guide for the Perplexed*. Bloomsbury Academia, 2014 Print.