



## “Nothing Worth Making, Nothing Worth Knowing”: A Deleuze-guattarian Reading of Science and Morality in Kurt Vonnegut’s *Cat’s Cradle*

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### Abstract

In the wake of WWII, how far science and technology may advance and the ethical responsibilities they bring became prominent problematics in philosophy and literature, including Kurt Vonnegut’s novels, particularly *Cat’s Cradle* (1963), a work of post-apocalyptic science fiction that intriguingly displays the dual nature of science as both creative and destructive. Since the novel deals with the catastrophic potentials of scientific inventions, it provides fertile ground for an ethical analysis based on Gilles Deleuze and Félix Guattari’s Poststructuralist thought, which has not previously been employed to analyze the concept of science in this novel. Considering this and using a descriptive-critical method, this qualitative, library-based study explores how in *Cat’s Cradle* science actualizes virtual possibilities, comparing it with artistic creation. Based on Deleuze-guattarian theory, the analysis delves into the ethical implications of scientific knowledge as truth and the (im)morality of science. The results suggest that in Vonnegut’s narrative science is essentially neither moral nor immoral, but rather virtually amoral, since Dr. Hoennicker is depicted as a scientist who, unaffected by morality, recognizes the virtual power of creation in science and represents what Deleuze terms active science. The findings of the study, thus, elucidate the virtual potentials underlying science in the novel, the way it affects the characters’ deterritorialization, its relation to ethics, and its capacity not only to extract functions but also create presubjective concepts and affects. The findings of the study carry significant implications for investigating the nature of science in (post-)apocalyptic science fiction, not least Vonnegut’s other novels.

*Keywords:* Deleuze-guattarian thought, science, the virtual, morality, Vonnegut’s *Cat’s Cradle*

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## Introduction

Since the invention of the atomic bomb in the twentieth century and the destruction left in its wake, there has been much debate in philosophy and literature on the subject of science and the ethical responsibility of scientists. As Richard Rhodes (1986) remarks, in the aftermath of the atomic bomb, scientists became more aware of their responsibility regarding the human race as a whole, as opposed to nationalistic obligations. Sagan and Druyan (1995) argues that scientific knowledge and ethical values are not mutually exclusive and, thus, can coexist harmoniously. He acknowledges that the misuse and abuse of science and technology call for a responsible approach to science. As a result, the need for ethical boundaries and guidelines for regulating science and technology was strongly felt. The works of twentieth-century American novelist Kurt Vonnegut Jr. (1922-2007) highlight such concerns as the misuse of science, the destructive properties of science, and its ethical aspects, among various other themes, particularly in his fourth novel *Cat's Cradle*, a science-fiction narrative depicting a post-apocalyptic world, first published in 1963.

In *Cat's Cradle*, John / Jonah, the novel's autodiegetic narrator, recounts his attempt to write a book titled *The Day the World Ended*, which is set to clarify what notable American figures were engaged in on the day the United States dropped the atomic bomb on Hiroshima. During his research, he encounters the three children of Dr. Felix Hoenikker, one of the (fictional) creators of the atomic bomb, and learns of a dangerous substance called the "ice-nine," a (fictional) substance with the ability to turn any liquid into ice with a melting point of 114 degrees Fahrenheit. John / Jonah then travels to the fictional Republic of San Lorenzo, becomes a practitioner of the fictional religion of Bokononism, and eventually witnesses the end of the world. Six months later, John / Jonah completes his book—the one we are reading, which could be viewed as a "history of human stupidity" (Vonnegut, 1963, p. 287).

It is true that truth in the form of scientific knowledge is an extension of humanity's desire for a better life, but it does not always lead to the desired outcome as it is portrayed in *Cat's Cradle*. In this novel, science is mainly associated with disaster. The novel begins with a reference to the notorious atomic bomb: Dr. Hoenikker invents the ice-nine after a passing comment from a navy commander that mud is very troublesome for operating marine units and how helpful it would be if they could easily render mud solid—an accident that results in the emergence of the ice age at the end of the novel when all liquid as well as all living creatures on the planet become frozen due to a malfunctioning fighter plane crashing into "Papa" Monzano's manor and inadvertently dropping the piece of ice-nine in his possession into the ocean.

Harold Bloom's (2009) analysis of *Cat's Cradle* accurately accentuates the key aspects of the narrative. He views *Cat's Cradle* as an ironic narrative revealing Vonnegut's yearning for an earthly paradise, ideal familial love, a rational utopia, a redemptive reversal of the Faust myth, along with a personal connection to the biblical prophet Jonah. Also, the representation of science in *Cat's Cradle* has been seen as Vonnegut's attempt to critique real practical science and technological advancement in the aftermath of the atomic bomb catastrophe during WWII (see, for instance,

Nagar, 2016; Zins, 1986). Overall, science is portrayed in *Cat's Cradle* as a source of great trouble when misused by Dr. Felix Hoenikker, a morally indifferent scientist, who creates the ice-nine, which his children—Angela, Frank, and Newt—distribute among themselves, each seeking personal gain. Their selfishness and disregard for potential consequences lead to the apocalypse.

This destructive science contrasts with Bokononism, a religion that embraces beneficial falsehoods to improve lives. John / Jonah is tasked by the dying president of San Lorenzo to teach the people science, which is described as “magic that works” (Vonnegut, 1963, p. 218). However, the pivotal role of science in the events of the narrative and its portrayal in contrast with artistic creation has remained unexplored to a large extent. This considered, employing the ethical philosophical framework developed by French Poststructuralist thinkers Gilles Deleuze (1925-1995) and Félix Guattari (1930-1992) can result in a more enlightening understanding of the concept of science and its workings as one of the major modes of thought and becoming in the novel.

John / Jonah, the protagonist-narrator, along with the other principal characters, notably the three Hoenikker children—who all show some talent in artistic creation as opposed to their father's scientific creations—explore the impact of science on existence. Chosen as the savior of the uninformed people of San Lorenzo to teach them a science that can lead to disaster, John / Jonah bears the burden of knowledge and responsibility as he is one of the very few survivors who know the cause of the apocalypse. The central themes of science, the virtual power of creation, how science differs from art although both are modes of thought / becoming, and their ethical implications in the narrative provide a fertile ground for a Deleuzeoguattarian analysis of *Cat's Cradle*. Accordingly, utilizing a descriptive-critical method, this qualitative, library-based research conducts a novel Deleuzeoguattarian analysis of *Cat's Cradle*, with a particular focus on the parallels between the events and thematic concepts within the novel and the ideas in Deleuze and Guattari's theory. The study aims to offer a deeper understanding of the characters as well as the role of science in this novel. To achieve this, the study examines the notion of science, its potential benefits and drawbacks, its role in actualizing virtual possibilities, and its distinction from artistic creation within the narrative. More specifically, the present research addresses the following questions: from a Deleuzeoguattarian perspective, how is science portrayed in Kurt Vonnegut's *Cat's Cradle* in relation to morality and how does it express the virtual powers of life as depicted in this novel? By applying this approach, the study aims to illuminate previously overlooked and unexplored aspects of the novel through a Poststructuralist reading, which may open up new possibilities in contrast to prior analyses, which have predominantly been biographical or contextualist in nature.

## Literature Review

### Deleuzeoguattarian Thought and the Concept of Science

While exploring the roots of Deleuze's ontology, May (2005) argues that our perception of life and the world, where distinct entities interact under natural laws,

shapes our acceptance of reality. This conventional perception limits us to actualized possibilities, discouraging us from imagining alternatives and other virtual possibilities. He further explains that, in Deleuze and Guattari's philosophy, immanent difference—i.e., constantly becoming different in and within oneself—is the force underlying the chaos of life. This intensive difference expresses the pure potentials and virtual possibilities of life that remain to be actualized (becoming), as opposed to the fixed actuality of stable identity and organized reality (being), which are generated by transcendent difference, i.e., being different from—and consequently dependent upon—an external reference or extensive force.

Deleuze and Guattari (1994) establish three different intellectual practices to offer a semblance of order to this chaos which is the universe, namely philosophy, art, and science. They refer to them as *chaoids*, the three daughters of Chaos in ancient Greek mythology that form variations of thought or creation. The *chaoids* respectively belong to “the plane of immanence,” “the plane of composition,” and “the plane of reference” (Deleuze & Guattari, 1994, p. 216). The primary difference between philosophy and science is how they meet the chaos and the unknown. Philosophy begins with the creation of “concepts,” while science extracts “functions.” In defining a concept, Deleuze and Guattari follow Friedrich Nietzsche, writing that concepts are not pre-made or pre-given but rather they must be first created. They refer to the plane which houses a concept and its other neighboring notions as “the plane of immanence” (p. 35) and define “concept” as the constitution of an event yet to come. In this sense, concept is knowledge of itself, and what philosophy attempts with creating concepts is “to extract an event from things and beings, to set up the new event from things and beings, always to give them a new event: space, time, matter, thought, the possible as events” (p. 33). A concept is, therefore, “a chaos rendered consistent, become thought, mental *chaosmos*” (p. 208). As a maker of idea and thought, concept is distinct from opinion or *doxa*, defined by Colebrook (2002) as limiting by assuming a shared world that is easily translatable through language and “a common sense whereby thinking takes the same ‘upright’ form distributed among rational perceivers” (p. 24).

Philosophy and science are both major forms of thought; however, the first difference between them is their attitudes when it comes to chaos. The defining feature of this chaos is not disorder but the “infinite speed with which every form taking shape in it vanishes” (Deleuze & Guattari, 1994, p. 118). Chaos is a void, not of nothingness but of virtual difference, “containing all possible particles and drawing out all possible forms, which spring up only to disappear immediately, without consistency, or reference, without consequence” (p. 118). Philosophy intends to give consistency to the formations and disappearances in the virtual while preserving its infinite speed through its plane of immanence consisting of concepts. The approach of science to chaos is very different: “It relinquishes the infinite, infinite speed, in order to gain *a reference able to actualize the virtual*” (p. 118; emphasis in the original); thus, through the plane of reference, science attempts to actualize the virtual through functions. By this account, “through concepts, philosophy continually extracts a consistent event from the state of affairs—a smile without the cat, as it were—whereas through functions science continually actualizes the event in a state of affairs, thing, or body

that can be referred to” (p. 126). In short, if philosophy is the knowledge of itself through concepts, science is the knowledge of the cause, of the definition.

After philosophy and science, the third form of thought is art, which operates on the plane of composition. Similar to how philosophy and science operate through the composition of concepts and functions respectively, art houses “affects” and “percepts.” Deleuze and Guattari (1994) argue that art “preserves and is preserved in itself” (p. 163). Accordingly, a drawing, a sculpture, a musical piece, a book, etc. are all preserved for as long as the material they are built upon is preserved without having ties to the model that inspired them, the viewer, or even the artist who created them. This preservation manifests as a “block of sensation” made up of percepts and affects, which exist independently of subjective perception. Art disrupts the traditional organization of perceptions and affections, creating monuments of sensation that transcend language. While philosophy seeks to make chaos consistent and science aims to reference and actualize possibilities, art creates finite forms that evoke the infinite through its aesthetic compositions.

Deleuze (1983) breaks down Nietzsche’s concepts of science and knowledge and elaborates on how they oppose life itself. He argues that Nietzsche is not against science but against the scientific mania for discovering balance and equilibrium and, as a result, his critique operates “against logical identity, against mathematical equality, and against physical equilibrium. Against the three forms of the undifferentiated” (p. 45). Deleuze declares that “knowledge is opposed to life” (p. 100), on the grounds that it limits the flow of the possibilities of life or rather the flow of immanent becoming at the heart of life. The laws knowledge imposes on life shape it, contain it, and keep it from actively flowing and narrow down its potential to the level of observable scientific reactions. He reasons that critique opens up new possibilities for thought, which is life-affirming instead of life-containing or life-denying. Thus, “Life would be the active force of thought, but thought would be the affirmative power of life. ... Thinking would then *mean discovering, inventing, new possibilities of life*” (p. 101; emphasis in the original).

Further, Deleuze and Guattari (1987) divide science into two sub-categories: state / royal science and minor / nomad science. “Royal science” imposes the power of the state on science, limiting it to sets of ordered, formulated, and re-creatable rules. On the other hand, “nomad science” has an element of individuality and perspective, which royal science finds problematic for the state. Since royal science has little tolerance for the rebellious nature of nomad science and its free flux, it either bans nomad science or attempts to regulate it through pipes and tunnels, enforcing an order of reason upon it. Explicating Deleuze and Guattari’s theory, John Marks (2006) defines nomad science as “an itinerant form of science that follows the intensive states of systems in order to reveal virtual structures” (p. 9) and describes royal science as an imposition of discipline on nomad science to reformulate it in accordance with civil and metric rules. This notion of science and its relations to the other modes of thought, in particular its account of the actual and the virtual, is fairly helpful in elucidating the poetics and politics of science and its effects in Vonnegut’s (1963) *Cat’s Cradle*, as the novel intriguingly puts on display the interplay of the actual and the virtual and the way they impact upon the characters’ lives.

### Studies on Vonnegut's *Cat's Cradle*

Although numerous studies have so far been conducted on *Cat's Cradle*, none of them has provided a thorough Deleuzeoguattarian analysis of the novel. Most existing research focuses on biographical and general thematic interpretations linked to Vonnegut's personal experiences, especially with regard to WWII. For instance, Kathryn Hume (2009) examines how Vonnegut's own experiences are reflected in the novel, particularly in the characters' failure to form meaningful relationships and the absurdity arising from their trivial decisions. Other studies have explored the socio-political dimensions of the novel. Marybeth Davis (2003), for example, discusses the conflict between valuing life for its own sake versus seeking a higher meaning, highlighting the contrast between Dr. Hoenikker and Bokonon as symbols of science and religion respectively. Davis posits that Vonnegut raises critical questions about the human nature and the search for a transcendent meaning for life in the context of naturalism and existentialism. R. N. Hanuman (2011) applies Mikhail Bakhtin's idea of the Carnavalesque to probe into themes such as the superiority of religion over scientific truths, the community versus the individual, existential determinism, and a lack of transcendental meaning for life.

On the other side, Abdolrazagh Babaei and Wan Roselezam Wan Yahya (2013) focus on the metafictional and metareligious aspects of Bokononism in *Cat's Cradle*, emphasizing its fictional nature that blurs the line between reality and fiction. Similarly, Snigdha Nagar (2016) analyzes Bokononism in light of Nietzsche's theory of language and morality, suggesting that in the novel Bokononism serves as a necessary illusion to stabilize the chaotic society of San Lorenzo. Daniel L. Zins (1986) reads the novel through the lens of conventional morality, connecting it to Vonnegut's anti-war stance. He argues that in his novels Vonnegut expresses a wariness toward a science that is independent from a sense of moral responsibility; thus, *Cat's Cradle* can be deemed a warning for the increasing possibility of destroying the world by human "stupidity and our deification of science and technology" (p. 170). Mengouchi (2016) deploys the Deleuzean concept of becoming to characterize *Cat's Cradle* as "minor literature," on the grounds that the novel creates meaning through novel terms rather than existing symbols. Mengouchi also touches on the concept of madness, or "unreason," as formulated by Michel Foucault, in relation to the traditional norms represented in the novel.

As the above brief review indicates, to date Vonnegut's *Cat's Cradle* has not been the object of an in-depth reading based on Deleuzeoguattarian thought, no least the thematic concept of science and its relation to the plane of immanence or the virtual. To fill the gap in the literature on this novel in particular and Vonnegut's *oeuvre* in general, the present study employs concepts from Deleuze and Guattari's Poststructuralist philosophy of ethics to further explore these thematic elements in Vonnegut's work.

## Results and Discussion

### The Concept of Science in *Cat's Cradle*

Science has a looming heavy presence in *Cat's Cradle* from the very beginning of the narrative discourse of the novel to its very end. The sequence of events that ultimately lead John / Jonah, the autodiegetic narrator, to the fictional Republic of San Lorenzo begin with his attempt at writing a "factual" book to be titled *The Day the World Ended*, a title with evident post-apocalyptic reverberations, suggesting that both the actual novel penned by Vonnegut and the "fictional non-fiction," or fictional documentary, being authored by the narrator are concerned with the "end of days." John / Jonah planned this book to be a factual documentation of what prominent American figures were busy with on the day the US dropped the first atomic bomb on Japan during WWII. In the course of collecting the necessary materials for his book, he becomes acquainted with the three children of the deceased Dr. Felix Hoenikker, a distinguished but dispassionate scientist and (fictionally) one of the "fathers" of the atomic bomb—or "*the father of the atom bomb*," as believes Newt Hoenikker, his youngest child (Vonnegut, 1963, p. 131)—and subsequently happens to suspect the existence of the ice-nine, an extremely dangerous chemical substance capable of freezing all kinds of liquid matter. Dr. Felix Hoenikker's unsafe invention, appropriated and divided by his three children after his sudden death, eventually brings about the catastrophic end of almost all life on the planet earth, which the now Bokononist narrator believes to have been inevitable. Before this catastrophic conclusion, when John / Jonah asks Dr. Asa Breed, a coworker of Dr. Hoenikker's, if the ice-nine exists in actuality, the answer is "That's impossible" (p. 43).

Dr. Breed, the apparently more sensible scientist, vehemently denies the possibility of "a single grain of something—even a microscopic grain—that could make infinite expanses of muck, marsh, swamp, creeks, pools, quicksand, and mire as solid as this desk" (Vonnegut, 1963, p. 43). Dr. Breed's understanding of the power of science and the possibilities open to it reflect what Deleuze (1983) dubs "the nihilism of modern thought" (p. 45; emphasis in the original). Contemplating Nietzsche's philosophy, Deleuze (1983) argues that modern sciences are essentially reactive, utilitarian, and egalitarian and, as a result, they lead the forces of life toward the undifferentiated. Taking away the active power of science in the process of regulating it is also one of the features of "royal science" as discussed by Deleuze and Guattari (1994). Dr. Breed is blind to the possibility of the ice-nine because the regulated form of reactive chemistry he is familiar with denies the possibility of water molecules bonding and crystalizing in a manner that is different from regular ice. To him, the existence of the ice-nine is purely in the realm of the virtual, without any chance of becoming actualized.

Dr. Hoenikker is a different type of scientist, one with the active imagination and creativity of a child, who "approaches old puzzles as though they were brand new" (Vonnegut, 1963, p. 44). He is a scientist of active force and affirmation, to the extent that the actuality of water molecules always freezing in the same formation does not stop him from affirming the chance or possibility of a virtually different formation. Therefore, while scientists of reactive nihilism extract functions out of chaos to study and regulate the phenomena under examination, Dr. Hoenikker

succeeds in actualizing new possibilities, in willing unprecedented forms of existence. His active power of thought is hinted elsewhere in the narrative, as well. Newt, the youngest Hoenikker sibling, remembers that the day the atomic bomb was dropped on Hiroshima, his father was fascinated by a piece of string and began making a “cat’s cradle” in an attempt to play with Newt, which he had never done until that moment. Newt recalls how his father’s out-of-character action and frantic talking scared him to the point of running away: “See? See? See? ... Cat’s cradle. See the cat’s cradle? See where the nice pussycat sleeps? Meow. Meow” (p. 12). The cat’s cradle is mentioned in another conversation between Newt and John / Jonah, which explains why Newt was so scared of his father’s behavior. Newt draws a cat’s cradle and talks about how for thousands of years adults have been waving a tangled piece of string in front of their children. When John / Jonah fails to understand what he means, Newt continues: “No wonder kids grow up crazy. A cat’s cradle is nothing but a bunch of X’s between somebody’s hands, and little kids look and look and look at all those X’s ... . . . *No damn cat, and no damn cradle*” (p. 166; emphasis in the original). On that occasion, Newt ran away from his father because what he saw as a kid was a grown man waving a piece of tangled string in his face, shouting about cats and cradles, while in fact there were none. It is fairly possible that had his outburst been directed at an adult instead of his kid, they would have been equally baffled or confused, as well. Dr. Hoenikker, however, talks with conviction about the cat in the cradle between his hands. Is the cat actual? Of course not. Is it unreal and just a product of language games? It can be reasoned that this is not the case, either. The cat is virtually real if not actually, similar to all the possibilities of science moving with infinite speed in the chaos until they are extracted and actualized through the functions of scientific enquiry. Dr. Hoenikker’s distinctness from other fellow scientists only becomes more pronounced after this small verbal exchange with his son.

Moreover, Dr. Hoenikker’s approach to thought, which is manifested through the route of science and functions as a means of actualizing the virtual, is opposed to those of his three children. There resides a constant tension between science and art in *Cat’s Cradle*. The two most prominent scientific personae in the novel are Dr. Hoenikker and Dr. Breed. However, their children show great interest in various forms of art instead of science: Angela Hoenikker finds solace in the clarinet, Frank Hoenikker used to spend all his time building models, Newton Hoenikker is a painter, and Dr. Breed’s son left his career in science after the atomic bomb was dropped to become a sculptor in Rome. While Dr. Hoenikker was preoccupied with scientific functions, his children demonstrate the ability to create affects and percepts—blocs of sensation that are independent from the perceiving subject according to Deleuze and Guattari’s (1994) theory. This creative artistry is majorly demonstrated through Angela’s playing of the clarinet and Newt’s drawing of the cat’s cradle. When Angela is overcome by sorrow, Newt asks her to play the clarinet for them since playing is what cheers her. Angela’s performance stuns John / Jonah and the other audience member Julian Castle. Jonah comments on her performance, stating “she improvised around the Pullman porter’s son; went from liquid lyricism to rasping lechery to the shrill skittishness of a frightened child, to a heroin nightmare. Her glissandi spoke of heaven and hell and all that lay between” (Vonnegut, 1963, pp. 181-182). The piece she performs does not include any vocals, and it is the melody in itself that affects John /Jonah to the point that he hears the skittish child and the heroine in it. Put differently, the music is not about a specific



skittish child, nor is it a depiction of a specific heroine's hardships. Angela as the artist-creator plays the melody so that it can create the sensations of child and struggles of a woman as percepts freed from any organized structures, perceiving subjects, or pre-given identities. As such, it is an artistic monument that preserves "sensations that embody the event: the constantly renewed suffering of men and women, their re-created protestations, their constantly resumed struggles" (Deleuze & Guattari, 1994, p. 178). Such is also the case with Newt's paintings. His painting of the cat's cradle is perceived as

small, black, and warty. It consisted of scratches made in a black, gummy impasto. The scratches formed a sort of spider's web, and I wondered if they might not be the sticky nets of human futility hung up on a moonless night to dry. (Vonnegut, 1963, p. 164)

Julian Castle perceives the drawing as hell, while Angela simply comments on how ugly it is. The three different viewers of Newt's art have various perceptions of it while Newt, the artist, had endeavored to draw a cat's cradle to demonstrate, as Castle later exclaims, "a picture of the meaninglessness of it all" (p. 169). This incongruity between Newt's intentions and his viewers' perceptions further solidifies the claim of art's freedom from anything but itself. Nevertheless, one thing that is common among the painting's commentators is how they feel a sense of gloom and bleakness about it. These affects are innate in the painting and are presubjective or prepersonal. Deleuze and Guattari (1994) argue that, unlike conceptual art, abstract art's creation of sensation on the plane of composition seeks to dramatize it so that "it would become a purely spiritual being, a radiant thinking and thought matter, no longer a sensation of sea or tree, but a sensation of the concept of sea or the concept of tree" (p. 198). Thus, arguably Angela and Newt are both able to create such sensations of concepts. Angela's music portrays the sensation of the concept of a scared child and a suffering woman while Newt's painting embodies the sensation of the concepts of absurdity, nothingness, or nihilism.

Philosophy, science, and art are usually considered three distinct forms of thought that cannot turn into each other. However, Deleuze and Guattari (1994) observe that there are points in the network of intellectual activities where "sensation itself becomes sensation of concept of function, where the concept becomes concept of function or of sensation, and where the function becomes function of sensation or concept" (p. 199). Through the differences between Dr. Hoenikker's thought and those of his aesthete children, yet another aspect of his person can be scrutinized. Through Newt's and Dr. Breed's memories of the deceased Dr. Hoenikker, it becomes clear that Dr. Hoenikker had close to no interest in fellow humans, not even his wife or his children. There is also an old rumor in the city that Dr. Breed is actually the real father of the three Hoenikker siblings. As a result, it may be argued that Dr. Hoenikker does not have any concept of family or fatherhood. In his dialogue with Miss Naomi Faust, he also demonstrates his unfamiliarity with the concepts of God and love when he asks her "what is God? What is love?" (Vonnegut, 1963, p. 55). Newt also remarks on his father's lack of interest in art: "I don't think he ever read a novel or even a short story in his whole life... I can't remember my father reading anything" (p. 10). In consequence, it can be concluded that Dr. Hoenikker was not a man of philosophy and art, or even remotely interested in either. However, his creations, the atomic bomb and the ice-nine, will outlive him.

Dr. Hoenikker's atomic bomb continues to affect Japan and its people free from the man who created it, similar to how the destruction that the ice-nine unleashes upon the world long lives independent of its creator. Therefore, the man of pure science and functions becomes the creator of function of sensation and concept. The atomic bomb was a result of the function of a concept, his child-creation, as he is acknowledged as its "father" (Vonnegut, 1963, p. 131). He may not have had any interest in his human children, yet he nurtured the atomic bomb, spent his lifetime on its development, and closely followed its progress. The same could be argued for the ice-nine, as the function of percept and affect. The ice-nine enveloped the earth in deadly ice even when its creator was no longer alive. It will continue to affect the water on the planet even when there is no organic life left on the planet to observe this phenomenon. Akin to how art is preserved for as long as the material it was built upon lives, the ice-nine will live as long as there is water to freeze. Thus, Dr. Hoenikker can be viewed as a man of science who takes flight from and deterritorializes his established subjectivity as a territorialized government scientist and a family man through his creation of the almost-philosophical function of concept and the almost-artistic function of affect.

Another prominent aspect of scientific knowledge in *Cat's Cradle* is "truth." When talking about the Research Laboratory of the General Forge and Foundry Company, the place Dr. Hoenikker used to work in when he was alive, Dr. Breed exclaims that "new knowledge is the most valuable commodity on earth. The more truth we have to work with, the richer we become" (Vonnegut, 1963, p. 41). Dr. Hoenikker's preoccupation with truth also becomes apparent through a short conversation he had with Miss Faust— "a merry, desiccated old lady ... [who] had served Dr. Breed for almost all his life, and her life, too" (p. 37)—where he bets she could never tell him something absolutely true. Additionally, the twenty-six-year-old Frank, the second of the Hoenikker children, can secure a comfortable job as the Major General and Minister of Science and Progress in the Republic of San Lorenzo and personal bodyguard of Miguel "Papa" Monzano, the island's old dictator, since he possesses a piece of the ice-nine. This feat is possible due to "Papa" Monzano, who is fascinated by the ice-nine and the possibilities of science.

On his deathbed, "Papa" pleads with Frank and John / Jonah to teach the people "truth," to teach them "science" (p. 218). The belief shared by Dr. Breed and "Papa" Monzano is that truth, which they equate with science, can save people by offering a better way of living and improving living conditions. Following Nietzsche, Deleuze (1983) poses a number of crucial questions when he is trying to tackle the problem of truth: "who is seeking truth? ... what does the one who seeks the truth want? ... *What* really is in us that wants 'the truth'? ... *why not rather* untruth? And uncertainty? Even ignorance?" (pp. 94-95; emphasis in the original). Deleuze argues that through the concept of truth we depict a truthful world that presupposes the existence of a truthful man in the center. For the truthful man, longing for the truth stems from his desire to not be deceived or to not deceive himself. Accepting this aspect of truth is followed by perceiving life and this world as essentially deceiving, misleading, and duping; hence, the truthful man rejects this false world of misleading appearances. But what does he hope to gain by this rejection? Deleuze (1983) holds that "the man who does not want to deceive wants a better world and a better life" (p. 96). Adhering to this line of reasoning, it may become more palpable why Dr. Breed

views truth as riches, why he demands that the late Dr. Hoenikker should be respected as a gentle genius whose work was ultimately aimed at the improvement of human life, and why he becomes flustered when John's / Jonah's inquiry appears to insinuate that Dr. Hoenikker may be responsible for the death of all those innocent lives in Japan as a result of dropping the atomic bomb. Similarly, "Papa" Monzano asks John / Jonah and Frank to kill Bokonan, the prophet of a religion of "shameless lies," and instead educate people with the truth, with science, "magic that *works*" (Vonnegut, 1963, pp. 5, 218; emphasis in the original). "Papa" Monzano believes the poor living condition of the people of San Lorenzo can be improved through education, science, and technological advancement, not through religious beliefs or practices. This conception of science conforms to Deleuze and Guattari's (1987) idea of royal or state science, as opposed to minor or nomad science, the latter being associated with Dr. Hoenikker.

### **The Power of the Virtual in *Cat's Cradle***

In *Cat's Cradle*, ontologically science is infinite potential and virtual power. There are various instances in the narrative discourse where the characters are discussing or contemplating science and its properties. The inventions of science mentioned in the text range from aspirin and penicillin to the atomic bomb and the ice-nine. Analyzing the different characters' stances on the matter of science and scientific truth reveals a critical duality. There are a group of characters who believe science is the savior of the human race, including Dr. Asa Breed, Lowe and Hazel Crosby, and "Papa" Monzano, and a second group who are vehemently against science and scientism and dub it the ruin of humanity, including Bokonan and to some extent John / Jonah. The Deleuzeoguattarian concept of science is most noticeably affirmed in the novel through the ice-nine. The ice-nine, as explained by Dr. Breed, is a possibility reserved for the realm of the virtual—a variation that is theoretically possible but never realistically actual. Nevertheless, Dr. Felix Hoenikker—with his childlike wonder and his tendency to always ask "why?"—manages to actualize the ice-nine. Both views of science, as a blessing and as a curse, hold merits if viewed in a Deleuzeoguattarian light. What Deleuze (1983) designates "reactive science" after Nietzsche's definition is the concept of science endorsed by the first group of characters in *Cat's Cradle*. This reactive science, which is developed as a reaction to other active forces and phenomena, is the cause of such helpful inventions as penicillin and aspirin. Humanity's desire to counter the active destructive force of illness results in such scientific inventions. On the other hand, when science becomes an affirmation of active force and disposes of its reactive nature and figurative shackles, it can actualize some of the more destructive possibilities that are better left in the untouched realm of the virtual, such as the atomic bomb and the ice-nine. As Julian Castle, one of the characters, declares: "Man is vile, and man makes nothing worth making, and knows nothing worth knowing" (Vonnegut, 1963, p. 169).

A man in search of knowledge and truth is a man who does not want to deceive or be deceived; accordingly, his reasons for reaching for truth are moral ones (Deleuze, 1983). This is the reason why Deleuze argues that Nietzsche's philosophy, as a celebration of active science, is also against the moralism of the will to truth that occupies scientific thought. This view of science as immoral is analyzed in depth by Zins (1986), who maintains that what Vonnegut opposes in *Cat's Cradle* is a "science divorced from moral responsibility" (p. 173). While the results of the current study

agree with Zins's remark on the role of immorality in the disastrous consequences of science, they do not agree with his extravagant claim that innocent scientists who are only interested in pure research must not allow themselves to be exploited by the military and governments who are only interested in weaponizing their knowledge. According to Zins, a scientist is immoral only as far as their inventions are utilized for immoral means. Nonetheless, according to Deleuze's (1983) argument about the morality of the man of science, Dr. Hoenikker is immoral and due to his lack of moral responsibility still tinkers with dangers such as the ice-nine even after observing how his other invention, the atomic bomb, was utilized by the government. Newt writes to John / Jonah of how after the atomic bomb was dropped, a fellow scientist told his father "science has now known sin," to which his father had replied "What is sin?" (Vonnegut, 1963, p. 17).

Ultimately, it is not how science is used or abused that causes the scientist—whether they are only interested in pure science and not its applications or they work toward a specific result—to be regarded as moral or immoral. Indeed, there is no such thing as moral or immoral science; science is virtually amoral. On the Deleuze-guattarian view of morality, active science, which bids farewell to morality, can remain active insofar as the man of science rids himself of the morality that plagues thought. The ice-nine, the scientific destroyer of humanity, is born of Dr. Hoenikker's ignorance of sin and not having any concept of moral guilt following the atomic bomb.

### **Conclusion**

This study assumed a Deleuze-guattarian approach to offer an ethico-philosophical reading of the concept of science, its actual and virtual properties, and how its functions affect the lives of the central characters of Vonnegut's (1963) *Cat's Cradle*. It was discussed that in the novel the creative power of science is affirmed through the invention of the atomic bomb and the ice-nine. In line with Deleuze and Guattari's (1994) argument that science can take hold of virtual possibilities that move in chaos with high speed and actualize them in the form of tangible reality, it was argued that in Vonnegut's narrative Dr. Hoenikker, as a leading scientist who sees everything as a puzzle and a wonder, manages to recognize this power of creation in science. It was also demonstrated that Dr. Hoenikker, as a man with no sense of sin and not saddled by the limitations of transcendent morality, depicts the endeavor to pursue what Deleuze (1983) terms active science. Thus, the science pursued by Dr. Hoenikker is the creative, dehumanized, and deterritorializing kind of science the world truly requires, as opposed to the dominant, normalized, moralized, and humanized reactive science that merely observes the occurring phenomena in nature and develops as a reaction to them. The former, also termed "minor" or "nomad" science by Deleuze and Guattari (1987), is manifested in the novel in the character of Dr. Hoenikker, while "Papa" Monzano embodies the latter conception, also referred to as "royal" or "state" science by Deleuze and Guattari.

On this reading, Dr. Hoenikker can be deemed the creator of function of sensation and concept, the latter normally belonging to the realm of philosophy. In consequence, the atomic bomb he invented can be regarded as a product of the function of a concept, his true "child" as he is not interested in his biological children

at all. On the other hand, it was argued that the ice-nine, Dr. Hoenikker's second devastating scientific invention, can be considered the function of affect and percept. Like an artistic masterpiece, the ice-nine will dramatically affect life without being dependent upon any perceiving subject, human agent, or personal perspective, when its creator and all other humans are long dead. It is undeniable that the virtual powers of this unrestricted, active science can prove very destructive if actualized without the mediation of a sense of morality, just as the atomic bomb and the ice-nine both show in Vonnegut's narrative. Science is the affirmation of possibility itself; it can actualize such blessings as penicillin and aspirin as Hazel, a minor character in the novel, mentions, but as a virtually double-edged sword it can also actualize curses such as the ice-nine that could lead to the annihilation of the entire globe. Thus, science itself is not virtually in need of morality to be less destructive; rather, the issue lies with humans and the way they seek to actualize scientific functions. Therefore, in essence science is neither moral nor immoral, but rather amoral.

The findings of the present study can carry significant implications for the study of the role or nature of science in (post-)apocalyptic science fiction, in particular other such novels authored by Vonnegut, as they elucidate the active forces and virtual potentials underlying science, the way it affects the characters' becoming or deterritorialization, its relationship with ethics, and its capacity not only to extract functions but also create concepts and affects, presubjective or desubjectified blocs of sensation normally attributed to philosophy and art respectively.

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