

Identity: The New Final Frontier. Singularity and Multitudes in *The Very Pulse of the Machine*

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This article deals with the question of identity and individuality as explored in Michael Swanwick’s short story, *The Very Pulse of the Machine*, and its subsequent adaptation into a short animated film. The story follows the surviving explorer Martha Kivelson in her attempt to save herself after an accident on Io, while also dragging the lifeless body of her partner, Julier Burton back to their lander. Our aim is to unearth the potentialities of the dissolution of individual identity boundaries, followed by the joining with the singular mega-consciousness, while also employing a feminist reading of the text as a safe haven for womanhood and the female expression of commonality. The genre of science fiction offers us the appropriate medium for such daring considerations and interrogations, liberating both the authors of the texts, as well as the reader from traditional gazes and expectations. Our sight is thus turned to the treatment of identity as the *new final* frontier, where limitation and glass ceilings are shattered in a new understanding thereof.

Science-Fiction continuously pushes our boundaries of understanding. While it may have begun its flow in the enigmatic desire for the “ultimate frontier”, attaining the till-then abstraction of outer space, the genre has continuously morphed into a profound inquiry into identity, on the one hand, and a struggle for increasing the porosity of conceptual borders on the other.

It is important to understand the cultural hold the American context exacted on the genre of science-fiction. While the beginnings of sci-fi writing were modest in the New World, with European works setting the tone and the scene for what was a highly innovative medium, the genre flourished in the U.S.A. after the middle of the 20th century. As Gary Westfahl notes that “after the end of World War II, a victorious United States had the power to impose its culture on other nations ravaged by war, and its science fiction became prominent” (2015: 17). As such, the American model for the genre became the main reference point, literally giving it its very name and direction. It comes as no surprise that so much of what constitutes the American mindset also made its way to a central position within the genre. The constant push for and fascination with the frontier, the very limit of human capability and physicality becomes a main concern. Richard Slotkin delves into a comprehensive analysis of the impact and weight the myth of the frontier truly bears on the American cultural psyche. He states beyond any doubt that the frontier acts not only as a mark of nostalgia, but as the point of conversion between numerous other so-called mythological strands that would piece together the American character. While it is true that the frontier was the penchant of the adventure stories of heroic figures attempting to conquer

wilderness, Slotkin makes a point in isolating the frontier among other constructs that build Americanness, saying: “Its ideological underpinnings are those same ‘laws’ of capitalist competition, of supply and demand, of Social Darwinian ‘survival of the fittest’ as a rationale for social order, and of ‘Manifest Destiny’ that have been the building blocks of our dominant historiographical tradition and political ideology” (1998: 15). In other words, the propensity of the American character to tackle the frontier, the ever-elusive moving target, encapsulates both a past history of conquest and subjugation of the indigenous population, as well as a present and future concern with attaining and maintaining a peak position, regardless of potential moving elements. Those who do manage to push their own limits to attain and open the frontier would implicitly win the race to superiority and centrality, furthermore proving divine favor.

John Rieder explores the inherent connection between the American spirit and that of their “mythic pioneering past” (2015: 167), which does lend itself well to the new conquests awaiting beyond the confinement of our planet, but there is more to the manifestation of the myth within the scope of science-fiction. To Rieder, it becomes clear that there is “a second version of the SF frontier, just as entangled with ideologies of progress and destiny as the first”, that is “the vanguard constituted by technological innovation”, which, when combined with the penchant for territorial conquest, would inevitably “participate in the ideology of American exceptionalism” (167). The discourse surrounding the myth of the frontier oftentimes ignores one element that is inherent to the space represented by the very notion of the reality of a frontier. In the public imagination, this space is perceived as a vast wilderness, an emptiness awaiting the civilizing force of the explorer. But the frontier presupposes intersection. As Rieder himself notes, it is “a meeting place between cultures or civilizations, a borderland or contact zone where there are always two sides to any story, and where exploring the radical differences between those two sides often becomes the heart of the adventure” (167). Historically, this has referred to the social tensions that arose between the colonizing power and the colonized population, creating the new mental space of the borderlands, which Gloria Anzaldúa explores in her 1987 seminal work, *Borderlands/La Frontera: The New Mestiza*. She defines the border as far more encompassing than geography, but lending itself to “preoccupations with the inner life of the Self, and with the struggle of that Self amidst adversity and violation; with the confluence of primordial images; with the unique positionings consciousness takes at these confluent streams” (s. p.). It does become evident, then, that the frontier is not simply an external consideration, but very much so an internal one, a catalyst in the shaping of identity. What is more, as we will explore later in this paper when looking closer at Swanwick’s short story, it will be interesting to observe the changes to an existing identity when faced with the new frontier, the melding and dissolution of inherent elements with a larger scope.

The image of the frontier has consistently been associated with considerations of the environment. The conquest of the frontier has traditionally been a struggle to overcome the adversity of the wilderness, or the inhospitable landscape. This construct was extrapolated to sci-fi, where the newness of the environment is contiguous with the alien world, meant to challenge the very essence of humanity. Especially in light of the unexpected dramatism and profound ramifications of the obliteration exacted by the atomic bombs, it becomes nearly inescapable that the contact zone between humanity and nature itself was altered beyond recovery. Priscilla Wald takes note of the multitudes of technological bursts that happened during and immediately after World War II, which essentially pushed the human being beyond

the limits of evolution, stating: “human evolution had taken millennia; this new technology gave humankind the ability to destroy the world in hours”, with the immediate effect being that “the weird and horrible had become the trite and obvious”, thus creating the perfect cultural environment for the proliferation of sci-fi, on the one hand, and its investigation in what the nature of the human being would become under these new circumstances, as “the human species was contingent and evolving; it was not even necessarily at the top of the food chain” (2015: 179-181), on the other. It can be argued, therefore, that the new frontier of the genre has moved within. The English novelist J. G. Ballard points out that sci-fi cannot possibly rely on the same tropes of conquest or “the rocket ships and ray guns of Buck Rogers” for long, as this will inherently lead to the nearly inevitable fall of the genre into a cultural “limbo occupied by other withering literary forms” that failed to invest in the depth they explored (2017: 101). While Ballard’s view that the preoccupation with space fiction is limitative and even juvenile remains a contentious claim, his argument for a turn toward the exploration of “*inner space*” and his desire “to see more psycho-literary ideas, more meta-biological and meta-chemical concepts, private time-systems synthetic psychologies and space-times, more of the sombre half-worlds one glimpses in the paintings of schizophrenics, all in all a complete speculative poetry and fantasy of science” (103) paints a vivid picture of the potentiality of the genre itself, which has in the decades following Ballard’s manifesto met his aspirations of profundity and turned the internal explorations of the human psyche into the new frontier.

One text that would successfully and subtly embody the preoccupation manifested by sci-fi with the inner space of the human psyche and the frontier of identity is Michael Swanwick’s short story, *The Very Pulse of the Machine*, published in 2016 in the science fiction magazine *Clarkesworld*, and its Netflix short animated film adaptation, directed by Emily Dean and included in the widely popular series, *Love, Death & Robots*. The story follows the intrepid explorer, Martha Kivelsen, in her mission to survive a sudden crash that kills her partner, Juliet Burton, on Io, the Jovian moon, in a race against time and a space inhospitable to human existence. We are not given a context for the accident that led to the current situation, beyond the fact that “The moon rover had flipped over at least five times before crashing sideways against a boulder the size of the Sydney Opera House”, but the disembodied voice of the dead Burton emanating from the radio seems to be giving both the readers, as well as Martha a clear appreciation of her particular circumstances: “Hell” (s. p.). She is walking in between the two figures of Jupiter and Daedalus’ plume, and while they are indeed fixtures meant for orientation, one cannot help but wonder if walking *in between* them is a conscious decision of not walking *towards* them, as salvation seems to be found away from the two pillars. Rather than standing on the shoulders of giants, Martha seems to be carrying the two mythological giants of old on her own shoulders, with the constancy of her own steps moving through the perceived void: “Nothing to it” (s. p.). On the one hand, Jupiter looms truly large, reflecting its magnificence as the first and largest planet of our system, and yet subject to a process of shrinking, through the Kelvin-Helmholtz mechanism, as it generates more heat from within than it receives on the surface from the Sun, having diminished to half its original size (Irwin 2009: 4-5). This process of shrinking is especially symbolic for the gas giant if we consider the fact that its entire make-up included all the elements that could have made it not into a planet, but into a star, had it not been for the perceived randomness of the universe. However, we would be remiss to consider this randomness as simply the absence of an intentional pattern within the cosmic scheme, particularly when looking at Jupiter as a “failed star”, as “randomness was reconceptualized in scientific fields so that it is not mere gibberish but a

productive force essential to the evolution of complex systems” (Hayles, 2015: 331-332). Within the poetics of the text, the nature of Jupiter, reliant on the heat of its core, cooling on the surface, diminishing gradually in a state of isolation, is juxtaposed to the universality of the finale, where the individual relinquishes her own insularity to join the multitudes, simultaneously dissolving, while also expanding the new entity.

Martha embarks on a transformative journey of salvation and survival, which oscillates between its imagined potentiality to its factual actuality. Symbolically following the name of the ancient inventor of the labyrinth, she walks with the volcanic plume and depression looming large over her trek. Much like Daedalus’ ancient statues, so life-like that they were likely to truly come to life, Martha drags Burton’s corpse, in what seems like a sentimental determination to rescue it from the oblivion of being left behind on Io. With a whole in her head reminiscent of Jupiter’s eye of the storm, but filled by Martha with the sulfuric dust of Io, the body gradually becomes more and more sentient and vocal. Her syncopated discourse, marked by the clicks that precede it, mimic the pulsations of a heart, a new life form being resuscitated, away from the warmth and life-giving force of the sun, but rather animated by a new impulse. Both women emerge from the destroyed relic of the rover, into the blinding whiteness of the sulfuric snow, both born anew, in a new cycle, albeit initially unaware. The almost alchemical presence of sulfur as an element that entirely surrounds them bears profound implications within their narrative, reminding the reader of the concern alchemy had “not only with the mysteries of matter but also with those of creation and life; it sought to harmonize the human individual with the universe surrounding him” (Read, 1952: 72). It is no mere coincidence perhaps that the association between sulfur and the human soul is also rendered in the story, as Io seems to be the embodiment of a Being endowed with a beating heart.

Within the fray of the storm that caused their accident, Martha is rendered blind. Her sense of self-preservation kept her alive in the crash, and it is now the driving force behind her actions. In an almost religiously charged moment, “Martha got down on her hands and knees. And as she did, just as quickly as the blizzard had begun – it stopped” (Swanwick, 2016: s. p.). The unmediated connection with Io seems providential, as the blinding storm stops, and she regains her bearings. She realizes that she has access to sufficient oxygen for the following forty hours, meaning she would need to reach her safe haven before that. It once again does not escape the reader that the trek she is about to embark on takes on a similar note as the Biblical Exodus of the Hebrews from Egypt. She too is attempting to weather the deadly desert led by the prophetic voice of Io. What is more, the very number, forty, is a Biblical leitmotif, used repeatedly to signal “two distinct epochs” (Coogan, 2008: 116). God flooded the Earth during forty days and forty nights of rain. Noah waited for forty days before emerging from the ark. But most importantly for our analysis of this passage, it took the Hebrews forty years of wandering in the desert before being delivered to their Promised Land; Martha only has forty hours on Io to deliver herself to a next stage. It is not only herself that she aims to deliver, but Burton’s body as well. Somehow, Burton seems to be all that Martha was not, the ideal she would model herself on, the assumed erudite winner, capable of reciting from the great poets, while also successfully fulfilling her role as an intrepid explorer. Martha cannot let go of “it”, the ideal she has been dutifully carrying around, despite the oftentimes crippling weight that it comes with. Much like she strapped herself within the rover, she straps herself to the embodiment of her aspirations for her own existence, otherwise “she’d be damned if she was going to leave it behind” (Swanwick, 2016: s. p.).

The loneliness she finds herself in is a cause for elation, the break in the regularity of her existence presupposes a return to that “inner space” that would allow for the true exploration. Amidst “the most desolate landscape in the universe”, Martha decides to add the most vivid colors to her own vision and perception, thus exhibiting the freedom of self-determination mirrored by her immediate reaction to her current situation: “There was nobody else on all of Io. Nobody to rely on but herself. Nobody to blame if she fucked up. Out of nowhere, she was filled with an elation as cold and bleak as the distant mountains. It was shameful how happy she felt” (s. p.). The same unfiltered elation filled both women upon their finding the dazzling field of sulfur crystals. Their immediate reaction and response to the sight before them, believing they had stumbled upon a new life-form which would earn them a place in the history books, is quickly crushed by their male supervisor, and yet their excitement remains intact. One could argue that the understanding the women feel when gazing upon the plains of Io thus far perceived and described as desolate is a much more profound one. They seem to have begun the process of establishing a connection with the Being that they will eventually dissolve into, albeit still unconscious. In fact, this connection surfaces gradually. Martha begins her forty-hour trek alongside the body of Burton by dismissing the latter’s disembodied voice, the voice of “Not. Bur. Ton.” as “you’re just the voice of my subconscious” (s. p.), bringing to light what had been relegated to the shadows. The connection between Martha’s consciousness and the mega-consciousness of the Being had already been established, and it is now being allowed to flourish on the surface. It further begs the question of whether the mega-consciousness of the Being that is Io might also be construed as a collective one. Upon investigation, Martha has the following exchange with the voice of Io:

‘I was here before, right? People like me. Mobile intelligent life forms. And I left. How long have I been gone?’
 Silence. ‘How long –’ she began again.
 ‘Long time. Lonely. So very. Long time’. (s. p.)

The implication, then, is that Burton and Martha are only two of the latest to contribute to the entity. It contains multitudes. It acts simultaneously as the creation, as well as devourer of individual entities. It in fact blurs the borders between individuals and identities, allowing for the porosity of a new-found definition to engulf Martha. While she is the earthling, the explorer Martha Kevilson, she is also part of a larger “I”, the innumerable entity. They were all her, and she was all of them. Io, thus, contains multitudes, and like any machine, it cannot exist beyond its elements, but they too cease their insular existence once engaged in the pulse of the machine.

The title of the short story references one of Wordsworth poems, *She Was a Phantom of Delight*, a love poem addressed to Mary Hutchinson (Ward 1997: 619). While the poet has been the subject of intense scrutiny from feminist critics, with “the now prevailing view that [he] rendered his poetry’s women silent if not brain-dead in order to make a male voice predominate” (611), it is only fair that the text be reappropriated for a feminist reading thereof. As such, in keeping with the symbols of the mega-consciousness exhibited by Io, the following verses take on a new meaning:

And now I see with eye serene
 The very pulse of the machine;

A Being breathing thoughtful breath,
 A Traveller between life and death;
 The reason firm, the temperate will,
 Endurance, foresight, strength, and skill;
 A perfect Woman, nobly planned,
 To warn, to comfort, and command;
 And yet a Spirit still, and bright
 With something of angelic light. (Wordsworth, s. p.)

It is Martha's eventual serene realization of the living organism that she would become part of that brings her mission to fruition. There is a sense of predestination in the steps taken, walking in between Jupiter and Daedalus, between life and death, a "planned" woman ready to join the Being that Io seems to be. The reference to a machine presupposes the interconnectedness of multitudes, each element pulsating in the larger rhythm of the machine that encompasses it, but that it also constructs, as the identity of both the machine as well as its composing elements are intertwined – there would be no machine without the sum of its elements, while they would not operate on their own. Martha herself becomes part of the enigmatic machine that engulfs her. The first word of the short story, "Click", echoes the title in its mechanical pulse. It triggers the impossible dialogue between Martha and what proves to be her own "phantom of delight". In fact, it is the first poem quoted by Burton, as an apparent non-sequitur to her initial statement:

Sulfur is. Triboelectric.
 Don't hold it in. What are you really trying to say?
 And now I see. With eye serene. The very. Pulse. Of the machine. A pause. Wordsworth.
 (Swanwick, 2016: s. p.)

The physical qualities of sulfur, in that it allows for an exchange of electrical charge between two objects sliding over one another, take on a nearly alchemical valence once more. It is not only sulfur, but a free-flow of information and melding together of consciousnesses, and with each step, the pulse of the machine is powered. Martha's interaction with the machine leads to the logical conclusion that if it does indeed exist, then it must do so with a purpose. If it exists as a machine, then it must have been created, which the voice of "Not. Bur. Ton" confirms, calling Martha its creator. It then follows that if there is a creator, then there must also be a purpose behind the creative effort: "So she asked, 'If you're a machine, then what is your function? Why were you made?' 'To know you. To love you. And to serve you'" (s. p.). Io's insistence on communicating to Martha seems to be fulfilling the first purpose, of knowing her. Once knowledge is established, love follows, only to be concluded with "serving" her, which one cannot help but wonder if it is used solely with its intransitive value, or if Io's lacunar speech pattern might also allow for its transitive side to coexist, further cementing the interconnected exchange between Martha and the mega-consciousness, an exchange which is proven to go beyond the sarcastic quips and seemingly unconnected quotes. Martha loses her way and goes off track, reaching the deadly and aptly named Lake Styx, an accumulation of molten sulfur, with no chance of retracing her steps and reaching her destination under the palpable time crunch. Her suicidal ideation is stopped in its track by Io, as it builds a bridge right before Martha's eyes, allowing her safe passage "from Death into Life" (s. p.). Death was

the potentiality, but life was her reality, as aided by Io, and reality can only be perceived away from the abstractions of time, past or future, and only in the place of the continuous present. Everything exists, all at the same time on Io, which is suggestive of the constant process of creation.

It is interesting to note that despite the uninterrupted connection between Burton's body and Io, consistently fed by the triboelectric nature of sulfur, "Not. Bur. Ton" is not omniscient. The neural pathways are fired up, activated and connected, but not identified with Io altogether. They still maintain a separation, which limits her. The knowledge she has and which she imparts with Martha is filtered through the mental capabilities of Burton while she was alive, so the voice cannot know more than Burton and can only communicate through what was already there in Burton's brain. As such, she cannot alert Martha of the sudden eruption that happens on Io, as she is only superficially linked to it. The crater gapes before them, brimming with molten sulfur, an ocean of unfathomable depth, connected to the very center. Like the primordial soup, it invites Martha and Burton to join all else, the multitudes it contains. The lander destroyed, salvation obliterated, Martha only has one option for survival – dissolution: "Io claimed – had said – that if she threw herself in, it would be able to absorb her, duplicate her neural patterning, and so restore her to life. A transformed sort of life, but life nonetheless. 'Throw Burton in,' it had said. 'Throw yourself in. Physical configuration will be. Destroyed. Neural configuration will be. Preserved. Maybe'" (s. p.). It becomes a symbolic conclusion to a steadfast struggle for survival for Martha, and for maintaining the human custom for Burton. The resistance espoused by the explorer only leads to seismic reactions. Letting go initiates a liberating flight. The reader is given no direct conclusion, no clarifying verdict. We are left to wonder whether Burton did transcend her death and connect to Io, accessing the mega-consciousness, or if it was all a matter of Martha's own consciousness having been impaired by the shock of the crash and the overuse of stimulants. However, it does beg the question of whether identity would survive, once the body was dissolved, if the neural pathways would contribute to the larger entity, while still maintaining their original singularity.

The very question of the mega-consciousness can also be interpreted through the lens of a most current concern – that of the rise of intelligences greater than those of human beings, computers or machines that would exceed our own capabilities. Vernor Vinge deals with this concern as explored in works of sci-fi, arguing that "the Singularity... is a point where our old models must be discarded and a new reality rules" (2017: 353), including "immortality (or at least a lifetime as long as we can make the universe survive) would be achievable" (360), and yet one must take into account that even such a mega-consciousness as the one represented by Io seems to espouse the need to evolve and develop, to grow and engulf more elements, lest it lose itself into the oblivion of perpetual self-referentiality, which would be rendered sterile without further growth. As Vinge argues, the question of self and ego, situated at the very heart of most philosophical exploration will inevitably need a profoundly different treatment when explored in the context of its apparent dissolution into the super-humanly amplified intelligence. The argument bears within it the counter-argument as well. The issue itself is ambivalent as it begs the question of the very nature of the human being – if Martha does dissolve, would she be the recipient of the potential immortality promised by the joining with Io, or would she be relinquished to the abysses of Lake Styx, having fed a voracious machine her life force and ample energy?

The 17-minute long animated adaptation of Swanwick's short story reimagines the beginning. It begins with the minutes prior to the accident, with the eruption that opens the black hole of molten sulfur from the start, choosing to categorize Kivelson as the intrepid, daring explorer, and Burton as the cautious, bookish partner. If we consider the fact that "Not. Bur. Ton" explicitly states that there is nothing that she could know that the alive Burton did not, it is interesting to note that the debut of the episode is built rather as its denouement, not only offering an explanation for what happened prior to the accident, but building a foreshadowing effect to what the end is for the two women. Stuck in a never-ending sea of yellowness, suggestive of the ambivalent and oftentimes contradictory reactions espoused by Martha, oscillating between jealousy and joy, much like the cultural symbolism of the color itself, the surviving explorer does not go through the same almost sentimental justification for dragging her partner's lifeless body back to their lander. The directors simply do away with this emotional response, and connect Martha to Burton through physical need – the former's oxygen tank being defective, she has to connect herself to the latter's, unable to remove the tank.

The journey thus begins with the gaping hole in Burton's face being filled with golden dust, in a nearly ritualistic gesture. What strikes the viewer is the switch from barren land to Martha trudging along in the blue violet darkness of Io, surrounded by the undulating shapes of women, while Burton recites poetry, trying to communicate. Hands extend and open towards them, building a majestic image of Io as the epicenter of womanhood and female expression. It allows the reader the conclusion that the two women found themselves in a profound exploration of a predestined path, led to the common mega-consciousness of all women as embodied by Io, capable of repairing the gaping hole in Burton's orbit and letting her loom larger than life. Rather than feeding Martha the answer directly, Burton prods her, giving her the crumbs that are meant to lead her to the inevitable verdict – Io is a machine, a majestic entity, whose apparent barren landscape changes into highly vibrant and alive the moment Kivelson adjusts the spectrum of perception. In other words, Io reveals itself to her when she is ready to switch her perspective. Io is barren only when perceived through the same lens that limited human, or even patriarchal reality would be looked at, much like Hols' patronizing reaction to the fascination felt by the two women on their first expedition.

Reading this moment of visual adjustment through the lens of *écriture féminine*, we cannot help but draw a parallel with the liberation felt by women when they allow themselves the removal of the shackles of patriarchal perception, and the embracing of womanhood away from the proverbial male gaze, as "all feminist theories resist the ideological self-representations of masculinist cultural text that traditionally offers itself as the universal expression of a homogeneous 'human nature'" (Hollinger, 2003: 125). The entirety of Io's wavelengths flow directly into the mind of Burton, animating her, while also allowing her to animate them as the stirrer of life, if not the implicit creator. As such, Burton rises and switches roles with Martha, who collapses in her arms, carried away between the blue violet vibrating waves, reminiscent of intuition and affection. The aggressive juxtaposition of the suffocation she feels with her earth-bound suit unable to function and maintain her life force, she once more switches from yellow to blue violet, joining *with* Io. The adaptation proves more generous once again as we see Kivelson diving into the depths of Lake Styx, and follow her graceful flight through a universe of stars and starlight, eventually transcending into a being of light, golden and luminous, whose life force produces ripple upon ripple of energy on the small moon. One is left to wonder if the final words, uttered as the image pans out to reveal an

illuminated Io and the Orbital watching over it, “Earth station. Come in. This is Martha Kivelson”, reach the station prior to the descent, or as its aftermath, once more allowing for the open-ended ambiguity of uncertainty to stir within the viewer.

The feminist reading of the texts, both written, as well as visual, allows a heightened sense of identity exploration. Donna Haraway stated that “Science fiction is generically concerned with the interpretation of boundaries between problematic selves and unexpected others and with the exploration of possible worlds in a context structured by transnational technoscience” (*apud* Hollinger, 2003: 132), which further cements the natural connection between sci-fi as a genre and feminist thought, despite the generally espoused view of masculinist sci-fi. *The Very Pulse of the Machine* does not overtly display a political agenda, and yet one does not need to go too far underneath the surface to access the liberating force of the feminist interpretation. It is reminiscent of Christine de Pizan’s medieval masterpiece, *The Book of the City of Ladies*, in which each new representative woman adds herself to the very creation of the protective city that would house and offer sanctuary to all women. We are, therefore, witnesses to a larger organism, a connection between individuals. We see a similar complex machine in Swanwick’s *Io*. Burton and Kivelson are simply the latest to join *with Io*, where even the use of the prepositional verb suggests not just a passive abandonment of the self, but an alliance in action. We are faced with a dissolution of identity borders, with the promise of the loss of only the container and the everlasting life of the mind. Identity thus transcends the corporeal limitations of the individual and is fulfilled and truly accomplished only when mirrored and mirroring others, away from singularity and isolation, and into multitudes. Joanna Russ states that “it’s the difficulty of science fiction, of genuine speculation: how to get away from the traditional assumptions which are nothing more than traditional straitjackets” (2017: 208), and *The Very Pulse of the Machine* does do just that – it obliterates and subverts expectations in its treatment of identity, while also rendering the voices of women crystal clear, even through syncopated poetic communication.

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