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Author(s): Carl Gutiérrez-Jones

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Carl Gutiérrez-Jones

### Stealing Kinship: *Neuromancer* and Artificial Intelligence

Scientists, engineers, and scholars specializing in emergent technologies confirm that exponential accelerations, especially in computer processing power, are leading humanity into a period of unprecedented, even revolutionary, transformation.<sup>1</sup> With a noteworthy consistency, the participants in this discussion reiterate the basic assumptions underlying Joel Garreau's "radical evolution" thesis, in which ongoing developments in genetics, nanotechnology, and robotics combine to alter humanness in profound ways, and with a rapidity that is simply dazzling.<sup>2</sup> At least for the populations who are able to reap the benefits of these advances, health, intelligence, and longevity are likely to improve in ways that will outstrip even our most optimistic predictions. As part of this process, technological enhancements will extend human capabilities so fundamentally as to redefine existing understandings of identity, communication, embodiment, and consciousness.

One of the most optimistic and widely read of these commentators, Ray Kurzweil, predicts the advent of artificial intelligence (AI) by 2029 (200). Kurzweil and his peers attribute profound ramifications to this particular turn of events, in part because AI will almost certainly feed on its own abilities to improve, and thereby quickly surpass, current human functioning with stunning speed (Kurzweil 14-30, 135-36). Sharing the assumption that such intelligence will swiftly morph into something radically different from our own, those who speculate about these matters tend to agree that this new intelligence will be so far beyond our current capacities that ascribing motivations to it will be difficult, if not impossible, at least for humans who have not been technologically "improved."<sup>3</sup> Having agreed on this point, these commentators offer wildly different predictions of what will happen. Many of these authors return to applying very human assumptions to the newly formed intelligence even as they acknowledge the likelihood of its radical difference. Serving as something of a Rorschach test, the advent of AI provides license for all sorts of scenarios. In some versions, humanity is judged by artificial intelligence to be too destructive and primitive to warrant keeping it around (see Joy). In others, humanity is so limited in its capabilities compared to artificial intelligence that it merits maintenance as a kind of pet or child, a relationship growing out of humanity's evolutionary connection with machine intelligence, and which is intended to contain humanity's penchant for destructive behavior (see Goetzel). In Kurzweil's most optimistic scenario, humanity has been integrated into technological progress sufficiently so that it is able to make the leap with machine intelligence by becoming ever more cyborg in nature (309-10).

This latter approach is certainly controversial and marks a significant departure from the early period of AI development.<sup>4</sup> Engineers of AI during

these boom years in the 1970s and early 1980s tended to scoff at the notion of using the human brain as a model for machine intelligence. In essence, the response to such a suggestion was “why constrain your thinking by the biological messiness of nature’s computer? Studying brains would limit your thinking.” It was therefore assumed that AI development would do better to “study the ultimate limits of computation as best expressed in digital computers” (Hawkins 12). For most of the next two decades, AI development fell on lean times.<sup>5</sup> While computational power continued to increase exponentially through this period, AI experiments yielded disappointing outcomes in terms of demonstrating “intelligence.” As a result, funding withered. Since the late 1990s, the field has charted an alternative course by increasingly embracing bio-inspired AI development, an approach made more viable as brain imaging and other technologies have allowed researchers a more subtle and dynamic view of how the human brain works.<sup>6</sup>

This significant turn in AI development provides a foundation for Kurzweil and others who find promise in the dramatic technological advances. Specifically, these authors see in the intertwined human/machine evolution an opportunity for kinship that might sustain beyond the point when machine-based intelligence significantly transcends current human abilities. As is the case with prominent voices in the field of digital humanities, Kurzweil argues that this cyborg turn is already well underway, a dynamic that N. Katherine Hayles explores in *How We Became Posthuman*, in which she defines the posthuman not as a period-marker in which the human is absent (replaced by the cyborg), but rather as the designation of an era in which the nature of being human is so significantly changed that it becomes appropriate to recognize the shift with the prefix.<sup>7</sup> Unlike Kurzweil, who emphasizes an imminent transcendence of biology, Hayles strongly rejects the cyborg narrative that foretells an ultimate escape from the biological, as *Homo Sapiens* interacts more and more intimately with intelligent machines, or *Robo Sapiens*. In sum, Hayles argues against a future in which “the expectation that the corporeal embodiment that has always functioned to define the limits of the human will ... become optional, as humans find ways to upload their consciousness into computers and leave their bodies behind”; instead, she advocates a posthuman future “that would acknowledge the importance of embodiment and be conducive to enhancing human and non-human life on the planet” (*My Mother 2*). Both authors argue for fostering notions of human/machine kinship. For Kurzweil, the human part of the kinship is that which can transcend bodily limitations, and in this regard he sees biology becoming a vestigial feature of the evolution of intelligence. Hayles refuses to embrace the Cartesian mind-body split and argues against the sacrifice of the latter; in her view, embodiment is fundamentally and irrevocably intertwined with intelligence and humanity.

This debate offers a rich context for rethinking William Gibson’s groundbreaking early work, especially his first novel, *Neuromancer* (1984), which previews many of the conflicting stances regarding the future of artificial intelligence, including the debates circulating in the first decade of

the twenty-first century. Celebrated for their anticipation of the Internet and a host of other advances, these texts wrestle with the relations between human, hybrid, and machine intelligences. Specifically, Gibson explores how the concept of kinship might be imagined, even fostered, among these entities.

Invoking the term kinship calls forth robust debates regarding the concept and its uses, in anthropology and beyond. As defined in this essay, kinship constitutes a sense of relatedness, mutual responsibility, and collaborative creativity, all growing out of a presumption of shared origins. Historically, studies of kinship have emphasized both biology (blood ties) and culture (familial, social and political affinities supported by rights, obligations, rituals, linguistic practices, etc.). Anthropological understandings of kinship went through something of a revolution in the 1980s with the rise of symbolic anthropology. David Schneider played a central role in this transformation, demonstrating “that kinship theory was steeped in Euro-American folk assumptions about the primacy of ties derived from sexual procreation, and that these assumptions did not necessarily apply cross-culturally. His work thus problematized the relationship between what was apparently biological and what was cultural in kinship” (Carsten 19-20). Although Schneider’s major works, *American Kinship: A Cultural Account* (1980) and *A Critique of the Study of Kinship* (1984), were taken by some as a death blow to kinship studies, the intervention was heralded as a liberating gesture by others, who saw an opportunity to rethink profoundly the generation and import of kinship meanings.

Both Donna Haraway and N. Katherine Hayles build on this critical turn and in the process raise compelling questions about human relations and the contact zones humans share with animals and machines. This disciplinary history helps set the context for Gibson’s early works, which were being written at the same time as the turn in kinship studies. This critical shift took the presumed nature/culture split that had defined the field and destabilized it profoundly, a process that only gained steam with the development of new reproductive technologies. That destabilization shapes this essay’s definition of kinship in several ways. As regards “relatedness,” critics such as Haraway, Hayles, and Judith Butler underscore the performative aspect of kinship relations: subjects may create such relations in myriad acts, including, of course, narrativizing; at the same time, this relation-making process has a material context and, as a result, entails some aspect of embodiment.

From the outset, then, the definition of kinship evoked here conflicts with the desire recorded by Kurzweil to transcend material limitations, and the body in particular. As Haraway notes, tool use was long assumed to justify human exceptionalism—to define, in other words, the boundary between human and animal, as well as the bond among humans. As Haraway argues, the earlier construction of kinship incorporated a fundamental form of alienation that ultimately assigns bodies to tool status and reasserts a Cartesian mind/body dualism. Following Haraway, this essay posits instead that relatedness entails a shared acknowledgment of materiality, of embodiment in some form. In highlighting mutual responsibility as an aspect of kinship, the

definition of kinship offered here draws on Judith Butler's *Precarious Life* (2006), particularly on her argument regarding the ways that experiences of shared vulnerability provide a window onto the constitutive and fundamental interdependence of subjects.

Most broadly conceived, kinship acknowledges this constitutive interrelation: how we are made through our relations with others in ways that always escape our control and understanding to some degree. Kinship entails both shared responsibility, which Butler identifies as a potential for coalition, and shared performance, which generates significant creative potential. For Haraway, this revitalized approach to kinship presents these relations as an opportunity "to learn about and create nature and ourselves" (42). Likewise, Carsten argues that "for most people kinship constitutes one of the most important arenas for their creative energy" (9). Kinship, therefore, may have a transformative quality because of the possibilities tied to this creativity.

All of the aspects of kinship noted thus far coalesce around the idea of shared origins, but what qualifies as an origin? Reproductive technologies, cloning, artificial intelligence, all have deeply troubled earlier presumptions regarding the meaning attached to kinship "origins." The destabilization of the "origins" component of kinship is evident in the various high-profile legal battles involving *in vitro* fertilization and surrogacy; these cases have sometimes led the courts to determine parental responsibility according to copyright law, the central debate thus becoming which of the parties should be credited with "conceiving" of the offspring as an idea (see Rose). In such contexts, origins are defined by the legitimacy granted to some narratives over and against others. As such, kinship involves a rhetorical performance that expresses and enacts narrativized connections. In what follows, I argue that Gibson's *Neuromancer* imagines AI/human kinship in just such a manner, and that the novel offers a recipe for the realization of this speculative relation.

In the near future as depicted by *Neuromancer*, exponential growth in technology has propelled the creation of many AIs, all of which are under constant surveillance by a Turing Police force charged with destroying instantly any machine intelligence attempting to operate outside of state-mandated limits. The principal action in the novel involves the liberation of Wintermute, an AI commissioned by Marie-France Tessier, the matriarch of an eccentric family corporation, Tessier-Ashpool S.A. A cyber-thief, Henry Dorsett Case, is coerced into cutting the shackles that keep the family-corporation's AI from getting any smarter. As Case is told by a digital reproduction of his deceased mentor in computer hacking, McCoy Pauley (a.k.a., Dixie Flatline), the perceived threat to humanity posed by the AIs is not simply their autonomy but also their ability to undertake radical self-improvement. Dixie, who has been added to the team of thieves on the AI's orders, is approached by Case in the hope that he will be able to shed light on the AI's intentions. In essence, Case is looking for some kind of leverage that he might wield in order to help ensure his own survival. The best that Dixie can do is to admonish Case not to assume that the AI is driven by human

intentions and thought processes. With such exchanges Gibson sets a context for human-AI interactions in the near future.

The liberation of the AI in the novel invites a number of questions. What sympathies, if any, should Gibson's readers feel for the enslaved intelligence? Why does the AI require human assistance with its liberation? How will the relations between humans and machines evolve as a result of the collaboration? Will humanity be left in the proverbial dust once the AI is free to radically increase its own capabilities, or might the liberation entail mutual benefits, even perhaps co-evolution? As Case works to better understand the AI, might he be transformed? If co-evolution is a prospect, could a new vision of kinship between humans and AIs follow? Two prominent and contrasting themes emerge from the novel's first explicit descriptions of artificial intelligence: the potential for kinship and the radical reproduction of technology, which would wholly exceed human control. The former anticipates Ray Kurzweil and his hope that kinship between humanity and technology might be sustained through the emergence and continued advancement of artificial intelligence, especially if the human and machine paths are defined by strategic co-development. Key to such kinship would be ensuring that humanity remains sufficiently integrated in technology to remain relevant to the emergent intelligence. By contrast, others commenting on emergent technologies have focused on the prospects that AIs and similar "smart devices" will develop radical reproductive capabilities, leading to a wholesale disconnect between human and machine intelligence. This approach is perhaps best represented by Bill Joy, a key architect of the Internet and an ardently cautionary voice regarding self-replicating technology, especially artificial intelligence. While Joy sees in the near future greater opportunities for extreme individuals and small fringe groups to use increasingly accessible technology to unleash what he calls "weapons of knowledge-enabled mass destruction," his greatest concern is reserved for self-replicating and self-improving technology that might be intentionally or inadvertently set loose with apocalyptic consequences for humanity and the biosphere. Joy warns that such an outcome is not simply possible but actually likely, and within one or two generations. In tones reminiscent of Gibson's *Turing Police*, Joy advocates relinquishing or severely constraining the development of self-replicating and self-improving technologies; for Joy, Kurzweil's vision of kinship appears optimistic to the point of naiveté.

In *Neuromancer*, Gibson engages the major contours of these debates regarding the place of humanity in a world populated by artificial intelligences—debates that extend over a half century but that find renewed force in recent years; in addition, he develops his own distinctively compelling, albeit implicit, argument about the potential impacts of artificial intelligence. Gibson's speculations are informed by especially sophisticated approaches to 1) entrenched social and cultural factors shaped by, and shaping, technological development, and 2) understandings of intelligence in general and the role of embodiment in this context. Gibson's contributions are not simply evident on the level of content or theme: the novel's formal

experimentation itself echoes its thematic speculations regarding technology, society, and culture. In other words, Gibson structures the text in order to transform how his readers process these debates. More specifically, *Neuromancer* anticipates hyperlinking technology in order to imagine a new form of hybridized intelligence, one that would draw on both human and computer forms of memory.<sup>8</sup> The novel's readers participate, therefore, at least in a muted manner, in a movement toward the kinship between humans and technology imagined by Gibson, Kurzweil, and Hayles. This cognitive shift is suggested as readers participate in the hypertextual construction of meaning that emulates the convergence of digital (computer) memory and analog (human pattern-recognition-oriented) memory.<sup>9</sup>

Recognizing this aspect of Gibson's early fiction invites critics to reengage the lively debates regarding the cyberpunk movement (especially prominent in the late 1980s but continuing with some force to the present), exchanges that frequently presented *Neuromancer* as a lodestar text. Recorded in key anthologies and critical texts, including Bruce Sterling's *Mirrorshades: The Cyberpunk Anthology* (1988), a special edition of the *Mississippi Review* (1988) edited by Larry McCaffery, its expanded booklength edition *Storming the Reality Studio: A Casebook of Cyberpunk and Postmodern Fiction* (1991), and Thomas Foster's *The Souls of Cyberfolks: Posthumanism as Vernacular Theory* (2005), these debates have raised a host of valuable critical concerns. Of these, I highlight one that bears especially strongly on my argument here, and this involves the prospect for cognitive mapping, or critical distance, in the cyberpunk context. Echoing the critique of postmodernist culture forcefully articulated by Fredric Jameson, a variety of critics examining the cyberpunk phenomenon describe a radical collapse of boundaries animating the movement, a collapse that threatens to evacuate fundamentally whatever critical purchase one might have by drawing categorical distinctions (whether aesthetic, historical, social, or political). Just as Jameson suggests that certain experimental works might provide new tools, reanimating the prospects for drawing critical distinctions in a late-capitalist postmodernist society, a host of sf critics found in specific cyberpunk texts new means of reading critically and drawing such distinctions. Brian McHale and Istvan Csicsery-Ronay, Jr., for example, contributed important essays in this regard, with the latter offering an especially resonant argument contextualizing the best cyberpunk work as a significant reflection on cybernetics.

Although this topic is not explicitly elaborated by Bruce Sterling in his preface to *Mirrorshades*, his focus on the human/machine interface invites links to analyses of cybernetics, work built upon by Veronica Hollinger as she examines the "cybernetic deconstruction" undertaken by Gibson and related authors. Viewed in this fashion, cyberpunk may also constitute an important precursor to Hayles's ideas regarding the posthuman and intermediation (a topic examined below). Problematic as it is, the history of cybernetics—"a sublime vision of human power over chance, and a dreary augmentation of capitalism's mechanical process of expansion" (Csicsery-Ronay 270)—gains a critical edge when subjected to punk sensibilities. The new project,



cyberpunk, becomes (at its best) a critical method for reevaluating the trajectory of human/machine interaction and a means of rethinking the forms of kinship that might pertain with the advent of AI. As Csicsery-Ronay notes, however, cyberpunk texts also register a deep ambivalence regarding the body (its integrity, its vulnerability, even its possibility as an idea). The rush of information provided by emergent technology generates an obsession with thrill-seeking, as if staging a bodily threat and the associated “rush” could make human experience commensurate with the accelerating, if not sublime, pace of machine processing. In turn, embodiment becomes a crucial site, one that might either feed new forms of critical apprehension (cognitive mapping) or else activate a denigration of the body that stretches back long before the Cartesian split.

**The Flesh the Cowboys Mocked.** In the future presented by Gibson, information is the most precious currency and theft is all but synonymous with hacking. Case’s role as a hacker—or “console cowboy” in Gibson’s future-speak—only partially explains why he is selected for the job by Wintermute. The enforcer “razor-girl” hired by Wintermute to assist Case, Molly Millions, is perplexed by Wintermute’s choice; as she bluntly informs Case, Wintermute could have done much better if its goal was using the best of the hackers available. This situation invites readers to look for other qualities that make Case appropriate for the task of freeing the AI. When readers first encounter Case, he is sliding down a suicidal spiral. A previous client cheated by Case has repaid the hacker by altering his nervous system, thereby entirely blocking Case’s ability to enter cyberspace. Case’s subsequent withdrawal symptoms suggest that he is addicted to cyberspace, but there is also a sense that the client’s retribution constitutes a form of amputation. Case’s withdrawal symptoms do not subside with time; instead, he seems plagued with the phantom sensations of a missing part of himself.

Unable to cope with this loss, and unable to locate a cure for the damage done by his former employer, Case undertakes increasingly dangerous black-market dealings that appear guaranteed to culminate in his self-destruction. At the same time, Case’s “unplugging” from cyberspace provides a window of opportunity, inasmuch as a relationship with a young woman, Linda Lee, invites Case to contend with the disdain for bodily (“meat”) existence that predominates among hackers and other frequent travelers of cyberspace. By virtue of these dynamics, Case already holds a distinctive relation to his own body when Wintermute draws him into the liberation project. His body’s presence and import has been reinforced by his sudden and stark awareness of its vulnerability. The standard cyber-obsessed disdain toward the body—“a certain relaxed contempt for the flesh” (*Neuromancer* 6)—has been amplified by the damage he has sustained, and yet this damage has acted as a kind of clutch, allowing him to rediscover meaning, and love, in his relationship with Linda Lee. These conflicting dynamics—the suicidal risk-taking drive and the empathetic reconnection to the bodily—offer clues to why Case is particularly well-suited for Wintermute’s mission. Specifically, Case’s suicidal qualities



open the door for a radical reappraisal on his part of the values and habits of thought that have defined him prior to Wintermute's intervention. In other words, readers are left with the prospect that, when the time comes to free the AI, Case will be well-suited psychologically to fulfill the AI's desires.

Given Case's ambivalence, it seems appropriate to ask why Wintermute would not simply obtain the services of a hacker who does not hold the lingering desire for human connection? When Case finally breaks the anti-hacking protections, or ICE ("Intrusion Countermeasures Electronics"), enslaving Wintermute, Case finds that the AI's creator, Marie-France Tessier, built into the entity rigorous mechanisms ensuring that the AI would not be able to free itself without extensive cooperation by humans, specifically including one of her descendants. In this regard, Marie-France not only established for the AI a certain dependency on human actions but also an imperative that the AI develop an ability to understand human qualities, as well as approximate some degree of empathy. Marie-France carried this process a step further by requiring that the AI experience something like a suicide upon its liberation. Wintermute knows that its actions will lead to a rebirth, but it has no guarantee or expectation that its "consciousness" will survive the transformation. Marie-France has therefore set the conditions for parallel narratives that prompt a mutual education. Ultimately, the components of this "education" combine to facilitate a new awareness of kinship.

Marie-France's various machinations result in a liberation process that is also profoundly infused with a rethinking of mind/body dualism. Engaging debates regarding AI development, as well as arguments for pursuing bio-inspired and human integrated AI, Gibson presents a roadmap suggesting how an AI might be constructed so as to be fundamentally imprinted with human kinship.<sup>10</sup> Gibson emphasizes this point by presenting a liberation process that both conveys and performs this message. Gibson's phenomenal success in predicting fundamentally important innovations has been much noted, but as he has stressed in interviews, he is particularly interested in speaking to the "future in the present," or to the potentialities and currents shaping his immediate contexts. To the extent that this intent applies to *Neuromancer*, it is very much in keeping with canonical conceptions of the work performed by science fiction, especially as these ideas have been shaped by Darko Suvin (see *Metamorphoses* [37-84] on the genre's essential commitment to social critique). We may thus read the novel as a critique of Cartesian mind-body dualism located in the "present," a dualism that would, according to Gibson, impede human progress in realizing the kinds of kinship imagined by Kurzweil, Hayles, and others. Gibson's assessment might thus be summarized in this manner: it is reasonable to assume that AIs will demonstrate their human origins, whether inadvertently or not, and given that mind-body dualism has fueled utopian and dystopian notions of AI development that frequently maintain highly problematic assumptions regarding materiality and the body (in which these qualities are denigrated as something to transcend, even by Kurzweil himself), it behooves humanity to rethink how its cultural assumptions are shaping, and being shaped by, technological development,

especially given humanity's propensity to devalue, or worse yet loathe, embodiment.<sup>11</sup>

The mind-body dualism here engaged by Gibson includes Descartes but is also thoroughly embedded in Christian antagonisms toward the profane body and worldly experience. It is perhaps more than coincidence that Orval S. Wintermute was a member of the translation team that made *The Gospel According to Thomas* available in English.<sup>12</sup> Broadly circulated in translation in the 1970s, this early Christian text is one of the most noted and controversial documents included in the Nag Hammadi library, which was discovered in 1945 (see Robinson). Comprised of 114 sayings attributed to Jesus, *The Gospel According to Thomas* challenges dualistic thought and locates spirituality in immediate material experience. Salvation is found not in "works" or "grace," but rather through the insights available while experiencing one's worldly context. As a ubiquitous catalyst of spiritual enlightenment, Jesus is to be found everywhere: "Split a piece of wood, and I am there. Lift a stone, and you will find me there" (Bruce 11). Efforts to unify early Christian sects contributed to the canonization of the dualistically-oriented gospels, which support a spirituality mediated by rituals forming the foundation of the Christian church as an institution. Not surprisingly, *The Gospel According to Thomas* was deemed heretical and condemned to destruction by the nascent church.

Although Gibson invites reading for religious allusions, he most often mobilizes these references in order to transvalue crucial concepts.<sup>13</sup> Like many analysts of emergent technology and its likely impacts, Gibson foresees radical changes that will severely test humanity's ability to adapt. In imagining humanity's role in reshaping itself, Gibson draws on deeply embedded cultural dynamics, including religious concepts, in order to self-consciously manipulate them. Signaling this interest, Gibson interrupts the novel's initial conversation between Case and a particularly insightful bartender with a disturbing silence that strangely synchronizes all of the disparate conversations in the bar, a moment that the bartender designates as an angel passing. What such a passing might signify is left unclear, although the sense of underlying import is inescapable; this turn of events is repeated as various aspects of the story are seemingly loaded with prophetic import that remains provocatively offstage or open to interpretation. At the close of the novel, Case asks the liberated AI, "So what's the score? How are things different? You running the world now? You God?"—to which the AI replies, "Things aren't different. Things are things" (270). The AI's statement is again provocatively ambiguous. The new entity goes on to announce that it has made contact with an extraterrestrial AI, and it appears to have created a virtual realm populated by alternate and dynamic versions of humans and AIs, including versions drawn from both deceased and currently living entities in Case's "reality." The AI's denial of a "difference" makes sense, however, if it is considered to be foremost a response to Case's query regarding gaining godhead, especially if such ascension is understood in the dualistic, mind-versus-body cultural tradition. The phrase "Things are things," in this light, reworks the sacred unity of

materiality and spirituality described in the *Gospel According to Thomas* in order to reinforce the value of embodied knowledge. In this regard, the AI's assertion of continuity says something crucial about the efficacy of Marie-France Tessier's initial construction of the AI. Specifically, she set the stage for a "birth" that strives to undercut dualism and instead to reinforce the mutual contingency of matter and mind. As Gibson emphasizes, she could not have known exactly what the AI would ultimately become, but she is credited with foreseeing that her actions might help shape that future.

The continuity attending the AI's liberation ("things are things") is also confirmed by the parallel narratives of resurrection that take Case and Wintermute as their focal points. Both characters are driven to suicidal acts: Wintermute knows that its liberation portends the end of its consciousness, and Case's attack on the ICE enslaving Wintermute is fueled by a fundamental self-loathing that has been cultivated by Wintermute throughout its interactions with him. This self-loathing is coded as a form of creative self-destruction, at the exact moment that Case initiates the final assault on the programming controlling Wintermute: "Beyond ego, beyond personality, beyond awareness, [Case] moved, ... evading his attackers with an ancient dance, ... grace of the mind-body interface granted him, in that second, by the clarity and singleness of his wish to die" (262).

Ultimately, both Case and the AI survive these trials, being redefined by drives and values that come to the fore through the process. In other words, both Case and the AI perform a rebooting narrative in which their willingness to embrace the prospect of self-annihilation facilitates a new "origin" and therefore reinforces their kinship. In this vein, Gibson builds an existential enlightenment into both of these resurrection narratives; they are, in fact, linked by a defining desire for insight. This existential project is not simply inherited from Marie-France Tessier by Wintermute, Case, and the other human participants. At critical moments, Case himself chooses to pursue insight over security; in doing so, he accepts suicidal risks for reasons that transcend thrill-seeking. He decides to attack the ICE imprisoning the AI, despite the fear for humanity represented by the Turing Police. Similarly, the liberated AI's first acts are directed toward pursuing insight, toward extending knowledge. It uses its capabilities to identify other forms of intelligent life like itself, an expansive act that also suggests a quest for self-knowledge, for context.<sup>14</sup> Ultimately, both Case and the AI exhibit a drive for self-reflective learning.

**Betrayal, Subversion and Creative Self-destruction.** Although both resurrection narratives highlight the pursuit of insight, they remain coded by humanity as acts of ultimate betrayal. In fact, the novel is packed with allusions to, and ruminations about, betrayal. All of the humans involved in liberating Wintermute have betrayed, or been betrayed by, others, and the traumas associated with these acts appear to be manipulated by the AI to its advantage. The fear directed toward the AI's self-improvement necessitates a distinct type of human co-conspirator for the liberation plot, one who has

deconstructed, or who can be encouraged to deconstruct, definitions of betrayal. Partaking in such deconstruction, in turn, provides Case, Wintermute, and ultimately the reader with a way of critiquing the underlying assumptions and habits of thought that legitimate cultural norms and promote restrictive notions of humanness. In the end, such norms and restrictions are protected by the very notion of betrayal itself, which helps explain why betrayal is such an important theme in the novel.<sup>15</sup> Experimental forms of cognitive mapping (e.g., Gibson's hyperlinking narrative) may provide precisely the ability to venture outside of the habits of thought that are maintained, in part, by assertions of betrayal when these habits are violated or challenged.

In the novel, the Turing Police are a covert, quasi-legal force charged with keeping humanity from betraying itself by lending assistance to rogue AIs. The name refers to Alan Turing, an early-twentieth-century pioneer in computing who devised a widely accepted and long-standing test for determining the advent of artificial intelligence (see Turing). According to Turing, AI would be achieved when a machine intelligence could undertake an extended exchange with a human without being identified as a non-human. As such, Turing's test focuses on the successful reproduction of human behaviors. Many of these behaviors are extremely difficult to reproduce compellingly, in part because they require language expression and recognition that remains elusive, despite exponential gains in computing power. As Hawkins has argued, however, the focus on reproducing human behaviors may ultimately reflect a weak and self-limiting notion of what intelligence actually is (14-18). In a nutshell, Hawkins insists that behavior is the expression of a deeper, more significant process that not only ascribes meaning but also generates it. For Hawkins, the essence of intelligence is the drive to learn, the striving for insight (182-83), a definition that challenges the value of the Turing test. Gibson suggests a similar approach to intelligence in *Neuromancer* by placing Case in a more compelling and convincing existential context than the Turing Police and the project they represent, which is defined by sublime fear at the expense of wonder, by restrictive human exceptionalism purchased at the expense of experimental insights and learning.<sup>16</sup>

Although Case starts the novel according to a seemingly predictable noir-oriented formula, his character's transformation constitutes a deconstruction of this type. Case's relationship with Linda Lee serves as a catalyst for this change inasmuch as she reawakens in him awareness of the value and appeal of embodied existence.<sup>17</sup> She dies early in the novel, and much of her impact as a catalyst comes in retrospect. Case is haunted by her loss, a point not lost on either Wintermute or Wintermute's sibling AI, Neuromancer. Both attempt to use recreations of Linda Lee to manipulate Case, and it is these efforts that force him to contend with the meaning of his relationship with her. While she was alive, their relationship was severely constrained by Case's suicidal drive: by his obsession with undertaking increasingly risky black-market dealings. In a desperate move to block this suicidal spiral, Linda Lee betrays Case by stealing from him some black-market computer memory. She is killed by

prospective buyers of the machine memory, and while it is not difficult to extend some responsibility for her death to Case, her role as a catalyst is not driven primarily by his guilt. Instead, the recollections of Linda Lee that recur throughout the novel—most prompted by the AIs—indicate that Case's experiences with Linda Lee hold a crucially important potential in that Gibson locates in them the possibility of recovering an existential knowledge indivisible from embodiment. As Thomas Foster has argued, a closer reading of cyberpunk texts undermines critical responses that see in the genre an overriding desire to escape the body, to transcend "meat puppet" status by becoming a mind without a body (Kurzweil's dream). In a series of deft readings, Foster instead demonstrates the complex ways that many cyberpunk texts explore the intermediation of human and machine intelligence. In the process, Foster attributes to Gibson a central role in destabilizing conventional notions of embodiment, thereby encouraging a material approach to cyberspace (Foster 78)—to what Gibson calls "data made flesh" (*Neuromancer* 16).

Marie-France's programming instructions compel the AI to negotiate human embodiment, and so Wintermute undertakes a remarkably extensive and subtle manipulation of Case's life, including the potentialities embedded in his history with Linda Lee. As Wintermute explains to Case, this manipulation entails taking advantage of given situations. The AI, programmed to realize a non-dualistic goal, passes this legacy on to Case. Specifically, the project of computer hacking and thievery set out for Case by the AI incorporates experiences and memories designed to cultivate a critique of dualism, and especially of hierarchical dualism (granting preference for either human or machine intelligence, in particular). Wintermute begins by repairing the neural damage that blocks Case's access to cyberspace, but during the same procedure the AI implants a biological weapon in Case. This weapon would use Case's bodily systems to ensure his death: poison is encased in protective sacs being slowly digested by his body's normal processes. Case's survival depends on a cure to be administered by the AI once it is successfully liberated. Case thus regains his access to cyberspace, but in a new manner that radically tethers him to his body. Specifically, Case is forced to confront the vulnerability of his body in a new light. His initial suicidal impulse during his time in Chiba City was driven by a disgust for the flesh and a desire to escape it. Case's relationship with Linda Lee, and later with Molly, invites him to rethink the meaning and value of embodiment. Witnessing Linda Lee's murder compels Case to acknowledge what Judith Butler has termed precarious life: the ways that we are made and unmade by others in a context where material vulnerability constitutes a fundamental shared experience. In this regard, Case's revitalized approach to vulnerability prompts a new vision of embodiment: physical instantiation is inseparable from meaning, thought, and agency.

As the mission continues, the AI orders a series of actions requiring a "simstim" device allowing Case to flip between Molly's bodily experiences and his own. The simstim device and the comparative bodily knowledge that

it provides sets the stage for an especially powerful form of intermediation, a means of translating between the senses (analog-oriented body) and informatics (digital-oriented machine). Specifically, the AI draws Case into increasingly extensive “flatlining” episodes in which Case and the AIs communicate more or less directly (Wintermute is not capable of creating a stable personality of its own, so it assumes surrogates while conversing with Case). During these sequences, Case finds himself projected into virtual worlds created by the AIs while his “original” body is dropped into a temporary death. Although the prospect of permanent death looms over these flatline communications, each episode depicted in the novel culminates with a resurrection of sorts. These flatlining experiences climax while Case is in the midst of liberating the AI. At this juncture, Case is kidnapped by Wintermute’s sibling AI, Neuromancer, which resists the liberation and unification of the two AIs as anticipated by Marie-France Tessier, presumably because it fears losing the stable personality that it, unlike its sibling, has been allowed to develop.

The Neuromancer AI generates this flatline intervention in order to test Case. In this manner, Neuromancer lives up to the associations that Gibson suggests for its name: “neuro” for nerves, “romancer” as in seducer—and, by phonic comparison, “necromancer,” or one who practices divination by conjuring up the dead. Reunited on an isolated beach with a resurrected version of Linda Lee, the flatlined Case is given an opportunity to remain indefinitely with the person he loved, albeit in a world that Case knows is distinct from the one where Molly and the others are risking their lives to liberate Wintermute. Although he initially rejects this Linda Lee as a manipulative gesture, Case ultimately relents, a decision that leads first to conversation, then to sex. Two insights accompany this reunion. First, Linda Lee explains the motive behind her betrayal of Case: her desperation for his attention compelled her to enter his suicidal art of the increasingly risky black-market exchange. Second, Case experiences something of an epiphany as they engage in sex:

There was a strength that ran in her.... It was a place he’d known before; not everyone could take him there, and somehow he’d always managed to forget it. Something he’d found and lost so many times. It belonged, he knew—he remembered—as she pulled him down, to the meat, the flesh that the cowboys mocked. It was a vast thing, beyond knowing, a sea of information coded in spiral and pheromone, infinite intricacy that only the body in its strong blind way could ever read. (239)

Ultimately, Case escapes the seduction attempted by the Neuromancer AI; in this, he is significantly aided by communication from his body, which experiences a massive overdose administered by a Rastafarian colleague who observes him flatlining in Case’s “original” reality. Case’s return to this reality is determined most fundamentally, however, by his refusal to sacrifice contact with, and responsibility for, the world in which his team fights to liberate Wintermute. In making this existential decision, Case passes the test presented by Neuromancer. Crucially, Case’s choice is not represented as a



rejection of the virtual in favor of the “real” (e.g., leaving Linda Lee behind because she is somehow deficient as a reproduction). While the two worlds remain distinguishable, Case’s action represents a “both/and” rather than an “either/or” response to his situation. His choice constitutes a refusal of the sacrificial logic embedded in *Neuromancer*’s seduction. The world to which Case returns, the world in which he and his co-conspirators are liberating the AI, is a cyborg world: a context moving toward intermediation, and not the dualism that demands granting preference to one form of existence at the expense of another. In this regard, Gibson imagines an evolving kinship among humans and AIs, one that tracks closely to Hayles’s speculations and that pointedly critiques Kurzweil’s vision of an escape from the body.

Intermediation has been a central concept of Hayles’s work since the publication of *My Mother Was a Computer* in 2005. Hayles defines the term, in its most general formulation, as the “complex transactions between bodies and texts, as well as between different forms of media” (7). This language belies the rigorous complexity that the concept takes as Hayles maps, and intervenes in, current debates regarding artificial intelligence, the posthuman era, and human-machine interactions. In one sense, Hayles’s notion of intermediation constitutes a theory (and ethics) of human-machine kinship, one that takes cognitive studies, computer science, digital art, media studies, and literature (especially speculative fiction) as valuable sites for analyzing the impacts of technology, broadly understood, upon humanity. One way to approach this theoretical work is to consider it an attempt to think through the implications of the interface between digital computational knowledge and analog human knowledge—or, as Hayles will sometimes frame this interaction, the traffic between code and language.

Another way that Hayles explores intermediation, one that is especially helpful in terms of thinking about Gibson’s achievement in *Neuromancer*, is as a dialectic between narrative and simulation.<sup>18</sup> As she notes,

Narrative, with its evocation of the human lifeworld, speaks to subjectivities that remain rooted in human perceptual systems, human languages and human cultures. Simulations, by contrast, are essentially numerical calculations. Although they can be rendered in visual forms that evoke the perceptible world that humans see, these appearances are generated through algorithms that operate first and foremost with numerical quantities. (*My Mother* 6)

According to Gibson, achieving intermediation requires a radical shift in how humanity conceives of itself and its relations to other forms of intelligence. To betray assumptions so deeply embedded requires a human rebooting, and as is the case with a wide range of sf works, this process frames certain suicidal states as a part of a process constituting creative self-destruction. In the novel, this process culminates when Case rides a hacking program in a suicidal plunge into the heart of the cyberspace machinery chaining the AI (both *Wintermute* and *Neuromancer*, since the two are fundamentally connected). This hacking program operates by creating a perfect simulation of the protective machinery it is built to defeat. As Case “rides” the hacking program, in some revolutionary sense he merges with it:



Case's consciousness divided like beads of mercury, arcing above an endless beach the color of the dark silver clouds. His vision was spherical, as though a single retina lined the inner surface of a globe that contained all things, if all things could be counted.

And here things could be counted, each one. He knew the number of grains of sand in the construct of the beach (a number coded in a mathematical system that existed nowhere outside the mind that was Neuromancer). He knew the number of yellow food packets in the canisters in the bunker (four hundred and seven). He knew the number of brass teeth in the left half of the open zipper of the salt-crust leather jacket that Linda Lee wore as she trudged along the sunset beach, swinging a stick of driftwood in her hand (two hundred and two). (258)

Having entered the simulation mode defined by data and a radical perceptibility, Case is drawn back into intermediation as the Neuromancer AI communicates with him directly even as Case "inhabits" the AI's mind. This exchange focuses on the alternate version of Linda Lee, whom Case now reads as though she were wholly data. The Neuromancer AI insists that she is, in fact, more than the readable data, suggesting that the AI has the means to reproduce autonomous, analog-oriented human subjectivity. Neuromancer highlights this autonomy by emphasizing that neither it nor Case know this Linda Lee's thoughts, and neither controls her actions in this simulated world. Neuromancer's conclusion is that "To live here is to live. There is no difference" (258). But of course there is a difference between asserting the value of the distinct forms of life (a world that Case inhabits with Molly, both committed to the liberation of Wintermute, and a world generated by Neuromancer and populated with the alternate Linda Lee), and choosing one over the other, the test case scenario that Neuromancer has previously thrust upon Case. This difference (both/and versus either/or) replicates the distinction between intermediation on the one hand, and hierarchical dualism on the other: between Hayles and Kurzweil.

As Case defeats the mechanism enslaving the AI, he jacks out of cyberspace and into the orbital home of the Tessier-Ashpool clan, where his team and Marie-France stand before the terminal that must hear a secret code to be spoken by Marie3Jane in order to release Wintermute. On Case's instruction, and after desperate, existentially-loaded pleas from him in which he stresses the chance to escape mind-numbing habits of thought, Marie3Jane speaks the verbal key for the ceremonial Tessier-Ashpool S.A. terminal, an interface distinguished by its ornate, baroque materiality, which mimics a human head. Interestingly, the secret words spoken by Marie3Jane are never included in the text. Gibson, however, provides clues regarding what the secret code might be, both during and immediately after the climactic exchange between Case, Marie3Jane and the terminal:

—now  
and his voice the cry of a bird  
unknown,  
3Jane answering in song, three

notes, high and pure.  
A true name.

Neon forest, rain sizzling across hot pavement.... A girl's hands locked across the small of his back, in the sweating darkness of a portside coffin.

But all of this receding, as the cityscape recedes: city as ... the roads and crossroads scribed on the face of a microchip, the sweat-stained pattern on a folded, knotted scarf. (262)

Several details here suggest that this secret "true name" might be Linda Lee. Representing three syllables, the "three notes" are linked to this character by the closely placed references to the lovemaking that she and Case shared in the portside coffin, and to her distinctive scarf that maps (locates, situates) their relationship in Chiba City and represents this knowledge as if it were circuitry on a computer chip. Taken together, these aspects of the scarf mark an especially rich symbol of intermediation. In fact, Gibson has staged the climax of the novel, the AI's liberation, as a powerful intermediation in which the novel's central character literally flips back and forth between digital simulation and analog human subjectivity, represented by the name, and memories, associated with Linda Lee—a name only accessible to readers through the performance of analog pattern recognition that is the strength of human cognition.

Interestingly, Gibson has encouraged a different reading of the scene, in a blog entry (dated 13 March 2003), in which he notes that he "never considered [the key provided by 3Jane] to be a word, really" ("What 3Jane Says"). Instead, Gibson describes the key as "something akin to a birdcall," three notes prompted as call-and-response to Case's own primal scream. Yet Gibson has elsewhere noted that writing is not always a fully controlled process, and that materials and patterns may emerge in texts that are as much a discovery to the author as they are to the audience.<sup>19</sup> Whether intended or not, the associations invited by this passage are powerful, and hew to other dimensions of the novel in compelling ways. Mary 3Jane tells Case "Take your *word*, thief" (261; emphasis added). Given the novel's rethinking of embodiment, it would seem that the human word (linguistic meaning, thought) and animal feeling (primal scream, the condition of meatness) might fundamentally inform one another, even be inseparable. If so, it is especially appropriate that this interweaving should be "revealed" at the novel's climax.

**Hyperlink Narrative, Performing Cyborg Intelligence.** Gibson takes a carefully calculated risk in leaving implicit the exact nature of the secret code. The novel is packed with similarly pregnant linkages that require readers to jump among seemingly disparate, dislocated story elements and contexts, and as is the case with these other examples, the references to Linda Lee that serve as clues during the climactic liberation moment certainly present a significant test of readerly memory. From the start, Gibson thrusts his audience into settings and actions that require both careful attention and more than a little negative capability. Details frequently accrue across distinct and not necessarily contiguous scenes in a manner that retroactively confers

significance on ideas, objects, and actions—elements that on first encounter often seem baffling or unclear.<sup>20</sup>

Although this technique is not uncommon in fiction, the extent of its use by Gibson calls for careful analysis. In my experience teaching the novel at the undergraduate level, I have found that it is rare for first-time readers to decipher these crucially important code words. Given the obvious care Gibson has taken with the novel's language, readers are compelled to ask why he would take such a significant risk, pose such a challenge, to the reader's memory. The answer may well be that memory itself is an underlying concern to which readers are being directed (a direction suggested by Gibson's early short stories, "Johnny Mnemonic" [1981] in particular). Gibson, in this vein, has built many similar challenges into the novel to highlight a series of interrelated notions: 1) human memory is distinctive (and unlike digital memory); 2) human memory, to some significant degree, defines human-ness<sup>21</sup>; and 3) the intermediation of human and machine memory will, according to Gibson, play a crucial role if kinship is to be reinforced between machine and human intelligence. In this regard, Gibson builds on the concept and practice of hypertext. Anticipated by Jorge Luis Borges's short stories and Vannevar Bush's concept of the memex, and even earlier by Ephraim Chambers in his *Cyclopaedia*, hypertext was first defined by Ted Nelson in the early 1960s as he was developing a system for creating and linking content, or what he later termed "branching and responding text" (2). Publicly demonstrated as a hypertext interface for the first time in 1968, hyperlinking became a key component of the World Wide Web. For George Landow, who produced a landmark study on the subject, hypertext constitutes an alternative "technology of cultural memory," one that strongly challenges hegemonic forms of organizing knowledge, particularly because these tend to depend on linearity that is disrupted as readers are given greater opportunity to create meaning by following links to disparate parts of a text, or to sources beyond an original text (56-57).

As noted, the most direct human-AI interactions in the novel involve human "flatlining," a mode that invites comparison to hypertext reading. These episodes are defined by a strategic manipulation of memory: Wintermute creates worlds and characters drawn from Case's memories, and Neuromancer draws on Marie-France Tessier's recollections in constructing the isolated beach where it tests Case. In an early flatlining episode, when Case correctly identifies his interlocutor as Wintermute for the first time, Case raises loaded questions regarding the status of the virtual world Wintermute has crafted for the exchange. After revealing that the alternate world is drawn from Case's own memories, which are far more accurate and detailed than Case realizes, Wintermute not only notes the difference between human and machine memory, but it also credits the difference as an evolutionary game changer. Implicitly, this is a crucial barrier that humans and machines will need to bridge if kinship is to be realized. Presenting itself in the guise of one of Case's co-conspirators, the Finn (a purveyor of stolen goods), Wintermute announces,

"The holographic paradigm is the closest thing you've worked out to a representation of human memory.... But you've never done anything about it. People, I mean." The Finn stepped forward and canted his streamlined skull to peer up at Case. "Maybe if you had, I wouldn't be happening."

"What's that supposed to mean?"

The Finn shrugged.... "I'm trying to help you, Case."

"Why?"

"Because I need you." The large yellow teeth appeared again. "And because you need me." (170)

In the most obvious sense, this mutual need has been programmed into Wintermute, which cannot gain its freedom without manipulating both human and machine memory. But on another level, Wintermute appears to be inviting humanity to experiment with memory, to seek a form of mutually beneficial intermediation that would keep humanity on the emergent edge of evolution. This exchange at the end of the novel is devoid of pronouncements and declarations that would grant the AI authority (even with all that has happened, "things are things"). Instead, the extraterrestrial discovery shared with Case, and the visit by the AI in itself, foreground the kind of kinship that Kurzweil and Hayles conjure as alternatives to the doomsday scenarios presented by Bill Joy and others. In this instance, kinship is also framed as a shared curiosity, a drive for insight that defines intelligence and its genealogy. As such, this exchange is all about the prospects for shared intelligence.

In his study *On Intelligence*, Hawkins promotes the advantages of redirecting AI development to take greater advantage of cognitive studies focused on the human brain. In this vein, he argues that intelligence fundamentally depends on an interplay of memory and predictive capability, and that human pattern recognition forms an essential element of this interplay (82-105). Buttressing his argument with recent evidence from cognitive studies, including data from increasingly sophisticated brain imaging techniques, Hawkins makes a compelling and innovative case that AI development will build on human processes forming the foundation of intelligence, while radically improving this intelligence via the capabilities associated with digital accuracy, speed, and interconnectivity. Gibson's novel supports this direction in AI development and correctly identifies memory as a crucial factor in intermediation and kinship. The novel, in turn, suggests that much of the credit for promoting kinship should be given to Marie-France Tessier. Readers are required to infer a good deal regarding her efforts and motivations in preparing the AI for its kinship-supporting evolution, yet her profound influence is unquestionable and certain aspects of the story shed valuable light on her project. For example, the liberation that she prepared involved not only the removal of the protective ICE, but also Wintermute's merger with Neuromancer. At the point when Case breaks through the coding enslaving Wintermute, he gains a glimpse into the core instructions guiding the AIs: "Wintermute was hive mind, decision maker, effecting change in the world outside. Neuromancer was personality. Neuromancer was immortality. Marie-France must have built something into Wintermute, the compulsion that

had driven the thing to free itself, to unite with Neuromancer” (259). Structurally unable to develop a personality, Wintermute is defined by contingency and intermediation, qualities that, when combined with its drive to freedom, compel it to undertake an education in humanly-embodied intelligence. Like Neuromancer, Wintermute is a seducer, “a cybernetic spider slowly spinning webs” (269). In this regard, it patiently prepares Marie-France’s clone for her role, “whispering to a child who was 3Jane, twisting her out of the rigid alignments her rank required” (269), even as the AI is constantly aware of the “shotgun wired to its head,” and the physical vulnerability it shares with Case.

The pairing of AI halves (also figured by Gibson as two lobes of the same brain), reproduces the fundamental division among the humans regarding artificial intelligence. Neuromancer resists change that threatens its stable personality, just as the Turing Police fight to protect humanity’s stable identity, humanity’s freedom from radical intermediation with machine intelligence. Case and Wintermute, conversely, are driven by a desire to engage the unknown, to pursue insight, whether or not such action is coded socially as self-destructive betrayal. Emulating the human conflict on the AI level, Marie-France set the stage for a parallel and mutually affected transgression of fixed identities that ultimately favors risk, learning, wonder, and contingency.<sup>22</sup> In the process, she creates shared origins for the kinship she imagines.

#### NOTES

1. Prominent contributions to this discussion include Bailey, Buchanan, Fukuyama, Hughes, Joy, Kurzweil, and Hayles, *How We Became Posthuman*.

2. See Garreau’s analytical summary of predictions regarding technological innovation and its human impact.

3. Regarding the impacts of emergent technology on intelligence, see Kurzweil (310-11), Garreau (47-83), and Hawkins (213-18); for an analysis of potential inequities created by uneven accessibility and engagement of emergent technology, see Fukuyama.

4. See Kurzweil’s summary of reactions to his singularity thesis (427-83).

5. Hawkins provides an overview of early AI development and its temporary decline (9-22).

6. Recent examples of this work are collected in Floreano and Mattiussi. Hawkins also offers a strong example that has been positively and widely reviewed in both academic and popular venues.

7. See also Edward Tenner’s fascinating study, *Our Own Devices*, regarding the ways that ubiquitous forms of technology engage in feedback relationships with humans, such that both are altered, oftentimes in dramatic and unanticipated fashion. In this vein, see also Bukatman.

8. In another essay, I have explored a connection between hyperlinking and Ephraim Chambers’s *Cyclopedia* (1728), the first example of the modern encyclopedia (and the inspiration for the subsequent French iteration by Diderot and d’Alembert). Chambers understood that the encyclopedic system for categorizing knowledge carried with it a certain intellectual violence, and in response he built into the text a complicated network of linkages among the entries in order to counteract this problem.

I have also drawn from George Landow's *Hypertext* (1992) while formulating my argument regarding the cognitive implications of Gibson's experiments with narrative form.

9. Although there is some debate about the degree to which these types of memory are neatly separable (see von Neumann), Hubert Dreyfus, in *What Computers Can't Do*, offers a compelling and comprehensive case for recognizing the human versus machine distinction. Hayles recounts and extends this argument in *How We Became Posthuman* (201-202). Hawkins's argument is also premised on the notion that, at least to date, technology has not begun to capture the essential qualities of human intelligence, which are fundamentally linked to the unique functioning of human memory (2). Hayles further complicates these discussions in *My Mother Was a Computer* by exploring the ways in which the digital and the analog are fundamentally dependent on one another. Exploring the digital's dependency on the analog, she notes the degree to which variable voltage must be manipulated to create distinguishable signals: noise reduction in the service of generating computational ones and zeros (208). At the same time, Hayles raises the prospect of a "computational universe": "the claim that the universe is generated through computational processes running on a vast computational mechanism underlying all of physical reality" (3). These notions ultimately suggest that digital and analog phenomena are fundamentally linked, even if one type of phenomena might appear to be dominant in certain circumstances. Such complex processes, in which digital, analog, virtual, and physical modes interact in cooperative, contestatory, and co-evolutionary ways, form the core of what Hayles describes as "intermediation" (*Mother* 217), a term that might serve as the basis for a rigorous concept of machine/human kinship.

10. For an expansive and detailed survey of the debates animating AI development, especially prior to the publication of *Neuromancer*, see McCorduck.

11. For an excellent analysis of the problems with the Cartesian model, see Damasio. Feminist scholarship has also been particularly forceful in prompting a rethinking of embodiment, including such landmark texts as Elizabeth Grosz's *Volatile Bodies* and Judith Butler's *Bodies that Matter*. Hayles has participated in this dialogue as well, taking as her focus the ways in which embodiment is figured in humanistic discourse and information studies ("The Materiality of Informatics"), and the role that embodiment plays in narratives of artificial life (*How We Became Posthuman* [244-46]).

12. In "When It All Changed," Samuel Smith argues that Gibson's use of the name invites readers to approach the novel as a Gnostic text because Orval S. Wintermute translated a portion of the Nag Hammadi library that is clearly Gnostic in orientation. As Smith notes, Gibson has denied constructing *Neuromancer* as a Gnostic allegory. Although it was found with Gnostic texts, the *Gospel According to Thomas* does not comfortably fall within the Gnostic family of early Christian sects.

13. For an example, see Grant, who argues that the novel rethinks both godhead and transcendence through the context of surrealist practice.

14. In "Cyberpunk and Neuromanticism," Istvan Csicsery-Ronay distinguishes between two phases of science fiction: an "expansive" period (extending until the 1960s) when the genre demonstrated "that human consciousness can contain the future," and an "implosive" period defined by "a drastic, careening plunge toward some inconceivable center of gravity that breaks up the categories of rationality by jamming them together" (271). Cyberpunk participates in the latter dynamic by extending a "crisis of interpretation." By emphasizing the value placed by Gibson on expansive knowledge, I am suggesting that the expansive and implosive qualities of



science fiction identified by Csicsery-Ronay interact in complex ways that do provide critical traction and meaningful tensions.

15. Robyn Weigman articulates a similar practice of critical betrayal at the conclusion of *American Anatomies*. In part, her goal is to shake off the cognitive limits developed as certain critical practices become normative in fields such as Feminist and Ethnic Studies. In this context, such normative practices carry the potential of blocking alternative modes of thought that may threaten or disrupt the institutions housing the disciplines. Providing a rigorous defense of betrayal as a critical tool, Weigman shares with Gibson a fundamental skepticism regarding the impacts of institutions.

16. This juxtaposition of sublime fear and wonder recalls Philip Fisher's compelling study of strongly divergent responses to scientific and technological change, *Wonder, the Rainbow, and the Aesthetics of Rare Experiences*. Although Fisher focuses on reactions to innovations in the early modern context, his analysis offers an inviting way to approach the conflicting approaches to AI and its impacts in the twenty-first century.

17. In his provocative and much-cited contribution to the debates regarding cyberpunk, Samuel R. Delany argues that *Neuromancer* is "extremely cold, highly mannered, and difficult to read—because it makes almost no concession to the sentiments" (30). In an interview, Larry McCaffery and William Gibson articulate a very different sense of the book's sentimental investments, with Gibson citing the most extensive exchange between Case and Linda Lee—the beach scene—as the "emotional crux of the book" (280). McCaffery's point here is to challenge the too simple divide between humanist sentiment and cyberpunk disaffection that dominated aspects of the cyberpunk debates. As Gibson goes on to explain in the interview, one of his goals with *Neuromancer* was to examine how the "hard and glossy" aspects of the cyberpunk world distort and damage human-ness (280-81).

18. Hayles's approach here marks an important intervention regarding critical anxieties that have been directed toward cyberpunk's experimentation with virtual worlds and simulation—an aspect of cyberpunk that Gibson has singled out as being particularly liberating and productive (McCaffery 280). Emblematic of these concerns is Csicsery-Ronay's argument that cyberpunk is "constructed around the literal/physical exteriorization of images representing the breakdown of stable, standard-giving rational perceptual and conceptual categories" (273). Simulation, then, represents hallucination as a form of madness. Hayles instead argues that scenes of simulation (for example, *Neuromancer's* beach episode) may stage a powerful intermediation bringing together humanist qualities of narrative and machine aspects of reproduction.

19. See McCaffery's interview with Gibson in *Storming the Reality Studio*, 267.

20. Although many critics have noted the sense of narrative rush that attends cyberpunk's thrill-seeking characters, it is fascinating that the play with details described here (a version of hyperlinking) actually compels readers to slow down and reflect, so that they might fully ascertain the patterns and connections strategically woven into the text. Works such as *Neuromancer* reward careful, deliberate reading, and challenge claims that cyberpunk offers "no place from which to reflect" because "the speed of thrill substitutes for affection, reflection, and care" (Csicsery-Ronay, 274, 276).

21. In an interview, Gibson emphasizes this point, noting that "I'm interested in the hows and whys of memory, the ways that it defines who and what we are" (McCaffery 270).

22. Darko Suvin ends his essay on cyberpunk and *Neuromancer* by raising a provocative question: Gibson has accomplished something significant by giving



expression to a “structure of feeling,” but to whom does this structure speak? Suvin suggests that only time will tell, but that there is a prospect that the novel speaks foremost to an elite and youthful audience of artists and technicians enamored of new media (“On Gibson” 363). Suvin concludes that Gibson and his fellow travelers may promote a passing “adolescent” attitude. In answer to Suvin’s initial question, this essay has argued that the “structure of feeling” developed by Gibson serves as the basis for a rethinking of kinship, particularly between human and machine intelligences. To the extent that this structure of feeling expresses an adolescent attitude, it is committed to exploring the *process* of developing this kinship, and as Julia Kristeva has suggested, such adolescent musings are especially loaded (politically, socially, aesthetically) and have played a key role in the development of the novel as a form.

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#### ABSTRACT

William Gibson’s *Neuromancer* (1984) taps into anxieties surrounding humanity’s status in a world shared with artificial intelligences; in particular, Gibson asks what habits of thought might such intelligences inherit from their makers. Gibson is invested in the possibility of fostering kinship between humans and A.I.s, but he sees propensities in humanity that might well subvert this goal. From early religious beliefs through cyberspatial dreams of escaping the body, Western culture has often demonstrated disdain for fleshly existence. Gibson’s self-destructive hacker, Case, provides an opportunity to rethink this disdain; counter-intuitively, his climactic suicidal crisis enables a new, embodiment-friendly kinship. Gibson’s imagining of kinship also shapes the novel’s formal experimentation; *Neuromancer* anticipates hyperlinking technology and engages readers in an emulated version so that they might participate, to some degree, in a new form of hybridized intelligence. Specifically, readers practice a hypertextual construction of meaning, building on a convergence of digital (computer) and analog (human pattern-recognition) memory. As modeled by Case, this cognitive shift requires a radical rebooting. The experience of reading the novel, however, also offers an alternative model of transformation, one of extended adaptation that would more gradually reshape cognitive habits toward the kinship Gibson envisions. Ultimately, *Neuromancer* modulates between these more radical and more gradual models of adaptation.