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Article:

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Beyond Prosthetic Memory:
Posthumanism, Embodiment, and Caregiving Robots

Literary and cinematic speculations about the future of care, read in tandem with the rising prominence of actual robotic caregivers, like Paro, Robear or Babyloid, foretell a future in which human interaction is no longer an inevitable feature of care relations. The appearance of such robots has much to say about the meanings and personal and cultural politics of care. "Robots," writes David Lin in the 2012 collection *Robot Ethics*, "are often tasked to perform the 'three Ds,' that is, jobs that are dull, dirty, or dangerous" (4). The etymology of the term confirms these negative connotations. First appearing in Karl Čapek's 1920 play *R.U.R.: Rossum's Universal Robots*, "robot" comes from the Czech word *robota*, which translates to 'drudgery' or 'forced labor'" (Petersen 283). In addition to doing what humans don't want to do, robots are often designed to complete tasks beyond human ability, making up for "human frailties and limitations" (Lin 4). Keeping Lin's taxonomy in mind, the explosive growth in the application of contemporary robotics to caregiving, including nursing care robots, therapeutic robots, companion robots, and assistive social robots, raises questions about the particular hardships of care. Is caregiving dull, dirty, dangerous, or perhaps all three? For an experimental nursing-care robot like Robear (fig. 1) built for wheelchair transfers, the danger it is designed to eliminate is obvious since lifting patients can injure health care workers. However, when we consider therapeutic or companion robots like Paro (fig. 2) and Babyloid (fig. 3) the hardship or risks obviated by technology are more ephemeral. At first glance, Paro's role doesn't seem seemingly particularly onerous: it gives care by accepting it; users can touch, cuddle and talk to Paro, who will respond with sounds and

movement. Paro responds to its environment and to the actions of its users: it will repeat behaviors that lead to positive responses and avoid behaviors that elicit negative reactions. Returning to Lin's classification, while it is not obviously dangerous or dirty, one could argue that being present for and responsive to its human users makes Paro's work a dull assignment. Demographics in the technologically developed world exacerbate the growing importance of this assignment. In many countries, especially Japan where Paro was designed, low birth rates contribute to the paucity of available caregivers. Japan's demographics are notably imbalanced. Senior citizens currently make up 25% of the population (Kyodo), making robot caregivers an especially attractive technological intervention. But in North America there is also a growing need for care for the elderly. In Canada, projections suggest 31% of the population will be 60 or over by 2050 ("Age Watch"), whereas American projections suggest 20.9% of the population will be over 65 by 2050 (West et al. 5). As Canada and the United States approach Japan's age demographics, robot caregivers are likely to play a more prominent role in eldercare.

Posthuman relationships evoke a future in which humans could be dependent not on one another, but on robots or other non-human entities. Non-human care raises a number of ethical and ontological questions: What are the risks and benefits of robotic interventions that seek to engender affective ties between objects and their users? How might these technologies influence the meaning and function of care and relationality? Moreover, how might such relationships transform the meaning and function of the human animal? This paper considers the implications of robotic care, the political and philosophical debates inspired by posthuman interventions into human vulnerability alongside a particular speculative representation of posthuman care, the 2012 film *Robot*

and Frank. I begin by outlining arguments social scientists make for and against caregiving robots, before examining the ontological assumptions that underpin both positive and negative reactions to posthuman affective relations. In Part 2 I look to posthumanism and feminist philosophy of care to help illuminate the cultural and philosophical significance of posthuman care, both actual and imagined. Part 3 analyzes *Robot and Frank*, a film about the relationship between an older, memory-impaired man and Robot, a "healthcare aid programmed to monitor and improve [his] physical and mental health," that engages many of the debates and anxieties surrounding the turn to robotic care and the possibility of a posthuman, and perhaps posthumanist, future. *Robot and Frank* demonstrates how the intimacy of human/machine care relationships can supply posthumanist insights into the illusion of human invulnerability and exceptionalism that obscure the heterogeneity of embedded and embodied subjects. Not only does the film dramatize the fundamental anxieties caregiving robots incite, it offers provocative posthumanist critiques of human exceptionalism, conjuring haptic affects that trespass the boundaries between humans and machines.

Part 1: Assistive Social Robots (and Their Discontents)

Visually and aurally patterned on a baby seal, Paro is a white and fuzzy robotic doll designed to elicit affection and goodwill from its users. Unlike other caregiving robots, Paro simulates animalistic vitality and vulnerability in order to create intimacy and care between user and robot. Robots like Paro make the posthuman care provided by animals, often called animal-assisted therapy, or more colloquially, "pet therapy, " appear antiquated. As the Paro web site explains, "[Paro] allows the documented benefits of animal therapy to be administered to patients in environments such as hospitals and

extended care facilities where live animals present treatment or logistical difficulties."
The vitality of the companion animal supplying pet therapy can be replicated and its
unpredictability, fallibility, and mortality remedied through the technology of robotics.[1]
Paro's simulation of life is so powerful, reports Robert Ito, "[i]n one study, a few people
in two nursing homes seemed to believe that the Paro was a real animal; others spoke to
it, and were convinced that the Paro, who can only squeak and purr, was speaking back to
them." In the case of Paro, there is a kind of robotic sleight of hand in which the
caregiving robot delivers care by eliciting it from its users.

There is clear evidence demonstrating the health benefits of robot care. In their
2009 literature review, Joost Broekens, Marcel Heerink, and Henk Rosendal found
notable positive outcomes related to assistive social robots used for elderly care. Their
review of forty-three citations demonstrates that caregiving robots lead to improvements
in mood and immune system response and the diminishment of loneliness and stress in
elderly recipients of care, with some studies also attributing a decrease in symptoms of
dementia to robot interaction (98-100). Robot ethicists also delineate hypothetical
benefits for human caregivers, suggesting that robot caregivers might diminish the strain
of care work for their human counterparts, a respite that could mitigate the inferior
caregiving that can result from overwork or incompetence (Borenstein and Pearson;
Sharkey and Sharkey; Sparrow and Sparrow).

However, as Sherry Turkle explains, "We are psychologically programmed not
only to nurture what we love but to love what we nurture" (11), a predisposition that, she
argues, makes us vulnerable to technological attachment. Turkle is wary of the
"simulations of love" offered by "sociable robots," especially at the "robotic moment"

(10), when people are emotionally and philosophically "read[y]" to connect with robots as friends and companions. "We don't seem to care," Turkle argues, "what these artificial intelligences 'know' or 'understand' of the human moments we might 'share' with them. At the robotic moment, the performance of connection seems connection enough. We are poised to attach to the inanimate without prejudice. The phrase 'technological promiscuity' comes to mind" (9-10). Turkle's phrasing – in a recent documentary she called Paro an "inappropriate use of technology" -- implies that there is something indecent or immoral, perverse about relationships between humans and machines. Why, for Turkle and others, does the prospect of robotic companionship inspire such unease? Why is it "inappropriate"? The specter of robotic hybridity challenges species boundaries. Not only is Paro a *machine* able to effect human affect, it is a distinctly *animal*-inflected machine. Turkle's comments echo the discomfort that "excessively" intimate human/companion animal relationships can inspire. This closeness appears "inappropriate" due to the "inevitable disjointedness and non-similarity" between humans and what Alice Kuzniar calls "extimate species." By "extimacy" she refers to "that which is exterior to one yet intimately proximate. At the same time, it is precisely the intimate nature of this affiliation that remains unspoken, in fact, at times unutterable, verging on a social taboo, because the dog is often considered an inferior replacement for human love" (Kuzniar 7-8). Concerns about relationships and identities that appear to transgress species boundaries raise the specter of queer, destabilizing intimacies that cast doubt on the very condition of the human. As Donna Haraway points out in *The Companion Species Manifesto*, "Cyborgs and companion species each bring together the human and nonhuman" (4). Indeed, she regards cyborgs as "Junior siblings in the much bigger, queer

family of companion species" (11). I propose that the skepticism and dread espoused by Turkle and other opponents of robotic care reflects underlying anxieties about the crumbling boundaries of the human, as I explain further in Part 2.

Even ethicists who acknowledge the potential advantages of robot care are cautious in their optimism, warning about potential deleterious effects that echo Turkles's misgivings. For example, Jason Borenstein and Yvonne Pearson suggest that although caregiving robots could help abolish obligatory, often begrudging human care and provide relief for overworked and exhausted caregivers ("Robot Caregivers: Ethical Issues" 257-8), "it is crucial to emphasize that no matter what benefits the technology is perceived to have, a robot should be viewed as a complement to human caregivers, and not as a replacement for them" (256). As Linda and Robert Sparrow point out, "it is naive to think that the development of robots to take over tasks currently performed by humans in caring roles would not lead to a reduction of human contact for those people being cared for" (Sparrow and Sparrow 152). As much as robots might alleviate the burdens and strain of caregiving, there is an equal risk that such assistive technologies will reduce, even eliminate human contact in vulnerable populations, particularly the elderly and impaired. In effect, technologies might improve physical safety while at the same time diminishing human interaction, leading Amanda and Noel Sharkey to wonder if robots might produce a "paradoxical" situation in which improving one aspect of care produces deficits in another area (277-8). Indeed, therapeutic or social robots are unsettling not only to Sherry Turkle, but to many ethicists, philosophers, and health care workers for their ability to replace or marginalize human caregivers. For example, an article appearing in the *Wall Street Journal* describes the controversy Paro has inspired and the

opposition some American doctors have mounted against the use of robots for affective care, the fear that, as one geriatrician puts it, "if we wind up with nursing homes full of baby-seal robots, the robots will be trying to fulfill the relationship piece of caregiving, while the humans are running around changing the beds and cooking the food" (Rooney). As the doctor makes clear, he has no objections to robot's performing, what he terms "mundane tasks associated with caregiving, such as vacuuming or doing the dishes"; however, he draws the line at affective technologies. In other words, robots should remain true to their etymological roots, focusing on "drudgery," not care.

Granted, due to their necessarily task-oriented design, caregiving robots, whether utilitarian or social, threaten to divide caregiving into labour and emotion, a bifurcation at odds with ethics of care philosophy. Over the last several decades, care has been a pivotal idea for feminist philosophers seeking an alternative to traditional, masculinist moral philosophy. In opposition to moralities based on autonomy and individualism, ethics of care stresses dependency and interrelationality (Held 10). The visions of care offered by ethics of care philosophers, including Carol Gilligan, Nell Noddings, Eva Kittay, and Virginia Held, vary widely, providing a range of definitions, descriptions and prescriptions for care. But there is some general agreement that care is fundamental both to survival and identity, that it is, or at least should be, "good" for both the giver and the receiver, and that it involves both action and emotion. For some, like the concerned geriatrician cited above, the robotic bifurcation of affect and labour risks exaggerating the marginalization of care workers, transforming them from caregivers into caretakers, that is, from carers to housekeepers. However, one wonders how much insight a (male) doctor has into the day-to-day challenges of the kind of caregiving he describes, that is, the

tedious labor of household chores, or the often exhausting emotional demands of attentive companionship? His concern that caregiving robots will hog all the caring, while "humans are running around changing the beds and cooking the food" begs the question: who does he think runs around changing beds and cooking food now? These are not the responsibilities of doctors. As ethics of care philosopher Eva Kittay points out in her analysis of the vulnerability of dependency workers, "Care of dependents— dependency work—is most commonly assigned to those in a society with the least status and power" (6). I don't want to discount the possibility that caregiving technologies like therapeutic robots could pose a threat to the livelihood or job satisfaction of already marginalized care workers. However, at the same time, I think it is important not to overstate or romanticize the innate satisfactions of dependency work. This work is incontrovertibly valuable, nay essential for human survival, identity, and quality of life, but it is emotionally and physically taxing *work*, work frequently undertaken by disenfranchised members of society. As professor of geriatrics Louise Aronson wrote in a 2014 op-ed for the *New York Times*, "Caregiving is hard work. More often than not, it is tedious, awkwardly intimate and physically and emotionally exhausting. Sometimes it is dangerous or disgusting. Almost always it is 24/7 and unpaid or low wage, and has profound adverse health consequences for those who do it. It is women's work and immigrants' work, and it is work that many people either can't or simply won't do." Lin's "3 D's" come to mind: caregiving is dull, dirty, *and* dangerous. Aronson concedes that a "kind and fully capable human caregiver" might be preferable to a robot, but caregiving robots are better than an "unreliable or abusive person, or than no one at all."

The emotional dimensions of caregiving require a degree of engagement and response on the part of human caregivers that a host of factors may inhibit; working conditions or competing responsibilities can reduce the time, energy, and attention available for care. Companion robots like Paro appeal to the desire for affective reciprocity, fabricating a relationship in which users are able to simultaneously receive and *give* care. Robots, such as Paro, usurp what many assume are exclusively human prerogatives of caregiving -- affection, intimacy, even love – destabilizing humanistic models of care that privilege human-to-human relations as uniquely authentic and meaningful. In addition to concerns that this robotic ability to create affective connections could have deleterious repercussions for human care*givers*, there are also concerns, like Turkle's, that care *receivers* will be short-changed by robotic care. Even caregiving professionals, such as Heidi Zimmermann, director of social services at an extended care facility, who welcome the benefits of robots "are wary of entirely non-human care," insisting on the importance of a "good balance of technology and heart . . . Our seniors are more and more interested in technology in general, but nobody wants to lose the *personal touch*" (emphasis added, Ahern). Underlying such responses to robotic care is the assumption that good care requires emotional motivation; in other words, good care is human care. It may be reassuring that professional caregivers like Zimmermann regard "personal touch" as indispensable to care, but the pervasiveness of "unreliable or abusive" care, of begrudging, frustrated, coerced, or marginalizing care, reframes the ethical questions surrounding posthuman interventions. In other words, robots lack heart and spleen in equal measure.

Those who express suspicion and skepticism at the prospect of affective machines like caregiving robots tend to sidestep the difficult politics of emotional labor. Over the last decade, affect studies has highlighted the philosophy and politics of what are commonly called emotions and feelings. The field is characterized by varying definitions of, and approaches to the study of embodied affects, including those that draw firm distinctions between emotions and affects (for example, see Massumi), and those that see significant overlap between the two (for example, see Woodward). For my own purposes, a definitive definition of "affect" as a psychological state, or as a pre-conscious, autonomic "visceral perception" (Massumi 60) is less important than its general association with distinctly embodied, interrelational states of being: "Because affect emerges out of muddy, unmediated relatedness and not in some dialectical reconciliation of cleanly oppositional elements or primary units, it makes easy compartmentalisms give way to thresholds and tensions, blends and blurs" (Gregg and Seigworth 4). Affect is linked to unpredictability, becomings, capacities; it is "'a body's capacity to affect and be affected,' where a body can in principle be anything," emphasizing the inextricability of corporeality and affective states (Anderson 9). In other words, for affect studies theorists, hearts, spleens, skin, *all* the body's organs and senses, are implicated in registering and *creating* affects. As such, affect studies, like ethics of care philosophy, insists on embodied subjects as interrelational and interdependent: "With affect, a body is as much outside itself as in itself--webbed in its relations – until ultimately such firm distinctions cease to matter" (Gregg and Seigworth 3).

Affect studies draws attention to the sociopolitical dimensions of affect, attending to the artificial distinction made between cognition and affects, to the gendering and

sexualizing of affects, their inequalities and their economization and commodification. Caregiving robots participate in, indeed, highltight, this kind of affective labor market. Michael Hardt explores the power dynamics of affective economies in his treatment of "affective labor," a term he uses to describe labor that is immaterial and at the same time "corporeal and affective, in the sense that its products are intangible: a feeling of ease, well-being, satisfaction, excitement, passion-even a sense of connectedness or community" (96). Patricia Clough expands on the gross inequalities involved in affective economies, which depend on the disposable bodies. As Clough explains, "Some bodies or bodily capacities are derogated, making their affectivity superexploitable or exhaustible unto death, while other bodies or body capacities collect the value produced through this derogation and exploitation" (25-26). Who deserves care? What is care worth? And whose caregiving, or "affective labor," is essential, valuable, irreplaceable, expendable, or disposable? Caregiving robots implicitly engage these and other questions of value and work, drawing attention to caregiving as affective *labor*, part of a broader affective economy that trades on companionship, emotion, support, love, and assistance. Caregiving robots can expose the inequality that underpins affective economies. As Sarah Ahmed maintains, "To be affected by something is to evaluate that thing. Evaluations are expressed in how bodies turn toward things. To give value to things is to shape what is near us" (31). Being affected by robots is an evaluation, not only of the robots themselves, but of the very processes of affectivity, of dependency and care.

Part 2: Posthumanist Care

Anxiety regarding the risks of overly "successful" caregiving robots reflects the threat such technologies pose to humanistic epistemologies. How is one supposed to

know and recognize what constitutes the human if machines usurp supposedly unique human abilities, behaviors, and roles, taking on not only the labor of care, but its affects as well? However, anxiety is not the only response. Caregiving robots have the potential to help usher in a posthumanist, post-anthropocentric perspective that elides categorical distinctions between human and machine. Rosi Braidotti sees affirmative potential in the opportunities for new forms of subjectivity offered by "the normatively neutral structure of contemporary technologies: they are not endowed with intrinsic humanistic agency" (45). As a self-avowed "technophilic" (58), she cautions against "nostalgic longings for the humanist past" (45), expressing instead an "upbeat" philosophy that anticipates with relish the revisions to subjectivity and subject-formation wrought by post-anthropocentricism and the technological mediation of posthuman subjects (58). Braidotti draws attention to the "transversal" interconnections that produce the posthuman subject as "an expanded relational self" (60). She acknowledges the concerns expressed by both popular representations and social theory that conjure dystopian posthuman futures, but regards such panic as part of a problematic humanist legacy, preferring to see the advantages of a future in which the centrality of the human is thrown into question.

Though less technophilic, Katherine Hayles shares Braidotti's enthusiasm for a posthumanism that dismantles, rather than reasserts the fantasy of the liberal humanist subject. The resilience of this fantasy is partly what stirs anxiety over caregiving robots. In Hayles's fascinating analysis of the posthuman and virtuality, the posthuman "human-computer interface," what she terms the "splice," inspires fear and dread only "as long as the human subject is envisioned as an autonomous self with unambiguous boundaries" (290). In other words, the splice inspires fear only so long as the liberal humanist subject

remains ascendant. Posthumanists like Hayles and Braidotti insist that the clear demarcations between human/machine/animal are illusory, thereby undermining the distinction and exceptionality of the human subject. As Braidotti contends, "Individualism is not an intrinsic part of 'human nature', as liberal thinkers are prone to believe, but rather a historically and culturally specific discursive formation, one which, moreover, is becoming increasingly problematic"(24). In this sense, the goals of these feminist posthumanists and feminist philosophers of care align: both groups are preoccupied with exposing the damaging fiction of the independent, autonomous, rational humanist subject that obscures human/animal/technology interdependence and interrelationality. The liberal humanist belief in discrete, autonomous, human selves relies on what Hayles identifies as "a division between the solidity of life on one side and the illusion of virtual reality on the other, thus obscuring the far-reaching changes initiated by the development of virtual technologies" (290). A belief in clear distinctions between everyday and virtual realities leads us to regard breached boundaries as dangerous, fearful dissolution, whereas, Hayles insists, an understanding of the human as embedded in systems and structures allows us to recognize the integrity of convergences, hybridity, the splice (290). Like Donna Haraway before them, Hayles and Braidotti contend that the non-human is always already incorporated in the human, and that we are, as a result, already posthuman, complicating the ontological panic that human/machine relationships often provoke.

However, posthumanism is a vexed concept since it can be used to refer to contradictory visions of technology as undermining anthropocentrism or reinforcing it. Consequently, posthumanist perspectives on robots can offer a wide range of

interpretations. On the one hand are those who delight in the prospect of a transcendent posthuman existence that allows human cognition to escape the shackles of embodiment. Cary Wolfe and others call this perspective "transhumanist" (xv), while Eugene Thacker refers to it as "extropianism": "Extropians also take technological development as inevitable progress for the human. The technologies of robotics, nanotech, cryonics, and neural nets all offer modes of enhancing, augmenting, and improving the human condition" (75). There is a kind of ironic futurism in such fantasies, which delight in a posthuman future based in nostalgic humanist ontology, on the distinction between cognition and embodiment as the foundation of the human. On the other hand are those seeking to demonstrate why such transhuman fantasies of human perfection via technology are misguided, even destructive, since human embodiment -- our materiality, our animality, our dependency -- is fundamental, constitutive of cognition and being. For ecofeminists, ecocritics, and animal studies theorists, the term posthumanism often describes a radical "decentering of the human in relation to either evolutionary, ecological, or technological coordinates" (Wolfe xvi). Within this second strand of posthumanism, what Pramod Nayar terms "critical posthumanism," human corporeality makes us irrevocably dependent and interdependent, embedded within ecological and technological systems, rather than independent of them. Posthumanists like Hayles, Nayar, Braidotti, Haraway, Cary Wolfe, and others, regard the dissolution of human distinction as a positive dismantling of a destructive illusion since the belief in human exceptionality results in dangerous hierarchies of being that deny human animality, obscuring our ecological embeddedness, our embodied vulnerability. Critical posthumanism seeks to reverse this denial. It does not promote the crossing of boundaries

between human and non-human elements, but rather exposes how the human is always already implicated in the nonhuman, and vice versa. Posthumanists, taking their cues from poststructuralist theory, explain that the human is dependent on the nonhuman for its categorical existence; we erect structural boundaries and distinctions to shore up the illusion of human exceptionalism. Critical posthumanism seeks to interrogate and dismantle these boundaries. Robot caregivers threaten to expose the precariousness of the humanistic view by showing us that non-humans might be very good at being "human." Without clear boundaries between humans and their non-human others, whether they be animal, machine, viral, or some combination of the three, the exceptionality of the human crumbles.

Part 3: Posthuman Care on Screen: *Robot and Frank*

The 2012 film *Robot and Frank* engages many of the debates and anxieties surrounding the turn to robotic care and the possibility of a posthuman, and perhaps posthumanist, future. The film concerns the relationship between the title characters: the elderly Frank and his caregiving robot. Frank is a former burglar whose memory problems and inability, or unwillingness to provide adequate self-care, are, according to his son Hunter, cause for concern. Hunter's solution to his father's problem – the inability to look after himself -- (which is, of course, simultaneously, the solution to his own problem – the need to look after his father) embraces the posthuman.

The film is set in the "near future" in Cold Springs, New York, a bucolic small town surrounded by lush forests. The film's color palette is composed of rich and tastefully muted earth tones bathed in a bluish light. Its frames are elegant, balanced in form and color, resulting in a mise-en-scène that is picturesque, conventionally rather

than conspicuously artful. This is a near future with soft edges and soothing colors where everything, besides Frank's house pre-Robot, looks clean, if gently worn. There are none of the usual trappings of futuristic fictions: no spare monochromatic furnishings, no sharp angles and sterility. Consequently, this vision of the future looks very much like an idealized version of a small-town American past. Within this nostalgic mode, the specter of humans superseded by machines appears, at least initially, to be a lamentable imposition, part a larger trend of loss. Indeed, just as human caregivers are being replaced by artificial life forms, so are material forms of information, in particular, the Cold Springs library books and magazines, being replaced by virtual data (Fig. 4). These plot developments, like the film's visual style contribute to its nostalgic tone, which mourns the receding power of humanistic epistemologies and ontologies.

And yet, the robots in *Robot and Frank* aren't so bad. The film isn't all foggy-eyed nostalgia and futuristic dread. Frank's robot is a talented caregiver able to supply the labor and affect of care in ways his human counterparts, particularly Frank's adult children, can't or won't. Robot is a hard-working, devoted companion, not only laboring as a housekeeper who cooks and cleans, but encouraging Frank to pursue any activity that might improve his cognition and overall health. Scenes of Frank and robot taking walks emphasize Robot's artificiality, his body conspicuously unnatural on the verdant forest path. This incongruity is similarly pronounced when he accompanies Frank on a reconnaissance mission in preparation for Frank's final heist (fig. 5): a crime planned as vengeance against the so-called "yuppie twit" responsible for the devastating transformation of his beloved library. In these scenes of pastoral surveillance, the mark, Jake, is the caricature of a vapid, virtual future. Jake looks like a fool inside his

rigorously modern house, playing the virtual drums, seemingly oblivious to the natural

beauty that surrounds him (fig. 6). Frank, on the other hand, is visually aligned with

nature. The scene opens with a long shot of Frank and robot. Frank, seated, wears a

hunter green shirt that blends with his environment. The image is painterly, the pair

surrounded by sun-dappled trees. The soundtrack is understated, ambient, hypnotic. The

contrast between Frank, integrated into the organic world, and Jake, sealed off from

nature and engrossed in the virtual is obvious, as is Frank's disdain for Jake and his

simulated life. However, Robot's position within this opposition between natural

materiality and unnatural virtuality is complicated. He is positioned beside Frank, but

visually set apart by his conspicuous whiteness, the gleam and shine of his inorganic

form incongruous among the muted, shadowy greens, greys, and browns. The

conversation between the pair accentuates Robot's ambiguous position. When asked why

he was unable to converse with another robot at a party the two attended, Robot explains

that he only does what he is programmed to do. Assisting Frank is his first priority at all

times. Indeed, Frank learns, Robot is more concerned with Frank's health than his own

survival, a revelation that disturbs Frank. Robot describes his difference via Descartes'

cogito: "you know that you're alive," he tells Frank, "you think therefore you are. In a

similar way I know that I'm not alive." Frank is unnerved: "I don't want to talk about

how you don't exist," he responds, "It's making me uncomfortable." However, Frank's

comments obscure the very incongruity that is so unsettling: Robot does indeed exist; yet

he is not alive, challenging the Cartesian equation of cognition with life. Robot's

comments conjure the artificial humanistic distinctions drawn between mind and body,

cognition and sensation that affect studies, posthumanism and ethics of care philosophy

interrogate and dismantle. In other words, this condition of non-living, artificial existence is the source of Robot's difficulty for Frank, and, by implication, the film itself since both espouse a nostalgically humanistic perspective that treats artifice and virtuality as foolish at best, reifying the autonomous, masculine, heteronormative, healthy, and able-bodied subject. It's no coincidence that Frank's increased vitality and improved cognition correspond with frequent, passionate recollections of a past marked by independence, agility, and heterosexual conquest. However, the fact that Robot, an artificial life form, is the catalyst for Frank's renaissance unsettles the film's structuring boundaries between reality and simulation, nature and artifice, human and machine.

Despite his artificiality, Robot is nonetheless embodied and socially embedded. His material presence is integral to his caregiving role: he gardens; he cooks; he cleans (he also picks locks and opens safes). In addition to providing the labor of care, he engages Frank affectively. Indeed, Frank refers to Robot as his friend and reacts with rage when he believes his daughter is exploiting Robot's labor: "The robot is not your servant," he bellows, "You don't turn him on and off like he's a slave!" Frank's allegiance to Robot eventually exceeds even his family ties. After the pair rob Jake, Frank is willing to use his unwitting son in an elaborate performance designed to outwit the police, but unwilling to leave Robot behind when he makes a run for it. Like his sister, Hunter regards Robot as merely a mechanical laborer, warning his father that Robot is "not your friend, he's a slave." The repeated association between Robot and slavery conjures a history of exploitation, dehumanization, and racism that complicates the film's posthuman politics, reminding viewers of the racialized, sexualized, gendered power dynamics that have historically organized the relationship between the privileged classes

and their affective laborers in the United States. But as it is raised this history is undercut or effaced by the unscarred lines and hygienic whiteness of Robot's physical presence.

Overall, the film seems highly skeptical of cybernetic modernity, the elimination of material objects and human relations in favor of disembodied information and artificial care. However, Robot escapes this censure. In fact, in many ways Robot is like Frank, marginalized and threatened by the young (taunted by children outside the library, dismissed by Frank's adult children), exiled to the periphery of this "near future" society. Frank is obsolete, a curiosity, a relic, as Jake reminds him. Robot is a manufactured "slave," unappreciated and expendable. This trope of Robot as slave at once confirms and critiques humanist hierarchies, the racist and sexist ideologies historically used to justify the subjugation of non-white, non-male populations as less-than-human. The film reanimates familiar master/servant narrative conventions, with Robot performing the role of the faithful subordinate willing to die for his heroic master, while at the same time disavowing the historical legacy of slavery in the U.S.

Robot's martyrdom appears towards the end of the film when Frank's nemesis is hot on his heels, seeking to use Robot's memory to prove Frank's guilt. Robot insists that Frank wipe his memory in order to protect himself. "I'm not a person," he assures Frank, "I'm just an advanced simulation." This scene is a fascinating visual and narrative climax to the film's posthuman scenario. Shot in a series of increasing close-ups, the scene involves a moment of human/machine intimacy and convergence that implies a breach of multiple boundaries and culminates in a close up of Robot and Frank in profile facing one another (fig. 7). This image is important narratively and symbolically, as well as promotionally – the profile shot is the most common image used in the film's marketing.

In place of a face, Robot has a mirrored visor that reflects Frank to himself, a metaphoric substitution (a mirror in place of a face) that signifies his programmed selflessness and servitude. The scene is an enactment of this selflessness: Robot insists that Frank "wipe" his memory to save himself from prison. Robot bows his head, a gesture of subservience and submission, which also bears traces of trust, affection, benediction. Frank must wrap his arm around robot to reach the deactivation switch at his back, resulting in a human/machine embrace that draws attention to Robot's materiality, the vulnerability of his embodiment (fig. 7). The film cuts to an extreme close-up of Frank's hand on the button that will erase Robot's memory, further emphasizing the pair's haptic intimacy. This close attention to these fragmented bodies – Frank's hand, Robot's operational console -- suggests haptic convergence between human and machine, organic and synthetic, old and new, worn skin and smooth surface**.**

For a moment, the screen is consumed by what Laura Marks terms the "haptic image," those cinematic images that "invite a look that moves on the surface plane of the screen for some time before the viewer realizes what she or he is beholding. Such images resolve into figuration only gradually" (162-3). Unlike "optic visuality," haptic visuality moves toward "considering the ways cinema appeals to the body as a whole" since the "haptic image forces the viewer to contemplate the image itself instead of being pulled into narrative," producing a "sensual engagement," an affective perception (163).[2] Robot and Frank's exchange evokes this kind of haptic communication on multiple levels, initially, there is "sensual engagement" between viewer and image as the audience is overtaken by the surface of the image, the contrast of colors, textures, and shapes onscreen that spectators register affectively before positioning it within the narrative

structure. In addition, the image's narrative significance draws on its representation of sensual engagement, which expresses the melancholic intimacy of Frank and Robot. As a result, the image manages to simultaneously embody and represent haptic affects.

The film cuts from this close up image of haptic intimacy, of hand and machine, skin and synthetic surface, entwined fragments of Robot and Frank bathed in sunlight, from this lightness, detail, and affinity to darkness, wide shot, and separation, depicting Frank and Hunter in an extended care facility shot in silhouette. Pastoral views are visible through the window. The soundtrack is sacred choral music. There is a series of shots depicting the reunification of Frank's family in a wooded grove, the hallowed non-diegetic music replacing all diegetic sound. The wordlessness of the scene, its slow-motion movements, the glow of the white table in the shadowy woods, heighten its sanctity, emphasizing the poignancy of the family's gestures of affection, love and care. The human family has been reunited, the goodness and naturalness of their love signaled by the scene's setting and style (its soundtrack, mise-en-scène, and editing).

In the analysis I've offered above, *Robot and Frank* appears to express anxiety and skepticism about the posthuman future, reinforcing the exceptionality of the human. Yet, there is an underlying ambivalence that destabilizes the binaristic, hyphenated oppositions that structure the film, oppositions between past and present, human and machine, real and artificial, embodied and virtual. Robot is, as he reminds Frank, not alive, he is only a simulation, yet he leaves powerful haptic, affective traces that haunt Frank in the film's final frames. The film's concluding scenes of the nuclear family's reunion and the reinstatement of its patriarch are followed by a final shot of Frank alone in the institution watching a robot identical to his own. In these final frames, Frank sees

many robots with their charges, underscoring the unexceptionality and artificiality of Robot. Nonetheless, we see traces of longing and regret on Frank's face, signs that, despite the glory of his familial harmony in the preceding scene, he mourns Robot's absence. The robots Frank observes cast doubt on exceptionality in a more general sense. It is not only Robot that is duplicated, un-unique. The residents the robots care for appear like replicas of Frank, lacking significant distinction or difference.

In its expression of unease towards posthumanism the film appears, initially, to reify a humanist, or at least anthropocentric perspective, representing Robot and other assistive technologies as charming inventions, automated servants that occupy a role cannily reminiscent of subordinates of the past. (Think of the trope of black nannies and housekeepers who dispense folk wisdom and care that aid the white protagonist, but remain steadfastly peripheral to the hegemonic white family narrative.) In its skepticism toward the vacuous transhumanism represented by the imbecilic Jake, the film appears to reject a posthumanist perspective and preserve the sovereignty of the human, in particular, the sovereignty of the white, male human patriarch. However, read against the grain, the film appears more nuanced in its treatment of posthuman possibilities. One can find critiques, albeit subtle and fleeting, of anthropocentrism in its portrayal of human inadequacy, the fallibility of human care. As a result, I argue the film offers an intriguing, if conflicted vision of posthuman interdependency.

Robot and Frank invokes the contested field of the posthumanism with its contrasting fantasies of disembodied information, cybernetics, and virtuality, on the one hand, and its insistence on embodied subjectivity and materiality on the other. The film conjures these debates in its conflicted vision of social assistive technologies, at once

anxious and celebratory, dismissive and curious. These contradictions recall the conflicting attitudes towards robotic caregivers expressed by ethicists, social scientists, and (human) health care workers. I recognize the need for both caution and optimism**.** In *How We Became Posthuman*, Hayles rewrites the foundational narratives of cybernetics to reinstate materiality, or more precisely, to reveal the materiality that the obsession with disembodied information obscures. Perhaps virtual life like Paro or Robot could be a part of that corrective narrative? These robots, real and imagined emphasize life, even virtual life, as embodied and embedded, posthuman subjects as relational and interdependent.

Part 5: Conclusions

In the first part of this essay I referred to health care worker Heidi Zimmermann's critical appraisal of caregiving robots as lacking "heart." I'd like to suggest that Zimmermann's image is more than a figurative invocation of the need for affective care. The metonymic use of "heart" is striking, conflating, as it does, animal corporeality (the beating organ) and distinctly human affect (affection, love, concern, etc.). The phrasing is a useful reminder of the centrality of embodiment for care. Animate bodies with beating hearts both need care and give care. Good caregiving is never simply a case of caring *about* vulnerable bodies; it involves the labor of caring *for* and *with* vulnerability, embodied acts and gestures, labor and touch.[3] In other words, the actual heart, the beating organ, the materiality of the body, is integral to care. "Personal touch" is not merely a clichéd nicety in this case; touch, physical contact should not be underestimated in theorizing the meanings and impacts of care. As cultural theorists of touch and skin respectively, Linda Holler and Claudia Benthien each point out that touch is the first sense to develop in utero and the most important sense for newborn interaction with the

world. As Claudia Benthien explains, "For the newborn (as well as the unborn), the skin is the most important organ of communication and contact. It is through the skin that the newborn learns where she begins and ends, where the boundaries of her self are. Here, she learns the first feelings of pleasure and displeasure" (7). Touch is integral not only for communication and bonding, but for our early survival since, writes Linda Holler, "touch cells in our lips make it possible to nurse, and touch accounts for as much as 80 percent of infant communication . . . We house up to nine thousand independent nerves per square inch in the skin of our fingertips alone, making it difficult to imagine life apart from the body's tactile awareness" (15). Physical contact is integral for both survival and wellbeing and this initial, foundational tactility sets the stage for embodied ontologies determined by the giving and receiving of care.

The body and touch are inescapable sources of intimacy in *Robot and Frank*. The film expresses cultural anxiety about the connections between artificial intelligence and the loss of human memory, evoking the specter of a posthuman, or more precisely, a transhumanist future characterized by prosthetic memories and disembodied subjects. This is the transhuman dream of downloadable consciousness, expendable bodies that Hayles rejects as an alarming nightmare of disembodiment (3-4). However, Robot moves beyond this specter. He is not merely prosthetic memory, but a distinctly embodied entity, as the final haptic image of Frank and Robot's embrace emphasizes. This moment downplays narrative and cognition, drawing attention instead to the power of sensual affects. The minimization of rational cognition reminds me of the important work done by dementia activists like Anne Basting and Pia Kontos, who emphasize embodied dementia care. In their dementia activism, Basting and Kontos insist on the role of the

body, urging those involved in caregiving to reorient their attention, to *Forget Memory*, as the title of Basting's book insists, and replace it with embodiment, gesture, and imagination. The fantasy of disembodied information threatens to further marginalize subjects whose ontology is primarily corporeal. I include all of us animals, human and otherwise, in this characterization. But for those of us with cognitive impairments, mild or severe, the denial of our animal materiality is particularly hazardous. Robots involved in dementia care, both actual, like Paro, and imagined, like Robot, can provoke multiple posthumanist revelations, showing us the heterogeneity of embodied subjects and the fundamental role of materiality in care. As well, they can provide canny critiques of anthropocentrism in their splicing of human/machine prerogatives. In opposition to the posthuman nightmare of disembodied information, Hayles dreams of "a version of the posthuman that embraces the possibilities of information technologies without being seduced by fantasies of unlimited power and disembodied immortality, that recognizes and celebrates finitude as a condition of human being, and that understands human life is embedded in a material world of great complexity, one on which we depend for our continued survival" (5). Her emphasis on embodied, embedded subjects is echoed in Braidotti's definition of the "critical posthuman subject" constituted by relationality and multiplicity that "expresses an embodied and embedded and hence partial form of accountability, based on a strong sense of collectivity, relationality and hence community building" (Braidotti 49). These affirmative visions of posthuman subjectivity evoke the kind of responsive, responsible subjects central to a feminist philosophy of care. For philosophers of care, the dual status of subjects as embedded and embodied is fundamental to ethical philosophy. In their shared skepticism toward the "fictive

creation" that is the "independent individual" (Kittay 17), ethics of care philosophers and critical posthumanists are united, advocating a cultural shift away from illusions of independence toward an acknowledgement of interdependencies, human, animal, ecological, and even technological. This significant overlap between critical posthumanism and ethics of care philosophy summons exciting possibilities for the posthuman future of ethical care.

Analyses of both the risks and benefits of robot care share assumptions about steadfast boundaries between mechanized caregivers and their charges, but posthumanism alerts us to the instability of such boundaries, the degree to which the human is already implicated in the technological, and vice versa. Developments in artificial life are likely to compromise these boundaries even further. As a result, one can imagine a future of care that is both posthuman and posthuman*ist*, in which life is marked by hybridity and it is increasingly difficult, even impossible, to distinguish where technology ends and human begins. In such a future, assistive technology would not be limited to caregiving robots, though certainly such artificial life forms are likely to become inevitable, familiar companions. Rather the human would be eclipsed by the posthuman, by the cyborg, the splice.

Artificial life forms, whether actual or imagined, evoke a vision of the future in which humans can no longer expect a privileged position in a hierarchy of caregiving relations, positing instead a continuum of care, in which the human and non-human could co-exist and collaborate. Socially assistive technologies like Paro, and imaginary artificial life forms, like Robot alert us to the subject's embodied relationality, demonstrating the haptic interdependence central to care. Robotic caregivers engage human vulnerability

rather than erase it, embodying the "posthuman notion of the enfleshed and extended, relational self" (Braidotti 90). Caregiving robots threaten to unseat the human from a privileged position by drawing attention to both the human body's animalism and dependencies, and to the "humanity" of technology. Hybridity, the splice, suggest a potential for collaboration between different entities, biological and technological, that could liberate humans from the contingencies of species-specific caregiving. Fictional speculations like *Robot and Frank*, robotics, cybernetics, and posthumanist perspectives summon a possible future in which human embodiment, vulnerability, interdependence, that is, our animality, our interconnectedness becomes increasingly assertive as technological beings enter our homes, our institutions, and our hearts.

Notes

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[1] Robotics engineer Kjerstin Williams equates the impact of losing a robot with the death of a companion animal: "you grieve and move on, and you try to reengage with the next animal, or the next set of robots" (Ito). Borenstein and Pearson make a similar comparison: "In some sense, a robot that is viewed as being 'kind' to people could bring out laudable traits in us similar to the way pets can" ("Robot Caregivers: Ethical Issues" 257).

[2] This haptic moment also evokes the phenomenological film theory of Vivien Sobchack, which emphasizes the sensual aspects of film spectatorship. Like Marks, Sobchack insists that films create meaning through shared materiality, both the materiality of the film's signification, and the materiality of the apprehending subject. According to Sobchack, "the film experience is a system of communication based on bodily perception as a vehicle of conscious expression. It entails the visible, audible, kinetic aspects of sensible experience to make sense visibly, audibly, haptically" (41). *Robot and Frank*'s momentary haptic imagery draws attention to this shared materiality.

[3] The contact between bodies giving and receiving care produces "contact zones," the term Donna Haraway uses to describe the "mortal world-making entanglements" that shape and reshape embodied subjects (*When Species Meet* 4). "Contact zones" are where human and nonhuman species meet, convergences that "change the subject—all the subjects—in surprising ways" (219).

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