

Prosthetic Configurations and Imagination: Dis/ability, Body, and Technology*

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Abstract

Prosthesis has been a useful medium for thinking about the identity of people with disabilities, who often rely on artificial devices in their daily lives. Recent advances in technology have altered the biological body via so-called enhancement technologies, which can augment bodily forms and functions to improve human characteristics. Given its corrective abilities, prosthesis has become the “interconstitutive” point which links body and machine, blurring the borderline between normal and abnormal, abled and disabled, human and cyborg. People with disabilities are no longer the only ones using prostheses to fix their bodily deficiencies; non-disabled people need them even more to modify their “imperfect” bodies. Being human, as Lennard Davis points out, has become “an aspect of supplementarity” (69). The essay will take a biocultural approach to the study of the scientificized and medicalized body to construct a dialectical discourse between ableism and dis/ability, the natural body and the artificial hybrid, humanity and technology, and related issues. Concurrently critiquing, historicizing, and theorizing prosthetics, the essay lays out a balanced and complex picture of the merging of flesh, machine, and subject, and, by doing so, offers a reconceptualization of dis/ability and post/humanity in a futurist society from the perspectives of materiality, metaphoricity, and reflexivity of prosthetics.

Keywords

prosthesis, materiality, metaphoricity, reflexivity, biocultural, dis/ability, hybrid

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Disability is a potentiality: a moment, an event, a calling and an encounter. Disability is also a signifier: a term that calls out for signifieds or meanings to be attached.

—Dan Goodley

Dis/ability Studies: Theorising Disablism and Ableism

Once we hit the physical limits of human speed, endurance, and fortitude, why not celebrate our ability to push through them? Not in a secret testing lab, take the red pill and slip your sample under the door kind of way—but in a way that applauds what humans and machines can achieve as one. Faster. Higher. Stronger. Maybe it's time to add one more to the list: *smarter*.

—James Dolan

“The World’s First Cybathlon”

Introduction

On October 8, 2016, the Swiss Federal Institute of Technology in Zurich organized an international competition for disabled athletes, called the Cybathlon.¹ One of its main goals was to facilitate collaboration between assistive-tech researchers to help solve the challenges that people with disabilities face every day by finding the best way to connect human and machine, as Robert Riener, the organizer and a professor of sensory-motor systems at ETH Zurich, explained. The most remarkable aspect of this competition is that the competitors are allowed to use bionic assistive technology, from brain-computer interfaces and robotic prostheses to powered exoskeletons (Degeler n. pag.). Among these devices, the powered exoskeleton was considered the most spectacular insofar as it is a real-life aid and could allow people with paraplegia to walk again (Wit n. pag.). The cutting-edge prosthetics are pushing cybathletes to the point where they can “outperform the able-bodied”; for example, Kevin Evison,² an experienced

¹ The Cybathlon, dubbed the world’s first “bionic Olympics,” is organized by the Swiss university ETH Zurich. The event is somewhat different from the Paralympic Games; it allows full-powered assistance using bionic and cybernetic enhancements.

² Evison lost his arm at the age of 22, and he used the first generation of “myoelectric limbs” controlled by the contraction of muscles. At a rehearsal, Evison outperformed able-bodied users in a test of manual dexterity.

prosthetics user and a pilot for the Imperial team, proudly declares, “I want to be able to show off the super-hand, to compete at the level of superhuman abilities.” He even exclaimed, “I’ve had people say to me that if that thing gets any better, I’m going to want to lose my normal limb and have one of those” (Williams n. pag.). The rapid innovation and proliferation of prosthetics in the modern era have not only changed the connection and relationship between bodies and machines/technologies but also shift the prostheses’ function from supplementation to enhancement. In the past, prostheses offered a marker for thinking about the identities of people with disabilities since their maimed bodies often rely on prosthetic devices to conduct or mobilize everyday life. Prostheses thus signify the “absences” or “deficiencies” of the body and reveal the body’s inability to function (Jain 42). In an unprecedented way, the Cybathlon is hailing a new era where cybathletes seem to call forth images of futuristic or posthuman robots from science fiction films. Prosthetic devices are no longer unique to people with disabilities in replacing missing or malfunctioning parts of body; instead, they also aim to amplify human abilities through different forms of integration between people and their artifacts. As James Dolan states, “sometime in the future, not too long from now, this might well be what mainstream athletic competition looks like” (n. pag.).

The Cybathlon competition encapsulates many of the themes of this essay and is a significant point of departure to reconsider the signifieds of dis/ability through the lens of prostheses or assistive technology inasmuch as the use of prosthesis provides alternative and unique models for understanding identities and their configurations for people with dis/abilities.

Definition and Development of Prosthesis

Prosthesis was a term first used in 1553 in a grammatical sense as an element, a letter, or a syllable that is *added* to a word. According to the *Oxford English Dictionary*, the original grammatical meaning was transformed and applied as medical terminology in 1704, describing a replacement for a missing or defective part (Davis 68; Booher, *Prosthetic* 84; Wills 215). The meaning of *prosthesis* as something that is added to the body has since come to be used much more broadly, describing anything from artificial limbs, to glasses, to pacemakers, to cellphones, to pharmaceuticals, and other innovative products of assistive technology (Booher, *Prosthetic* 84).

The employment of prostheses as medical applications can be traced back to three thousand years ago. It is alleged that the world’s oldest prosthetic was a toe,

made out of wood and leather, found in an Egyptian mummy's tomb ("What Are Prosthetics?" n. pag.; Booher, *Prosthetic* 89). The materials used by prostheses range from wood, metal, and leather, to other ready-made materials. In the nineteenth century, the logic of prosthesis "operated—like its physical counterpart—by a rule of substitution," because the prosthetist, as Lisa Herschbach describes, insisted on the "necessity of taking Nature for a guide" and the "boundaries separating nature from artifice, organism from mechanism, could no longer be identified" (37). The skill of making prostheses look real developed rapidly in the twentieth century; prosthetic devices not only became lighter and stronger but also appeared more lifelike, as Lennard Davis points out (70). Prostheses have quickly advanced to the degree that every human body part other than the brain and the nervous system can be replaced, and, with these newly invented prostheses, people with disabilities can compete at a professional level. Together they make various types of extensions and configurations of the body. Prosthesis has thus become something of an "all-purpose metaphor for the interactions of body and technology," and prosthetic configurations emanating from such contact will lead us to the extension of the self and the multiplicity of identity ("Overview" n. pag.). Smith and Morra call this phenomenon a kind of "prosthetic impulse," an impulse that "facilitates or contests our chances of making (human) contact with a modern world" which is mediated via technology (4). The multiplicity of the configurations of the prosthetized body is undeniably far-fetched (Wilson 243).

However, innovative prosthetic devices such as those demonstrated in the Cybathlon competition point to inherent contradictions in the categorization of dis/ability as well as the complexity of identity for people with disabilities. As shall be seen, the rule of normality has been undermined since the interface of prosthesis blurs the distinction between ability and disability. Given this vagueness, Dan Goodley calls for us to rethink the phenomena of disability and ability and understand dis/ability as a complex phenomenon because disability and ability are "co-constituted" (180) and "feed into the production of one another" (182). Goodley argues compellingly that "dis/ability is a divided phenomenon that requires a transactional analysis of that duality" (182), and, in my view, prosthesis is a good starting point to facilitate this transactional analysis.

The prosthetic, depending on how advanced it is, may transform a person's bodily function from disability to ability and even superability, and it will potentially be preferable to a natural body if it has more functions than the natural body does. In a futurist society, a prosthetized body may be considered a "normal"

body while the natural body may be regarded as a disabled body. Given the variety and multiplicity of these bodily configurations, prosthetic devices may play a pivotal role in redefining the concept of disability and ability and thus constitute different modes of identity. To put it simply, the addition or removal of prosthesis as an object or metaphor will not only challenge disabled identity and the definition of ab/normality but also initiate the metamorphosis of the human being into a high-tech human hybrid. Although there is extensive literature on disability in its various forms, there are fewer works on prostheses or how they affect the embodiment of identity (Hogle 706). This essay offers an overview of recent theoretical and empirically-based writing about the interface of disability and technology that examines the materiality, metaphoricity and reflexivity of prostheses from the perspective of several major critics in Disability Studies and Posthumanism, including Tobin Siebers, Marquard Smith and Joanne Morra, David T. Mitchell and Sharon Snyder, and Donna Haraway, among others. It also includes an analysis of the dialectical relationship between ability and disability, the natural body and the artificial hybrid, humanity and technology, and related issues to delimit the multi-faceted configurations and imagination of the prosthetic body. The essay will end with a reflection on the contribution that disability studies may bring to the Posthuman future, where identity categories will be disrupted in order to embrace a more fluid identity. This essay aims to present an inquiry into the ways in which ontological hierarchies, human life, and human value are interwoven and the spectrums of dis/ability are construed.

Materiality and Prosthetic Configuration

In a world fraught with technologies, prostheses have gradually become technologized, and in a reciprocal way every technological product can also be considered a kind of prosthesis, from cars to silicon implants and computerized or digital products. Technology as prosthesis affects and takes for granted certain identity positions, and, as Sarah S. Jain suggests, “one’s relationships to technologies might also be interpreted as identities in certain situations” to negotiate the political space of existence (50). A technological embodiment of identity has come into being. Prosthesis is no exception and certainly plays a pivotal role in determining the position of self-identity. It is a double-edged entity insofar as it always pinpoints precisely the vulnerable and fragmentary aspect of the body, but it also functions as a faithful and indispensable partner in protecting and strengthening the weak or deficient body. Its status or ability

depends on what kind of materials it is made of. Its materiality defines and constitutes the individual's identity and delimits the body's boundaries. Prosthesis and the body together reveal an uncertain embodiment of subjectivity and hybridity, or the irony of human existence. Greek gods' supernatural abilities were once thought to transform and metamorphose a natural body in ancient Greece, be it normal or abnormal. The human body now interacts with machines in various ways and thus creates different prosthetic configurations. Being "an integral or 'interconstitutive' part of the 'human,'" as Smith and Morra write, prostheses invite further discussion about the role and boundary of bodies and their relations to technologies in the constitution of human identities since they produce a blurring of identity and a variety of prosthetic configurations (7).

Concerning "the point of prosthetic contact," Maurice Merleau-Ponty's conception of being-in-the-world claiming body-world unity can be employed as a useful theoretical tool for examining the porous places of bodies and artifacts and disentangling the complexities of self-identity. Merleau-Ponty's explanation of the condition of a blind man using a stick to find his way around is a good example of reference. Merleau-Ponty says that "[o]nce the stick has become a familiar instrument, the world of feelable things recedes and now begins, not at the outer skin of the hand, but at the end of the stick. . . . The pressures on the hand and the stick are no longer given; the stick is no longer an object perceived by the blind man, but an instrument with which he perceives. It is a bodily auxiliary, an extension of the bodily synthesis" (*Phenomenology of Perception* 175-76; qtd. in Booher, "Docile Bodies" 82; ellipsis in original). As part of the world, prosthesis should be considered as such, since the relationship of bodies and technologies/world work together as an interinvolved continuum (Booher, *Prosthetic* 13). The blind man's adaptation to the stick, according to Merleau-Ponty, is just like an amputated beetle that establishes a bodily synthesis and "functional equilibrium" to continue walking after the amputation of its phalanges through utilizing the stump to adapt to the ground and changing surfaces. In a similar way, "the arm-hand-stick-world continuum actively demonstrates body-world perception and interinvolvement," and, as Booher comments, "[w]hile not reducing the human experience of amputation to that of an insect, we can further see the potentialities of interinvolvement" (qtd. in Booher, "Docile Bodies" 82).

Given the multiple forms of prosthetic intervention, the concept of self-identity becomes extremely complicated and profound. Prostheses may not only fix the body's deficiency, disability, and inability but also surpass a natural

body's capacity and ability. The body thus emerges as a form of mutable embodiment since it may constitute the making and unmaking of self and identity. Steven Hawking's and Oscar Pistorius's cases are emblematic of the transformations made by prosthesis. Are they abled or disabled?

At the age of 21, Hawking, who is well known for his groundbreaking work in physics as well as his computerized voice, was diagnosed with motor neuron disease and eventually relied on pioneering assistive technology to communicate. With the help of a computerized prosthesis, he overcame his illness and regained his independence. Intel has been working with Hawking since 1997 to help maintain the assistive computer system, which brings far-reaching benefits to improve his articulation. What is worth mentioning here is that Intel wanted to help upgrade the computerized voice aid for Hawking, but the offer was turned down because Hawking believed that the prosthesis he used had become integrated into his identity (Kaplan n. pag.). This prosthetic aid helps Hawking become a super-abled scientist and constitutes an indispensable part of his identity. Whether Hawking is abled or disabled is difficult to say.

Oscar Pistorius, the first double amputee competing in Olympic Track and Field, is another example of a "super-abled" disabled celebrity. He won a gold medal at the 2008 Beijing Summer Paralympics. His achievements incited debates among scientists about whether prosthetic legs give Pistorius "an unfair advantage" in the race. In 2007 a German team reported that Pistorius used 25 percent less energy than natural runners, and the International Association of Athletics Federations (IAAF) banned him from competing thereafter. Ironically, Pistorius was disqualified from sanctioned able-bodied competitions because his prosthetic legs make him more able in running than he would be with natural legs. This event reveals a distinction between abled and disabled bodies, and making Pistorius disqualified on this condition instantaneously created a problematic dual construction; that is, "Pistorius as both *dis*-abled and *super*-abled," as Booher argues ("Defining Pistorius" n. pag.). This is an ambiguous position, as Pistorius is labeled "disabled" because of his amputation, but the prosthetics place him in an advantaged position and thus make him super-abled. "One's ability to extend one's agency is always influenced by one's relation to variously construed interfaces," claims Jain (41). Pistorius, however, abjures both labels, asking, "Anyway, what is disabled? Some people view themselves as disabled because they have one or two disabilities. But what about the millions and millions of abilities they have?" (Booher, *Prosthetic* 12). By all means, for Pistorius, "he—his body and prosthetics—is 'natural,' or more specifically 'normal'" (12). Notwithstanding these

controversies, the life stories of Hawking and Pistorius can be read as “mimicking the binarised constitution of dis/ability,” as Goodley states (144).

Hawking’s and Pistorius’s cases reveal that so-called disabled people just have different abilities than others. Both of them are significant examples of the problematic of the categorization of dis/ability. In fact, prosthetic configurations provide users with multi-faceted identities; Pistorius, for example, used to be “a hyper-ableist entity of technological capitalist moulding, a very desirable transhumanist phenomenon, a high functioning machine-human hybrid and a cyborg poster boy for disabled people” before he murdered his girlfriend, Reeve Steenkamp, in 2013, as Goodley notes (145). The technological turn in giving artificial legs an advantage over natural legs testifies to the fact that prostheses have a transformative power vis-à-vis the body and may place some bodies at the center of newly improvised forms of life and living. Prosthetized bodies, however, provide a new norm, one with which “no ‘natural’ body could possibly compete” (Booher, *Prosthetic* 64). Affirmatively Booher claims that “the boundaries of ‘normal’ need expanding to include variations of bodies integrated with technologies” (64).

Obviously conventional body boundaries dissolve and must be replaced by fluid and contingent operational boundaries, if one begins to think in terms of the connection between the body and prostheses. To take the blind man using a stick as an example, “Where does the blind man’s self begin?” Gregory Bateson asks, “At the tip of the stick? At the handle of the stick? Or at some point halfway up the stick? Does his mental system begin ‘at the handle of the stick’?, at the limits of his ‘skin’? halfway up the stick? Or ‘at the tip of the stick’?” (qtd. in Thomas 54). Concerning this fused identity, Allucquère Rosanne Stone once questioned Hawking’s identity, noting that a serious part of the obvious physical Hawking “extends into the box in his lap. . . . in the absence of the prosthetic, Hawking’s intellect becomes a tree falling in the forest with nobody around to hear it” (qtd. in Jain 40). As for his bodily boundaries, Stone inquires, “[w]here *does* he stop? Where are his edges? The issues his person and his communication prostheses raise are boundary debates, *borderland/frontera* questions” (qtd. in Jain 40; emphasis in original). After a series of adjustments and practices, users’ bodies and prostheses can often reach a means of cooperation “wherein movement appears seamless, where the prosthetic disappears” (Booher, “Docile Bodies” 82). For Pistorius, who never walked on natural legs, “his prosthetic experience *is* his experience of his body, of locomotion” (*Prosthetic* 12; emphasis in original). A prosthetic is an extension of our own body, “a participant in/through the body-world continuum” (85). Reflecting on contemporary

prosthetized bodies, Booher writes,

The malleability of the body, understood in part through the technologized-gaze of neuroscience, and advances in technology (medical prosthetics and otherwise), destabilize any “absolutes” in body construction. The body as somatechnics reveals constant performative constructions wherein bodies (can (be)) change(d) according to need. What is “natural” is change and adaptation. Bodies cannot be simply categorized as abled, dis-abled, or super-abled, but must be understood in constantly changing sociocultural frames. (qtd. in *Prosthetic* 128)

Undoubtedly prostheses undermine bodily boundaries and the categorization of ability, disability, or super-ability, and it is difficult to delimit the body’s edges since “strict boundaries are always blurred in human-machine interfaces,” as Jain claims (41). Hawking and Pistorius are good examples of that multiplicity of the prosthesis-enhanced body which blurs the edges of one’s being. Jain follows Mark Wigley to argue that “[a] blurring of identity is produced by all prostheses. . . . In a strange way, the body depends on the foreign elements that transform it. It is reconstituted and propped up on the ‘supporting limbs’ that extend it. Indeed, it becomes a side effect of its extensions. The prosthesis reconstructs the body, transforming its limits, at once extending and convoluting its borders. The body itself becomes artifice” (Wigley 8; qtd. in Jain 38). Given this, the body and prosthesis become indistinguishable from each other; and their boundaries become even more unimportant. “A prosthesis is a cyber(body) part,” as Wilson argues, and it is “an intersection between two systems, one technological and the other organic” (243). Prostheses thus provide their users with a multiplicity and “blur edges even while refining capacity (243). As a prosthesis user, Wilson comments, “[m]y prostheses elevate me to a higher plane of fulfillment, or more ideal conception of myself, but they also remind me of how far I have slipped from the plane I have always occupied” (243).

The intervention of prosthesis reveals that there is a great deal of room for the norms to expand. It is even more difficult to define a natural or abled body than a body with disability, but what cannot be ignored, as Booher indicates, are the “shifting continuums of intervolvement” (*Prosthetic* 88). In fact, prosthesis is a signifier to deconstruct the myth of the natural body, the false building of an absolute boundary, the presumed norm of ability and an imaginary fixed identity, all

of which become fickle with fusion or integration with the body. An incongruously constructed disabled body stands in for questions about the body, technology, and identity. As Tanya Titchkosky claims, “meanings and subject positions are often made in these liminal spaces, the spaces in-between” (112). The in-between position actually entails the identity in which we find ourselves. While offering a productive and compelling means of complicating and deconstructing bodily boundaries and technologies, the above analysis answers some key questions: How does prosthesis complicate the definition and demarcation of ability and disability? Which bodies are enabled by assistive technologies? How does the use of the term “prosthesis” assume a disabled body in need of supplementation? Where and how is disability located (Jain 33)? Different materials determine and create different prosthetic configurations and identities. The cyborg, as a novel embodiment of being, has existed ever since people with disabilities started using assistive prostheses.

Metaphoricity and Prosthetic Imagination

The “materiality” of prostheses indicates how certain bodies are literally configured. Prosthesis, in addition to its materiality, also carries discursive frameworks and ideologies of the body, body politics and medical science, such as people’s emotional expectations of corporeal normality and wholeness, or the desire for hyperability. The prosthetization of the human body, in other words, does not only mean a material displacement of a certain part of body; it also involves a “discursive realm that is larger than that of its merely literal materiality, situation, and logic” (Smith, “The Vulnerable” 67; Sobchack 28).³ Prosthesis, as Steven L. Kurzman argues, “simultaneously occupies the space of artificial limbs, metaphor, and discursive framework” (375). The figurative use of prosthesis has flourished in recent theory and literature with the aim of understanding and interrogating human-technology relationships (Jain 31). The figuration or metaphoricity represents an important interpretive space to be further examined and theorized.

First of all, other than the prosthesis made of materials, there is also a kind of nonmaterial prosthesis used by people with disabilities more often than the material ones; that is, willpower and perseverance in overcoming disability. With this invisible or metaphoric prosthesis, people with disabilities may become “normal”

³ Other than prosthetic devices, as Vivian Sobchack also notes, there are various metaphorical uses of prosthesis, such as “prosthetic consciousness,” “prosthetic memory,” “prosthetic aesthetic,” “prosthetic territories,” “prosthetic processes,” “prosthetic subaltern,” and so on (19). For further reference, see also Sobchack (17-41).

and super/abled. Willpower, a sign of the human spirit's victory over adversity, may even help them gain recognition and construct themselves as a prototype of the supercrip.⁴ The supercrip image is often employed as a medium by the public to promote willpower and to transform or encourage disabled people. Miraculously, with nonmaterial prostheses, a disabled body may become "normal," not restricted or limited by its condition (*Prosthetic* 55). The amazing effect of this type of transformation and empowerment is in fact accentuated and enacted by ableism.⁵ In a similar vein, Fiona Kumari Campbell proposes a kind of "internalised ableism," a guiding principle for people with disabilities to abide by in order to "emulate the norm," and by doing so "to assume . . . an 'identity'" which is desired and recognized by the public (Campbell 26). The norm—or "the dominant same," as Campbell also calls it—refers to "ableist, heteronormative, adult, white European and North American, high-income nations' values" (qtd. in Goodley 22-23). In tandem with women, children, queer people, people of color, and poor people, disabled people share "an Other space" to this dominant norm (22). To avoid discrimination and exclusion, people with disabilities constantly meet or exceed "normal" achievements. By classifying disability as a condition that creates superhumans or "super crips," the ableist ideology interpellates people with disabilities as known or recognizable subjects. The Paralympics is made to illuminate those crips who have overcome all odds to get there (Goodley 145). Oscar Pistorius, for example, worked perfectly as a stereotypic supercrip, always "inviting the gaze of ableist culture" since he "embodied all that is good with a hyper-ableist philosophy: blurring man-machine, re-enabling disability, blurring the lines between disability and ability, performing dis/ability," as Goodley writes (145). His message to the public is quite clear: "you shall overcome," and success can be achieved through dedication and hard work (145). The invisible prosthesis of willpower is also an emotional projection and expectation from the public; it has such influence to the degree that the special characteristics of disability are ignored.

⁴ Supercrip, as Colin Barnes defines, is "the disabled person [who] is assigned superhuman, almost magical abilities," like blind people, for instance, who are deemed special visionaries with "a sixth sense" or "extremely sensitive hearing" (12).

⁵ Ableism, according to Gregor Wolbring, is "a set of beliefs" adopted by various social groups to "justify their elevated level of rights and status in relation to other groups" (qtd. in Goodley 22). Ableism, as Wolbring elaborates, "has in mind a 'species-typical' human being. This system promotes scientific, therapeutic and medicalised interventions that maintain the ableist prerogative" (qtd. in Goodley 22). Of ableist normativity, Fiona Kumari Campbell writes: "Whether it is the 'species-typical body' (in science), the 'normative citizen' (in political theory), the 'reasonable man' (in law), all these signifiers point to a fabrication that reaches into the very soul that sweeps us into life" (6).

In addition to the invisible or metaphorical prosthesis of overcoming disability, prostheses are also frequently used as metaphors by scholars to “mobilize their fascination with artificial and ‘posthuman’ extensions of ‘the body’ in the service of a rhetoric (and, in some cases, a poetics) that is always located *elsewhere*,” as Vivian Sobchack claims (20; emphasis in original). Sobchack points out that “the metaphor obliterates the political atrocities of mass amputations by land mines in Cambodia or by civil war in Sierra Leone” (21). Rather, it functions elusively as the “floating signifier,” suggesting little of “prosthetic realities,” and has become “a fetishized and ‘unfleshed-out’ catchword,” as Sobchack puts it (21). Indeed, prosthesis connotes diverse figurative meanings. First of all, it is a metaphorical embodiment of a normal or ideal body, and, as Kanne notes, it buttresses “what is ideal—the normal human” (150). Generally prosthesis is used as a tool to govern the normalcy of the body in order to transform individual bodies into properly “functioning” physical bodies (Jain 39). Prosthetic fantasies and imaginations usually comprise “what counts as a worthy body” and, by all means, reflect and echo ableist ideology that “has patterned human relations with machines since the beginning,” as Sarah S. Jain also points out (49). Bodily wholeness indicates a natural and abled body. Artificial limbs, as Kurzman writes, are “ideally invisible in order to facilitate mimicry of nonamputees and passing as ablebodied” (379; Sobchack 33). In everyday use, as Kurzman writes, “[a]rtificial limbs do not disrupt amputees’ bodies, but rather reinforce our publicly perceived normalcy and humanity” (380). He shares his personal experience of using artificial limbs to pass as a nondisabled person: “My prosthesis and long pants enable me to pass and be treated like a fully human being, precisely because I resemble the whole, abled body people expect to see” (381). What matters here is a “subject position” whose “boundaries and subjectivity” are not supposed to be disrupted (381). The amputees had to appear naturally whole and “normal” through the operation of passing, which, as Sander Gilman reminds us, is “premised on a purely physical metamorphosis in which signs of physical difference (so-called pathological signs) are camouflaged through modification” (qtd. in Smith, “The Vulnerable Articulate” 51). “The new invisibility,” as Marquard Smith puts, points to the “success of the discourse of prosthesis” premised “on hiding the presence of the amputee’s disability (their physical otherness)” (51). Ironically, the presence of prosthesis signifies its own transparency or absence to pass for normality. The use of prosthesis is not only a process of individuation but also of normalization enforced by ableism. Society’s regulatory mechanism, as Kurzman states, structures and controls the experiences of prosthesis users, and the addition of prosthesis to the disabled body unquestionably

mostly internalizes ableist ideology.

Having all kinds of camouflaged powers, prosthesis is also a medium of gender fantasies suggesting or modifying features of gender and sex. Prosthesis, for instance, helps remake the bodies of maimed American veterans and reconstructs a separate nation, as Lisa Herschbach argues. The American Civil War brought unprecedented devastation to the nation and the soldiers; it not only killed about “a fourth of the country’s adult white male population” but also left “tens of thousands of others with disfiguring wounds” (26). As Herschbach describes, the war was waged ““on human flesh and inscribed in pain,”” and fixing the disfigured body of the soldier became so urgent that prosthesis slipped into the “popular and commercial imagination” to reconstruct the devastated nation and disabled veterans (qtd. in Herschbach 50). As a result, the maimed soldiers helped bolster the American prosthetics industry.

The rapid development of the artificial-limb industry refitted the disabled soldiers with “outwardly whole” bodies and helped recuperate their “interior integrity,” suggesting something about notions of masculinity (Herschbach 41). Prosthesis helped at that time to reconstruct the amputated soldiers’ confidence as men and reintegrated into them into the nation as working citizens. Prosthesis had the transformative capacity to turn a maimed man into a whole man and normal citizen, and, as Lennard Davis points out, “[t]he call to return all amputees to working citizenship found its answer in the technological and cosmetic enhancement of the artificial limb” (70).

Similarly, in his analysis of a drag performance by a group of six veteran amputees from a Maryland military convalescent center entertaining veterans undergoing rehabilitation in Washington, DC in 1945, David Serlin discusses how the image of prostheses showed soldiers’ “tenuous relationship to the heterosexual masculinity that defines such drag” (“Disability” 175). This “normalization process” is compulsory since the soldiers represent the face of the nation “as an institution of normative bodies and values” (175). What is worth mentioning is that the humor of the amputees’ performances was about their “self-mocking” endeavor to displace the awkwardness associated with amputation; it was essentially intended to demonstrate an image of “competence,” evidence that they had “moved far toward independence and self-sufficiency,” as Serlin claims. The maintenance of a normative gender role and abled body is compulsorily insisted upon and regularly performed in the military. Prosthetic legs, as Serlin argues, are not just medical artifacts of rehabilitation; they are both military and “cultural tools that produced ideologies of normalization and ablebodiedness and made them both physically

tenable and socially meaningful” (176). Unquestionably both the military and American culture valorize these normative standards to the extent that other forms of bodily and human experience are either denied or ignored.

Here, prosthesis is used metaphorically to maintain an image of ablebodiedness and normative masculinity. American soldiers, Serlin writes, have to constantly perform “what a normal body looks like as well as what a normal gender role looks like” (179). Sergeant David Sterling, an American soldier who was disabled in Iraq, bore witness to the importance of being masculine and able-bodied by showing his \$85,000 myoelectric prosthetic forearm. To perform normality, the soldier could request unlimited prosthetic support, and in Sterling’s case, he obtained a hundred of the snap-on attachments, each of which cost \$800, and, as Sterling said, “[t]here’s no limit to the rehabilitation. If I wanted, I could have a hundred more” (qtd. in Serlin 178). Anything he wanted for the sake of rehabilitation would be approved and provided by the military so long as the prostheses helped him maintain masculine and normative ablebodiedness. Concerning this privilege, Serlin comments ironically that “[t]he privileges accorded to American ablebodied masculinity are thus essential components of a political power that, in its most seething incarnations, facilitates the shamelessness with which an empire flexes its prosthetic muscle” (179). Indeed, prostheses, with their transformative power, may help make a disabled body ablebodied and thus endorse relentlessly the value of ablebodiedness and heterosexual masculinity.

In addition to being a fortifying aid of masculinity, prosthesis works in an even more complicated way with femininity and sex fantasy. Aimee Mullins’s artificial legs, for instance, are one of the most intriguing cases of this metamorphosis and they reveal, in all their variety, the complexity of prosthesis-as-metaphor.⁶ Mullins has various types of prosthetic legs—for example, cheetah legs, Barbie legs, and glass legs—with each pair having its own specific symbolic meaning and representing a different phase of her life. Van Phillips, an inventor who had lost a foot in a water-skiing accident, helped her design a new type of carbon fiber sprinting legs modeled after the hind leg of a cheetah, the fastest running animal, to compete at Paralympic games. The cheetah legs, an emblem of Mullins’s accomplishment in sports, subsequently serve as a metaphor of supercrip and ablebodiedness.

Starting in 1998, Mullins built a career as a model by starting on the runway. As an icon of beauty, she “appeared provocatively in a Nick Knight photo shoot for

⁶ Aimee Mullins was born with fibular hemimelia that resulted in the amputation of both of her lower legs. She took up sports and was a record-breaker at the Paralympic Games in 1996.

a 1998 issue of the fashion magazine *Dazed and Confused* guest edited by fashion designer Alexander McQueen,” and she also “adorned the catwalk, Barbie doll-like, on a revolving pedestal in McQueen’s 1999 spring-summer collection in London,” as Smith writes (55). Mullins thus began her model show in London. Her success in modeling again made her one of “the fifty most beautiful people” in the world according to *People* magazine in 1999. As a successful model, Mullins achieved celebrity status (Sobchack 27-28). Her prosthetic legs served as the “springboard” for her to be considered as an icon of beauty instead of as a victim of disability. Ironically, it’s Mullins’s artificial limbs, not the other parts of her body, which aroused such attention. Mullins was extremely happy with the design, and she described her “pretty legs”: “They’re absolutely gorgeous. Very long, delicate, slim legs. Like a Barbie’s. Literally, that’s how it is” (qtd. in Sobchack 34). Her prosthetist, Bob Watts, shared his inspiration and fantasy in making the “Barbie legs”: “These are sort of my fantasy legs. . . . Aimee offered me an opportunity to produce the perfect female leg” (qtd. in Sobchack 34). The “Barbie legs” are not just a prosthetic aid enabling Mullins’s mobility; instead, they are both the products of male and female gender fantasies and the literal materialization of human desire, as Sobchack asserts (34).

Barbie legs epitomize Mullins’s career as a fashion model, and glass legs may represent her next career as an actress in *Cremaster 3*, a film produced by Matthew Barney in 2003. Mullins played several roles in the film and wore different pairs of legs, such as lustrous high-heeled legs and jellyfish legs, and to pay homage to her life as an athlete, she was changed into a cheetah woman, half-woman and half-cheetah, a creature that had articulated paws, claws and a tail, and she became an embodiment of a high-tech human hybrid in which the demarcation between human being and animal was blurred. Concerning the glass legs she wore in the movie, Mullins had a different concept of what prosthesis should be like; she said, “I started to move away from the need to replicate human-ness as the only aesthetic ideal” and jellyfish legs is another example of this change (“My 12 Pairs of Legs” n. pag.). What she was concerned with here was “ignit[ing] the imagination,” so “[w]himsy” as she asserted, “matters” (n. pag.).

The glass legs made Mullins a modern and dazzling Cinderella, “an ideal woman with just the right legs (or lack of them)” insofar as they simultaneously entail the figurative characteristics of “transparency,” “delicacy,” “femininity,” and “fragility,” as Sobchack argues (35). What is worth mentioning here is that Mullins’s legs not only blur the categorization of (super)ability and disability but also confuse the demarcation between human and animal and the borderline

between animate and inanimate. Indisputably, Mullins's legs transform her into an embodiment of beauty and eroticism; she is a "figure of sexual athleticism, the cyborgian sex kitten, or the eroticized amputee" (Smith, "The Vulnerable Articulate" 60). Paradoxically, her image has also become a commercial and aesthetic icon, and her legs are a metaphor of anything other than disability. It becomes impossible to talk about her identity and experience as anything other than metaphor.

In light of the metaphorical applications and projections of the prosthetics, the bodily modifications have made a shift from conformity to norms to challenging received conceptions of normality, and as Linda F. Hogle claims, the technological ability to alter bodily forms and functions is often "beyond what is normal or necessary for life and well-being" (695). Indeed, there is an increasing tendency to use prostheses as "body-enhancing supplements" rather than as "a means of making good a loss or absence" (Eyre 110). Aimee Mullins's use of prosthetic limbs to enhance her body as well as to supplant missing parts is a typical example of this metamorphosis and transformation. With the aid of prostheses, identity has truly become fluid.

Reflexivity: The Prosthetic Turn

We are now moving into a reconfigured world where prostheses encompass far more complicated issues than simply constructing an aid to resume mobility. Concerning the "malleability of the body as phenomenological somatechnic," Mullins's talk on the applications of prosthetics is worthy of further reflection (Booher, *Prosthetic* 131). A prosthetic limb, as she claims, "doesn't represent the need to replace loss anymore. It can stand as a symbol that the wearer has the power to create whatever it is that they want to create in that space," so people with disabilities can now become "the architects of their own identities" and they can change their identities by reconfiguring their bodies through the aid of prosthetics ("My 12 Pairs of Legs" n. pag.). Mullins's personal experience of wearing artificial legs gives witness to the possible interconstitutive fusions and integrations between body and prosthesis.

The innovations and applications of prosthetics raise several thought-provoking questions for further consideration. First of all, is not the concept of the body as organic or inorganic, virtual or simulated, very problematic? A natural body and an artificial or prostheticized body may look very similar but the concept of bio involved in the construction or development of humans is quite different and initiates new experiences of embodiment. In fact, the body, prosthesis,

and the interconstitutive fusions or integrations will constantly reorganize bodily experiences and reconfigure embodiments and are thus in constant entangled feedback and feedforward loops with the others. Related to the concept of bio is the construction of normality, which, according to Lennard Davis, was completely defined in terms of the appearance, behavior, and functioning of bodies before the twentieth century and is now undermined by innovated prosthetic embodiments, since the prosthetized body constantly negotiates and rewrites the individualized conceptions of normality which together constitute a new norm. Indeed, notions of what is “normal” have changed drastically, inasmuch as the evolution and design of technologies of the body are intertwined with both the practical and subjective needs of human beings, through extension, replacement, and supplementation. The question is whether this change will be able to emancipate people with disabilities from a marginal and oppressed position since it used to be the baseline to exclude and marginalize people from dominant society. Or will it just push them to an even worse condition by weakening their competitiveness on the job market and thus jeopardizing their living conditions? For example, the Exoskeleton, a newly invented prosthetic device used to help physically disabled individuals regain their lost mobility, have recently been adopted by Ford and the US Army to reduce fatigue from high-frequency activities and decrease the chances of injury for non-disabled workers and soldiers.⁷ The prosthetic is a double-edged phenomenon; it may help disabled people to regain their lost abilities and look “normal,” on the one hand, but it may simultaneously exclude them, on the other, for not having hyper or super abilities, which may be the primary feature for defining a “normal” person in the coming age. In an interview, Elon Musk, the CEO of SpaceX and Tesla, and Gray Scott, futurist and technology expert, pointed out that humans are now transforming into “a new technological species” (“Enter the Matrix” n. pag.). In this new world, new technology in prostheses has enabled us to extend bodily functions and control the world efficiently, and “a new range of embodied forms” may come into being to remake the world, as Mike Featherstone and Roger Burrows predict (2). Of course, “the prosthetic impulse” is prevalent in an irreversible and unprecedented way and technology’s impact points to “the possibilities of post-bodied and post-human forms of existence” (2). For better or worse, it seems that there is no chance to stop it, and, inevitably, every aspect of our

⁷ Russ Angold, Ekso Bionics co-founder, said in a press release, “[t]he end result is a wearable tool that reduces the strain on a worker’s body, reducing the likelihood of injury, and helping them feel better at the end of the day—increasing both productivity and morale,” as Dom Galeon reports (n. pag.).

lives will be transformed as a result.

Prostheses have transformed the human being into a transhuman,⁸ and the incentive for this transformation has something to do with the use of assistive technology by people with disabilities, who, in Campbell's and Wolbring's view, are "a natural constituency for transhumanism" (qtd. in Goodley 24). Sara Hendren, for instance, comments, "people with disabilities who are using assistive technologies every day are our richest resource of wisdom about the cyborg-self, about how we integrate technologies into our lives. They've been doing it in significant ways already, everyday, for a long time" (Alvarez n. pag.). While pointing out the contribution that people with disabilities bring to research on the cyborg, Hendren also claims that sadly their assistive technologies are often "medicalized, and a kind of a medical-tragedy story," and people tend to ignore them as "a knowledge resource." She insists, "[w]e should enter the post-human with our wits about us, with our critical eye on these things" (Alvarez n. pag.). The ubiquitous presence of the prosthetic in fact announces the emergence of the posthuman condition. As Smith and Morra argue, "prosthesis conjures up a posthuman condition," insofar as "the human has been technologized and technology humanized" ("Overview" n. pag.). Apparently the multifaceted uses or applications of prosthesis not only blur the boundary between a natural and artificial body and between disability and ability or super-ability, but also pose questions about the definition and construction of the post/human. Donna Haraway, a pioneer theorist in posthumanism, names the newly constructed hybrid of machine and organism as a cyborg and theorizes it as "a resource for escaping the myths of progress and organic history" to "transgress old boundaries between machine and animal, male and female, and mind and body"; she embraces and encourages "hybridization" (149). In light of this, people with disabilities should articulate how their lives bring something new to the world that may otherwise go unrecognized. Scholars in the past seldom connected disability with the posthuman condition because one signifies deterioration and the other seems cutting-edge and forward-looking. However, disability is itself a critical condition of posthumanity, and scholars such as Dan Goodley, Scott Deshong, Donna Reeve, Margaret M. Quinlan, and Benjamin R. Bates, among others, have recently noted the connection and begun to establish as well a dialogue between disability studies and posthumanism. Goodley, for instance, works with Rebecca

⁸ Transhumanism is an interdisciplinary study of the multifaceted interplay between humanity and technology. According to the World Transhumanist Association, "[t]ranshumanism is a way of thinking about the future that is based on the premise that the human species in its current form does not represent the end of our development but rather a comparatively early phase" (qtd. in Goodley 24).

Lawthom and Katherine Runswick Cole to tackle the question, “what does it mean to be human in the twenty-first century and in what ways does disability enhance these meanings?” (Goodley, Lawthom, and Runswick 342). Employing disability as a political category and drawing on the theories of Rosi Braidotti, they suggest that the human might be an outdated phenomenon and will be replaced by the posthuman condition, which, according to Braidotti, goes against the grain of high humanism’s centering of the human and “urges us to think critically and creatively about who and what we are actually in the process of becoming” (12). Like Haraway, Braidotti defines the posthuman as “a complex assemblage of human and non-human” (159) and the posthuman turn as a move ‘beyond lethal boundaries’ (37).⁹ For Braidotti, “disability studies is almost emblematic of the posthuman predicament. Ever mindful that we do not yet know what a body can do, disability studies combine the critique of normative bodily models with the advocacy of new, creative models of embodiment” (146). She believes that disability can best exemplify the posthuman condition.

In effect, disability provides generative conditions for thinking through the posthuman notion of “becoming machine” which “bears a privileged bond with multiple others and merges with one’s technologically mediated planetary environment” (92). The fusion of human and technology or prosthetics creates “a new transversal compound” and generates a new mode of subjectivity aimed at “crossing transversally the multiple layers of the subject, from interiority to exteriority and everything in between” (92). Both Haraway and Braidotti agree that disability is entirely at ease with the posthuman; both try to explain contemporary complexities of identity and welcoming moments of difference, diversity, and disruption by undermining the concept of anthropocentrism and by showing the blurred and transgressed boundaries between bodies and the world, the biological and the technological, and the natural and the artificial. Yet, a problematic part of their arguments, those of Donna Haraway in particular, is the paradoxical associations relating to people with disabilities. While Haraway heralds the coming of the brave new world by comparing paraplegias with the posthuman, she ignores the discrimination it entails toward people with disabilities. Haraway uses disability as an illustration of the cyborg condition, and disabled bodies are merely presented “as

⁹ To be clear, Braidotti delineates the posthuman subject “as a relational subject constituted in and by multiplicity, . . . a subject that works across differences and is also internally differentiated, but still grounded and accountable. Posthuman subjectivity expresses an embodied and embedded and hence partial form of accountability, based on a strong sense of collectivity, relationality and hence community building . . . an affirmative bond that locates the subject in the flow of relations with multiple others” (49-50).

exemplary, and self-evident, cyborgs, requiring neither analysis nor critique,” as Alison Kafer contests (105). Tobin Siebers, for instance, points out that Haraway holds some misconceptions about people with disabilities. For Haraway, severe disability, like paraplegia, is an example of intricate hybridization: “Perhaps paraplegics and other severely handicapped people can (and sometimes do) have the most intense experiences of complex hybridization with other communication devices” (178). However, as Siebers points out, Haraway does not “shy away” from improper comparison, because there is a fundamental discrepancy between what Haraway suggests here and disabled people relying on prostheses to regain mobility. To clarify, Siebers provided his personal experience of using the brace to rebut Haraway’s comparison.¹⁰ In Siebers’ view, Haraway is so “preoccupied with power and ability” that she overlooks what disability is. Siebers elaborates: “Prostheses always increase the cyborg’s abilities; they are *a source only of new powers*, never of problems. The cyborg is always *more than human*—and never risks to be seen as subhuman. To put it simply, *the cyborg is not disabled*” (Siebers, “Disability in Theory” 178; emphases added). However, Siebers’ personal experience shows that the disabled cyborg is actually an oxymoron, insofar as able-bodied people tend to represent disability as “a marvelous advantage,” when it is actually a mark of disadvantage in real life (178).

In a similar vein, Kafer also criticizes Haraway’s biased naming of people with disabilities. Kafer points out that the word “handicapped” is an offensive term suggesting the idea of a beggar with cap in hand, making it “harder to notice the lack of attention to the experiences or perspectives of disabled people,” and echoing “longstanding ableist assumptions about the uselessness of physically disabled bodies (112). Indeed, it is not easy for nondisabled people or scholars to demystify the association of prosthetic technology with disabled people. If Haraway considers disabled people as “real-life cyborgs,” then the term “cyborg” has been

¹⁰ Siebers recalled a childhood story about his use of a prosthesis,

Here is one of mine. I wore a steel leg brace throughout my childhood, and one early summer evening, an angry neighborhood boy challenged me to a fistfight, but he had one proviso: he wanted me to remove my steel brace because he thought it would give me unfair advantage. He was afraid I would kick him. I refused to remove my brace, but not because I wanted an additional weapon. I had hardly the strength to lift my leg into a kick, let alone the ability to do him harm. I refused to remove the brace because I knew that at some point in the fight this angry boy or someone else would steal my brace from the ground and run away with it, and I would be left both helpless and an object of ridicule for the surrounding mob of children. (178)

simultaneously transfigured as another “marker” to distinguish nondisabled people from disabled people (110). Furthermore, Kafer disputes the idea that, despite posthuman critics’ tendency to approach the term “cyborg” as “a critique of existing categories and ideologies” to ratify the assemblage of a posthuman subject, they often end up using it to “perpetuate distinctions between ‘normal’ and ‘abnormal’ bodies” and embroider imaginatively and extravagantly the “congealed power” embodied and embedded in the prosthesis itself (110; Davis 81).

Ironically, the starting point in any discussion about the cyborg is “transgressed boundaries,” as Haraway claims, but the connection is always related to “a fully functioning human and a fully functioning machine” (Quinlan and Bates 51). This assumption has seldom been questioned. While prostheses are connected with transhumanism, like cyborgs, too often they have flirted with ableism, and thus ignored unsettled issues associated with disability and marginalization. The ironic part of the use of prostheses as enhancement supplements is that they have never truly benefited people with disabilities; instead, they are used to satisfy “the insatiable pursuit of the idealized species typical body and growing desire to push beyond the natural limits,” and, in doing so, they only help “construct the able-bodied subject as the benchmark” for measuring the value of human beings, as Cynthia Bruce puts it (181). The most dangerous part is that the centering of this able-bodied subject will ultimately lead society to use modern technology to exclude the disabled Other or to erase people with disabilities (181). If the quest for perfection was pushed to its extreme degree, people with disabilities could be at risk of extermination. Furthermore, Wolbring complicates the debate by arguing that enhancement technologies will very likely “generate new ability divides as well as gradations of wealth from techno-poor to techno-rich” (qtd. in Goodley 161). Certainly, most of the time it is the rich who can access advanced prosthetic devices, while people with disabilities, the so-called techno-poor, are prevented from accessing these resources.

Conclusion

The reflexive impact of high-tech prosthesis on the body gives witness to how prosthetic technology subverts boundaries between ability and disability, flesh and machine, and the human and the posthuman. It also envisions a future where, as Siebers astutely foresees, cybernetics or prosthetics may facilitate the transformation of human intelligence through the downloading of new hardware as replacements or to fix bodily dysfunctions via “a quick trip to the spare-parts depot”

(“Disability and the Theory of Complex Embodiment” 272-73). Prosthesis destabilizes the singular and static condition of the body and this corporeal indeterminacy creates different forms of human-hybridity. Despite disabled people’s special need for prosthetic devices, the prosthetic impulse or desire for prosthetics is, according to Sigmund Freud, universal to human beings, inasmuch as they all intend to become a “prosthetic God” (101). The impulse makes possible the fusion of body and prosthetics and leads people to become caught up in multiple and unpredictable webs of connection and thus become subjects of assemblage, in the Deleuzian sense of the term. The material fusions create different prosthetic configurations of human-hybridity, which, however, become complicated when they are endowed with different cultural and social meanings, as indicated in the examples in the section on prosthetic imagination. Both the materiality and metaphoricality of prosthetics will have an immeasurable impact on the identity and subjectivity of human beings. The multi-faceted fusions, which create different embodiments, are crucial to “the understanding of humanity and its variations, whether physical, mental, social, or historical,” as Siebers suggests (“Disability and the Theory of Complex Embodiment” 271). In light of this, disability offers an onto-epistemological vantage point from which to investigate “the meaning of being human” (Castrodale 11).

This essay problematizes the construction of body and its interinvolvement with the world/technologies/prostheses in terms of the debates between disability studies scholars and posthumanist critics, with a special emphasis on cyborg identity. In fact, disabled people’s experiences of living with technology provide the material realities of the cyborg, which posthumanist critics tend to ignore. Indeed, their experience incarnates cyborg identity by creating fusions of outside identities, and the disabled cyborg theoretically offers new ways of being and directly challenges what is normal. Concerning new ways of being, Tobin Siebers, Donna Reeve, Sharon Snyder, David Mitchell, and Margrit Shildrick all propose similar concepts but from different perspectives. As Shildrick claims, “[i]n place of the security of a rigid categorization that has bred intolerance, persecution and the putative mastery of strange and unfamiliar others, there is the opportunity of positive transformation in our ontological and epistemological models” (128). The positive transformation calls for a new form of identity. In a similar vein, Mitchell and Snyder propose the concept of “nonnormative positivisms” to open up “the matter and materiality of embodiment as exceeding its social scripts of limitation,” and acknowledge that “they have no predestined, necessary, or predictable trajectory” (5). The non-normative positivisms, moving in tandem with Siebers’s concept of “complex

embodiment,” comprise a more rigorous engagement with the ways in which disabled people experience “their material lives as alternatively embodied,” rather than as “passified objects of social forces exclusively sculpted from the outside” (Mitchell and Snyder 6-7). Normative positivisms provide “alternative spaces,” a critical “third rail of disability experience,” to those who live “in peripheral embodiments,” revealing the possibilities of “living within alternative embodiments” (5-6). They also suggest that disability studies must be able to explore how disability subjectivities “productively create new forms of embodied knowledge and collective consciousness,” and how crip bodies may reveal the value of alternative lives (2). Likewise, Donna Reeve defines new ways of being which incorporate prosthetics into the “corporeal and psychic sense of self” as “iCrip” (106). The iCrip, in Reeve’s view, is “(non)disabled and (ab)normal,” representing new ways of being and transgressing the binary divisions between normal and abnormal, able-bodied and disabled (108).

The inventions and applications of prosthetics open up productive ways of thinking about the fluid subjectivities of people with disabilities and create new materiality for physical bodies and new ways of being in the world that emerge from living as cyborg. Cyborg theory, however, requires “a close crip reading,” as Kafer suggests, to avoid its “complicity in militarization, colonization, and control,” a performative act of ableism, and to enable work as allies to undermine “essentialist identities” and “ideologies of wholeness” (Kafer 105, 128). To conclude, we want to ratify Kafer’s claim that cyborgs should take responsibility for “refusing the erasure of disability from our presents and futures” (128). Instead, they should provide an alternative space for iCrip to come into being with diverse embodiments and fluid subjectivities.

Works Cited

- Alvarez, Ana. “Inside the Prosthetic Imaginary: An Interview with Sara Hendren.” *Rhizome*. Andrew W. Mellon Foundation, 4 Oct. 2012. 14 Mar. 2017. <rhizome.org/editorial/2012/oct/4/inside-prosthetic-imaginary-interview-sara-hendren/>.
- Barnes, Colin. *Disabling Imagery and the Media: An Exploration of the Principles for Media Representations of Disabled People*. Staffordshire: Keele UP, 1992.
- Booher, Amanda K. “Defining Pistorius.” *Disability Studies Quarterly: The First Journal in the Field of Disability Studies* 31.3 (2011): n. pag. <dsq-sds.org/article/view/1673/1598>.

- . “Docile Bodies, Supercrrips, and the Plays of Prosthetics.” *Disability Studies in Feminist Bioethics*. Spec. issue of *International Journal of Feminist Approaches to Bioethics* 3.2 (2010): 63-89.
- . *Prosthetic Configurations: Rethinking Relationships of Bodies, Technologies, and (Dis)Abilities*. Diss. Clemson U, 2009. *TigerPrints*. <tigerprints.clemson.edu/all_dissertations/443>.
- Braidotti, Rosi. *The Posthuman*. Cambridge: Polity, 2013.
- Bruce, Cynthia. Rev. of *Dis/Ability Studies: Theorizing Disableism and Ableism*, by Dan Goodley. *Canadian Journal of Disability Studies* 5.2 (2016): 178-83.
- Campbell, Fiona Kumari. *Contours of Ableism: The Production of Disability and Aabledness*. Houndmills: Palgrave Macmillan, 2009.
- Castrodale, Mark. Rev. of *The Question of Access: Disability, Space, Meaning*, by Tanya Titchkosky. *Canadian Journal of Disability Studies* 3.1 (2014): 11-16.
- Davis, Lennard J. *The End of Normal: Identity in a Biocultural Era*. Ann Arbor: U of Michigan P, 2014.
- Degeler, Andrii. “Cyathlon 2016: No Cyborgs Yet, but We’re Getting There.” *Ars Technica*. Condé Nast UK, 7 Nov. 2016. 2 Feb. 2017. <<https://arstechnica.co.uk/information-technology/2016/11/cyathlon-2016-no-cyborgs-yet-but-were-getting-there/>>.
- Dolan, James. “The World’s First Cyathlon: Let the Games Begin.” *NUVO*. Pasquale Cusano, 1 Dec. 2016. 12 Feb. 2017. <nuvomagazine.com/magazine/winter-2016/the-worlds-first-cyathlon>.
- “Enter the Matrix: ‘Humans Are Transforming into a New Technological Species.’” *RT: Question More*. TV-Novosti, 30 Mar. 2017. 12 Feb. 2017. <<https://www.rt.com/op-edge/382861-implants-musk-human-artificial-intelligence/>>.
- Eyre, Pauline. “Transforming Bodies: Prosthetics Seminar.” *Journal of Literary & Cultural Disability Studies* 5.1 (2011): 109-12.
- Featherstone, Mike, and Roger Burrows. “Cultures of Technological Embodiment: An Introduction.” Featherstone and Burrows 1-19.
- , eds. *Cyberspace/Cyberbodies/Cyberpunk: Cultures of Technological Embodiment*. London: SAGE, 1995.
- Freud, Sigmund. “Civilization and Its Discontents.” 1930. *The Standard Edition of the Complete Psychological Works of Sigmund Freud*. 1961. Trans. and general ed. James Strachey in collaboration with Anna Freud. Vol. 21. London: Hogarth P and Inst. of Psycho-Analysis, 1981. 64-145.
- Galeon, Dom. “Ford Pilots a New Exoskeleton to Lessen Worker Fatigue.”

- Futurism: Building the Future Together*. Dubai Future Foundation, 10 Nov. 2017. 12 Feb. 2017. <<https://futurism.com/ford-pilots-new-exoskeleton-lessen-worker-fatigue/>>.
- Gilman, Sander L. *Making the Body Beautiful: A Cultural History of Aesthetic Surgery*. Princeton: Princeton UP, 2001.
- Goodley, Dan. *Dis/ability Studies: Theorising Disablism and Ableism*. London: Routledge, 2014.
- , Rebecca Lawthom, and Katherine Runswick Cole. “Posthuman Disability Studies.” *Subjectivity* 7.4 (2014): 342-61.
- Haraway, Donna J. *Simians, Cyborgs, and Women: The Reinvention of Nature*. New York: Routledge, 1991.
- Herschbach, Lisa. “Prosthetic Reconstructions: Making the Industry, Re-Making the Body, Modelling the Nation.” *History Workshop Journal* 44 (1997): 22-57.
- Hogle, Linda F. “Enhancement Technologies and the Body.” *Annual Review of Anthropology* 34 (2005): 695-716.
- Jain, Sarah S. “The Prosthetic Imagination: Enabling and Disabling the Prosthesis Trope.” *Science, Technology, & Human Values* 24.1 (1999): 31-54.
- Kafer, Alison. *Feminist, Queer, Crip*. Bloomington: Indiana UP, 2013.
- Kannen, Victoria. “Identity Treason: Race, Disability, Queerness, and the Ethics of (Post)Identity Practices.” *Culture, Theory and Critique* 49.2 (2008): 149-63.
- Kaplan, Ken. “How Intel Keeps Stephen Hawking Talking with Assistive Technology.” *iQ by Intel*. Intel, 2 Dec. 2014. 12 Feb. 2017. <<https://iq.intel.com/behind-scenes-intel-keeps-stephen-hawking-talking/>>.
- Kurzman, Steven L. “Presence and Prosthesis: A Response to Nelson and Wright.” *Cultural Anthropology* 16.3 (2001): 374-87.
- Merleau-Ponty, Maurice. *Phenomenology of Perception*. 1945. Trans. Colin Smith. New York: Routledge, 2005.
- . *The Structure of Behavior*. 1942. Trans. Alden L. Fisher. Pittsburgh: Duquesne UP, 1983.
- Mitchell, David T., and Sharon L. Snyder. *The Biopolitics of Disability: Neoliberalism, Ablenationalism, and Peripheral Embodiment*. Ann Arbor: U of Michigan P, 2015.
- Mullins, Aimee. “My 12 Pairs of Legs” 11 Mar. 2009. 8 June 2013. <http://www.ted.com/talks/aimee_mullins_prosthetic_aesthetics.html>.
- “Overview” of *The Prosthetic Impulse: From a Posthuman Present to a Biocultural Future*. Ed. Marquard Smith and Joanne Morra. Cambridge: MIT P, 2007. 12 May 2016. <<https://mitpress.mit.edu/books/prosthetic-impulse>>.

- Quinlan, Margaret M., and Benjamin R. Bates. "Bionic Woman (2007): Gender, Disability and Cyborgs." *JORSEN: Journal of Research in Special Educational Needs* 9.1 (2009): 48-58.
- Reeve, Donna. "Cyborgs, Cripples and iCrip: Reflections on the Contribution of Haraway to Disability Studies." *Disability and Social Theory: New Developments and Directions*. Ed. Dan Goodley, Bill Hughes, and Lennard Davis. London: Palgrave Macmillan, 91-111.
- Serlin, David. "Disability, Masculinity, and the Prosthetics of War, 1945 to 2005." Smith and Morra 155-83.
- . *Replaceable You: Engineering the Body in Postwar America*. Chicago: U of Chicago P, 2004.
- Shildrick, Margrit. *Embodying the Monster: Encounters with the Vulnerable Self*. London: SAGE, 2002.
- Siebers, Tobin. "Disability and the Theory of Complex Embodiment—For Identity Politics in a New Register." *The Disability Studies Reader*. Ed. Lennard J. Davis. 5th ed. New York: Routledge, 2016. 313-32.
- . "Disability in Theory: From Social Constructionism to the New Realism of the Body." *The Disability Studies Reader*. Ed. Lennard J. Davis. 2nd ed. New York: Routledge, 2006. 173-84.
- Smith, Marquard. "The Vulnerable Articulate: James Gillingham, Aimee Mullins, and Matthew Barney." Smith and Morra 43-72.
- , Joanne Morra, eds. *The Prosthetic Impulse: From a Posthuman Present to a Biocultural Future*. Cambridge, MA: MIT P, 2007.
- Sobchack, Vivian. "A Leg to Stand On: Prosthetics, Metaphor, and Materiality." Smith and Morra 17-41.
- Stone, Allucquère Rosanne. *The War of Desire and Technology at the Close of the Mechanical Age*. Cambridge, MA: MIT P, 1995.
- Titchkosky, Tanya. *The Question of Access: Disability, Space, Meaning*. Toronto: U of Toronto P, 2011.
- "What Are Prosthetics??" *Wonderopolis: Where the Wonders of Learning Never Cease*. National Center for Families Learning, 2011. 1 May 2017. <<https://wonderopolis.org/wonder/what-are-prosthetics>>.
- Wigley, Mark. "Prosthetic Theory: The Disciplining of Architecture." *Assemblage* 15 (1991): 6-29.
- Wills, David. *Prosthesis*. Stanford: Stanford UP, 1995.
- Wilson, Robert Rawdon. "Cyber(Body)Parts: Prosthetic Consciousness." Featherstone and Burrows 239-59.

- Wit, Inken de. "Learn How to Walk." *ETH Zürich*. Eidgenössische Technische Hochschule Zürich, 25 Sept. 2016. 12 Feb. 2017. <<https://www.ethz.ch/en/news-and-events/eth-news/news/2016/09/learn-how-to-walk.html>>.
- Wolbring, Gregor. "Expanding Ableism: Taking Down the Ghettoization of Impact of Disability Studies Scholars." *Societies* 2.3 (2012): 75-83.

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