Cyborgean Horizons: Gender, Disability and Technology in Olympic and Paralympic Sport, An Intersectional Approach

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CYBORGEBAN HORIZONS: GENDER, DISABILITY AND TECHNOLOGY IN OLYMPIC AND PARALYMPIC SPORT, AN INTERSECTIONAL APPROACH

by

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A master’s thesis submitted to the Graduate Faculty in Political Science in partial fulfillment of the requirements for the degree of Master of Arts, The City University of New York

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This manuscript has been read and accepted for the Graduate Faculty in Political Science in satisfaction of the thesis requirement for the degree of Master of Arts.

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ABSTRACT

Cyborgean Horizons: Gender, Disability and Technology in Olympic and Paralympic Sport, an Intersection Approach

by
Stephanie O’Neill

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This paper examines two types of embodiment and its verification in the context of contemporary sports: sex/gender-verification testing in the Olympics, and the International Paralympic Committee’s multi-tiered grading system for assessing disability, the premises of which raise important questions for feminist and disability theory, as well as for the increasing and increasingly integrated role that technology plays in both the Olympics and the Paralympics. I outline the 80-year history of policing the gender binary in international sport and its controversies, with particular attention to the Castor Semenya case, and the implications for intersex and transgender athletes. I examine the history of the Paralympics and its precursor federations through the lens of Foucault’s theory of governability, and the implications of this history for the complex systems of athlete classification and disability verification in contemporary competition. Turning to the role of technology, I examine the rise of the “cyborg athlete,” the athlete subjectified by and realized through the intervention of technology in five ways: self technologies, landscape technologies, implement technologies, rehabilitative technologies and movement/evaluative technologies; examples of each are presented from the 2012 Olympic and Paralympic games. I then argue for a new materialist approach to the
relationship between technology and embodiment as a theoretical framework for
reframing a new hermeneutic horizon for identity politics, in which removing the natural
vs. artificial divide by advocating a theory of cyborgification allows a more intersectional
approach to embodiment and a new way forward.
Man is an invention of recent date. And one perhaps nearing its end.
– Michel Foucault

The machine is not an it to be animated, worshipped, and dominated. The machine is us... an aspect of our embodiment. We can be responsible for machines; they do not dominate or threaten us. We are responsible for boundaries; we are they.
– Donna Haraway
# TABLE OF CONTENTS

II. Introduction .................................................................................................................................................. 1

III. Gender Verification in the Olympics ................................................................................................................. 4  
    A. History .......................................................................................................................................................... 4  
    B. Intersexed Athletes ...................................................................................................................................... 10  
    C. Transgendered/Transsexual Athletes: Illuminating the Discussion ............................................................... 14  

IV. Disability Verification in the Paralympics .......................................................................................................... 19  
    A. Definitions/Groundwork ............................................................................................................................. 19  
    B. History of Disability Verification Testing: Disability vs. Functional Ability .................................................... 22  
    C. Supercrips: Illuminating the Discussion ...................................................................................................... 26  

V. Discussion: The Cyborg Athlete ......................................................................................................................... 29  
    A. Theoretical Grounding: Technology ........................................................................................................... 29  
    B. The Cyborg Athlete: Olympic and Paralympic ............................................................................................ 32  
    C. Cyborgean Horizons ..................................................................................................................................... 38  

VI. Conclusion: Integration and Beyond .................................................................................................................. 43  

VII. Bibliography .................................................................................................................................................... 46
### TABLE OF FIGURES

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Figure 1</td>
<td>Oscar Pistorius, South African Paralympic and Olympic Runner</td>
<td>33</td>
</tr>
<tr>
<td>Figure 2</td>
<td>Example of wheelchair used by Great Britain’s Paralympic Basketball Team...</td>
<td>34</td>
</tr>
<tr>
<td>Figure 3</td>
<td>London 2012 Olympic Stadium Paddle Lights</td>
<td>35</td>
</tr>
<tr>
<td>Figure 4</td>
<td>London 2012 Olympic Stadium</td>
<td>36</td>
</tr>
</tbody>
</table>
II. Introduction

Two particular sites of embodiment, both within the sporting world, have garnered international attention in the past few years. The first, perhaps more familiar in common parlance, involves the world of sex/gender-verification testing in the Olympics. Its purpose is to verify the sex of an athlete to prevent an unfair advantage being gained by an individual of the opposite sex (read male) who tries to compete in another same sex sport (read female). These tests have come under scrutiny from those who feel the test is humiliating, insensitive, and not accurate or effective. This is particularly the case with athletes with intersexed conditions, individuals whose genetic differences can allow them to have, for example, a male genetic make-up and female anatomy or body chemistry. And while the International Olympic Committee (IOC) has since 1996 discontinued the systematic use of verification testing for all athletes, it continues to reserve the right to test individual cases (most recently with track athlete Caster Semenya in 2009).

The use of such testing and the premises it rests upon raise important questions for feminist theorizing. Perhaps the most obvious issue is the way in which athletes, and particularly female athletes, are policed for their gender expression and their biological makeup. As a feminist, there are certain questions that arise out of such practices: what kind of embodiment is the IOC striving to preserve and uphold in competitions, and what kind of bodies is it trying to exclude? What mechanisms or apparatuses are being utilized to mark out these boundaries of normative and non-normative bodies? Moreover, does the supposed premise of sporting advantage, upon which these tests are based, hold up under scrutiny? What does this advantage really mean? Is the IOC really seeking to discover male athletes disguising themselves as women to gain some purported advantage, or is there something more at play?

The second site of embodiment, which has arguably received much less attention,
involves Paralympic athletes. In many ways the issues that “able-bodied” athletes face are similarly faced by “dis-abled” athletes. While issues or questions of sex/gender verification do not seem to proliferate in the disabled athletic world as they do in the abled athletic world, the extent of disability certainly does. Unlike the IOC, the International Paralympic Committee (IPC) has established a much more complicated system for separating athletes (though they also separate sports by sex). They use a multi-tiered grading system for assessing disability, which shifts with each sporting event. Equestrian riders, for example, face a five-tier grading system, whereas swimmers face a ten-tier classification system with a sub-system of grading that accounts for both visual and intellectual impairments. Mis-classification within the grading system is a concern when it comes to sporting advantage.

Mallory Weggeman, for example, is an American swimmer paralyzed from the waist down. Three weeks prior to the London Paralympics, she was given notice that she would have to submit for reclassification (testing of her disability). Weggeman has always swum at the S7 level, against athletes who have had double leg amputation or paralysis down one side of their bodies. However, after her evaluation she was moved to level S8, a class in which athletes are deemed less disabled. Weggeman herself protested this move, noting that she had neither function nor feeling from the navel down, unable to use either of her legs for competition, but would be forced to compete against individuals who were missing only one arm or leg.

It is clear that the Paralympics is not immune to the accusations of unfair advantage that arise from “mis-classification” of athletes. As a result, similar questions arise when considering this scenario: what kinds of disability does the IPC consider legitimate? What disabilities are

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1 I put these terms in quotations marks to indicate that as terms alone they are inherently problematic. However, I will refrain from putting them in quotations throughout the paper and hope that my initial citation of dispute will be sufficient.
illegitimate? Is the grading system a better alternative for assessing sporting advantage than the sex/gender testing, or is it equally or even more fraught with problems? Moreover, in what ways does the very notion of ability and disability obscure the potential of these athletes? In some instances, they compete near or at the level of their able-bodied counterparts.

With these questions in mind, I would like to assess each area of sporting competition separately, noting the ways in which both the IOC and the IPC work to produced normalized bodies, and paying particular attention to the kinds of mechanisms utilized by each organization to police the boundaries of normativity, whether gender/sex or abled/disabled. Furthermore, I would like to focus on the issue of technology and the theoretical potential of reframing elite athletes in both sporting arenas as cyborg athletes. In so doing, I will seek to answer the following:

In what ways does the current understanding of sporting advantage – seen to be rooted in some kind of natural capacity – not account for the ways in which both able-bodied individuals and disabled individuals benefit and increase their sporting abilities through technology? How do assistive technologies, as used by Paralympic athletes, blur the divisions between “ability” and “disability?” How can we approach technology itself as it figures into both the Olympics and the Paralympics? Lastly, how does a new materialist theoretical underpinning help to re-imagine the very profound relationship between technology, the individual, and matter itself?² As a result this project will contribute not only to studies of the Olympics and Paralympics, but also to studies of disability, embodiment, and identity politics. Perhaps most importantly, this project will attempt to negotiate the divide between new materialist thinking and identity politics, which are often held to be mutually exclusive areas of study.

² Currently I am envisioning each of these three topics – sporting advantage, assistive technologies, and a new materialist theoretical framework, each as a chapter for a dissertation, with a fourth chapter focusing on policy.
III. Gender Verification in the Olympics

A. History

Most sports organizations function upon the premise that individuals come in one of two sexes/genders: male or female. Consequently, athletes are expected to exist within this framework, whether they are deemed normal embodiments of the sex/gender spectrum, or if they are seen as lying beyond what is considered normal: intersex, transgender, transsexual, etc. Since the 1930s, these organizations have relied on both scientific and medical professionals to provide “objective” judgements about the eligibility of athletes to compete in women’s national and international sporting events. The need for these kinds of judgement can be traced to a specific historical moment.

As major international sporting events developed in the late nineteenth century, issues of physical display, modesty, muscularity, and the risk of sterility were all cited as reasons for excluding women from sporting activities. The only way women could participate in competitive sport was through sexually segregated events. The historical process which then followed can be roughly traced as follows: the early years of the twentieth century represented an era of great struggle and triumph for women in sports, with their eventual acceptance into Olympics on a systematic level in the early 1920s. However, as the role of women in international sport began to gain more publicity, the desire to win both the athletic competition

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4 Ibid.
and a sense of political advantage led some nations to deliberately encourage cheating in both the men’s and women’s events. Consequently, doping and gender fraud became central concerns in the late 1950s and 60s, resulting in the introduction of a systematic form of testing.

Systematic gender testing called into question the authenticity of the process of femininity certification that had previously belonged to the jurisdiction of both the team and the athlete’s family doctor. The tests sought to remove bias from the determination athlete eligibility, taking place for the first time at the 1966 European Athletics Championship in Budapest. There, female athletes were asked to undergo a visual examination of the genitals and secondary sexual features, which was carried out by a panel of three female doctors. Following objections from many of the athletes, who felt this process to be too invasive and humiliating, the Barr body test was adopted by the IOC in 1967 and used in the 1968 Mexico City Olympic Games.

The Barr body test involves chromosomal screening of cells taken from the inside of the cheek. Under typical circumstances, females have two X chromosomes and men have one X and one Y chromosome. During prenatal development, the second X chromosome in the typical female is inactivated to form what is called a Barr body in the nucleus of the cell. Typical males do not have a second inactive X chromosome, and thus do not have any Barr bodies. If a sex chromatin test is positive for Barr bodies, then a test subject has more than one X chromosome. If the test is negative for Barr bodies, then an individual has only one X chromosome. The presumption of those using the Barr body test is that a male with XY chromosomes will test negative for Barr bodies, while a female with XX chromosomes will test positive for the Barr

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6 Heggie, 160.
8 Ibid., 27.
bodies and should be granted permission to compete as a woman.\(^9\) However, as many noted as
the time and thereafter, this test for chromosomal sex does not necessarily map onto
physiological or phenotypic sex.\(^{10}\) Furthermore, an individual who fails a Barr body test cannot
automatically be said, by essence of their failing, to have some physical superiority in
athleticism. Nevertheless, this test was used at the Olympic Games through the 1970s and the
1980s. Even with the high-profile dismissal from the Spanish Olympic team in 1986 of hurdler
Maria Martinez-Patino, the IOC remained reluctant to change its position on eliminating sex
tests.

While other organizations did relent and begin to eliminate gender testing altogether, the
IOC was less reciprocal to the idea of change. Instead they introduced a new kind of test in 1992,
a Polymerase Chain Reaction test that detects the sex-determining region Y (SRY) gene found
on the male chromosome.\(^{11}\) It was considered that the presence or absence of this single gene
(which in turn controls the expression of another gene that codes for a protein vital to testicular
formation) was a better marker of gender than the presence of X or Y chromosomes.\(^{12}\) Yet this
test was not without its problems, too, as it seemed to yield many false positives. In the Atlanta
1996 Olympic games eight women were purported to have failed this test and yet all of them
were allowed to compete after further examinations had been carried out.\(^{13}\) Finally, in 1999 the
IOC agreed to remove the requirement for sex testing of all female athletes. However, if
suspicion is aroused, the IOC reserves the right to selectively test athletes who seem to occupy
an ambiguous position – mandating any number of physiological, genetic, hormonal, and/or

\(^9\) Ibid.
\(^{10}\) Heggie, 160.
\(^{11}\) Gandert et. al., 30.
\(^{12}\) Heggie, 160.
\(^{13}\) Ibid.
psychological tests.

The narrative of sex testing in international sport tells us a great deal about our social attitudes to gender and how science can be used in sport to essentialize categories of embodiment. Sex testing in and of itself is a tautological practice; it relies on the assumption that the sex binary established by scientific discourse is correct and therefore easily tested for. Moreover, many (though not all) of the physical activities that we consider to be legitimate sporting events favor a physiology that is considered more masculine. As a general rule (again for most sports, though not all), the competitor who is taller, has a higher muscle-to-fat ratio, and the larger heart and lungs (plus some other cardio-respiratory factors) will have the sporting advantage.\textsuperscript{14} It is somewhat inevitable, then, that elite female athletes will tend to exemplify a physiological embodiment that is deemed more masculine than most “ordinary” women. The sex test, therefore, beyond quantifying the degree of femininity/masculinity at the genetic level, sets an upper limit for women’s physical presentation and sporting performance. After a certain point, whether it is one’s muscular physique, one’s sporting performance, or both – one’s body can be declared as “too masculine” and disqualification from the sport becomes imminent. Before I discuss how this scenario played out in the case of Caster Semenya, I would like to briefly outline the ways in which the IOC works with its umbrella organizations to facilitate the process of gender/sex testing.

The IOC serves as the supreme authority in the Olympic arena. It oversees other funnel organizations and creates rules that they must follow. Operating directly under the IOC are the National Olympic Committees (NOCs), which are member nations’ individual organizing committees. NOCs focus on their respective nation’s development and pursuit of sport, both by

\textsuperscript{14} Heggie, 158.
numbers and by participation amongst the general populace. The selection of athletes for the Olympic games falls under the purview of the NOCs. In addition to NOCs are the International Federations (IFs), the global administrators of a particular sport that is recognized by the IOC. The IOC delegates a wide area of responsibility to the various IFs to make sure they maintain the “integrity” of the sport. The International Association of Athletics Federations (IAAF), is the IF that governs the Olympic track and field events.

Although commonly unknown, Semenya’s ordeal began prior to the 2009 World Track and Field Championship, when she was asked to report for a drug (doping) test in South Africa. Without permission or consent (Semenya was 18 years old at the time), she was physically examined – her legs put into stirrups and her genitalia evaluated. This was, in fact, not a drug test but a sex test. However, the test result was inconclusive and the IAAF ordered a second test. This second test took place the day before she ran the 800-meter final in 2009. Semenya easily won, and as controversy ensued, she was withdrawn from international competition. It was not until July 6, 2010, that the IAAF finally announced that she was once again eligible to compete as a woman. Semenya would go on to win silver medals in the 800-meter event at both the 2011 World Championships and the 2012 Summer Olympics.

As stated previously, sex tests are much more than merely quantifying sex at the genetic level. They function to set an upper limit for women’s physical presentation and sporting performance. Semenya’s ordeal clearly demonstrates how this can be the case. General Secretary of the IAAF Peirre Weiss pointed to Semenya’s “ambiguity” as a reason for the testing, though he admitted the IAAF never though Semenya was “cheating” – masquerading as a man to gain

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15 Gandert et. al, 31.
16 Ibid., 22.
competitive advantage. Nevertheless, it is important to note that the purpose of gender testing, as outlined by the IOC in 1991, was to ensure only that men did not masquerade as women in competitions. Therefore, gender testing policy in Semenya’s case (even if selective rather than uniform) was no longer functioning to catch men competing as women, but to police the boundaries of gender/sex embodiment, ensuring that only “natural” females are allowed to compete. Such a practice has ruined the athletic careers and personal lives of many female athletes.

Moreover, this policy is blatantly discriminatory on two levels. First, while the IOC may feel that is has progressed in its policy stance by only selectively testing “suspicious” or “ambiguous” athletes, this practice only serves to highlight the kinds of embodiment it feels is acceptable. Semenya is both an extremely successful runner, breaking many records to date, and an “atypical” woman in her appearance. However, neither of these conditions should have prompted the ordeal she was made to suffer through for nearly a year. The second level on which gender/sex testing is discriminatory is that it is only used to test individuals competing in women’s sport. Individuals competing in men’s sport, however, are not scrutinized or tested for their gender/sex makeup. They do not face discrimination based on either their physical presentation or their sporting performance in relation to their gender/sex embodiment.

Is it so inconceivable that a woman might compete in men’s sport- and outperform them? Moreover, even if men and women compete across the sex division does gender/sex necessarily convey the ultimate advantage in competitiveness? To consider the questions at greater length I would like to address to areas of embodiment that call into question the foundations upon which

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18 Gandert et. al., 22.
the IOC continues to rationalize the use of sex/gender verification tests.

**B. Intersexed Athletes**

Defining intersex is quite difficult, because it is not a specific condition, but rather a number of conditions. In fact, The Intersex Society of North America (ISNA) defines intersex as “a general term used for a variety of conditions in which a person is born with a reproductive or sexual anatomy that doesn’t seem to fit with the typical definitions of female or male.”19 Furthermore, the ISNA website identifies a number of different conditions that can lead to an individual being identified as intersex. They include, but are not limited to: 1) 5-alpha reductase deficiency, 2) androgen insensitivity syndrome (AIS), 3) aphalia, 4) clitoromegaly, 5) congenital adrenal hyperplasia, 6) gonadal dysgenesis, 7) hypospadias, 8) Klinefelter’s Syndrome, 9) micropenis, 10) mosaicism involving sex chromosome, 11) MRKH (Mullerian agenesis, vaginal agenesis, congenital absence of vagina), 12) ovo-testes (formerly called “true hermaphroditism”) 13) partial androgen insensitivity syndrome, 14) progestin induced virilization, 15) Sawyer Syndrome, and 16) Turner’s Syndrome.20 This somewhat abbreviated list illustrates the difficulty of categorizing intersex athletes, since each condition affects the human body uniquely.

Any future decision to include or exclude intersex athletes from competition will make a statement about the “normal” range of sex/gender variation that is deemed acceptable for athletes. However, as this discussion has already shown, determining precisely the boundaries of what counts as female and male is not a likely possibility. The method that has historically been used to gauge competitive advantage has involved measuring whether an intersexed individual's

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abilities exceed those of a biologically “typical” female.\textsuperscript{21} This method defines any advantages that are incurred as a result of the intersexed condition to be unfair. If, however, the intersexed condition confers no competitive advantages, then the individual should be allowed to continue competing.

Following up on this model, amidst public pressure from many intersex activist groups regarding the Semenya ordeal, the IOC organized a panel of experts on disorders of sex development (DSD) in athletes in January of 2010. This group was charged with discussing how to handle female athletes who are discovered to have gender ambiguity. The group concluded the following:

1) That sport authorities, in conjunction with the relevant medical authorities, have a responsibility to follow up on cases of DSD that arise under their jurisdiction

2) That there be an increase in education and awareness of DSD within the sport community

3) That PPHE (pre participation health examinations) are important for the purpose of identifying athletes with DSD

4) That precise diagnosis should be established expeditiously utilizing requisite expertise

5) That a management plan be drawn up if necessary

6) That strategically located centers be established at which athletes with DSD can, if necessary, be diagnosed and treated, and

7) That rules be put in place to determine eligibility of athletes for sport competition on a case-by-case basis both prior to and following diagnosis of a DSD, including when an athlete is undergoing treatment for DSD or refuses treatment for a DSD\textsuperscript{22}

The IOC’s commission, however, did not state what specific criteria would be used to define female gender, so it remains unclear what/who exactly will be considered an “ambiguity.”

\textsuperscript{21} Larson, 21.
Furthermore, it is unclear if female athletes who are diagnosed with a DSD condition under these guidelines will be mandated to receive “treatment,” and even if they do, at what point the treatment will be considered sufficient such that they will be allowed to participate.

In reaction to the IOC guidelines, the Coalition for the Inclusion of Athletes in Sport (CIAS) issued a press release arguing that the IOC had not actually eliminated any of the discriminatory elements of gender testing with its recently published guidelines.\(^{23}\) In fact, the CIAS argued that the IOC guidelines violated international human rights laws, specifically the Universal Declaration of Human Rights, and that it furthermore contradicted the IOC’s own commitment to equality and the right to play.\(^{24}\) They stated the following:

1) By classifying gender ambiguities as disorders requiring treatment, the IOC is pathologizing a normal spectrum of humanity.

2) By assuming that the only relevant gender issue is in women’s events, the IOC ignores the potential advantage of physical characteristics associated with the female form to men in certain sports.

3) By not stating what criteria are relevant to a determination of “male” or “female,” the IOC policy is excessively discretionary and subjective.

4) By subjecting only certain women to the policy, the IOC also leaves women open to witch hunts and requests to undergo body modification.\(^{25}\)

The CIAS argues for creating a sporting system that is open to all levels of participation, and that recognizes those individuals who have previously been considered as outside the definition of “normal” human embodiment. The CIAS has urged the IOC to adopt its guiding principles for the inclusion of sport. Notably, it urges the IOC to consider that there is no uniform course or path of “normal” development. The CIAS states the following about gender: 1) sport is typically

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\(^{24}\) Ibid.

\(^{25}\) Ibid.
organized by gender, 2) gender is individual while also being sociological, biological, and physiological, and 3) gender is fluid in both males and females. The “facts” should be amended to include the following: 1) sport is also organized by sex, 2) gender also includes psychological and cultural aspects, and 3) gender should be examined on a continuum. The CIAS raises a number of important points of consideration – notably, if gender is even a relevant point of consideration for sporting competition. The CIAS thus recommended a number of points for the IOC and all other sporting organizations to adopt in order to address these issues:

1) Replace gender testing with individual athlete profiles (for men and women), and include a measure for androgen levels.

2) Accommodate different body types using the Therapeutic Use Exemption Model

3) Require international sport federations to determine their own classifications (weight, height, other physical differentiations) and keep a profile on each athlete. (The CIAS recommends that the IOC adopt a model similar to the Paralympics.)

4) Ensure that those athletes competing against each other are members of the same classification.

5) Allow for any appeals to be heard by a neutral panel that has expertise in the selected classifications.27

The CIAS has also urged the IOC to allow intersex individuals who identify as intersex to be legally allowed to compete as such, rather than being labelled male or female.

Before closing on the issue of gender/sex verification in the Olympics, I would like to touch on the most recent area of policy development in the Olympics in regards to gender/sex verification. Like the call from the CIAS, there are also calls from transgender and transsexual athletes and organizations that demand that transgendered and transsexual individuals be allowed to compete in whatever capacity they self-identify. It is this last instance of gendered

26 Ibid.
embodiment that I will consider before moving on to disability verification in the Paralympics.

C. Transgendered/Transsexual Athletes: Illuminating the Discussion

As should be clear by now, gender and sex are not inherently related. A person who identifies as transgender is deemed to have a gender identity that does not “match” the sex (or gender) they were assigned at birth. Transgender people choose to express their gender in a variety of ways, which can include changing their name and self-referencing pronouns (he/she, him/her) to better match their gender identity. Some transgender individuals will take hormones and/or undergo surgical procedures to change their body in such a way that they feel it better matches how they identify. Individuals who opt for hormones and surgery are often called transsexual, though this is not to say that all individuals who do these things accept such a label. Surprisingly, before the Semenya trial even began, the IOC adopted a policy in 2004 which outlined the criteria under which a transgender/transsexual athlete would be eligible to compete.

1) The athlete’s gender must be legally recognized on official identification documents

2) The athlete must have completed genital reconstructive surgery and had his or her testes or ovaries removed

3) The athlete must complete a minimum two-year postoperative hormone treatment before she or he is allowed to compete.28

This IOC policy was the first attempt made by a mainstream sporting organization to specify the conditions under which transgender/transsexual athletes could participate. However, many trans activists have criticized these guidelines for the ways in which they are built upon both a class

and sex bias. Furthermore, some trans medical professionals have suggested that a one year
waiting period would be adequate for an athlete’s hormone levels to adjust within the range of a
non-trans man or women.29

Thus, in regards to transgendered and transsexual athletes, the concerns which are
expressed by many competitors, coaches, and nations concerning intersexed athletes are
similarly voiced. Like all the other scenarios previously mentioned in this paper, however, the
concerns are unidirectional and only given thought when individuals who are born as men decide
to transition to identifying as women (i.e. men masquerading as women). These concerns stem
from a worry that the inclusion of these non-conforming individuals will taint the level playing
field. Rooted in such concerns is the idea that maleness or masculinity provides an inherent
competitive advantage over “natural” femaleness or femininity. Women who do not conform to
social expectations of femininity or femaleness are thus threats to the image of athletic women as
gender conformists. In occupying this position, women of all identifications (”natural,” intersex,
transgender, transexual) threaten the idea that women athletes should be feminine and
heterosexual, and in so doing, these non-conforming women threaten the dominance of men in
sports in general, and the idea of male athletic privilege in sport.30

However, as many authors highlight, the entire purpose of sports competition is to win,
which ultimately depends on gaining some kind of competitive advantage. Of course, what kinds
of competitive advantages are permissible, and which are not, remains up to the subjective
opinions of the governing bodies of sports. For example, training hard to gain a competitive
advantage is considered fair, while taking performance enhancing drugs (steroids, etc.) is not.

And yet, competitive advantages in both men’s and women’s sport come in many

29 Ibid., 105.
30 Ibid., 107.
different forms: social, economic, environmental, psychological, physiological, and technological. For women athletes, some grow up in countries where their participation in sport is supported by social norms, while others grow up in countries where their participation is actively discouraged; is this not an advantage? Some women come from families and/or countries that have the financial resources to encourage and support women’s participation, training, and development, while others do not. Some women live in countries where they have access to universal healthcare from an early age, while others come from countries that have virtually no healthcare; does this not amount to a profound cumulative advantage later in life? Beyond the sociological advantages mentioned here, there are also some genetic conditions that may provide sporting advantage to some individuals over others (such as Marfan syndrome),\(^{31}\) and yet they are not rigorously tested for in the ways in which gender/sex are.\(^{32}\) What all of these instances should demonstrate is that the myth of the level playing field as somehow preserved by sex/gender segregation is simply absurd.

Where, then, to go? Given that athletics as an overall institution has been built on sexist assumptions about men and women’s performance, the development of policy to ameliorate this condition could develop in any number of ways. However, scholar Pat Griffin identifies four primary roads of development:\(^{33}\)

In the first, policy makers could continue to protect the binary between men and women’s sport by using mandatory sex-verification tests to exclude those individuals who are not deemed to be “natural” women. This policy has proven to be discriminatory and ineffective, and since 1999 the IOC abandoned this policy. Nothing in the literature seems to suggest that an

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31 Marfan syndrome often results in unusual height, a condition which could be advantageous in many sports.
32 Griffin, 107.
33 Griffin, 107-110.
improvement in testing procedures would result in reinstating the mandatory testing protocol.

Alternately, policy makers could use sex verification testing on a case by case basis as challenges to individuals participants in sporting events arise. This, of course, reflects the IOC/IAAF policy that is currently in effect. While it is an improvement on the mandatory testing, it unfairly depends on a combination of sexist assumptions about female athletic performance, physical embodiment, and socially constructed expectations concerning gendered appearance and behavior. Furthermore, the IOC policy for determining the eligibility of transgender women athletes on a case-by-case basis unfairly demands surgical alteration of the body and legal documentation that is largely unavailable to many trans individuals around the globe.

As a third option, policy makers could eliminate sex and gender as sports categories altogether. Some activists believe that eliminating the categories of gender and sex is the only way to address the complexities that particularly face intersexed and trans individuals. Moreover, some feminist legal scholars believe that the assumption rooted in the Title IX law, which argues that the best way to achieve equality for women in sport is through sex-separated sport, has only further increased sex inequality and relegated women’s sport to a second class status.

Some have argued that it would be better to divide sports by performance related to other physical criteria, such as height or weight. However, while gender binaries do create questionable divisions, it is also fair to say that most male athletes are bigger and stronger than most female athletes. As a result, it is likely that many events would be dominated by men rather

34 Ibid., 108.
35 Title IX: “No person...on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving federal financial assistance.” Title IX also had provision regards funding of sports in schools such that they were required to fund equally men and women’s sports.
36 Ibid.
than women. Moreover, even if we were to use only performance-based criteria, it is doubtful that such a system would be free from gender. Sexism in sports rewards male athletes more than female athletes, and thus limits women’s access to sports and the resources that support athletic teams.\textsuperscript{37}

Much like the rationale behind affirmative action, many argue that sex-segregated sports enable women to overcome past institutional and social discrimination in sports. There have been studies which document the positive effect of Title IX in increasing the quality and quantity of women’s sports.\textsuperscript{38} It is clear, then, that even criteria which are meant to be gender free are still embedded in the historical and contemporary social structures of sex inequality that seem to disadvantage females athletes while advantaging male athletes.

Griffin’s fourth and final option is that policy makers could expand gender categories to include participants whose bodies and/or gender identities do not conform to the gender binary. This path is rooted in the assumption that sex-separated sports are indeed the best route to sex equality. The question, though, is how to expand the criteria of inclusion to allow competitors to participate who challenge the rigidity of gender binary. It would seem that such a path would necessarily depend on allowing athletes to compete in the category of their choosing based on their self-identification. While this path seems fairly logical, I am not personally confident that societal unease around the participation of such individuals would allow for such a scenario to come to fruition.

\textsuperscript{37} One need only compare the media coverage and salaries of professional male basketball players to professional female basketball players - or professional male baseball players to professional female softball players.

IV. Disability Verification in the Paralympics

A. Definitions/Groundwork

Before I review the history of disability verification testing in the Paralympics, I would like to lay some groundwork for discussing the concept of disability. Generally speaking, there are four broad categories into which most theories of disability can be fit: 1) medical models, 2) social constructionist models, 3) the British model, also referred to as the social model, and 4) postmodern critiques.

Medical models of disability focus on the impairments (physical condition) and what an individual can or cannot do physically; the inability to do something is referred to as an “impairment” and is considered a deviation from “normal” capability. Due to its focus on the physicality of bodies, the medical model see disability as individualistic, and is thus not concerned with producing a sense of group unity amongst diverse patient groups. For example, under the medical model, wheelchair users will see no commonality with people who have chronic fatigue syndrome or deafness. Some authors have suggested that the medical model relies on an ethic of individualism and personal achievement to maintain its control. A key emphasis within the medical model of disability is “overcoming” the disability itself via normalization through cure, which may include the use of prostheses or other medical interventions. A medical model approach to disability often leads parents to pressure and sometimes even force their children into walking despite discomfort, exhaustion, pain, and surgical intervention. Walking is viewed as desirable and “normal,” whereas using a mobility

device (some kind of assistive technology like a wheelchair) is viewed as abnormal, the signifier of disability. For this reason, people with disabilities under the medical model are often see as “poor creatures” or “helpless victims” of a disease in need of the “corrections” provided by modern medicine. Disabled people are thus both defined and confined by medical jurisdiction because they are confronted on a daily basis with the discourse of tragedy, medicalization, and “otherness.”

Social constructionist models of disability can vary between weak accounts and strong accounts.41 Weak accounts posit that dominant ideas, attitudes, and customs of a society influence the perception of bodies. Social constructionism in the weak sense tries to advance a commonsense approach to thinking about how people victimize individuals unlike them. In contrast, strong accounts of social constructionism rely more on a linguistic model to describe representation as an ideological force – for example, the representation of disability in culture and its relationship with creating negative ideologies. Many social constructionists rely on the work of Derrida (sign/signification)42 and Foucault (biopower)43 to inform their arguments. Strong constructionism posits that the body does not determine its own representation in any way, because the sign precedes the body in the hierarchy of signification – the very idea of disability itself conditions how we think of and understand bodies that come into the world.

In close alliance to social constructionist accounts of disability is the British model, which is also sometimes referred to as the social model. Unlike other models, the British model does not view impairment and disability as synonymous terms. Rather, impairment refers to physical conditions such as blindness or the absence of a leg, whereas disability refers to the

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social process in which impairments are escalated to levels of disability due to a lack of accessibility. We can think of a number of situations which demonstrate the persuasiveness of this argument. For example, according to the social model, wheelchair users have physical impairments but these impairments only become disabling when there are a lack of ramps, elevators, and automatic doors. Many of the legislative appeals and successes in the United States have based their approach on this model. Many of the international appeals and legislative proposals of disability also rely on this distinction between impairment and disability.

The last approach to disability embodiment is the postmodern critique. The postmodern critique of disability seeks to eradicate notions of essentialism (the notion that certain groups/things have core attributes/conditions that are unchanging and true) and therefore often advocates principles of indeterminacy, heterogeneity, plasticity, and performativity. Postmodern theories of disability also tend to dispute universalism (the idea that certain groups/things are the same everywhere). This is particularly important for subaltern/non-global North critiques of disability, which argue that Western notions of disability compete and are often at odds with more localized/socio-historically specific understandings of disability. Postmodern critiques of disability also take issue with the binarization of impairment/disability found in the British/social model.

The purpose of outlining these common approaches to disability is to stress to the reader that disability itself is a highly contentious category, and that any evaluations or statements of “Truth” that are made about disability are inherently conditioned by the methodology that allowed the individual to arrive at such a conclusion in the first place. This being said, within the world of disability sport, the two most common approaches to understanding disability are the

medical model and the social model.

The medical model was prolific in the early years of organized disability sport, finding its purpose through the “rehabilitation” of World War II veterans in England.\(^{45}\) As disability sport developed and the International Paralympic Committee (IPC) was formed, the medical model slowly started holding less sway. With the passage of numerous pieces of disability rights legislation worldwide and domestically in the 1990s and early 2000s, the social model began to shape the Paralympics in a more significant manner.

Nevertheless, social constructionist and postmodern approaches to disability still have scholarly significance in understanding the ways in which the IPC as an organization which is supposed to advocate for and represent disabled people nonetheless oppresses and reinforces standards of ableism. While it is true that an individual’s impairment is read, influenced, and constructed by any number of social, cultural, economic, and political factors, in addition to the individual’s own experiences,\(^{46}\) it is also the case that Paralympic athletes experience a very specific kind of normalization through the practice of disability verification testing/classification. In the section that follows, I will briefly outline the history of disability verification testing/classification and use Foucault’s notion of “governmentality” to illustrate the overtly political practices of power that are at work.

**B. History of Disability Verification Testing: Disability vs. Functional Ability**

With these theories and caveats in mind, I would like to briefly overview the history of disability


\(^{46}\) Ibid., 358.
verification testing in the Paralympics. Prior to the establishment of the International Paralympic Committee (IPC), sports for the disabled were organized internationally by a number of different sporting federations. Each of these federations were clientele based – serving a specific section of the disabled constituency. The primary federations were the Cerebral Palsy International Sport and Recreation Association (CP-ISRA), the International Blind Sport Association (IBSA), the International Sports Federation for Persons with Intellectual Disability (INAS-FID), and the International Wheelchair and Amputee Sport Association (IWAS), which were each established with the explicit intention of creating opportunities for disabled athletes.Collectively, these federations were known as the International Organizations for Sport for the Disabled (IOSDs).

It was the IOSDs and their predecessors that helped to organize the Paralympic Games from 1960 through 1988. Earlier games had been organized and run on a much smaller scale than those under the influence of the IPC. The IPC currently organizes both the Paralympic Games and the quadrennial World Championships for individual Paralympic sports, such as swimming and athletics. Using the resources from the four federations listed above (CP-ISRA, IBSA, INAS-FID, IWAS), as well as athletes, volunteer administrators, and the classification systems, the IPC has turned the Paralympic Games into the most well-known event for disabled sporting competition. Instrumental to the commercialized growth of the Paralympics has been its increasing bond with the overall Olympic movement, which was formalized in 2001 between the IOC and the IPC.

This relationship has placed the disability verification system currently being used by the Paralympics in jeopardy. Both the IOC and the IPC have expressed concern that the complexity

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48 Ibid.
49 Ibid.
of the disability classification system confuses spectators and make events harder to follow. However, this complexity is not without cause. It is largely due to the role that the IOSDs had in establishing the IPC in 1989. Many of the first executives in the IPC, for instance, had previously held similar posts within the other IOSD federation. As a result, many of the IOSD’s disability specific classification systems were accepted without debate. The legacy of such acceptance, of course, is the complex classification system that many in the IPC now view as cumbersome, logistically tiresome, and a viable threat to the future marketability of the games. For example, the organization of the Paralympics athletic program required, for both men and women, the scheduling of events for seven classes of athletes with cerebral palsy, three classes of the visually impaired, nine classes of amputees, and four wheelchair classes.\(^50\) Initially, this classification system made it difficult to attract media attention. However, since the establishment of the IPC pressure has been applied consistently on the IOSDs to find alternatives to the disability specific classification.

Opponents to this system have argued for using a functional integrated classification system instead. In this system, athletes are classified according to what they can accomplish physically, as opposed to the severity of their disability in the other model. Some sports within the Paralympics already do use this model, including swimming and downhill cross-country skiing. Proponents argue that the functional integrated classification system will benefit the Paralympics by decreasing the number of classes by means of focusing on functional ability rather than disability, and will also increase the number of viable events in both major championships and the Paralympics.\(^51\)

Even though the integrated functional classification system has been adopted in some

\(^{50}\) Ibid., 36.

\(^{51}\) Ibid.
Paralympic events, pressure from the IODs has resulted in the continued use of disability specific classification systems in the sport of athletics (track and field events). Federations work vigorously to structure competition so that only similarly affected athletes compete against one another. An amputee will not compete against someone with cerebral palsy, for example. In order to achieve this, a team of classifiers evaluate the extent of the athletes’ impairment. Given the number and complexity of the classification system within each disability group, the organization of competitions within the field of athletics is logistically complicated. For instance, there are often over 20 different 100-meter final races for both men and women at the Paralympic Games, compared with only one final race per sex for the 100-meter at the Olympic Games.52

The great variety of classes eligible for participation in the Paralympics led the IPC to create a policy in 1992 that required an event to have at least six competitors from four nations to be considered viable within the games.53 At first glance, such a rule might not seem to be of great significance, particularly in the world of able-bodied athletics; however, it has had a profound impact on the visibility and participation in some Paralympic sports. Within the field of athletics, in particular, this rule ignited serious controversy, but to date the disability-specific classification system within athletics continues to be used. This has meant that in more recent years, many IPC athletic events for the more severely disabled and for women have been cancelled or combined to make them viable.

Not surprisingly, this minimum threshold requirement has led to many changes in how events are structured. For example, the IPC of athletics has considered combining the wheelchair

52 Ibid., 39.
53 Ibid., 40.
classes between the CP-ISRA\textsuperscript{54} and the IWAS\textsuperscript{55} in track events, as both federations have athletes who compete from a sitting position in a wheelchair. However, elite male wheelchair athletes who participate in the CP-ISRA classes are limited. Although the classes (limited though they may be) would meet the IPC threshold policy, the IPC athletics division has suggested that it would not be competitive enough.\textsuperscript{56} Consequently, it has removed the last remaining men’s cerebral palsy wheelchair classes from the Paralympic program. Rather than trying to establish an equitable system in which existing classes from both the CP-ISRA and the IWAS, the IPC of athletics has simply combined two impairment classifications of male wheelchair racers – leaving many of the athletes from the CP-ISRA without ample opportunity for competition.

\textbf{C. Supercrips: Illuminating the Discussion}

Sporting institutions like the IPC and IOC are, in essence, bureaucratic organizations that, among other things, undertake the responsibility of sustaining (Paralympic/Olympic) practices, standardizing policies, and generally organizing, funding, and regulating their sporting competitions.\textsuperscript{57} The IPC, for example, is explicitly committed to guarantee and supervise the execution of successful Paralympic Games. As a bureaucratic institution, however, it is also centrally concerned with the distribution of rewards or “external goods.”\textsuperscript{58} External goods are primarily financial resources and include corporate sponsorship, endorsements, TV contracts, etc. Even though the Paralympic Games (as well as the Olympic Games) are supposed to be about ethics rather than the pocketbook, I would argue that it is increasingly shifting the mode of

\textsuperscript{54} Cerebral Palsy-International Sport and Recreation Association
\textsuperscript{55} International Wheelchair and Amputee Sport Association
\textsuperscript{56} Ibid.
\textsuperscript{57} Ibid., 32.
\textsuperscript{58} Ibid., 33.
its operation to coincide with capitalistic imperatives of consumption.

While it may not be the case that every administrator/executive within the IPC is centrally concerned with the economic viability of the Paralympic Games vs. the education of disability, promotion of the athletes, and spirit of goodwill, the institution as a whole does seem to be leaning in the direction of the former rather than the latter set of concerns. As a result, the main concern of the IPC has become the procurement of financial rewards, which can only be done by packaging the most attractive and commercially viable product. Good games are marketable games and good athletes are thus endorsable athletes. It appears, then, as though the IPC is conspiring with the IOC to repackage, re-market, refresh, modernize, and commodify the Paralympics. In order for this effort to be successful, however, the Paralympic needs to be quicker, slicker, have fewer events, and more relatable high profile champions.59

Enter the supercrip. Supercrips, as identified by RJ Berger, are “those individuals whose inspirational stories of courage, dedication, and hard work prove that it can be done, that one can defy the odds and accomplish the impossible.” 60 61 Specifically in the context of Paralympic sport and for the purpose of this paper, the supercrip is more than just someone who beats the odds. It is an athlete who not only excels and wins, but also gains a relatively high-profile media exposure, who gains physical/social capital.62 Disabled athletes who win but do not receive recognition in the mainstream media are not considered supercrip. These individuals are marginalized by both the disability verification/classification system currently being used, and

59 Ibid.
61 It has also been argued that “supercrip” is negatively given to impaired individuals who manage to live a “normal” life
the nature/degree of their impairment.63

While the classification system in use is premised on providing the equal chance of winning (or accumulating physical/social capital), there are number of factors that influence the chance of winning/accumulation of physical/social capital in various classifications. One of the most salient facts is whether or not athletes use mobility technologies. The wheelchair is an emblematic symbol of disability that can be seen nearly everywhere (parking lots, elevators, ramps, etc.), allowing the public to relate more easily to the athletes who use wheelchairs in the context of Paralympic sport.64 Consequently, wheelchair athletes may have a greater advantage in accumulating capital than do other disabled athletes. Another factor that influences the accumulation of capital is the number of athletes in a particular event. The policies recently implemented by the IPC have resulted in canceling a number of events for the more severely disabled shifting the focus to events which have been combined or events which have traditionally had strong participation. Athletes who compete and win in these events are able to accumulate more social capital because their accomplishments are weighted against a greater pool of competitors.

While the structural effects on the classification system most certainly play into the accumulation of capital and the possibility of being identified as a supercrip, so too does the nature and degree of an individual’s impairment. There have been studies which suggest a hierarchy of “acceptable” impairment within the community of Paralympic athletes.65 These

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63 Ibid., 869.
64 Ibid., 870.
studies indicate that individuals who look more able-bodied or “normal,” who have impairments that were acquired rather than congenital, or who have impairments that seem to be more correctable, receive more media attention and thus more possibility for capital accumulation. This idea of correctability in the supercrip is seem most vividly in the kinds of mobility technology that have developed in the last decade. More than just wheelchairs, Paralympic athletes now utilize a number of technologies that provide real opportunities for their participation in the sport, but in so doing they also provide a spectacle for the consuming public, which is more oriented towards viewing able-bodied athletics than disabled athletic performances in which the role of technology is (perceived to be) more explicit.

V. Discussion: The Cyborg Athlete

A. Theoretical Grounding: Technology

Before I enter into a discussion about the role of technology in constituting athletes and their performance, I would like to lay a foundation through which we can orient our discussion. While there are many approaches to understanding technology, I believe that Ted Butryn’s categorization of approaches is both manageable and appropriate to our discussion. He identifies four distinct approaches, which are: instrumentalist, determinist, substantivist, and critical.

Instrumentalism proposes that technologies are value-free/neutral tools that humans use as a means to an end. Instrumentalism thus often links societal progress with technological progress. While instrumentalism acknowledges that technology can be used for non-altruistic

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purposes, it maintains that in general, technology is used for the betterment of society and individuals.

Theories of technological determinism generally share instrumentalism’s belief in the neutrality of technology, but question the human capacity to control its development and use. Advocates of this position argue that technologies have their own logic and drive that operate independent of human control. Technology, in this view, often has unintended consequences that can have the potential to reshape society. The supposed neutrality position espoused by both instrumentalists and determinists contributes to the depoliticization of technology itself.68 Once technology is viewed as value-free instrument, it is more easily removed from the process of democratic debate. Instead, control of technology is place in the hands of bureaucratic elites.

This depoliticization and de-democratization of technology has often been referred to as a technocracy. In a technocracy, administrative systems are legitimized by scientific expertise rather than tradition, law, or the will of the people.69 Once in place, technocracies rely on “expert knowledge,” and as a result, a kind of technological hegemony is established in which the very few attempt to control the means of production, implementation, and application of technology. All the while, the elites encourage the many to enjoy the benefits of a blossoming technoculture and to maintain an unquestioning faith in its benevolent telos. This scenario, of course, best reflects the situation with elite athletics, and particularly so with the IOC and the IPC. Both institutions have begun to rely more and more on the expert knowledge of either their gender verification teams or their disability classifier teams. The athletes’ own experiences as individuals are increasingly becoming irrelevant, whether in the case of Caster Semenya who had been raised a girl and always identified as woman but was nonetheless put under public scrutiny,

68 Ibid.
69 Ibid.
or in the case of the many elite wheelchair athletes who have cerebral palsy but were forced to compete in other classifications simply because the IPC determined that the event would not be competitive enough and the differences in their impairments were insignificant.

In contrast to the instrumentalist and determinist approaches, the technological substantivists argue that society is at the mercy of an autonomous “techno-juggernaut” that will eventually take control of humanity.\textsuperscript{70} Substantivists thus hold a pessimistic view of technology as an exclusively dehumanizing force.

Alternatively, critical theories of technology reassert human agency with respect to technology, while rejecting the instrumentalist and determinist viewpoint that technology is value-free. Critical theories argue that technology may be the most prominent vehicle through which political ideologies are embodied and transmitted, as technological innovations often facilitate the creation of power structures.\textsuperscript{71} Where critical theories diverge from substantivism is in their idea that humans can establish alternative means-end relationships with technology. Critical approaches to technology stress social contingency and democratic access to technologies. As a result, they often stress that the technological hegemony that exists in many Western societies should be acknowledged and contested. This approach is the direction in which I believe the discourse around both Olympic and Paralympic athletes needs to be shifted.

Technology arguably plays a role in every individual’s life and embodiment, whether at a mundane level using simple technological tools (contacts, immunizations, or braces, for example), or at a level of advanced integration (prostheses, pacemakers, genetic engineering, etc.). If we accept this to be true, and if we take a critical approach to technology, how then can we understand the two correlating scenarios of testing within the Olympics and the Paralympics?

\textsuperscript{70} Ibid, 22.
\textsuperscript{71} Ibid, 23.
Is there a way to re-conceive these issues such that the binaries that have supported their institutionalization fall apart?

**B. The Cyborg Athlete: Olympic and Paralympic**

With these questions in mind, I would ask that we consider for a moment that the human body itself is a machine. This integrated machine in the context of sport also interacts with other technologies outside of itself. If so, how to draw the line between the interior and exterior? Drawing the line between the two is nearly impossible and any attempt to do so would only lead to a situation where one would need to explain the conditions for making such a claim in the first place. It seems then, that we should reject altogether the notion of a clean binary between the natural and the artificial. And yet, in so doing, how then can we understand the human body as a subject? Machines as commonly perceived are not subjects in the ontological/political sense, and yet here we are supposing that humans are machines – we are challenging the very distinction between man and machine.

In these instances, the lexicon needs to change; man and machine carry with them too much weight and implication, which obscures what is really going on. I propose, instead, that we view not only ourselves, but particularly in the context of this paper, Olympic and Paralympic athletes not as merely subject to technology, but subjectified by technology. Athletes themselves become through technology – they are perhaps one of the most visually explicit cyborgs in our society, due to the consumption of their public performances. Understanding athletes as such helps to break down the boundaries between natural and artificial because it acknowledges that they do not enter competitions as tabulae rasae; rather, they have interacted with, been shaped
by, and constituted through various technologies since their birth.\textsuperscript{72} As a result, these cyborgs are in many ways self-regulating organisms that, by their very existence, combine the seemingly “natural” with the seemingly “artificial” into one synchronous organism/system.\textsuperscript{73} \textsuperscript{74}

Before I detail the ways in which we can understand Olympic and Paralympic athletes as cyborgs, I would like to briefly categorize the specific ways in which these athletes interface with technology. While it is impossible to be completely exhaustive, I believe the following five categories provide a useful matrix for understanding these athletes’ experiences: 1) self (physical or psychological) technologies, 2) landscape technologies, 3) implement technologies, 4) rehabilitative technologies, and 5) movement/evaluative technologies.\textsuperscript{75}

Self technologies involve any number of psychological or physical alterations/enhancements. They can include the mundane such as dietary supplements, chemical innovations such as performance enhancing drugs, surgical procedures, prosthetic/bionic limbs, psychological training and interventions, and even genetic engineering. Oscar Pistorius is perhaps one of the most recent and well-known examples of an athlete (the ideal supercrip) who utilizes self technologies.

\begin{thebibliography}{9}
\bibitem{Butryn} Mark Butryn, \textit{The Notion of the Ideal Supercrap}, Indiana (2002), 24-25.
\end{thebibliography}
Pistorius as cyborg competed in both Paralympic events (as he is a double below-the-knee amputee)\(^7\) and Olympic events. His inclusion in the Olympics was actually a great controversy, as many of the able-bodied athletes were concerned that his highly advanced prosthetic legs would give him a competitive advantage. However, studies have shown that, in fact, Pistorius’ legs do not give him any competitive edge over able-bodied runners.\(^7\) We can also look at the advances in wheelchair construction for the use of Paralympic athletes. Great Britain’s Paralympic basketball team actually uses wheelchairs engineered specifically for the sport. Players underwent 3D scans at Loughborough University so that their biomechanical movements and sitting positions could be measured.\(^7\) The seats were then optimized using computer-aided design, improving the speed, acceleration, and maneuverability. The wheelchair for these athletes is not a separate device but in fact part of their body; together (body and

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\(^7\) See Figure 1.


\(^7\) Olivia Solon, “Paralympic Innovation: Bum Brakes, Blades, and Wind Tunnels, September 03, 2012. [http://www.wired.co.uk/news/archive/2012-09/03/paralympic-technologies](http://www.wired.co.uk/news/archive/2012-09/03/paralympic-technologies)
wheelchair) the cyborg athlete functions.\textsuperscript{79}

\begin{figure}[h]
\centering
\includegraphics[width=0.5\textwidth]{figure2.png}
\caption{Example of wheelchair used by Great Britain’s Paralympic Basketball Team}
\end{figure}

Landscape technologies refer to the technologies that shape the sporting environments in which athletes compete. They can be simple arenas with low-tech equipment, but with regards to Olympic and Paralympic athletes, it often involves multi-million dollar sport complexes, massive television screens, retractable domes, artificial grass, high grade tracks, and media communication networks that facilitate world-wide viewing. Olympic and Paralympic athletes are literally surround by and immersed in these landscape technologies as cyborgs.

\textsuperscript{79} See Figure 2.
Take, for instance, the stadium built for the Olympics in London of 2012. There were 70,500 paddles installed between spectator seats that each contained nine high power lights; these were used to turn the huge audience into a virtual screen.\footnote{Mark Prigg, “The Lights Fantastic: How Danny Boyle Used Paddles With Tiny Bulbs to Turn Olympics Audience into a Giant Video Screen,” July 31, 2012. \url{http://www.dailymail.co.uk/sciencetech/article-2181447/Olympic-magic-revealed-The-tiny-paddle-Danny-Boyle-used-turn-opening-ceremony-audience-giant-video-screen.html}} Over 370 kilometers of cables were needed to link each unit to a central computer that controlled the display of the lights.\footnote{See Figure 3.} In this instance, not only were athletes imbricated in the technology of their performance, but so too were the viewers in the stadium.
Implement technologies are those instruments and equipment that are constituent elements of the athletic event in which they appear. Implement technologies includes things such as discs, clothing, shoes, and bats, for example. In the 2008 Olympics, for example, swimmer Michael Phelps wore the LZR Racer suit made by speedo; the seamless suit covered most of his body and allowed for a better flow of oxygen to the muscles, as well as repelling water.\(^8^2\) However, in the 2012 games, the LZR and any other all-body coverage suits were disallowed. Nevertheless, technological innovation continued and a “Fastskin3” suit was created by a kinesiology professor out of Iowa State University, which worked to compress certain parts of the body and create a more streamlined movement through the water. The last two forms of technological interfacing are not as obvious or explicit in the performances of cyborg athletes, but nonetheless they shape their experience and capacity to continue performing.

Rehabilitative technologies are used by injured athletes and those wishing to counteract the physical demands of their training regimens. At the most mundane level, these technologies

include whirlpools, and at the more advanced level can include ultrasound machines and electronic stimulation or “stim” machines that send electrical currents into affected areas to stimulate blood flow and aid in the healing process.\textsuperscript{83}

Lastly, movement or evaluative technologies refers to devices and procedures that exist to evaluate the athlete’s form and efficiency. The most basic technology is video surveillance, though more highly sophisticated computer software that measures the biomechanics of an athlete is also used. At the Olympic Training center in Colorado, for example, swimmers’ strokes are evaluated as they swim in an enclosed tank in an effort to identify points in the movement where excess drag is produced.\textsuperscript{84}

\section*{C. Cyborgean Horizons}

Embodiment has long been a source of philosophical and political investigation. However, post-Enlightenment thinking about this topic has been heavily dominated by the influence of Descartes. Much of our thinking about reality and matter (whether organic or inorganic) can be attributed to two propositions of his: 1) he defined matter as substance constituted of length, breadth, thickness; as extended, uniform, and inert; and 2) he famously declared, “cogito ergo sum,” effectively separating the ontological state of mind from matter (materiality) and restructuring the place from which an epistemology could be founded. What followed was the determination that materiality was passive, whereas the thinking individual was active, rational, self-aware, and self-moving. Knowledge was arrived at through the process of rational calculation and observation of the “outside” world. Because of this, human agents were seen as

\textsuperscript{83} Ibid., 25.
\textsuperscript{84} Ibid.
having a kind of mastery over nature and materiality.

This kind of thinking has long held dominance in the history of western political thought, and consequently leads to important ontological and epistemological claims, particularly if we think back to the cyborg athlete. Foremost among them is the idea that the athletes in question are separable entities from the technology that they make use of. Technology is something they control, they choose, and they exist independently of. Even if in some instances assistive technologies are seen as extensions of the individual, they are extensions which are subsumed under a kind of rational, thinking autonomy of the subject. The technology itself is given no distinct ontology or epistemology. Epistemic privilege is reserved solely for the human agent. This kind of mastery over the body is indeed reflected in the management style of the IPC through its efforts to normalize bodies via disability verification testing, focused media attention, and corporate sponsorships.

In contrast to this mode of thinking, I would argue that taking a new materialist approach to thinking about the relationship between technology and embodiment is more fruitful. New materialism, though diverse, argues against Cartesian dualism and affirms a new ontology that ascribes productive and inventive capacities to matter itself. Matter is no longer characterized by its passivity, but rather its vitality. Importantly, new materialism does not recognize the more traditional distinction between organic and inorganic matter, but rather proposes that all matter has generative powers (or agentic capacities). As Diana Coole & Samantha Frost write, “materiality is always something more than ‘mere’ matter: an excess, force, vitality, relationality, or difference that renders matter active, self-creative, productive, and unpredictable.”

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85 Some authors would reject this notion of arguing against Cartesianism. Diana Coole & Samantha Frost view new materialist thought as “post-Cartesian.”

Consequently, new materialists view matter itself as materializing, self-transforming, and the proposition that “matter is” transforms into “matter becomes.” Such thinking yields new ways of understanding cause and effect. No longer can one rely on the notions of individual subjects acting on external objects. Rather, one must realize that phenomena occur in a multitude of interlocking systems of forces and action.

Most importantly, using new materialism as a theoretical framework, this project will also push against the claim that identity politics has worn out its welcome. Reframing identity towards a hermeneutical horizon that incorporates technology, and an understanding of phenomenological embodiment that accounts for the vitality of matter, will help to conceptualize identity as an opening up rather than a closing in. Identities under this purview can be thought of as generative sources of meaning by both individuals, groups, and the environment in which they are situated. This is a plane in which one is able to continually engage in the process of meaning-making, a horizon which in its very nature is open to the world, to all that is past – even if it is not of its own making – but also to all that is possible. Thinking of technological embodiment as a hermeneutic horizon expands the possibilities for thinking about disability identity. I should stress, however, that this work does not seek to replace disability identity with a kind of subsuming cyborgian politics, but rather envisions the addition of an important perceptual gaze to disability identity as a whole.

New materialist thinking profoundly changes the conversation about cyborgs by rejecting the idea that cyborgs stand before technology, choosing and manipulating it at their own will. However, this does not mean that technology is then understood as the dominant structuring factor. Nor does this mean that each entity, organic and inorganic, stands before each other in mere relation or interaction, but rather, each becomes through their intra-action. Karen Barad
suggests that, whereas interaction takes as a given two separate agencies that are constituted prior to their interplay, intra-action “signifies the mutual constitution of entangled agencies.” Intra-action, then, takes as problematic the idea of pre-constituted agencies and instead posits that agency itself emerges through the intra-active process.

While some scholars are likely to assert a cyborgean or even post-human perspective that lacks an identity politics, I would argue that thinking about embodiment through a cyborgean perspective does not necessarily entail a wholesale replacing of other categories with a cyborg label. In fact, I would argue instead that technological embodiment (as exemplified by the identity of cyborg) is merely another way of thinking about identity itself, and should therefore be considered one of many hermeneutical horizons and phenomenological accounts of the self. I believe that advancing an identity politics that accounts for the cyborgean experience can be congruent with a new materialist approach to understanding materiality. If we push against the tendency to imagine identities as a stable, fixed, and congealed labels, we can incorporate new thinking about ontology, epistemology, and agency.

A crucial part of this project will therefore need to, as Manuel Castells argues, understand identity as a generative source of meaning, collective rather than individual. While Castells is focused primarily on the collective meaning generated by human agents, a new materialist approach to understanding identity could also focus on the ways non-human organic and inorganic matter actively factors into creating identity (which it surely does). Using identity or advocating for the use of identity politics is an important political tool that I believe helps to link the collective with the individual – it provides the means for making diverse experiences

intelligible. What are identities but lived experiences? What needs to occur, then, if new materialists want to make use of identity politics, is a deeper commitment to understanding the processes of identity formation.

One of the ways I argue this could be done is by adapting Linda Martin Alcoff’s concept of the hermeneutic horizon. This horizon should be thought of as a way to visualize the epistemic effect of different social locations. Importantly, though, gaze or perception is not enough, and the hermeneutical horizon should be contextualized by employing a phenomenological account of the self to more fully understand the ways in which social identities are materially manifested. Phenomenological accounts emphasize the active, self-transformative, practical aspects of embodiment and the ways in which embodiment itself participates in fields/relations of power. When one is identified (identity itself is constituted), one’s horizon of agency is also identified. This horizon of agency is one in which the individual is able to continually engage in the process of meaning-making, a horizon which in its very nature is open to the world, to all that is past, even if it is not of its own making, but also to all that is possible.

However, it is worth stressing that, while this capacity for agency is indeterminate, it always occurs from a specifiable location (class, gender, race, technological embodiment, nationality, etc.). Identity is thus a way of inhabiting, interpreting, and dealing with, at the collective and individual level, a specific social location and group history. As such there are important epistemic implications for how we view the world – what layers of reality are made visible to us and that we make visible to ourselves. This hermeneutic account of social identities possesses the ability to clarify the epistemic and political implications of identity. As Alcoff argues, “as a located opening out onto the world, different identities have no a priori conflict.

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89 Coole and Frost, 19.
90 Alcoff, 42.
Aspects of horizons are naturally shared across different positions, and no aspect comes with a stable ready-made set of political views.”\textsuperscript{91} This kind of understanding of identity is useful for explaining why one should even consider a cyborgean embodiment/identity, particularly when considering the various other labels/identity markers that are already in use. Whether we are talking about race or technology one’s relationship to these factors is best characterized by absorption, generation, and expansion. Therefore, advocating an identity politics of technological embodiment could address inequalities that currently lack traction in political discourse.

VI. Conclusion: Integration and Beyond

What does all of this ultimately mean to us though? While it seems obvious that our engagement with technology should be re-conceptualized, what specifically does a framework which espouses the cyborgification of athletes bring to the table? In her highly influential essay “Manifesto for Cyborgs: Science, Technology, and Socialist-Feminism in the 1980’s,” Donna Haraway proposed a destabilization of the boundaries that have been constructed between humans, animals, and machines. If we take this destabilization of boundaries seriously then we must consider that the “self” can no longer be thought of a singular identity, as male or female athlete, or as abled or dis-abled athlete, but rather as an assortment of politicized and fractured cyborg selves. Such a conclusion seems to be an impossibility given the current bureaucratized/corporatized structure of Olympic and Paralympic sport- it contradicts the need to have easily endorsable and marketable athletes. Nevertheless, I would like to argue that embracing the athlete as cyborg has the potential to if not resolve at least ameliorate some of the deep-seated, political, and cultural tensions within sport. Specifically, understanding athletes as

\textsuperscript{91} Ibid, 44.
cyborgs will help to eliminate competitions based solely on sex, gender, ability, and/or disability. Embracing the diversity of bodies outside of the context of the sex/gender divide or the ability/disability divide may allow for greater integration among athletes in which issues of embodiment identity no longer have to be positioned against one another- or “othered.” Detractors will argue that not all bodies have the same “potential” or physiological attributes and while this is obvious it is also what will make a fully integrated sporting experience all the more exhilarating.

However, this is not to say that sex-based competitions or disability based competitions should be eliminated altogether, but we should instead structure sporting competitions based on the comparative cyborg bodies rather than a sex/gender divide or ability/disability divide. As such, the kind of cyborg theory that I am proposing does not fool-hardily accept that simply because we say cyborg sex/gender/ability/disability/embodiment in general disappears. Elite cyborg Olympic and Paralympic athletes are inextricably linked to technology and are thus always political beings caught up in the interstices of embodiment (class, race, ethnicity, gender, sex, ability, disability, orientation, etc), economy, power, and particularly nationalism as they are representatives of their home countries struggling to win in international competitions. However, removing athletes from the natural vs. artificial divide by advocating a theory of cyborgification serves both the Olympic and Paralympic institutions while still allowing for an intersectional approach to embodiment.

In closing, may I argue that we cannot refuse the precipice which we seem so clearly to be at, one in which human bodies (traditionally conceived) are increasingly becoming less important to the outcomes of sport competitions. Who will win and who will lose is largely becoming a competition waged not on the fields- but in the laboratories, where the sporting
cyborg body has become a medium through which these many processes take effect. As someone who advocates a critical approach to technology though, what matters is not that this is already our reality- but what we do with it.
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