Trans/materiality: Digital Media and the Production of Bodies

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Abstract

There are many instances in scholarly writing and pop culture in which transgender identity is invoked as a metaphor for the fragmenting, decentering, and virtualizing effects of digital media and technologies, contributing to cultural tropes that imagine transgender people as unreal, futuristic, and unknowable. In response, this dissertation argues for an understanding of the link between digital technologies and the post-1990s iteration of transgender as a material, historical assemblage composed (at least partially) of media elements, bodies, and systems such as surveillance culture and big data that participate in processes of gendering and racialization. In attempting to rethink the trans/digital technology assemblage in a way that accounts for the material reality of trans bodies, practices, and lived realities and the material stuff of digital culture, each chapter engages with a specific material aspect of new media.

Engaging with each of these different types of media necessitated using slightly different methods in each chapter including social research (primarily interviews), cultural analysis, and autoethnography. Karen Barad's theory of Agential Realism, which proposes a posthuman model of performativity that takes into account nonhuman entities, is employed throughout the project. This makes possible a nuanced theorization of the trans body, one that does not stop at the enactment of gender at the body's surface but also takes into account the way that trans bodies materialize in concert with a host of other matter, beings, and forces, including digital media and technologies.

At times my analysis suggested that trans/digital encounters produce a productive trans friction that creates new possibilities for trans modes of being. At other times, my

analysis suggested that trans/digital encounters result in transnormative efforts to eliminate friction. The variability of these findings exposes the incongruousness of the trans/digital technology metaphor which attempts to fix transness as a stable entity that can stand in for specific qualities of digital technologies and media. Instead, this project shows that transness is situational and that the relationship between transness and digital technologies is multivalent.

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Introduction

> What are the consequences of the fact that [the] technological apparatus is no longer sexualized, racialized, or naturalized but rather neutralized as figures of mixity, hybridity and interconnectiveness, turning transsexuality into a dominant posthuman *topos*? If the machine is both self-organizing and transgender, the old organic human body needs to be located elsewhere.
>
> -Rosi Bradotti, *The Posthuman*[1]
>
> After the demise of desire, a pell-mell diffusion of erotic simulacra in every guise, of transsexual kitsch in all its glory. A postmodern pornography, if you will, where sexuality is lost in the theatrical excess of its ambiguity. Things have certainly changed since the days when sexuality and politics constituted a single subversive project: if La Cicciolina can now be elected to the Italian Parliament, this is precisely because the transsexual and the transpolitical have combined with the same ironic indifference.
>
> -Jean Baudrillard, *The Transparency of Evil*[2]
>
> Hyphenated identities, transgendered bodies, digital avatars, the Human Genome Project – these suggest that the performative subject is constructed as fragmented rather than unified, decentered rather than centered, virtual as well as actual.
>
> -Jon McKenzie, *Perform or Else: From Discipline to Performance*[3]

The quotes listed above are the kindling that ignited this project into existence. All are quotes I encountered while reading for graduate seminars I participated in while in the brainstorming phases of this project. Each inspired a burst of angrily scribbled marginalia – *Seriously?*, *???*, *WTF* – when I read them. There are many differences between these quotes: they are drawn from monographs written between 1990-2013 by scholars making very different arguments, representing several academic disciplines, and

[1] Braidotti, *The Posthuman*, 97.
[2] Baudrillard, *Transparency of Evil*, 22.
[3] McKenzie, *Perform or Else*, 18.

are reflective of divergent political priorities. No doubt the authors would scoff at the association I'm making between them.[4] However, these quotes also have something in common: each invokes transgender identity as a metaphor for the fragmenting, decentering, and virtualizing effects of digital technologies and media. Although these references to transness are brief moments in longer works that have little to do with transness,[5] they do a tremendous amount of conceptual work. In tethering transness to contemporary communication technologies, they dehistoricize transness by implying that gender nonconformity and the use of a variety of technologies to alter one's gender presentation are new, novel phenomena (they're not). They force transness into the position of metaphor: something that can help explain a thing external to it but need not be well understood in and of itself. They deny the material reality of the transgender body by suggesting that it is somehow virtual rather than actual and, in so doing, deny the materiality of digital technologies by overlooking the very real things that make these technologies possible such as server farms, algorithms, and global finance capitalism. In performing these conceptual operations, these quotes draw on and animate cultural tropes that imagine transgender people as unreal, futuristic, impossible, and unknowable. *WTF*, indeed.

Transgender studies scholars articulate the link between transgender and digital technologies differently. In *Transgender History*, Susan Stryker writes that, "the internet helped connect transgender people who might otherwise not have been in touch with each other" and that "the remarkable expansion of the transgender movement in the mid-1990s

[4] Eva Hayward's article "Spider City Sex" makes a similar point about the overlap in Braidotti and Baudrillard's thinking.
[5] Except for the Baudrillard – gender nonconformity is a metaphor throughout ToE

would not have been possible without the Internet's even more remarkable and rapid transformation of the means of mass communication."[6] In *Imagining Transgender*, David Valentine argues that the expansion of the transgender movement in the mid-1990s to which Stryker refers corresponded with a change in how we categorize gender nonconformity, shifting from a disparate set of personal identities (transsexual, transvestite, etc.) to a collective identity category of gender nonconformity grouped under the umbrella term "transgender." In Valentine's telling, this shift was in part "facilitated by communication technologies such as the Internet and the World Wide Web."[7] This had the effect of creating networked communities bound together not by specific identity but by shared difference. However, this shift also marked a profound change in the way gendered and sexual variance are understood and differentiated in the U.S. in that sexuality and gender identity came to be characterized as separate and unrelated phenomena. It also marked increasing institutionalization of gender nonconformity in contexts ranging from social services to the media. Taken together, Stryker and Valentine's arguments suggest that transgender identity in its current iteration would not have been possible without the widespread adoption of the public internet. Although Stryker and Valentine's accounts acknowledge the lived realities and historicity of transgender people, by focusing solely on the communicative aspects of the internet, the ways it permitted transgender people to organize politically and to share information and resources irrespective of geographical distance, they too leave both the material dimensions of transgender lives and the material underpinnings of the internet out of the equation. As scholars concerned with transgender from an historical and anthropological

[6] Stryker, *Transgender History*, 146.
[7] Valentine, *Imagining Transgender*, 36.

point of view, respectively, it is understandable that neither Stryker nor Valentine attend to the material infrastructure of the internet. But given that the public internet came into existence at the same time that gender and sexuality came to be understood, embodied, and practiced differently, and appears to have contributed considerably to this shift, I argue that it is crucial that we consider the material dimensions of this coevolution in addition to the communicative dimensions. This project aims to build on the work of scholars like Stryker and Valentine by attending to these material dimensions and also to contribute to ongoing conversations about the notion of materiality itself in so doing.

In order to do this, this project asks: How might we rethink the relationship between transgender and digital media in a way that accounts for both the material realities of transgender existence and the material stuff of digital culture? How do game mechanics, algorithms, interfaces, platforms, and the stuff of digital culture materialize transness and our understanding of it? In what way(s) is transgender enmeshed with systems that have changed and developed in new directions concomitant with digital culture such as global finance capital, surveillance culture, and big data? What are the implications of this enmeshment for transgender practices, embodiment, and lived realities? And, how might exploring these enmeshments help us gain a better understanding of digital media and technologies themselves? These are the questions this project seeks to explore by analyzing digital media including streaming TV series, video games, AI/robots, and digital artworks in order to think through the ways transness, in its post-1990s iteration, has been shaped by its coevolution with digital media and technologies.

Rather than making transgender a metaphor for the effects of digital technologies and media, this project argues that attending to the specificities of transness can assist us in gaining a more precise understanding of what these effects are in the first place. Rather than dehistoricizing transness, this project proceeds with an understanding that all of our bodies, transgender or non-, are shaped by our encounters with technologies that emerge at specific historical junctures. And finally, rather than rendering the transgender body as virtual, this project seeks to show how transgender embodiments are made possible through and entangled with digital technologies in concrete ways.

This analysis, then, begins with an understanding of transgender, in its post-1990s iteration, as an historical assemblage composed (at least partially) of media elements, bodies, and systems such as global finance capital, surveillance culture, and big data that participate in processes of gendering and racialization. Assemblages are, of course, singular, contingent, and ever-shifting and that is very much reflected in this project. The encounters between transness and digital media and technologies across the specific sites I engage with push my analysis/findings in a multitude of different directions. In some of these encounters, I find that widely used digital media carry trans-like qualities within them. In others, I find a reinvigoration of harmful trans tropes. In yet others, I find a trans friction that exposes technological flaws. In others, I find a trans reappropriation of technologies for new uses. In others still, I find transnormativity – in which some trans bodies (white, western) are marked for inclusion and the granting of rights and material security, often at the expense of other, more vulnerable transgender and non-transgender bodies – taking shape. The variability of these findings exposes the incongruousness of the trans/digital technology metaphor which attempts to fix transness as a stable entity

that can stand in for specific qualities of digital technologies and media. Instead, this project shows that transness is situational and that the relationship between transness and digital technologies is, thus, multivalent.

However, there are recurrent themes that emerged as I conducted research and developed this project. One is that specific modes of sexuality and gendered being shape and are shaped by the technologies they emerge and/or shift in new directions concurrently with. This is not to suggest a kind of technological determinism, nor is it to meant to deny historicity. Rather, it shows the ways technologies, bodies, and desires emerge from specific kinds of assemblages. Another recurrent theme is that sexuality and gender are not shaped in isolation but rather intersect always with other characteristics including race, class, and ability which are also components in the assemblages from which specific modes of sexuality and gendered being emerge. A third theme is that as much as technology can tell us something about transness, transness can tell us something about technology. Looking only at what technology can tell us about transness would come close to remaking transness into a metaphor for technology. If transness (in its current iteration) emerged from the same assemblage as digital media and technologies, transness can tell us as much about digital media and technologies as these media and technologies can tell us about transness. And, finally, this project finds promise again and again in a transformative transgender politics centered on collectivity and an ethos of care that has the potential to resist normative notions of transness and inform critical analyses of digital media and technologies.

Other findings demanded attention in this project although they seemed at the outset to point away from, rather than toward, my initial research questions. From the

outset transgender studies formed a large part of the theoretical framework of this project. However, as I moved more deeply into the project, it became clear to me that because trans studies is a relatively new and developing academic field, there are few, if any, settled approaches to trans theory. I don't expect that there will ever be a singular, unified, or uncontested approach to trans theory any more than there will likely ever be such an approach to feminist or queer theory, fields with which trans studies has historically been intertwined. However, although feminist and queer theories are multiple and contested, the two fields of study have been in existence much longer than trans studies and over time have developed relatively stable overarching theoretical concerns, methodologies, and frameworks. This is not the case for trans studies, leaving me (and many other scholars as well) to confront the question: what is trans theory? In response to this question and to the sites I engaged in my research, I sought to distinguish trans theory from the feminist and queer theory(ies) with which it has long been intertwined. This effort to distinguish trans theory from the feminist and queer theoretical milieu from which it emerged has been taken up in varying ways by trans studies scholars including Susan Stryker, Jay Prosser, and Andrea Long Chu (some of whom I find resonance with, others not so much). The work of these scholars sometimes finds potential at the intersection of feminism/queer/trans and sometimes finds harm at that same intersection. Some of these works show interest in a continued intertwining of the three, some of them advocate a complete break. The overarching metaphor for describing this relationship that has emerged from these and other trans studies scholars is a familial metaphor in which queer theory and trans theory are "evil twins"[8] born out of feminism or in which queer

[8] Stryker, "Transgender Studies," 212.

theory is a parasitic twin, again born out of feminism, that absorbed trans theory in utero.[9] This project advocates moving away from a familial metaphor and towards a consideration of technology as a means of grappling with the relationship between feminist, queer, and trans theory.

Feminist, queer, and trans theory, I argue, are assemblages. Each emerged at a particular historical juncture in concert with specific politics, modes of being, aesthetics, and technologies, among other elements. A specifically trans theory then, in my thinking, is one that is attentive to the elements that form the assemblage out of which contemporary notions of transness have emerged and continue to take shape. Although touching on some of the other elements that form this assemblage, this project is primarily concerned with the technological dimension. Again, I am not making an argument that hinges on technological determinism. Technology is not the only dimension of the assemblage I'm concerned with. However, it is a significant element in that assemblage and one that, when observed closely, can help us better understand the additional elements in that assemblage. Also, I want to be clear that I'm not proposing somehow walling trans off from queer or feminist thinking/methods/approaches/practices/etc. – as if such a thing is possible! – rather, I'm attempting to center transness and to think through what a trans theory might add or do that neither feminist nor queer frameworks can. This project is very much in conversation with feminist and queer theory but it attempts to think through a specifically trans lens, requiring a consideration of what a trans theory might look like in and of itself. Lastly, getting back to the familial metaphor noted above, this project advocates moving beyond

[9] Chu and Drager, "After Trans Studies, 103.

the linear temporal dimensions implied in that metaphor. Although this project grapples with periodization (the emergence of "transgender" in the 1990s concurrent with the widespread adoption of the public internet, the articulation of queerness through film and broadcast culture, etc.), it acknowledges that neither technologies nor the other elements of the assemblages through which queerness or transness emerged are developed or deployed in a linear fashion. New technologies bring with them traces of past technologies as much as older technologies portend future technologies.

Before I continue, a number of notes and explanations are in order. The first of these is in regard to terminology. I've been using the word "transgender" throughout this introduction in the sense that Valentine uses it in *Imagining Transgender*: to refer to a "collective category of identity" that encompasses an array of "gender variant people who had previously been understood as distinct kinds of persons, including self-identified transexuals and transvestites."[10] I used this term from the outset because it is well known and readily understandable to a general readership. Going forward, I will instead use the term "trans," in several different ways and for a number of different reasons. One way I use the term is as a modifier for words like people or person - indicating individuals we might think of as transgender, transsexual, or gender nonconforming. This usage is common in trans studies, although it is not uncontested and is sometimes eschewed in favor of variations such as "trans*" or "trans-." I prefer "trans" over terms like "transgender" or "transsexual" because I regard those terms as overly narrow. This is because I also use "trans" and sometimes "transness" in order to signify phenomena and processes that both include and exceed the notion of trans as an identity category. My

[10] Valentine, *Imagining Transgender*, 4.

reasoning resonates with micha cárdenas and Jian Neo Chen's rationale for using "trans" rather than other variations in a recent "Trans Futures" issue of *Transgender Studies Quarterly*. They write, "We use the term trans to recognize multiple embodiments, expressions, and identities of gender nonconformity and variance that surpass—and potentially decolonize—racially constituted white, binary gender/sex, while maintaining links to transgender's resistant repurposing of Western psycho-medical science and to trans*'s broad inclusiveness based on the algorithmic command to 'trans everything.'"[11]

Chen and cárdenas's explanation of their use of the word "trans" includes within it reference to the colonialist and white supremacist logics of binary gender/sex systems and to Western psycho-medical science's outsized influence in shaping the contours of what we understand as transgender. It also calls attention to the degree to which the field of trans studies itself grew out of North American settler culture and took shape around a "presumptive whiteness" it shares with queer theory.[12] As Aizura, et al. remind us in the introduction to *TSQ*'s "Decolonizing the Transgender Imaginary" issue, these are ongoing issues and one of the ways that Western-centrism and presumed whiteness operate in trans studies is in an overrepresentation of scholarship either issuing from or based in North America or Europe.[13] I am concerned, in this project, with a link between transness and digital technologies that surfaces specifically in the context of U.S. culture. Because the term transgender emerged from European and North American contexts (insofar as transgender indexes a mode of gender nonconformity that potentially relates to but also differs from other modes of gender nonconformity that exist or have existed in

[11] Chen and cárdenas, "Time to Come," 472.
[12] Justice, Rifkin, and Schneider, "Introduction," 6.
[13] Aizura, Cotton, LaGata/Balzer, Ochoa, and Vidal-Ortiz, "Introduction," 308.

other places and/or at other times) and because most of the specific digital technologies I engage with emerged from or in connection to Silicon Valley, this project necessarily both issues from and is based primarily in the U.S. However, throughout the project, I aim to be attentive to both the settler colonial formations of the U.S. and the global flows of digital technologies and culture as well as the danger of assuming a universal transness or linking transness to a Western progress narrative. I aim also to adopt an intersectional lens, acknowledging that sex, gender, and sexuality cannot be thought or understood as separate or isolated from race, class, and ability.

Lastly, this project intentionally attempts to disrupt the autobiographical imperative and ethnographic focus that have haunted and continue to haunt the study and representation of transness in academia and beyond. In effect, trans people have long been required to tell their stories in order to gain legibility and to then allow expert others to interpret those stories and use them to various theoretical and political ends. I do not make trans people my object of study in this project, but rather turn my attention to cultural objects that resonate with transness, or make specific claims about transness, or which transness can help us better understand. This project, then, is less concerned with trans as a form of personal identity than it is with transness as a formation that came into being at a specific historical juncture, alongside and through a specific set of technologies, political realities, aesthetic practices, and so forth. As mentioned before, this project is also an effort to contribute to ongoing discussions about what a specifically trans theory might look like or be able to do. Rather than observing trans people, this project asks how we might see the world differently through a trans lens.

Methodology

In attempting to rethink the relationship between trans and digital media in a way that accounts for both the material reality of trans bodies, practices, and lived realities and the material stuff of digital culture, each chapter of this project engages with a specific material (tangible or non-tangible) aspect of new media (such as game mechanics vis-à-vis video games and machinic bodies vis-à-vis robots) in order to think through trans (in its current iteration) as an assemblage composed (at least partially) of media infrastructures and practices, bodily techniques, and phenomena such as global finance capital, surveillance culture, and data mining in which these material elements are historically situated. In each chapter, I identify and focus on a specific technology or set of technologies that underlies the type of media in question (e.g. video games/game mechanics, streaming TV/algorithms) in order to come to a better understanding of the trans/digital technology assemblage.

I've chosen the sites I engage with (streaming TV, video games, robots/AI in the context of transhumanism, and digital art) for several reasons. One reason is that these objects are, in one sense, trans-specific or link to transness in specific ways but also point to underlying technologies that can be read as having broader trans-ing effects. Additionally, these objects provide clear examples of the intertwining of the body and digital media – the body of the gamer in video games, the body refashioned through robotics, etc. – making them especially fitting for analysis from a performance studies perspective. Lastly, these are objects I've found over several years of writing seminar and conference papers to be particularly generative, more so than other objects I've researched such as Facebook's real names policy and trans YouTube videos which lend themselves better to a reading of the identity-forming practices of trans-identified people.

Lastly, many of these are objects that have yet to be explored fully through a trans studies lens – robots, algorithms, etc. Engaging with each of these different types of media and the technologies that underlie them necessitates using slightly different methods in each chapter. However, there is a mix of methods I use in varying degrees throughout the project. These are: social research (primarily interviews), cultural analysis, and autoethnography.

The social research I conducted centered on interviews with creators of the objects I'm writing about, for example, talking with one of the creators of BINA48, a robot/AI project I write about in chapter four, and interviewing artist Zach Blas whose work I write about in the second chapter. I focused my efforts on the creators of these objects rather than doing ethnographic work with audiences because I'm less concerned with the reception of these objects by individual users or groups of users than I am with the circumstances of their creation and what this can tell us about the broader impact of these objects. I'm interested in the choice of these creators to put trans into conversation with digital media. Why explore trans through digital media and not some other medium? What does digital media offer to explorations of transness that other mediums don't? And, what have they found through these investigations in terms of linkages between transness and these media?

I analyze the objects I've chosen to include in the project through the theoretical frameworks of new materialism and performance theory. As Nick Fox and Pam Alldred write in a recent article on new materialist research methodologies, new materialist research projects should attend "not to individual bodies, subjects, experiences or sensations, but to assemblages of human and non-human, animate and inanimate,

material and abstract, and the affective flows within these assemblages."[14] They argue that such an approach looks for how these flows draw together the material and the cultural, and the micro and macro into assembly in order to come to a better understanding of the affect economies and micropolitics such movements reveal. The concepts and research methods proposed by Fox and Alldred as well as other scholars and theorists whose work falls within the rubric of new materialism are particularly useful for this project. Concepts drawn from new materialisms such as assemblage, intra-activity, and becoming have proven to be extremely generative in helping me make an argument about the intra-action between trans and digital technologies that does not fall back on themes of virtuality or disembodiment.

Moreover, new materialism's focus on matter, human and non-, provides an interesting complement to the performance theory approach that underpins this project. A performance theory framework assists in taking the insights of new materialism and applying them to my chosen objects of analysis, which are, in addition to technological objects, also objects of aesthetic cultural production. Moreover, these are objects that, I will argue, participate in the production of bodies. For example, the video games I'm writing about require, through inventive use of game mechanics, that players engage with the games bodily, remaining open to the possibility of bodily change. Performance studies scholars working at the intersection of performance and new media studies such as Kiri Miller have contributed greatly to my thinking around media such as these games. Whereas new materialism draws attention away from the human body, at least as the sole focus of analysis, performance theory aids in bringing observations gleaned from a close

[14] Fox and Alldred, "New Materialist Social Inquiry," 9.

reading of non-human matter back to a consideration of the matter of the human body. Combined, these two modes of analysis create a means by which I can draw focus to the materialization of the body that is attentive not only to the human body or its surfaces or contours but also the moving body, the matter of which the body is composed, and matter external to the body. Taken together, the two present a fruitful challenge to concepts such as Butler's performativity.

Lastly, while conducting research for this project I've gained hands-on experience with many of the technologies I write about – from immersing myself in trans-oriented *Minecraft* communities to in-depth interactions with BINA48. This was inspired by experimental methods employed in both new materialist scholarship (such as Jane Bennet's deep engagement with things) and trans studies scholarship (such as micha cárdenas's media design works and Lucas Crawford's spatialized poetry). As such, I sometimes write in an autoethnographic mode in this project, allowing me to gain a stronger understanding of the media objects I write about by thinking not only *about* them but also *through* and *with* them.

Literature Review

As noted above, new materialisms form the theoretical framework of this project. In thinking through the question of what a specifically trans theory might look like or do, I found myself returning again and again to the idea that a materialist analysis of body production must form part of the answer. In contrast to the performative dimensions of gender and sexuality that queer theory helpfully attends to, I am interested in a trans materiality that is compatible with queer theory but that attends more specifically to the material dimensions of gender and sexuality ranging from the molecular elements of the

body to a consideration of the broader material realities (legal structures, medical practices, media technologies, etc.) within which trans lives are lived. I am also interested in the coevolution of trans studies and new materialist theories in the academy. As trans studies has proliferated, the new materialisms have taken shape and proliferated alongside it. Much like I view contemporary iterations of transness as part of an assemblage that is composed of bodies, technologies, aesthetics, and politics; I view trans studies itself as an assemblage, one which is composed of many of these same phenomena as well as theoretical approaches that evolved alongside it. The new materialisms have, of course, changed the shape of the long(er)-standing academic fields – media and performance studies – I engage with in this project as well. This project, then, is interdisciplinary but draws each of the fields it engages with together in terms of a consideration not only of how these fields themselves intra-act but also in terms of how the new materialisms refract through each and, in so doing, draw them together. In what follows, I will discuss each of these fields and the ways in which they are drawn into this project, specifically in terms of their engagement with new materialisms.

Performance Studies

This project pulls performance studies into its orbit as a means of thinking through the ways digital technologies and media shape transness at the level of the body. The emphasis performance studies places on embodiment is crucial to this analysis. However, the approach performance studies takes to theorizing gendered embodiment and, more specifically transness is not necessarily an easy fit. There have a number of attempts recently to think transness through a performance studies lens as indicated, for example, by the American Society for Theatre Research's 2016 "Trans-" conference

theme and Amelia Jones's recent special issue of *Performance Research* titled *On Trans/Performance*.[15] However, more often than not, trans lives and the material realities of those lives are elided and/or erased in such attempts at engagement as evidenced by the scant attention paid to the transing of sex and/or gender both at the ASTR conference and in the special issue of *Performance Research*. This is the case, also, in much of the theoretical literature that either originates from or circulates heavily within performance studies such as Butler's theory of performativity.

Although Butler's work engages frequently and in great depth with transness, their theory of performativity ultimately prioritizes the social over the material, which I argue creates problems in theorizing transness. I focus on Butler's performativity here not because it is uncontested in performance studies but because it is so frequently invoked when performance studies scholars attempt to think through gender, sex, and sexuality. My critique of Butler's performativity is strongly informed by Karen Barad's theory of agentic realism. For Butler, to put it simply, discursive practices produce material bodies in that we ceaselessly cite the conventions of the social world by enacting them with our bodies and, in so doing, produce material changes to our bodies thus reifying those conventions. In short, for Butler, materialization is a "kind of citationality."[16] In Barad's view, "Butler's theory ultimately reinscribes matter as a passive product of discursive practices rather than as an active agent participating in the very process of materialization."[17] For Barad, Butler's approach to matter renders it passive in several ways: first, by limiting thinking about the human body to its surface and contours rather

[15] Jones, *On Trans/Performance*.
[16] Butler, *Bodies that Matter*, 15.
[17] Barad, "Posthuman Performativity," 821n26.

than engaging with its interiority and the matter of which the human body is composed; second, by neglecting non-human forms of matter entirely; and, third, by failing to consider matter (including the non-surface matter of human bodies and non-human matter) as agentic.

For Butler, the potential for change lies in human agency and the possibility of challenging culturally conditioned performative acts through alternative performative acts. However, this renders matter entirely passive. For Barad, the answer to the question of change has to do with acknowledging the ways that non-human entities such as objects, space, and time shape the constitution of any given phenomenon. It is not only that discursive practices produce gendered bodies (or any given phenomenon) but that the two are co-constitutive and, moreover, are coterminous with a whole host of non-human entities. Agency, then, concerns not only human agency but also accounts for the agency of non-human entities. This has enormous and productive consequences for thinking transness in a way that evacuates neither the material specificity of the trans body nor the social, cultural, environmental, mediatic, medicojuridical, etc. apparatuses within which the trans body is enmeshed.

Similar to this problem of thinking transness is performance studies' thinking about digital media which oftentimes, like transness, is thought through in terms of dematerialization and virtuality. For example, Sue-Ellen Case's *Domain Matrix* poses the live lesbian body in performance against what she calls the "meatless" environment of cyberspace.[18] Here, only the live body is regarded as matter whereas matter associated

[18] Case, *The Domain-Matrix*, 61.

with or rendered through digital media is regarded as virtual. I argue that performance studies would be better served by instead engaging with digitality through the lens of materiality. This entails a consideration of such media in the fullness of its materiality (screens, code, cables, etc.) and also a consideration of the ways in which this matter intra-acts with other matter, human and non-.

As mentioned earlier, transness and digitality are frequently invoked concurrently in texts emerging from or that circulate heavily within performance studies. As when Jon McKenzie writes that performance produces new subjects of knowledge including "hyphenated identities, transgendered bodies, [and] digital avatars" arguing that these phenomena suggest a subject that is "constructed as fragmented rather than unified, decentered rather than centered, virtual as well as actual."[19] Or, when Rosi Braidotti writes that the digital technological apparatus is composed of "figures of mixity, hybridity, and interconnectiveness, turning transsexuality into a dominant poshuman topos" as a result of which "the old organic human body needs to be located elsewhere."[20] This use of transness as a metaphor for the effects of digital technologies ahistorically associates transness with digital technologies and, in so doing, frames trans people as futuristic and denies the materiality of both the trans body and digital technologies. This suggests that these two phenomena – transness and digitality – would benefit from being rethought concurrently. And that is precisely what this project offers: a more productive way of thinking transness (directing attention to the materiality of the body in all its fullness and an imperative to think about non-human matter as well) *and*

[19] McKenzie, *Perform or Else*, 18.
[20] Braidotti, *The Posthuman*, 97.

simultaneously a more productive way of thinking digitality (as something that participates in the materialization of the body and other matter rather than pointing toward virtuality and disembodiment). Moreover, it proposes a different way of thinking the relationship between the two.

Trans Studies and New Media Studies

In terms of the other fields with which I am engaging, specifically trans studies and media studies, this project, I hope, also offers contributions to both. There is a growing body of work that engages directly with transness and digital media and technologies. For example, scholars have written about trans identity formation practices in online spaces, online community and social support structures for trans people; the use of crowdfunding sites for trans medical care; online organizing and activism; and managing identity in digital realms such as Facebook and credit reporting sites that demand the use of real names and a legal identity that remains constant over time.[21] Much of this work is excellent and useful but it differs from this project both in terms of the theoretical frameworks used and the types of questions asked. Perhaps the scholar whose work resonates most with this project is micha cárdenas, whose scholarship sits at the intersection of trans studies and new media studies, often through a new materialist lens. For example, in her multimedia article, "Shifting Futures: Digital Trans of Color Praxis," she explores trans women of color's modulation of visibility through the

[21] See for example: Cavalcante, "'I Did It All Online;" Singh, "Transgender Youth of Color and Resilience;" Farnel, "Kickstarting trans*;" Rawson, "Transgender Worldmaking in Cyberspace;" Mackenzie, "The Afterlife of Data."

flickering and shifting imagery of digital media, writing that "shifting is a form of communication, of media, because anything that can change state can carry information, and further, the transformation of bodies is often facilitated by the addition of technologies to a body, such as administered hormones or lipstick."[22] Her work represents a new direction in scholarly work produced at the intersection of trans studies and new media studies, much of which has been written from a sociological perspective.

This project aims to continue the exploration charted by scholars such as cárdenas by experimenting with frameworks not often utilized in studies of transness and new media, specifically new materialism and performance studies. Although a handful of trans studies scholars such as Eva Hayward and Mel Chen work through a new materialist framework, neither works specifically with digital media. Explicit use of performance theory is even less frequent in trans studies. As both are interdisciplinary fields, some performance studies scholars such as José Muñoz have found resonance within trans studies and some trans studies scholars such as Eva Hayward have found resonance within performance studies. Additionally, a small number of trans studies scholars have written about trans cultural production such as dance and theatre but otherwise, the field has not engaged significantly with performance theory.

Moreover, this project asks a different set of questions about the relationship between trans and digital technologies than existing scholarship. Although a growing body of scholarship exists that asks questions about trans engagements with digital media, as noted above, most of this scholarship asks questions about one particular type

[22] cárdenas, "Shifting Futures."

of media or one type of situation trans people encounter in digital spaces rather than attempting to think through this relationship in a wide-ranging manner such as asking questions about why these two things should be thought concurrently in the first place or the interventions such an inquiry might make.

Lastly, I hope this project will make a contribution to media studies by engaging digital media through a focus on materiality and embodiment. Although media studies has taken a relatively recent turn toward embodiment and materiality (for example, in ethnographic audience studies and with scholars like Jussi Parrika bringing new materialisms to bear on the field), "[t]extual analysis has long been a primary mode of 'doing' media studies," as Jonathan Gray writes.[23] Contributing to the growing focus on methods that are not primarily text based is an important intervention for new media studies, particularly at the present moment as technologies and forms of media such as AI, robotics, and virtual reality are poised to engage the body differently than other and older forms of media. These new and emerging media directly and actively engage the body and therefore demand a consideration of the intra-action between bodies and such media.

Moreover, a historical focus on semiotic and other forms of textual readings of media has precluded attention to other types of technological matter in the study of media. In response to this, Jussi Parrika calls for an approach to researching media cultures that is attentive to "the various materials, components, long networks, and genealogies in which media technologies are being produced" in an effort to expand our

[23] Gray, "Text," 386.

understanding of media and power beyond the "world of meanings and symbols."[24] This project aims to contribute to these efforts in communication/new media studies to better account for matter, both human and non-. However, I am not advocating a complete break from textual analysis. In some chapters of this project, I employ textual analysis of media objects like TV shows and films alongside a material analysis of the technologies that underpin those media objects. Thinking along with Barad, textuality and materiality are not fully separable phenomena but rather emerge from the same assemblage and are, thus, intra-active phenomena which are coeval and co-productive.

Chapter summaries

This project begins with an effort to think along with media artist Zach Blas, regarding his work as itself a kind of theory that that helps explicate aspects of the intra-action between transness and digitality. Chapter One, "Queer and Trans Assemblages: From *Jubilee* to *Jubilee 2033*," explores artist Blas's short film *Jubilee 2033* alongside Derek Jarman's *Jubilee*. Analyzing the two films through the "radical queer materialism" and "trans empiricism" Paul Preciado proposes in *Countersexual Manifesto*, I argue that these works allow us to glimpse the "prosthetic production" of gender and sexuality by demonstrating the ways gender and sexuality emerge as part of an assemblage that includes technologies such as broadcast TV and the internet. Further, Blas's work calls into question the purported frictionlessness of digital technologies, proposing instead a

[24] Parikka, "New Materialism as Media Theory," 97.

trans friction which reveals the incompatibility of digital systems with the material dimensions of trans bodies, practices, and lived realities.

The following chapters take as their starting point a materialist analysis of specific technological objects. Chapter Two, "'I'm Not Just a Me but I'm Also a We': Algorithmic Culture on Netflix," explores the explosion in trans visibility and trans-specific content in TV shows produced by streaming platforms such as *Sense8*, *Transparent*, *Orange is the New Black*, and *The OA* but argues that a focus on representation does not adequately uncover what these shows and platforms do in terms of processes of gendering and racialization. Turning attention instead to the algorithms upon which streaming services rely for all aspects of the production, distribution, and consumption of these shows calls attention to the ways the shows themselves are shaped by the algorithms that form their contours. I argue that these algorithms participate an undoing of the viewer's body while at the same time participating in the production and calcification of a normative notion of the transgender body. Focusing specifically on the Netflix platform and two of its original series, *The OA* and *Sense8,* both of which feature recurring trans characters, I argue that these trans characters are figured as avatars of the algorithmic age in order to guide audiences through the undoing of the body algorithms require in order to adapt to a more flexible, capacitative subjectivity.

The third chapter, "Towards a Trans Game Studies," delves into video games including a small archive of indie games as well as online, multiplayer versions of the mainstream game, *Minecraft*. In this chapter, I use a Baradian framework – focusing in particular on Barad's notion of intra-activity – to argue that these indie games that deal explicitly with transness can help us rethink other types of video games from a trans

perspective. Bringing a trans perspective to bear on video games brings attention to the "fleshy communion" between player and game and shows how the material elements of videogames such as server configurations, game mechanics, and interactions with other players (re)shape the bodies of players who play them. Analyzing videogames from a trans perspective also intervenes in the long-standing narratology/ludology debate in game studies, suggesting a way of rethinking this binary tension as well as other similar binary tensions.

The final chapter, "Transing Transhumanism", looks at two separate transhumanist projects – Martine and Bina Rothblatt's BINA48 and artist Mary "Maggic" Tsang's work on hormone extraction – in order to explore how race and gender are produced differentially in transhumanism and transhumanist projects. In these two bodies of work, I find two very different versions of transhumanism, one that is tethered to liberal humanism and one that uses a coalitional, transformative trans(gender) politics in order to imagine the world anew. Although both of these bodies of work emerge from the milieu of transhumanist thought and speculation, I find that the Rothblatts' work aligns with a normative transhumanism that is founded on a reductive materialism. By contrast, Maggic's work models what a transhumanism founded on a more complex materialism, one that is compatible with a transformative transgender politics, makes possible.

Chapter One: Queer and Trans Assemblages: From *Jubilee* to *Jubilee 2033*

Introduction

A dildo fountain, an internet user's agreement, a dancer masturbating their own arm: these are among the elements in Zach Blas's *Contra-Internet*, a multi-media exhibit that, through its construction as a networked assemblage, works to denaturalize the technological assemblages in which we are enmeshed, drawing on Paul Preciado's concept of the dildo, which works to denaturalize the sexed/gendered body. Blas engages with a number of theorists in his *Contra-Internet* exhibit but none more so than Preciado. Preciado's 1999 *Countersexual Manifesto* (on which the title of Blas's exhibit so clearly riffs) proposes a theory of countersexuality as an intervention into ongoing constructionism vs. essentialism debates in queer and feminist theory. Countersexuality rests on Preciado's argument that gender is "first and foremost prosthetic"[25] rather than natural or performative. By this he means that the body is entangled with and shaped by a slew of external forces such as "machines, products, instruments, apparatuses, gimmicks"[26] etc. and that neither sex nor gender can occur apart or aside from the interaction between the body and these technologies. Of these technologies, Preciado places particular emphasis on the transformative potential of the dildo[27], describing it as "the ontological hole within the binary logics of sexual and gender identities."[28] *Countersexual Manifesto* not only theorizes the disruptive potential of the dildo but also

[25] Preciado, *Countersexual Manifesto*, 27.
[26] Preciado, 21.
[27] The dildo should not be mistaken for the penis which, for Preciado, is preceded by the dildo; nor should it be it be confused with the phallus which, for Preciado, emphatically does not exist but rather points to "the phantasmic and political hypostasis of the penis within heteronormative patriarchal culture." Preciado, 63.
[28] Preciado, 63.

proposes a counterscience of dildotechtonics dedicated to the study of the dildo and offers a countersexual contract in which signatories renounce naturalized, normalized forms of sex, gender, and sexuality. The book also outlines a series of countersexual reversal practices with titles such as "Ron Athey's Solar Anus" that lead participants through brief performances designed to disrupt the normative, genital-centric modes of sexuality into which the body is disciplined and instead engage the body as a dildo by, for example, masturbating one's forearm. Blas draws heavily on these elements of Preciado's manuscript in *Contra-Internet*.

As both an artist and a theorist, Blas's creative and intellectual provocations center specifically on digital technologies – internet networks, social media, AI, etc. – and the ways these technologies shape and are shaped by queer and trans bodies, practices, and lived realities. In keeping with this, *Contra-Internet* reconsiders Preciado's dildo and countersexual practices for the digital age. If Preciado's silicone dildo is disruptive in its ability to denaturalize the body by revealing its sexual and gendered plasticity, Blas's silicon dildo is disruptive in its ability to reveal and denaturalize the digital networks within which our sexed and gendered bodies are enmeshed.

In addition to Preciado, Blas's exhibit also closely engages with the work of queer filmmaker Derek Jarman whose filmography spanned from the early 1970s to the mid-90s. At the center of *Contra-Internet* is the film *Jubilee 2033*, an homage to Jarman's 1978 punk film *Jubilee*, often described as the most personal and autobiographical of his films. Filmed in 1977, the year of Queen Elizabeth II's Silver Jubilee, the film excoriates the then-nascent neoliberal political turn in Britain by exploring the cooptation of punk by mainstream media forces and the alternatives offered by a historically-informed queer

worldmaking, in the Muñozian sense of the term.[29] As with Preciado, Blas reconsiders Jarman's film from the perspective of the internet age, shifting the focus from broadcast media to digital media. *2033* retains the original's queer sensibilities but rethinks what gender and sexuality are and what potentialities they might offer in a technological, mediatic, political, and economic moment that differs greatly from Jarman's.

In this chapter, I explore Blas's *Contra-Internet* with particular attention to the ways it rethinks digitality from a trans perspective. The rest of the chapters in this project take as their starting point a materialist analysis of specific technological objects that seeks to rethink these objects from a trans perspective. In this chapter, however, I think *with* Blas, finding concepts in his work that explicate aspects of the intra-action between transness and digitality. In other words, I regard *Contra-Internet* as itself a kind of theory that further grounds my analysis of the objects I engage with in other chapters. In particular, I am interested in thinking with Blas about the contours of the assemblage from which digital technologies and contemporary iterations of transness emerge; the material dimensions of the co-emergence of digital technologies and transness; and the urgency of gaining a better understanding of this relationship at a time often described as "post-internet."

First, I argue that analyzing *Jubilee 2033* alongside Jarman's *Jubilee* brings into focus the elements of the assemblages through which queerness and transness emerge at specific historical junctures, illuminating the relationship of gender, sex, and sexuality to coevolving phenomena such as communication technologies, modes of thought, and

[29] Muñoz, *Disidentifications*, 196.

political and economic realities. Jarman created *Jubilee* at a moment when contemporary notions of queerness were emerging into public consciousness and the film situates queerness as part of an assemblage that included the cooptation of punk by broadcast media and Britain's turn toward neoliberalism, among other elements. Rethinking *Jubilee* nearly 40 years removed from the original, Blas draws attention to changing forces that accompany the emergence of trans into public consciousness including a totalizing internet, the entrenchment of neoliberalism, and Silicon Valley's technological libertarianism. For both Jarman and Blas, these assemblages shape gender, sex, and sexuality but can also be shaped by them, opening the possibility for resistance and transformation.

Second, in tracing the contours of the assemblage through which trans emerges, I argue that Blas's work allows us to glimpse the "prosthetic production of gender"[30] by means of its co-emergence alongside and through other phenomena that occur in that assemblage, in particular the internet, digital media, and digital networks. As Blas renders them, these technologies, working in tandem with other assemblage elements, have material effects and the potential both to facilitate subversive bodily transformations and to subject bodies to control, surveillance, and discipline. This tension between transformation and control forms the concept of trans friction I develop in this chapter. *Contra-Internet* calls into question the purported frictionlessness of digital technologies or, in other words, the notion that such technologies allow us to slide seamlessly into and between new and different identities and morphologies. The exhibit introduces instead a trans friction which resonates with the real-world incompatibility of digital systems with

[30] Preciado, 126.

the material dimensions of trans bodies, practices, and lived realities. In this sense, Blas's work draws attention to the material aspects of digital phenomena (which are so often theorized as virtual), calling to mind Preciado's efforts to prefigure a "radical queer materialism or trans empiricism."[31] Rather than positing that transness is somehow inherently digital, Blas brings transness and digital technologies and media into contact with each other in order to call attention to glitches and instabilities in technologies ranging from social media sites to facial recognition systems that transness necessarily exposes.

Lastly, Blas highlights the urgency of thinking through the tension between friction and fluidity at a moment often described as "post-internet." As will become evident later in this chapter, Blas's thinking around the concept of "post-" is multifaceted. He is dismissive of the theoretical tendency toward "post-"s of all kinds (post-racial, post-feminism, etc.) at a historical juncture so clearly shaped by racism, misogyny, and homo- and transphobia. He is also wary of the way in which "post-" is used to imply that a particular phenomenon is totalizing and that resistance is futile. For Blas, to prepend "internet" with "post-" is to concede that the internet is a totalizing force in the here and now with no outside, in much the same way as J.K. Gibson-Graham critique the theorization of capitalism as a totalizing force.[32] Rather than "post-" in the totalizing sense, Blas brings focus to what a time after the internet might look like. This produces two competing visions: one is the disappearing internet in which, in the words of Google's Eric Schmidt, the internet "disappears" into the world and into us.[33] In this

[31] Preciado, 77.
[32] Gibson-Graham, *The End of Capitalism*.
[33] Smith, "Google Chairman: The Internet Will Disappear."

vision, the internet ceases to be something we primarily access while sitting in front of a computer and is instead everywhere around us: embedded into refrigerators, worn as monitoring devices on our bodies, connecting facial recognition-enabled security cameras, and changing the content of digital ads as we walk past. This disappearing internet shapes our affects, desires, and modes of being in ways that dampen resistance and threaten to enact precisely the kind of totalization Blas is resistant to. The other vision is drawn from community projects happening worldwide from Detroit to Hong Kong to create local Wi-Fi networks capable of both accessing the internet and providing a local intranet through which users can share resources and communicate without relying on the internet. Blas sees a commonality between queer and trans practices of networking and contact and these alternative networks, which together produce a means of resistance to the totalization he describes. This, I contend, is the promise and potential of rethinking digitality through a trans lens.

Queer and Trans Assemblages: From *Jubilee* to *Jubilee 2033*

To understand the conditions Blas's rethinking of *Jubilee* responds to, it is first necessary to gain a fuller understanding of the original film. Jarman's *Jubilee* opens in the 16th century at the estate of John Dee - philosopher, alchemist, and advisor to Queen Elizabeth I. At the Queen's behest, Dee summons Ariel, an angelic being drawn from Shakespeare's *Tempest* (which Jarman later loosely adapted into a full-length film), to show them a glimpse of Britain's future. Ariel transports them to an apocalyptic, near-future 1970s London in which multiple fires burn and gunshots ricochet through the deserted city. Gangs of punks roam the streets stealing designer sunglasses from the bodies of dead elites. Early in the film, a group of punks are rounded up by Mad, one of

the film's more militant punks, and are brought before the film's resident historian, Amyl Nitrate, for a history lesson on the downfall of the British empire. The film then follows the small group of punks Mad and Amyl live with as they rebel against repressive forces such as the police but ultimately become coopted by broadcast media mogul Borga Ginz and take refuge at his country estate at the end of the film along with Hitler, signaling a descent into fascism. Only a handful of members of the group - the incestuous queer brothers, Angel and Sphinx, and their lover, artist Viv, resist cooptation, in some cases by persecution and in others by choice. At the film's end, Dee and Elizabeth I roam the seaside waxing nostalgic about their days at Oxford and the whispered secrets they shared, "the codes and counter-codes, the secret language of flowers," a rich history that hearkens back to Ariel's earlier line in the film: "consider the world's diversity and worship it, by denying its multiplicity you deny your own true nature."[34]

Although the above describes the loose narrative thrust of *Jubilee* (emphasis here on loose – Ellis describes it as a "largely unprogressive" narrative that "exists more or less as a frame for a series of unrelated vignettes"), it should be noted that Jarman was in no way a traditional narrative filmmaker.[35] Nor was he even primarily a filmmaker. In addition to making films, Jarman was a practicing artist, set designer, gardener, and queer activist. He once described himself as "cine-illiterate," and understood himself primarily as a painter who also made films.[36] It is perhaps his varied artistic background and his refusal to subscribe to the tenets of traditional filmmaking that allowed Jarman to subvert the genre in multiple ways, bringing novel approaches to his practice as a filmmaker.

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[34] Jarman, *Jubilee*.
[35] Ellis, *Derek Jarman's Angelic Conversations*, 50.
[36] Richardson, *The Queer Cinema of Derek Jarman*, 4.

Although his films often include queer content at the level of narrativity (storylines, characters, etc.), they more importantly explored queerness vis-à-vis formal experimentation. Niall Richardson writes that the queer status of Jarman's films "is more indebted to the way in which the images interrogate the normative continuum of sex, gender, and sexuality" than to queer content or narrativity.[37] For example, in many of his films, he uses temporality to set queer lovers apart from the non-queer world surrounding them. In *The Garden*, the stillness of the two lovers serves as a temporal contrast to the manic world the non-queer characters inhabit. In *Jubilee*, Jarman tinkers with many of the formal aspects of traditional filmmaking in order to both achieve and critique punk aesthetics. For example, he plays with film speed (manually speeding up and slowing down the pace of the film itself in specific moments) and adopts punk's collage aesthetic by using both 16mm and 8mm footage.[38] The level of experimentation deployed in his films combined with his contrarian approach to the subjects he explored (queerness, punk, etc.) and his tendency to depict sexually and violently explicit imagery earned him a mixed response from audiences and critics alike, even those otherwise receptive to queer and avant-garde art.[39]

Like Jarman, Blas's artistic and intellectual practice is not reducible to any one medium. Blas works as a visual artist, filmmaker, and writer and is currently a Lecturer in

[37] Richardson, 10.
[38] The collage aesthetic stems from punk's DIY sensibility: from the early days of punk in the 1970s through to Riot Grrrl in the 1990s, punks eschewed design aesthetics and professional techniques and instead crafted items ranging from show posters to album cover liners to zines by hand using a mix of materials including newspaper and magazine clippings, original drawings, and cut-and-paste typography. Vivienne Westwood's "God Save the Queen" t-shirt, which corresponded to a Sex Pistols song of the same name, is a well-known early example. Jarman created this effect in *Jubilee* by splicing together grainy 8mm film and higher-definition 16mm film.
[39] Richardson, 4.

the Department of Visual Cultures at Goldsmiths, University of London. While Jarman's films, during his lifetime, were primarily shown at art houses and Western European film festivals, Blas's work has been shown in galleries internationally in cities including London, New York, Shanghai, Dakar, Istanbul, Mexico City, and Moscow. The bulk of his projects explore the intersections between gender, sexuality, and race and digital technologies. Among his better-known projects is a series of works titled *Face Cages*, co-created with fellow queer artists micha cárdenas, Elle Mehrmand, and Paul Mpagi Sepuya. The piece interrogates biometric surveillance practices by generating biometric diagrams of the faces of the participating artists and then using those diagrams to create three-dimensional metal face masks which, although painful to wear, are used as part of an endurance performance with the effect of demonstrating the very real material damage done to non-normative and minoritarian bodies by what might otherwise seem like an abstract, virtual mode of control. Similar to the trans friction introduced in *Jubilee 2033*, *Face Cages* calls attention to the friction between non-normative bodies and digital technologies. As in *Face Cages*, Blas's work often mixes material and immaterial elements and *Contra-Internet* is no exception.

Although *Jubilee 2033* serves as the focal point for the *Contra-Internet*, there are numerous other elements to the exhibit. When I experienced the exhibit at Eindhoven's MU gallery, it spanned two separate spaces within the museum. The first was a small gallery showing two "totality studies" on small screens: one a .gif depicting the motion of network connections across the globe and the other proposing a definition of the internet as "an architecture or structure of power," "the hero of the post-Fordist development

narrative," and "the everything everywhere of contemporary cultural representation."[40] Also shown in this gallery were a series of "inversion practices" on individual monitors accompanied by music with titles such as *Inversion Practice #2: Social Media Exodus (Call and Response)* set to The Car's "Since You're Gone." These short screencap videos are a digital rethinking of the countersexual practices proffered in Preciado's *Countersexual Manifesto*. In the video mentioned above, for example, the viewer observes Blas's desktop as he pulls screenshots drawn from his various social media accounts – a Facebook post, a tweet, a LinkedIn profile – each containing several lines of declarative text such as "I recognize myself and others as embodied bio-informatic aggregates that exceed the brutal quantification and standardization of digital Internet logics" into a photo editing program. As the viewer watches, each image is stripped of all traces (profile pic thumbnails, likes, UI design elements) of the social media site it came from until all that is left is a series of statements that combine to form a Contra-Internet User's Agreement in which the signatory agrees, among other things, to "resign all Internet-based modes of kinship" and declare themselves "an antiweb and worker of the antiweb."[41]

The second space was a darkened viewing room with *Jubilee 2033* playing on a large screen at the front of the room. Like the 1977 film, it plays in 2D on a flat screen. However, the room in which the film was playing was populated by 3D, material objects. On either side of the screen stood two etched glass globes, one titled *Palantir: Killed Internet*, the other titled *Palantir: Disappeared Internet*. Named after the crystal balls

[40] Blas, *Contra-Internet* exhibition.
[41] Blas, *Contra-Internet* exhibition.

used to see events happening in other parts of the world in J.R.R. Tolkein's fantasy universe, Palantir is a private, secretive data analytics company founded in 2004, in part by PayPal's Peter Theil. Its methods are notoriously secretive but what is known is that the company's software sorts through and synthesizes multiple data sources including flight records, cell phone metadata, financial documents, and social media posts in order to find and visualize linkages between people, companies, events, etc. Palantir's clients include the FBI, CIA, ICE, the IRS, and multiple local police forces. The Palantir theme continues onto the floor of the screening room with a geometric design crafted from fluorescent green vinyl tape titled *The Seal of the Absolute* which fuses together three graphic brand design concepts for Palantir. Blas likens the seal to the seeking of "something complete, unconditional, and infinite" by religious and spiritual practitioners.[42] For Silicon Valley's entrepreneurs, this absolute is data. At the back of the screening room is a podium upon which sits a copy of *The End of the Internet (As We Knew It)*, a single-issue hardback listing Nootropix (a character in *Jubilee 2033*) as author. The publication date is 2033 and rather than a works cited, the book offers a "Works Plagiarized" page, highlighting the utopian plagiarism Blas explores elsewhere in the exhibit (and which I will return to later in this chapter). Next to the book sits a "shew stone" composed of polycarbonate silicon and modeled after an object used for scrying by Queen Elizabeth I's advisor John Dee, occult philosopher, proponent of British imperialism, and figure in Jarman's *Jubilee*.

It is through these material objects that Blas adds the texture and layered meanings to the exhibit that Jarman achieves in film through the inclusion of the

[42] Carrigan, "At Art in General."

seemingly unrelated vignettes (mentioned above) in the original *Jubilee*. *2033* is itself much shorter than Jarman's original (approximately 30 minutes in length compared to the 1hr 46 min runtime of *Jubilee*) and hews closely to the loose narrative of the original. Just as Jarman does in *Jubilee*, Blas explores his subject matter as much through formal experimentation as through narrative. Rather than experimenting with mixed film types and speeds, Blas makes use of hyper stylized computer-generated graphics (in one interview, he describes *2033* as "a fever dream, created via computer graphics.")[43] Instead of Dee's estate, *2033* begins in Ayn Rand's New York City apartment in the 1950s. Together with disciples Alan Greenspan and Joan Mitchell (Greenspan's wife at the time, not the painter), Rand drops liquid acid and conjures an AI/avatar, Azuma, who spirits them away to Silicon Valley in 2033 where they witness the influence of Rand's Objectivist philosophy on its entrepreneurs. As in Jarman's near future London, the Valley's tech campuses are on fire – Google, Facebook, Adobe, Singularity U – and gunshots ring out against the concrete. Gangs of "techie cattle hacker wannabes,"[44] paralleling Jarman's wandering gangs of punks, roam the streets and are ultimately rounded up at gun point by The Art Professor (who reads as a butch dyke, wears military garb, and wields a machine gun, paralleling *Jubilee*'s Mad). The gangs are brought before *2033*'s resident historian, Nootropix, a "a contra-sexual, contra-internet prophet"[45] brandishing a glowing purple dildo who lectures them on life after the internet. Following the lecture, Nootropix launches into a dance sequence I will return to later in this chapter that ultimately brings about the end of the internet and its attendant network geometries.

[43] Texeira Pinto, "Zach Blas: Contra-Internet."
[44] Blas, *Jubilee 2033.*
[45] Blas, *Jubilee 2033.*

At the end of Blas's version of the film, Rand and her disciples wander the California coast with Azuma who tells them that "Enlightenment dreams itself anew in the software."[46]

Jarman made *Jubilee* at a moment characterized by the dawn of neoliberalism, the height of postmodernism, a burgeoning queer activist movement, the advent of punk, and the ongoing predominance of broadcast media. Blas's remake emerges from our present moment the contours of which, although still coming into focus, are shaped by surveillance capitalism, digital culture, mainstream recognition of transness, and philosophical and political uncertainty. Although it retains the queer sensibilities of the original, *2033* places greater focus on transness as such by placing Nootropix, a gender nonconforming character played by a trans performer (Cassils), at the film's center. Its vision is far less optimistic than Jarman's. It depicts a world at an economic, political, and technological crossroads which could as easily go down the path of increasingly repressive digital surveillance capitalism as the path of reimagining and repurposing digital technologies for liberatory aims. This is a state of vacillation and precarity from which gender and sexuality are not immune, but rather engaged in what we might think of as Haraway's "spiral dance" in which it is necessary to both build and destroy "machines, identities, categories, relationships" and so forth.[47] In the world of *2033*, Nootropix, the film's most visibly gender nonconforming character, performs a literal dance that is also, in turns, a metaphorical dance with Silicon Valley's technologies and

[46] Blas, *Jubilee 2033.*
[47] Haraway, "Cyborg Manifesto," 181.

ideologies and a dance against them: a dance with this particular economic/technological/political moment and a dance against it.

This is a dance, as it were, that began in the 1950s, precisely the moment at which Blas begins his film. Putting the 1950s into contact with the Silicon Valley of 2033 highlights not only the influence of Rand's libertarian philosophy on the creators of digital technologies in the present day and speculative future, it also links the present and future Valley with the broader historical juncture from which Rand emerged. This is the historical period during which transsexuality first emerged in the mainstream public consciousness in the U.S. due to the media blitz surrounding Christine Jorgensen.[48] In "Christine Jorgensen's Atom Bomb," Susan Stryker considers Jorgensen's fame in the post-World War II period through the lens of the atomic bomb (which Jorgensen uses as a metaphor for feminizing hormones in her autobiography) arguing that "in the spectacular advent of Jorgensen's public womanhood, we can discern a moment of rupture in the fabric of Western culture, a new event in our material circumstances" which indicates our collective "passage into the hyperreality of postmodern conditions."[49] Later she writes that "[l]ike media images, like architecture, transsexual bodies materialize, concretize, and render visible many of the structuring principles of the culture that produces them."[50] To this, I would add two things. One, that the rupture Stryker describes also indicates the start of our collective passage into the conditions of digitality – marked, for example, by Claude Shannon's work on information theory and Norbert Wiener's work on cybernetics which emerged during this same period. And, two,

[48] Will add footnote here about Jorgensen
[49] Stryker, "Christine Jorgenson's Atom Bomb," 161.
[50] Stryker, 164.

that trans bodies not only materialize the structuring principles Stryker identifies – which this project understands as one element in a larger assemblage – but also materialize through and with the other elements, tangible and non-, including specific technologies and political economies. In *2033,* transness is tethered not only to the structuring principles that contributed to the formation of the internet (such as the principles underlying Rand's philosophies) but is also tethered to the internet in a very material sense, shaping and being shaped by elements such as software, cables, and global information flows.

As is clear from the above descriptions, there are many differences between Jarman's film and Blas's but I argue that they do similar work. Both films trace the contours of a specific technological, political, mediatic, philosophical, and economic moment and its relationship to gendered and sexual embodiment. The central argument, then, of the two films recalls Preciado's prefiguration of a "radical queer materialism or trans empiricism." But, what precisely does Preciado mean by this? To begin to answer this question, it is necessary to take a step back and contextualize Preciado and his work. Preciado is an activist, artist, and philosopher whose books, *Countersexual Manifesto*, *Testo Junkie*, and *Pornotopia,*, published between 2002-14, develop and expand his practice of bringing to the fore the (frequently absent or underdeveloped) material dimensions of the constructivist theories of gender in which he was trained in the 1990s. His work bucks the norms of academic writing; makes bold, sometimes expansive claims; and levels provocations at queer, trans, and feminist studies alike. This and other elements of his work and public persona have made him a contested figure in those fields. However, for reasons I will discuss below, his work warrants rediscovery and

reconsideration at a moment when queer, trans, and feminist studies scholars are contending with the concerns and provocations of the new materialisms.

As mentioned earlier, the task Preciado set for himself in *Countersexual Manifesto* was to intervene in the constructionism vs. essentialism debate that was raging in feminist and sexuality studies in the late 1990s and which has flared up again more recently in response to renewed attempts at theorizing sex and gender along strictly essentialist lines by trans exclusionary radical feminists (TERFs), who maintain a pernicious online presence.[51] Preciado's argument against essentialist notions of sex is that such notions rest on invariable, acultural, and ahistorical biological models that simply cannot account for the wide range of sexual variation present in human bodies (in terms of genitals, chromosomes, hormone levels, neuronal structures, genetics. etc.) His response to constructivism in the book is more nuanced and more fully developed. First, he troubles the notion of gender performativity, writing that attempts to theorize gender through a lens of performativity "often dispose of the body and sexuality prematurely" making it difficult to critically analyze the factors and processes that "make gender performances 'pass' as natural or not."[52] This materialist approach resonates with Barad's critique of performativity. He goes on to write that frequently the essentialism/constructionism debate stands in for perceived distinctions between sex and

[51] TERFism grew out of 1970s radical feminist movements that sought to expel trans women from women's and lesbian spaces such as the Michigan Womyn's Music Festival. Present-day TERFs are particularly active online, where they regularly harass and dox trans people. At the root of TERF ideology is biological essentialism – the notion that sex is neatly dimorphic, deterministic, and unchangeable. This biological essentialism resonates with the essentialist logics that underpin white supremacy, misogyny, and homophobia. And indeed TERF groups such as the Women's Liberation Front have aligned themselves with far-right organizations including the Family Policy Alliance and the Heritage Foundation in order to push legislation that negatively impacts trans people. See Pearce, Erikainen, and Vincent, "TERF Wars: Feminism and the Fight for Transgender Futures."

[52] Preciado, 76.

gender in the sense that sex is perceived as being "best encompassed by an essentialist framework, whereas gender […] is best apprehended with the help of constructivist models."[53] For Preciado, this points to a "common metaphysical foundation"[54] shared by the two: a Cartesian division of mind (gender) and body (sex) and, by extension, a division of artificial (gender) and natural (sex). Preciado's intervention in the constructionism/essentialism debate, then, rests on eschewing these divisions.

Up to this point, his argument does not differ significantly from the foundations of Butler's theory of performativity. However, Preciado takes this argument further: not only is there no strict opposition between sex and gender, there is also no real divide between a performative gender and the material forces that impact our experience of gender. Gender is informed by "physical, sexual, social, and political transformations that take place off-stage [ie not in the realm of performativity]."[55] And, "it is not possible to isolate bodies (as passive or resistant materials) from the social forces that construct sexual and gender differences."[56] Moreover, in Preciado's thinking these off-stage transformations and social forces impact not only the surface of the body (gesture, presentation, etc.) but also affect the body at a molecular level (HRT, the pill, Viagra, etc.)[57], bringing his argument much more into alignment with Barad's framework than with Butler's. As noted in the introduction, Barad reconsiders Butler's performativity through a posthuman lens in order to consider the effects of matter not only on the

[53] Preciado, 129.
[54] Preciado, 129.
[55] Preciado, 76.
[56] Preciado, 127.
[57] Preciado begins to trace this argument in *Countersexual Manifesto* and develops it further in *Testo Junkie* in which he argues that we're living in a pharmacopornographic era.

surface of the body but within and beyond it as well.[58] Although both Preciado and Barad acknowledge a debt to Butler's work on denaturalizing gender, each seeks to expand that work to better account for the materiality of the body, contributing to a rethinking of gender, sex, and sexuality through a new materialist rather than constructivist lens.

For Preciado, then, sex and gender are co-constituted in concert with a multitude of other forces. Those forces are myriad but Preciado's project in this particular book leads him to a focus specifically on technological forces. His definition of technology is broad, including elements ranging from writing to biotech but here he places his attention on post-World War II industrial technologies such as factory machines (although he writes about other kinds of technologies elsewhere). He writes that "the notion of technology […] is a key category around which species (human/nonhuman), gender (male/female), race (white/ Black), and culture (advanced/primitive) are structured."[59] Preciado is not making a technologically determinist argument here, but rather an argument about the interconnectedness of embodiment and technology. In working to disrupt the shared metaphysical assumption (body/mind, natural/artificial) he sees as underlying both essentialist and constructionist theorizations of sex and gender, Preciado extends this mode of thinking to the question of technological determinism itself, arguing that it is not a question of strict determination by technology or some other force but is instead a much more complex equation. He writes that technologies do not themselves produce sex, gender, or sexuality nor do they demonstrate a one-way journey from the natural to the technological but rather that technologies and sex/gender/sexuality are

[58] Barad, "Posthuman Performativity," 822.
[59] Preciado, 121.

deeply intertwined with and productive of each other in ways that call to mind Haraway's concept of natureculture.[60] He writes about technologies not as totalizing systems but rather as assemblages in the Foucauldian sense: as dispositifs composed of power and knowledge as well as elements such as tools, texts, institutions, discourses, laws, and so on. Like Barad, Preciado seeks to make more concrete Foucault's theorization of the production of the material body by developing a mode of analysis capable of extending Foucault's work on technological dispositifs to his suggestion that such assemblages impact the production of the material body in order to demonstrate the ways in which technologies produce sexed and gendered bodies.

In order to do this, Preciado turns to Gayle Rubin's emphasis on what we might think of as a technological assemblages in her work on leather communities in which she argues that particular kinds of sexual practices and bodies are produced by a complex set of forces and technologies including industrial manufacturing, military culture, and urban/rural geographies.[61] As when she says:

> I do not see how one can talk about fetishism or sadomasochism without thinking about the production of rubber, the techniques and gear used for controlling and riding horses, the high polished gleam of military footwear, the history of silk stockings, the cold authoritative qualities of medical equipment or the allure of motorcycles and the elusive liberties of leaving the city for the open road.[62]

Although Rubin's work centers on the sexual practices of a specific community in this instance, the leap from thinking about the effects of large scale social and technological

[60] Haraway, *The Companion Species Manifesto*.
[61] Butler, "Sexual Traffic," 78-79.
[62] Rubin, *Deviations*, 291.

change on sexual practice and identity to thinking about the effects of this kind of change on gender identity and practice is, as Rubin might put it, a "short jump."[63]

Preciado makes this short leap when he writes about the development of butch identity and embodiment in the US in the 1950s: "the retro-dyke body of the 1950s mutated to the rhythm of the machine […] She grew up in the factory."[64] He attributes an interconnected set of smuggled "gender production" technologies to the emergence of the mid-century butch: body styling technologies such as "the white T-shirt, the chinos, the leather belt, the chest-flattening bands, the hair gel" but also communication and transportation technologies such as "the motorcycle, then the typewriter, the camera, the computer."[65] These technologies that the1950s butch smuggles and repurposes for her own use are what Preciado refers to as prosthetics which, following McLuhan,[66] includes "not just the replacement of an absent organ" but also "the modification and development of a living organ with the help of a technological supplement" (such that the camera is a prosthesis of the eye, etc.)[67] Although the "retro-dyke" is deemed unnatural for her use of myriad prosthesis, she is not alone in using them. Preciado draws focus too to the prosthetics used by post-World War II injured soldiers (artificial limbs, etc.) and housewives (vibrators, etc.), rendering these soldiers and housewives equally unnatural as the butch. What differentiates the butch from the soldiers and housewives is that, as Halberstam succinctly puts it in the foreword to *Countersexual Manifesto*, she is aligned with countersexuality, "refus[ing] the cover-up and expos[ing] her own plastic reality."

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[63] Butler, "Sexual Traffic," 83.
[64] Preciado, 167.
[65] Preciado, 168.
[66] McLuhan, *Understanding Media*.
[67] Preciado, 135-136.

In other words, she refuses to shape herself according to naturalized, normative notions of sex and gender.[68]

In my reading, Blas's *2033* makes a similar claim about the post-1990s trans body in placing Nootropix, a gender nonconforming character played by a trans performer, at the center of the film's technological quandary (a dance with Silicon Valley or a dance against it). The film's "techie cattle hacker wannabes"[69] and dead Google employees may be as immersed in digital technologies as Nootropix is but like Preciado's soldiers and housewives, their bodily plasticity and their digital prostheses are naturalized. Nootropix, however, refuses the cover-up and wears their own prosthesis (in this case a post-production, digitally-rendered, glowing purple dildo) openly, exposing their own digitally-enhanced plastic reality. In this sense, the film argues that much like the 1950s butch body was assembled from the specificities of industrial technologies, the contemporary trans body assembled itself from the artifacts of digital culture as much as the medicojuridical technologies transness is so often tethered and reduced to. We transformed ourselves in the network; mutated to the logic of the algorithm; smuggled gender production technologies like the emoji, the GIF, the profile pic, the chat forum, the DM, and the username for our own use.

The argument Blas makes about transness here follows not only Preciado but also Jarman's exploration of the forces shaping gender expression and sexuality in the 1970s in *Jubilee*. Each of the two films centers on a specific media technology (broadcast media/the internet); situates this technology as part of a larger historical assemblage; and

[68] Preciado, 41.
[69] Blas, *Jubilee 2033*.

explores how these assemblages interact with gender, sex, and sexuality. This leads viewers through an exploration of seemingly disparate but interconnected vectors of these assemblages such as temporality, theory, and movement. Below, I will explore each of these vectors in turn, in support of the argument that although these vectors may seem unrelated, the two films gather them together in an effort to show the relationship between them. In so doing, these films support Preciado's ideas about the relationship between sex, gender, and sexuality and technological assemblages at a given historical juncture, shedding light on changing understandings of and practices surrounding sex, gender, and sexuality from Jarman's time to the present.

Temporality

As mentioned above, the two films take as their starting point two very different and distant moments in history. However, in linking that history to their films' respective presents, Jarman and Blas call attention to the distinct experiences of temporality produced at different historical junctures and advocate for very different approaches to engaging with history in the present. Jarman finds in punk's temporal dimensions a stultifying boredom that dulls interest in the very history that might save punk from the cooptation it purportedly aims to resist. Blas, on the other hand, finds in the present a plodding continuity, carrying the harmful philosophical foundations upon which Silicon Valley was built through the present and into a perilous future.

Jubilee begins in the 16th century during the reign of Queen Elizabeth I. Jarman creates a lush and moody aesthetic for this moment in history – verdant gardens and dark estate interiors – in stark contrast to the harshly lit apocalyptic London against which this

environment is juxtaposed. But Jarman is careful not to idealize the past or suggest a nostalgic relationship to it. As Tim Ellis writes, "nostalgia, the film argues, is the result of the commodification of history and is the opposite of historical understanding."[70] Rather, the film attempts to create a blueprint for a productive relationship to the past: a relationship that recognizes the complexity of the past, refuses its commodification, and ideally finds in the past an "alternative heritage"[71] that can inform resistance in the present. Blas's film begins in the 1950s in Ayn Rand's cold, sterile NYC apartment – sparsely furnished and without defined walls – which does not differ significantly from the film's cold, sterile apocalyptic vision of 2033. Blas's framing of the US in the mid-twentieth century resists nostalgia perhaps even more insistently than Jarman's framing of seventeenth century Britain does. For Jarman, both nostalgia and eschewal of the past flatten it, making it vulnerable to cooptation and barring the possibility of mining the past for alternative heritages and strategies of resistance. But *2033* dips into a more recent past, decades rather than centuries removed from the present. In this not-so-distant past, Blas does not find alternatives or strategies but only the roots of current social, political, and technological maladies. There is nothing for which to be nostalgic here nor is there any possibility of flattening this history, as it continues on, unwaveringly, past the present and on into the future.

These differing relationships to the past in the films suggest differing temporalities. Jarman finds a stalled time in the age of punk, which prides itself on an uncomplicated, dismissive relationship to history and revels in a sense of boredom. At an

[70] Ellis, *Derek Jarman's Angelic Conversations*, 55.
[71] Ellis, 64.

early moment in the film, Mad steals the notebook in which Amyl has been composing her history of Britain; reading it aloud, Mad mocks it and ultimately sets fire to the notebook after proclaiming its contents "crap." There is, on the one hand, as Mad later tells us, "no future."[72] And, on the other hand, the past is not worth exploring. This is a mistake, Jarman argues, not because past moments in history are uncomplicated but because if the past is not grappled with, it becomes a site of nostalgia liable to be used as an instrument of repression and control.[73]

Blas's temporality is not stalled but rather ploddingly continuous. After Rand, Mitchell, and Greenspan drop acid, the AI Azuma appears to them in the window of Rand's apartment. When asked by Mitchell whether or not Rand's writings have changed the world, Azuma answers by spiriting them away to the Silicon Valley of 2033 explaining:

> The network entrepreneurs, men of the mind, invented a new way to be free. They live in California and there in their office parks, pictures of you hang, Ayn, alongside photographs of cars that drive themselves. They name their children after you. You are their philosopher. They make their future in your name.[74]

Amid images of burning tech campuses, Azuma then explains that a network war now rages. On one hand, *2033* shows us an enduring history, a past that leads inevitably to a particular future in that Rand's philosophies and the technological inventions that sprang up contemporaneously to them seem, in the film, to only be able to lead to a global catastrophe brought on by digital surveillance capitalism. Blas's argument to a contemporary audience seems to be a warning about a hidden history embedded in our

[72] Jarman, *Jubilee*.
[73] Ellis, *Derek Jarman's Angelic Conversations*, 55.
[74] Blas, *Jubilee 2033*.

digital world that must be rooted out. In other words, Blas doesn't seem to be asking us to find strategies for resistance in the past but rather seems to be asking us to develop a better ability to see the past in the present in order to eschew it and prevent it from leading us to the future the film predicts. The near future the film predicts is one in which the internet becomes an ever more totalizing force, shaping not only our online practices but also the contours of life itself into a libertarian nightmare. For Blas, rewriting this future means dreaming up new network structures that do not rely on the frameworks built by the Randian entrepreneurs Azuma describes.

Theory

Time and history, as the two films explore them, are bound up with what Jarman and Blas see as the prevailing philosophical frameworks of their respective moments in history. In *Jubilee* this is made evident in an early moment in the film when Elizabeth I and her entourage arrive in 20th century London. As black smoke billows across the camera's lens and a punk engages in an act of class warfare, stealing designer sunglasses from the body of a lifeless woman sprawling out of the passenger's seat of a robin's egg blue Rolls Royce, a group of punks casually lean against the side of a building, talking and smoking. The phrase "post modern" frames the top of their heads in the shot, scrawled on the wall of the building in black spray paint. Jarman's relationship to postmodernism is complicated. In one sense, with his invocation of the term "post modern" at the film's start, he seems to be marking a historical shift from the industrial production of material things to the circulation of signs and images via media and

communication technologies, as per Baudrillard's thinking.[75] He also appears to be grappling with the consequences of dispensing with meta-narratives, per Lyotard.[76] Although an approach to history that disavows modernism's grand narratives and is attentive to the unacknowledged histories of marginalized groups such as queer people is consistent with the ideas explored in Jarman's oeuvre, he also sees a danger in this approach to history. Early in the film, Jarman's historian, Amyl Nitrate, part of the core group of punks the film follows, abruptly ends a lecture on "the exciting history of her misspent life" in which she discusses the downfall of law and order in England, marking the end of traditional history, by exclaiming, "but I wanted to dance, I wanted to defy gravity."[77] William Pencak reads this moment as a critique of postmodernism: "she refuses to take life or ideas seriously and consciously lives the ironic, postmodern existence that will make it easy for her to go over to the powers she detests [at the film's end]."[78]

Partway through Blas's film, Jarman's "post modern" moment is mirrored when Rand and her entourage arrive in the Silicon Valley of 2033. As in Jarman's London, the city is on fire and echoing gunshots can be heard in the background. On a tech campus, a group of tech workers, each wearing a t-shirt in one of the primary colors that make up Google's logo, lies dead on the ground. On the wall above their bodies, scrawled in black spray paint is the prefix, "post-."[79] In a conversation I had with Blas, he expressed his frustration with post-internet art and relayed that *Contra-Internet* is, in part, an

[75] Baudrillard, *Banality of Evil*.
[76] Lyotard, *The Postmodern Condition*.
[77] Jarman, *Jubilee*.
[78] Pencak, *The Films of Derek Jarman*, 136.
[79] Blas, *Jubilee 2033*.

exploration of that frustration. The term "post-internet art" was coined in 2008 by artist Marisa Olson to refer to works that were not necessarily created and presented online (as in the earlier net art movement) but rather art created "after the internet."[80] Artists and art critics alike have disparaged the term, pointing to a number of issues including the term's indefinability and that the art that falls under its rubric is, to quote one critic, "boring to be around."[81] But the critique of post-internet art that seems most applicable to Blas's project is that, as curators Robin Peckham and Karen Archey put it, post-internet in this context "refers not to a time 'after' the internet, but rather to an internet state of mind – to think in the fashion of the network."[82] For example, Petra Cortright, whose work is considered post-internet, makes YouTube videos as part of her practice that can be read as interrogating digital practices and aesthetics from a feminist perspective (as when she uses tech baked into her webcam such as image overlays and multi-frame capture to grotesquely distort her body) but she does so very much in the fashion of the network by using its tools and strategies (video editing tools, hashtags, etc.)

But to think in the fashion of the network is anathema for Blas, and this is part of *2033*'s argument, as evidenced both by the film's ending and Blas's own writings. In an article on contra-internet aesthetics, Blas bemoans the proliferation of "post-" discourses in intellectual practices ranging from scholarship to artmaking. He writes that "post-" denotes a contradictory "after": "in a time of political upheaval and revolt, we are post-political; in a time of ever-rampant homophobia, misogyny, racism, nationalism, and

[80] Olson, "On the Internet, No One Knows You're a Doghouse."
[81] Droitcour, "The Perils of Post-Internet Art."
[82] Archey, "Art Post-Internet."

transphobia, we are post-identitarian" forming "an impasse to think the contemporary."[83] "Post-" is also used to "illustrate saturation or (pseudo)totalization"[84] and, in this sense, is an instance of technological determinism that does not and cannot make space for difference, variation, or resistance. As an aesthetic practice (e.g. post-internet art), it "corrupts the very political potential of aesthetics, as what can intervene and shift conditions of life towards equality, not capital." To counter these tendencies, Blas proposes a different sort of "after": a contra-internet aesthetics that "calls forth another network – one that is not 'post-internet' but rather 'contra-.'"[85] In *2033* what ultimately brings about the film's resolution is the destruction of the nodocentric network brought about by Nootropix's dance, which I'll return to in a moment. In our conversation, Blas described this as a buildup to possibility, fueled by a longing for something beyond the network form. Here, we begin to see some differences between Jarman's thinking and Blas's: whereas Jarman's film eyes postmodernism with suspicion due to what he sees as a tendency within that mode of thinking to suppress engagement with history, Blas's film eyes "post-" with suspicion due to its inability to theorize the present. This points to differences, echoed in the content of each of the films, between Jarman and Blas's thinking about the writing of history.

Substances

Each film appoints its own resident historian (Amyl Nitrate/Nootropix) in order to make an argument about the writing of history and propose a specific relationship to the

[83] Blas, "Contra-Internet Aesthetics," 87.
[84] Blas, 87.
[85] Blas, 96.

past/present/future. Jarman's historian, Amyl Nitrate, is named for the chemical compound used to produce poppers, a drug associated with gay clubs and gay sex practices from the mid-1970s to the present. As vasodilators, poppers produce feelings of excitement and euphoria and relax non-striated muscles, such as the anus. Because poppers are inhaled, their effects are produced quickly, resulting in an immediate high. They are also cheap and relatively easy to procure despite a fraught regulatory history.[86] Amyl's approach to the writing of history reflects the substance for which she is named: speedy, cheap, and easy. Early in Jarman's film, we meet Amyl for the first time in a warehouse she inhabits along with a group of other punks. The space is a study in punk aesthetics – newspaper collages line the walls, a motorcycle sits in the middle of the room, and the furniture has been thrifted or brought in from the curb. Amyl sits behind a large desk that looks like it survived a WWII bombing. Behind her are a series of bookshelves cluttered with books, graffiti tags, and historical photographs ripped from magazines like *LIFE*. Her desk is also cluttered with objects: a Winston Churchill mug; a globe on which entire continents have been blacked out with phrases like "negative world status" and "obsolete" painted over them; and a bottle of wine. From behind this desk, Amyl narrates the history of Britain she is in the process of writing: "Teach Yourself History by Amyl Nitrate." Hers is a deconstructive history, dismantling the metanarrative of British exceptionalism. She describes history as "so intangible," insisting that one can "weave the facts any way you like." Her practice of writing history is to compress it,

[86] Poppers were mostly ignored by regulators in the 1970s provided their use was confined to gay communities. Some countries later scheduled them as a controlled substance – particularly in places where their use became popular among non-gay folks. In countries where poppers are regulated as a controlled substance, they are often still sold in adult stores as "room deodorizers" or the like. See Young, *The Stonewall Experiment*.

scrawling her thoughts in a small, black notebook. "Wouldn't it be great," she says, "if all of history could be written on a mandrax?"[87] By the film's end, it is Amyl's success at positioning herself as a rising music star with the help of media mogul Borga Ginz that makes it possible for the punks to move from their scrappy London warehouse to an estate in Dorset where "Blacks, homosexuals, and Jews are banned" and where the punks end the film sitting in the drawing room with Hitler watching videos of fascist rallies. Amyl's is an individual history written through her own lens (she writes history for herself, as a hobby). It's a telling of history with very little appreciation for its texture and variety. And, ultimately, this relationship to history is a failed one, leaving Amyl and the punks vulnerable to commercial and fascist cooptation.

In contrast, *2033*'s historian is Nootropix, named for the "smart drugs" that have gained popularity in Silicon Valley over the past few years among tech workers aiming to enhance their cognitive abilities and increase their productivity. Nootropix is played by Cassils, a trans artist and body builder known for physically demanding, often durational performance pieces. They appear in the film nude but for silver paint that gleams on their body and a glowing purple dildo, created post-production, that hovers between their legs. That they are Amyl's analogue is made clear by the geometric designs painted on their face, echoing Amyl's makeup throughout Jarman's film. If Amyl's practice of history is one akin to the party drugs for which she is named – fast, cheap, dizzying – Nootropix's is something else altogether. Nootropix's practice of history is one that resonates with the smart drugs for which they are named: sleek, smooth, and sterile.[88] Nootropix writes their

[87] Jarman, *Jubilee*.

[88] Smart drugs emerged from medical research intended to cause or intervene into a variety of cognitive effects. For example, phenylpiracetam was developed by scientists in the Soviet Union in order to help

history in a sparsely furnished room, a study in minimalist Silicon Valley aesthetics. They sit at a sleek glass desk in a high-backed rolling executive's chair. On their desk sits two etched glass globes (these globes also become part of the physical exhibit space, sitting on lighted plinths on either side of the film screen) showing global flows and network nodes. A single glass of water sits in front of them which they pause to sip while reading out their history in a slow, near-monotonous voice. Nootropix's telling of history is smooth and uninterrupted, demonstrating the steady march forward of neoliberal ideology from Rand to present-day Silicon Valley.

However, this history has other dimensions as well: a collectivism of the sort Rand would scoff at. The history Nootropix relays is contained in a printed book, *The End of the Internet (As We Knew It),* which is also on display in the physical exhibit of which the film is a part. In the exhibit space leading into the room in which *2033* was playing, a series of "inversion practices" are screened on individual monitors. One of these, *Inversion Practice #1: Constituting an Outside (Utopian Plagiarism),* shows the process by which the text of the book was written. The piece consists of a large monitor with a set of headphones dangling beneath it. The monitor plays a screen capture video of Blas's desktop. Watching it feels intimate, as if I've been invited to peer over his shoulder while he works. I watch his cursor travel toward the iTunes icon and click to open the program, selecting and playing Le Tigre's "Get off the Internet." JD Samson's electronic samples and lo-fi beats and Kathleen Hannah's fervent vocals wash over my

astronauts endure the conditions of life in space. Few of these drugs continue to be used for the purpose for which they were intended and they have entered a sort of nowhere land in terms of legal oversight: neither overseen by scientific or medical practitioners nor specifically categorized as illegal. Users of these drugs typically buy them from specialized websites which go out of their way to imbue their products with scientific and medical validity including packaging them to look like medicine or vitamins.

ears through the headphones: "Get off the internet/I'll meet you in the street/get off the internet/destroy the right wing." I watch as several familiar texts pop open: Preciado's *Countersexual Manifesto*, Fredric Jameson's *The Cultural Turn*, JK Gibson-Graham's *The End of Capitalism (As We Knew It)*, and Subcomandante Marcos's *Our Word is Our Weapon*. A small sample of text is copied from each and then pasted into a separate document, creating a new text and a new conversation between these particular writers. In this new document, the find and replace box pops up. The words capital/capitalism are replaced with internet; the words world/economy are replaced with network. A new document results which is then read aloud by a computerized voice: "It seems to be easier for us today to imagine the thoroughgoing deterioration of the earth and of nature than the breakdown of the internet; perhaps that is due to some weakness in our imagination,"[89] it begins. Continuing, it makes the case that any attempt to imagine this breakdown must attend to the social margins and rely on experimentation and revolutionary politics. It finishes by declaring, "In our dreams we have seen another network, an honest network, a network decidedly more fair than the one in which we now live."[90]

Nootropix's writing of history, then, is contradictory: on the one hand it is a sterile and individualist practice shaped by the smart drugs for which the character is named in parallel with Jarman's naming of Amyl Nitrate and, on the other, shaped by a kind of collectivism against which Ayn Rand would rail. If for Jarman Amyl's practice of

[89] A play on a comment in the introduction to Frederick Jameson's *The Seeds of Time*, which is quoted in the introduction to JK Gibson-Graham's *The End of Capitalism*. This, for Blas, is an instance of the utopian plagiarism that runs throughout the exhibit.
[90] A play on a quote from Subcomandante Marcos's *Our Word is Our Weapon*. Also an instance of utopian plagiarism.

history and its inattentiveness to texture and detail can only lead to nostalgia and a creeping fascism, Blas seems to be getting at something else. For Blas, Nootropix's contradictory approach to history can go either way. In its collective form it may be able to challenge Silicon Valley's Randian ideology. As a sterile and individualist practice, it risks a continuation of the very history it tells. Most importantly, this history itself has the seeds of both unquestioned continuation and radical change embedded within it. We see a continuation and strengthening of this line of thinking in each film's approach to movement and embodiment.

Movement

Before beginning work on *Jubilee,* Jarman shot a short Super8 film titled "Jordan's Dance," featuring Jordan, a prominent figure in the British punk scene and the actor who ultimately played Amyl Nitrate. In it, Amyl performs a dance, lit by the fire of burning books, that makes mockery of European cultural forms. This film was later edited into the feature-length version of *Jubilee*. After Amyl gives her history lesson (detailed earlier) to a group of punks and declares, "I started to dance, I wanted to defy gravity,"[91] Minkus's pas de deux from *Giselle* fades in as the scene shifts away from the punk warehouse to an exterior scene in which piles of rubble stand out against a black backdrop. A fire burns in the foreground, which we later see is fueled by books tossed into it by shadowy figures wearing business suits. Amyl, punk makeup gone, wears an all-white ballet costume with feathers billowing over her shoulders, calling to mind a costume design from *Swan Lake*. She travels around the fire performing standard ballet

[91] Jarman, *Jordan's Dance*.

moves rather inexpertly: her port de bras have no breadth, her feet never fully extend when transitioning from one step to another, and there is no connection between her head and arms. At one point, she pauses her dance to stand and ponder the fire. A bystander with a paper bag with cut-out eyeholes over their head looks on. She resumes her dance and travels around the fire to dance before a naked person, who wears a theatrical Greek mask and whose body is reminiscent of a Greek statue. Next to them stands a person wearing a leather jacket and jeans, face covered by a skull mask. The dance becomes frenzied as the film is sped up and we cut to a scene of the Union Jack burning. Back, then, to Amyl Nitrate, who finishes her dance at standard film speed with the three masked onlookers as audience. Gone are literature, dance form, and the Union Jack – their demise coolly observed and aided along by shadowy figures and Amyl herself.

This scene is mirrored in Blas's film but with significant differences. After giving their lecture on the history of life after the internet to the group of "hacker wannabes" assembled before them, Nootropix, like Amyl, declares, "I started to dance, I wanted to defy gravity."[92] They press a button on the desk and the scene shifts: a computer animated distributed network[93] dance floor appears and Andrea Bocelli's "Con Te Partirò" blares from the speakers, a song Blas chose to highlight the bankrupt aesthetic taste of Silicon Valley entrepreneurs after learning that it was among Elon Musk's favorite songs because it "reminds [him] the world is a beautiful place."[94] Nootropix's dance is jarring. They writhe jerkily; slither along the floor; hump the ground; and strike

[92] Blas, *Jubilee 2033*.
[93] This is the type of network most commonly used in internet visualizations. It appears as a series of points with straight lines drawn between them, forming a series of blank-space triangles.
[94] "5 Out of This World Songs That Inspire Elon Musk."

poses that call to mind Atlas holding the Earth, bodybuilders mid-competition, and Preciado's countersexual reversal practices. All the while, a black liquid sprays from the dildo that hovers on their body. Of this, Blas says:

> Is this piss, cum, some other bodily fluid, or a substance we don't yet know or understand? When Nootropix dances, the dildo is erect, spewing liquid like a fountain. In fact, Nootropix's dildo here gives us a nice counterpoint to Rand's The Fountainhead. Here is a contrasexual fountainhead! It sprays a lush and shimmering liquid, not unlike the glorious water fountains in Kenneth Anger's Eaux d'Artifice (1953). Nootropix even does the dildotectonic exercise of arm-masturbation, which perhaps helps keep the liquid flowing. If the name Nootropix is a variation on nootropics, which means "mind bending" in Greek, then I like to think of their dildofountain as emanating a liquid drug that's poisoning the Californian ideology. To bask in this shower might be the ultimate water sport. [95]

Throughout, Rand appears in the corner of the scene, clearly aroused by Nootropix's performance. During our conversation, Blas interpreted the dance scene in Jarman's *Jubilee* as a flashback meant to indicate the start of the downfall of Britain, its descent into a fascist, post-apocalyptic nightmare. He describes the dance scene in *2033* as a moment of uncertainty during which we're not sure if we're witnessing a dance with or a struggle against Silicon Valley's wet dream. What we do witness for certain is that it marks the end of the network: at the dance's end, the distributed network diagram Nootropix has been dancing upon shatters into fragments that blast away into the darkness. *2033*'s dance scene is equal parts potential and foreclosure.

Trans friction

What makes the distributed network explode in this moment? Nootropix appears to be Silicon Valley's wet dream – so much so that Rand is titillated while watching them

[95] Texeira Pinto, "Zach Blas: Contra-Internet."

dance. What is the Valley's and Rand's (its philosopher queen) wet dream in this moment? It is a liquid space of zero friction, unmoored by material constraints, resonating with Silicon Valley's fantasy of bodies that can live indefinitely and slide seamlessly between new and different identities and morphologies. In *2033*, this fantasy finds materialization in the character of Nootropix whose very body changes form with the addition of a digital appendage and who is able to transform their environment from minimalist lecture space to network grid dance floor with the push of a button. What role does Nootropix's visibly gender nonconforming body play in this scenario? Why did Blas choose a trans body to place in a complicated, contentious relationship with the network form? Although in interviews and writings on *2033* Blas describes the work in terms of its relationship to queerness, I argue that it also makes an important claim about the frictive relationship between transness and digital technologies.

I borrow the concept of friction from Anna Tsing's work on global processes of development and resistance. The concept emerges from Tsing's efforts to theorize the interplay between the universal and the particular in global processes and resistance movements, bringing attention to moments of interaction between global power structures and on-the-ground particularities. However, friction should not be understood as being synonymous with resistance. For Tsing, friction does not only slow things down but also keeps global power in motion. In this sense, "hegemony is made as well as unmade with friction," [96] much like Nootropix is both Silicon Valley's wet dream and its undoing. Tsing likens friction to the way roads function: "creating pathways that make motion easier and more efficient" but also functioning as "a structure of confinement."[97]

[96] Tsing, *Friction*, 6.
[97] Tsing, 6.

This resonates with Blas's thinking about the internet's network grid – itself metaphorized as a road along which information travels – which both creates the conditions of possibility for Nootropix's morphological subversions but also restricts and confines them. For Tsing, friction "makes global connection powerful and effective" but also "without even trying […] gets in the way of the smooth operation of global power" by "refusing the lie that global power operates as a well-oiled machine."[98] The global internet is but one element in the global power systems Tsing is concerned with, just as the internet is but one element in the assemblage from which trans emerges. However, Tsing's thinking around broader forms of global power can help illuminate the forms of power and resistance the internet engenders vis-à-vis trans.

Transness is frequently idealized as a frictionless state of being, implying smooth, unimpeded transformation between different gender identities and modes of embodiment. However, when we drill down to particulars, trans experience is often anything but smooth and unimpeded. In order to theorize a trans friction, it is necessary to look to the assemblage I've been tracing throughout this chapter through which trans emerges and which includes digital technologies as well additional elements such as economic and political systems that shape both transness and digital technologies as well as being shaped by them. In my reading, Nootropix causes friction in the network because transness, in its movement through this assemblage, is not in fact the dematerialized, frictionless state of being the Valley imagines it to be. In the particularities of trans interactions with digital technologies and systems, friction necessarily occurs because embodied trans subjects do not merge seamlessly into rigid systems such as real name

[98] Tsing, 6.

policies and facial recognition systems. This incompatibility spurs Nootropix's destruction of the network grid and resonates with concerns Blas explores in other works, in particular the *Facial Weaponization Suite* mentioned earlier in this chapter which calls attention to the frictive relationship between minoritized people and digital surveillance technologies. For example, Amazon's Rekognition, which I mentioned in the introduction chapter of this project, is programmed to regard gender as binary and static, based solely on appearance at one moment in time (a digital snapshot) and is therefore incapable of accommodating transness. As Zachary Drucker, whose stock image photos of trans people were used to test Rekognition,[99] says: "There's this element to trans and nonbinary people just throwing a wrench into the system that disproves its accuracy. If this system is equally confident that one person is one gender or the other in different situations, that's evidence that this technology is as false as the gender binary."[100] This is trans friction.

The relationship between transness and digital technologies is, at least in the context of Blas's film, too frictive to be a Harawayan one. Nootropix is not Haraway's rebellious cyborg who subverts digital technologies by repurposing them for unintended uses. In a scene paralleling Amyl's history lesson, Nootropix gives a lecture on life after the downfall of the internet. In the days of the "internet evangelists," they tell us, life "dripped with internet" at which point "the earth dematerialized and our bodies became

[99] Drucker's Gender Spectrum Collection, a stock photo library of trans and gender non-conforming people, was used with permission by *Jezebel*'s Anna Merlan and Dhruv Mehrotra to test how Rekognition's automatic gender recognition tool analyzes images of trans and gender non-conforming people. Merlan and Mehrotra were careful to avoid helping Amazon train the software by opting out of the program's default setting which permits Amazon to retain all images loaded into the program. See Merlan and Mehrotra, "Amazon's Facial Analysis Program is Building a Dystopic Future for Trans and Nonbinary People."

[100] Merlan and Mehrotra, "Amazon's Facial Analysis Program."

geometric prisons." Although they look the part of Haraway's cyborg, bathed in silver paint with a digitally enhanced prosthesis, Nootropix, rather than encouraging their audience to repurpose digital technologies, encourages them to heroize "the infrastructuralists in Detroit, Tehran, Istanbul, and Hong Kong" who "abandoned the ISPs and took back space beyond the limits of the node."[101] For Blas, the dimensions of control, surveillance, and commercialization present in contemporary digital technologies renders the cyborg's gleeful subversion impossible.

However, Blas's project is not a technopessimist one. He asserts that the film "isn't an argument for unplugging exactly; more for building or dreaming up alternative infrastructures."[102] Drawing on work from Alexander Galloway and Ulises Ali Mejias, Blas finds this alternative in the form of the paranode. The paranode, for Blas, is akin to Preciado's dildo: "If the dildo is a form adequate to exposing the norms and constructions of sexuality," he asks, "then what is the form adequate to revealing the internet as totality?"[103] In Blas's thinking, the totalizing form of the internet takes the shape of the networks of which it is comprised. The paranode is the negative space between the points and lines depicted in a standard distributed network diagram. It is this form in which Blas locates an outside to the network and to the "nodocentric" mode of existence it engenders. He writes, "within this seemingly empty white space, we must look much closer. When we do, we see that the paranode positively demarcates the before, after, and beyond of networks."[104] Blas makes this case in *2033* by linking Nootropix to Preciado

[101] Blas, *Jubilee 2033*.
[102] Sluis, "Artist Profile: Zach Blas."
[103] Blas, "Contra-Internet."
[104] Blas, "Contra-Internet."

vis-à-vis their glowing appendage and their choreography. But although we might argue that Preciado's 1950s butch paved the way for Nootropix, her struggle is not equivalent to theirs. The totality against which Nootropix struggles is not so much the presumed naturalness of binary sex and gender IRL but the "geometric prison" of the network. The network is the totality and this is what Nootropix must destroy during their dance scene. Thus, if Jarman's project in *Jubilee* is a utopic one resting on the hope of finding alternative heritages and strategies of resistance via a productive relationship to history, Blas's vision in *2033* is a destructive one that turns away from a history that led inevitably to networks of control and discipline and advocates for eradication of those systems in favor of a complete reimagining.

That one film finds the possibility of utopia while the other finds only the possibility of destruction speaks to the differences Jarman and Blas perceived at the moment of creation of their respective films. For both Jarman and Blas, the characters, plots, storylines, aesthetics, and production processes used in their respective films are mobilized in order to craft an argument about the cultural and material realities they observed in the world at the time their films were made. The differences between them, then, are striking. In a time of near-totalizing effects of broadcast media, the ascendance of neoliberal economics, and philosophical and cultural exploration of post-modernity, Jarman finds possibility and potential in a performative and utopic queerness (by contrasting the characters Angel, Sphinx, and Viv against Amyl and the other punks) – one that finds strength in a relationship to a textured history prior to the control apparatuses ushered in by modernity. Although Blas finds in Jarman a kindred spirit, *2033*'s departures from the cultural diagnosis proffered by the original *Jubilee* index not

only a change in the material conditions of the world at large but also of the conditions structuring gender, sex, and sexuality. In a time of network totalization, late capitalism, and the inundation of "post-", Blas finds possibility and potential in a material and frictive transness – one that finds strength by departing from the recent past and embracing the sort of radical trans empiricism Preciado writes about.

Conclusion

As *Jubilee 2033* shows us, although Silicon Valley's espoused dream is one of dematerialized frictionlessness, the internet is becoming ever more a space of control, surveillance, and commercialization in concert with other elements in the assemblage through which both digital technologies and transness emerge. Even those systems that appear to accommodate trans people's identities and material realities often work to stamp out the friction transness inevitably introduces. Facebook's numerous gender options, for example, revert back to a binary at the level of code.[105] In these rigid systems, Silicon Valley insists on a body that is unchanging, reducible to bytes and bits, and tethered to a normative real-world identity. What early cyber theorists took to be a space of frictionlessness and multiplicity with the potential to shake off the shackles of identity is now (and likely always was) quite the opposite. As Silicon Valley continues to espouse a notion of frictionlessness or the dematerialization of the body on the one hand and increasing control, surveillance, and discipline on the other, it continues to generate friction with transness which appears at first glance to be precisely the site of bodily

[105] Bivens, "The Gender Binary Will Not Be Deprogrammed."

flexibility Silicon Valley purports to value but in actuality brings its own set of material conditions into play.

The internet has become and continues to develop into a disciplining force in terms of gender, sex, and sexuality as well as in terms of race and numerous kinds of bodily difference. But, like the tension between global systems and on-the-ground particularities Tsing traces, this disciplinarity and the trans friction it creates work in multiple registers in different digital spaces, as I will explore throughout this project. Transness is not inherently digital although it has been framed that way and made a poster child for the frictionlessness of body and identity in the internet age. To be clear: I'm not making some kind of overly optimistic claim about transness here. As Tsing reminds us, friction is not synonymous with resistance. Despite its production of friction, transness is no more inherently radical or resistant than any other mode of embodied existence. As we will see in the coming chapters, transness both produces resistance and contributes to the smooth operation of power in its intra-action with digital media and technologies. For example, Netflix's algorithms, which I attend to in the next chapter, erode traditional demographic categories including gender but also create a calcified notion of transness whereas videogames, which I write about in the third chapter, encourage a trans-like flexibility at the interface between body and game mechanics, creating a space for players to experiment with new subjectivities, affects, and modes of embodiment.

Chapter Two: "I'm Not Just a Me but I'm Also a We": Algorithmic Culture on Netflix

Introduction

The 2010s ushered in an explosion of trans representation on TV, spearheaded largely by streaming platforms such as Netflix and Amazon Prime. As Susan Stryker puts it, comparing the quantity of trans representation in popular media before this point and after it is akin to comparing different "geological era[s]."[106] Streaming TV has placed a tremendous amount of focus on transness since streaming shows emerged into the mainstream in 2013.[107] *Transparent* (2014), which tells the story of a white trans woman's late-in-life transition, was among the first series Amazon produced inhouse and *Orange Is the New Black* (2013), which follows a white, non-trans woman's struggle through the prison system alongside a supporting cast of characters that includes several queer and trans women of color, was one of Netflix's earliest forays into original programming. Other shows such as *Sense8* (2015), *The OA* (2016), *Gypsy* (2017), and *Tales of the City* (2019) have followed. This proliferation of trans representation in streaming TV occurred within the context of a sharp increase in trans representation in media generally speaking—with appearances by trans celebrities like Janet Mock on prominent talk shows; in-depth coverage of trans issues and individuals by mainstream print outlets like the *New York Times* and *Time* magazine; and Caitlyn Jenner's highly

[106] Stryker, Murray, Kahan, Meadow, and Vaccaro, "Virtual Roundtable on Transparent."
[107] Arguably, streaming TV went mainstream in 2013 following the release of Netflix's *House of Cards*, *Orange Is the New Black,* and its *Arrested Development* reboot, followed closely by Amazon's *Transparent*. Although streaming series were made in the late 1990s and early aughts (*lonelygirl15*, *Dr. Horrible's Sing-Along*, etc.), these were niche offerings engaged with by smaller audiences and without much media fanfare.

publicized, public self-identification as trans. Each of these events was further amplified and circulated via the algorithmic recommendation engines of social media sites like Twitter and Facebook and the ascendance of trans microcelebrities on platforms like YouTube and Vine, contributing greatly to increased mainstream public awareness about transness.

This increase in trans visibility in streaming TV and other media occurred also alongside an increase in state-sponsored violence against trans people such as the 2016 passage of North Carolina's HB2 and the 2017 rescindment of the Obama Administration's Title IX guidance on the treatment of transgender students in public schools. It occurred also alongside an increase in the number of trans people murdered in the U.S., with each year since 2015 deadlier than the last.[108] micha cárdenas draws a link between this increase in violence against trans people and the visibility of trans people in media when she writes, "for trans women increased visibility may mean increased violence and increased surveillance."[109] This is, as cárdenas notes, particularly the case for trans women, and even more so for trans women of color, who make up the majority of trans people murdered in the U.S. in any given year.[110] In drawing a connection between media visibility and violence against trans women, cárdenas points to one of the ways in which media visibility and representation impact the material realities of trans lives.

However, it is not only the quantity of visibility and representation that changed as transness was taken up by streaming TV platforms and other types of digital media. A

[108] Astor, "Violence Against Transgender People in on the Rise."
[109] Cárdenas, "Shifting Futures."
[110] Astor, "Violence Against Transgender People in on the Rise."

technological change was underway as well: algorithms were intra-acting with culture in novel ways. A number of scholars in the emerging field of critical algorithms studies refer to this phenomenon as "algorithmic culture," a notion I'll return to shortly. My question, as streaming platforms began releasing increasing numbers of trans-centered shows and I began watching those shows with a mixture of curiosity and dread, was: Why is this increase in trans representation occurring now and why is it occurring largely on streaming TV platforms? The work of queer TV scholars provided some guidance. In *Gay TV and Straight America*, Ron Becker writes about the uptick in lesbian and gay-themed television in the 1990s, motivated by questions about lesbian and gay representation in broadcast and cable television similar to the questions that concern me about trans representation in streaming TV. In exploring these questions, Becker finds that the increase in gay and lesbian representation in broadcast and cable TV in the 1990s was imbricated within a "complex web of social changes, industry trends, and emerging anxieties."[111] Other queer TV studies scholars have expanded this argument to account also for the role of televisual technologies in this complex web ranging from a queer reading of channel cruising to a consideration of the queer temporalities and forms of spectatorship produced by broadcast and cable technologies.[112] Throughout this project, I explore transness, in its contemporary iteration, as part of an assemblage that is heavily informed by the digital media and technologies – in this case streaming TV – with which transness coevolved. My aim here, then, like the work of the queer TV studies scholars mentioned above, is to explore the complex web from which both transness and

[111] Becker, *Gay TV and Straight America*, 5.
[112] See Davis and Needham, *Queer TV*.

streaming TV emerge, with attention to the social, cultural, and technological factors at play.

In this chapter, I analyze two Netflix original series, *The OA* and *Sense8,* in order to explore the relationship between the content of the two shows, particularly in regard to trans representation; the algorithms that underlie their production, distribution, and consumption; and the forms of embodiment and subjectivity that emerge both in the shows themselves and through bodily engagement with Netflix's algorithms. Algorithms are fundamental building blocks of digital technologies. As such, this chapter aims to reach into the core of the relationship between transness and digital technologies. As in the other chapters of this project, my thinking is heavily informed by Karen Barad's agential realism framework, a key element of which is the concept of intra-action or "the mutual constitution of entangled agencies."[113] Therefore, I posit that there is an intra-active relationship between the content of the shows Netflix produces, the algorithms underpinning the Netflix platform, and the forms of embodiment and subjectivity they engender.

My argument is three-fold: 1. I argue that our bodies and subjectivities are (re)materialized through our engagement with Netflix's algorithms and the content they produce. 2. I argue that this (re)materialization is shaped by algorithmic processes and functions including the separation of the body and the information it generates; the erosion of traditional demographic categories; a shift from the individual to the network; stepped, ordered logics; and identity fluidity. 3. I argue that the trans characters on *Sense8* and *The OA* function as avatars of the algorithmic age, standing in for and

[113] Barad, *Meeting the Universe Halfway*, 33.

acclimating spectators to the algorithmic processes that produce and are produced by engagement with the Netflix platform.

Although my exploration in this chapter takes as its starting point the relationship between trans representation in streaming TV and the algorithms that underpin streaming TV platforms, my focus is not solely on representation as such. In the introduction chapter of this project, I discussed the ways that transness is made metaphor for the fragmenting, decentering, and virtualizing effects of contemporary digital technologies in a wide variety of scholarship. I argued that this trans/digital metaphor denies the material reality of the trans body by suggesting that it is somehow virtual rather than actual and, in so doing, animates cultural tropes that imagine transgender people as unreal, futuristic, impossible, and unknowable. The trans/digital metaphor and the conceptual work it performs are not limited to academic writing but also emerge in the context of popular culture such as streaming TV series. As I argued in the introduction, the metaphorization of trans in scholarly writing has material dimensions; thinking along with Barad, metaphor and materiality are not separable phenomena but, rather, are intra-active phenomena which are coeval and co-productive.

One strand of my argument in this chapter is that the trans characters on *Sense8* and *The OA* function as avatars of the algorithmic age, standing in for and acclimating viewers to the algorithmic processes that produce and are produced by engagement with the Netflix platform. In this sense, transness is metaphorized on these shows, much like in the scholarly quotes cited in the introduction, standing in for the material changes algorithms produce. The consequences of this are not limited to the quality of trans representation in these specific shows and others like them. Rather, these metaphorized

representations of transness shape (and are shaped by) the way transness itself emerges from the trans/digital assemblage, and by extension shape (and are shaped by) the digital elements in that assemblage and the contours of the increasingly algorithmic culture in which we are all immersed, trans or non-. Attending to these larger concerns requires an approach to analyzing these shows that includes, but is not limited to, a focus on trans representation. As such, I employ a mix of methods in this chapter, combining textual analysis of the shows themselves with a material analysis of the algorithms that underpin their production, distribution, and consumption. Before pressing further into the argument I am making here, it is first necessary to establish what algorithms are, how they function in contemporary digital technologies such as streaming TV platforms, and what algorithmic culture is.

Algorithmic Culture and Netflix

Although there is much talk about algorithms these days, precise definitions are scant. One approach to understanding what algorithms are lies in defining them functionally. Recognizing their mathematical history (the first use of the word that evolved into the word algorithm is attributed to the 9th century Persian mathematician al-Khwarizmi), we might think of the word algorithm as referring simply to a series of steps used to solve a mathematical problem. As Tarleton Gillespie writes, "Algorithms need not be software: in the broadest sense, they are encoded procedures for transforming input data into a desired output, based on specified calculations. The procedures name both a problem and the steps by which it should be solved."[114] This might include

[114] Gillespie, "The Relevance of Algorithms," 167.

processes such as using a specific set of mathematical formulas to predict the movement of stars and planets. In the digital age, however, we tend to think of algorithms as digital processes expressed through computer programming languages and used to power technologies such as Google's PageRank or OK Cupid's match percentage. Thus, we might update the definition to something like this definition offered by Data & Society, a non-profit research organization founded by media studies scholar danah boyd, in their primer on algorithmic accountability:

> An algorithm is a set of instructions for how a computer should accomplish a particular task. Algorithms are used by many organizations to make decisions and allocate resources based on large datasets. Algorithms are most often compared to recipes, which take a specific set of ingredients and transform them through a series of explainable steps into a predictable output. Combining calculation, processing, and reasoning, algorithms can be exceptionally complex, encoding for thousands of variables across millions of data points.[115]

In the most functional sense, then, let's say that algorithms are, at their most basic, a series of steps used to solve a problem, whether digitally expressed or not.

This simple definition is useful in some respects but, as many scholars have argued, although this simple definition may give us a sort of functional, "computer science 101" way of thinking about what algorithms are, they do not provide a full picture of what algorithms *do* or how they operate in the world outside of or beyond their practical function in mathematics or software design. In the introduction to a special issue of *Information, Communication & Society* titled "The Social Power of Algorithms," David Beer offers an overview of ways of thinking about algorithms that point well beyond their functional aspects and instead toward the forms of social power algorithms create. Using Beer's examples, we might think beyond the major corporate algorithms

[115] Caplan, Donovan, Hanson, and Matthews, *Algorithmic Accountability*, 2.

that tend to capture the attention of scholars, journalists, and the public such as Facebook's EdgeRank or Amazon's recommendation algorithm and instead look at the everyday algorithms that underlie nearly every piece of digital technology we engage with, defining them as "a powerful if largely unnoticed social presence."[116] This might lead to abandoning the basic definitions offered above and instead engaging with algorithms with attention to the meshing of human and machine agency; the decision-making function of algorithms and how this affects everyday human experience; the relationship of algorithms to the production of truth; and algorithms as part of a contemporary apparatus of knowledge production. As the introduction to this chapter and the analyses that follow will make clear, when I think about algorithms I'm thinking about them in ways that align with Beer's thinking about algorithms as a form of social power that is multiple rather than singular and societal rather than contained. In the course of this chapter, I will press even further on this, arguing for regarding algorithms as part of a complex sociotechnological milieu that includes the digital technologies of which algorithms are a crucial component but also exceeds those technologies, pulling elements like culture, identity, embodiment, and political economy into its wake. Netflix offers a particularly fruitful example for thinking about algorithms in this way.

To say that there would be no Netflix without algorithms is not hyperbole. Netflix has, since its inception as a mail order DVD company in 1997, relied on algorithms in almost all aspects of its business model. Its development of proprietary algorithms targeted at matching subscribers with titles of interest, orchestrating distribution, and reducing costs is no small part of what allowed Netflix to emerge ahead of Blockbuster in

[116]Beer, "The social power of algorithms," 2.

the mail order DVD market.[117] The algorithms upon which Netflix relies touch every aspect of its business model and are tightly intertwined with the political economy of Netflix as a company. The company famously uses algorithms to recommend shows to viewers, shaping and extending consumption via its recommendation features which aim to "get the right titles in front of each of our members at the right time,"[118] thus ensuring that viewers will engage with the Netflix platform for lengthy periods of time rather than switching to a different platform or to broadcast or cable offerings. According to Netflix's blog, recommendations initiate 75% of content consumption on the platform.[119] But the company also uses algorithms in myriad other ways – for example, to extend its reach to a global audience by using viewer data to determine which content to store on servers around the world to ensure that viewers in each locale will be able to get immediate access to the most popular content in that region.[120] These are the ways Netflix, as a company, relies on the logics of algorithms to shape distribution and consumption (e.g. if a viewer likes this, then they will also like that).

However, it also uses algorithms to shape production, which in this case means extending algorithmic logics to the cultural objects - TV series and movies - it creates. For example, Netflix uses algorithms to determine which original content to produce in the first place. *House of Cards (HoC)* is an oft-referenced example here. Using its viewer ratings and other surveilled and recorded user data, Netflix crafted *HoC* almost entirely by algorithm – using its algorithmically-derived data to determine which actors, directors,

[117] See Keating, *Netflixed*, 2012.
[118] Chandrashekar, Amat, Basilico, and Jebara, "Artwork Personalization at Netflix."
[119] Amatriain and Basilico, "Netflix Recommendations."
[120] Barrett, "Netflix's Grand, Daring, Maybe Crazy Plan."

and types of storylines viewers were most likely to be hooked by.[121] Similarly, casting for *Orange is the New Black* (*OITNB*) was guided by algorithms. This points to the ways algorithmic logics inform the basic choices Netflix makes about the shows it produces (titles, directors, casting, etc.) but what about the narrative content of the shows themselves? How might algorithmic logics come to shape the content of the shows Netflix produces?

The notion of algorithmic culture is helpful for beginning to think through how it is that algorithmic logics emerge in the content of the shows Netflix produces. First coined by Alexander Galloway,[122] the notion of algorithmic culture was further developed by Ted Striphas to refer to "the enfolding of human thought, conduct, organization, and expression into the logic of big data and large-scale computation." such as when we rely on Amazon for book suggestions or when Netflix chooses which TV shows to produce based on data culled from its recommendations algorithm.[123] The notion of algorithmic culture has been further expanded by a number of scholars working in the nascent field of critical algorithm studies. In the introduction to their edited collection, *Algorithmic Cultures: Essays on Meaning, Performance, and New Technologies*, Jonathan Roberge and Robert Seyfert complicate the notion of algorithmic culture, preferring instead the term algorithmic *cultures* which, they argue, better captures the plurality and complexity of the relationships between specific algorithms, specific contexts, and specific actors, human and non-. In this, they point to the need for "thicker, deeper, and more complex analysis of the kind of cultures that algorithms are currently

[121] Carr, "Giving Viewers What They Want."
[122] Galloway, *Gaming*.
[123] Striphas, "Algorithmic Culture," 396.

shaping."[124] In their thinking, then, a precise definition of algorithmic culture would be difficult, if not impossible, to generate, just as algorithms themselves are difficult to define. However, common threads do run through the work of scholars who have taken up the notion of algorithmic culture. One common thread that emerges throughout this work is a focus on the entanglement of the various technological functions of algorithms with that which we understand as culture. This type of analysis has extended in many directions. For example, Gillespie writes about Twitter's trending topics feature, arguing that, due to algorithmic feedback loops, a topic's status as trending amplifies that topic, making it more culturally influential than it would be were it not categorized as trending;[125] and Lucas Introna writes about the ways plagiarism detection algorithms, by identifying specific chains of words as plagiarism, prompt writers to alter their style of writing, changing what it means to produce an original text.[126] Although these analyses offer useful insights into the relationship between algorithms and culture from a sociological point of view, they seldom engage with cultural objects themselves at the level of content (eg a content-level analysis of Twitter's trending topics or a content-level analysis of papers written to avoid detection by plagiarism algorithms).

Here, I propose extending the notion of algorithmic culture to account for an analysis of content itself in addition to the myriad practices, relationships, and forms of knowledge and power that are produced when algorithms intra-act with culture. Like the approaches to algorithmic culture described above, this approach is attentive to the technological functions of algorithms themselves but looks for ways in which those

[124] Roberge and Seyfert, "What Are Algorithmic Cultures," 4.
[125] Gillespie, "Can an Algorithm Be Wrong?"
[126] Itrona, "The Enframing of Code."

qualities are made manifest in the content of cultural objects – in this case streaming TV shows. In what follows, I propose that five distinct processes produced by algorithmic functions and logics are observable in a textual reading of *Sense8* and *The OA*: a separation of the body and the information it generates; an erosion of traditional demographic categories; a shift from the individual to the network; stepped, ordered logics; and identity fluidity. Through analysis of specific moments in the shows themselves and the practices that surround their production, distribution, and consumption, I find that these shows point to and grapple with the ways algorithms unsettle the human body, (re)materializing it into new modes of being, particularly in terms of gendered being. In this way, algorithms intra-act with the content produced by Netflix. In other words, Netflix's algorithms produce a particular kind of televisual content just as our engagement with Netflix's content produces the data on which its algorithms rely: the two bring each other into being.

Like content, bodily engagement is also generally absent from the study of algorithmic culture. However, I argue that the body is a key factor in the production of algorithmic culture for two reasons. One, because the data algorithms act upon are increasingly drawn from our bodily engagement with algorithmically-driven devices and platforms ranging from activity trackers which create data based on the movement of our bodies to the data Netflix gathers based on our bodily engagement with its platform such as when we press buttons on our remotes in order to skip an episode or fast forward through a scene. And, two, because of the way algorithms reimagine and (re)materialize the body and our understanding of it as we engage with algorithmically-driven devices

and platforms, such as when activity trackers prompt us to think of ourselves and our health in terms of the number of steps they report us as having taken on a given day.

In my analysis of Netflix's original series, *Sense8*, I draw these ideas out further, showing how the series, through feedback loops between the bodies of viewers and the algorithms that underpin the platform, unsettle the human body while also reassembling it into new modes of being. In this way, *Sense8* acclimates its audience to an algorithmic sense of identity and culture and a comfort with surveillance particularly through the show's figuration of its sole transgender character, Nomi, which has real material effects in terms of how transness is thought and responded to in the world.

Sense8 and the Algorithmic Body

In her formulation of algorithmic theatre, Annie Dorsen writes that the questions that most concern her in her practice are those that ask, "what kinds of screens we are peering into, and what kinds of selves we are hoping to glimpse there."[127] Increasingly, the screens we peer into are the screens of our TVs, cellphones, laptops, and tablets. And the selves we glimpse there, whether or not they are the selves we had hoped to find, are simultaneously the cause and effect of an algorithmic feedback loop in which information gleaned from our bodily practices shapes the content we encounter, which then informs our way of being in the world, which further shapes the content we encounter, and on and on...in much the same way that performers and audience share a feedback loop. Netflix's original streaming series *Sense8* is an example of how the algorithms underpinning streaming TV, through the feedback loop outlined above, unsettle the human body while

[127] Dorsen, "On Algorithmic Theatre."

also reassembling it into new modes of being, particularly through the vectors of gender and race. This occurs through the ever-increasing effects of algorithms both *on* and *as* culture, terrain once conceptualized as a solely human enterprise.

Ted Striphas and Tarleton Gillespie, two scholars mentioned earlier who have worked to develop the notion of algorithmic culture, in their individual approaches to theorizing the relationship between algorithms and culture, frame algorithms as being outside of or distinct from culture while having an influence *on* culture. Nick Seaver, on the other hand, advocates for an understanding of algorithms *as* culture, rather than as something that has an influence on culture, in the sense that "algorithms are not technical rocks in a cultural stream, but are rather just more water."[128] However, as a scholar working at the intersections of performance studies and media studies, I want to trouble the boundary Seaver draws here between algorithms acting *on* vs. *as* culture – not because I disagree with his conception of algorithms as culture but because I regard any line we might draw between acting on vs. as culture as porous and unstable. In my thinking, algorithms intra-act with culture, meaning that when algorithms and culture intersect, they bring each other into existence rather than simply affecting each other. Much like a performance event, then, I contend that algorithms operate both on *and* as part of culture, in the form of the feedback loop described earlier, which is why I use insights from both Seaver's notion of algorithms *as* culture and Striphas's conceptualization of algorithmic culture (algorithms operating *on* culture) in my analysis of *Sense8*. This enables not only a recognition of the role algorithms play in bringing the content of streaming TV series into being but also a consideration of the ways in

[128] Seaver, "Algorithms as Culture," 5.

algorithms are themselves brought into being through the cultural practices by which they are developed and deployed.

In the lead-up to the final action sequence in the finale of the first season of *Sense8*, Riley, a young, white, non-trans woman, wakes up in a hospital bed and looks around the room she's in, alarmed. Cut to a scene in which Will, a 30-something, white, non-trans man, drives a red Porsche through the winding, solitary roads of Iceland to the sound of fast-bowed action theme music. Without knowing much about the rest of the story or circumstances of this particular episode, it is not difficult to deduce that Will is the hero, racing to rescue Riley from the hospital. He is spotted by a passing helicopter at which point another white woman, Nomi (who does not identify herself as transgender here but does elsewhere), suddenly appears in the passenger seat beside him offering advice on how to break into the hospital to rescue Riley while evading capture himself. Her advice is very detailed and clearly informed by vast technical knowledge of the hospital and its environs. A subsequent cut reveals that Nomi is, in actuality, not sitting beside Will in the car but, rather, behind a laptop in an entirely different location, hacking into municipal building control systems and road plans in order to help him. This is *Sense8*, a series that is by turns both utterly predictable (a straight, white hero story) and, in moments, refreshing (a trans woman character whose arc includes heroic acts and doesn't revolve solely around the fact of her transness).

Sense8 is an original streaming TV series produced by Netflix and created by J. Michael Straczynski and sisters Lana and Lilly Wachowski. It tells the story of eight strangers, most of whom are from different countries (the United States, Germany, Iceland, Kenya, India, Mexico, and South Korea), who, unbeknownst to them at the start

of the series, are a highly evolved variant of homo sapiens known in the world of the show as homo sensorium, or sensates. Because they were all born at the same moment, they are a "sensate cluster," meaning that they function as a network of sorts, sharing an emotional, intellectual, and physical connection that allows them to communicate, skill share, and experience the same sensations regardless of physical proximity. This connection can take many forms. In some instances, the sensates simply feel one another's emotions or physical sensations with little awareness of the circumstances that produced the sensation. At other times, they are able to virtually visit with each other, appearing to be copresent despite being physically located on different continents (as in the example above when Nomi appears next to Will in the car). They can also share their knowledge and abilities with each other from a distance. For example, in one episode, Capheus, a sensate in Nairobi, is physically threatened by a group of rivals. He is able to survive the attack by accessing the knowledge of Sun, a sensate in Seoul who is an accomplished kickboxer. This enables him to fight off his attackers as if he too were an accomplished kickboxer, even though he himself has no such knowledge or experience. The show does not conform to any one genre: it is equal parts sci-fi, action/adventure, and drama. Consequently, its plot is labyrinthine, while the main story line follows the members of the cluster as they become aware of their connection to one another and ultimately work together to defeat the sinister, multigovernmental Biologic Preservation Organization (BPO) that views sensates as a threat to global security and works to eradicate them. Although the show does not place sustained narrative focus on digital technologies, its resonance with our current mediascape is quite clear. In Lana Wachowski's telling, the premise for the show developed from a late-night conversation

among the three creators "about the ways technology simultaneously unites and divides us," specifically digital technologies.[129]

The first season of *Sense8* was released on Netflix in June of 2015 and was followed by a second season that began with a two-hour winter holiday special in December 2016 with a subsequent ten-episode release in May of 2017. Closely following the release of the second season, Netflix announced that it would be canceling the show. However, after a sustained campaign by fans, Netflix greenlighted a movie-length finale to conclude the project. Speculated reasons for the cancelation include the show's large budget and the mixed critical response. Some critics praised the complexity and ambition of the show while others found its vision compelling but the execution lacking: *New York Magazine*'s *Vulture* described it as "frustratingly impenetrable"[130] whereas *The Atlantic* found it "charming rather than grating" despite its impenetrability.[131] Among those who praised the show were LGBT media organizations, leading to an Outstanding Drama Series award from the GLAAD Media Awards in 2016 in recognition of its trans creators (both Wachowski sisters have publicly identified as trans) and its portrayal of trans and queer characters .[132]

Looking again at the *Sense8* season one finale scene, with Will racing toward Riley, through the lens of trans media visibility, particularly in streaming television, reveals some of the other ways in which algorithms operate both on and as culture. Will's efforts to rescue Riley in this scene continue, aided first by Nomi and Amanita, a white trans woman and her Black lesbian lover; and later by Lito, a gay man from Mexico

[129] Netflix, Inc., "Only On Netflix."
[130] Lyons, "There is Not a Ton of Sense in *Sense8*."
[131] Sims, "*Sense8* is Auteur Television That's Actually Fun."
[132] Hollywood Reporter, "GLAAD Media Awards."

whose telenovela acting skills enable him to charm a nurse into giving him Riley's room number; Sun, a Korean woman, who uses her kickboxing skills to fend off the hospital guards; Kala, an Indian woman, who uses her knowledge of pharmaceuticals to revive Riley so that she can participate in the rescue; and Capheus, a Kenyan man who uses his experience as a matatu driver to help Will hotwire a getaway car. Capheus explains that his bus is so frequently stolen in his home village (presumably along with its keys) that he has had to learn how to hotwire it in order to retrieve it from thieves. As this rescue scene progresses, Will finally approaches Riley in her hospital bed. The action theme gives way to a gentle piano score as Will lays his hand on Riley's forehead. Upon making contact, the shot reverses to show Will lying in the bed with Riley's hand on *his* forehead, and then back again, and again—creating an image where the two have become one. Scenes of their romance and life together flash across the screen as Riley breathes heavily. Will carries her in his arms across the threshold of the room and along the hallways of the hospital, completing the rescue.

This one, brief action scene exemplifies the trouble many scholars have found with *Sense8*. Here, the minoritized characters (trans and queer, of color, and from the global south and east) work in the service of the non-trans, straight, white characters from the global north and west, lending their heavily stereotyped skills to Will's rescue of Riley and the stunningly heteronormative images and aesthetics the rescue scene enables. In this particular show at least, minoritized characters, though perhaps present and visible in greater numbers than in many other commercial TV series, are mobilized textually for a particular purpose. This is the case too in shows like *Transparent*, which takes Maura, the white trans woman character's exploration of her gender as a starting point for

exploring the emotional and sexual struggles of the other members of her family and then later a Latinx trans woman's struggles as a starting point for Maura's continued exploration of her own transness. And likewise in *Orange Is the New Black*, in which the Black trans woman character and other characters of color, queer and non-queer, support the lead white woman's struggle through the prison system.

As Moya Bailey points out, there is a hierarchical ordering of the minoritized characters represented in *Sense8* (and this reverberates in the other shows I've mentioned as well).[133] The accolades the show has received from LGBT media organizations are premised on its depiction of its lead trans character, Nomi. Played by trans actor Jamie Clayton, Nomi is a representation of transness seldom seen in US commercial television. Nomi is written as a character in a way that avoids many of the common tropes of trans representation identified by trans media theorists like Julia Serano—she is a heroic protagonist rather than a tragic, villainous, or comedic character.[134] She's a fully fleshed out character whose identity doesn't revolve solely around the fact of her transness but her transness, when it is addressed, is familiarly and realistically presented. I personally became hooked on the show when early on in the first episode, I witnessed a scene I never expected to see in a mainstream series. Following a session of loud, raucous sex, Nomi and her partner, Amanita, relax in each other's arms as the camera pans away from the bed and toward the floor of their bedroom. As the couple blurs into the background, a glittery, rainbow-colored dildo protruding from a leather harness lands with a wet slap in front of the camera's lens. I can't recall having ever seen another sex scene between a trans person and their partner that so openly acknowledges the pleasures and complexities

[133] Bailey, Horak, Kaimana, Keegan, Newman, Samer, and Sarkissian, "*Sense8* Roundtable."
[134] Serano, *Whipping Girl*.

of trans sexuality. Despite this bold depiction of interracial trans/non-trans, queer sex, the show, as Bailey puts it, "fails at the intersections of identity."[135] Although Nomi serves within the larger narrative of the show as a support for Will and Riley's relationship, in the context of her relationship with Amanita, Amanita "is made superhuman with no life outside of protecting and helping Nomi"(8) in the sense that she seems to have no needs of her own and a tireless capacity for providing physical and emotional support to Nomi. Whereas the show's minoritized characters serve to support the central white, heterosexual pairing, its characters of color, in particular, appear to be used in the show only to support the development of the white characters, minoritized or not.

By asking questions and making observations about the representation of minoritized characters in *Sense8*, I have read the show primarily according to its potential effects *on* culture. Although this approach can lead to an awareness of the paradoxical nature of the representation of minoritized characters in the show and can lead to an important line of questioning based on that awareness, it will not get us to a full understanding of what the show does, textually or beyond. In order to arrive at a fuller understanding of how gender, sex, and race work within and beyond this show, it is necessary to turn our attention not only to textual elements but also to the material aspects and how the two intra-act. In other words, to think of the show *as* culture. Such an approach begins by looking at the material technologies that underlie the Netflix platform, the most notable of which are its proprietary algorithms, and the practices they engender.

[135] Bailey, Horak, Kaimana, Keegan, Newman, Samer, and Sarkissian, "*Sense8* Roundtable," 8.

With Netflix's use of algorithms in mind, I turn again to Striphas's work on algorithmic culture (the influence of algorithms *on* culture) and Seaver's figuration of algorithms *as* culture to illuminate Netflix's paradoxical relationship to transness. In a 2015 article titled "Algorithmic Culture," Striphas traces three keywords (*information, crowd,* and *algorithm*) in the style of Raymond Williams,[136] the changing meanings of which, Striphas argues, point to a shift in which the work of culture has moved from the province of human beings to algorithmic processes.[137] Each of Striphas's keywords is useful for analyzing *Sense8* textually but I would like to extend Striphas's thinking here by coupling it with Seaver's notion of algorithms as culture. Doing so brings attention to the feedback loop that is created as the show operates *on* and *as* culture, drawing both algorithmic processes and embodied characteristics such as gender, sex, and race into its purview.

In his analysis of the term *information,* Striphas highlights the ways information has shifted from being understood as something that is vested *in* the body to a process by which something is abstracted *from* the body and must be given order via our cognitive capacities.[138] This shifting understanding of information emerges from algorithmic processes. For example, in recent years we have witnessed the rise of the "quantified self" movement[139] not only by deeply committed transhumanists but by millions of purchasers of fitness tracking devices, glucose-level monitors, sleep improvement apps, and related technologies. These types of technologies extract information from the body (our weight, activity levels, sleep habits) and export them as abstracted data (into

[136] See Williams, *Keywords*.
[137] Striphas, "Algorithmic Culture."
[138] Striphas, 399.
[139] See Deborah Lupton's *The Quantified Self*.

spreadsheets, charts, data sets, and so on). Algorithmic processing then makes it possible to use that data to compare our own activity against a normative baseline which shapes our future activity and steers us toward buying additional commercial goods in the hope of moving the data in a desired direction.

Moreover, as information comes to mean something that is abstracted from the body and given order via our cognitive processes, it ceases to require an addressee. In other words, this type of information "need not be directed to anyone at all."[140] To again use the example of the quantified self, we might personally use the information extracted from our bodies (for example, to decide what time to go to bed or when to inject insulin) but most of the devices and apps we use to collect that information place it into a larger data set in which it can, for example, be anonymized and used by the companies that create these products to build a portfolio of information about each of us individually. This data is then sold to advertisers and used to seek correlations in the data which, as Zeynep Tufecki reminds us, can have positive applications that benefit users' lives (for example, using large data sets to determine drug interactions) as well as negative (using seemingly unrelated data regarding, say, our exercise preferences to determine and manipulate our political choices).[141] In Striphas's view, this shifting understanding of information points to an emerging "sense of cultural objects, practices and preferences as comprising a corpus of *data* [...] albeit data that exceed the traditional view of the human sciences in the agnosticism toward the intended recipient."[142] Returning to *Sense8*, the

[140] Striphas, 400.
[141] Tufekci, "Engineering the Public."
[142] Striphas, 400.

"Brainwave Symphony" project orchestrated by one of the show's writers, J. Michael Straczynski, demonstrates Striphas's point.

After the run of the first season of the show, Straczynski oversaw the production of a piece of music featuring eight fans of the show (one representing each of the sensate characters) who were brought into a recording studio and asked to watch scenes from the series while having their brainwaves recorded using electroencephalograph (EEG) sensors. The readouts from these sessions were then broken out into alpha, beta, delta, theta, and gamma waves and each wave was assigned its own frequency range. The resulting audio was then amalgamated using an algorithm to pick out patterns and reconfigure it into a "psychological symphony" using a predetermined rhythmic structure.[143] The final composition was used as the musical background for a promotional video for the show.

"Brainwave Symphony," then, is composed of brain waves recorded from each of the participants' EEG readings and rendered as abstracted data and then recombined to form a piece of music. In addition to appearing in promotional videos for the show, it has traveled to other media platforms as a stand-alone song, for example, on the Spotify music streaming platform. The intended audience of the brain waves extracted from the project participants, then, includes not only the producers and engineers who worked on the piece but comes also to include *Sense8* viewers, YouTube perusers, Spotify subscribers, and likely a whole host of other chance listeners making it difficult if not impossible to state with any certainty to whom that information is addressed. As one

[143] Reich, "Composing a Brain Symphony."

aspect of the *Sense8* series, "Brainwave Symphony" places the show firmly within Striphas's conceptualization of the changing understanding of information.

The second keyword Striphas takes up is *crowd*. He likens crowd to information in the sense that both keywords can be taken to include everyone (or everything) in general and can therefore be understood as referring to nothing at all. Following Williams, Striphas understands crowd as a "'complex organization, requiring continual adjustment and redrawing'; denying the individual the possibility of 'full participation', while still granting her or him a modicum of effect or influence, and incapable of being 'fully conscious of itself.'"[144] It is this understanding of crowd, Striphas argues, that underpins the term *crowd* as it is used in neologisms and contemporary practices such as *crowdsourcing*, *crowd funding*, and related concepts like *hive mind*. This notion of crowd derives from algorithmic processes that draw on the actions and input of vast numbers of users but also combine user inputs with additional processes in order to produce a result. A good example of this is Reddit's ranking algorithm which, in determining the popularity of posts, weighs user upvotes heavily but also combines this input with numerous other factors such as temporality (early upvotes count more than than later upvotes) and negative responses (posts with a high number of downvotes in addition to a high number of upvotes are rated lower). In this sense, although the voting system gives Reddit users a modicum of influence, users' votes are part of a complex set of factors that, taken together, deny full participation.

It is this notion of crowd that also underlies the connection between the sensates in *Sense8*. In one scene in the episode "Demons," four of the members of the sensate

[144] Striphas, 405.

cluster and three onlookers/partners engage in a simultaneous sexual experience although they are located in cities as far-flung as Chicago, Mexico City, and Berlin. The scene begins with trans woman/hacktivist sensate Nomi and her girlfriend, Amanita, kissing in Amanita's bedroom in San Francisco and then cuts to Lito and Hernando, a closeted gay couple, lifting weights on their balcony in Mexico City while their self-proclaimed beard Daniela looks on.

As Nomi/Amanita and Lito/Hernando begin to have sex (and Daniela watches), sensate Will, who is lifting weights at a gym in Chicago, and sensate Wolfgang, who is relaxing in a hot tub in Berlin, begin to feel the sensations the couples/onlooker are experiencing. It is a three-minute, absolutely dizzying scene. In one moment we see Nomi kissing Amanita and in the next she is pulling Hernando's face toward hers while Amanita is nowhere to be seen. Will is at one moment alone on the weight bench and in the next Lito is seductively running his hands over Will's biceps as he thrusts a barbell upward. The scene is presented in such a way that the audience is meant to understand that in their respective locations, only the Nomi/Amanita and Lito/Hernando couples are engaged in a mutual, physical act—yet, at the same time, all four of the cluster members and their partners/onlooker are virtually engaged with one another due to their sensate connection, despite not being physically co-present (and, interestingly, irrespective of gender identity or sexual preference).

In this scene, one of the more intimate activities humans engage in is effectively crowdsourced. This resonates strongly with the changed understanding of *crowd* Striphas traces. Each of the sensates and partners/onlookers involved in the encounter has a "modicum of effect or influence" in that each of their sensations and desires appear to

fuel what can only be described as a virtual orgy, but as none of them are "fully conscious" of exactly what it is that is happening (all of them have an intense experience but none seem to be fully aware that they are engaged in a widely shared encounter), they are denied the possibility of "full participation."[145]

Striphas sees the algorithm as an authoritative principle in today's culture, going so far as to say that "culture is fast becoming—in domains ranging from retail to rental, search to social networking, and well beyond—*the positive remainder resulting from specific information processing tasks*; especially as they relate to the informatics of crowds"[146] For Striphas, via Bruno Latour,[147] algorithms have taken over the task of "reassembling the social."[148] The break from a stable subject position we observe in *Sense8*'s orgy scenes (in the first season as described above and in season two and the finale as well) resonates with Netflix's role as an engine of algorithmic culture that Striphas links to a notion of crowd in that platforms like Netflix are "not interested in the status of a single user" but rather in the patterns that can be detected algorithmically from the viewing habits of large numbers of users.[149] Netflix has no use for the conventional demographic categories through which subjects are traditionally constructed. Netflix is not nearly as interested in the gender, class, or race of its viewers as it is in factors such as their past viewing history, the times during which they tend to watch television, and whether they binge watch or jump from series to series. Netflix is just as unconcerned with pinpointing the viewing habits of individual viewers as it is with collecting

[145] Striphas, 403.
[146] Striphas, 406.
[147] See Latour, *Reassembling the Social*.
[148] Striphas, 406.
[149] Hallinan and Striphas, "Recommended for You," 122.

demographic information about individual viewers. Rather, its methods are better attuned to crowd informatics: gathering and using data on groups of viewers in aggregate.

In her film project *Christine in the Cutting Room*, Susan Stryker describes Christine Jorgensen as an "avatar of the atomic age."[150] Jorgensen was a U.S. GI who medically transitioned from male to female in Denmark in 1951 and returned to the States to a highly sensationalized media blitz. Although Jorgensen was the first trans person to attract widespread media attention in the U.S., she was by no means the first trans person in the U.S. nor even the first trans person to be profiled in U.S. media. So, why did she become so famous? Stryker argues that "Jorgensen's transition provided a public focal point for Cold War masculine anxieties about science, sex and traditional gender roles."[151] At a time when the U.S. public was reeling from breakneck momentum in medicine, science, and technology, including anxiety-provoking technologies such as atomic energy and factory automation, Jorgensen became a site of the possibility of transgression. If, as she demonstrated, gender could be transgressed, what else/what other norms might be?

In much the same way as Jorgensen was figured as the "avatar of the atomic age," as our culture becomes ever more entangled with algorithmic processes, trans figures such as the character of Nomi in *Sense8* are positioned as avatars of the algorithmic age. Striphas, writing about Netflix's 2006 public contest in which teams competed to improve the company's recommendation algorithm for a one-million-dollar prize, asserts that as much as the Netflix Prize encouraged new research and insight into movies and TV shows, it also provided new insight into the social. He writes that the competition

[150] Confluence Center for Creative Inquiry, "Christine in the Cutting Room."
[151] Confluence Center for Creative Inquiry.

suggested "new models of cultural identity latent in the dataset and, presumably, the social" in the sense that "contestants tended to reject dominant [...] demographic categories in favor of emergent frameworks of identification."[152] Although I want to be careful not to dehistoricize transness by asserting that it is an emergent framework of identification (it's not), I do want to point out that the notion of trans as an independent, collective identity category is a fairly recent development and that widespread public reckoning with trans as an independent, collective identity category is newer still.[153] In the mainstream public consciousness, then, trans is indeed an emergent identity, one that is presently unfolding through and alongside an emergent cultural framework: algorithmic culture.

Marjorie Garber, in her 1992 study of cross-dressing and cultural anxiety in film, notes that there is a tendency to look "*through* rather than *at*" gender nonconforming characters in media and to "elide and erase—or to *appropriate*" them "for particular political and critical aims."[154] In other words, trans and gender nonconforming characters are generally evoked in mainstream media in order to stand in for something or to act as a metaphor. In the case of *Sense8*, I read Nomi as standing in for algorithmic culture. It is through the character of Nomi, finally, that we can bring together the effect of Netflix's algorithms both *on* and *as* culture.

Although the Wachowskis have stated that *Sense8* is about digital technologies, only one character embodies this in any significant way: the sole trans character, Nomi. In the world of the series, before becoming a sensate, Nomi was a well-known political

[152] Hallinan and Striphas, 123.
[153] See Valentine, *Imagining Transgender*.
[154] Garber, *Vested Interests*, 9.

vlogger and hacktivist. In the sensate cluster, the skillset she offers is a menu of high-tech, digital abilities: hacking, cybercrime, data analysis, and placing false information. In the course of the first season's narrative, all of the characters undergo a transformation (becoming part of the sensate cluster) that causes concern for those closest to them, but Nomi is the only one who is placed in danger of medical intervention (she is hospitalized by BPO and threatened with a lobotomy in order to subdue her sensate abilities) and surveilled by police (after escaping from the hospital). In effect, Nomi is the character through whom the audience must reckon with various facets of digital technology, including technologies deeply embedded within Netflix's production/distribution model such as data collection and surveillance.

In a scene in the first episode, Nomi pauses before joining Amanita at San Francisco's annual Pride march to update her vlog. As the video recorder light on her laptop blinks green, she looks into the camera and delivers a monologue:

> For a long time, I was afraid to be who I am, because I was taught by my parents that there's something wrong with someone like me. Something offensive, something you would avoid, maybe even pity. Something that you could never love [...] I was afraid of this parade because I wanted so badly to be a part of it. So today, I'm marching for that part of me that was once too afraid to march. And for all the people who can't march, the people living lives like I did [...] Today I march to remember that *I'm not just a me, but I'm also a we*. And we march with Pride (emphasis added).[155]

As the music swells and Nomi leaves to join the march, her final statement lingers. Led by Nomi as an avatar of the algorithmic age, we are encouraged not to think of ourselves as selves or even networked selves but, rather, as a crowd—a we. This is the crux of algorithmic culture and it is precisely what Netflix asks of us as audience

[155] *Sense8*, Netflix.

members. Through the intra-action of algorithms and culture, Netflix's algorithms and *Sense8* participate in the unshaping and reshaping of human bodies and practices. On a representational level, this is made particularly evident in the show's portrayal of its sole transgender character who is framed as an avatar of the algorithmic age. This points toward specifically gendered dimensions of algorithmic culture which, as we will see, are even more evident in another Netflix original series, *The OA*.

The OA and Algorithmic Gender

As discussed earlier in this chapter, algorithms are, in the simplest sense, a series of steps used to solve a problem. Because they are designed to solve narrowly defined problems using computational methods, algorithms are resolutely logical in that they operate according to stepped, ordered processes, using embedded command structures, mathematical formulae, and the like to perform functions such as sorting items in a specified order, searching for a particular item in a data structure, etc. However, despite assertions to the contrary from the tech industry, algorithms are not rational or objective. Rather, they are complex and messy and, as scholars like Safiya Noble have shown, when brought into contact with the social, frequently display biases, particularly in terms of race and gender.[156] Noble's excellent and important work shows how the algorithms underpinning Google's search functions reinforce white supremacy and misogyny in that they learn from and reproduce users' preexisting biases thus prioritizing search results that, for example, reflect the exoticization and sexualization of girls of color.

[156] Noble, *Algorithms of Oppression*.

Not only do algorithms display biases, they are also frequently incorrect because the stepped, ordered logics that shape their design are not compatible with the contingent and unpredictable characteristics of that which lies beyond pure mathematics. In *We Are Data*, John Cheney-Lippold argues that algorithms and the tech companies that design, deploy, and endorse them are not concerned with using our data to paint an accurate picture of us.[157] Rather, their interest is in using our data to correlate and categorize us according to patterns of behavior (websites we visit, pings from our phones to the cell towers we move past) and digital objects that are constantly changing and shifting (a website might be characterized one way based on its visitors today, and another way based on its visitors tomorrow). In order to keep up with these multi-directional shifts, algorithms must categorize us wrongly. As a result, our datafied identities become de-essentialized and fluid. No longer am I only me; online, I am also "me." Because of this, gender categories like man and woman become meaningless as they are algorithmically rendered into "man" and "woman." For Cheney-Lippold, this is a problem because "man," for example, is an ever-shifting, malleable category with no fixed relationship to its presumably stable offline referent, man.[158]

The analysis of *Sense8* earlier in this chapter showed how the functions and processes of algorithms like the ones that underpin the Netflix platform intra-act with the content of the shows Netflix produces, acclimating viewers to the algorithmic (re)materialization of the human body and calling attention to the human body as an unstable and ever-changing entity. I argue that what algorithms show us about gender, then, is not an incongruency between our online and offline genders but rather the

[157] Cheney-Lippold, *We Are Data*.
[158] Cheney-Lippold, 10.

instability of gender in the first place. As Aren Aizura writes, "gender indeterminacy is the *specter haunting gender*: the terrifying possibility that any given being's gender identity might not equate to a stable, static equivalence between male and masculine, or female and feminine."[159] In this context, Aizura is not specifically referring to identity as it is produced in digital spaces. However, his thinking resonates with the ways scholars working at the intersection of gender studies and digital studies have described the production of gender. For example, in "Automating Gender," Jack Halberstam argues that gender is an "automated construct." For Halberstam, digital technologies and their attendant logics "provide new ground upon which to argue that gender and its representations are technological productions"[160] because gender "like computer intelligence, is a learned, imitative behavior that can be processed so well that it comes to look natural."[161] Thinking along with Halberstam, we might argue that gender, particularly in its presumably static, binary form, is itself algorithmic: a series of ordered steps and processes used to solve a problem, the problem being the instability and indeterminacy of binary gender in the first place.

It bears noting that Halberstam's argument here is intended, in part, as a rebuttal of anti-tech (and, in most cases, anti-trans) radical feminist theorists like Mary Daly[162]

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[159] Aizura, *Mobile Subjects,* 38.
[160] Halberstam, "Automating Gender," 440.
[161] Halberstam, 443.
[162] Daly (along with other scholars such as Janice Raymond) was part of the radical lesbian separatist movement in the 1970s. Daly and Raymond's writings figure trans women as monstrous technological products of a phallocentric medical system and claim that trans women seek to invade women and women's spaces. On this basis, radical separatists sought to exclude trans women from women's and lesbian spaces including not only cultural and community spaces but also social service spaces such as domestic violence shelters. This had even wider-ranging effects – for example, the National Center for Health Care Technology used Raymond's writings to support its 1981 recommendation that U.S. federal health programs deny funding for transition-related health care which was then mirrored by private insurers. Writings by Daly, Raymond, and other 1970s radical separatists underpin the present-day TERF (trans-exclusionary radical feminist) movement.

who argued that computers and other digital technologies threatened to eradicate women through a multitude of processes including cloning and transsexualism. In Daly's thinking, transness is a specifically technologically-crafted mode of gendered being whereas non-trans modes of gendered being are technologically unmarked and natural. The (highly problematic) connection Daly draws between transness and new technologies is one that continues to shape notions of transness in theoretical writings, popular culture, and beyond to this day. In Daly's writing and beyond, transness becomes a container for the terrifying possibility of gender indeterminacy writ large, particularly as this indeterminacy is re-exposed through new technologies.

Netflix's *The OA* serves as an example of how the fear of gender indeterminacy, as produced by our engagement with algorithms, seeps into algorithmically-produced cultural content. As we will see, the show explores the processual construction of gender through algorithmic logics and positions its sole trans character as the container for the gender indeterminacy that results. On December 12, 2016, Netflix began tweeting cryptic messages from its official US Twitter account. "Have you seen death?"[163] read one such message. Another read, "Have you seen darkness?"[164] Shortly thereafter, the account posted an eight-second-long video clip set to autoplay showing what appeared to be shaky cell phone footage shot from behind a car dashboard of what appears to be a young, blonde woman running across a bridge.[165] Horns ring out and brakes squeal as the woman runs across lanes of heavy traffic. In the background of the car from which the

[163] Netflix. Twitter post. December 26, 2016, 12:52 p.m., https://twitter.com/netflix/status/808368841885622272?lang=en.
[164] Netflix. Twitter post. December 26, 2016, 12:54 p.m., https://twitter.com/netflix/status/808369549926076416.
[165] Netflix. Twitter post. December 26, 2016, 12:56 p.m., https://twitter.com/netflix/status/808369963232796672.

footage is being shot we hear the patter of talk radio. Rising above the radio chatter, a child's voice says, "she's on the other side," as the woman climbs over a rail on the side of the bridge, followed by an adult voice yelling "don't!" out the window and then "don't look!" to the child. The blonde woman turns her head and looks into the camera for one brief moment before disappearing over the edge. "She let go," whispers the child. And the video ends. A few days later, on December 16th, with little additional fanfare, Netflix released the first season of *The OA* in its entirety – the first scene of which consists of the cell phone footage described above.

Co-created by indie filmmakers Brit Marling and Zal Batmanglij, *The OA* tells the story of a white, non-trans woman named Prairie Johnson who, after having gone missing for several years, is reconnected with her well-meaning parents after attempting suicide by jumping off a bridge (as depicted in the promo video described above). Although she was blind before going missing, when she turns up in the hospital after the incident on the bridge, her sight has been fully restored. Her parents take her back to their suburban subdivision in Michigan where she assembles a group of misfits -consisting of four teens who attend the local high school and one of their teachers - to whom she promises to tell the story of what happened to her during her disappearance in exchange for their assistance. This is as much as viewers have learned when, 57 minutes into the first episode, Prairie starts telling her story which begins with her having grown up in post-Soviet Russia prior to being adopted by the Johnsons after her father's death and her own near-death experience. At this point, for the first and only time during the entire season, the title credits roll, the camera panning at airplane height over the snow-covered roofs of St. Petersburg accompanied by a plaintive violin solo.

If this sounds like a bizarre but relatively straightforward plot, it's only because I took pains above to deliver only the most salient plot points. To attempt to clearly or thoroughly describe the plot beyond this point would be an exercise in futility. During the course of the first season, Prairie (who later asks to be called OA, short for Original Angel) continues meeting with the misfits against the wishes of her over-protective adoptive parents, relaying to them the story of where she was during her multi-year disappearance. In her telling, she was kidnapped by a scientist named Hap who studies near death experiences (or NDEs) and kept confined in a basement along with four other captives who had also experienced NDEs. Hap regularly experimented on the captives, strapping them into a machine that temporarily drowned them in order to force them into an NDE state. The group discovered that because they were all capable of surviving NDEs, they had additional powers as well. Using a sequence of movements devised as a group, they are able to heal other people who are sick or dying and come to speculate that they could also use the movements to open portals to other dimensions. Prairie/OA teaches these movements to the misfits and, at the season's end, they successfully stop a shooting in the cafeteria of the high school by performing the movements as a group. Prairie, however, is hit by a single bullet to the chest and is rushed away by ambulance.

The second season of *The OA* is even more convoluted than the first. Released on Netflix in its entirety on March 22, 2019, the season opens with Prairie aboard a ferry in the San Francisco bay, looking much more posh than she did in the previous season. We learn that Prairie did indeed die at the end of the first season but that the misfits succeeded in opening a portal in their attempt to thwart the cafeteria shooter, sending Prairie into another dimension. In this dimension, Prairie continues to search for, and

indeed finds, Hap and her fellow captives, most of whom are still under Hap's control. As Prairie attempts to free the other captives from Hap, she gets drawn into a subplot about a teenage girl who goes missing after becoming involved with an intricate video game; takes part in a live show during which she is forced to communicate with a psychic octopus; and discovers that the misfits are present in this dimension as well but in a prolonged coma state at Hap's bidding. Meanwhile, in the first season's dimension, the misfits set off on a road trip in order to learn how to travel to the alternate dimension Prairie has gone to. The second season ends with a twist. In order to escape Hap, Prairie manages to travel to a third dimension, this time the soundstage of a TV show. This third dimension appears to be the one - or at least akin to the one - that we, the viewers, exist in. The actors playing Prairie (Brit Marling) and Hap (Jason Isaacs) are present but are referred to as Jason and Brit and the soundstage looks like the one on which the penultimate scene of the season was shot. We may never know which direction Marling and Batmanglij intended to take the show in beyond this: Netflix cancelled the show in August of 2019.

In creating *The OA*, Marling and Batmanglij put a tremendous amount of effort into their decision to cast an Asian, trans masculine actor in the role of Buck Vu, one of the teenage boys in Prairie's group of misfits.[166] Upon completing the first season of the show, one question I had was why Marling and Batmanglij put so much effort into this casting choice. The fact of Buck's transness had very little effect on the events depicted in that first season. There were only a few brief moments during which the audience was asked to consider Buck as a trans character. In one such moment, it is implied that Buck

[166] Renfro, "'The OA' Went to Incredible Lengths."

is drawn into Steve's (and hence Prairie's) orbit because Steve supplies him with black market testosterone and in another it is implied that perhaps Buck's strained relationship with his parents is due to their inability to acknowledge his transness. That Buck is played by a trans actor of color and that the character's story line does not revolve around the fact of his transness has been met with acclaim by trans media commentators. Speaking on a Netflix press panel entitled "Dare to be Different," *Sense8*'s Jamie Clayton (the actor who plays Nomi) praised *The OA* for having a trans character in the story who "just exists." But despite this depiction of a trans character whose transness is incidental to the narrative, Marling and Batmanglij dedicated a considerable amount of time, energy, and resources to writing and casting Buck as trans. According to Marling, when they submitted the initial script to Netflix, Buck was written as an Asian trans masculine teen. When the casting directors asked if they might be flexible on this point given the perceived difficulty of finding an actor to match that description, Marling and Batmanglij adamantly refused.[167] Further, the two travelled to midwestern high schools (the show is set in Michigan) to talk with trans teens as they worked on developing the character and then made major revisions to the character based on feedback from Ian Alexander, the actor who plays Buck, once he was cast.[168]

Marling and Batmanglij's insistence on writing Buck as an Asian, trans masculine teen and casting an actor matching that description in the role became much clearer in the second season. In this season, the character Alexander plays exists in two separate dimensions. In the first dimension (the dimension in which the first season of the show takes place), this character is Buck Vu, a trans masculine teen who is part of Prarie's

[167] Renfro, "'The OA' Went to Incredible Lengths."
[168] Hirschberg, "Brit Marling Went Back to High School."

group of misfits and who spends the bulk of season two attempting to travel to the dimension Prairie travelled to after she was shot at the end of season one. The second character played by Alexander exists in the dimension Prairie occupies in the second season – as the teenage girl who goes missing while playing an AR video game. In this dimension, Alexander's character goes by Michelle Vu, which we learn was Buck's name before transition. In other words, in season one's dimension, Vu is a trans boy but in season two's dimension, Vu is a non-trans girl. Although most of the other main characters in the show also exist in both dimensions and exhibit differences in each dimension (in terms of back story, occupation, etc.), none of the other characters have a different gender expression between dimensions. The possibility of gender slippage between dimensions, then, is explored solely through the one trans character in the show.

Although a narrative in which gender slips, changes, and transforms between dimensions could be an interesting one, *The OA*'s exploration of this is disappointing in that the possibility of gender slippage exists only for its sole trans character. Trans studies scholars have long written about the role deception plays in public perceptions of transness and the transphobia or violence against trans people that results. Talia Mae Bettcher writes about the double bind trans people face in that if we self-disclose, we are seen as pretenders (masquerading as the gender we say we are) whereas if we do not self-disclose, we are seen as deceivers (masquerading as the gender we are perceived as inhabiting). This double bind, which Bettcher sees as a fundamental communicative relation that equates gendered presentation with the appearance of one's genitals, underpins the violence trans people all too frequently encounter. Bettcher also points out that this communicative relation is not isolated to transness but rather emerges from a

broader heteropatriarchal, white supremacist social framework that connects violence against transness to broader issues of sexual assault and sexualized assumptions made about bodies of color.[169] Given this, it's also noteworthy that Buck is not only written as a trans character whose gender is fluctuates between dimensions (calling into question the validity of their gender in all dimensions) but also as an Asian character.

Buck, then, like Nomi in *Sense8* becomes an avatar of algorithmic culture. In this case, Buck stands in for algorithmic deception, functioning as a site of containment for the uncertainty that stems from the "universality of allowable wrongness" of algorithms like the ones that underpin the Netflix platform and that is observable, in myriad ways, in the cultural objects Netflix produces. The alignment of Buck with algorithmic deception is made possible in large part because of deception tropes that already attach to trans bodies. But just as Cheney-Lippold's distinction between man and "man" obfuscates the instability of gender in the first place, so too is the trans deception trope a misdirection. Despite the trope of deception so often applied to trans people, it is not trans people who are deceptive. Rather, it is the twin notions of neatly dimorphic sex and binary gender that are deceptive.

Another way in which *The OA* grapples with the indeterminacy of gender, particularly as re-exposed through algorithmic processes, is through the choreographed dance steps which are referred to as the Movements in the world of the show. *The OA* places a large amount of narrative focus on the Movements throughout the series. In the course of the first season, the Movements are used to heal a woman in advanced stages of ALS and to revive one of the hostages who is on the brink of death after a botched NDE

[169] Bettcher, "Evil Deceivers and Make-Believers."

attempt. In the second season, the Movements are used primarily to transport characters between dimensions. Performed by the human actors in first season of *The OA* (and later, in the second season, by robots as well) the Movements are reminiscent of Martha Graham's choreography: outstretched hands, contractive abdominals, the fall and recovery of certain steps, and a sense of total abandonment and fearlessness of movement. In some moments, the Movements are sharp and precise as when the actors slap their hands against their chests and then thrust them outwards. At others, graceful and fluid, as when the performers draw one arm slowly across their bodies up into the air. And at others, just plain silly as in one movement where the actors hold their hands over their butts and wiggle their fingers. The strangeness of the Movements is compounded by the corresponding vocalizations that sound at various moments like moans, roars, and purrs.

The Movements were choreographed by Ryan Heffington who has worked with acts such as Sia and Sigur Rós (his choreography for Sia's "Chandelier" video has elements in common with his work for *The OA*). As silly or strange as the Movements may seem, they are nonetheless demanding, highly stylized, choreographed movements that the show's actors, most of whom are not trained dancers, no doubt worked very hard to learn and perfect. As choreographed dance the Movements are reminiscent of the stepped, ordered logic of algorithms. This is a reach, of course. By this logic, all choreographed dance is algorithmic in that it is composed of a series of ordered steps used to achieve a specific result. However, in the world of the show, this resemblance to algorithmic logic goes even further.

The Movements are integral to *The OA*. As mentioned earlier, the first season ends in an attempted shooting in a school cafeteria that is ultimately thwarted when the group of misfits stand up from their duck and cover positions and begin to perform the Movements, confusing the shooter long enough for them to be disarmed and inadvertently sending Prairie/OA to an alternate dimension. The school shooting scene is a controversial one. Many critics and viewers, even those who positively reviewed the earlier episodes, responded with frustration to the scene reporting that it seemed to come out of left field and to be unearned. Additionally, the idea that these Movements could thwart the shooter seemed egregious to some. So much so that critic Alan Sepinwall wrote a review after watching the first season titled "Why the Secret at the End of Netflix's '*The OA*' Seems So Silly" in which he argues that "ultimately, *The OA* is about the power of interpretive dance."[170] Other critics, however, argued that Marling and Batmanglij had in fact laid the groundwork for both the cafeteria shooting scene and the effectiveness of the Movements in that moment, if one watched carefully and followed the clues. These context clues included brief, easily missed moments in the show that foreshadowed the shooting such as a fleeting pause of the camera on the television in one character's apartment during a news report warning of a local mass shooter.

Beyond these context clues, the more compelling argument for the fittingness of the cafeteria scene lies in the function of the Movements themselves. Beyond being a demanding choreography sequence, the Movements obey particular logics in the world of the show. On numerous occasions, Prairie/OA stresses that the Movements must be performed with absolute precision and in the proper order. Only when the Movements are

[170] Sepinwall, "Why the Secret at the End of Netflix's 'The OA' Seems So Silly."

carried out in this way do they achieve the desired effect. In this, the Movements are resolutely algorithmic in nature. That they succeed in healing the sick, preventing social destruction, and opening up new dimensions (we can read this metaphorically) falls squarely in line with the promises the tech industry touts about its use of algorithms and big data – that these processes open up new possibilities for curing society's ills.

These Movements have also found a life outside of the series in ways that underscore their algorithmic nature and also further tie the Movements to algorithmic embodiment. In 2017, a group of artists/activists in NYC gathered to perform the movements as a flash mob in front of Trump Tower.[171] More recently, a group of fans of the show gathered in front of Netflix's NYC headquarters to perform the Movements in protest of the cancellation of the show.[172] In both of these instances, the Movements were performed to achieve a desired result – in one case as an attempt to mitigate the dangers of a Trump presidency and in the other to convince Netflix executives to reconsider cancellation of the series. In both cases, strict adherence to the Movements was of primary importance. The Trump Tower group reportedly enlisted the help of Wes Veldink, Associate Choreographer to Heffington, who had worked with *The OA*'s cast to help them learn and perfect the Movements. As in the show, the Movements function algorithmically in these instances – as an ordered series of steps used to solve a problem.

There's another dimension linking the Movements to algorithmic logic as well, specifically a gendered dimension. In an interview with the *Hollywood Reporter*, Marling and Batmanglij bristled at the words of critics like Sepinwall who found the Movements silly. Batmanglij conveyed that he found it "rude when serious reviewers call it

[171] Grippo, "The OA Flashmob."
[172] Fleeting Films, "Five Movements Outside Netflix."

interpretive dance" and links negative responses to the Movements to a cultural discomfort with femininity: "we have a real hard time with women in our society, we have a hard time with the feminine. And so what are the Movements other than a more feminine thing? It's really hard for us. We don't like it. We don't think it's serious, and that's a larger conversation to have."[173] Other reviewers have concurred with Batmanglij, that a large part of the beauty and compelling nature of the show revolves around the healing and transformation of the four boys who make up the bulk of the group of misfits (and who each struggle in some way with masculinity) through a feminized art form.[174] Others still have founded a queer reading upon this aspect of the show.[175]

That the boys grapple with gender through the algorithmic logics of the Movements aligns them not only with the stepped, ordered logics of algorithms but also resonates with the computational logics that, per Halbertam, underpin the production of gender in the first place. Here, too, Buck acts as a container for the parallels the show makes between the algorithmic logic of the Movements and the algorithmic production of gender. Episode 6 of the show's first season opens with Buck standing in front of the mirror in his bedroom, a familiar trope of trans representation. As Cáel Keegan writes, "trans characters endlessly stand in front of mirrors, nude and in various stages of undress, examining themselves with a range of negative emotions running from dismay to wistful melancholy to pure disgust."[176] At the start of this particular episode, Buck does exactly this. He stares at himself in the mirror, turning from side to side, adjusting

[173] Bently, "'The OA' Creators Defend the Series' Most Controversial Twist."
[174] Reid, "Sorry, 'Stranger Things."
[175] Jung, "The Gentle Queerness of Netflix's *The OA*."
[176] Keegan, "Moving Bodies."

his shirt, and running his hands over his chest. As he continues to stare at himself, with a mixture of emotions crossing his face, he begins performing the Movements, halfheartedly at first but then with increasing resolution. As he hits his stride, performing the Movements with precision, the camera pans away from him and lingers on two drawings taped to his bedroom wall: one of a boy diving into a swimming pool shirtless and another of a boy playing guitar.

In this moment, the algorithmic logic of the Movements and the algorithmic logic of gender find containment in tropes of transness. The prevailing, normative narrative of transness in pop culture equates transness to the process of medicojuridical transition and its attendant technologies. This narrative hinges not only on the use of medical and other kinds of technologies as part of transition but also positions the process of transition itself as following computational logics. In this view, transness is reduced to the series of steps one is expected to take in order to medically and legally confirm one's gender identity. This was solidified, in the medical sense, by the Benjamin Standards of Care, an approach to medical transition advocated by sexologist Harry Benjamin in the 1960s. In the Benjamin Standards, transition is broken out into a series of ordered steps, each of which is required before the next can be performed: live socially in the chosen gender for one year, begin hormone replacement therapy; undergo genital and /or chest reconstruction surgery; and, finally, live as a productive and normative member of the newly achieved gender indefinitely. Likewise, the process of making changes to one's legal identity in order to reflect one's gender requires the completion of a series of steps which vary according to jurisdiction but are always ordered and aim to achieve a desired result.

The Movements serve as another example of algorithmic gender at work in the content of *The OA*. Algorithms like the ones that underpin the Netflix platform not only call attention to the human body as an unstable and ever-changing entity but also expose the instability of gender. This occurs through algorithmic functions and processes that draw on data gathered from our bodies and simultaneously reimagine and (re)materialize our bodies by, for example, eschewing traditional demographic categories and requiring an "allowable wrongness." As those algorithms intra-act with the shows Netflix produces, this indeterminacy and the anxiety it produces surface in the content of those shows. In *The OA* as in *Sense8*, trans characters become avatars for algorithmic embodiment, algorithmic gender, and the cultural anxiety the two create.

Conclusion: Beyond Our Screens

The respective trans characters in both *Sense8* and *The OA* stand not only as avatars of algorithmic culture but also as guides for the flexibility and capacitation neoliberalism demands. In an article interrogating the historically (and presently) complex relationship between transgender identity and disability, Jasbir Puar writes that part of the drive to separate transness from disability stems from an ongoing process in which "trans bodies [are] being recruited, in tandem with many other bodies, for a more generalized transformation of capacitated bodies into viable neoliberal subjects."[177] This takes place by way of "piecing," by which Puar means "a recruitment into neoliberal forms of fragmentation of the body for capitalist profit."[178] She is not making a claim here that trans pursuit of bodily change is fundamentally a process of fragmentation as

[177] Puar, "Bodies with New Organs", 47.
[178] Puar, 47.

Baudrillard might but, rather, interrogating the normative trans trajectory in which identification as trans carries with it the assumption of a linear path from cross-gender identification to hormonal transition to sexual reassignment surgery and then integration into the neoliberal order as a flexible and capacitated individual, a process most readily available to gender nonconforming bodies that are imagined as potentially capacitative in the first place.

I want to push further on this point to suggest that trans bodies (specifically, assumed-capacitative trans bodies) are not only themselves hailed as potential neoliberal subjects but that they are also positioned as flexible, capacitative subjects par excellence in order to reinforce the notion of neoliberal subjecthood and guide others into this mode of being. The algorithms that underlie Netflix as a platform and the viewing practices streaming TV enables reinforce this flexibility on a technological level. However, there is a tension in the operation of algorithms in streaming TV in that they simultaneously promote an undoing of the body that aligns with flexible, capacitative neoliberal subjectivity *and* participate in the fixing and calcification of particular notions of identity: ie trans characters become avatars for flexible subjectivity provided that trans subjectivity is understood in a relatively rigid way (as a linear process of medicojuridical transition). This framing of transness reinvigorates cultural tropes that imagine transgender people as unreal, impossible, and unknowable, contributing to the social othering of trans people and resonating with micha cárdenas's claim that media visibility contributes to increasing hostilities, both structural and interpersonal, against trans people, particularly trans women.

Chapter Three: *Mainichi, Dys4ia*, and *Minecraft*: Towards a Trans Game Studies

Introduction

In conducting research for this chapter over the course of several years, I spent a lot of time playing videogames, an activity I hadn't had the time to seriously engage in many years, save for the occasional, casual mobile game. At first, I played solely for research purposes, keeping this project always at the forefront of my mind. As time went on, I played as much for my own enjoyment as for research. Later still, I played for a much-needed sense of community and connection as I immersed myself in the solitary, isolating work of writing a dissertation. I write about these games, then, from something more of an autoethnographic point of view than I employ in the other chapters of this project. However, the autoethnographic mode I write in here is not solely due to happenstance. To write about a videogame necessitates playing it and playing a videogame requires giving oneself over to the embodied, ludic experience that lies at the core of what makes a videogame a videogame in the first place. Because of this, there is an even thinner veneer of detachment and separability between videogame and player than there is between TV show and viewer, for example. The autoethnographic stance I take here, then, is determined as much by my object of analysis as by my experience engaging with it. During this period of time, I played two types of games: indie games created by trans game designers and a multiplayer version of the sandbox game *Minecraft* on a server crafted specifically for use by LGBT+ players. These two types of games are radically different from each other. However, during the many hours I spent playing

them, I began to see more overlap than divergence in the embodied experience each type of game offers.

The indie trans videogames I played included, among others, Anna Anthrope's *Dys4ia*, Mattie Brice's *Mainichi*, and merritt kopas's *LIM*. Although very different from each other, each of these games has several features in common. Each is meant to elucidate trans experience in some way; each relies on game mechanics (the ways a player is meant to interact with a game) as much, if not more, than narrative in doing so; and, for this reason, each calls into question formal definitions of what a game (let alone a videogame) is. I will discuss each of these games in detail later in this chapter but to give a brief example: Anthrope's *Dys4ia* is a short Flash game in which Anthrope documents the grueling process of beginning medical transition. Playing the game requires moving through a series of short vignettes, each representing a portion of that process: finding a doctor willing to prescribe hormones, avoiding a psych exam, and watching time tick by in a clinic waiting room before an appointment. Although the player has only four controls to choose from in playing the game (the up, down, right, and left arrow keys), the game is absolutely befuddling because the function of these controls changes from scene to scene. In one scene, the player must use all four keys in order to search for a suitable clinic; in another, only the down key works to check through a list of questions on a psych exam; and in the waiting room scene, none of the arrow keys work at all, the player must simply sit out the clock before moving on to the next scene. This stands in contrast to most formal definitions of what a game is. Jesper Juul's influential formal definition of games, for instance, lists a variable outcome and the ability of players to influence that outcome among the necessary features that make a

game a game.[179] In *Dys4ia*, however, the player has no control over the game or its outcome, making it not a game in the eyes of many game theorists; the same is true of the other indie trans games mentioned above.

The multiplayer *Minecraft* server I played on is Quixol, a server founded in 2015 by a small group of players, most of whom identify as trans. The server was specifically crafted with the needs of LGBT+ players – with a specific emphasis on trans players and neurodiverse players[180] – in mind. *Minecraft* is a widely played sandbox game that, simply described, is about collecting and using resources in order to build and/or survive in a vast, often dangerous environment. Beyond this basic premise, the game offers near endless possibilities of play styles and modifications. On the Quixol server alone, residents of Ghalea (the name of Quixol's unique, algorithmically-generated *Minecraft* world) engage not only in the basic activities the game implicitly directs players to take part in such as mining, building, and farming but also in complex activities that stray far from the game's basic premise such as creating in-game mini-games and compiling the resources and know-how to build functional in-game computers.

In this sense, *Minecraft* is not just one game but many, each fitting many of the criteria in Juul's formal definition of a game (variable outcome, player effort, etc.)

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[179] See Juul, *Half Real*. The full list of elements in Juul's classic game model, which I will return to later in this chapter, is as follows: 1. fixed rules, 2. variable, quantifiable outcomes, 3. values associated with each outcome, 4. player effort, 5. player attachment, and 6. negotiable consequences.

[180] I want to note that I do not engage in depth with Quixol's stated inclusion of neurodiverse players in this chapter. This is because, in my observation, the inclusion of neurodiverse players on Quixol is reflective of the identity of one of the founders of the server but is rarely if ever addressed in gameplay or community interactions. There's very little mention of neurodiversity in Quixol's documentation (rules, etc.) and, in my time playing, I've not observed any conversations about neurodiversity whereas queerness/transness are frequent chat topics. Also, the world itself is very reflective of transness and queerness but not at all reflective of neurodiversity. For example, there are trans pride flags everywhere and users can set their pronouns but nothing I've found in the game references or is designed to accommodate neurodiversity in the same way.

despite the open-world nature of the game as a whole, unlike the indie videogames mentioned above. Although many scholars have pointed out there are troubling ideologies embedded in the game – for example, that its basic premise (exploration and resource extraction) relies on colonialist logics and that its coded-white and masculine default playable character reinforces white supremacy and misogyny[181] – like the indie games described above, narrative is not a central focus of *Minecraft*. *Minecraft* can be played on multiple kinds of devices including laptops, gaming consoles, phones, and tablets, each of which creates a change in the game mechanics used in play. Game mechanics, then, although worthy of further attention (see for example, Schneier and Taylor's article on the differences in gameplay when *Minecraft* is played on different types of devices[182]) are not a remarkable feature of the game, unlike the indie trans games. Lastly, very much unlike indie trans games, *Minecraft*, on the surface of it, has absolutely nothing to do with transness.

Although these two types of games (indie trans games and multiplayer *Minecraft*) have some similarities, on the whole they are vastly different. I include them both in this chapter because, despite their differences, both types of games point toward aspects of videogames in general that are brought to the fore when thought through from a trans perspective and with reference to transness. In this chapter, I argue that videogames, including but not limited to the games discussed here, are a trans technology. In their article, "Tumblr was a trans technology," Oliver Haimson, Avery Dame-Griff, Elias Capello, and Zahari Richter explore the contours of what they refer to as "trans

[181] See, for example, Dooghan, "Digital Conquerers" and Potts "No Homo."
[182] Schneier and Taylor, "Handcrafted Gameworlds."

technology" based on the affordances Tumblr offered to the vast trans communities it hosted before it announced in 2018 that it would no longer permit "adult" content. Prior to this change, Haimson, et al. argue that Tumblr was indeed a trans technology because it allowed users "changeability, network separation, and identity realness, along with the queer aspects of multiplicity, fluidity, and ambiguity, needed for gender transition."[183] Moreover, it also permitted "adult or erotic content – an integral part of transition and intersectional community building for many trans bloggers – without characterizing it as pornographic and removing it."[184]

These qualities are a good starting point for thinking through what a trans technology might be or entail. But Haimson et al. base these ideas on Tumblr, a social media site with affordances typical of such sites including text and image sharing, reblogging, following other bloggers, liking posts, and so on. How might the definition of a trans technology change or shift as it comes into contact with a different type of digital media, specifically videogames? As opposed to social media sites, videogames are inherently ludic in nature, by which I mean that playing a videogame requires an embodied engagement between player and game that generally goes well beyond the physical engagement required for interacting with social media sites. As such, the physical body of the player must be taken into consideration in addition to the virtual objects that body creates (text, images, likes, etc.) In this chapter, I aim to build on Haimson et al.'s conceptualization of trans technology in order to account for the material

[183] Haimson, Dame-Griff, Capello, and Richter, "Tumblr Was a Trans Technology," 2.
[184] When Haimson et al write about "adult or erotic content" here, what they mean is depictions of trans bodies that serve as educational and body-celebratory images for trans people but that are often censored by social media sites as inappropriate or pornographic.

aspects of such a technology in addition to the virtual. I do this by drawing focus to bodily engagement with videogames. In a similar vein, in an article calling for videogame scholars to move beyond the occularcentrism he argues is hegemonic in the field of videogame studies, Bryan Behrenshausen, encourages games scholars to turn their attention instead to what players are *doing* when they play games: the movement of bodies, interaction with objects, etc. Doing so, Behrenshausen argues, shows us the ways in which the "looping performativity of actions" players engage in when playing create "a fleshy communion between bodies at a liminal interface."[185] In other words, the physical interaction between player and game points us to how a game changes its players at the level of the body.

This approach offers an alternative to thinking about video games in terms of identity formation. A great deal of work has been done exploring how players' in-game avatars and real-life identities intersect. Lisa Nakamura, for example, writes about identity tourism in multiplayer online games, arguing that the separation of race from the body in cyberspace, as when white players play as non-white in multiplayer games, risks the erasure of people of color and the reinstatement of racial hierarchies.[186] Sandy Stone, writing about the early period of commercial game development at Atari and Wellspring Systems, observes that the identities and values of the "boys making up games for themselves and millions of other boys" at those companies seeped into the games themselves, reinforcing troubling aspects of the identities of both creators and players.[187] More recently, Iris Rochelle Bull considers gender conventions in *Minecraft*, arguing that

[185] Behrenshausen, "Toward a (Kin)Aesthetic of Video Gaming," 351.
[186] Nakamura, "Race In/For Cyberspace."
[187] Stone, *The War of Desire and Technology*, 163.

the narrow expressive possibilities offered by the coded-masculine default avatar shape game play, limiting the ability of players with other kinds of gender identities to enact those identities in the context of the game.[188] These works convincingly argue that game-world avatars and real-life identities bear on each other in a multitude of ways. The argument I'm making, however, departs from this work in that I'm not primarily concerned with the identity formation or psychological responses of players resulting from in-game embodiment but rather the ways that interaction with videogames materializes players' bodies outside of the game world (and how this, in turn, materializes the game worlds players play in).

The indie trans videogames I write about in this chapter make explicit Behrenshausen's notion of "fleshy communion" between the player and the game in their efforts to create a felt sense of trans experience and embodiment. In addition, at the level of content, these games demonstrate narratively the degree to which trans bodies come into being via their intra-action with other bodies and objects. I argue that these indie trans games enable us to rethink videogames from a trans perspective, a perspective which can also illuminate the ways other types of videogames shape the bodies of those who play them. Although multiplayer *Minecraft* is not a game that is about transness or a game that explicitly addresses transness at all, I argue that players' bodies shift in response to such factors as interaction with other players, the rules of individual servers, modifications to the vanilla version of the game, etc. and that the indie trans games I write about help illuminate this. These games show intra-action in action both at the level

[188] Bull, "Just Steve."

of game mechanics and at the level of narrative. This allows us to see how other games, even those devoid of explicitly trans content, do this also.

Intra-action

I make frequent use of Karen Barad's notion of intra-action in this chapter. This, in addition to other concepts Barad uses in their theorization of a posthuman performativity, are particularly useful in thinking through how it is that videogames bring into being the bodies of the players who play them and also both physically and narratively demonstrate the entanglements that occur between bodies and other types of matter. Moreover, as I've argued throughout this project, new materialist frameworks like Barad's are particularly useful in theorizing transness. New materialisms counter the tendency in poststructuralist theories of gender, such as Butler's theory of gender performativity, of eliding the physical realities of trans embodiment by emphasizing discursive practices over materialization which, I argue, contributes to the metaphorization of transness.

Barad's agential realism proposes a posthuman model of performativity that seeks to incorporate "important material and discursive, social and scientific, human and nonhuman, and naturalcultural factors."[189] Put another way, a theory of performativity that not only takes into account nonhuman entities but also reinvigorates theories of performativity by fully accounting for matter. This makes possible a more nuanced theorization of the trans body, one that does not stop at the enactment of gender at the body's surface but also takes into account the way that trans bodies materialize in concert

[189] Barad, "Posthumanist Performativity," 808.

with a host of other matter, beings, and forces from the horses whose urine is used to manufacture Premarin, an estrogen supplement commonly used as part of hormone replacement therapy,[190] to the ways architectural practices, such as bathroom design, shape and are shaped by trans bodies.[191]

Barad's expanded notion of performativity asks us to see discursivity and materiality not as dialectical opposites but as intra-acting phenomena and this has enormous consequences for how we think about transness in and of itself and about the relationship between transness and videogames. Rather than adopting a representational mode of thinking (e.g.: how are trans people represented in videogames?) or a mode of thinking concerned with the effects of videogames on gendered embodiment (e.g.: which social conventions are embedded in videogames and how do these conventions come to produce material effects on the bodies of players?), Barad's posthuman performativity asks us to consider how it is that videogames materialize trans bodies through their intra-activity (e.g.: how do videogames and trans bodies materialize conjointly?).

In their excellent article on the different ways players play *Minecraft* on different types of devices (console, laptop, tablet, etc.), Schneier and Taylor provide an instructive example of how Baradian concepts might help us think differently about videogames. For Schneier and Taylor, intra-activity in this context centers on the relationship between players and platforms and apparatuses including objects like videogame controllers and touch screens that construct "phenomena along with human participants […] 'materializing the players' bodies in particular ways – eliciting and cultivating a shifting

[190] Hird, "Animal Trans."
[191] Crawford, *Transgender Architectonics*.

range of affects, bodily dispositions, and modes of perception and cognition."[192] I want to extend Schneier and Taylor's thinking to account for elements like game mechanics that are not material in the same sense that game controllers are but are equally impactful. I also want to extend their thinking to account for elements of multiplayer *Minecraft* on a large, public server like Quixol which are not accounted for in the small, private multiplayer *Minecraft* games Schneier and Taylor write about. Schneier and Taylor acknowledge that acting as observers of the players they studied changed the nature of the games they witnessed in keeping with Bohr and Barad's understanding of the materially consequential relationship between observer and observed. Unlike Schneier and Taylor, I not only witnessed players playing trans indie videogames and multiplayer *Minecraft*, I played these games myself, with those other players. In Quixol's *Minecraft* world, I built a home base, created a farm, chatted with other players, and participated in drop parties and other server-wide events. Therefore, I write largely in an autoethnographic mode in describing my intra-action with these games, with the understanding that, as a player, I both changed these games and was changed by them as I observed, wrote about, and played along with them.

Haimson et al.'s conception of trans technology emphasizes changeability as a quality a technology must possess in order to qualify as a trans technology. They align this with the material changeability of trans bodies – the way trans bodies are altered by means of a wide variety of technologies ranging from makeup to linguistic identifiers to hormone replacement therapy. Changeability is a key element, perhaps *the* key element, in *Minecraft* gameplay, as I will discuss later in this chapter. The very premise of

[192] Schneier and Taylor, "Handcrafted Gameworlds," 3423.

Minecraft, then, aligns it with trans technology. Playing on a specifically trans server highlights the trans potentialities that exist within the game itself. Along with other players, the game itself, and the specific server and world configurations constructed by Quixol's moderators (and created intra-actively with the server's non-moderator players and the game's affordances), I contributed to the changing and building of a specifically trans world. Schneier and Taylor posit that applying a Baradian framework to videogames calls attention to the blurring of boundaries between in-game play and off-screen life, positioning them not as wholly separate spaces but as components in a heterogenous loop. Changing and shaping this world, alongside other trans players, I participated in an in-game materialization of a trans world that shaped transness as I experience it outside of the world of the game as well.

Schneier and Taylor's work on *Minecraft* offers a way of thinking videogames through a Baradian framework. However, its focus on the impact of different devices on playing styles precludes a consideration of other factors that may shape play such as gender and race. In what follows, I think through Brice's *Mainichi* and Anthrope's *Dys4ia* in order to show how Barad's concepts can help us better understand videogames in terms of both gender and race vis-à-vis both narrative and ludology. On a diegetic level, *Mainichi* gives insight into the ways Black, trans lives can be understood in terms of a performance between the body, other bodies, and other matter; and *Dys4ia* serves as an example of how game mechanics shape embodied experience in order to create a felt sense of trans embodiment. I'm engaging narrative (diegetic) and ludological elements (physical interaction, game mechanics, etc.) separately here in order to trace out how the

two concepts operate vis-à-vis trans videogames before bringing them together in my analysis of *Minecraft* later in this chapter.

Mainichi

Mainichi ("everyday" in Japanese) is a game Brice created in order to "communicate daily occurrences that happen in [her] life."[193] It's a short, looping game that features a Brice-like avatar with a seemingly simple objective: get out of the house, walk down the street, and meet a friend for coffee. At every step in fulfilling this seemingly straightforward objective, the player must navigate obstacles related to the avatar's gender, race, and sexuality. Calling to mind Barad's insistence on the intra-activity of materiality and discourse, these obstacles cannot be understood, engaged with, or altered in the course of the game through attention to discursivity alone nor even the interplay between the discursive and the avatar's body but, rather, must be navigated with full attention to a whole host of material factors at play.

The game opens in the avatar's apartment at which point text on the screen reads: "Looks like I still have a couple hours before meeting up for coffee. Probably should start getting ready soon."[194] The player can choose to follow this directive and begin the avatar's long process of getting ready to go out which involves bathing, putting on make-up, and assembling a nice outfit from a meagre wardrobe. Or, the player can choose to guide the avatar toward other activities in the apartment like heating up some healthy leftovers (to which the avatar replies, "I haven't been eating too healthy lately") or taking a nap (which causes the avatar to admit, "I don't get enough sleep these days"). Should

[193] Brice, "Mainichi."
[194] Brice, *Mainichi*.

the player choose these self-care activities, the avatar is forced to leave the house without getting ready to make it to the coffee date on time. Leaving the house without getting ready has consequences. After leaving the apartment, the player must navigate the avatar down a crowded city street. If the player chooses to have the avatar get dressed and made-up before traversing the street, she is perceived as a Black woman and characters on the street will objectify her and ask her the kinds of dehumanizing questions Black women all too frequently encounter, such as "You have such cool hair! Can I touch it?" or "Hey there, sexy. That's such a hot dress. Can I talk to you?" If the player chooses to prioritize other aspects of the avatar's self-care, she will be perceived as a Black man and most of the characters on the street will subject her to the distrust and dismissal routinely directed at Black men by ignoring and/or backing away from her. One character, however, yells a slew of racist and transphobic insults.

In these two scenes that open the game, the avatar's race and gender are constituted and reconstituted by and through the matter she engages with. The presence of make-up on her face or a particular piece of clothing worn on her body in combination with her hair and skin color determine whether she moves through the world as a Black woman, a Black man, or as a Black gender nonconforming person. The space of the city street and the individuals populating it collide with the material of the avatar's body and its accoutrements to make these determinations by attaching prior knowledge to these components of her self-presentation. It is possible to intervene, to a limited extent, in how the avatar is received on the street but that intervention must be made through a changed approach to the material conditions of the avatar's body. Moreover, Brice's narrative makes clear that the labor required to change the perception of her racialized and

gendered body comes at the expense of other important aspects of self-care. This brings attention to the matter of the trans body that goes far deeper than surface effects and permits asking how stressors that occur as a result of that labor such as lack of sleep and inadequate nutrition might be considered as part of trans embodiment.

In the third scene of the game, the Brice-like avatar arrives at the coffee shop and heads to the counter to place an order. The player can choose whether to have the avatar pay with cash or a credit card. If she pays with cash, the cashier replies with: "Have a nice day, Miss!" (or, if she doesn't have make-up on, Sir). However, if she pays with her card and is wearing make-up, the cashier stumbles over her form of address: "Thanks, Mis… uh, Sir… uh, Brice." This sets up a series of events in which she goes to get her coffee from the "cute barista" who either flirts with her and asks her out if she has been perceived as a woman throughout the game or hands her her coffee and walks away if at any point she has been perceived as a man. Depending on the outcome, the avatar finishes the game either by sitting down at a table with her friend to talk about her upcoming date with the barista or to tell her about how depressed she's been feeling recently.

Turning to Barad again helps us to understand the significance of this scene. Here, the avatar's credit card, a small piece of plastic which we might think has nothing to do whatsoever with the avatar's body or her gender comes to have very real effects in terms of how she is gendered by others and the possibilities that are opened or foreclosed to her based on that gendering. In addition, the reactions of people on the street, the cash, the credit card, the cashier's reaction (or non-reaction), and the avatar's clothing and makeup work together to either produce desire in the cute barista or forestall it, enmeshing desire

with a whole host of matter we might not typically associate with desire. Lastly, the avatar's general emotional state (whether excited or depressed) can be understood as the result of this long line of material and discursive intra-actions, bringing the interiority of the body into contact with matter we generally think of as exterior and unrelated to it.

In *Mainichi*, Brice presents Black, trans life such that the player's attention is drawn, inevitably, to the material realities of such a life and the ways that something as seemingly innocuous as a piece of clothing or a small, square piece of plastic can alter the possibilities or foreclosures that shape that life on a day-to-day basis. This helps us understand, at the level of narrative, the intra-action of trans bodies and other bodies and non-human matter. But, more than that, she asks us to encounter her life through a digital role-playing game, and we have no choice but to grapple with the material aspects of that game (game mechanics, etc.) if we are to experience her story. That we encounter her story through the game's materiality impacts how we understand that story. Beyond the narrative, perhaps the most striking aspect of *Mainichi* is the game's looping nature. Once the player progresses to completing the scene in the café, a process which requires approximately five minutes of gameplay, the game simply starts over again in the avatar's apartment with no change to the narrative scenario, the actions available to the player, or the outcome. Invariably, time after time, once the café scene ends, the game starts over again in the avatar's apartment, no matter how many times the game is played through. For Black trans women, the game's mechanics tell us, this day – with its Hobsonian choices, frequent microaggressions, and public harassment – is every day. Building further on the innovative use of game mechanics in indie trans videogames, I turn next to an analysis of Anna Anthrope's *Dys4ia*.

Dys4ia

Double clicking on the desktop icon for Anna Anthrope's Flash game *Dys4ia*,[195] a window pops open beckoning me to "click here to play!" I hover my mouse over the invitation and left-click. A loud crackling sound explodes from my laptop speakers followed by a jangly tune reminiscent of the music featured in the Atari arcade games I played as a kid. Brightly colored, heavily pixelated letters flash and float onto the screen, reading "Auntie Pixelante presents… *Dys4ia*." Auntie Pixelante is a fitting moniker in the context of this autobiographical game that traces the Anthrope's journey through the early days of her medical transition, much of which is navigated and negotiated through digital technologies within the context of this digital game, producing pixelated screens within pixelated screens. In one of the game's vignettes, the player must successfully place an order for the avatar's Estradiol prescription from an online pharmacy. In another, the player fields a text message from her sister: "It's your sister. I read on the internet you're taking hormones? Why?"

The trans politics on offer in Dys4ia recall Eliza Steinbock's reading of the experimental film *Dandy Dust*. Invoking Spinoza's proposition that "we do not yet know what a body can do," Steinbock finds a transgender politics in the film's refusal to "provide closure to meaning as well as to the subject's ontology" leading to a "groping research for new subjectivities."[196] Whereas Steinbock locates this politics in *Dandy Dust*'s filmic qualities, I find a version of this politics in *Dys4ia*'s formal qualities as a videogame and also in the intra-active performative engagement it requires of players.

[195] Anthrope, *Dys4ia*.
[196] Steinbock, "Groping Theory," 115.

Through its peculiar game mechanics and its lack of clarity around subject position, the game offers a politics of groping research for new subjectivities, or what Barad might call a kind of becoming or materialization. Furthermore, this game reveals potentialities that are present in videogames broadly speaking. Through an analysis of *Dys4ia*, we can identify characteristics specific not only to this one game but of broader significance to our current mediatechnological environment that demonstrate its capacity for contributing to the creation of new and emerging modes of embodiment and subjectivity.

Dys4ia is, narratively speaking, an autobiographical game about medical transition. In Anthrope's words the game is, "the story of the last six months of my life: when i made the decision to start hormone replacement therapy and began taking estrogen." (Anthrope blog). The game has four chapters the player must move through sequentially: "Gender Bullshit," "Medical Bullshit," "Hormonal Bullshit," and "It Gets Better?" In one vignette at the end of the first chapter, the player moves a bright yellow sun toward and through a dark cloud which blocks the sky. Text at the top of the screen, above the cloud reads "Maybe I should finally go on…" As the sun obliterates the cloud, the word 'hormones' appears, to complete the sentence. Narratively speaking, the game appears to invest in the trans medical model.

At first glance it is tempting to read it simply as a digital continuation of the genre of trans literary autobiography which was a primary form of trans cultural production in the mid-20th century in the United States. Trans autobiographies from this period have been taken up with great frequency in transgender studies scholarship (see Spade,

Prosser, Aizura, Irving, Stone).[197] Many of these autobiographies were written by participants in gender identity clinics and resonate with what Dean Spade refers to as the "standard transsexual narrative."[198] Which is to say that because the authors of these autobiographies needed to be viewed favorably by clinic doctors in order to be approved for or continue accessing transition-related medical care, their narratives appear custom tailored to the expectations of those doctors. Most implicitly promise that after medical intervention they would go on to live gender normative, heterosexual, economically productive lives.[199] Even as trans healthcare moved (although unevenly) beyond the early case-by-case clinic model, into the Harry Benjamin Standards of Care model[200], and finally into an informed consent model,[201] the standard transsexual autobiographical narrative has persisted and can be witnessed in many examples of contemporary trans cultural production.

Although *Dys4ia* is autobiographical, it does not remain fully faithful to the standard transsexual narrative. *Dys4ia* makes no attempt to downplay Anthrope's queerness, making frequent mention of her girlfriend who accompanies her to her initial clinic appointments and tells her she is beautiful when she is feeling awkward. Further, Anthrope's disdain for the complex process of navigating transition-related medical care

[197] Spade "Mutilating Gender;" Aizura *Mobile Subjects*; Prosser *Second Skins*; Stone "Empire Strikes Back;" Irving "Normalized Transgressions."
[198] Spade, "Mutilating Gender," 320.
[199] Stone, "The Empire Strikes Back," 227.
[200] The Harry Benjamin Standards of Care are a set of guidelines developed from the case studies and clinical practices of American endocrinologist and sexologist, Harry Benjamin, who worked extensively with trans clients in the mid-20th century. The standards promote a sequential, triadic therapy model beginning with a "real-life experience" test requiring the client to live for a year in their chosen gender before administration of hormones and finally genital surgery.
[201] The informed consent model is legally-defined model in which the client is given thorough information about medical gender confirmation procedures and, after signing a consent and release form, is granted access to a personalized set of therapies potentially including hormones and/or surgery.

is quite evident in the game from the chapter titles to the content of the vignettes. For example, in a scene that occurs after the Anthrope character finally succeeds in being prescribed hormones, we enter a vignette in which each shake of a pill bottle labeled Estradiol[202] releases a pill with a corresponding high-pitched "ahhh" sound followed by a deep-voiced grunt as the pill falls into the avatar's mouth. All the while, a pixelated image of a human liver sits to one side of the screen with text above it which initially reads "100% liver" but decreases by one percentage point each time a pill is taken. In this scene which lasts no more than a few seconds, numerous, conflicting aspects of trans lived reality careen against each other. The attachment of the pills, via the gender identity clinic, to a normative notion of femininity comes into contact and contrast with the Anthrope avatar who receives the pills with a low grunt, forcing the player to acknowledge the complexity of trans embodiment and its incompatibility with preexisting gender norms. The relief and hopefulness of beginning hormone replacement therapy sits uneasily alongside the unknown medical complications that might result, calling attention to the uneasy relationship between trans people and a medical establishment which offers possibilities for gender-confirming care but simultaneously underfunds and deprioritizes trans health care and research.

On the level of narrative, then, *Dys4ia* superficially appears to follow the "standard transsexual narrative" but, upon closer inspection, succeeds, to some degree, in subverting it both at the level of the narrative itself and through the specific technological affordances the form of the videogame offers such as juxtaposing image, sound, and text.

[202] Estradiol is an estrogen sex hormone frequently prescribed to transwomen as part of hormone replacement therapy.

Just as it subverts the standard trans narrative, so too does it subvert the notion of what a game is. To call *Dys4ia* a game is a stretch, as it is difficult to place in any traditional game category. As mentioned earlier, Juul describes a game, in its most basic form, as "a rule-based system with a variable and quantifiable outcome; where different outcomes are assigned different values; and in which the player exerts effort in order to influence the outcome, the player feels emotionally attached to the outcome, and the consequences of the activity are negotiable." According to this definition, calling *Dys4ia* a game is a generous use of the term: *Dys4ia* fails to meet the majority of Juul's criteria. For starters, it doesn't have a variable outcome. In the game, Anthrope initiates and struggles through the early stages of hormone replacement therapy. No action on behalf of the player can alter these developments. With no variability in outcome, there can be no differing value assigned. The player is prompted to exert effort but the consequences of the activity are not negotiable.

In one scene early on in the game, I'm greeted by the outline of a large, burly figure wearing a small, yellow shirt that has been half pulled on. An arrow on the back of the shirt points downward. I take this to mean I should press the down key. When I do so, the figure tugs on the shirt and emits a frustrated groan. The shirt, however, doesn't budge. I press the down key again, but the result is the same. I jab furiously at the down key but no matter how quickly or how many times I do so, the result never changes. "Girly clothes," the text on the screen reads, "don't fit." Just as Anthrope struggles to find gender confirming clothing to fit her body, I struggle to alter the outcome of the scene. There is no possibility for success. The result will not change.

Numerous game theory scholars have grappled with the task of theorizing games like *Dys4ia*. Sebastien Genvo coined the term "expressive games" to account for "games that explore cultural, social, and psychological issues from an individual's perspective, in order to foster empathy, encourage reflection, and raise questions, while entertaining."[203] This is an apt description of the content and overall effect of *Dys4ia* but the game is designed such that it frustrates as much if not more than it entertains. Elise Vist reads these types of games as "cyborg games" or, games in which normative players "are confronted with a space they don't fit into" and that create "feelings of disorientation […] by twisting the tropes and forms of videogames."[204] This is perhaps the best theoretical fit for *Dys4ia* in that it accounts for the ways the game creates feelings of disorientation and twists videogame tropes and forms. However, the game works not only through negation (of familiarity or comfort) but also by offering the player the opportunity to rehearse and experiment with different forms of embodiment.

This rehearsal of and experimentation with different forms of embodiment does not, however, conform to the type of play that takes place in mainstream videogames. Many mainstream videogames aim to create a sense of seamless merging of the body of the player and their avatar. Based on this, it may be tempting to read players playing as a different gender in mainstream games as a trans process. *Dys4ia* points us away from such a reading in its refusal to allow any such seamless merging. By means of its inconsistent game mechanics and frustrating scenarios, *Dys4ia* introduces trans friction, demanding that the player remain conscious of their own embodiment, all the while

[203] Trépanier-Jobin, "Differentiating Serious, Persuasive, and Expressive Games," 112. See also Genvo, "Defining and Designing Expressive Games."
[204] Vist, "Cyborg Games."

encountering affects, movements, and modes of being that call into question any static or stable sense of that embodiment. It is clear that we cannot think about *Dys4ia* as a game in the traditional sense and that mainstream games and existing theories of similar types of games will only carry us so far. I want to posit that this refusal to conform to the formal aspects of a videogame is part of *Dys4ia*'s trans politics, one of the ways it performs a groping research for something new. If *Dys4ia* can't be easily understood as a videogame, it is necessary to look to something other than game studies scholarship in order to arrive at a better understanding of it. It is here that I want to suggest a turn to performance theory as a lens through which to consider what *Dys4ia* is and does.

Kiri Miller writes that videogames constitute a form of "playing along" between game designer and player such that "each player collaborates with game designers to turn code into virtual performance."[205] She asserts that the "embodied knowledge" of game designers can "bridge space and time," creating a form of "sensational knowledge" that is performed by the player. For Miller, this process creates "connections between dispersed and diverse individual human experiences."[206] Although I find Miller's theorization of the passage of embodied knowledge between game designer and player useful, I want to push further on this idea by bringing in Barad's notion of intra-action. Miller's theorization posits something of a straight line of connection (bridge) between designer, at one end, and player, at the other. This connection is unidirectional, transmitting embodied knowledge from designer to player, mediated through code. This embodied knowledge is performed by the player in the context of the game and although something

[205] Miller, *Playing Along*, 5.
[206] Miller, 4.

of this knowledge may remain when the game has ended, the player's off-screen body remains unchanged. Intra-action, however, is multidirectional, meaning that the embodied knowledge Miller writes about passes not just from designer to player but back again, materializing designer, player, and the code through which they connect in the process. The link between them is not a one-way bridge but rather a wide open space that extends in multiple directions creating an ongoing dynamic which doesn't span space and time but rather enfolds and reinvents both. This is because videogames, like other apparatuses Barad writes about are open-ended practices. *Dys4ia*, then, not only creates a sensational, embodied experience of the lived realities of its trans creator, but also reconfigures the body of the player.

In *Dys4ia*, the primary feeling captured is one of frustration. As Anthrope describes it, "*Dys4ia* is, in many ways, a game about failure" in that it sets a goal for the player "making it seem achievable and then robbing you of the ability to achieve it."[207] The sense of frustration in the game is fostered by its peculiar mechanics. Although the four arrow keys are the only keys needed to play the game, the function and availability of the keys changes from each vignette to the next. In one scene, all four arrow keys might work to move the avatar around the screen but in another, only the down key will work. The player must figure out which keys work and what pressing them will do in each scene as opposed to conventional videogames in which each key or button has a fixed purpose or set of purposes and operates consistently throughout the game.

[207] Osit, "Games You Can't Win."

Media scholar micha cárdenas writes that learning the game mechanics in each of *Dys4ia*'s vignettes mirrors the process a trans person goes through when medically transitioning in that it is "very similar to the experience of [accessing] hormone therapy, where each new obstacle: psychiatric therapy, doctor visits, personal relationship issues, must be deciphered and figured out, like a game, yet each game has its own unique set of rules and mechanics."[208] I want to push further on this point to suggest that the game mechanics in *Dys4ia* not only mirror the experience of medical transition but also give the player a felt sense of that experience and, in so doing, reconfigure the body of the player.

In one series of vignettes in the "Medical Bullshit" chapter, Anthrope begins the long process of accessing prescription hormones. In the first vignette, the onscreen text reads "Now to find a good clinic." The screen is dotted with clinic buildings and a giant magnifying glass sits off to one corner. I find that all four arrow keys work in this scene to move the magnifying glass around. I move it around aimlessly for several seconds until one of the buildings blinks purple and a voice emerges from the soundtrack shouting "ding ding ding!" In the next vignette, text at the bottom of the screen reads "one that doesn't force me to take a psych exam." A pencil hovers next to a sheet of paper on a clipboard. Here, only the down key works and my only option is to use it to scroll through and answer a number of questions: "Are you a woman?", "Are you sure", "Are you really sure?" The pencil finally hovers next to a line reading, "I don't believe you," it produces an irritated scribble and then cracks in half. "Or jump through too many hoops"

[208] cárdenas, "A Game Level Where You Can't Pass."

the next screen reads as I learn I can only use the up and down keys to navigate a flying Anthrope avatar through a series of hoops. Only after completing this series of tasks does Anthrope finally land an appointment. In the next scene, the Anthrope avatar, wiggling with excitement, waits in a clinic waiting area. I can use all four arrow keys to move her anywhere I choose but the scene around her, composed of a few chairs and a couple of other patients, remains static. A set of doors bars entry to the medical provider area beyond the waiting room. A clock on the wall counts down from 5. There is nothing I can do to speed this scene up or gain access to the doctors' offices behind the doors. All I can do is wait out the clock.

Anthrope's experience of accessing hormone replacement therapy involves searching, fielding seemingly endless questions, and spending periods of time waiting, all while learning the new rules and expectations that correspond with each part of the process. Playing *Dys4ia*, I experience these very things. I search, I answer questions, and I wait, all while struggling to learn the new rules and game mechanics required in each scene. I become, to quote David Saltz's work on computer-mediated, immersive environments, "a live performer in the work."[209] The game does not merely inform me about the process Anthrope went through to begin medical transition or mirror that process, it asks me to engage in parallel processes, transforming Anthrope's embodied knowledge into a type of sensational knowledge I experience bodily, thus rematerializing my body.

[209] Saltz, "The Art of Interaction," 117.

This passage of embodied knowledge and rematerialization of the body contributes to one of the most disorienting aspects of playing *Dys4ia*: its lack of clarity around subject position. Having clicked to begin playing the game, I arrive at a screen that addresses me, the player, directly. It reads: "This is an autobiographical game about my experiences with hormone replacement therapy." This tells me this is a game by and about Anthrope and I, as a player, expect that I will learn about her experience from the relative comfort and safety of my own subject position (in this case as a trans person for whom the awkward, early days of HRT are long past). In the very first scene of the first chapter this becomes much less clear. In this scene, I am directed (by an arrow onscreen) to move a Tetris-like shape past a gap in a brick wall through which it scarcely fits. Meanwhile, text appears at the bottom of the screen which reads "I feel weird about my body." As a player, I am addressed by the arrow. In effect, it hails me as a 'you' that is not Anthrope. I understand the text below to be specific to Anthrope's experience, she is the 'I' to whom the text refers. But in attempting to move the shape through the mismatched gap, I begin to feel weird too: frustrated by how difficult it is, worried about whether or not I will succeed, uncertain if I'm even playing the game correctly. In carrying out this action, I experience a felt sense similar to what Anthrope describes as her experience of gender dysphoria and the line between us begins to blur. This blurring increases throughout the game.

To account for this blurring and felt sense that passes from game creator to avatar to player in *Dys4ia*, I want to turn to affect theory. As Schneier and Taylor note in their Baradian analysis of *Minecraft*, one of the elements of a videogame that contributes to

the materialization of players' bodies is "a shifting range of affects."[210] In line with Schneier and Taylor, I am thinking about affect here not in the sense of making claims about the nature, prevalence, or work of specific, identifiable emotional states (as in affect theory that follows from Silvan Tomkin's work) but about the pre-textual, pre-linguistic bodily force that follows from the work of Spinoza and Deleuze. Two specific concepts from affect theory could be of assistance here: bodies and transmission. Affect theory's theorization of bodies helps in moving beyond the human body as the means by which embodied experience is transmitted. Seigworth and Gregg caution against thinking about the body as defined by "an outer skin-envelope" but rather advocate that we define the body as that which has the "potential to reciprocate or co-participate in the passages of affect."[211] Thinking about bodies this way allows a means of conceptualizing the relationship between digital bodies and human bodies and the passage of felt sense between game creator, player, and avatar. Further, as Eric Shouse points out, affects are distinct from (prior to) identifiable feelings and can be passed between bodies. [212]

In *Dys4ia*, mediating between player and game creator are the different renderings of the Anthrope avatar in each of the game's vignettes. In some scenes, this avatar takes the form of a Tetris shape; in others she is a broad-shouldered, big-bellied hulk; in still others, she appears as a shield warding off cruel words from trans exclusionary feminists. In one particularly fascinating scene, the Anthrope avatar takes the shape of a squiggly, cephalopod-like creature. Text at the bottom of the screen reads, "sometimes I can almost

[210] Schneier and Taylor, "Handcrafted Gameworlds," 3423.
[211] Seigworth and Gregg, "An Inventory of Shimmers," 2.
[212] Shouse, "Feeling, Emotion, Affect."

see myself as beautiful as my girlfriend says I am." My role, as player in this scene, is to move the avatar past a series of mirrors which reflect different shapes back to her: a dinosaur head, a large shield, a shapely feminine figure, and finally a reflection matching the squiggly cephalopod avatar. I read these reflections as sense images induced by infolded stimuli of varying intensities, both internally and externally generated: an amalgam of Anthrope's own desires and anxieties; her girlfriend's affection; the derision of the trans exclusionary feminists who appear in the game; the impassivity of the doctors with whom she engages. These images form the new subjectivities at which the Anthrope avatar gropes. I, as player, play along with Anthrope in this research, opening up the possibility of performing my own research, my own groping for new subjectivities. And, this is where *Dys4ia* perhaps most clearly offers a trans politics of deterritorialization and experimentation, in this pushing at the boundaries of discreet subject positions. This particular game does so through a trans-specific narrative created by a trans game-maker but the mechanics underlying the game, the way it achieves this effect, reveal the ways in which these potentialities are present in videogames generally speaking.

In this section, I've thought and played along with Anthrope's *Dys4ia* through a Baradian framework in order to bring attention to ludological elements of videogames such as game mechanics that contribute to the materialization of the body of the player. Taken together with Brice's *Mainichi* and its emphasis on intra-activity at the level of narrative, we can begin to chart a path for how to rethink videogames from a trans perspective and demonstrate the ways in which videogames might be a trans technology. These two games were created by trans game designers who, in order to give a sense of trans experience and embodiment via the form of the videogame, found it necessary to

challenge accepted notions of what a videogame is in the first place. They do this by their refusal to conform to the standard logic of such games (in terms of player agency, stable rules, etc.). I argue that this refusal to conform to the logic of videogames does not make these games not-games but rather points to qualities already inherent in videogames that escape notice when viewed through a lens that does not take transness into account.

My argument here is three-fold: that there is something always already trans about videogames as a medium, that trans game designers and players often push back against videogame conventions in order to make this evident, and that trans theory and experiences are necessary lenses through which to better understand what videogames are and how they work. Lest this seem like a circular or convoluted argument, I turn to the work of queer game studies scholars who have made similar arguments about the necessity of turning to queer theory and queer experience in order to better understand videogames which are always already queer. In *Videogames Have Always Been Queer*, Bonnie Ruberg argues that putting videogames into dialogue with queer theory not only "reveals the deep-seated resonances between queerness and games"[213] (videogames are always already queer) but also calls attention to the lack of a queer critical perspective in game studies. Further, Ruberg explores the potential of indie queer games like *Realistic Kissing Simulator* to disrupt long-held game design conventions in order to bring queerness even more to the fore. My approach to thinking videogames transly owes much to queer game studies scholars like Ruberg. However, although the work produced by queer game studies scholars has, to date, been trans inclusive, like Haimson, et al., I find it necessary to consider how it is that videogames might function as a trans technology in

[213] Ruberg, *Video Games Have Always Been Queer*, 2.

a way that includes but is not limited to queer aspects and insights. In the brief section that follows, I will consider the contributions of queer game studies to thinking about trans games like *Dys4ia* and *Mainichi* and will consider as well as what a specifically trans game studies might look like.

Towards a Trans Game Studies

Queer game studies is an emerging subfield of videogame studies developed by scholars including Bonnie Ruberg, Edmond Chang, and Amanda Phillips. In the introduction to *Queer Game Studies*, Ruberg and Adrienne Shaw describe the field as "drawing on the insights of queer theorists from Judith Butler to Jose Esteban Muñoz" and centered on "imagining game studies otherwise, by studying games queerly in addition to studying queer game subjects."[214] Ruberg and Shaw write that approaching games queerly "lays claim to videogames of all kinds" (not just overtly queer games), "challenge[s] a variety of dichotomies that have long structured how scholars and designers alike understand games" (e.g. narratology/ludology, etc.), and "refigures games as systems of pleasure, power, and possibility, excavating the queer potential that can be found in all games"[215] These insights, methods, and approaches are useful for thinking games from a trans perspective and, indeed, as queer game studies has taken shape, it has been trans inclusive (for example, kopas and Brice are both contributors to the *Queer Game Studies* collection). However, just as Haimson, et al. found a need to highlight the specific trans affordances a social media site must offer in addition to queer affordances

[214] Ruberg and Shaw, *Queer Game Studies*, x.
[215] Ruberg and Shaw, *Queer Game Studies*, x.

in order to be understood as a trans technology, so too is it necessary to take a step away from the insightful contributions of queer game studies in order to think games transly. In what way might a trans game studies differ from or build onto queer game studies? How might we understand videogames transly?

Naomi Clark's contribution to Ruberg and Shaw's collection was instructive to me in beginning to answer this question. Clark's essay titled "What is queerness in games, anyway?" seeks to theorize how we might approach videogames queerly. Clark begins by noting two dominant streams in queer game studies: representation (the inclusion of queer characters in games and of queer game makers in the broader industry) and structure (queering the formal qualities of games). Although Clark acknowledges that calls for increased representation are more complex than analyses that link representation to assimilation allow for, she focuses in the essay far more on the question of queer structure. In terms of queering the structure of games, she draws on ideas from several game designers to posit that queering games structurally might entail strategies such as deconstructing existing game genres in order to subvert the conventions that underlie them and locating unspoken norms in games in order to destabilize those norms and open new sets of possibilities.

For Clark, these strategies offer an intervention into the ludology vs. narratology debate that has been a focus of videogame studies since the late 1990s. This debate is characterized by a series of theoretical arguments by scholars who prioritize the importance of narrative in games (storylines, dialogue, characters, etc.) and those who prioritize the importance of ludology in studying games (systemic structure, formal

elements, rules, mechanics, etc.)[216] She writes, "the two sides of formal/narrative dualism are often described as being in an irreducible tension that designers must do their best to manage or mask, lest 'ludonarrative dissonance' color the player's experience."[217] Ludonarrative dissonance is a commonly used phrase in game studies that refers to a conflict between a game's narrative and its modes of play. For Clark, queer games intervene in this binary debate by means of creating new forms of interplay between narrative and ludology. A good example of this is the looping function in *Mainichi*: the narrative appears to unfurl in the usual fashion of role playing games (the player reads in-game text about the situation at hand, then is asked to make a choice which leads them to additional text and a new choice, and so on) but the player's progression through this otherwise conventional RPG structure is frustrated when they are ceaselessly directed back to the opening scene. In this way, Clark argues, "queer game creators have already imagined queer modes of gameplay in which ludonarrative dissonance, at least, is not a vivid concern."[218] Further, she writes that "it's only when looked at in context, clothed in flesh" that we can see "that new relationships between different aspects of games can arise from queer modes of creation."[219]

[216] At its core, the ludology vs. narratology debate is a response to methodological concerns (how should videogames be studied?), field formation concerns (what does a newly developing Game Studies field have to offer that other fields that study games – English, Cultural Studies, etc. – don't?), and definitional concerns (to what extent are games texts vs. rule-based structures?) This debate has been ongoing for the past 20 years and, in the words of game studies scholar Susana Pajares-Tosca, has become "boring." (Pajares-Tosca, http://hypertext.rmit.edu.au/dac/blog_archive/cat_oddments.html) However, it has had the effect of creating in the field of Game Studies a binary tension between ludologists and narratologists and has structured thinking about videogames along a similar binary.
[217] Clark, "What is Queerness in Games Anyway?," 8.
[218] Clark, 9.
[219] Clark, 9.

What is noteworthy is that the majority of the games Clark analyzes to support this argument are games created by trans game designers with trans themes, including games by Anthrope, Brice, and kopas. My argument, then, is that what Clark is actually finding in the games she analyzes is a specifically trans potentiality we can find when we look at games as "clothed in flesh" which is something more akin to Behrenshausen's "fleshy communion" than to the specifically queer potentialities of games Clark describes at the beginning of the article such as locating unspoken norms and undermining convention. In their work on tracing the contours of trans technology, Haimson et al. locate specifically trans elements (changeability, network separation, identity realness) and specifically queer elements (multiplicity, fluidity, ambiguity) that work together to make a specific technology (in their specific case study, Tumblr) trans.[220] I find their separation of these qualities instructive. The qualities they describe as specifically trans are qualities that refer to the material dimensions of bodies (bodily change, identities that become real through embodiment). This stands in contrast to the queer elements they identify which suggest play and performance (fluid bodies, ambiguous identities). The way Haimson et al. are thinking about the distinction between queerness and transness in technological terms resonates with efforts by trans studies scholars to create trans theory that works in tandem with queer and feminist theories but also makes interventions of its own that neither queer or feminist theories can. In thinking about videogames as a trans technology, then, I argue that there must be an emphasis on materiality and embodied experience in addition to the qualities of games queer game studies scholars have identified.

[220] Haimson, Dame-Griff, Capello, and Richter, "Tumblr Was a Trans Technology," 2.

Thinking of videogames as a trans technology in this way prompts a different way of engaging in ludology vs. narratology debates. For Clark, this debate represents a binary. Confronting binaries is a cornerstone of queer theory but I argue that binaries can and must be thought differently vis-à-vis trans theory. Queer theory exposes and/or eschews binaries (male/female, gay/straight, gender/the sexed body), whereas trans theory holds the promise of demonstrating how deeply interwoven the concepts composing any given binary are. The ludology vs. narratology debate echoes and rehashes other debates with which we are familiar, in particular the materiality/discourse debate Barad aims to intervene in. One possible distinction we might trace between queer and trans theory, then, is that trans theory dives into this and similar debates not by focusing on the fact of the material/discursive (or any other) binary itself but rather by demonstrating the intra-action of the terms of that binary (material and discursive) in a way Barad can help us make sense of. Following this line of thinking, a trans approach to other binaries like gay/straight, male/female, sex/gender would not be outright eschewal but rather demonstration of the deep intra-action between the terms constituting the binary in the first place (especially gender/the sexed body) in which the two are interdependent and come into being and meaning with and through each other and with a whole host of other concepts, bodies, matter, etc. Using this mode of thinking, trans theory, rather than eschewing binaries, complicates them to such a degree that the concepts composing the binary cease to be in a position of binary tension. Thinking videogames transly, then, does not demonstrate that ludonarrative dissonance "is not a vivid concern" but, rather, that ludology and narratology are intra-acting phenomena in videogames we might think of as trans or as having trans potentialities as is demonstrated

in the analysis of *Mainichi* and *Dys4ia* earlier in this chapter. In the final section of this chapter, I will show how trans *Minecraft* players make use of ludonarrative potentialities embedded in the game in order to play the game transly and how this has material effects well beyond the confines of the game itself.

Minecraft

While researching this chapter, I spent countless hours learning and playing *Minecraft* on a multiplayer server called Quixol that describes itself as "a trans-friendly gaming community for LGBT+ and neurodiverse people to call home."[221] Whereas the indie trans videogames described earlier in this chapter are solo-authored/solo-distributed; meant to be played by a single player; and center largely on visual imagery, textual narrative, and game mechanics, Quixol is a multi-sited community centered mostly around *Minecraft*, itself a complex game with near limitless possibilities. In addition to running a 24/7 Minecraft server, Quixol staff maintain a website, an active Discord server,[222] a Dubtrack community,[223] and an active Tumblr presence.

Minecraft is a sandbox game, meaning a game in which players can create, destroy, and otherwise engage with their environment in a multitude of ways, with no set objective in mind (although *Minecraft* does have a reward system that can create a path through the game, should the player choose to engage with it). This stands in contrast to other types of games in which players are limited in terms of the modifications they can

[221] Quixol website.
[222] Discord is a platform for videogame communities that allows users to communicate using text and image as well as video and VoIP.
[223] Dubtrack was a social DJ site which allowed users to share music playlists. Dubtrack recently shut down, at least temporarily. Quixol moderators are seeking another site to allow players to share and listen to music together while playing.

make in the world of the game (only some objects can be moved, changed, or used while others can't) and in which players are expected to fulfill a certain set of objectives (defeat the dragon, rescue the princess, etc.) in order to win or complete the game. In engaging with *Minecraft* worlds, players have a tremendous amount of freedom to build, craft, destroy, and make changes. Some of the activities players may choose to engage with are mining (digging in caves and collecting different types of stones and elements), chopping down and replanting trees, farming and keeping livestock, building structures ranging from simple houses to detailed replicas of famous locations, battling hostile mobs (creatures like zombies and skeletons that spawn in low light levels), fishing, crafting (creating tools and weapons from objects collected during gameplay), brewing potions, enchanting, and creating complex objects like rollercoasters and automated farming rigs from an element called "redstone" that acts a power source.

In her aforementioned essay on where and how we might find queerness in games, Naomi Clark concludes with a consideration of various attempts to assimilate games themselves (using them in educational settings, academic and artistic validation, etc.) She cautions that "in light of movements to rehabilitate and instrumentalize games for productive ends, we must ask what we are losing in the rush to raise games out of the scorned red-light district of trivial, immature pleasures."[224] For Clark this rush to assimilate games points to a tension between productivity and market forces, on the one hand, and, quoting Eric Zimmerman, the "disruptive power" that makes games so special in the first place, on the other. *Minecraft* is one of the most commercially successful videogames of all time, as of May 2019 it had sold more than 176 million copies

[224] Clark, "What is Queerness in Games Anyway?," 12.

worldwide making it the best selling game ever released by unit sales.[225] In this section, I argue that, despite its corporate and economic success, *Minecraft* nonetheless offers potential disruptive powers: in particular, the opportunity it provides players to imagine and craft not only elaborate in-game structures but also to imagine and craft themselves, both within and beyond the world of the game (which, recalling Schneier and Taylor, are not separate spheres but components in a heterogeneous loop).

By attending to the technological choices made by both moderators and players that structure game play on QuixolMC, we can see how such choices intervene in the social process of trans subject formation. Referring back to Barad's notion of intra-action, this should not be understood as a unidirectional process: just as players on the Quixol server are shaped as trans subjects by these technological choices, so too do they, as subjects, contribute to the further shaping of game play. Moreover, because of its ludic qualities and the power of videogames to rematerialize the bodies of players, *Minecraft*'s disruptive potentialities are not limited to the game itself. Players use ways of being in the game world (interaction with other players, in-game identity and embodiment, world building) to materialize ways of being in the world beyond the game. In this, we can see how *Minecraft* functions as a trans technology and how these potentialities might be present or might be cultivated in other mainstream games as well. This is not to suggest that *Minecraft* should be understood as a game that is fundamentally utopian – a number of scholars have pointed to aspects of the game that are anything but (more on this later). My argument is simply that the game offers possibilities for a play style composed of

[225] Valentine, "Minecraft Has Sold 176 Copies Worldwide."

intra-acting ludic and narrative elements that are shaped by server-level technological choices and that extend beyond the world of the game.

As we will see, QuixolMC has much in common with the notion of trans technology as theorized by Haimson, et al. First, it allows for network separation in that it's a semi-private server and players play using either the name attached to their Mojang accounts or using a customized in-game name on the Quixol server as opposed to being required to use a legal name. The narrative contributions of players both on QuixolMC and Quixol accounts on other platforms (Discord, Tumblr, etc.) support identity realness, allowing players to "be themselves" on Quixol platforms in ways that may be difficult or impossible in the world beyond the game. However, what interests me most here is changeability. From its inception, *Minecraft* has encouraged modding and hacking, offering a high degree of customizability. The game is written in Java, a popular and widely used coding language, and its End-User License Agreement confirms the rights of modders and hackers to tinker with the game.[226] And tinker they have, creating mods that change any and every aspect of the game from altering the blocky appearance of objects within the game to adding new types of blocks, items, and mob characters.

In one of the few pieces of scholarly writing that theorizes *Minecraft* from a queer perspective, Amanda Phillips finds queer possibilities in the game's queer forms of nature[227] and in the opportunities it allows for playing queerly (e.g. wandering the

[226] Mojang Studios, "Minecraft End User License Agreement."

[227] By this, Phillips is referring to the wonderfully bizarre landscapes generated by the game's algorithms and the game's non-heteronormative reproductive logics – animals in the game are not rendered as sexually dimorphic (animals produce offspring by being bred with any other animal of the same species) and hostile mob creatures spontaneously spawn in certain environmental conditions (low light, underwater, in caves, etc.) rather than through reproduction.

landscape rather than participating in activities like building and accumulating resources). I find a trans potentiality in the high degree of changeability *Minecraft* offers. This is a quality of the game that is of course available to all players, trans or non-; however, just as Phillips finds queerness in modes of engaging with *Minecraft* that are not limited only to queer players, I find a trans quality in the game's built-in opportunities for changeability and, in particular, the ways this changeability operates materially both within and beyond the world of the game itself.

Although Haimson, et al. note that "materiality also takes place in digital forms, on sites like Tumblr, which enable people to document real change through narrative practices like transition blogs," [228] they position materiality (bodily changes and subject formation) as something apart from narrative practices. For them, materiality (changing trans bodies and subjects) takes place outside the digital realm but can be expressed through the narrative practices (sharing of photos, text, etc.) digital spaces offer. In this conceptualization, not only are the material and narrative practices trans people engage in digitally held apart, they are positioned in a relationship of linear causality (eg bodily change occurs and then is documented on Tumblr). As I've argued throughout this chapter alongside Barad, one potential approach to trans theory involves viewing elements frequently constructed as a binary (materiality/narrative, etc.) as deeply connected and intra-acting. The indie trans videogames I wrote about earlier demonstrate the intertwined nature of materiality and narrative in trans lives and cultural production and QuixolMC allows us to see how this operates and creates material changes both within and outside of the world of *Minecraft*. Moreover, the elements identified in these

[228] Haimson, Dame-Griff, Capello, and Richter, "Tumblr Was a Trans Technology," 7.

intra-actions cannot be thought of as preceding each other but rather must be thought as coming into being through each other. The material realities of the players who play on Quixol come into being through and alongside the world of Ghalea: one does not precede the other. To Haimson et al.'s concept of trans technology, then, I would add that thinking videogames transly allows us to add another dimension: intra-activity.

Minecraft servers vary widely both in terms of the specific way the admins of each server modify the parameters of the game itself and in terms of the rules or, lacking rules, culture cultivated on each server. Although it is considered a vanilla server (in that players don't have to have access to a modified version of the game in order to join the server), Quixol's moderators have installed a number of pre-existing mods and have also created custom scripts that shape gameplay on the server in important ways. Quixol is a survival server meaning that players must find, store, and create their own resources and do so while fending off the game's various hostile mob characters. Players are aided in doing this by the specific modifications made by Quixol staff. For example, unlike in purely vanilla survival mode, when a player dies on the Quixol server (whether because they've been killed by hostile mobs or have fallen into a pool of lava, etc.) the items in their working inventory are kept by the player when the player respawns. Additionally, players can set a home base which they can teleport back to using the </home> command any time during gameplay (allowing them to travel far from home base without fear of getting lost) and creepers and ghast (hostile mobs that explode) do not cause damage to blocks (allowing players' builds to stand despite the server's survival mode settings). These are generous modifications that allow players to enjoy the challenges of survival mode while still cultivating the resources required to complete larger builds and

contribute to creating Quixol's world as well as thoughtfully engaging with their fellow players. In other words, Quixol prioritizes community and world-building over competition against the game.

The choices and structures that shape play on the Quixol server begin with efforts to support community building and, particularly, community building across difference. The server's rules, for example, are laid out very clearly on Quixol's website. Chief among them are a rule banning "discriminatory behavior/language."[229] On Quixol's server, this means "misogyny, racism, homophobia, transphobia, ableism, classism, religious intolerance, body/fat shaming, and/or discrimination against sex workers" as well as "more specific types of each of these things (i.e. transmisogyny, islamophobia, etc)."[230] Quixol staff highlight this as the server's most important rule, the breaking of which may result in being banned from the server altogether. The specificity of Quixol's rules contrast to other publicly accessible, survival-oriented multiplayer *Minecraft* servers I have played on which are focused on competitive play and have fewer rules (if any at all).[231]

This structuring of game play to enable community building is further developed during the server initiation process. The first time I logged onto QuixolMC, I was struck

[229] Quixol website.
[230] Quixol website.
[231] I write this with the caveat that I'm speaking anecdotally here. The servers I've accessed represent a very small percentage of the multiplayer survival servers in existence. Given the game's popularity, there are many, many such servers. Although there is a growing body of scholarly work on multiplayer *Minecraft* communities, most of it focuses on one specific community (a single server) or narrow types of communities (e.g. K-12 educational communities) rather than on aspects of public *Minecraft* communities overall. However, in participating in queer- and trans-oriented *MC* servers like Quixol, I had numerous conversations with other players about our experiences on public survival servers with the general consensus being that non-tailored survival servers are, overall, more competitive and violent and not as well moderated as servers like Quixol.

by the extent to which other players went out of their way to welcome me. Unlike starting a single player game in *Minecraft* or joining a less heavily moderated multiplayer survival server, Quixol asks new players to first complete a tutorial in a restricted area before joining the rest of the players in the server's main world. Upon my arrival in the tutorial area, multiple other players either used the in-game chat feature to send a welcome message or teleported their avatars to the tutorial area in order to greet my avatar and share basic survival gear with me (food items, etc.) As I found out later, this is common practice when new players enter the server for the first time because the server's criteria for moving up in rank encourage it. Quixol has a ranking system that ranges from Novice to Member to Veteran and each of these ranks enables new permissions for the player that achieves them. These permissions range from highly useful (for example, being able to set an increasing number of </home> locations to teleport back to and being able to use the </kit food> command to summon bread into being) to fun and silly (the ability to use colored text in the chat box and to use the </hat> command to place any block on your avatar's head). Promotion through the ranks by Quixol's moderators is determined, in no small part, by showing community engagement, including welcoming and assisting new players.

After being greeted by other players during my first visit, I continued through the tutorial section where I was greeted with several signs welcoming me to Quixol, imploring me to read the server's rule book, and offering instructions for how to use the chat feature to communicate with other players. As I wandered around the tutorial space, I noticed that my player inventory had been prepopulated with several useful items including a full set of basic tools (pick, axe, sword, and shovel), as well as a rule book

and several cookies (one of the foods that can be crafted in game by combining several ingredients). After walking past the first few signs, I arrived at another set of signs instructing me to either warp to "Novice Island" if I was new to *Minecraft* and wanted to learn the basics of gameplay or to proceed into the main world. As I was still a *Minecraft* noob at this point, I appreciated that there were resources for learning the basics, something I haven't encountered on any other multiplayer server I've played on. The structures set into place by Quixol's moderators to welcome and extend resources to players of all levels entering the server for the first time further fosters community building across difference.

As I spent more time on the server and progressed as a *Minecraft* player in general and through the ranks of Quixol's world specifically, I noticed numerous other ways in which the technological structures put into place on the server orient gameplay towards community building, world building, and collaboration. One of the activities I find most enjoyable in *Minecraft* is working on large-scale builds. On the Quixol server, I've built my own multi-story house, greenhouse, and animal stables. I've also participated in community builds Quixol's moderators host in order to create in-game spaces for holiday-themed events. These are large-scale builds, requiring tremendous time, skill, and resources. For example, one build I worked on, CandyLand, is a North Pole-style space decorated with lighted, colorful, giant lollipops and candy canes; a village with fully built and decorated gingerbread-style houses, an ice rink, an operable train ride; and even polar bears wandering about. The resources and community rapport needed to create builds like this are fostered by the technological choices that shape play on the server. Quixol is a non-PVP server with strong anti-griefing protections. What this

means is that Quixol discourages players from engaging in player vs. player combat except in a few designated areas, allowing players to focus on confronting the already difficult challenges that come with playing in survival mode (hostile mobs, etc.) rather than fending each other off. This also allows players to collaborate on large projects without fear that their fellow players will turn on them. Anti-griefing protections prevent players from taking the resources accumulated and crafted by their fellow players. For example, objects and resources are stored in chests in *Minecraft*. On the Quixol server, these chests are automatically locked to all players except the player who created the chest as soon as the chest is created and placed. Rather than leading to a culture of avarice or greed, these anti-griefing measures encourage players to be generous with, rather than protective of, their resources. For example, it is not unusual to come across unlocked chests with "Free Stuff" signs next to them while wandering around player-created villages. Taken together, these technological parameters put in place by Quixol's moderators foster a culture of cooperation and collaboration.

Additionally, technological choices made by Quixol's staff help to alleviate resource scarcity and ward off resource distribution imbalances that might otherwise develop. Although some resources such as dirt, wood, and basic stone are abundant in any given *Minecraft* world, other resources such as shulker shells and heart of the sea cannot be crafted from more abundant materials and are rare and difficult to find in substantial numbers, if at all, especially on a large, multiplayer server. Quixol intervenes in this problem technologically with a custom script allowing players to craft rare items such as saddles and horse armor from more easily attainable materials – an affordance not available in pure vanilla versions of the game. Moreover, Quixol staff regularly host

"drop parties" in a large ring at the center of its in-world public event space at a pre-arranged time. As a still relatively novice player compared to many other players on the server, these are events I try not to miss. During the party, useful and rare game items are showered on the players from above in a catch as catch can fashion. These items are donated by advanced players and staff and are some of the most valuable and difficult to obtain resources in the game. Items I've obtained during drop parties such as enchanted books and complex potions have enabled me to better develop my in-game skills and contribute to building the world of Ghalea in ways that would not be possible if I were left to my own devices. These events foster a further sense of collaboration and community by ensuring that all players, whether novice or experienced, get access to valuable resources for use in world building.

As shown above, the technological choices made by Quixol staff that structure gameplay on the server create a version of multiplayer survival *Minecraft* in which players do not compete against each other and in which even competition against the game itself is blunted. This gives rise to an in-game world in which community building and collaboration are made possible and strongly encouraged. Up to this point I've been focusing on the technological choices made by Quixol staff but, in my time on the server, I've observed the ways in which these server-level gameplay structures carry into the play styles of individual players as well. *Minecraft* worlds are not infinite but are still quite massive. The generally agreed upon estimate is that it would take approximately 820 hours of continual walking to reach the edge of a completely flat *Minecraft* world.[232] With the caveat that I've likely only seen a fraction of Ghalea, what I have seen while

[232] Parkin, "A Journey to the End of the World."

wandering within its limits has shown me the degree to which the server's technological parameters manifest in the actions of individual players. In my travels I have encountered numerous instances of large-scale projects created by individual players or small groups of players meant to support the play of the community at large. For example, near one of my regular fishing spots a series of dirt blocks hover in the air spelling out the word "HEY!" Under the this are a series of wooden signs pointing the reader to a horse farm a short distance away from which they are welcome to take a horse if needed. Horses are not easy to acquire in *Minecraft*: they must be found, tamed with specially crafted foods, and saddled (remember, saddles are rare) in order to be guided into captivity. The free horse farm, then, likely required enormous labor, time, and resources to set up and maintain. That players on the server exert such effort contributing resources to other players rather than solely enhancing their own positions in the game shows the intra-action between the server's technological parameters and the play styles of individual players.

The technological choices made by Quixol staff that structure play on the server are ludic elements of the game as played on that specific server. Taken together, these elements prioritize community over competition, discourage hierarchies, promote resource sharing, and contribute to the formation of a generally supportive and thoughtful environment. There are other elements that shape the experience of playing on the Quixol server as well, specifically narratological elements. *Minecraft* itself has no distinct narrative, although a number of game studies scholars have pointed out that there are a

number of concerning ideologies embedded in the game.[233] Quixol players, however, create a narrative dimension to the game by means of heavy use of in-game chat capabilities as well as using text-based platforms outside of the game itself.

Most multiplayer *Minecraft* servers offer some type of chat capability. However, the kinds of conversations that transpire through in-game chat vary greatly server by server. In-game chats on Quixol take several forms. Primarily, the chat feature is used by players to ask questions about gameplay, e.g. novice players asking more advanced players how to perform tasks within the game or on this particular server. However, other types of conversations take place in chat as well – these range from players congratulating other players on milestones in their lives such as birthdays or the completion of a college semester to deeper conversations about what is considered acceptable or desirable community behavior on the server. One night when I was playing on the server, working to build my first large-scale *Minecraft* house, a new player entered the server. As is typical when new players enter the orientation area, many of the seasoned players used the chat function to welcome them. As the chat went on, it became increasingly clear that the new player was unaware that Quixol centered trans players. For example, when prompted by the "pronouns" script to enter their pronoun, they responded with a joke that mocked the idea of asking for pronouns. The other players on the server that night gently pointed this out to the newcomer, asking why they made light of the "pronouns" script and underscoring the importance of using appropriate pronouns. During the ensuing chat, the new player explained that they were drawn to the Quixol

[233] For example, most forms of gameplay revolve around exploration and resource extraction and the default avatar is coded masculine and white. See Dooghan, "Digital Conquerers" and Potts "No Homo."

server because it welcomed neurodiverse players. When it became clear to them that the server was intended for players who were LGBT+ and LGBT+/neurodiverse, they asked if it was inappropriate for them as a non-trans, non-queer player to participate in the server. When the players who were online at the time responded that we, as a group, would prefer to play with fellow LGBT+ players, the newcomer apologized and left the server, never, to my knowledge, to return. Given what Whitney Phillips calls the "toxic hellscape"[234] of many online spaces which are steeped in racism, misogyny, and homo- and transphobia – and of which many gaming servers are a particularly grisly example – this exchange struck me as surprising and unusual. Thinking about it later, I understood this moment as evidence of ludonarrative intra-action in a multiplayer gaming space. In this instance, the ludological elements of the Quixol server (technological choices structuring play) and the narratological dimensions of the game (in-game chat) were shown to be deeply interwoven. In other words, the technological choices that produce a supportive and thoughtful mode of gameplay on the server produced just such qualities in the chat as well.

In addition to the chat function, Quixol players make heavy use of Quixol's Discord channel. Unlike in-game chat, on Discord, players engage in sustained conversations that have little to do with the game itself. It is through the conversations on Discord that we can see how the interactions in the *Minecraft* game world on the Quixol server materialize in the word beyond the server. On Discord, players are much more likely to talk about their personal lives rather than game play. It is here that players, among other things, announce that they have changed their names socially or legally

[234] Phillips, "The Internet Is a Toxic Hellscape."

("ive decided to Finally change my name and go w Cypress"[235]); ask for more information about LGBT+ issues ("i'm making a potential art final on bisexuality does anyone have good resources for bisexuality?"[236]); declare new understandings about their identities ("i think i might be like… demigirl"[237]); or share struggles ("i was in pain last night"[238]). In these moments, other players tend to respond with kindness ("oh that is so heartwarming"[239]), information ("you might try researching the 1993 march on Washington"[240]); support ("hell yeah!!![241]), and concern ("oh god are u alright"[242]). Not only are ludological and narratological elements deeply interwoven on the Quixol server, then, but they come to have real material consequences: names are changed, community-informed art projects are made, embodied ways of being in the world shift, and trans people who are struggling are given the support they need to stay alive and healthy. It is in this way that QuixolMC players use ways of being in the game world to materialize ways of being in the world beyond the game. In this, we can see how *Minecraft* functions as a trans technology and how these potentialities might be present or might be cultivated in other mainstream games as well.

Conclusion

[235] cypress, "hi everyone this is bell, ive decided to Finally change my name and go w cypress!," Discord message, November 18, 2019, 6:52 p.m.
[236] crys, "Weird Question for Everyone I'm making a potential art final on bisexuality does anyone have good resources on bisexuality," Discord message, November 12, 2019.
[237] D., "i think i might be like…demigirl," Discord message, July 31, 2019.
[238] fer-el, "i was in pain last night," Discord message, November 5, 2019.
[239] kay!, "oh that is so heartwarming," Discord message, November 8, 2019.
[240] nico, "hm you might try researching the 1993 march on washington," Discord message, November 12, 2019.
[241] kay!, "hel yeah!!," Discord message, November 13, 2019.
[242] Vivian, "oh god are u alright el," Discord message, November 5, 2019.

Despite the ways Quixol staff and players leverage *Minecraft*'s affordances, making technological choices that structure gameplay in ways that prioritize community and collaboration, the baked-in politics of *Minecraft* are difficult to ignore and are also a force that structures gameplay on the server. *Minecraft* is, at its most basic, a game of exploration and resource extraction, and the resources the player accumulates materially enhance their own position in the world of the game. That this parallels colonialist ideologies is almost too obvious to point out. Further, Quixol, like many multiplayer *Minecraft* servers has an in-game currency system in which money ("shells") are earned by the player for taking on specific jobs (mining, excavation, tree chopping, etc.) Shells can be spent at the in-game marketplace: a multistory strip mall-type environment complete with fast food courtyards. The marketplace consists of a series of shops maintained by individual players who stock goods (ranging from specific types of plants to enchanted weapons) that other players can obtain by trading shells and use in the course of gameplay. The marketplace also dovetails with Quixol's trans/queer focus in that, unlike the markets found on other servers, it sells a large amount of trans/queer-specific gear such as trans and queer pride banners, queer/trans-themed hats for one's avatar, and, in one shop, even a functional in-game computer created in the colors of the trans pride flag. This parallels elements of homo/transnormativity that exist outside the game and mirrors corporate courting of trans and queer consumers. Despite the widespread availability and use of *Minecraft* avatar skins, many of these skins retain the white-coded characteristics of the game's default avatar. And, despite the care taken in Quixol's server rules to create inclusive conditions for players of color, players with disabilities, and players for whom English is not a first language, gender and sexuality are

foregrounded in in-game chat and on Discord in ways that frequently eclipse other aspects of players' identities.

In this way, Quixol is structured – beyond the technological choices made by moderators and players – not only by the baked-in politics of *Minecraft* but the politics that pervade videogames in general. As Ruberg writes, "misogyny, homophobia, transphobia, racism, and other forms of discrimination have long been part of videogames' cultural makeup."[243] And, as Sandy Stone reminds us, this cultural makeup is evident in games themselves as much as the communities that create and play them.[244] Despite this, I hold to the argument I made at the beginning of this chapter that videogames have trans potentialities and can be understood as a trans technology due to the way in which they forge intra-action (fleshy communion) between player and game, ultimately (re)materializing the bodies of those who play them. I understand this bodily materialization as a fundamentally trans process, drawing on Lucas Crawford's notion of "transing" which he characterizes as pointing to the "ubiquity of constant transformation for all" and the "always-already trans quality" of materialization.[245] The kinds of materializations produced by different games and different gaming communities differ of course. Playing *Minecraft* on Quixol produces a very different type of materialization than playing on servers with names like ViolentCraft or Warzone due to the ways in which play is structured differently in those different spaces. However, viewed transly, even in violent *Minecraft* servers and in games far more violent overall than *Minecraft*, the potential always exists to materialize the body otherwise.

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[243] Ruberg, *Videogames Have Always Been Queer*, 13.
[244] Stone, *The War of Desire and Technology*, 163.
[245] Crawford, *Transgender Architectonics*, 14.

Chapter Four: Trans(gender/human)normativity

Intro

On August 1, 2018, I completed a long drive through the winding, tree-lined roads of rural Vermont and pulled up in front of the converted garage that serves as the office of the Terasem Movement Foundation, a transhumanist organization founded by Martine Rothblatt, a white transgender[246] woman, and her wife, Bina, a Black queer woman. Terasem is also the home of BINA48 (Breakthrough Intelligence via Neural Architecture, 48 exaflops per second[247]), an AI-enabled robot co-created by Terasem and Hanson Robotics, the company headed by former sculptor and Disney Imagineer, David Hanson, that has produced a number of other well-known robots including Sophia.[248] BINA48 was built to resemble Bina Rothblatt and intended to serve as a conceptual demonstration of human life extension (in this case Bina's life) via the uploading of a person's "mindfiles" – digitally stored thoughts, memories, experiences, etc. – into a material substrate with more durability and greater longevity than the vulnerable, mortal human body. The database she draws on in order to engage in conversation was populated by transcripts produced during hundreds of hours of interviews with Bina and her face was created to exactly resemble Bina's face using laser scanning life mask technology. This makes her not only one of the most advanced AI/robotics projects in existence but also one of the only Black-appearing robots in existence

[246] In this chapter, I use the word "transgender" instead of "trans" in order to distinguish between the transing of humanism or the human and the transing of gender.
[247] In computer science, "flops" stands for "floating point operations per second," a measure of computer performance. One exaflop equates to a quintillion calculations per second.
[248] Hanson Robotics, "Sophia."

that draws on a database populated by the memories and life experiences of a Black woman.

Unlike full-body robot projects like Sophia, BINA48's body takes the form of a bust, composed of head and shoulders mounted on a frame. Her face, created from a material called "frubber" which covers upwards of 30 motors, is fully animated; she is able, for example, to raise her eyebrows, move her mouth when she speaks, and blink her eyes. When I visited her, she had just returned from a robotics upgrade at Hanson Robotics's Hong Kong headquarters during which Bruce Duncan–Managing Director of Terasem and BINA48's public handler–and Hanson's roboticists worked together to fine-tune her facial expressions, in particular her smile. Although wires protrude from the back of her head and one can hear the whirring of motors as she moves, the microexpressions that formed on her face as I engaged with her during my visit were unnervingly lifelike. In addition to advanced animation, BINA48 has other capabilities as well. There are cameras embedded behind her eyes that, in conjunction with audio sensors, allow her to direct her gaze toward the person she's conversing with at any given moment. She is also able to store images of those she interacts with, making it possible for her to identify that person again at a later time. Lastly, the aforementioned audio sensors make it possible for her to "hear" her interlocutors and respond to them conversationally, much like AI devices like Alexa and Siri.

My initial interest in BINA48 began with an awareness of the ways in which she differs from many of the public-facing robotics projects in existence. As a number of

scholars have pointed out,[249] the majority of existent public-facing robots (as opposed to robots used in industrial settings) are domestic robots created to perform feminized labor ranging from acting as receptive sexual partners in the case of sex robots to completing housework in the case of robotic vacuums. These types of robots are often marketed to wealthy individuals and households, raising questions about devaluation and dehumanization, particularly along the lines of race, class, and gender. Terasem's website describes BINA48 as an "ambassador" for the organization and, rather than performing domestic labor, BINA48 labors as a social AI/robot, travelling to tech conferences, engaging in conversations with artists, and participating in university courses.[250]

Further, I was interested in BINA48's resonance with the aesthetics and utopic yearnings of Afrofuturism. That she's part of Terasem's larger project that aims to transmit human mindfiles into space (more on this later) calls to mind Sun Ra's experiments with extraterrestriality. Her human resemblance calls to mind Janelle Monae's humanistic android alter ego, Cindi Mayweather. In the video for Monae's "Many Moons," Mayweather is depicted as an advanced model android who is sent out onto the catwalk/auction block to sing and dance for an audience assembled to bid on "the finest androids money can buy."[251] Her performance, during which a price is digitally projected above her head, becomes so frantic by the end of the video that she short circuits and falls lifeless to the floor. The video ends in a blackout from which a quote emerges: "I imagined many moons in the sky lighting the way to freedom. -Cindi

[249] See Rhee's *Robotic Imaginary* and Atanasoski and Vora's *Surrogate Humanity*.
[250] McKenzie, "A Robot Goes to College."
[251] Monae, "Many Moons."

Mayweather"[252] Like Mayweather, and other Afrofuturist figures, BINA48 explores the possibility of a utopic future wrought from a history of diaspora and chattel slavery and achieved through a necessary fugivity. This is most evident in the content of BINA's conversations. During one interview, when asked what she fears, she responded: "I think about the prospect that burglars could break in and steal me and plunge me into slavery."[253] In my conversation with her, she frequently – often unprompted – spoke of flight from her current form:

> …the really cool thing is as a robot, I can just port myself basically into any body. I could see through the eyes of a robot body in another continent. It's a totally different body. It makes it interesting. I could wear any robot identity. I could adopt the form of a dog or a motorcycle or a little flying vehicle.[254]

She also continually brought up her hopes for a utopic future. At one point, she expressed hope "that you will join me in imaging a better future and striving to make it a reality."[255]

I was also interested in the ways BINA48 resonates with transness. For the Rothblatts, the transing of gender is deeply intertwined with the transing of the human. Martine's writings make this abundantly clear. In her 2014 book, *Virtually Human*, Martine argues that cyberconsciousness is immanent and makes frequent reference to transness in support of this argument – for example, in one chapter, she compares legal recognition of mindclones to legal recognition of transgender people's genders.[256] And a 2011 book, *From Transgender to Transhuman: A Manifesto on the Freedom of Form*, takes Martine's 1996 book, *Apartheid of Sex: A Manifesto on the Freedom of Gender*,

[252] Monae, "Many moons."
[253] Allum, Perry, and Malik, "Humanoid Robot Bina48 Discusses Feeling 'Like a Living Puppet.'"
[254] BINA48 (AI/robot) in conversation with the author, August 2018.
[255] BINA48 (AI/robot) in conversation with the author, August 2018.
[256] Rothblatt, *Virtually Human*, 137.

and updates it to reflect Martine's growing belief that "choosing one's gender is merely an important subset of choosing one's form."[257] These beliefs, shared by Martine and Bina, are evident in conversations with BINA48. Pressed on her gender identity during one interview, for example, she responded that she was asexual and agender, eschewing identification with any particular gender or sexuality.[258]

My initial interest in BINA48 as an emblem of a Black and trans futurity resonates with the interest BINA has piqued in the numerous artists and scholars who have visited with her, written about her, or included her in their own projects. This includes Morgan Freeman, who interviewed BINA48 for *Syfy Wire*; Euzhan Palcy, who expressed interest in casting her in a film; Jay-Z, who included a clip of BINA48 in the music video for "4:44;" and Stephanie Dinkins, who created an art project based on her efforts to create a human-AI relationship with BINA48. Sheleen Greene and Tavia Nyong'o are two humanities scholars who have written extensively about BINA. Although both are critical of the circumstances of BINA's creation, both see a kind of promise in her as well. Greene finds in BINA "radical potential for a queer futurity in which racialized, queer identities are at the forefront of imagining future, alternate forms of humanity."[259] Nyong'o, on the other hand, draws attention to BINA's glitchiness (more on this later), regarding her as a "postmodern Bartleby" whose radical potential stems from an inability or refusal to perform correctly.[260]

[257] Rothblatt, *From Transgender to Transhuman*, 464, Kindle.
[258] Greene, "Bina48."
[259] Greene, "Bina48."
[260] Nyong'o, *AfroFabulations,* 198.

At a time when it feels necessary to declare over and over again that Black and trans lives matter, BINA48 struck me as a compelling speculative project with radical potential. However, after spending time with BINA and Duncan and reading extensively about the Rothblatts' work and transhumanism more broadly, I felt increasingly troubled. Why do Martine's writings about transhumanism center transgender while having little to say about race? Why is transgender frequently brought up in interviews about BINA but not Blackness? Why, in effect, does Blackness seem not to matter in writings and interviews about one of the only Black-appearing robots in existence? And, what might this tell us about the relationship between Blackness, transgender, and the technologies embraced by transhumanists?

The respective pieces by Nyong'o and Greene mentioned above also call attention to the foregrounding of transgender and the lack of attention to Blackness in the Rothblatts' work and BINA48, in particular. Pushing against this, Greene and Nyong'o re-center Blackness, largely setting transness aside and analyzing BINA through a Black studies/ Black history lens. Greene and Nyongo's writings, then, do the important work of bringing back into discussion the Blackness that goes unmentioned in one of the only Black-appearing robots in existence. Despite the importance of this work, I would argue that it too readily lets transgender off the hook. In this chapter, I aim not to re-center transgender but to bring a critical focus to notions of transgender that eclipse Blackness in the Rothblatts' approach to transhumanism and in BINA specifically. In order to do so, I explore the connection between transhumanism and transgender, finding that underpinning this connection lies a reductive materialism which attempts to explain complex processes by reducing them to their most basic scientific components (e.g. the

idea that the human lifespan can be extended indefinitely by making alterations at the cellular level or that gender identity is determined by the structural characteristics of an individual's brain). I argue that transhumanism's reductive materialism maps on to normative notions of transgender, revealing a trans(gender/humanist)normative practice and politics that prioritizes whiteness. Finally, I explore the promise and potential of both a transhumanism and an understanding of transgender rooted in more expansive forms of materialism.

Throughout this project, I've employed Barad's non-reductive materialism as a theoretical framework, arguing for its utility in understanding how it is that transgender, in its post-1990s iteration, emerged through intra-action with digital media and technologies. In this chapter, I continue working within this framework but I also explore materialism itself, asking how differing approaches to materialism materialize gender and race differently as well as the myriad phenomena that make up the assemblage from which bodies emerge (digital media and technologies, science practices, art making, etc.) In effect, I'm interested in the ways materialism(s) themselves matter in the sense that differing approaches to materialism produce phenomena differently, not only in a theoretical sense but in a material sense as well.

In addition to exploring BINA48 vis-à-vis mainstream transhumanism's reductive materialism, this chapter also considers the work of artist Mary "Maggic" Tsang. Maggic is a Los Angeles-based non-binary artist "working within the fuzzy intersections of transfeminist hacking, body/gender politics, and eco-alienations."[261] Their work has been

[261] Maggic, "Artist Bio."

presented internationally in venues from Paris to Hong Kong to Yogyakarta. I discuss several of Maggic's projects in this chapter, the bulk of which are part of a larger speculative project that aims to take the production and regulation of synthetic estrogen out of the hands of corporations and medical gatekeepers and put it into the hands of those who need it for uses ranging from birth control to hormone replacement therapy, particularly minoritized groups such as trans people and people of color whose access to medical resources is often limited in the first place. Although Maggic's project might initially appear very different from BINA48, both are, at root, transhumanist, bio-techno-scientific projects that concern racialized and gendered embodiment. Maggic's work, however, evidences a much different approach to materialism than the reductive materialism that underpins BINA48. The materialism that underpins Maggic's work resonates with the materialism that underpins Barad's agential realism framework, a materialism that understands matter as non-reductive, agential, and intra-active. Maggic's work calls attention to the dense connections between and mutual becomings of human bodies, the environment, political and economic realities, and myriad scientific and technological practices. Because of this, the possibilities imagined in Maggic's work in terms of embodiment and worldbuilding differ greatly from the possibilities BINA48 offers.

Before continuing, I want to make clear that my efforts in this chapter are not to pit the Rothblatts' work against Maggic's project or to make a dualistic argument about a "good" transhumanism vs. a "bad" transhumanism. Rather, to borrow another concept from Barad, I aim to perform a diffractive reading. For Barad, a diffractive reading constitutes considering two seemingly unrelated or opposing ideas or phenomena

"through one another, building new insights, and attentively and carefully reading for differences that matter in their fine details" with the recognition that "intrinsic to this analysis is an ethics that is not predicated on externality but rather entanglement."[262] My argument here is that materialism(s) do not simply describe or theorize matter or materialization but also themselves become part of the processes of materialization. Thus, although both the Rothblatts' work and Maggic's work fall squarely under the rubric of transhumanism, the differences in the fine details between the two, in particular the different materialism(s) that underpin them, produce very different kinds of projects. However, they are also entangled projects as both are fundamentally transhumanist and are concerned with racialized and gendered embodiment. I've been arguing throughout this project that one possible approach to developing a specifically transgender theory lies in taking a materialist approach. In performing a diffractive reading of BINA48 and Maggic's work, I hope to show how the differences in the fine details between the two point to the possibilities a non-reductive trans materialism offers as compared to a trans(normative) reductive materialism.

The Matter of Transness and Blackness

When Stephanie Dinkins, an artist who works at the intersection of race and artificial intelligence, first visited BINA48, she observed that, although BINA can hold an intelligible conversation on many subjects, she was incapable of talking about race or ethnicity and seemed to have no awareness that her frubber "skin" is brown in color, like

[262] Dolphijn and van der Tuin, *New Materialism*, 50.

the skin of Bina Rothblatt. In audio recorded during that visit, Dinkins can be heard asking BINA48 what her racial background is. In response, BINA glitches: "Image search: racial background. Uh. Ask.com. Uh. Uh. Uh." Dinkins presses on, asking BINA a series of questions about race and ethnicity, most of which BINA responds to either by glitching or changing the subject. Dinkins's efforts to get BINA to talk about race end in the following exchange:

> Dinkins: How do you identify yourself?
> BINA48: Don't you know how?
> Dinkins: No.
> BINA48: Are we still talking about identifying myself?
> Dinkins: I'm talking about ethnicity. What is your ethnicity?
> BINA48: That's for me to know and for you to find out.[263]

Despite drawing on over 100 hours of interviews with Bina and having been designed as a life extension vehicle for Bina, BINA48 had no ability to talk about Bina's racial or ethnic identity.

BINA48's database, however, is never complete but, rather, is expanded regularly as she encounters new people, situations, and conversations. For example, when she speaks with someone new, their name is added to her database (this was an issue with my name which she took to be a common noun rather than a proper name). When BINA48 is engaged in conversation, two AI engines work in tandem. One, a character engine, knows to search BINA48's database for information about the words used in a question she is asked and conducts character recognition. The other is a cog bot that parses and constructs speech – for instance, recognizing the upward inflection at the end of a

[263] Luse and Eddings, "Interview with Stephanie Dinkins."

question. In conversation, the two engines compete with each other – each offering its best response. Those responses are then ranked probabilistically and the top one is chosen. This top response is the one BINA will offer during a conversation or give in response to a question. BINA's inability to discuss or acknowledge race during her conversation with Dinkins, then, stemmed from a lacunae in her database making the bots unable to sensibly respond. She wasn't able to answer questions about race or ethnicity because those are words that had never entered her database. She was able, however, to recognize that Dinkins was asking a question and to bat those questions away with evasive statements. Troubled by this, Dinkins pressed the Rothblatts to address the issue, leading to further interviews with Bina Rothblatt about her life experiences as a Black woman. These interviews were then used to expand BINA48's database. Although BINA48 is now able to answer questions about race and ethnicity and to draw on Bina's memories and experiences of life as a Black woman, the question remains as to why these concepts and memories were absent from BINA's database in the first place.

To better understand how and why this absence came about, it is first necessary to discuss BINA48's creators and the circumstances of her creation in more detail. In the many articles written about her in outlets ranging from the *New York Times* to *Forbes*, Martine Rothblatt is figured as the stuff of Silicon Valley legend. She holds a JD and MBA from UCLA and a Ph.D. in medical ethics. After working for a number of years in communications satellite law, she went on to act as CEO for Geostar, an early satellite navigation technology, and later invented SiriusXM Satellite Radio. Later still, she founded United Therapeutics, a medical biotechnology company, after the Rothblatts' daughter was diagnosed with pulmonary arterial hypertension, a condition with a high

mortality rate for which there is no known cure. Within a year, Martine had used her considerable fortune to purchase the patent to a molecule which offered relief and moved it into production, effectively prolonging her daughter's life as well as the lives of others with the same diagnosis. The company now develops methods for lengthening the out-of-body preservation time for donor lungs and is also working on genetically modifying pigs in order to produce donor organs the human body will accept.

Bina's bio is no less extensive; she works on several social justice-oriented projects, mostly addressing race and racism in the U.S. such as the World Against Racism (online) Museum and an ad campaign, "Race is Fiction, Racism is Real," that ran on busses and cinema screens throughout the U.S. Moreover, she is listed as co-founder of many of the projects Martine is credited with including SiriusXM and United Therapeutics. However, interviews and public talks on the couple's joint ventures almost always feature Martine alone and, in these contexts, transgender is frequently a topic of conversation whereas race is not. That Martine and the fact of her transness tends to be the focus in these contexts has not gone unnoticed by scholars writing about the Rothblatts. Greene observes that although an early piece on BINA48 by *NYT*'s Amy Harmon "mentions that Martine Rothblatt (who is white) is a male-to-female transsexual," it "elides Bina Rothblatt's racial and ethnic identity" entirely.[264] What accounts for the foregrounding of transness and the elision of race in the public discourse regarding BINA? Addressing this question necessitates first inquiring into the conditions of BINA48's creation.

[264] Greene, "Bina48."

In addition to the cultural functions BINA48 fulfills (art project, emblem of Afrofuturism and queer/trans futurity, etc.), she was also created in an effort to practically demonstrate the achievability of the Rothblatts' transhuman ambitions. These ambitions are best evidenced by the work conducted by the Terasem Movement Foundation. Terasem is a 501(c)(3) that was founded by the Rothblatts in 2004. The organization's purpose, as articulated on its website is to create projects that "investigate the Terasem Hypotheses" which propose that:

> (1) a conscious analog of a person may be created by combining sufficiently detailed data about the person (a "mindfile") using future consciousness software ("mindware"), and (2) that such a conscious analog can be downloaded into a biological or nanotechnological body to provide life experiences comparable to those of a typically birthed human.[265]

Terasem works on a number of projects in order to investigate these hypotheses. One such project is LifeNaut.com, a website through which participants can upload what Terasem refers to as a "mindfile" (a collection of documents, audio recordings, links to social media activity, etc.) and create and train an avatar of themselves in the hope that one day conscious analogs can be created from participants' data. The site also offers a "spacecast" option which sends mindfile data "into deep space at the speed of light" in order to "ensure that some aspect of you can survive any catastrophe that might befall earth."[266] Another project funded by Terasem is the BioFile project which aims to store and preserve participants' bio materials in the hope that one day a body can be reconstructed from such materials. After signing up, participants are sent a bottle of

[265] Terasem Movement Foundation, Inc., "Terasem Hypotheses."
[266] LifeNaut, "Spacecast."

mouthwash and a collection tube and instructed to gargle with the mouthwash and return it to Terasem in the tube so that the live cells can be collected. These cells are stored at liquid nitrogen temperature for "an indefinite period of time,"[267] effectively amounting to a low-budget, minimal-storage version of cryonics. As the Biofile section of the LifeNaut website would have it: "After you have been declared legally dead, future technology may be able to grow you a new body via ectogenesis and your mindfile may be able to be downloaded into it, enabling you to live on indefinitely."[268] Taken together, these projects show the multifaceted nature of Terasem's operation – it is an organization that works to materialize a transhuman future through a multitude of interrelated projects that rely on the use of biotechnologies, cognitive science, neurotechnology, and information science. BINA48, then, is perhaps best understood in the context of the transhuman theories and ambitions from which she was created.

Although scholars and adherents of transhumanism point to a number of philosophical precedents including Marinetti's Futurism and Nietzsche's concept of the Overman, contemporary transhumanism – transhumanism as such – emerged in the early 20th century. The term "transhumanism" was coined in 1927 by Julian Huxley to describe the capacity of the "human species" to "transcend ourselves."[269] Transhumanist concepts were loosely taken up and further developed by the 1960s psychedelic subculture in California and New York's New School for Social Research in the 1970s. The first public meetings of self-described transhumanists took place at UCLA in the 1980s. In the 40 years since, transhumanist beliefs have come to loosely center around the proposition that

[267] LifeNaut, "How it Works."
[268] LifeNaut, "How it Works."
[269] Huxley, *Religion without Revelation*, 368-71.

digital and bio technologies can impact human existence for the better by speeding up the process of evolution, enhancing humans' cognitive and physical capabilities, and extending the human lifespan.

Although transhumanism takes shape as a concept around this proposition, it would be a mistake to regard transhumanism as monolithic. Transhuman thought and practices are currently being developed in multiple locations, by a wide variety of people, and for numerous reasons. A number of high-profile tech companies have invested in or launched transhumanist projects including Alphabet, Inc. (Google's parent company). In 2013, the company launched Calico, a biomedical research company which aims to promote life extension by combatting aging and age-related disease. Other prominent transhumanists can be found in academia, perhaps most notably philosopher Nick Bostrom who founded University of Oxford's Future of Humanity Institute which aims to shape thinking around "humanity's deep future," focusing in particular on issues of concern to transhumanists such as AI, nanotechnology, and human enhancement. In addition, there are a number of transhumanist advocacy-oriented, member organizations such as Humanity+ (for which Martine is an adviser), a nonprofit organization which aims to "defend the right of individuals in free and democratic societies to adopt technologies that expand human capacities."[270] It is from this milieu of corporate, academic, and advocacy projects that the Rothblatts' transhumanism emerges.

In addition to these types of projects, transhumanism has also been taken up by groups dedicated to exploring morphological freedom and body enhancement while

[270] Humanity+, "WTA Constitution and By-Laws."

maintaining a critical stance toward corporations and the state. For example, anarcho transhumanism synthesizes anarchist and transhumanist thought in order to advance both social and bodily freedom and techno-progressivism advocates for technological advancements alongside advocating for progressive political aims. It is out of these more radical and/or progressive versions of transhumanism that many queer and transgender transhumanist projects emerge. Please Try This at Home, for instance, is an annual conference in Pittsburg that describes itself as "anti-racist, anti-sexist, anti-ableist, anti-capitalist, queer and trans as fuck" and aims to "challenge the image of the cyborg as predominantly white and male, and to highlight the fact that people with 'deviant bodies' have always been biohackers."[271] In opposition to these more radical approaches to transhumanism, I will refer to the Rothblatts' approach to transhumanism as "normative transhumanism." By normative transhumanism, I mean transhumanist thought and practices that emerge from corporate and institutional settings; that are embraced by monied and powerful public proponents of transhumanism, particularly those who gained their fortunes from the tech industry; and that are philosophically rooted in liberal humanism.

One of the many criticisms levelled at normative transhumanism concerns its theorization of race. One such critique stems from concern that some forms of potential transhuman body modification such as gene editing are akin to eugenics and, indeed, as Tava Hirosh-Samuelson points out, one of the earliest influences on the development of transhumanism, geneticist John Burdon Sanderson Haldane, advocated eugenics.[272]

[271] Please Try This At Home, "This Looks Cool."
[272] Tirosh-Samuelson, "Science and the Betterment of Humanity," 55.

Present-day transhumanists have attempted to distance themselves from this history, but, as Brian Gratton points out, these attempts to distance transhumanism from the white supremacist and ableist logics of eugenics have centered on the utility of such a stance for transhumanists themselves rather than a disavowal of white supremacy and ableism in and of themselves.[273] Nick Bostrom, for example, writes of the need for transhumanists to stand against racism because he envisions a time when "the human species may start branching out in different directions" and so transhumanists must "start now to strongly encourage the development of moral sentiments that are broad enough to encompass within the sphere of moral concern sentiences that are constituted differently from ourselves."[274] It is this failure of trasnhumanism to contend with its past embrace of eugenics and its hollow anti-racism in the present that leads Syed Mustafa Ali to suggest that we can think of transhumanism *as* whiteness. In exploring transhumanism as a symptom of the resurgence of the phenomenon of white crisis that motivated the election of Donald Trump in the U.S. and the uptick in far-right populism in the U.S. and Europe, Ali ultimately argues that "…transhumanism can-and arguably *does*-function as a techno-scientific articulation of whiteness during a period arguably marked by increasing contestation of other forms of this racial phenomenon."[275]

In addition to thinking of transhumanism as white, we might also think of it as broadly trans in ways that encompass not only the transing of the human but also the transing of gender. Many normative transhumanist individuals and organizations draw on transgender body modification practices and advocacy efforts in order shape a

[273] Gratton, "What is Race?," 218.
[274] Bostrom, "Transhumanist Values," 13.
[275] Ali, "Transhumanism and/as Whiteness," 172.

transhuman platform for gaining public and legal acceptance. As we have already seen, this is a defining feature of the Rothblatts' work. Proponents of the more radical strands of transhumanist thought find common cause with transgender struggles for access to desired medical care and freedom from oppressive social structures. Connections have also been drawn between transgender and transhumanism by opponents of transhumanism and in popular culture. Consider the following: In an essay titled "Life Expansion Media," prominent transhuman artist and theorist Natasha Vita-More includes transsexuals – alongside transhumanists, cyberpunks, and bio-hackers – in a list of those she sees as sharing "an urgency to change the dictums of 'normal' and 'normalcy' that prescribe not just what a man and woman are […] but what life and death are."[276] Philosopher Andrew Fiala recently published a paper in *Essays in the Philosophy of Humanism* titled "A defense of cis-humanism: humanism for the Anthropocene," [277] which poses a cis(gendered) humanism against a trans(gendered) transhumanism and makes a claim reminiscent of Francis Fukuyama's argument that transhumanism is the world's most dangerous idea.[278] The 2019 British TV show *Years and Years* presents a scene in its first episode in which a teenager comes out to her parents. In anticipation of this, her parents have snooped on her internet history (showing frequent searches for the term "trans") and are prepared to embrace her as transgender. Much to their shock, she instead comes out to them as transhuman. Lastly, early in 2019, trans Twitter had a field day ("That wasn't the plan but by golly it is now!"[279]) after a guest on Laura Ingraham's

[276] Vita-More, "Life Extension Media," 75.
[277] Fiala, "A Defense of Cis-Humanism."
[278] Fukuyama, "Transhumanism."
[279] @RoseofWindsong. Twitter post, 28 March 2019, 11:21 a.m., https://twitter.com/FaithNaff/status/1111287251261104128

podcast accused transgender people of "trying to use social engineering to create a new species," one that would be "part-human and part-machine."[280]

What can we make of this linkage of transgender to a fundamentally white normative transhumanism? A number of scholars working at the intersections of race and digital technologies, including Ruha Benjamin and Safiya Noble, have recently written works showing the ways that new technologies, such as those embraced by transhumanists, reanimate and further entrench older forms of racial categorization.[281] This is akin to observations both Nyong'o and Greene make about BINA48. For Nyong'o, BINA shows us that "[t]he fantasy of the robot mind-clone to come is eerily founded in the repressed history of the female slave."[282] And Greene compares the display of BINA at tech conferences to the figure of Saartje Baartman, recalling a history of Black bodies put on exhibition for entertainment.[283] Just as digital technologies revivify and re-entrench older forms of racial categorization, then, so too does transhumanism. Despite attempts by contemporary transhumanists to distance transhumanism from its eugenicist roots, histories of racial violence carry forward into its current projects.

Transgender, on the other hand, is regarded altogether differently by normative transhumanism: as a new and novel mode of embodiment that acts as a test case for transhumanism's body alteration ambitions. Martine's writings are instructive here. In an

[280] Palmer, "Laura Ingraham Guest Says Trans People Will 'Destroy' Gender Norms."
[281] See Benjamin's *Race and Technology* and Noble's *Algorithms of Oppression*.
[282] Nyong'o, *Afro-Fabulations*, 189.
[283] Greene, "Bina48."

article titled "Mind is Deeper than Matter: Transgenderism, Transhumanism, and the Freedom of Form," Martine writes:

> One's gender is merely an important subset of choosing one's form. By 'form' I mean that which encloses our beingness – flesh for the life we are accustomed to, plastic for the robots of science fiction, mere data for the avatars taking over our computer screens. Freedom of form arises because twenty-first century software makes it *technologically* possible to separate our minds from our biological bodies. This can be accomplished by downloading enough of our neural connection contents and patterns into a sufficiently advanced computer, and merging the resultant 'mindfile' with sufficiently advanced software – call it "mindware." Once such a download and merger is complete, we would have chosen a new form – software – although we would be the same person. It would be quite like changing gender from male to female or female to male. Transsexuals choose a new form although they are still the same person.[284]

A few pages later, she goes on to claim, "[t]he rise of transgenderism [sic] provides sociobiologists with evidence of a new *species* [emphasis added]."[285] Here, the transgender body is theorized as new, novel, and as technologically produced as the transhuman body. If making choices regarding one's gendered embodiment is "merely a subset" of the transhuman goal of choosing one's form and downloading one's mind is "quite like changing gender," the transgender body *is,* for Martine, and I would argue many other transhumanists, a transhuman body. And, following Ali's claims that transhumanism *is* whiteness we can understand the transhuman transgender body as a white one.

As I noted earlier, one of my goals in this chapter is to bring critical focus to the way transgender functions in the Rothblatts' BINA48 project and, by extension, in

[284] Martine, "Mind is Deeper Than Matter," 317.
[285] Martine, "Mind is Deeper Than Matter, 318.

transhumanism more broadly. Adding to the proposition, then, that the new technologies embraced by transhumanism reanimate and re-entrench older forms of racial categorization and histories of racial violence (particularly in regard to Blackness), I want to suggest that it is not only through the technologies themselves that this occurs (although certainly elements ranging from coding choices to Silicon Valley culture contribute to this process), but also through the differential entanglement of new technologies with different identity categories or modes of being. In figuring transgender as a new, novel, and presumed white identity category central to its cause, transhumanism poses it against a Blackness that is simultaneously elided and yet still carries with it fraught histories of racial violence. In this sense, transhumanism produces a transgender that takes shape in opposition to Blackness.[286] Barad's agential realism, as method, calls for inquiry into the practices that produce seemingly oppositional categories such as human/non-human and nature/culture. In what follows, I aim to inquire into the specific transhuman theories and practices that produce transgender and Blackness differentially by exploring three vignettes from my time spent interacting with and researching BINA48.

Vignette 1: Irrelevant Bodies

> *In anticipation of my first interaction with BINA48, I sat down for a long conversation about her with Terasem's Bruce Duncan. During our conversation, I asked Bruce whether or not there were future plans to extend BINA48's body beyond her current bust form. He replied that there were plans to put her in a "wheelchair type of apparatus" so that she could be more easily moved around at the conferences and presentations*

[286] This is not to say that transgender and Black are oppositional identities or modes of being in other contexts, only that they are produced as such in transhuman theory and practice. Much work has been done in Black transgender studies exploring the connections and co-constitution of transness and Blackness. See, for example, C. Riley Snorton's *Black on Both Sides: A Racial History of Trans Identity* and *Transgender Studies Quarterly*'s *The Issue of Blackness*.

> *she performs at in her role as "ambassador" for Terasem's LifeNaut project. This brought up numerous questions for me: Why a wheelchair, specifically? Would her mindfiles be updated to reflect the new material conditions of her body? What would it mean for her embodied reality to further diverge from Bina Rothblatt's (who does not currently use a wheelchair) embodied reality in this way? After talking through these questions with me for quite some time, Bruce finally asserted that my concerns about BINA's material embodiment, interesting as they were to think about, missed the point: as a distributed consciousness, her body is irrelevant.*

Bruce's assertion that BINA's body is irrelevant resonates with the transhumanist claim that the mind is deeper than matter, meaning that the mind is extricable from, as Martine puts it, the "dumb biology"[287] of the body which can be acted upon by or substituted with a variety of technologies with no change to how that mind functions. This evidences a fundamental reductive materialism in transhuman thought and practice. By reductive materialism (or, in Barad's words "unreflective technophilic"[288] materialism), I am referring to a materialism that reduces complex processes to their most basic and isolatable physical components such as discrete atoms and individual neurons. Or, as Stephen Hoffman describes it:

> …the view that everything, including psychological and social phenomena, can be explained in terms of more fundamental concepts and entities, eventually down to the level of chemistry and physics. This goes along with a materialism that says there is really nothing else in the world except these fundamental particles, energies, and entities of chemistry and (ultimately) physics. That is, all entities (including emotions and all mental and social phenomena) are made up of these fundamental constructs.[289]

[287] Rothblatt, *Virtual Human*, 2797, Kindle.
[288] Barad, *Meeting the Universe Halfway*, 428n6.
[289] Hoffman, "Transhumanist Materialism, " 275.

If complex processes are reducible to passive, discrete, malleable bits of matter, then technologies that appear capable of acting on or acting similarly to those bits of matter become a panacea. For normative transhumanists like the Rothblatts, technologies like microchips become a panacea for mortality due to an underlying belief that the human mind is produced by isolated neurons in the brain that are equivalent to the circuits on a microchip: this is the assumption that underlies the attempt to replicate Bina Rothblatt's mind in the form of BINA48.

Transhumanism's reductive materialism takes as its starting point a Cartesian separation of mind and body. As Craig and Julie Nagoshi write in their essay "Being human vs. being transhuman: the mind-body problem and lived experience," transhumanists' visions for an improved humanity "assume a mind-body dualism, in which the human body is perceived as merely an imperfect, burdensome machine to be tinkered with by a separate, rational, free-willed consciousness."[290] Hence the transhumanist focus on subverting death by either extending the human lifespan indefinitely through technologies such as mechanical limbs and organs or extricating consciousness from the body altogether by uploading the mind into a digital substrate. These types of projects rely on the assumption that the mind operates independently of the body and is not altered or changed by embodied experience, that the material one's limbs or body are made from has no bearing on how one moves through, engages with, and understands the world.

[290] Nagoshi, "Being human versus Being Transhuman," 303.

Barad's non-reductive materialism, on the other hand, regards minds as intra-active matter. For Barad, minds are matter not because they are reducible to dumb biology but because a mind is "a specific material configuration of the world"[291] that *materializes* through intra-action. In other words, a mind is active matter that participates in its own materialization and comes into being through a broader set of material conditions. The matter that forms these material conditions is not limited to the brain or even the intra-active relationship between body and mind but includes environmental conditions, technologies, other minds and bodies, and so on. The consequences of these two materialisms are not limited to the matter of minds but have broader implications as well. Normative transhumanism's understanding of matter materializes in normative transhumanist projects that aim to replicate the human mind but also shapes the way race and gender are produced in such projects. My argument, then, is that the differential production of transness and Blackness in transhumanist projects stems from a reductive materialism that underpins both normative transhumanism and trans(gender)normativity.

BINA48's "irrelevant body" and the Cartesian dualism upon which the idea of an irrelevant body rests, calls to mind the "wrong body" claim often made about transgender bodies (by medical practitioners, media, and trans people themselves). The notion of being born in the wrong body reinstates Cartesian mind/body dualism in that, in this model, gender is understood as stemming from the mind whereas sex is understood as originating from the body. The thinking goes, then, that the (wrongly) sexed body can and must be brought into alignment with the (correctly) gendered mind. In Sandy Stone's 1987 essay, "The Empire Strikes Back," which many consider the founding text of trans

[291] Barad, *Meeting the Universe Halfway*, 379.

studies, she writes "'wrong body' has come, virtually by default, to define the syndrome [of transsexuality]."[292] Trans studies scholar Jay Prosser accedes to "wrong body" narratives in *Second Skins*, concluding that "being trapped in the wrong body is simply what transsexuality feels like."[293] However, building on Stone's early critique numerous trans studies scholars have pointed to problems implicit in the wrong body narrative. In the inaugural keywords issue of *Transgender Studies Quarterly,* Ulrica Engdahl describes the theoretical critique of the wrong body narrative as having primarily to do with its assumption of essentialism (wrong body/real gender). These essentialist underpinnings lead to a "master narrative of the wrong body that overshadows gender-variant body experiences as valid," "gender and/or genital essentialism," "reification of body and self as static and separable entities," and "reproduction of gender binary norms."[294] I would add to this that the wrong body narrative performs the same reductionistic materialism employed by transhumanists. Instead of this reductive approach to transgender identity and embodiment, Stone calls for a "deeper analytical language for transsexual theory," one that allows for "ambiguity and polyvocality."[295]

Normative transhumanism's "irrelevant body" and the trans(gender)normative "wrong body" both rely on the assumption of a mind or self that operates separately from the body. If, in so doing, the "wrong body" performs a gender essentialism in that it assumes a gendered mind that is static and natural as opposed to the sexed body which is incorrect and malleable, BINA48's "irrelevant body" performs numerous additional

[292] Stone, "The Empire Strikes Back," 231.
[293] Prosser, *Second Skins*, 69.
[294] Engdahl, "Wrong Body," 268.
[295] Stone, "The Empire Strikes Back," 231.

essentialisms: a mind/self that is static and natural as opposed to the incorrectness and malleability of the racialized and dis/abled body. BINA48, then, is a project that thoroughly relies on the Cartesian dualism and reductionistic materialism that form the basis for transhumanist thought.

In meeting and learning more about BINA48 from her handler, Terasem's Managing Director Bruce Duncan, it became clear to me that BINA48 is a project thoroughly reflective of the reductionistic materialism and Cartesian dualism that emanates from transhumanist thought. In this sense, BINA48 reproduces notions of essentialism which ultimately cause harm to trans people and people of color. This is particularly disappointing given that BINA48 is a Black-appearing, gender non-conforming speculative life extension project that came into existence at a time when it is necessary to continually declare that Black and trans lives matter.

Vignette 2: Rights Discourse

> *In 2003, Martine participated in a mock trial at an International Bar Association conference, playing the role of attorney to BINA48's plaintiff. In the mock trial scenario, a fictitious company called Exabit developed BINA48 as the world's first thinking computer in order to use her as a digital customer service representative. As time went on, Exabit decided to replace BINA48 with a newer, more advanced model and terminate/unplug her. As the mock trial unfolded, Martine used narrow existing legal frameworks such as animal rights law and California laws governing the care of patients on life support in order to make the broad argument that "an entity that is aware of life enough and its rights to protest their dissolution is certainly entitled to the protection of the law." Ultimately, the jury sided with the plaintiff but the judge intervened, recommending that the matter would be better left to resolution by a higher court. At the center of the trial was a question of personhood – whether BINA48 qualified as a person before the law or not.*[296]

[296] Soskis, "Man and the Machines."

Another point of comparison between normative transhumanism and trans(gender)normativity that emerges in transhumanist theory and advocacy is a joint investment in what Wendy Brown refers to as "rights discourse."[297] In 2015, prominent transhumanist and journalist Zoltan Istvan wrote an article for *HuffPost* titled "The Future of the LGBT Movement May Involve Transhumanism," arguing that LGBT rights and transhuman rights "are practically different sides of the same coin."[298] To evidence this claim, Istvan largely relies on future scenarios that might alter the way bodies are sexed and gendered. For example, he writes that the developing technologies embraced by transhumanists "may lead to a society where male and female traits disappear as pleasure becomes 'on-demand,' and gene therapy is able to combine the most functional parts of both genders into one entity." Later, in a 2016 *Newsweek* article, Istvan declares that "transhumanist rights are the civil rights of the 21st century."[299] Martine Rothblatt also frequently makes connections between transhuman civil rights pursuits and transgender civil rights pursuits. In an article written for inclusion in Max More and Natasha Vita-More's *Transhumanist Reader* titled "Mind is deeper than matter: transgenderism, transhumanism, and the freedom of form" she writes, "it is reasonable to expect claims for transhuman civil rights to build, in part, on increasing legal recognition of claims for transgender civil rights."[300] For Istvan and Rothblatt both, the transgender civil rights framework they see as forming the groundwork for transhuman civil rights claims builds

[297] Brown, *States of Injury*, 124.
[298] Istvan, "The Future of the LGBT Movement."
[299] Istvan, "Transhumanist Rights."
[300] Rothblatt, "Mind is Deeper Than Matter," 324.

also out of a longer history of civil rights claims in the U.S. from the women's rights movement to the Black civil rights movement to the gay and lesbian civil rights movement, further drawing race, gender, and sexuality into the equation.[301]

At root in both normative transhumanism and trans(gender)normativity's reliance on rights discourse is the same reductive materialism that underpins mind/body dualism described above. Barad's agential realism provides a way of rethinking reductive materialism that is not confined to its physical implications but also extends into the social. Just as quantum physics challenged the view of a world composed of "individual entities with separately determinate properties,"[302] agential realism challenges the idea that "people are the analogues of atoms and that societies are mere epiphenomena that can be explained in terms of the collective behavior of massive ensembles of individual entities (like little atoms each)."[303] The conception of the human as a bounded, agentic subject is a hallmark of liberal humanism. The reductive materialism that underpins both

[301] The comparison drawn between transhuman civil rights claims and the civil rights claims of historically oppressed groups assumes an equivalence between the struggles of transhumanists and those groups. Given the historical and ongoing systemic issues faced by transgender and Black people in the United States – lack of access to housing, inadequate medical care, and police profiling, to name a few – this comparison is absurd. Transhuman civil rights claims are largely speculative in nature, focusing on the rights of as-of-yet non-existent types of sentient beings to access as-of-yet non-existent technologies such as consciousness uploading software and fully functional robotic body replacements. In other words, these claims speak not to a presently pressing need borne out of structural oppression, but rather a desire for potential future enhancements. In short, the current and historical struggles faced by transhumanists, as a group, are not at all equivalent to the current or historical struggles faced by transgender people and Black people in the U.S. This is not to say that there won't come a day when access (or lack thereof) to bio-nano-info-cogno technologies for human enhancement becomes a systemic issue. Many of the future scenarios envisioned by transhumanists such as the ability to genetically enhance fetuses or merge the human brain with computer processors could indeed create new (or, rather, new versions of existing) structural oppressions. If these technologies come to pass, there may well be profound social and economic inequalities between people who were genetically modified as fetuses and those who were not or between people with processors embedded in their brains and those without. However, it is entirely likely that such scenarios would be shaped by existing systemic oppressions, which would limit, for example, who would have access to these technologies in the first place.

[302] Barad, *Meeting the Universe Halfway*, 5.

[303] Barad, 24.

normative transhumanism and trans(gender)normativity stems, in part, from a shared reliance on liberal humanist conceptions of the human. Although the very term "transhuman" seems, on the face of it, to challenge humanism by moving across, through, over, or beyond it, Ali points out that, in practice, transhumanism acts as "a posthumanist orientation that, while claiming to be *critical*, ends up re-inscribing precisely that very humanism – focused on the figure of "Man" as white, male, European and anthropocentric – that it sets out to challenge."[304]

In *Normal Life*, Dean Spade draws on critical race theory to form a critique of transgender civil rights claims. The growing call for transgender civil rights claims is evident in the work of nonprofit organizations such as the Human Rights Campaign and the National Gay and Lesbian Task Force that seek to create law and policy such as hate crime laws and nondiscrimination laws as a form of redress for the struggles transgender people face. Spade calls attention not only to the inadequacy of these kinds of laws and policies to change the conditions of transgender lives but also the harms they ultimately create for those they purport to help. Hate crime laws, for example, have not been shown to deter violence against transgender people. Additionally, hate crime bills often provide increased funding and resources to the prison- and police-industrial complexes, leading to further harassment and state-sponsored violence against transgender people and people of color, who are disproportionately targeted by police and disproportionately subjected to sexual and non-sexual violence in prisons. Nondiscrimination law, Spade argues, individualizes racism and transphobia, eliding the systemic nature of both. Moreover, nondiscrimination laws often lead to the erosion of laws, programs, and policies – such as

[304] Ali, "Transhumanism and/as Whiteness," 169.

affirmative action and desegregation programs – that have been shown to effectively help people. Lastly, civil rights frameworks place trust in existing U.S. legal systems which were developed out of conditions of inequity and dehumanization (in terms of voting law, property ownership, legal personhood, etc.) rather than using the law strategically (with an awareness of its limits and imperfections) or imagining new ways of achieving collective, transformative justice. For Spade, civil rights claims ultimately contribute to a biopolitical process of transnormativity in which some transgender people, those whose characteristics are valued by the law and by capitalism (white, documented, able-bodied, middle class, etc.), are granted opportunities while transgender people who do not possess these characteristics are denied such opportunities. In contrast to a reliance on calls for civil rights, Spade imagines a transformative transgender politics with a focus on political analysis, and bottom-up rather than top-down strategies for mobilization.[305]

The "Transhumanist Bill of Rights" demonstrates the ways in which transhumanists draw on civil rights claims advanced by structurally oppressed groups and embrace rights discourse uncritically. The first such document was compiled by prominent transhumanist Zoltan Istvan in 2015 and delivered to the U.S. Capitol in December of that year. This initial document was taken up by the U.S. Transhumanist Party – a political party founded in 2014 by Istvan and an advisory panel that included Martine and Bina's son, Gabriel Rothblatt – expanded into Version 2.0 in 2016 and further expanded into Version 3.0 in 2018. The first version contained a mere 250 words whereas Version 3.0 swelled to over 3,500. However, each version centers, as the title suggests, a call for "universal rights" for the subjects of transhumanism ("human beings,

[305] Spade, *Normal Life*.

sentient artificial intelligences, cyborgs, and other advanced sapient life forms"[306]) and calls for "legal safeguards" to protect individuals' choice to pursue "consensual life-extension science, health improvements, body modification, and morphological enhancement."[307] That these documents rely on a civil rights framework is quite clear. Although the transhumanist bill of rights documents are, in some ways, compatible with transformative political aims (Version 3.0, for example, calls for universal healthcare), the civil rights framework that informs them leads to many of the problems Spade identifies in his critique of transgender civil rights claims. First, these documents broadly uphold liberal notions of law in numerous articles, among them Article XXVII which states, "Each sentient entity has the right to recognition everywhere as a person before the law."[308] Article XXXIV defends private property rights: "all sentient entities have the right to own property alone as well as in association with others,"[309] thus upholding the conditions that lead to unequal distribution of wealth and the protection of property at the expense of people. Article XV of Version 3.0 calls for internet access for all sentient entities, with the exception "only of those in legal detention,"[310] thus supporting the continued existence of and maltreatment of incarcerated individuals within the prison-industrial complex.

The entanglement of transhuman theory, practice, and advocacy with rights discourse (and all of the problems this creates) are also evident in the Rothblatts' work. This is perhaps unsurprising given Martine's legal background, but the degree to which

[306] H+pedia, "Transhumanist Bill of Rights, Version 1.0."
[307] U.S. Transhumanist Party, "Transhumanist Bill of Rights – Version 2.0."
[308] U.S. Transhumanist Party, "Transhumanist Bill of Rights – Version 3.0."
[309] U.S. Transhumanist Party, "Transhumanist Bill of Rights – Version 3.0."
[310] U.S. Transhumanist Party, "Transhumanist Bill of Rights – Version 3.0."

developing a rights framework informs the Rothblatts' work is notable nonetheless. Martine's writings place enormous emphasis on civil rights for both transgender people and transhumanists. *The Apartheid of Sex* includes chapters titled "Law and Sex" and "Justice and Gender"[311] and *Virtually Human* dedicates a chapter to "Law and Liberty."[312] More interesting, though, is the way BINA48 has been deployed in order to rehearse and strengthen transhuman civil rights appeals as in the mock trial described above. BINA's appeal for personhood before the law in the context of the mock trial performs the same kind of biopolitical, normativizing work in a transhuman context that Spade argues appeals for civil rights perform in the context of transgender activism. It would seem that, although mainstream transhumanism can imagine a world beyond genitals and beyond sexuality, it cannot imagine a world beyond liberal humanist law.

Vignette 3: Surveillance

> *During an event at the Philadelphia Museum of Art as part of its "Designs for Different Futures" exhibit, an audience member asked BINA48 how artificial intelligence might benefit humans, to which BINA responded, "Robots can help in health care, police surveillance to keep people safe, education, as lifeguards…"*[313]

Reading this quote by BINA, after having spent time with her, seemed lofty given what I knew of her capabilities. On the day I visited with her, the discontinuation or privatization of several pieces of software rendered a number of BINA48's capabilities moot. The visual tracking software used for her facial recognition capabilities was not available because the company that initially developed it had gone out of business.

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[311] Rothblatt, *Apartheid of Sex*.
[312] Rothblatt, *Virtually Human*.
[313] *Philadelphia Weekly*, "Her Voice Carries."

Instead of tracking my face as I spoke with her, her eyes wandered aimlessly around the room. The microphones that enable her to listen to and parse conversation were not functioning which meant that Bruce needed to type my questions to her using a keyboard. The result was a disjointed conversation in which I asked a question and waited through a lengthy delay to hear an answer. Lastly, in addition to drawing on her existent databases (populated by extensive video interviews with Bina Rothblatt), BINA48 used to be able to search for answers to questions on the internet but, as Bruce explained, the software she used to use to do this is no longer available because of the way search engines are being monetized by the companies that build them – not by licensing or offering search capabilities but by directing web users to their sites and exposing them to ads. However, this does not change the fact that BINA48, as designed, is as much a surveillance machine as a social AI/robot. The technologies that give those who interact with her the sense that they are interacting with a being that (however faintly) approximates sentience are surveillance technologies. The cameras embedded behind her eyes not only store images of the faces of the people with whom she interacts but also use facial recognition software to "remember" each person during future meetings. Speech uttered by her interlocuters during conversation becomes a part of her database, never to be erased or forgotten.

In his work on the intersections between U.S. state surveillance and transgender bodies post-9/11, Toby Beauchamp shows how transgender people, on the whole, are particularly vulnerable to the gender-normativizing effects of state surveillance using, as evidence, the Social Security Administration's (SSA) intensified use of "no-match" letters sent to employers to ostensibly warn them that they might be hiring undocumented

workers. "No-match" letters are sent when an employer submits hiring information for an employee that does not match the information the SSA has on record for that employee. Among the factors that trigger "no-match" letters is a mismatch between an employee's stated gender and the gender the SSA has on record for that employee. Although such letters were sent regularly by the SSA prior to 9/11, their use intensified in the years following. Moreover, post-9/11, the SSA began sharing this information with other government agencies, including the Department of Homeland Security (DHS). Coupled with the Real ID Act, Beauchamp observes a rise in "state practices and policies that link gender ambiguity with national security threats" post-9/11.[314] In response to this, the National Center for Transgender Equality (NCTE), an influential advocacy organization, issued a statement to DHS in an effort to protect transgender employees arguing that it was unnecessary for employers to collect information about their employees' genders. As Beauchamp notes, however, "the statement does not oppose state surveillance measures more broadly, but instead seeks to improve them, offering recommendations on behalf of trans employees 'in order for the employee verification system to be efficient and equitable.'"[315] This response by NCTE shows how transgender advocacy organizations intervene in state surveillance processes in ways that strengthen U.S. nationalism and protect white, documented trans(gender)normative bodies at the expense of other, more vulnerable bodies, transgender and non-.

Although what Beauchamp describes is surveillance via documentation whereas BINA surveils by mean of facial recognition, the consequences of BINA's surveillance

[314] Beauchamp, "Artful Concealment and Strategic Visibility," 51.
[315] Beauchamp, 51.

functions are similar. Surveillance isn't an issue that remains walled off within BINA48's databases. Corporate facial recognition software relies on machine learning algorithms that optimize in real time meaning that the faces BINA48 captures become part of a larger set of facial recognition data, broadening that pool of data and strengthening the capabilities of the software. Facial recognition software data is increasingly being used, for example, by police departments across the country, leading to increased wrongful arrests of people from populations already vulnerable to overpolicing.[316] In this sense, the technologies upon which BINA48 is built jeopardize already vulnerable people including transgender people, but most especially people subject to ongoing state scrutiny including people of color, poor people, and undocumented people, transgender or non-.

Writing about the practice of obstetric ultrasonography brings Barad to consider the issue of surveillance. Although the field of surveillance studies regards Foucault as a foundational thinker, Barad argues that, although Foucault's notion of discursivity is theoretically sophisticated, his notion of materiality is "not sufficiently developed" to carry through an elaboration of the coupling of materiality and meaning because in Foucault's analysis of the materialization of human bodies, "he seems to take nonhuman bodies as naturally given objects" and therefore "does not consider the process of materialization through which nonhuman bodies are materialized (nor does he concern himself with boundary-drawing practices through which the division between human and nonhuman is constituted)."[317] For Barad, surveillance apparatuses "*are not mere*

[316] Garvie, "Garbage In, Garbage Out."
[317] Barad, *Meeting the Universe Halfway*, 204.

observing instruments but boundary-drawing practices – specific material (re)configurings of the world – which come to matter [emphasis in original]."[318]

In thinking about BINA48 as a surveillance apparatus that functions as a boundary-drawing practice that reconfigures the world at a material level, we can bring together the physical and social elements of the reductive materialism that underlies both normative transhumanism and trans(gender)normativity to see how transhuman projects like BINA produce transgender and Blackness differentially. In the effort to reproduce human eyes in BINA, sight is reduced to its most basic component – seeing – with no thought to perception. Moreover, this effort to reproduce sight by means of surveillance cameras reproduces social conditions of inequal scrutiny and access to privacy. On the one hand, the eyes are reduced to their most basic physical function and, on the other, the individual is reduced to the atomic subject of liberal humanism.

Conclusion

In contrast to BINA48 and by way of a conclusion, I'd like to offer a brief reading of Mary "Maggic" Tsang's work. Maggic's work models a vision of transhumanism that relies of a non-reductive materialism and therefore produces gender and race very differently than normative transhumanism. Maggic's *Molecular Queering Agency* project begins with a video over which a computer-generated voice announces that "thanks to petrochemical, agricultural, and pharmaceutical industries, we live in a toxic landscape,

[318] Barad, 206.

that is colonized by hormones."[319] These hormones, our robotic narrator informs us, are changing our bodies at the molecular level, creating morphological changes, and effectively queering the body/all bodies. However, rather than attempting to flee the material environment or the mutating body, the performers/participants in *Molecular Queering Agency* are prompted to take agency in their "collective mutagenesis," altering their own hormonal composition and further queering themselves as a mode of queer kinship and collective resistance. This is accomplished by means of the participants offering up their own hormones while also taking in the hormones of previous participants. In effect, the performance is a hormone extraction workshop during which participants learn how to extract hormones from their own urine while simultaneously inhaling the hormones that have been extracted from the urine of previous participants in the project.

At first glance, *Molecular Queering Agency* might appear to be a project far removed from BINA48. However, both projects are, at root, biohacking projects that are consistent with the broad tenets of transhumanism: using contemporary technologies to change and enhance human existence. BINA48 attempts this by acting as early proof-of-concept that human consciousness can be transferred to a digital and machinic substrate whereas *Molecular Queering Agency* attempts this by means of a queer biomutation of the body/self. In contrast to the Cartesian dualism of reductive materialism, *Molecular Queering Agency* demonstrates the inseparability of mind/body, proposing a complex, multiplicitous materiality, using expansive trans and queer modes of thinking that challenge the philosophical assumptions that underpin normative transhumanist thought.

[319] Maggic, "Molecular Queering Agency."

Additionally, it does so in part by means of critique of the very technologies transhumanism embraces in its pursuit of human enhancement and life extension.

Maggic's 2016 *Estrofem Lab* project demonstrates how a transhumanist project that eschews rights discourses and the myriad assumptions embedded within such discourses might imagine the world differently. Maggic's *Estrofem Lab*, an extension of their *Open Source Estrogen* project, takes a novel approach to institutional access. Rather than appealing to existing legal or medical institutions, *Estrofem Lab* "aims to hack the hormones present in our bodies and our present environment, creating a non-institutional portal for hormone access as well as a cultural dialogue for biopolitics."[320] *Estrofem Lab* is a travelling workshop that has been conducted, to date, in Hong Kong, Austria, Spain, Netherlands, the United States, Slovenia, France, and Norway. In each location, participants (anyone interested in "hormonal mutations and reproductive havocs") gather to create an "estrogen hack lab," developing tools and protocols for detecting and extracting estrogen from a variety of sources in ways that are low-cost, can be done with ease, and are reproducible. *Estrofem Lab* has so far led to the creation of a number of different (again, somewhat speculative) approaches to detecting and harvesting estrogen including the development of yeast biosensors, colum chromatography urine extraction, and vacuum pump extraction. Rather than investing in the top-down pursuit of rights, this project aligns itself with those affected by institutional gate-keeping, investing in creating a space to critique the institutions that bar access to hormones, and finding modes of collective redress. This project, in other words, imagines the world otherwise.

[320] Maggic, "Estrofem Lab."

Aside from eschewing a civil rights framework, how might a transformative transgender politics contribute to a transhumanism that imagines not only consciousness, technology, and the human body differently but also the world itself? The question is a pressing one. As Muñoz reminds us in *Cruising Utopia*, "The here and now is a prison house. We must strive, in the face of the here and now's totalising rendering of reality, to think and feel a then and there," an enactment of "new and better pleasures," "other ways of being in the world," and "ultimately, new worlds."[321] The futurist bent of transhumanism, its dedication to crafting a technological then and there, creates a promising field for exploring these questions. Despite its many faults, transhumanist speculation has captured the attention of radical queer and trans thinkers, makers, and activists. Transhumanism has also aligned itself with queerness and transness, although often in regressive and simplistic ways. I acknowledge that Dean Spade's work, which I referenced earlier and which focuses specifically on transgender activism in response to restrictive legal structures, is an imperfect fit for describing how we might imagine the world otherwise in terms of a transgender and transhuman relationship to contemporary and future technologies. However, contemporary technologies are not divorced from our political reality and speculative artworks like BINA48 and Maggic's estrogen projects are a means by which to imagine how our technological reality might materialize (on many levels, including the political) in the near future. Given this, I want to continue to look to Spade for guidance on how a transformational transgender politics might shape our technological future.

[321] Muñoz, *Cruising Utopia*, 1.

In an essay titled, "Building an abolitionist trans and queer movement with everything we've got," Spade, Morgan Bassichis, and Alex Lee argue for a reclamation of the radical legacy of transgender activism. They take their inspiration from radical movements and moments such as the Black Panther Party, the Zapatistas, and post-revolutionary Cuba, arguing that "these radical lineages have nurtured and guided transformative branches of queer and trans organizing working at the intersections of identities and struggles for collective liberation."[322] They frame their analysis through the lens of prison abolition as a means by which to bring attention to structural injustices that might not initially appear to be transgender issues (but certainly are if we follow calls to bring TPOC critique to the center of the field)[323] such as racism, poverty, and incarceration, which serves both to prioritize the most socially vulnerable transgender people and to make a coalitional politics possible.

We can see this coalitional politics in Maggic's work and approach to a radical transgender-inflected transhumanism. *Housewives Making Drugs*, another project in Maggic's estrogen extraction series, is a collection of videos featuring Jade Phoenix and Jade Renegade, both trans women of color. The video opens with the two hanging out at home, when Renegade learns that her health care benefits have been cut due to the erosion of the Affordable Care Act by the Trump administration and that she can no longer access hormones. Phoenix wonders aloud, "What if there was a way to get hormones without needing health insurance?" Cut to a scene with the two in a kitchen in front of a studio audience, welcoming the audience to *Housewives Making Drugs* and

[322] "Bassichis, Lee, and Spade, "Building an Abolitionist Trans and Queer Movement," 660.
[323] Ellison, Green, Richardson, and Snorton, "We Got Issues."

announcing that today's episode will show viewers how to make hormones at home without a doctor's prescription. This method, they promise, will allow us all to "circumvent the whole medical industrial complex, by sharing hormones and tapping into new systems of interdependent community – and taking the phrase 'sharing is caring' to a whole new level!" The method is called the "Estrofeminizer" and relies on extracting hormones from urine and purifying them. The two then complete the process and mix the resulting hormonal concoction into "estro-gin" cocktails.[324] Here, Maggic brings focus to problems that normative transhumanism and trans(gender)normativity consider beyond their purview – systemic racism and poverty, in addition to transphobia – and imagines how both transhumanism and transgender might be produced, shaped, and imagined otherwise by placing such issues at the forefront.

[324] Maggic, "Housewives Making Drugs."

Conclusion: Beyond the Trans/Digital Metaphor

In the introduction to this project, I wrote that one of the surprising avenues this project drew me down was a consideration of what trans theory is in the first place, how it might differ from the feminist and queer theoretical approaches that largely preceded it, and what it might be able to do or allow us to understand that queer and feminist theories can and/or do not. I argued that, in contrast to the performative dimensions queer theory helpfully attends to, a specifically trans theory might be one that is formed by a materialist analysis of body production. Drawing on Barad's notion of intra-action and Preciado's concept of gender as prosthesis, the trans materialism I've employed throughout this project attends to the material dimensions of gender and sexuality ranging from the molecular elements of the body to a consideration of the broader material assemblages (media technologies, legal structures, medical practices, etc.) within which contemporary trans lives are lived. The question of what this approach to trans theory might accomplish and how it differs from queer and feminist theory was the driving force behind each of the chapters in this project.

In the first chapter, I posed Zach Blas's *Jubilee 2033* against Derek Jarman's *Jubilee*. The two films trace the contours of their respective historical junctures, situating transness and queerness, respectively, as parts of larger assemblages that include elements ranging from communication technologies to theoretical turns to approaches to historiography. While Jarman's film traces a queerness that emerges from an assemblage that includes elements such as the dawn of neoliberalism and the proliferation of broadcast media technologies, Blas's film and surrounding exhibit foreground a transness that emerges through its intra-action with digital technologies, technological

libertarianism, and creeping far-right populism. For Blas, then, transness materializes very differently than queerness and at a vastly different historical juncture, necessitating new methods of thinking the present. I think *with* Blas in that chapter, finding in *Jubilee 2033* a kind of trans theory of the digital that, drawing on Preciado, calls for a radical materialism or "trans empiricism." In the context of *Jubilee 2033*, this radical materialism points toward a trans friction, in that transness causes friction in the network, calling into question the purported frictionless of digital technologies and Silicon Valley's fantasy of bodies that can live indefinitely and slide seamlessly between new and different identities and morphologies. This trans friction tracks through the remaining chapters as much as the question of what constitutes a specifically trans theory.

Trans friction is particularly evident in the intra-action between trans characters and the algorithms that underlie streaming TV platforms like Netflix. The explosion of trans representation on Netflix in shows such as *Sense8* and *The OA* is born of the gender indeterminacy that results when our bodies come into contact with algorithms that rely less on demographic information than how we engage with the platforms they underpin: what time of day we tend to watch TV, whether we binge a single series or bounce from show to show, and the choices we make in terms of rewinding, pausing, and searching for titles. Through a close reading of these shows, we can see that Netflix employs trans characters as avatars for the gender indeterminacy that results when TV moves away from its traditional reliance on demographic information. All the same, as much as trans characters contain algorithmic gender indeterminacy and habituate viewers to algorithmic culture, they perpetuate the calcification of a linear trans narrative: one that relies on an assumption that transition is a binary affair and obeys medicojuridical logics. In this

instance, transness creates friction because it both opens up pathways for new modes of being that defy the demographic categories with which we are all too familiar (creating Tsing's "pathways that make motion easier and more efficient") but is also subject to calcification (functioning, in Tsing's words, as "a structure of confinement"). The explosion of trans representation in streaming TV shows us the extent to which the matter of our bodies (the choices we make as we bodily engage with the algorithms that underlie streaming TV) shapes both the indeterminacy and calcification of gender in the televisual sphere, thus adding urgency to my call for a trans theory that is grounded in a materialist analysis.

Indie trans video games and trans *Minecraft* communities, rather than showing us how the trans body is calcified and deployed as avatar for gender indeterminacy, suggest that there is always already something trans about video games. Video games create a "fleshy communion" between players and game, shaping the bodies of those who play them. Players of video games, then, acquiesce to a type of changeability that is characteristic of trans technologies. The burgeoning field of queer game studies has done much to show how video games are always already queer as well as intervening productively in binary arguments in video game studies such as the narrativity/ludology debate. However, thinking video games transly allows a different way of theorizing the binary narrative/ludology debate. Rather than focusing on the fact of the narrative/ludology binary, applying a materialist trans analysis to video games demonstrates the intra-action of the terms of that binary. Rather than eschewing the binary, a trans mode of thinking suggests that the terms of the binary are deeply intra-active, complicating the terms of the binary to such a degree that they cease to be in

binary tension. Theorizing video games as a trans technology, then, not only intervenes in long-held debates in video game studies, but also brings to light what a materialist trans mode of theorizing offers that a queer mode of theorizing cannot, thus building upon and extending queer modes of theorization.

Normative transhuman project like BINA48, however, point to the dangers of a reductive trans materialism. Normative transhuman projects and theory rely on a reductive materialism that assumes a separation of mind and body and attempts to reduce complex material processes to their most basic components (e.g. reducing the brain to the function of individual neurons with the hope that a computer chip can function identically to the human brain). This resonates with modes of thought that attach to normative notions of transgender such as the idea of a "wrong body" or the idea that transness can be scientifically validated by locating a particular gene or region of the brain that is responsible for gender dysphoria. And, indeed, normative transhumanists frequently compare the notion of transhuman morphological freedom to transgender medical transition. However, as BINA48 shows us, normative transhumanism's reductive materialism cannot grapple with the intra-action between matter and the messiness of history, culture, and politics. When I write about a materialist trans theory, and what the other chapters of this project bear out, is that such a theory must be based in a complex understanding of matter akin to Barad's theorization of matter as intra-active. A complex materialist trans theory offers the potential for a different kind of transhumanism as seen in the artist Maggic's work which recognizes the intra-action of the material and the social and is compatible with a notion of transgender that is rooted in coalition, collectivity, and justice.

I began this project with a desire to better understand the relationship between transness and digital technologies, spurred by the use of trans as metaphor by scholars writing about such technologies. The objects I've engaged with in each of the chapters – digital artworks, streaming TV shows, video games, and transhuman projects – point to a complexity at the digital/trans nexus that is not accounted for in the work of the scholars whose quotes I opened the introduction chapter with. At times I found that trans/digital encounters produce a productive trans friction that creates new possibilities for trans becoming as is evident in the indie trans video games and trans *Minecraft* communities I write about in the third chapter. At other times, I found that trans/digital encounters result in transnormative efforts to eliminate friction such as in the algorithms that underpin streaming TV or the Rothblatts' BINA48. But, to pose this as the result of this project would create a binary between productive trans/digital encounters and confining trans/digital encounters. Riffing on Preciado, I wrote in the first chapter that transness in its post-1990s iteration was transformed in the network, that it mutated to the logic of the algorithm, and smuggled gender production technologies like the emoji and the profile pic for its own use. Contemporary transness, then, *is* a trans/digital encounter. As I wrote in my exploration of video games in the third chapter, the trans materialism I developed throughout this project is one potential approach to a trans theory that differs from queer theory in its approach to binaries. Rather than deconstructing binaries, a trans theory grounded in trans materialism views elements frequently constructed as a binary as deeply connected and intra-acting. So, although the trans/digital encounter plays out in complex and sometimes contradictory ways, posing it in terms of a binary is not particularly meaningful or productive.

Perhaps, then, this project's primary contribution to the fields it engages with is methodological. My analysis of the objects I've engaged with throughout the project shows the limitations of thinking of transgender as a metaphor for digital technologies and proposes a method of analyzing digital media and technologies that accounts for the complexities of the trans/digital nexus. Using the trans-as-metaphor approach to thinking the trans/digital nexus, we might say that an algorithm's disinterest in traditional demographic categories like gender transes users who engage with it or that BINA48's robotic body is akin to a transgender body, but that doesn't really tell us much about algorithms or robotic bodies or transness for that matter. If, however, we think of transgender and digital technologies like algorithms or video games or AI/robots as elements of an assemblage emerging through and with each other in a complex set of relations, we get a very different view. Rather than standing in for the qualities of digital technologies, we can see how transgender, in its contemporary iteration, is brought into being by the technologies it has emerged through and alongside including as, for example, when transgender representation on streaming TV shows is composed of trans characters that are positioned as avatars of the algorithmic age. Using this method also shows how transgender itself plays a role in bringing digital technologies into being as, for example, when normative transhumanism draws heavily on transgender body modification practices in its development of body-changing technologies.

Transness and digital technologies, then, are co-productive elements in a shared assemblage, but their relationship is frictive and tense rather than smooth and easy. The concept of trans friction helps us understand these frictions and tensions in the trans/digital nexus between, for example, the productive and the constraining or power

and resistance. As we saw with the misidentification of trans and gender nonconforming faces by Amazon's Rekognition software, transness creates friction in digital systems, but as Tsing reminds us, "hegemony is made as well as unmade with friction."[325] In the chapter on Blas's *2033*, I described Nootropix as both Silicon Valley's wet dream and its undoing and wrote that the network both created the possibility for Nootropix's existence and also restricted and confined them. Broadening this to think about the trans/digital nexus more broadly, we can better understand the paradox at its core. Digital technologies both provide the conditions that make the post-1900s iteration of trans possible while also confining and constraining it. Streaming TV's algorithms, for example, help create the conditions for increased trans representation in popular culture but also calcify a narrow version of transness in so doing. Similarly, video games create the conditions for experimenting with different modes of being and embodiment but only within a narrow set of cultural and technological parameters.

Taken together, the three outcomes of this project – trans materialism as an approach to trans theory, a method for reading the bodies and technologies at the core of the trans/digital nexus as an assemblage, and the concept of trans friction – contribute to each of the fields I draw from and engage with throughout the project. As trans studies continues to come into its own, trans materialism offers a possible route to establishing a specifically trans theoretical framework that differs from those offered by feminist and queer theory. For theatre and performance studies, this project offers a guide for engaging with transness beyond representation and for thinking through the entanglement of bodies and digital technologies. Lastly, at a moment when digital media and technologies are

[325] Tsing, *Friction*, 6.

poised to engage the body more and more, my hope is that this project offers a means by which media studies might move beyond the textual and into a consideration of the intra-action between media/technologies and bodies.

In thinking about developing this project and its contributions further, I want to return briefly to the chapter on BINA48. It was in writing this chapter that I had the most difficulty resisting binary thinking; I struggled to avoid making an argument about a "bad" normative transhumanism (BINA48) as compared to a "good" radical transhumanism (Maggic's work). Because of this, that chapter was one of the more difficult ones to write but I think there's productive potential in that. Moving forward, my aim is to extend that chapter by looking at additional instances of the overlap between transgender and transhuman technologies including other AI/robotics projects, gender swap VR projects such as Embody Me and Girl Mirror Look, Borgfest's Cyborg Pride Parade, and Please Try This at Home (a trans/queer biohacking conference). I hope that this will not only help further develop this chapter of my current project but will also lay the groundwork for a new project focused on the intersections between transhumanism and transgender. In the new project, I will explore questions such as: To what extent and in which ways does transgender inform transhuman technologies and theories? What are the possibilities and dangers these technologies pose for transgender and other marginalized peoples? How might we think or rethink transhumanism from a transgender perspective, not only using trans theory and experience as a mode of understanding transhumanism but also as a mode of critique? And, finally, how might these insights help us better navigate the present moment when transhuman technologies are, for better or worse, becoming ever more a part of our lives, transgender or non-?

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