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Postfeminist Technologies:

Digital Media and the Culture Industries of Choice

A dissertation submitted in partial satisfaction of the
requirements for the degree Doctor of Philosophy
in Film and Television

by

Jonathan Alan Cohn

2013

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ABSTRACT OF THE DISSERTATION

Postfeminist Technologies:
Digital Media and the Culture Industries of Choice

by

Jonathan Alan Cohn

Doctor in Philosophy in Film and Television

University of California, Los Angeles, 2013

Professor Kathleen McHugh, Chair

In this dissertation, I argue that digital recommendation systems – a relatively recent technological innovation – fundamentally reconfigure the very notion of “self” in and for the digital era. Many popular websites, including Google, Netflix and Amazon, employ these systems to assist the user in making decisions of all types, by offering recommendations based on particular algorithms. Throughout the dissertation, I engage the ways that these recommendation systems facilitate contemporary notions of agency and identity as they are constructed through acts of choice. I examine how these systems have enabled the emergence of what I call *the culture industries of choice*. These industries use digital recommendation systems to lead users toward certain decisions and objects and away from others. In doing so, these automated recommendations, derived from an analysis of user data, shape the contemporary self

through a rhetoric that equates conformity with equality and consumerism with freedom. Now a part of today's most popular and influential websites and digital technologies, these digital recommendation systems articulate self-representation and modulation as an integral part of electronic consumption; further, they articulate new networks and conceptions of community. Thus, the need to understand how they affect the way we represent ourselves and think ourselves, as well as how we construct our local and global communities, grows increasingly urgent.

By focusing on how recommendation systems are used by a wide range of sites and technologies, I suggest that the notion of the "recommendation" may serve as a means of critically examining the intertwined relationship between postfeminism, neoliberalism, and digital culture. While many theorists have written extensively about the pervasiveness of choice and the anxieties that result from the need to choose in a neoliberal and postfeminist context, my project shifts the frame by exploring how digital recommendation systems have developed to help people manage and make these choices. My dissertation focuses on how discourse and technology have interacted from the birth of the World Wide Web (W3) in 1992 to the present and how digital technologies and algorithms are presented as lifting the "burden" of choice, a sense of burden upon which neoliberal and postfeminist discourses depend, and in so doing offer greater "freedom." These technologies both figuratively and literally shape user profiles through this instrumentalization of choice.

I begin in Chapter One with a discussion of digital recommendation systems in relation to the postfeminist, neoliberal workplace and the female professional. Many of these technologies were developed by Professor Pattie Maes in the early 1990's at the Massachusetts Institute of Technology specifically to help female professionals manage the many difficult everyday

choices that having a family and a career often entails. Maes's recommendation systems organized schedules, sorted email, searched for music and other media, and helped academics find others with similar interests. In Chapter Two, I focus on how postfeminist discourses centered around citizenship, gender, and sexuality are at play on media recommendation sites like Netflix and Digg.com and in relation to Digital Video Recorders like TiVo. Chapter Three explores how these same discourses and a strong focus on postfeminist self-management affect personal relationships through recommendations on dating websites that use matchmaking software, with a special focus on eHarmony. Chapter Four examines how neoliberal and postfeminist paradigms of choice, individuality, and traditional gender norms are transforming the human body through websites and technologies that analyze, judge, and rate a person's appearance in order to recommend "make-overs" including plastic surgery operations. Throughout, I show how these recommendation technologies and their varied uses transform and complicate our relationship to our very senses of "self" in our current media landscape.

The dissertation of Jonathan Alan Cohn is approved.

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2013

For my parents,
Simon and Janet Cohn

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**Introduction:
Data Fields of Dreams**

Contemporary culture involves a vast increase in the number and type of choices that people can make – regarding everything from mundane grocery selections to monumental life decisions. On the one hand, feminist and civil rights gains have opened up many education and career opportunities and life choices for women and minorities. On the other, global trade and the Internet have helped radically expand both the consumer marketplace and the amount of information to which people have access. While this abundance of choices can be presented as a positive marker of personal autonomy and freedom for citizens, consumers, and users alike, it is often instead depicted and described as oppressive, anxiety inducing, and superfluous. Critics of feminism denounce its victories for adding choice but not happiness to the lives of women. Economists and sociologists question the rapidly increasing number of products in grocery stores and argue that more products only leads to increased consumer anxiety and less satisfaction. Information scientists and digital theorists bemoan the plethora of information readily available online and argue that it overloads users, making it more difficult for them to make decisions and understand complicated issues. What does it mean to present personal choice as simultaneously an oppressive burden and a path to greater liberty; why now has the value of personal choice come up for debate?

Postfeminist Technologies: Digital Media and the Culture Industries of Choice responds to these questions through an interrogation of digital technologies that automatically recommend information, objects, friends, and so on to users. The rhetoric surrounding these digital recommendation systems frames personal choice within contemporary digital culture as a burden that must be lifted from users and in the process they make freedom of choice into an alias for

oppression. Many popular websites, including Google, Netflix and Amazon, employ these recommendation systems to assist the user in making decisions of all types. In this dissertation, I examine how these systems enable what I call *the culture industries of choice*. Rather than producing standardized goods, this widespread collection of consumer corporations and self-management organizations instead produce standardized shopping choices and life decisions in the form of recommendations that generally uphold the status quo and steer mass culture toward greater conformity. Whether in the form of Google or Bing's organization of search results and presentation of personalized advertisements, or Pandora or iTunes Radio's automatically generated music playlists, these industries use recommendation systems to lead users toward certain information objects, media, purchases and/or decisions and away from others. Their automated recommendations, derived from an analysis of user data, shape the contemporary self through a rhetoric that equates conformity with equality and consumerism with freedom. In the process, these technologies transform the very notion of "self" in and for the digital era. Thus, I focus on the digital recommendation system as a primary tool of control that encourages users to think of increasing choice as a problem and recommendations as the "benign" solution. By looking at the history, current uses and rhetoric surrounding these systems, I will show how recommendation systems evolved to help manage the many transformations and struggles around choice in contemporary culture.

The Power of the Algorithm

Contemporary cultural forces affect digital technologies at the level of the algorithms that make them operational – and are, in turn, affected by them. Algorithms are defined broadly by

Janet Murray as simply “a sequence of steps that need to be followed to accomplish a task.”¹ Algorithms are the building blocks for how computers work and govern everything from how information is presented on a Facebook page to how one’s actual face is displayed (or distorted) in a digital camera monitor. As these algorithms express how programmers instruct computers to perform their tasks and process information, Andrew Goffey has suggested that they are important to study for what they “can tell us about the place of culture in software.”² Mary Hodder, a “veteran Silicon Valley technologist,” explains in the *Washington Post* that

the ethical issue with algorithms and information systems generally is that they make choices about what information to use, or display or hide, and this makes them very powerful. These choices are never made in a vacuum and reflect both the conscious and subconscious assumptions and ideas of their creators.³

The ways algorithms sort and analyze the data they receive reveals the cultural values and ideologies that their programmers express through them.

This quality of algorithms made headlines in 2009 when the algorithm that lists and ranks the sales of Amazon.com books “mistakenly” listed all books with gay themes as “adult” materials. Even extremely popular novels like Annie Proulx’s *Brokeback Mountain* were suddenly stripped of their sales rank, which resulted in them being removed from product

¹ Janet H. Murray, "Inventing the Medium," *The New Media Reader*, eds. Noah Wardrip-Fruin and Nick Montfort (Cambridge, Mass: MIT Press, 2003), 20.

² Andrew Goffey, "Algorithms," *Software Studies : A Lexicon*, ed. Matthew Fuller (Cambridge, Mass.: MIT Press, 2008), 16.

³ Mary Hodder, "Why Amazon Didn't Just Glitch," *The Washington Post* April 14, 2009.

searches, lists of popular titles, and individual user recommendations. This re-listing made it more difficult for these books to be found on the website and resulted in *A Parent's Guide to Preventing Homosexuality* becoming the top result for a search for the term "homosexuality." After discovering this, a large group of users on Twitter used the subject "#amazonfail" to respond angrily with charges that Amazon with trying to "hide material it finds distasteful or that it thinks some customers will find distasteful."⁴ While Amazon quickly apologized for what they called a "ham-fisted cataloging error" and added sales ranks back to their LGBT titles, they never explained whether this algorithmic change was caused by a lone homophobic or clumsy programmer, imposed by a hacker, or decided by committee.⁵ This is but one well-documented example of how the recommendation algorithms that enable the searching and categorization of the World Wide Web shape, foreground, and/or deny certain types of selves and identities from being represented. Everyday uses and effects of recommendation systems, however, largely go unexamined.

Indeed, in the face of increasing choice in consumerism, work, family and other areas of everyday life, the logic and power dynamics of the recommendation have become increasingly central within contemporary culture. While the term "choice" rhetorically seems to suggest autonomy and individuality and "recommendation" suggests a friendly nudge in the right direction, as I shall demonstrate, in actuality automated recommendations help to maintain

⁴ Peter Kafka, "Did Amazon Really Fail This Weekend? The Twittersphere Says 'Yes,' Online Retailer Says 'Glitch,'" *AllThingsD*, April 12, 2009, <http://allthingsd.com/20090412/did-amazon-really-fail-this-weekend-the-tittersphere-says-yes/>.

⁵ Peter Kafka, "Amazon Apologizes for 'Ham-fisted Cataloging Error,'" *AllThingsD*, April 13, 2009, <http://allthingsd.com/20090412/did-amazon-really-fail-this-weekend-the-tittersphere-says-yes/>.

dominant conservative ideologies and an economic status quo that continues to marginalize many.

Digital recommendation systems predict how much individual users might like or dislike an object, piece of information, service, or even person based previously recorded information concerning their online activities and personal information stored in their browser and in online profiles. These systems are useful on large shopping, media viewing and sharing, dating, and information sites that might include thousands if not millions of entries, which no one could possibly search through on their own. Netflix argues that being confronted by hundreds of thousands of possible films to rent or watch instantly can be daunting, and it uses a recommendation system to make this process both less tedious and less time-consuming.⁶ At the same time, the use of the same systems in displaying ads for products to individual users based on their specific taste has made them a central technology in the global \$25 billion display ad market.⁷ Recommendation technologies are currently employed on virtually all of the most influential and popular websites around the world.⁸

Dietmar Jannach explains this technology through the example of an online bookstore, where after searching for a particular book:

⁶ “Netflix Consumer Press Kit,” April 25, 2011.

⁷ Jeffrey Rosen, “Who Do Online Advertisers Think You Are?,” *The New York Times*, November 30, 2012, sec. Magazine, <http://www.nytimes.com/2012/12/02/magazine/who-do-online-advertisers-think-you-are.html>.

⁸ The only website on Alexa.com’s top ten list that does not use recommendation technologies is Wikipedia.org. Those sites that do use them include Google, Facebook, Youtube, Yahoo!, Baidu, Windows Live, Amazon, QQ.com and Twitter. See “Alexa Top 500 Global Sites,” accessed December 1, 2012, <http://www.alexa.com/topsites>.

In one area of the web page possibly called ‘Customers Who Bought This Item Also Bought,’ a list is shown of additional books that are supposedly of interest to you. If you are a regular user of the same online bookstore, such a personalized list of recommendations will appear automatically as soon as you enter the store.⁹

This web page may have generated these recommendations either by using content-filtering algorithms, collaborative filtering algorithms, or both. Content-filtering algorithms find other books that are similar in content to the one the user searched for (with the same author, genre, year of release, or a similar title). This type of system assumes that if a user likes one mystery novel, they might like another. Collaborative filtering algorithms, by contrast, find other users with the same interests and display what they liked as recommendations. Jannach proposes that:

if users shared the same interests in the past—if they viewed or bought the same books, for instance—they will also have similar tastes in the future. So, if, for example, user *A* and user *B* have a purchase history that overlaps strongly and user *A* has recently bought a book that *B* has not yet seen, the basic rationale is to propose this book also to *B*.¹⁰

This type of filter does not rely on any information about the object itself and instead only requires information about other users who bought, searched for, or even simply looked at it.

⁹ *Recommender Systems [electronic Resource]: An Introduction* (New York: Cambridge University Press, 2011), 1.

¹⁰ *Ibid.*, 2.

Collaborative filtering algorithms are often viewed as being ideologically neutral. While the gender, race, class, age, location and politics of User *A* and User *B* might be completely different, these technologies unite them around an often invisible personal taste that often appears to transcend diversity and visible differences. Indeed, much of collaborative filtering's popularity comes from its inclusivity made possible by its sole focus on consumer history, which means that their calculations that are in no way qualitatively judgmental. Collaborative filters make it possible for users to receive recommendations that may not be exactly related or even similar to items that were bought in the past, but are still a source of pleasure and interest. These filters can lead to seemingly odd and idiosyncratic suggestions. On Amazon.com, one user created a list of "Strange Amazon Recommendations" that included, among many other things, a pair of "Levi's Men's 550 Relaxed Fit Jeans" which were recommended because the user "owned *Star Wars, Episode III—Revenge of the Sith*," an "OXO Good Grips Salad Spinner," and a Panasonic "Nose and Ear Hair Groomer."¹¹ While nothing obvious connects these items, Amazon's collaborative filtering algorithms found an important correlation between them based on the taste of "similar" users.

This ideological neutrality is, however, a mirage. Rachel Schutt, a senior statistician at Google Research has argued that "Models do not just predict, but they can make things happen' [...] A person feeds in data, which is collected by an algorithm that then presents the user with choices, thus steering behavior."¹² While, rhetorically, the ability to choose becomes

¹¹ M. Carrier, "Amazon.com: Strange Amazon Recommendations," Amazon List, *Amazon.com: Strange Amazon Recommendations*, accessed December 1, 2012, <http://www.amazon.com/Strange-Amazon-Recommendations/lm/R15W3LLZV2GF0V>.

¹² Steve Lohr, "Big Data Is Great, but Don't Forget Intuition," *The New York Times*, December 29, 2012, sec. Technology, <http://www.nytimes.com/2012/12/30/technology/big-data-is-great-but-dont-forget-intuition.html>.

largely synonymous with freedom, digital technologies use guided choices to shape user behavior. Rather than simply reflecting the tastes of users back to them, these algorithms push them in particular directions – without actually explaining why or how. Alexander Galloway argues that these “powerful algorithms[...]determine and at the same time inflect the identity of the user” through a process of interpellation.¹³ These systems instantiate and automate Louis Althusser’s belief that ““post-industrial capitalism’s espousal of the ideology of choice is not a coincidence but rather enables it to perpetuate its dominance.””¹⁴

Moreover, the notion of “collaboration” among users is potentially quite misleading since the websites that use these technologies often actively preclude the formation of actual communities. Websites like Google, Amazon.com and Netflix use collaborative filtering algorithms to constantly search through their own user databases in order to compare individual users against each other based on their taste. In the process, they implicitly create communities amongst the user base that are never explicitly revealed to any particular user except through recommendations. But since these “communities” are invisible and its members never meet, community becomes reduced to conformity of taste with little to no potential for any kind of collective engagement or action. Instead of community, recommendation systems values individuality and tacitly encourage the greater atomization of consumers, users, and citizens alike.

Thus, while contemporary culture characterizes personal choice as a primary way in which people perform both their freedom and individuality, the extraordinary popularity and

¹³ Alexander R. Galloway, *Protocol: How Control Exists after Decentralization*, Leonardo (Cambridge, Mass.: MIT Press, 2004), 114.

¹⁴Louis Althusser quoted in Renata Salecl, *Choice* (London: Profile Books, 2010), 9.

omnipresence of recommendation systems in online environments suggest ways in which this freedom is often heavily restrained and controlled in order to make these choices and decisions “easier.” At the same time, by suggesting that the choices a user makes should be based on ones made by many other users across the world, and that these choices can be accurately predicted, choice ceases to be a performance of individuality and instead becomes an operation of conformity. Indeed, as I will argue throughout this dissertation, recommendation systems and the digital technologies and websites that use them construct personal choice in all areas of life (and its corresponding freedoms) as a burden best relieved by outside forces and automated technologies; algorithmically-determined recommendations thus replace free choice as the primary architect of contemporary subjectivity.

Culture Industries of Choice and the Logic of the Recommendation

Digital recommendation systems and their collaborative filters facilitate and maintain contemporary service economy based culture industries that rely heavily on information technologies. Technology entrepreneur Lisa Gansky has argued that digital technologies have created businesses “in which consumers have more choices, more tools, more information, and more power to guide those choices.”¹⁵ *WIRED* editor Chris Anderson has also championed this abundance by stating that “the future of business is selling less of more” because online, even obscure and lower selling items can still be profitable.¹⁶ Based on this assumption, Anderson argues for the inherent goodness of enlarging choice in consumerism by making more goods for

¹⁵ Lisa Gansky, *The Mesh: Why the Future of Business Is Sharing*, Reprint (Portfolio Trade, 2012), 5.

¹⁶ Chris Anderson, *The Long Tail: Why the Future of Business Is Selling Less of More* (New York: Hyperion, 2008), cover.

the market. Together, these businesses market their products as opportunities to express one's agency and individuality.

As Theodor Adorno and Max Horkheimer first argued in 1944, however, media and consumer industries create a wide variety of choice in products, but these marked differentiations “do not so much reflect real differences as assist in the classification, organization, and identification of consumers.”¹⁷ Indeed, these choices, which appear to allow for more freedom in the marketplace, mask the standardization of culture and the ever increasing conformity and passivity of consumers:

That the difference between the Chrysler range and General Motors products is basically illusory strikes every child with a keen interest in varieties. What connoisseurs discuss as good or bad points serve only to perpetuate the semblance of competition and range of choice. The same applies to the Warner Brothers and Metro Goldwyn Mayer productions. But even the differences between the more expensive and cheaper models put out by the same firm steadily diminish: for automobiles, there are such differences as the number of cylinders, cubic capacity, details of patented gadgets; and for films there are the number of stars, the extravagant use of technology, labor, and equipment, and the introduction of the latest psychological formulas.¹⁸

¹⁷ Max Horkheimer, Theodor W. Adorno, and Gunzelin Schmid Noerr, *Dialectic of Enlightenment: Philosophical Fragments* (Stanford University Press, 2002), 97.

¹⁸ Theodor Adorno and Max Horkheimer, “The Culture Industry: Enlightenment as Mass Deception,” trans. Andy Blunden, *Frankfurt School: The Culture Industry: Enlightenment as Mass Deception*, 1944 2005, <http://www.marxists.org/reference/archive/adorno/1944/culture-industry.htm>.

While their writings address a very different historical moment and type of industry, Adorno and Horkheimer's discussion of the culture industries continues to be prescient. Since the 1940s, the manufacturing sector in the United States has gradually receded and the service industry has become dominant. Coupled with digital technologies, this economic movement has led to the growth of subscription and rental services that advertise their ease of use as much as their actual content. Even many major manufacturers like Apple or Microsoft now heavily highlight their services in marketing their actual products. Hence, companies in this service industry must be analyzed for how their distribution methods shape contemporary culture as much as their commercial content and commodities themselves. While Adorno and Horkheimer focus on the role of commercial products (from cars to films) in shaping culture, my study focuses on distribution and service practices – in the form of recommendations and the privileging of certain choices over others – that frame these products. Unlike Adorno and Horkheimer, I do not suggest that these practices create a monolithic mass society in which everyone becomes docile regardless of their economic situation. I, however, do argue that digital recommendation systems and the culture industries of choice – made up of companies that use these technologies – that they facilitate create desires, dreams, and false needs that drive subjects not just toward more consumption, but also toward particular patterns of consumption under the guise of free choice. The “recommendation” becomes one of the latest tools of “mass deception.”

Digital recommendation systems now present themselves as a natural part of the digital landscape. While I primarily focus on examples of companies and websites like Netflix and eHarmony that heavily identify themselves via unique recommendation systems that they built themselves, many companies also make and sell generic recommendation systems that can be used by any commercial website. Barilliance, Baynote and Certona each sell generic

recommendation systems that employ collaborative filters to hundreds of companies from multinational corporations like 3M and Urban Decay to more specialized and localized merchants like Acuista.com, FotoKasten.de. Illustrating the role of recommendation systems in shaping not just popular but also high culture, Certona provides its software to New York's MOMA online store and is responsible for twelve percent of its sales. These companies design their recommendation systems to easily work with any product or service; Barilliance advertises that they can integrate their system into any online store in only five minutes and promotes that its recommendations have improved sales rates and conversation rates for clients by as much as 500%.¹⁹ These companies lease their recommendation systems in packages with a host of related "personalization" technologies that use collaborative filtering to, among other things, improve website search tools, transform the main pages of sites to feature products that individual users would be more likely to purchase, and send these users personalized emails based on their recommendations.²⁰ The ubiquity of these systems not only transforms the way the consumer web works for everyone, but also quietly replaces free choice with recommendations throughout the internet.

Companies that create and use recommendation systems are responding to the fear that too much choice can actually lessen profits. Economists Sheena Iyengar, Mark Lepper, and Barry Schwartz have referred to this phenomenon as the "paradox of choice."²¹ In his book of the same name, Schwartz argues that too much choice creates anxiety and makes it more difficult to come to any final decision based on any qualitative rationale. Horkheimer and Adorno argued

¹⁹ "Customers | Barilliance," 2013, <http://www.barilliance.com/customers>.

²⁰ "Products & Solutions," *Baynote*, 2013, <http://www.baynote.com/products-solutions/>.

²¹ Sheena Iyengar, *The Art of Choosing*, 1st ed. (New York: Twelve, 2010); Barry Schwartz, *The Paradox of Choice: Why More Is Less* (New York: Ecco, 2004).

that false needs are created by an irresistible experience of heterogeneity (which is in their view, in fact, homogeneity). Contemporary consumer culture increases and perpetuates the production of false needs by filtering the overwhelming (false) heterogeneity of products through recommendation systems. The experience of abundance and heterogeneity becomes channeled into the “recommended choice.” Sociologist Renata Salecl has suggested that anxiety about choice is compounded by “today’s consumer society” in which “we are asked to see our whole lives as one big composite of decisions and choices.”²² Instead of freedom, culture industries of choice represent this abundance as a “path of self-destruction” that Salecl somewhat hyperbolically links to contemporary epidemics of “self-harm, anorexia, bulimia and addictions.”²³ As a response to this “crisis,” recommendation systems point to the larger socioeconomic ideologies that work to structure subjectivity.

Digital recommendation systems lead users toward certain options and make others invisible; they construct their subjects as “empowered consumers” who experience autonomy and agency through these, in fact, heavily circumscribed shopping experiences. My discussion of digital recommendation systems will explore and historicize how their shaping of choice has come to also shape contemporary culture and subjectivity in ways that too often support the status quo through harmfully regressive and highly gendered and classed social and economic policies. Specifically, as I will now describe, these technologies participate in and maintain the dominance of contemporary neoliberal and postfeminist ideologies.

Neoliberalism, Postfeminism, Digital Technology

²² Salecl, *Choice*, 1.

²³ *Ibid.*, 4.

Digital recommendation systems facilitate a larger neoliberal, postfeminist culture that celebrates the free market, de-regulation, individual freedom, and equality for all but grapples with the value of personal choice. Indeed, postfeminism and neoliberalism provide a crucial discursive framework for the emergence and ubiquitous status of these technologies. David Harvey and Rosalind Gill argue that neoliberalism and postfeminism, ideologies that have been dominant since the 1980s, share the proposal that all “human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade.”²⁴ This set of theories has resulted in the gradual dismantling of organized labor, public welfare, and social programs since the 1980s, both in the United States and around the world. Susan Braedley and Meg Luxton have argued that these pro-corporate policies reinscribe and intensify social hierarchies of gender, race and class,²⁵ even as, Gill states, these neoliberal/postfeminist subjects are represented as fully “autonomous, agentic, and empowered” and no longer subject to the kinds of structural inequalities and oppressions that feminism often seeks to unveil.²⁶

While distinct, neoliberalism and postfeminism are intertwined and feed off of each other. In fact, many of the roots of both neoliberalism and postfeminism can be seen in the gradual turn away since the 1960s from community activism and toward identity politics.²⁷

²⁴ Rosalind Gill and Christina Scharff, eds., *New Femininities: Postfeminism, Neoliberalism and Subjectivity* (Palgrave Macmillan, 2011), 5.

²⁵ Susan Braedley and Meg Luxton, *Neoliberalism and Everyday Life* (McGill-Queen’s University Press, 2010), 6.

²⁶ Gill and Scharff, *New Femininities*, 9.

²⁷ Tasker and Negra argue that while identity politics may have generated postfeminism’s “politics of the self, culminating in the self as project” this trajectory was not inevitable but instead driven by consumer and political forces. See Yvonne Tasker and Diane Negra, “Introduction: Feminist Politics and Postfeminist Culture,” in

Many important feminist milestones from woman's suffrage to *Roe vs. Wade* empowered women by broadening the choices they have in their own lives, from control over their own bodies to their careers and political aspirations. Based on community activism, these victories showcased the political implications of preserving and broadening the scope of personal choice and privacy laws and cultural norms for everyone. These movements defined freedom of choice as political, social, and relevant to the entire community even as it also empowered the individual. In contrast, neoliberalism and postfeminism tend to frame choice as an expression of specifically individual freedom primarily performed in relation to the consumer marketplace. While *Roe vs. Wade* may encapsulate the meaning of choice within the feminist movements, postfeminism primarily defines choice in terms of a woman's power to buy what she likes. Likewise, neoliberalism defines freedom in terms of the ability of the individual to participate in the free marketplace.

Indeed, the relationship between postfeminism and neoliberalism is correlative. They both grew out of a trend toward individualism and a valorization of free choice in the 1970s. This trend helped propel conservatives like Reagan and Thatcher into office via campaigns that stressed the values of "self-reliance," "standing on one's own feet," and "freeing the individual from the state."²⁸ David Harvey defines neoliberalism as a "theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong

Interrogating Postfeminism : Gender and the Politics of Popular Culture (Durham, N.C.: Duke University Press, 2007), 21.

²⁸ Martin Evans, Lisa O'Malley, and Maurice Patterson, *Exploring Direct and Relationship Marketing* (Cengage Learning EMEA, 2004), 157.

private property rights, free markets and free trade.”²⁹ In practice, these theories led to massive deregulation and privatization that curbed the power of labor and reoriented the state toward the protection of free markets and free trade by both legal and physical force. While neoliberalism has led to the massive growth of class divides, it was actually promoted as a strategy that could help further feminist causes. Neoliberal economics and free trade are supposed to be gender and race blind—in theory, for free markets to work, the autonomous agents that act within them must be equal and rational to safeguard against people acting against their own economic interests. This theory was supposed to make it possible for women and minorities who had been kept from becoming educated, owning their own businesses, or creating innovations and consumer products to have a better chance at contributing to the global economy. Of course, neoliberal theory ignores structural inequalities that continue to prevent women and minorities from attaining this neoliberal definition of success. Nevertheless, this celebration of individualized freedom as guaranteed through global trade has been an important part of how the United States has justified many of its policies, including foreign campaigns and embargos, over the last forty years.

At the same time, since the 1970s, huge advances in the information technologies and infrastructures that store and provide information on citizens, consumers, and users have facilitated the growth of neoliberalism. Digital recommendation systems now rely on and are based on these and similar information systems. According to Harvey, since neoliberalism posits that governments are not trusted to be able to understand or control how the free market operates (and any attempts to do so are suspiciously viewed as a form of favoritism), the control of these

²⁹ David Harvey, *A Brief History of Neoliberalism*, 1st, First Edition (Oxford University Press, USA, 2007), 2.

systems is entrusted to the computer programs themselves and their operators.³⁰ Information technologies have also encouraged the development of new products especially in media, entertainment, and pharmaceutical industries. This mobilization of technological innovations diverts attention from the lack of investment in basic physical and social infrastructures and undermines “dominant social relations and institutions; [the creators of these technologies] can, through their activities, even reshape common sense to their pecuniary advantage.”³¹

Also, while neoliberalism’s valuing of autonomy and individuality have led to the destruction of safety nets and the mistaken belief that those who fail economically (or otherwise in life) have no one to blame but themselves, neoliberalism also articulates a feminist desire to judge people based on their own merits rather than crude stereotypes. However, while many feminists argue that people should be judged as equals based on their own merits, neoliberalism misguidedly acts as though this equality has been achieved and that the free market can exist without regulation. Neoliberals articulate the free market as “an ethic in itself, capable of acting as a guide to all human action, and substituting for all previously held ethical beliefs” that paradoxically both enables and necessitates real equality.³²

Since the free market can only work correctly if all of the agents involved are equal (regardless of race, class, gender, sexuality), neoliberal theory argues that we are indeed living in a postfeminist era – in which feminism is no longer necessary. Yvonne Tasker and Diane Negra suggest that postfeminist ideology “increasingly operates as the rationale for the brutalities of the emergent ‘New Economies’ of both the United States and the United Kingdom.”³³ As Negra,

³⁰ Ibid., 34.

³¹ Ibid.

³² Ibid., 3.

³³ Tasker and Negra, “Introduction: Feminist Politics and Postfeminist Culture,” 13.

Tasker, and Angela McRobbie have argued, “Postfeminism broadly encompasses a set of assumptions, widely disseminated within popular media forms, having to do with the ‘pastness’ of feminism, whether that supposed pastness is merely noted, mourned, or celebrated.”³⁴ Like neoliberalism, postfeminism ignores, among other things, the gendered and racialized income and employment gap and instead starts from the largely vacuous assumption that feminists have already achieved their aims of gender and racial equality. This ethos began to take shape throughout the 1980s as the percentage of women in the workforce jumped from 51% to 57% and escalating numbers of women also began to take on high paid professional careers.³⁵ Postfeminist rhetoric portrays these statistics as proof that feminist fights for equality have been completely achieved.

By assuming the existence of structural equality, postfeminism argues that women as autonomous individuals should fight for their own personal interests rather than for the good of all women. Like neoliberalism, postfeminist rhetoric proposes that since everyone is equal, uneven governmental, economic, and political structures of control are not a cause of any individual failure or success. With this focus on individualism, postfeminism places a great deal of value on personal choice as the primary way people create their own identities as unique. According to postfeminist and neoliberal logic, the value of individual choice is opposed to and threatened not only by misogyny, “fascism, dictatorships, and communism, but by all forms of state

³⁴ Ibid., 1.

³⁵ Lois Plunkert, “The 1980’s: A Decade of Job Growth and Industry Shifts,” *Monthly Labor Review* (September 1990): 3; James Bock, “Women Made Career Strides in 1980s Census Data Show Marked Md. Gains,” *Baltimore Sun*, January 29, 1993, http://articles.baltimoresun.com/1993-01-29/news/1993029154_1_maryland-women-bigley-working-women.

intervention that substituted collective judgments for those of individuals free to choose.”³⁶

While feminists argue that equality can be achieved only through unified collective action, postfeminists assume that collectivity threatens liberty.

Such postfeminist discourses rarely question the feminist premise that women are equal to men, but rather reduces feminist arguments about the importance of choice to consumer choice. Many of the architects of feminism from Mary Wollstonecraft to Simone de Beauvoir and Betty Friedan have argued that for women to become independent and liberated, they must be able to make their own decisions and ultimately choose their own destinies. Having the vote and equal rights under the law do not by themselves lead to real equality as “these civil liberties remain theoretical as long as they are unaccompanied by economic freedom.”³⁷ Postfeminism, however, passes over the importance of civil liberties and focuses exclusively on economic freedom.

As neoliberalism and postfeminism construct consumer liberty as an alias for equality, both values become more and more often reserved for the affluent. Harvey describes how “the idea of freedom ‘thus degenerates into a mere advocacy of free enterprise’, which means ‘the fullness of freedom for those whose income, leisure and security need no enhancing, and a mere pittance of liberty for the people, who may in vain attempt to make use of their democratic rights to gain shelter from the power of the owners of property.’”³⁸ In the process, this cultural ethos focuses solely on the affluent elite that “tends to confuse self-interest with individuality and elevates consumption as a strategy for healing those dissatisfactions that might alternatively be understood in terms of social ills and discontents.”³⁹ The valuing of an extremely restricted

³⁶ Harvey, *A Brief History of Neoliberalism*, 5.

³⁷ Simone de Beauvoir, *The Second Sex*, Everyman’s Library 137 (New York: Alfred A. Knopf, 1993), 641.

³⁸ Harvey, *A Brief History of Neoliberalism*, 38.

³⁹ Tasker and Negra, “Introduction: Feminist Politics and Postfeminist Culture,” 1.

sense of free choice supports this substitution, first, of personal liberty for freedom and, second, free enterprise for personal liberty. Neoliberalism makes it clear that individuals “are not supposed to choose to construct strong collective institutions (such as trade unions) as opposed to weak voluntary associations (like charitable organizations). They most certainly should not choose to associate to create political parties with the aim of forcing the state to intervene in or eliminate the market.”⁴⁰

This movement toward conservative choices, viewed as having a stabilizing and positive effect on the market is achieved not through brute force, but rather through the logic of the recommendation. My study of digital recommendation systems will show how recommendations lie at the heart of postfeminist conceptions of the self. Recommendations connote authority and are supposed to propose the “best” choice possible. As such, they suggest not a free choice, but rather one heavily circumscribed by larger structures of power and control. Indeed, digital recommendation technologies rely heavily on information-gathering and surveillance techniques that limit user privacy in online spaces. Moreover, as this surveillance constructs recommendations, they also curb the agency of users in making choices. As many scholars have pointed out, postfeminist culture generally favors more conservative choices. Likewise, recommendation systems are often designed to suggest the most conventional options, designed to unite (or homogenize) users together the most.

The rhetorical form of the recommendation highlights and exaggerates the difficulty, precarity, and danger of making choices that are not specifically promoted by neoliberalism and postfeminism. Coupled with the valuing of individualism and autonomy, postfeminism and neoliberalism support an ethic of personal responsibility, which argues that if people cannot

⁴⁰ Harvey, *A Brief History of Neoliberalism*, 65.

achieve their goals (or even escape poverty) it is their own fault. Susan Faludi argues that the journalists who first employed the term postfeminism depicted contemporary women as anxious and distressed because of feminism's overwhelming success and women's untenable freedom:

How can American women be in so much trouble at the same time that they are supposed to be so blessed?The prevailing wisdom of the past decade has supported one, and only one, answer to this riddle: it must be all that equality that's causing all that pain. Women are unhappy precisely because they are free. Women are enslaved by their own liberation. They have grabbed at the gold ring of independence, only to miss the one ring that really matters. They have gained control of their fertility, only to destroy it. They have pursued their own professional dreams—and lost out on the greatest female adventure. The women's movement, as we are told time and again, has proved women's own worst enemy.⁴¹

Faludi argues that postfeminist culture encourages women to believe that by pursuing a professional career, they must give up on becoming wives and mothers— framed as the most ideal position for women. Indeed, it is implied that by having a career, they may lose their very identity as “women.” McRobbie describes how this fear that postfeminism helps to generate leads to a variety of self-management and self-monitoring routines from vigilant diet and exercise programs to continuing education courses and the constant search for career and relationship advice and advancement opportunities. Postfeminist discourse encourages subjects to be constantly surveillant and suggests that if they are not, they risk letting “the right man slip

⁴¹ Susan Faludi, *Backlash: The Undeclared War Against American Women* (New York: Three Rivers Press, 2006),

from under her nose" and thereby also miss out on having children, which will ultimately result in her becoming "isolated, marginalized from the world of happy couples" with only herself to blame.⁴² At the same time, Sheryl Sandberg, Facebook's Chief Operating Officer and author of *Lean In*, reframes this surveillant attitude within professional culture as ambition and a "will to lead;" she thus encourages women to apply this same logic to their careers by constantly searching for and working toward raises, promotions and new positions, else risk being overlooked or fired.⁴³ Thus, a professional woman must be constantly monitoring herself so that she will not "miss out" on either "being a woman" or the successful career she is supposed to have.

Yet, even as postfeminist culture asserts that the feminist goal of creating an environment in which women can "have it all" (i.e. a career and a family) has been achieved, too many of these "empowered" women are overburdened and underpaid. They have too much to manage, too many choices to make. Instead of arguing for a greater social support system that would provide paid maternity leave, child care subsidies, or other services that would support working women, however, postfeminism suggests that it is the individual's responsibility to figure it out – with the help of the free market. Thus, within this postfeminist context, since choice and the freedoms it is meant to provide are represented as burdens, technologies such as recommendation systems are proffered as the solution.

⁴² Angela McRobbie, "Postfeminism and Popular Culture: Bridget Jones and the New Gender Regime," in *Interrogating Postfeminism: Gender and the Politics of Popular Culture*, ed. Yvonne Tasker and Diane Negra, *Console-ing Passions: Television and Cultural Power* (Durham, N.C.: Duke University Press, 2007), 37.

⁴³ Anne-marie Slaughter, "Sheryl Sandberg's 'Lean In,'" *The New York Times*, March 7, 2013, sec. Books / Sunday Book Review, 3–5, <http://www.nytimes.com/2013/03/10/books/review/sheryl-sandbergs-lean-in.html>.

Literature Review

Throughout my dissertation, I engage in conversations concerning the role of choice in contemporary culture that are prevalent within feminist and digital scholarship. Many of the scholars I draw from are feminists with conflicted relationships to contemporary popular culture. Whether they see this cultural moment as being anti-feminist (Susan Faludi and Christian Scharff), postfeminist (Angela McRobbie and Diane Negra), or neo-feminist (Hilary Radner, Stephanie Genz, and Benjamin Brabon), they all recognize the significant place that choice and empowered consumerism now play in constructing contemporary gender norms and identity for all subjects.

These discussions have their origins in the writings of Simone de Beauvoir, Virginia Woolf and Betty Friedan who both championed the need for women to have agency and economic independence in their own lives. Beauvoir especially anticipated contemporary discourses around choice by critiquing arguments against achieving liberty and equality through greater agency and choice. These arguments asserted that liberty and choice lessen happiness by creating more responsibilities and anxiety. Nearly fifty years later, Faludi responded to similar arguments, which asserted that while women may be “free and equal now,” they “have never been more miserable.”⁴⁴ Beauvoir argues that when applied to women, the concept of “freedom” is too often confused with the figure of the “light woman”, a concept that implies “an absence of resistance and control, a lack, the very negation of liberty.”⁴⁵ She critiques the way these arguments ambiguously use the concept of happiness to mask their oppressive values.⁴⁶

⁴⁴ Faludi, *Backlash*, 2.

⁴⁵ Beauvoir, *The Second Sex*, 650.

⁴⁶ *Ibid.*, 27.

She opposes happiness, which she defines as an immanent stagnation and “being at rest” with liberty, a transcendent “continual reaching out towards other liberties” and an “expansion into an indefinitely open future.”⁴⁷ Instead of arguing for increasing the happiness of women, which too often leads to oppressive outcomes, Beauvoir suggests that feminists should concentrate more on judging institutions on “their effectiveness in giving concrete opportunities to individuals.”⁴⁸

Beauvoir’s insights frame the way I approach contemporary discourses of choice. Yet, rather than oppose happiness with liberty, postfeminist-neoliberal culture divorces responsibility from liberty and then presents liberty as happiness. Postfeminist rhetoric upholds the value of personal autonomy and puts pressure on choice largely to support the socioeconomic status quo. While postfeminist culture creates and spreads a generalized paranoia and anxiety around the extreme gravity of every choice one makes and the potential of every moment, it also supplies its antidote in the form of consumer-friendly self-help guides, gym memberships, weight watchers memberships, and other forms of support and recommendations that work to reduce this stress around choice and self-monitoring. Yet, as Rosalind Gill has argued, postfeminism highlights quandaries over why certain choices, especially those made by women and girls, “are not respected as choices but are repeatedly understood in terms of external influence (from religion, from consumer culture) rather than as authentic, autonomous acts?”⁴⁹ Why is wearing a thong a personal choice and a hijab an oppressive cultural practice; where is the line between cosmetic surgery and genital mutilation? Like Gill, I question “what kind of feminist *politics* follows from a position in which all behaviour (even following fashion) is

⁴⁷ Ibid.

⁴⁸ Ibid.

⁴⁹ R. C. Gill, “Critical Respect: The Difficulties and Dilemmas of Agency and ‘Choice’ for Feminism: A Reply to Duits and van Zoonen,” *European Journal of Women’s Studies* 14, no. 1 (February 1, 2007): 71.

understood within a discourse of free choice and autonomy?”⁵⁰ Like her, I am particularly concerned with how postfeminism and neoliberalism invite women to “become a particular kind of self [...] endowed with agency on condition that [...] it is used to construct oneself as a subject closely resembling a heterosexual male fantasy.”⁵¹ Gill, Diane Negra and Yvonne Tasker suggest that postfeminism frames this fantasy as “the possibility that women might *choose* to retreat from the public world of work” and instead gain fulfillment from supporting their husbands as housewives.⁵² Gill suggests that respecting all choices feeds into neoliberal postfeminist ideologies of individuation through consumerism. She states that respect has come to stand in for treating personal accounts in an acritical and neutral way; instead she argues that scholars must take on an “orientation of *critical respect* – it involves attentive, respectful listening, to be sure, but it does not abdicate the right to question or interrogate.”⁵³ Thus, rather than simply consider postfeminism as a backlash or a new commercial form of feminism, I consider it with critical respect as a cultural “sensibility” or period that encourages people to reconsider and rearticulate the relationship between choice, liberty, freedom and equality in both productive and problematic ways. While Gill focuses on advertisements and popular media, however, I explore how recommendation systems automate the process of making choices by endowing users “agency” in the form of recommendations that may ultimately be oppressive.

While the act of choosing comes with responsibility over that choice’s outcomes, recommendations act as both a discursive and technological tool that reassigns this responsibility

⁵⁰ Ibid., 72.

⁵¹ Stéphanie Genz and Benjamin A. Brabon, *Postfeminism: Cultural Texts and Theories* (Edinburgh: Edinburgh University Press, 2009), 171.

⁵² Tasker and Negra, “Introduction: Feminist Politics and Postfeminist Culture,” 2.

⁵³ Gill, “Critical Respect,” 78.

to the recommender. In the case of digital recommendation systems, responsibility and blame for bad choices instead become attached to technological glitches and imperfect algorithms rather than specific subjects or corporations. Recommendation systems automate what Angela McRobbie has referred to as choice's "modality of constraint. The individual is compelled to be the kind of subject who can make the right choices."⁵⁴ Recommendation systems act as a self-management tool that teaches users which choices are the "right" ones; they take on what McRobbie calls a "new friendly guise as 'personal adviser,'" which helps users to self-govern through the very shaping of their being and subjectivity.⁵⁵

Moreso, these recommendations become a tool for postfeminist empowerment, which has as its goal happiness rather than Beauvoir's "concrete opportunities." In the process, happiness becomes equated with family and the life of a housewife. In her landmark article, "Postfeminism and Popular Culture: Bridget Jones and the New Gender Regime" and later book, *The Aftermath of Feminism*, McRobbie describes how postfeminism draws on "a vocabulary that includes words like 'empowerment' and 'choice,'" in order to appropriate them into "a much more individualistic discourse, and they are deployed in this new guise, particularly in media and popular culture, but also by agencies of the state, as a kind of substitute for feminism."⁵⁶ As Martha Loutfi has argued, this postfeminist empowerment and faux-equality is predicated on "women exercising their recently acquired rights in the workplace, in politics—and at home."⁵⁷

⁵⁴ Angela McRobbie, "Postfeminism and Popular Culture: Bridget Jones and the New Gender Regime," 36.

⁵⁵ *Ibid.*, 35.

⁵⁶ Angela McRobbie, *The Aftermath of Feminism : Gender, Culture and Social Change* (Los Angeles ; London: SAGE, 2009), i?.

⁵⁷ *Women, Gender and Work: What Is Equality and How Do We Get There?* (Geneva: International Labour Office, 2001), 3.

In the wake of a growing number of women choosing careers instead of or alongside families, Vicki Coppock states “that many men were left confused, their identities shattered, and many women struggled with over-expectancy.”⁵⁸ Likewise, Suzanna Danuta Walters, Stephanie Genz and Benjamin Brabon state that in “attempting to live up to an ambitious ‘Superwoman’ image, working women have been positioned in a no-win situation as they are either condemned to a ‘double-day/second-shift’ existence or recognise that their professional success has come at the cost of relationships and marriage.”⁵⁹ Recommendation systems have been situated as a tool that can help both women and men manage the time pressures around work and family. In so doing, they participate as a postfeminist technology.

Negra’s work on postfeminism and representations of women in consumer culture struggling to “have it all” in both *What a Girl Wants?: Fantasizing the Reclamation of Self in Postfeminism*, and in *Interrogating Postfeminism: Gender and the Politics of Popular Culture*, a collection of essays she coedited with Yvonne Tasker, takes up McRobbie’s charge. Taking the fundamental quandary of postfeminism seriously, Negra asks “why, at a moment of widespread and intense hype about the spectrum of female options, choices, and pleasures available, so few women actually seem to find cause for celebration?”⁶⁰ She analyzes a wide variety of texts in order to show that “the overwhelming ideological impact that is made by an accumulation of postfeminist cultural material is the reinforcement of conservative norms as the ultimate ‘best

⁵⁸ Vicki Coppock, *The Illusions of “Post-feminism”: New Women, Old Myths* (Washington, D.C: Taylor & Francis, 1995), 1.

⁵⁹ Genz and Brabon, *Postfeminism : Cultural Texts and Theories*, 54–55.

⁶⁰ Diane Negra, *What a Girl Wants? : Fantasizing the Reclamation of Self in Postfeminism* (London ; New York: Routledge, 2009), i, <http://www.loc.gov/catdir/toc/ecip0813/2008010043.html>.

choices' in women's lives."⁶¹ I, in turn, explore the fundamental role of recommendation systems in the creation of this "overwhelming ideological impact" as they individualize these "best choices" in ways that make them appear to be not just ideal for women (and, I argue, men) in general, but perfect for the specific user as well. While postfeminism is often framed as a universally shared set of values and ideals, its focus on desires rather than needs (whether in the case of women who choose not to work, or anyone who can afford to purchase items that they merely want rather than need) makes it a subject position only accessible to the middle and upper classes.⁶² During a period in which neoliberal economics thrusts more and more people into poverty, these representations of both men and women for whom the possibility of not working is a choice rather than an inevitability frames postfeminism as a fantasy rather than a reality for all but the most entitled.

However, in their coedited collection, Negra and Tasker go beyond simply describing the negative and positive elements of postfeminism. While critical of postfeminist empowerment, they bring "into being a postfeminist critical practice that expands feminism as much as it critiques it."⁶³ Several essays in their collection point out both the contradictory and outright positive elements of postfeminist texts and representations ranging from *Charmed* to *Ally McBeal* and *Kill Bill*. Indeed, rather than McRobbie's largely static and dominating postfeminism, Negra and Tasker present a much more conflicted and dynamic version that seeks not to celebrate or outright reject "icons of postfeminist culture: the self as a project; kick-ass, working-out women as expressions of agency; or freedom as the freedom to shop or have

⁶¹ Ibid., 4.

⁶² Tasker and Negra, "Introduction: Feminist Politics and Postfeminist Culture," 1.

⁶³ Ibid., 16.

cosmetic surgery.”⁶⁴ Building on their framework, I critique recommendation systems not for their progressive or regressive elements, but rather for how they enable postfeminism’s self-reflexive ability to “not allow us to make straightforward distinctions” and thus forces us to “develop new reading strategies to counteract the popularized feminism, figurations of female agency, and canny neutralization of traditional feminist critiques in its texts.”⁶⁵

I use these “reading strategies to counteract” the many popular discussions and business school academic studies of digital media that tend to either celebrate the economic benefits of postfeminist culture, or simply dismiss gender issues entirely. In *The Search: How Google and its Rivals Rewrote the Rules of Business and Transformed Our Culture*, John Battelle describes in detail the economic implications of recommendation systems and focuses on how every slight change Google makes in its algorithms has massive effects in the digital marketplace-at-large. While describing the role of personalization technologies on advertising, he uncritically uses the example of a couple who discover they are pregnant, start looking up information and media on pregnancy, and are quickly inundated by ads on Amazon, Google and TiVo devoted to formula, strollers and baby gear.⁶⁶ Through pregnancy and images of new families, personalization has been able to gain its largest foothold in the imagination of journalists, the general public and those industries that seek to commercialize and commodify them. Batelle celebrates the “inevitable” scenario in which such recommendations will cause couples to purchase expensive strollers in order to feel closer to each other: “Your wife snuggles into your side, pleased that for

⁶⁴ Ibid., 21.

⁶⁵ Ibid., 22.

⁶⁶ John Battelle, *The Search: How Google and Its Rivals Rewrote the Rules of Business and Transformed Our Culture* (Portfolio Trade, 2006), 169.

once, her husband actually gets it.”⁶⁷ Postfeminist culture is an implicit part of this advertising fantasy through the suggestion of deeply interpellated self-management schemes and the commodification of gender, relationships, and one’s own body. By analyzing these issues throughout this dissertation, I hope to show how these digital issues around surveillance and recommendations are often deeply connected to postfeminist discourses of self-management and choice.

Lisa Gansky in *The Mesh: Why the Future of Business is Sharing* and Rachel Botsman in *What’s Mine is Yours: The Rise of Collaborative Consumption* are both more aware of the gendered implications of personalization technologies and collaborative filtering and celebrate the postfeminist aspects of these technologies. Gansky, the cofounder of Dos Margaritas, a conservation social venture takes a very different tact from Pariser and Batelle. Instead of seeing these technologies as primarily egocentric and superficial, she stresses that their collaborative dimensions should be viewed as community building acts of sharing. Both Gansky and Botsman celebrate recommendation systems and what they call the “collaborative cultures” of empowered consumers that they help to enable. These cultures are described in feminist terms as both communal and ecological, as they use digital technologies to share their media, goods and experiences in ways that the authors hope will make the world (and capitalism) more sustainable. Yet, they are staunchly postfeminist in their focus on showing how feminist principles can be monetized and made profitable with the help of digital personalization technologies.

Both Steven Levy in his celebratory *In the Plex: How Google Thinks, Works, and Shapes Our Lives* and Eli Pariser in his fearful *The Filter Bubble: How the New Personalized Web is Changing What We Read and How We Think* both present the growth of Google and

⁶⁷ Ibid., 170.

recommendation systems as masculine enterprises in which neither women nor feminism have any role.⁶⁸ While Levy almost entirely focuses on the role of men in the shaping of Google (and tends to only discuss male users), Pariser describes the impetus for creating recommendation systems as a masculine fantasy of complete freedom. Pariser argues that personalization and recommendation technologies constrict men from being able to achieve their libertarian dreams of complete freedom from all forms of governmentality. In the process, he enables a postfeminist gender binary that puts all of the burdens of family and work onto women. I confront these complaints and discuss how recommendation systems are often used to help rectify this binary and ease these undo burdens.

As recommendation systems collect and use a great deal of data on users in ways they are not privy to, they have also become central to surveillance concerns. Mark Andrejevic discusses these fears around digital control and freedom in *iSpy: Surveillance and Power in the Interactive Era*. Like Pariser, Andrejevic critiques Google and other digital technologies creation of what he terms “digital enclosures,” or interactive realms “wherein every action and transaction generates information about itself.”⁶⁹ Andrejevic describes how these “digital enclosures” make online consumption and personalization possible while simultaneously creating an extremely acute level of surveillance and information gathering. In the process, he argues that while interactivity once implied a utopian sense of digital freedom, it is now an alias for surveillance and schemes of control. Like Andrejevic, I am interested in these structures of control, but focus on the

⁶⁸ See Steven Levy, *In The Plex: How Google Thinks, Works, and Shapes Our Lives* (Simon & Schuster, 2011); Eli Pariser, *The Filter Bubble: How the New Personalized Web Is Changing What We Read and How We Think*, Reprint (Penguin Books, 2012).

⁶⁹ Mark Andrejevic, *iSpy: Surveillance and Power in the Interactive Era*, CultureAmerica (Lawrence, Kan.: University Press of Kansas, 2007), 2, <http://www.loc.gov/catdir/toc/ecip0716/2007016410.html>.

gendered implications of surveillance and how this digital rhetoric figures into postfeminist schemes of self-monitoring and self-management.

In working through how digital recommendation systems can spread neoliberal and postfeminist ideology through something as amorphous and decentralized as collaborative filters, I also build on Alexander Galloway and Wendy Chun's discussions concerning Gilles Deleuze's concept of the control society. Deleuze suggests that unlike the sovereign society that spread ideology via central control or Foucault's disciplinary society that decentralized ideology through vast decentralized bureaucracies and visibly dominating structures like the factory, postmodernism spreads ideology via a third option, which Galloway proposes internet protocols and algorithms embody.⁷⁰ In describing the control society, Deleuze states:

Felix Guattari has imagined a city where one would be able to leave one's apartment, one's street, one's neighborhood, thanks to one's (dividual) electronic card that raises a given barrier; but the card could just as easily be rejected on a given day or between certain hours; what counts is not the barrier but the computer that tracks each person's position--licit or illicit--and effects a universal modulation.⁷¹

Barriers no longer need to be shut for discipline to occur. Control within this society is both invisible and everywhere. In *Protocol: How Control Exists After Decentralization*, he analyzes distributed networks (like the Internet) and the ways in which they generate Deleuze's

⁷⁰ Galloway, *Protocol: How Control Exists after Decentralization*, 4.

⁷¹ Gilles Deleuze, "Society of Control," *Nadir.org*, November 25, 1998, <http://www.nadir.org/nadir/archiv/netzkritik/societyofcontrol.html>.

“apparatus of control.”⁷² These protocols, like algorithms, are the rules by which computers communicate with each other and transmit information. Galloway argues that while the vast amount of Internet communication and its decentralized nature may lead one to believe that it is anonymous and uncontrollable, they are actually very structured and can potentially always be recorded.

Like Galloway, Chun in *Control and Power* considers the relationship between the control society and the structure of the Internet. In the process, she destabilizes rhetoric around the status of the Internet as either a tool of freedom or control by describing “the linking of freedom and democracy to control, and the justification of this linking through technologically determinist explanations.”⁷³ In response to widespread humanist/mechanist debates over the role of human agency in computing, Chun argues that software is both a product of ideologies and a producer of users. My work stems from the same impetus and effort to show how digital technologies at a very deep level are both shaped by, and create contemporary culture around issues of gender, sexuality, race and class. It is also shaped by the same concerns over how technologies affect and shape current conceptions of agency and empowerment. However, our work significantly differs in both my focus on the consumer side of the W3, and my continued attention to how the gendered issues of postfeminism have become the primary force behind the growth and current shape of digital cultures.

⁷² Galloway, *Protocol: How Control Exists after Decentralization*, 3.

⁷³ Wendy Hui Kyong Chun, *Control and Freedom: Power and Paranoia in the Age of Fiber Optics* (Cambridge, Mass.: MIT Press, 2006), 25.

Methodology

Like Chun's work, this dissertation relies on a combination of visual culture studies and media archeology methodologies. Chun states that these two fields often problematically opposed as visual culture studies tends to focus on "the interface, or representations of the interface, as the medium," while media archeology often ignores the screen in favor of a focus on the machine and its internal operations.⁷⁴ Like all digital technologies, while some of what recommendation systems do is visually represented for the user, much of their operations are invisible and go largely unnoticed. At the same time, a study simply of the algorithms themselves cannot fully explain how and why they companies employ them in the ways they do, and how they interact with larger cultural forces. For this reason, I employ approaches to elucidate how digital technologies enable certain ideologies and forms of culture, whether specifically postfeminist or not.

As the digital recommendation systems I focus on are all proprietary private secrets and can therefore not be studied directly as code, I have relied on first hand accounts, interviews, advertisements, press releases, textbooks, manuals and other secondary documentation to elucidate the differences between systems in as much detail as possible. As the technologies are effectively off limits to me, I have found it helpful to think of them as "dead" like a program designed to be used on an obsolete operating system or hardware that no longer exists. In the process, I take up Noah Wardrip-Fruin's "digital media archeology" methodology designed to answer the question, "how can we begin to read processes."⁷⁵ Wardrip-Fruin considers the

⁷⁴ Ibid., 17.

⁷⁵ Noah Wardrip-Fruin, "Digital Media Archaeology: Interpreting Computational Processes," in *Media Archaeology: Approaches, Applications, and Implications* (Berkeley: University of California Press, 2011), 309.

specifics of a programs dataset and algorithms in relation to historical discourses concerning the experience of the producers and users of programs in order to analyze these programs role in history and culture. By exploring how digital recommendation systems spread neoliberal and postfeminist ideologies, I take up Wardrip-Fruin’s call to “grapple with the ideas embedded in [digital] systems” in the hopes of inspiring others to do so as well.⁷⁶

Media archeology projects tend to focus on obscure and secondary technologies that either failed to become popular or were created as an artistic or artisanal project for a small audience. Digital recommendation systems are peculiar in that they are obscure but also extremely dominant. While most users encounter these systems every time they open their browsers, they largely go unnoticed and are obscure because users rarely experience them as actual objects, let alone as objects of study. I have chosen to discuss a wide array of recommendation system examples ranging across the media landscape from eHarmony to TiVo to show their ubiquity and elucidate how they spread ideology not through a singular and obvious source, but rather through their status as a quotidian part of the larger fabric of the World Wide Web. I focus not just on their software and algorithms, but also on the many representations of this software in use. Throughout, I also historicize both the recommendation technologies themselves and the larger relationship between computers and the examples I discuss, from media distribution to cosmetic surgery. Much of this history centers on the academy and its important, if largely unacknowledged contribution in creating and championing not just many of these technologies, but also the postfeminist neoliberal culture that they help to enable. This historical grounding showcases how recommendation systems fit into the longer

⁷⁶ Ibid., 320.

history of digital media, how they have quickly become a central technology of many areas of everyday life, and how these systems thus both enable and shape postfeminist culture.

Chapter Breakdown

In Chapter One, I discuss the birth of social networking and digital recommendation technologies in the mid 1990's and their relationship to the lives of female professionals within current cultures of postfeminism and neoliberalism. Most popular histories of these technologies portray them as being primarily created by and for men, but many of them were actually pioneered by Pattie Maes, a professor at the Massachusetts Institute of Technology (MIT). In the MIT Media Lab, Maes pioneered digital recommendation systems and implemented them in various programs, including one that could automatically schedule meetings for users, a program for prioritizing and sorting emails, one of the first matchmaking programs, and Firefly, one of the first online social network. These technologies have played a central role in the growth and development of the W3 and are responsible for much of the popularity and economic feasibility of sites like Amazon, Facebook, Google and Netflix.

As I will demonstrate, Maes developed these technologies specifically to help female professionals like herself manage the many difficult everyday choices that having a family and a career often entails. MIT during this period was an intensely male-driven institution that many felt was not welcoming to women. While she started out as a researcher of artificial intelligence and robotics, her experience at MIT and of managing her life and new family led her to use her skills to develop technologies that she hoped would alleviate her many everyday dilemmas. In the process, she used recommendation systems to do everything from manage her schedule to keeping in touch with family—dilemmas that men experience, but continue to be heavily

gendered and specifically postfeminist and neoliberal in nature. Her work on recommendation systems also led to important innovations in user privacy protections and she became an important voice in the struggles over agency, surveillance, identity and privacy that continue to pervade both postfeminist and digital rhetoric. This history and a discussion of Maes' influence shows how central postfeminist gender politics have been to the growth of digital technologies.

In Chapter Two, I discuss how postfeminism influences digital media distribution through recommendation systems. These distribution practices and the recommendation systems that support them raise many digital privacy concerns that directly relate to how gender and sexuality are performed in online spaces. Contemporary discourses on gender, sexuality and the right to privacy directly influence both how companies and programmers implement recommendation systems and the laws that govern them. By examining three influential controversies over recommendation systems in the 2000's, I argue that these systems facilitate a rearticulation of collaboration and empowerment that privileges individuals over communities for the benefit of corporations.

Media distribution has long played an important role not just in constructing the public sphere, but also in defining how citizenship is imagined and practiced. This influence and its relationship to postfeminism has recently been most evident in controversies over how recommendation systems have been used to define what user information is public, what is private, and how this information has helped to constitute new forms of online subjectivity. I start by looking at TiVo in relation to allegations around its role in sexual harassment and the "outing" of homosexual audiences. I then discuss Netflix and the ways in which its recommendations have been shaped by concerns over sexual privacy protected by the federal Video Tape Privacy and Protection Act, a sweeping and influential law that developed out of the

Bork Supreme Court hearings. In closing, I discuss Digg.com, a social news site that played a pivotal role in defining how digital citizenship is practiced, controversially with a focus on the commercialization and individualization of the public sphere. In each case, sexuality and gender effect both user rights on these sites and the status of digital communities within a postfeminist culture that is rapidly changing the status of these aspects of one's personality and their relationship to privacy.

In Chapter Three, I focus on how these issues around postfeminist sexuality, gender and agency structure the way dating websites act as matchmakers. These sites use questionnaires and recommendation systems to manage the sexual and gender expectations of users in ways that complicate contemporary conceptions of postfeminist single-ness and relationships. I start by exploring how computerized matchmaking was used early on to create couples as a response to changes in dating patterns that resulted from more women working and moving to urban areas. Computerized dating is often used to simultaneously enforce traditional gender norms while also making dating a safer and more empowering experience for women. This history has influenced the ways in which dating sites function and how they articulate a successful relationship through postfeminist gender norms around public and private life.

I specifically focus on how these issues arise on eHarmony, an influential site known for its recommendation, or "matchmaking" system. This site encourages users to take on traditional gender roles and to conform to postfeminist personality types as it is easier for their software to find matches that correspond to these particular forms of identity. I argue that eHarmony and much of the online dating industry in general utilize strict postfeminist self-management techniques that work to shape users so that they fit into more traditional gender types that idealize women for their bodies and focus on families, and men for their economic potential. In

the process, they transform how users conceive of the role of attraction and the body in relationships that form online.

In Chapter Four, I broaden my discussion of postfeminist articulations of the body and embodied attraction in digital media further by discussing cosmetic surgery websites. Many of these sites and technologies emphasize ways in which recommendation technologies can help users rate bodies and often automatically suggest ways to change one's own shape and appearance. I examine how neoliberal and postfeminist paradigms of choice and individuality transform the human body through websites and technologies that analyze, judge and rate a person's appearance in order to recommend clothing, make-up and plastic surgery operations. Throughout, I show how these recommendation technologies and their varied uses transform and complicate notions of what our relationship to self-representations consists of in our current media landscape.

I look at a large number of sites and technologies that all fall back on a long history of regulating the neoliberal body through the use of media and recommendations that privilege the white American body as a timeless form of beauty that all must live up to. These automated recommendations and transformations of the body help to construct the body as a product of choice and make it an important site of an empowered consumerism that is rapidly enforcing the postfeminist commodification of attraction.

As the fight over the meaning of personal choice and privacy is central to feminism, I argue throughout this dissertation that postfeminism and neoliberalism now defines these governmental rights as burdens better left to free enterprise and automated technologies to enact. Digital recommendation systems play a role in every area of life and have a role in shaping every

choice we make in a digital environment. The contours of these choices follow a logic that pervades all areas of life and does not recognize a distinction between the deeply personal and the overtly communal, nor between freedom and oppression. Like postfeminism and neoliberalism more generally, these technologies purport to be color, gender, class, age, and ability-blind. Yet, I believe that this study makes it clear how thoroughly these embodied marks of culture continue to pervade the digital sphere through the way in which technologies frame our choices, and as a result, come to shape and limit the very contours of what we deem possible.

Chapter 1

Female Labor and Digital Media: Pattie Maes and the Birth of Recommendation Systems and Social Networking Technologies

Histories of the beginning of the Internet, the World Wide Web (W3) and digital culture too often leave women out entirely.¹ While theorists and critics like N. Katherine Hayles, Wendy Hui Kyong Chun and Sadie Plant have brought to light the central role of women in the creation and use of many of the first computers, popular histories on the emergence of social networking and contemporary web culture like David Fincher's *The Social Network* (2010), Steven Levy's *In the Plex: How Google Thinks, Works and Shapes Our Lives*, and Eli Pariser's *The Filter Bubble* often frame these technologies and practices as having been created by white men with deep pockets. It is hard to tell from these texts whether their authors actively obscure the contributions of women who did play a role in the creation of these technologies or whether their absence in these texts reflects a lack of sufficient research. However, the effect is clear: As Anne Balsamo has argued, by declaring that it is "the class of white men who have enjoyed the

¹ See N. Katherine Hayles, *My Mother Was a Computer: Digital Subjects and Literary Texts* (Chicago: University of Chicago Press, 2005), <http://www.loc.gov/catdir/toc/ecip059/2005006276.html>

<http://www.loc.gov/catdir/enhancements/fy0621/2005006276-b.html>

<http://www.loc.gov/catdir/enhancements/fy0621/2005006276-d.html>; Wendy Hui Kyong Chun, *Programmed Visions: Software and Memory*, Software Studies (Cambridge, Mass.: MIT Press, 2011); Sadie Plant, *Zeroes + Ones: Digital Women + the New Technoculture*, 1st ed. (New York: Doubleday, 1997),

<http://www.loc.gov/catdir/bios/random057/97010916.html>

<http://www.loc.gov/catdir/samples/random051/97010916.html>

<http://www.loc.gov/catdir/description/random0413/97010916.html>.

benefits of formal institutional recognition as agents of the technological imagination,” women are systematically written out of “the historical record of technology development.”²

In this chapter, I focus on the Massachusetts Institute of Technology (MIT) professor Pattie Maes’ work in the 1990s. Twenty years after the feminist revolution, MIT was dominated by white male faculty. During this period as women entered executive and professional workplaces, Maes created software to address the many difficulties she faced in balancing her own academic and family life. She authored a number of groundbreaking programs during that period: one that could automatically schedule meetings for users, one for prioritizing and sorting emails, one of the first matchmaking programs, and one of the first online social networks. These programs served as prototypes for the use of digital recommendation systems in online consumerism and the culture industries of choice that these technologies support. These industries guide users toward certain information, products and services over others through a standardized way of presenting choices and recommendations to users. Maes’s technologies have helped lead to this industrialization of choice.

Though several other research groups and corporations were working on similar technologies during this period, a case study of Maes’ efforts helps to tease out the ways in which the gender politics of the 1990s continues to inflect digital media today. Throughout her career, Maes has used recommendation systems and other digital technologies to confront gendered problems involving labor, time, and self-management. This work has influenced how a wide range of important commercial websites, from Amazon.com to Alibaba.com, implement social networking and digital personalization technologies. By starting with the work of Maes –

² Anne Marie Balsamo, *Designing Culture: The Technological Imagination at Work* (Durham NC: Duke University Press, 2011), 32.

instead of ten years later with the birth of Google, YouTube or Facebook – a very different history of social networking and digital culture emerges that brings gender back into the conversation.

The Postfeminist Subject in the Digital Era

To better understand these recommendation and social media technologies, it is important to address how the context in which they were created helped to shape the ways these technologies are currently used. Specifically, a postfeminist and neoliberal pushback against changes in gender norms around family and work played an important role in the history of social media. Postfeminism in the 1990s, as Diane Negra and Yvonne Tasker have argued, first and foremost presupposed the “‘pastness’ of feminism, whether that supposed pastness is merely noted, mourned, or celebrated.”³ At times, scholars and journalists have framed this period as a backlash against and at other times as the taking into account of the victories of feminist fights for gender equality.⁴ While feminism focuses on creating gender equality in the workplace and all other areas of life, postfeminism instead celebrates the liberatory potential of personal choice within women’s lives. Postfeminism asserts that gender equality has been achieved and this equality is expressed through both the life-changing and the everyday choices that women are now free to make. Negra has argued that by focusing specifically on choice, postfeminism replaces a discourse on equality and communal need with one that privileges individuality and personal desire, especially as they are expressed through consumerism.

³ Tasker and Negra, “Introduction: Feminist Politics and Postfeminist Culture,” 1.

⁴ McRobbie, *The Aftermath of Feminism : Gender, Culture and Social Change*; Susan Faludi, *Backlash : the Undeclared War Against American Women*, 1st ed. (New York: Crown, 1991).

Postfeminism's celebration of the subject as an individual is deeply connected to the neoliberal focus on personal responsibility and free trade, which depends on everyone behaving, regardless of financial means, as if they are in charge of their own destinies. As McRobbie, Lisa Duggan, and others have argued, neoliberalism and postfeminism are intertwined and both seek to replicate (and forcefully imagine) a system of unmarked individuality by insisting that sexism and racism no longer exist and that everyone now agrees that there is no socially significant difference between genders, races and ethnicities.⁵ Neoliberalism only works as a guiding socioeconomic structure if we all continually self-manage and behave as if we are all autonomous agents operating on a level playing field.

However, women (and especially women in the United States of America) are the ones to whom self-discipline and self-management are marketed most heavily, as attested to by entire beauty and self-help industries aimed primarily at the female consumer. At the same time that postfeminism celebrates the liberty and equality of women, it often recommends those choices that reinstate the normative gender roles that feminism worked to deconstruct. For example, in a CBS This Morning roundtable discussion on the state of contemporary feminism, New York Magazine journalist Lisa Miller argued that feminists should have the choice not to work and instead devote themselves to becoming better housewives because they are not naturally as ambitious and competitive as men. Instead, relying on a conservative essentialist logic, Miller asserted ““mothers instinctively want to devote themselves to home more than fathers do”” and feminist efforts to close the wage gap and bring more women into the workplace are misguided

⁵ See Lisa Duggan, *The Twilight of Equality? : Neoliberalism, Cultural Politics, and the Attack on Democracy*

(Boston: Beacon Press, 2003), <http://www.loc.gov/catdir/description/hm041/2003010442.html>

<http://www.loc.gov/catdir/toc/ecip043/2003010442.html>; McRobbie, *The Aftermath of Feminism : Gender, Culture and Social Change*.

and harmful.⁶ Postfeminism's focus on choice as the key to independence and happiness and its assumption that equality has been achieved neglects and obscures the continued pay differential between men and women and the many other ways in which women continue to be disempowered in the workplace. Postfeminist logic also participates in neoliberal efforts to keep many poor and undereducated women out of the workforce "because the sort of employment they're most likely to obtain won't cover the costs of childcare."⁷ Furthermore, postfeminism construes feminism's hard-fought rights as a burden that causes women anxiety and stress; through a rhetoric that celebrates the liberatory potential of choice, postfeminism can argue that taking on traditional gender roles and becoming a housewife is a preferable lifestyle. As Negra has argued, postfeminist culture continually reinforces "conservative norms as the ultimate 'best choices' in women's lives."⁸ By suggesting that the desire to work is a problem that feminism generated, postfeminism abandons both the fight for equal pay and rights along with the vast majority of women for whom work is not a choice, but rather a necessity.

While postfeminism celebrates the housewife, it also suggests that women should be able to work in any field but encourages them to think of these jobs as a way to improve their families and lives outside of work. In this vein, postfeminism focuses on the affluent female professional for whom work is a choice. This focus frames the "privilege" to work and spend money as the definition of personal freedom for women who are either free of family obligations or can use their income to ease their home workload by hiring a cleaning service and/or a nanny. While

⁶ Tracie Egan Morrissey, "'Feminist Housewife' Writer Lisa Miller Is Trying to Make 'Lean Out' Happen," *Jezebel*, March 21, 2013, <http://www.viddler.com/embed/57ee023/?f=1&autoplay=false&player=mini&disablebranding=0>.

⁷ "Moms Don't 'Opt Out' of Work Because They're Super Wealthy," *Jezebel*, accessed July 22, 2013, <http://jezebel.com/moms-don-t-opt-out-of-work-because-they-re-super-weal-503306759>.

⁸ Negra, *What a Girl Wants? : Fantasizing the Reclamation of Self in Postfeminism*, 4.

feminist social movements altered gender roles by fighting for gender equity and rights, postfeminism uses a rhetoric of pastness which argues that women are now “free”; this temporizing rhetoric transforms equity and rights into freedom, privilege and individuation through choice. The valorizing of the female professional’s “freedom” to make money in order to consume excludes socioeconomically disadvantaged women and, as Tasker and Negra put it, “commodifies feminism via the figure of woman as empowered consumer.”⁹ Moreover, while this new ability to choose how a woman lives her life was celebrated, it was also seen as a burden. While women are told that they can “have it all,” this slogan is often translated into the burden of “doing it all” as they are still expected to manage their families even as they gain higher positions and more responsibility in the workplace.

Postfeminism not only transformed equality into freedom to choose, it also framed that freedom as a problem needing solutions. The sheer number of choices and the need to make them on a continual basis has resulted in choice becoming, at least at times, a burden rather than a freedom. Indeed, Negra has pointed out that rather than leading to more liberty, postfeminism supports a “distorted rendition of choice” that is too often oppressive.¹⁰ Rhetoric concerning the need to make choices presents them as a source of anxiety, filled with the possibility of making the wrong ones and ending up alone in “emotional isolation” with no one to blame but oneself.¹¹ Indeed, the postfeminist era is full of new choices for affluent women who frequently pursue the goal of having a family while both parents work as professionals. Moreover this postfeminist situation applies not only to women but also to men. Both men and women in the professional

⁹ Tasker and Negra, “Introduction: Feminist Politics and Postfeminist Culture,” 2.

¹⁰ Negra, *What a Girl Wants? : Fantasizing the Reclamation of Self in Postfeminism*, 2;4.

¹¹ Tasker and Negra, “Introduction: Feminist Politics and Postfeminist Culture,” 4.

elite must now make a host of choices— concerning everything from major decisions like if and when to have kids, to the everyday need to arrange their daily schedule around professional and familial commitments. Furthermore, postfeminist culture frames the “self,” male or female, as a project, never finished, which takes up all of one’s time. Nevertheless, women’s lives especially “are regularly conceived of as time starved; women themselves are portrayed as overworked, rushed, harassed, subject to their ‘biological clocks,’ and so on to such a degree that female adulthood is defined as a state of chronic temporal crisis.”¹² As more women entered professional careers in the eighties and nineties, time pressures increase; these women must divide their time between their careers and families and decide which to prioritize.

Postfeminism presents time as a scarce resource, parsed over work, relationships, leisure, and especially personal development. While being “time starved” and “overworked” affects people of all classes and genders, Angela McRobbie argues that a bevy of advertisements, texts and films (including most notably *Bridget Jones’s Diary* (2001)) problematically narrativize these anxieties as a specifically female problem brought on by their ever-increasing presence in the workplace.¹³ Many men also struggle with managing their time between work and home life but are not encouraged to engage in personal development to anywhere near the same level as women. However, as there were 12.4 million single mother households in 1994 (compared to 2.9 million single father households), the difficulties and stresses of managing work and family were, in the 1990s at least, a gendered problem that affected women much more than men.¹⁴

¹² Ibid., 10.

¹³ McRobbie, *The Aftermath of Feminism : Gender, Culture and Social Change*, 11–24.

¹⁴ Steve W. Rawlings, *Population Profile of the United States: Households and Families* (Washington D.C., 1994), <http://www.census.gov/population/www/pop-profile/hhfam.html>.

Central to this temporal crisis is postfeminism and neoliberalism's paired focus on self-discipline and self-management. This focus on female self-management is intertwined not just with the current cultures of postfeminism and neoliberalism, but also with our current technological imagination and the longer history of femininity in the West. Rosalind Gill and Christina Sharff argue that the ideal neoliberal subject is actually a woman, or at least a postfeminist woman/girl. Even as neoliberalism assumes a subject that does not believe itself to be exposed "to pressures, constraints or influences from outside," women historically are the ones who are called on to self-manage and self-discipline in ways that men are not:

To a much greater extent than men, women are required to work on and transform the self, to regulate every aspect of their conduct, and to present all their actions as freely chosen. Could it be that neoliberalism is always already gendered, and that women are constructed as its ideal subjects?¹⁵

I would argue that white affluent women are indeed constructed as the ideal subjects of neoliberalism. However, just like the first and second wave feminist movements, postfeminist culture and neoliberalism affect both women and men in a variety of overlapping ways. As Steve Cohan has argued, when men attempt to self-discipline through physical and/or behavioral change or control, they are often represented negatively as feminized (neoliberal, postfeminist)

¹⁵ Rosalind Gill and Christina Scharff, "Introduction," in *New Femininities : Postfeminism, Neoliberalism, and Subjectivity* (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2011), 7, <http://www.netread.com/jcusers/1388/2298638/image/lgcover.9780230223349.jpg>.

subjects.¹⁶ Women are supposed to self-manage. Men are not supposed to need to – though they may to a limited extent be encouraged to do so.

The postfeminist drive to self-discipline through consumerism has grown alongside the expansion of consumer culture in America during throughout the 1990s and 2000s. While in 1994 there were 500,000 consumer goods available in America, by 2003, there were nearly 700,000.¹⁷ Although many of these products are sold in stores (with the average supermarket carrying around 45,000 items and big box stores like Costco often carrying over 100,000 items), the bulk of these products can only be found online through sites like Amazon.com and Netflix, where the physical constraints of location often seem to matter less.¹⁸ As Sheena Iyengar has argued, this increase in consumer choice, which often is equated with personal freedom, causes individuals to “give up the best option(s) for a wider range of inferior options” and leads to feelings of anxiety, guilt, and a diminished enjoyment in any choice; too many options makes people worse at making a decision.¹⁹ The promise of postfeminism – that making consumer choices “will allow us to ‘realize’ ourselves, to be and have all that we ought to be and have— [is] turned back on to us.”²⁰ Postfeminism demands that people make consumer choices to discover and define not only themselves, but also and more importantly what a ‘self’ can be. And digital technologies have been actively designed to assist people in crafting these definitions.

¹⁶ See Steve Cohan, “Queer Eye for the Straight Guise: Camp, Postfeminism and the Fab Five’s Makeovers of Masculinity,” in *Interrogating Postfeminism : Gender and the Politics of Popular Culture*, ed. Yvonne Tasker and Diane Negra (Durham, N.C.: Duke University Press, 2007), 176–201.

¹⁷ Iyengar, *The Art of Choosing*, 187.

¹⁸ *Ibid.*, 188.

¹⁹ Iyengar, *The Art of Choosing*, 203.

²⁰ *Ibid.*, 205.

Ideally in digital spaces, the user is the self. However, as a neoliberal postfeminist tool, recommendation technologies frame the user and hence the self as a consumer; in the process, using and being become aliases for consuming.

Autonomous Agents and Postfeminist, Digital Subjectivity

Technology is essential to the transformations that have come to be known as neoliberalism and postfeminism. The biography and self-representation of Maes indicates discursive means wherein software inventions become feminized, applied, widely viable as a product, and a product whose users become a vital commodity. Maes' work at MIT throughout the 1990s applied Artificial Intelligence (AI) research to the dilemmas she faced concerning choice, autonomy and self-management. Born in Belgium in 1961, Maes graduated in 1987 from the Vrije Universiteit Brussel with a Ph.D. in computer science. Her education focused on the intersection of robotics and collaborative learning, the idea that people learn best through working together in a group with diverse perspectives. After she held the position of Senior Research Scientist for the Belgian National Science Foundation, in 1989, Rodney Brooks and Marvin Minsky, two preeminent AI researchers, hired her as a visiting professor at MIT in their AI lab. Her research during this period focused on applying collaborative learning techniques to AI, which was also central to Brooks and Minsky's work.

The great challenge of AI during this period centered around the issue that while one could program a robot with a great deal of knowledge and information on how to complete tasks, if the robot encountered a situation that it was not programmed to handle, it would more than likely break. In response, Maes researched collaborative learning techniques that could help AI learn how to do things on its own. Instead of thinking of an AI robot as a single entity, she

designed her robots to contain multiple selves that she called *autonomous agents*. Each agent was a small program that kept track of a detail concerning its environment. Together, many different agents interacted within the robot and tried to figure out how to handle different scenarios. For instance, a robot designed to walk might not have been programmed to know how to deal with stairs. However, this robot could be programmed with an agent that kept track of elevation, one that kept track of distance and one that recorded differences in the force and movement of the robot's leg motors. Through collaborative learning algorithms, Maes helped to design these individual agents to work together to move the robot as a whole in such a way that it could navigate the stairs.²¹

What are known as “collaborative filtering techniques” were pioneered by Maes, a woman who was actively concerned with the changing dynamics for professional women around work and family life. When Maes started at MIT, Brooks was focused on building Ghengis, a six-legged robot that he hoped to one day send to Mars. Brooks and Minsky hired Maes specifically to work on this project with the hopes that her collaborative learning techniques would prepare it for the hazards of walking not just on stairs, but also on other planets. During this period at MIT (and in academia more generally), women were rarely hired in or encouraged to enter the traditional science, technology, engineering, and mathematics (STEM) fields. A 2002 study on the status of female faculty in the MIT School of Engineering described how in 1990, two years after Maes was hired, only 5% of the faculty were women, and they were marginalized in a myriad of ways including receiving fewer grants and conference invitations

²¹ This project was featured in the Errol Morris documentary, *Fast, Cheap and Out of Control* (1997), which focused on the similarities between contemporary humanity and these simple robots. Ironically, while Maes used human biology to create the models for AI, Morris uses Maes' and Brooks AI works as an analogy for human identity and individuality.

than their male counterparts. While the percentage of female STEM faculty members doubled from 1990 to 2000 to 10%, this consisted of a jump from only 17 out of 357 faculty to 34 out of 348.²² During this postfeminist moment, the department of electrical engineering and computer science where Maes was originally hired employed 28 men and no women from 1990 to 1998.

Maes found this environment stifling and became interested in other potential uses for collaborative learning and autonomous agents, especially as they pertained to the emerging space of the Internet.²³ In the fall of 1991, she gained a tenure-track position and moved to the MIT Media Laboratory in the School of Architecture. The Media Lab houses a diverse faculty with a wide variety of interdisciplinary applied science research projects that are funded by many large corporations. While it is not a prerequisite, the research in this lab is often potentially very marketable. After graduating, student researchers often turn lab projects into businesses. While Maes characterized the male dominated computer science department as far too critical of unsuccessful experiments and only interested in computer science for the sake of computer science, she described the Media Lab as interdisciplinary, open-minded, and primarily concerned with improving people's lives. She also felt that the Media Lab encouraged risk-taking and accepted human error and mistakes in ways that those in the AI Lab did not.²⁴

Maes saw the differences between the AI Lab and Media Lab as heavily gendered, and this gendering pushed her toward the Media Lab. As Balsamo has argued, interdisciplinary collaborative environments like the Media Lab, where people of different backgrounds and assumptions come together, encourages participants to take gender, race and class into account

²²Mary C. Boyce et al., *Report of the Committee on Women Faculty in the School of Engineering at MIT* (Boston: Massachusetts Institute of Technology, March 2002), 11.

²³ Pattie Maes, "Personal Interview" (June 21, 2011).

²⁴ *Ibid.*.

throughout the design process. With inventions ranging from e-Readers to MPEG-4 audio players, the Media Lab's entrepreneurial focus on consumer goods, applied sciences and interdisciplinarity helped lead to the creation and growth of Maes' work on recommendation systems and social networking. Her description of these two departments largely mirrors how she conceives of the role of gender in academia more generally. When asked whether she thought her gender played any role in her research and career, Maes responded:

I think that on average women approach problems and research in a more pragmatic way, with more common sense. Men are often in love with the technology itself (rather than being excited about how that technology can change people's lives). I think women bring a lot to CS [computer science] research because CS is no longer about "computing", it is about social networking, creativity, expression, etc, all areas which women are very good at.²⁵

By associating the AI Lab's harsh criticism and focus on technology and theory with the faults of masculinity, the Media Lab becomes synonymous with positive feminine pragmatics, communication and creativity. These descriptions are for Maes symptomatic of how gender is enacted and performed within the STEM disciplines of academia. The different labs' projects evince this gender divide with one focusing on sending a fleet of robots to explore and study other planets and the other focused on consumer goods and services. Historically consumerism has been the domain of women and it is not surprising that an academic woman would find a lab working on projects for the consumer marketplace to be welcoming. It is also not surprising that

²⁵ Ibid..

in a postfeminist era that equates female agency with consumerism, the Media Lab would be open to integrating a woman's perspective into their work on consumer technologies.

Despite continued gender divisions within the STEM disciplines, MIT did not pass up the opportunity to display its (post)feminist credentials through Maes' accomplishments. As an attractive young woman with a new family in a consumer-friendly research lab, Maes became a poster "girl" for MIT's newfound appreciation of the second sex. The products produced by her unit helped maintain and enhance funding for pure science. In many interviews, Maes continually discussed her experience as a woman at MIT and always stressed that rather than experiencing discrimination, her gender had always helped her stand out. She stated:

If you're a woman in a field where there aren't as many women, you get more attention, rather than less. Or more attention than men at the same level. So I haven't experienced it to be a negative thing at all. I have never made a professional distinction between men and women. I've never compared myself with other women. I have always compared myself with everybody else.²⁶

While Maes attributes her exceptional status to her position as a woman, specifically being a young, attractive, white European woman is more likely what made her stand out at MIT to her male bosses. However, her status as an object of the male gaze has only gotten her more attention and not necessarily a higher salary or a faster career advancement. References in interviews to her status as a wife, a mother, and ex-model who travels home to Belgium often and does not "live for work" but rather "works to live" tag her with a palatable and

²⁶ Ibid..

quintessentially postfeminist identity that few could adequately inhabit.²⁷ While postfeminism suggests that women should be able to work in any field, they are encouraged to only think of these jobs as a way to improve their families and lives outside of work. This celebration of women who were able to perform their femininity in this way was common at MIT in the 1990s. A report on “Women Faculty in Sciences at MIT” found that while younger female faculty often felt very positive about their roles in the institution, MIT often neglected more senior female faculty in the STEM fields: They were paid less, received less grant funding for their projects, and were invited to far fewer conferences than their male counterparts.²⁸ Through the continued press and accolades that followed Maes throughout the nineties, she became a central character in MIT’s (as well as academia’s more general) push to reimagine itself as an institution hospitable toward women and the new perspectives they could bring to the sciences from which they had for so long been excluded.

Maes’ subsequent work continued to address the needs of female professionals, drawing on her own experience as a professional woman with a family. Her move to the Media Lab made it possible for her to work on projects that she felt were not just more connected to her interests, but that were also more concerned with the goals of professional women like herself, both within and outside of the academy. Maes founded the MIT Software Agents Working Group with the express purpose of applying her work on robotics to software programs that could help her manage the complexity of her own life within academia.

Her first project in the Media Lab focused on creating a program that could automatically create a work schedule for a user and was specifically designed to help Maes manage the

²⁷ Ibid..

²⁸ Sallie W. Chisholm et al., *A Study on the Status of Women Faculty in Science at MIT* (Boston, 1999).

growing complexity of her own life. The autonomous agents in this program would observe the way Maes scheduled her meetings and keep track of how much time she liked to have between them, when she preferred to have lunch, and if there were particular people she always met with at particular times. Eventually, this program was able to schedule her meetings automatically as long as her scheduling habits remained relatively unvaried. This scheduler tries to automate the burdensome processes of self-management and self-discipline that are common for both professional women and men in this postfeminist era. This scheduler could learn to schedule work around day care, carpool and other family obligations. For those, like Maes, for whom this technology could be most helpful, this scheduler works to manage decisions around domesticity and professional life primarily by making choices for the person. While the freedom to self-manage and make one's own choices around work and family appear to be rather simple and straightforward, each of these meta-choices is surrounded by a plethora of decisions (both large and small) that must be made in order to make the central choices viable.

By allowing people to avoid having to make these choices concerning their daily schedules, Maes' technology responded to the "problems," "burdens," and "freedoms" of postfeminism and neoliberalism on the lives of both men and women. While feminist discourses concerning the distinctions and connections between work and family life largely focus on how different spaces (the office versus the home) structure this often oppressive and for women at least, false opposition, postfeminist rhetoric structures this binary around time. While the home has always been a site of domestic labor, digital technologies and many other economic factors have also made the home an important site for telecommuting and other new forms of labor. These popular labor practices belie space based oppositions between home and work; they instead rely on separations between work and "free" time. In *Life on the Screen*, Sherry Turkle

specifically uses the example of a new parent when describing how Maes' scheduling software works: "If the agent is in the service of a parent with a young child in day care, it might find itself learning to avoid dinner meetings."²⁹ The need to rethink how to temporally structure one's day around public and private life became a much more common scenario in the eighties and nineties as more and more women entered the workplace and many men found themselves with more responsibilities in the home.

Notably, only the very affluent could even find a utility for Maes' scheduler. A scheduler can only help people arrange their lives if they have some control over when they work, which is not a reality for the vast majority of people. This scheduler only works because the standard nine-to-five work schedule no longer applies to so many people. While precarious and uncertain work schedules that can disappear at a moment's notice and unconventional work hours are often forced on people, they are also celebrated for potentially being more accommodating to management and laborers alike. Maes developed this scheduler as a way for affluent white heteronormative individuals to manage the difficulties of these new labor patterns articulated around time rather than discrete gendered spaces that distinguish home and work, private and public

In the process, affluence and women working became a "problem" for everyone. Such work conditions are highly gendered and always defined in relation to the family structure. In a 1996 *Wired* Article, Nicholas Negroponte, the founding director (with Jerome B. Wiesner) of the

²⁹ Sherry Turkle, *Life on the Screen : Identity in the Age of the Internet* (New York: Simon & Schuster, 1995), 99,

<http://www.loc.gov/catdir/bios/simon053/95038428.html>

<http://www.loc.gov/catdir/description/simon052/95038428.html>.

MIT Media Lab, commented on the centrality of gender and class issues to Maes' experience of academia and her research:

In the days before Pattie Maes was a mom, and prior to joining MIT's tenure track, she had plenty of time to browse through stores, newspapers and magazines, even cities, with the hope of discovering some piece of treasure. These days she hasn't the time to explore at a leisurely pace, but even worse, the amount of information and the number of products have expanded almost exponentially. What was merely overload yesterday has become impossible for her today. I must say I have felt this way for years!³⁰

MIT used Maes' biography and this narrative of her technological inventions "solving" problems in the workplace for women to extend its brand. Negroponte makes it clear that everyone feels overwhelmed by the modern world, but he specifically points to Maes position as a mother in academia as what made it ultimately "impossible for her today" to shop and explore, two seemingly equivalent actions. These pressures are central to academic environments where one's personal and work time often blur and are often especially severe for women. Maes expressed this as a personal problem that manifested itself in overstuffed schedules and the routine forgetting of "names and dates and places and locations of various materials in her overstuffed office."³¹ While this technology could be used by anyone, for this particular demographic, and for Maes herself, this scheduler helped professional individuals establish a routine and recreate boundaries between public and private life that are disrupted by gendered neoliberal work conditions.

³⁰ Nicholas Negroponte and Pattie Maes, "Electronic Word of Mouth," *Wired*, October 1996.

³¹ *Ibid.*

Negroponte also connects Maes' experience to the dilemma of information overload in which people become so inundated by choices, possibilities and information that they are unable to make a decision or holistically make sense of a situation. This experience is most common on search engines, where a simple search can result in millions of potential web pages. While often associated with the rise of digital information technologies and the Internet, information overload is also related to a rise in the number and seeming importance of choices within postfeminist culture. Maes designed her recommendation technologies to decrease information overload and make these choices simpler. They do this by selecting or arranging these choices in a way that makes the hypothetically "best" choice (within a neoliberal culture that highly values free market capitalism) the first one that a user comes into contact with.

Maes' scheduling software assumes that having more control over personal choices is not a great achievement of feminism and neoliberalism more generally, but rather is a burden that can be lifted through technology. However, even as Maes' application lifts this "burden," it also necessitates that users give up basic choices concerning how they organize their day to the autonomous agents that design what they consider to be the best schedule. In the process, the autonomous agents convert political issues into technological ones. Such software assumes that neoliberalism and postfeminism are not ideologies but are instead common sense. The creation of this software predicated on the belief that the oppressive and anxiety inducing effects of this world view can only be managed through technological fixes.

These tensions between the intertwined freedoms and burdens of self-management and choice only increased in her second project, an email sorting application called Maxims. In a further attempt to help better manage the demands of her professional and family life, Maes worked with her student Max Metral to develop the autonomous agents behind her scheduling

program for use with email clients. As Turkle describes it: “an agent keeps track of what mail one throws out (notices of films shown on campus), what mail one looks at first (mail from one’s department head and immediate colleagues), and what mail one immediately refiles for future reference (mail about available research grants).”³² After a training period during which the agents learn and keep track of a user’s habits, Maxim takes over and is able to prioritize a user’s mail for him or her. Nearly fifteen years later, these same principles have been adopted by several major email clients, including Google’s Gmail priority inbox service.

Maxims took these autonomous agents one step further by having them learn not just from the habits of their specific user, but also from the agents of other users. When one user’s agent “encountered an email for which it did not have a memory, it would communicate with other Maxims agents in the office, finding out whether a message from, say, Maes’ colleague Nicholas Negroponte was given a lot of attention, or just a little.”³³ This technique, based on the principles of collaborative learning that Maes studied in graduate school, is called “collaborative filtering” and makes it possible for agents to know how to deal with previously unexperienced and unforeseen events. For example, a user might receive an email message from a lawyer in Nigeria. This user’s Maxims agents would communicate with the agents of other users and see what these other users did with this mail. If other users labeled this mail as spam, the Maxims agents would communicate this and the new Nigerian email would be sent to the spam folder as well. While often very helpful, this action can at times be problematic if users at some point change their email reading habits or wish to start paying more attention to correspondence from

³² Ibid.

³³ Ibid.

people that they previously were not interested in. As such, Maxims constructs conservative digital communities that preserves the habituation of the status quo.

The Maxims software obscures its role in structuring the limits of user agency by stressing the ways in which users can exercise control over the agents' actions. Users can represent the Maxims agents as cartoon human faces which depict the agent's state of mind. With different emoticon-like facial features, Maxims can suggest that the agent is thinking, is working, does not have enough information, or wants to make a suggestion.³⁴ These expressive faces show how algorithms work and thereby personalize data mining. If Maxims agrees with the users actions, it will look pleased, but if it has an alternative suggestion, it will appear pensive. In a project on the effects of representing agents via faces in poker game environments, Maes and Tomoko Koda concluded that users find expressive faces in this application to be "likable, engaging, and comfortable."³⁵ Maes used these findings to make Maxims users more comfortable with using these programs by making the agent's actions more expressive, more affective and more "human." Maes and Koda felt that an expressive face could show how the algorithms worked so that users could exercise a greater level of control in their use. Both Maxim's expressive faces and Maes' exemplary and personal bio assist in rearticulating collaboration from an effect of communities to a process of personalization and personification.

Maxim's face also reacts to the user's actions, displaying a smile when it would have made the same decision for you, and a frown for when it would have done something differently. This action creates a reversal of roles in the user-agent relationship. While these facial reactions are meant to give the user a sense of how well the agent is at hypothesizing the user's scheduling

³⁴ Turkle, *Life on the Screen : Identity in the Age of the Internet*, 100.

³⁵ Tomoko Koda and Pattie Maes, "Agents with Faces: The Effects of Personification of Agents," 1996, 6.

or email sorting habits and desires, this feedback also lets users know that the agent disapproves of their scheduling abilities and would do it differently if it could. A preference setting allows users to change how certain an agent has to be before it offers a suggestion. As Turkle explains, “if the agent never offers its own suggestion but always shows a pleased face after the user takes an action, the user can infer that the agents “tell me” threshold should be lowered. The agent probably has useful information but is being constrained from sharing it.”³⁶ Like the facial reactions, this ability to change when the agent offers suggestions does not have any effect on the kinds of suggestions the agents would make. However, as an extra level of self-monitoring for users, these automated reactions do have an effect not just on how they think of these decisions and the process the agent goes through, but also on how they as users think of their own actions and decisions.

In addition, to make this system work, collaborative filtering depends on users exhibiting a high level of consistency in their daily choices. Programs like Maxim cannot handle people who are mercurial in their desires and daily life; they are designed to manage such people into becoming more stable and predictable. If a user is completely haphazard in his or her decisions about whether to read and reply to certain emails, Maxims’ agents cannot help the user organize his or her email. As a result, these technologies encourage users to adopt unchanging patterns in their everyday lives so as to allow the agents to make these lives easier to manage, an ideal goal within a postfeminist context.

Thus, as a disciplinary tool, recommendation technologies encourage users to adopt a lifestyle built on a static sense of self that is practiced through unchanging patterns in their daily lives and a management of distinctions no longer wholly based on space. This lack of change

³⁶ Turkle, *Life on the Screen : Identity in the Age of the Internet*, 100.

allows agents to make accurate recommendations and thus allows them to manage the lives of users. Maes linked her conception of this static form of subjectivity to the works of Plato and Georg Simmel in “Unraveling the Taste Fabric of Social Networks.”³⁷ In the process, she links time management issues to consumption habits as they both become expressions of plenitude and lack. In this essay she cowrote with Upendra Shardanand in 2006, Maes focuses on Plato’s theory that “in a culture of plenitude, a person’s identity can only be described as the sum total of what she likes and consumes.”³⁸ McRobbie and other postfeminist scholars echo this sentiment when they discuss how an affluent woman’s individuality is constructed out of a consumerist material culture.³⁹ Yet, while these scholars focus on the plenitude of material goods, the digital plenitude of seemingly endless information is just as much a force in this transformation. Furthermore, these two contemporary plenitudes are deeply connected to each other and help to support each other’s existence. In turn, this duality of plenitudes is central to our conception of postfeminist culture and how our gendered identities are shaped by it.

Maes related Plato’s culture of plenitude to her constant grappling with too much information and her effort to organize and help make sense of it for herself and others.⁴⁰ The culture of (digital) plenitude affects the categories by which users identify themselves and, as many postmodern theorists have suggested, also enlarges the number of possible identities

³⁷ Upendra Shardanand and Pattie Maes, “Social Information Filtering: Algorithms for Automating ‘Word of Mouth,’” 1995, 210–217.

³⁸ Ibid.

³⁹ See McRobbie, *The Aftermath of Feminism : Gender, Culture and Social Change*.

⁴⁰ Hugo Liu, Pattie Maes, and Glorianna Davenport, “Unraveling the Taste Fabric of Social Networks,” *International Journal on Semantic Web and Information Systems* 2, no. 1 (2006): 42–71.

available to them.⁴¹ Rather than relish this plenitude, Maes views it as a burden. By invoking Plato, she obscures the contemporary and gendered aspects of this problem and portrays it instead as a timeless issue that affects everyone. Her technologies work to simplify and at times obfuscate this plenitude. This is done specifically through the limiting and guiding of the user toward this “sum total of what she likes and consumes.”

Maes’ conception of subjectivity in an era of plenitude and its relationship to contemporary gender expectations is further elucidated by her discussion of philosopher Georg Simmel. For Simmel, human identity is like a broken pane of glass—“in each shard, which could be our profession, social status, church membership, or the things we like, we see a partial reflection of our identity. The sum of these shards never fully captures our individuality, but they do begin to approach it.”⁴² Like Erving Goffman after him, Simmel describes how people present themselves differently in different situations and points out that these different modes of presentation are not false or wrong, but are just as important as every other. Maes used Simmel’s theories of identity as a foundation for her autonomous agent based projects, including Maxims, and designed her agents to act as shards that together approaches but never completely captures the user’s self-image.

In Maes’ work using agents to design a user’s schedule and filter email, the collection of all of a user’s agents becomes a mirror that she suggests reveals particular qualities that the user did not realize he or she possessed. Maes calls this mirror effect an “earnest self actualization,”

⁴¹ For a small selection of the range of theorists who argue this, see Charles Taylor, *Sources of the Self: the Making of the Modern Identity* (Cambridge, Mass.: Harvard University Press, 1989); Scott Bukatman, *Terminal Identity: the Virtual Subject in Postmodern Science Fiction* (Durham: Duke University Press, 1993).

⁴² Liu, Maes, and Davenport, “Unraveling the Taste Fabric of Social Networks.”

meaning a tool for the self-management of the user and his or her self-image.⁴³ She suggests ‘Actualization’ implies that this technology does not just reveal inner selves of users, but helps users to make themselves into the people they want to become. However, this actuality is a statistical user base rather than an affective or experiential one. These agents actually act as a two-way mirror that can be used not just for reflection but also surveillance and discipline in that these agents operate as a tool of self-discipline that shape and reflect a sense of self shaped by the neoliberal-postfeminist ideology that they participate within. This technology is directly linked to the self-development ideology of neoliberalism and postfeminism that tries to shape a person’s sense of self through the manipulation of their actions and consumption habits.

Maes thought of her technologies as tools to help users both transform and gain insight into themselves and the cultural materials they were most affected by; however, these agents themselves act as cultural materials that also shape these users specifically as neoliberal consumers. Maes based her belief, that these autonomous agents reflected aspects of the user who made them, on the idea that “that common sense tells us that people are not completely arbitrary in what they like or consume, they hold at least partially coherent systems of opinions, personalities, ethics and tastes, so there should be a pattern behind a person’s consumerism.”⁴⁴ Maes’s recommendation technologies pay attention to those parts of a person’s identity that can be best utilized to make recommendations for everyone. In the process, economic utility becomes synonymous with identity.

Yet, Maes did not believe that such a pattern of consumerism was always directly mimetic, but rather that this parity between one’s self and one’s possessions is an implicit goal of the

⁴³Ibid.

⁴⁴ Ibid.

postfeminist consumerist society in which she lived and worked. She compares this subjectivity to Aristotle's "*enkrasia* or continence and thus the ability to be consistent."⁴⁵ As Timothy O'Connor and Constantine Sandis explained, *enkrasia* is important because "it is a central requirement of practical rationality" that requires "you to intend to do what you believe you ought to do" in an unconflicted way.⁴⁶ *Enkrasia* is opposed to *akrasia*, or actions that one takes even though one recognizes that they are "in conflict with what she judges to be the best course of action."⁴⁷ An *akrastic* personality is one that is marked by spontaneity and a lack of coherence in their overall actions. *Akrasia* is often characterized by self-conflict and an inability to make a firm decision or come to a conclusion because no single option appears to be the obvious best. This type of personality is a problem in consumer environments where the distinctions between products are often minimal and there is no clear best choice.

Maes' self-management technologies supported consumerism by turning *akrastic* personalities into *enkrastic* ones by suggesting one option as the best. During the later years of neoliberal Reaganomics, *enkrasia* was discussed as a primal force of consumerism: "Grant McCracken coined the term the Diderot Effect to describe consumers' general compulsions for consistency" and the theory that all of the objects a given consumer owns "should all be of a comparable quality and enjoy a similarly high echelon of taste."⁴⁸ In describing a similar effect, Maes uses the example of John, who "buys a new lamp that he really loves more than anything else, but when he places it in his home, he finds that his other possessions are not nearly as dear

⁴⁵ Ibid.

⁴⁶ Timothy O'Connor and Constantine Sandis, *A Companion to the Philosophy of Action*, Blackwell Companions to Philosophy (Chichester, West Sussex, United Kingdom ; Malden, MA: Wiley-Blackwell, 2010), 280.

⁴⁷ Ibid., 274.

⁴⁸ Liu, Maes, and Davenport, "Unraveling the Taste Fabric of Social Networks."

to him, so he grows unhappy with them and constantly seeks to upgrade all his possessions such that he will no longer cherish one much more than the others.”⁴⁹ This uniformity gives the user’s interests a sense of “aesthetic closure.”⁵⁰ In turn, this drive for “aesthetic closure” heightens consumer impulses and encourages people to continually buy more in the hopes that these purchases will get them closer to this ‘closure.’ At the same time, the capitalist need to continually produce goods continually makes this ‘closure’ recede.

After working on scheduling and email sorting applications, Maes’ next and most influential project was a music recommendation system built on her collaborative filtering technologies. Released in July 1994, the first instantiation of this program, named RINGO, was an experiment funded through MIT that worked via email correspondence with users. While it recommended music to users, it did not provide an option to listen or purchase it. As Maes and Negroponte described it:

What RINGO did was simple. It gave you 20-some music titles by name, then asked, one by one, whether you liked it, didn't like it, or knew it at all. That initialized the system with a small DNA of your likes and dislikes. Thereafter, when you asked for a recommendation, the program matched your DNA with that of all the others in the system. When RINGO found the best matches, it searched for music you had not heard, then recommended it. Your musical pleasure was almost certain. And, if none of the

⁴⁹ Ibid.

⁵⁰ Ibid.

matches were successful, saying so would perfect your string of bits. Next time would be even better.⁵¹

As with Maxims, here Maes and Negroponte use the metaphor of DNA to collapse consumer taste with the user's sense of self. As with her earlier applications, difficulties in her own everyday life inspired Maes to create RINGO. Dissatisfied by the radio stations in Boston (and the US more generally) that tended to be "bland, uninspired" and without much diversity, she felt homesick for the eclectic musical offerings from her Brussels home.⁵² The perceived accessibility of this music, which was now not tied down to any particular place, allowed Maes to create an emotional connection to a place thousands of miles away. Maes, whose parents, siblings and extended family lived in her birthplace of Belgium, stated that she designed RINGO, to help her avoid homesickness and manage her relationship to her distant family from which her work forced her to be apart. This mobilization of home frames Ringo as both domestic and global—as universally appealing and comforting.

At the same time, RINGO is an example of a precursor of the World Wide Web's focus on enabling instant sales and bringing consumerism into the home. This period saw a massive rise in the number of computers sold for in-home use and the Internet was introduced to the mainstream public. The Internet opened the home as an important new consumer space. RINGO exemplified the potential that the gathering of the massive amounts of information that computers and the Internet made possible could have for the consumer marketplace and self-management. As a two-way mirror, RINGO provided useful

⁵¹ Ibid.

⁵² Maes, "Personal Interview."

information on consumer habits that could both be used to encourage other users to purchase more music and be sold to advertisers.

Maes considered the way collaborative filtering worked in RINGO to be a new and automated form of “word of mouth” communication. RINGO allowed people to spread their personal opinions on different music in order to sway the opinions of others. While experts on music can certainly also sign on and state their opinion, RINGO gives an expert’s opinion the same weight as someone who has not even heard the music they are commenting on. Often labeled as trivial and prone to error, word of mouth communication has a long history of being coded as feminine. Maes contrasted this form of communication with that of newspapers, which use a variety of gatekeeping operations to make sure the information they print is “accurate,” a standard not usually associated with taste. In modeling her algorithms as a form of word of mouth communication, she argued that such barriers were much less of a factor in the electronic age, and that such (ostensibly) disinterested “accuracy” was not an important element in guessing a user’s subjective interest in music.⁵³ In figuring out whether a user might like a product, looking at their general history of likes and dislikes and comparing that history to those of other users on the site worked as a much better predictor of future interests than calling upon an expert aesthete in the field. These invocations of intimacy, friendliness and community rather than elitism helped to make these technologies less threatening and encouraged people to adopt them not just in their everyday lives, but also in their homes.

This rhetoric also covers over the development of highly sophisticated data mining operation working at the service of the market. By successfully applying “word of mouth”

⁵³Shardanand and Maes, “Social Information Filtering: Algorithms for Automating ‘Word of Mouth’.”

communication to RINGO, Maes structured the experiences of a general user base around a vernacular discourse in order to make people feel comfortable with revealing information about themselves that could be sold to advertisers or other interested parties. Maes used this data to encourage greater levels of consumerism and create an ad-based online economy. Moreover, RINGO implicitly asserted consumerism as the primary way to structure online communication and build relationships between users.

RINGO was extremely popular and in March 1995, Maes and several of her students founded Agents, Inc., an Internet start-up company, in order to market the RINGO software. Through Agents, Inc., they also released a new version of RINGO with a webpage interface called Firefly.⁵⁴ This program attracted the public's imagination and introduced collaborative filtering to the structure of the newly emerging commercial World Wide Web. In Firefly, Maes added the ability for users to add new artists and albums to the Firefly database. This technique has been used subsequently by a wide variety of websites ranging from Wikipedia to YouTube. After only a few months, the number of albums in the system grew from 575 at its inception, to 14,500. In 1995, Firefly received the Second Place Prix Ars Electronica Award specifically because it could help people manage their many media-related choices in a way that "makes full usage of the power of the Web, [on] a system [that] could only exist on the Web."⁵⁵

Functionally, Firefly remained very similar to RINGO except that instead of just music recommendations, it also recommended other types of audiovisual media including

⁵⁴ Pattie Maes founded Agents, Inc. with Upendra Shardhand, Nick Grouf, Max Metral, David Waxman and Yezdi Lashkari.

⁵⁵ "Prix Ars Electronica 1995 World Wide Web Distinction: Ringo++," 1995, http://90.146.8.18/en/archives/prix_archive/prix_projekt.asp?iProjectID=2529.

movies. Maes also added personal profiles to Firefly, which allowed people to share information about their location, name, gender and age with other users. While these profiles reconstituted a kind of community in an online space, they also made it possible for Agents, Inc. to gather information about their user base in order to sell to marketers. They also allowed these marketers to place advertisements on the site that were directed toward specific users. Nearly a decade later, companies like Google and Facebook would employ these same collaborative filtering tactics and technologies as the profitable backbone of their websites. Firefly ushered in an era in which the burgeoning online industries of choice management (and self-management) began to commodify users by selling information about them to corporations via an invisible economy, in order to make their products appear more appealing to users at the level of the individual.

In the process, Firefly became one of the first social networking sites by adding the ability for users to chat with others whom Firefly agents thought shared a similar taste in music (and other media). Firefly included a user profile page, which contained the user's zip code, age and gender. The program employed this information in order to put users who were similar in terms of the musical and demographic information that they had supplied in touch with one another. Through the user profile page, people could list their favorite books, movies, music, friends, etc. Users could check out their friends' profile pages, find others on the site who shared a similar taste, and chat with strangers in the hopes of creating friendships around these shared interests and tastes. Thus, Maes designed Firefly not only to help users find new music, but also to find other people. This dual operation thus links consumerist desires to the desire for interpersonal relationships via shared information and

suggests that a shared interest in particular forms of consumerism is central to how users should create friendships.

This focus on recommendations as the primary forum for self-management and community is central to postfeminist culture and to the social networks and digital technologies that have emerged from it. While 1970's feminists asserted nonhierarchical collaboration as a feminine form of community and knowledge building, Maes formulations relied on technology in Firefly to cultivate postfeminist conceptions of these ideals. Maes commented that what she liked the most about collaborative filtering was its potential for "fostering community."⁵⁶ She also believed this motivation was distinctly gendered and linked her own desire to work on collaborative filtering to her femininity: "Maybe it's a bit cliché, but I think that women are more interested in building and maintaining communities." Statements like this reveal a telling overlap between the goals of feminism and of Maes. Yet, at the same time her comments essentialize women and reinforce the idea that women are naturally more interested in creating and supporting their community than men are. Through this rhetoric, she made a market for sophisticated technologies and turned them into viable commodities. While social networking is not inherently feminist or feminine, Maes' work shows that it is indeed in dialog with the complicated changing gender dynamics of our current postfeminist culture.

Moreover, there is also an important difference in how 1970s feminists defined "community" and how Maes conceives of it. This difference helps to articulate the gap between feminism and postfeminism more generally. For earlier feminists, collaboration was a tool of political and cultural consciousness-raising and activism with the principle purpose

⁵⁶ Maes, "Personal Interview."

of creating healthy communities of women. In contrast, Firefly creates communities around a shared cultural taste and recommendations, which function within consumerism and capitalist desire. This collapsing of community with consumerism is a common element of how people identify themselves in contemporary American society and has been roundly critiqued by many scholars of postfeminism.⁵⁷

Furthermore, the community that Maes envisioned manifested in strongly heteronormative ways. Unlike earlier feminists who sought to create alternative forms of community that might give women more power, users employed Firefly primarily as a way to start romantic relationships between couples. Maes noted the many user responses to Firefly that referred to the marriages that Firefly produced as their favorite thing about the site.⁵⁸ While nothing in Firefly's interface encourages its use as a dating pool (other than that you could search for people by location and gender), this was one of the primary ways in which it was used.

While the Firefly site became widely popular immediately after going online in 1995, the huge influence of this technology across the Internet was cemented by Agents, Inc. through their secondary business of managing and/or selling the underlying Firefly technology to other companies.⁵⁹ Many of the most important Internet companies of this era,

⁵⁷ For a sample of these discussions, see many of the articles located in Yvonne Tasker and Diane Negra, *Interrogating Postfeminism : Gender and the Politics of Popular Culture*, *Console-ing Passions : Television and Cultural Power* (Durham, N.C.: Duke University Press, 2007).

⁵⁸ Maes, "Personal Interview."

⁵⁹ During this period, work on collaborative filtering and recommendation systems continued at several other corporations and university departments. Groups such as Bell Communications Research (BellCor) in New Jersey, Xerox Parc in California and the International Computer Science Institute at the University of California,

including Barnes & Nobles, ZDNet, Launch.com, and Yahoo used collaborative filtering technologies and passport user profiles supplied and managed by Agents, Inc. Many other important and popular websites of our current media landscape also incorporated similar forms of collaborative filtering during this period or soon after, including Google, Amazon.com, Netflix and Facebook. Maes' product development research showed that employing user data could be very productive and economical for getting users to purchase ever more products and services or to become a product themselves in the form of big data.

This data generates information on demographics that companies like Firefly sell to advertisers who have always relied on reception research but now prize it especially highly because of its usefulness in the creation of personalized online spaces. As in the economies of television that came before it which sold customers as viewers, this selling of customers as

Berkeley worked on collaborative filtering in parallel to Maes. Some, like the GroupLens Research Lab at the University of Minnesota, Twin Cities, were also successful in bringing their research to market and helped build early recommendation systems for sites like Amazon.com. Major media outlets were also interested in creating recommendation systems to help sell their products. Paramount Interactive Inc. created a movie recommendation software package called Movie Select. Like Firefly, this product attempted to recommend films that users might be interested in. The main difference between these technologies was that while Firefly used a data set (list of movies and media) that was constantly expanding and changing, the Paramount lists were static and stored "correlations between different items and [used] those correlations to make recommendations. As such, their recommendations are less personalized than in social information filtering systems."⁵⁹ This is not to say that GroupLens and these various other companies did not contribute a great deal to the development of these technologies but rather that they were never the focus of these media conglomerates' attention and their work was often considered secondary to that done at MIT. They also did not incorporate social networking into their sites, which proved to be central to Firefly's success.

information to advertisers creates a situation where the user base becomes the real product being bought and sold, while the service that the site offers acts as a lure to get customers to supply more personal information. As such, the question of what companies like Firefly do with all of the information on their users is often front page news as companies and governments try to regulate how and if personal information can be sold or used in ways other than those that users expressly gave permission for. While Maes designed her technologies to address contemporary postfeminist dilemmas brought on by changing gender roles and expectations by helping affluent people organize their lives, these recommendation systems also frame the identity of users through the economic value of this data. In the process, identity within online consumer spaces became valued because of (and defined as) this utility.

Maes took social networking a step further in her next project, Yenta, which focused on building an early social networking and matchmaking website for academics. With several students including her research assistant Leonard Foner, Maes created a program that would recommend users to others based on the same collaborative filtering techniques that were used to sort emails, music and other media. While Maes and Foner specifically designed Yenta to help academics working on similar research topics easily find each other directly, its name alludes to a long history of matchmaking rituals that all stress the difficulty of finding someone with whom to spend the rest of one's life and the probability that young hormone-addled teenagers will make a bad decision. Like earlier Yentas who relied on seemingly "rational" economic imperatives to create matches, Maes' program matched people based on general interests and similar life plans rather than sudden emotions and crushes in ways that contrast statistical data with affect and

experience.⁶⁰

Like Maes' email program, Yenta was created in order to make it easier and less time-consuming to find people to respond to and form communities; however, it does so at the cost of limiting diversity by bringing people into contact only if they are very similar. By using the same algorithms to match people together as she used to match people with consumer goods, Maes illustrates the lure of rational data as a mode of making choices even in matters of desire and love. Importantly, these relationships are created using the same utility model of identity that Maes employed in Firefly and Maxims. Yenta recommends users to others based on how useful they could be to each other based on work interests in the hopes of furthering each of their careers. This creates economic partnerships with economic rather than emotional goals. As I will discuss in depth in chapter three, echoes of this early work by Maes and Foner is visible in many other current dating websites including eHarmony.

Privacy Under Digital Surveillance

In an article for the 150th Anniversary special issue of *Scientific American* in 1995, Maes described the necessity of software agents if “untrained consumers are to employ future computers and networks effectively.”⁶¹ Computers during this time only responded to “direct manipulation,” wherein nothing happens unless a user gives extremely detailed commands. Maes felt that, like herself, most consumers did not have the time nor the inclination to manually input (or learn how to program) all the tasks that they wanted their computers to do for them.

⁶⁰ Maes, “Personal Interview.” see also Leonard Newton Foner, “Political Artifacts and Personal Privacy: The Yenta Multi-Agent Distributed Matchmaking System” (Massachusetts Institute of Technology, 1999), <http://pubs.media.mit.edu/pubs/papers/FrontMatter.pdf>.

⁶¹ Pattie Maes, “Intelligent Software,” *Scientific American: 150th Anniversary Issue*, September 1995.

This article advertised the pragmatics of Maes' research, digital technologies and an MIT education.

Instead, Maes worked to change the dominant paradigm of computing from direct manipulation to cooperation, wherein “instead of exercising complete control (and taking responsibility for every move the computer makes), people will be engaged in a cooperative process in which both human and computer agents initiate communication, monitor events, and perform tasks to meet a user's goals.”⁶² Paradoxically, she imagined that these computer agents would simultaneously be thought of as autonomous and as the user's alter egos, or digital proxies. These proxies would all work simultaneously to help navigate users through online spaces, bring information directly to them, buy or sell objects, and even represent the user in his or her absence.⁶³ Mae's technologies rely on and enable a neoliberal, postfeminist ideology that celebrates autonomy above all else, and collapses identity, agency and economic utility. Yet at the same time, her focus on these digital proxies as “alter egos” illustrates a fundamental contradiction of these ideologies and how they are currently experienced and enacted: while, as David Harvey as argued, neoliberalism is dependent upon the complete autonomy of corporations and capital that often appears to have no limits, this autonomy is always predicated on an ethic of personal responsibility that demands that specific people be held accountable for all mistakes and failures made by this global system.⁶⁴ For this technology to work, it must be autonomous and yet if anything goes wrong, it is unclear whether the programmer, the agent itself, or the agent's owner would be held accountable.

⁶² Ibid.

⁶³ Ibid.

⁶⁴ Harvey, *A Brief History of Neoliberalism*, 116.

As these agents became important in economic matters, they increasingly generated fears over their security and the privacy of user information. Indeed, Maes' programs and collaborative filtering more generally quickly inspired huge cultural fears around how digital technologies were destabilizing privacy by seemingly making personal information readily available both to hackers and to corporations. The ways in which the two-way mirror aspects of these technologies complicate notions of agency and choice have real legal implications. When Maes tested Maxims, users expressed fears concerning whether they could be held responsible for their agents' actions and they questioned who actually owns the information that the agents gathered.⁶⁵ The term "agent" also brings up the image of the "double agent" and the possibility that these technologies could be used to spy on others as a form of industrial espionage. In the case of Maxims, one could even program a malicious agent to hide, delete, forward or change important and/or confidential emails.

Maes saw these issues surrounding privacy and consumerism in computing as fundamental philosophical questions of the digital era. To help allay these fears, Agents, Inc. created the Firefly Passport, a program designed to help keep user information, including name, location, gender, user history and credit card information online in a safe and secure way. The name of the program implies both heavy security around identity that is not opposed, but rather allows for the controlled crossing of borders. While Firefly autonomous agents could view and use this information to make recommendations and purchases, each user had control over which other users could see this personal information. While imperfect, this technology acted as a starting place for the securing of personal information on sites where that information was intrinsic to the working of the site itself.

⁶⁵ Turkle, *Life on the Screen : Identity in the Age of the Internet*, 100.

Agents, Inc. made their Passport technology the standard way by which secure personal information could be transmitted from one website to another. Passport made it possible to link a recommendation site like Firefly to a shopping site like Amazon.com, where a user could purchase recommended media. Passport also allowed for sites like Firefly to take information from other linked sites to improve recommendations and create more targeted advertising. In order to make these inter-corporation transactions work securely, there needed to be a standard way to transmit personal information online. In 1997, Agents, Inc, Netscape and VeriSign worked together to create a set of rules to govern such transmissions, which they called the Open Profiling Standard (OPS). The OPS called for the creation of a standard user profile that would be located on a user's computer. This profile contained information including the name, age, location and contact information of the user and the OPS defined ways in which a user could safely and easily send this profile information to trusted service providers while allowing the user to know exactly how the data would be used. It also offered further protection via the use of "legal and social contracts and agreements" (similar to a modern terms of service agreement) that would stipulate both what information the service provider had to disclose and how this information had to be displayed to the user.⁶⁶ In this way, the self-managing aspects of Maes's technologies became governmentalized as rules around how companies can and cannot use these technologies.

The OPS was created in order to deal with the problem that "as more and more users, and more and more services come to the Internet, users are finding themselves increasingly overwhelmed with the richness of new possibilities, and new service providers are discovering that rapidly building systems to fit these users' information needs becomes ever more

⁶⁶ Pat Hensley et al., *Implementation of OPS Over HTTP* (Washington D.C., June 2, 1997).

challenging.”⁶⁷ Thus, the OPS became an influential document that regulated privacy, surveillance and the plenitude of choice in such environments. While Firefly and other collaborative filtering programs were originally designed to deal with the glut of information online, they inadvertently also had to figure out how to manage all of the people that they were keeping track of through their product ratings. The selling of this user information without meaningful consent led to many fears concerning user privacy and the need for regulations designed to standardize the marketplace.

As selves as users are turned into consumers and commodities, their identities also become something that can be consumed, bought, sold and stolen. Privacy fears speak to how digital technologies instrumentalize postfeminism and neoliberalism in order to reduce definitions of the self for economic gain. These definitions serve to industrialize the self as a commodity regulated and standardized through non-governmental inter-corporate privacy agreements like the OPS. In this context, privacy itself becomes a discursive tool that acts to preserve and protect personal value in order to make it transactionable.

While it is necessary to give up a certain amount of personal information about oneself if one desires the “individualized information, entertainment and services” that a site like Firefly can provide, this giving of information also creates what the OPS standards authors refer to as a “potential threat to individual privacy.”⁶⁸ At the time of the publication of this Public Note in 1997 by the W3 Consortium, there were very few “measures or safeguards” in place to offer “an end user any awareness of, or any control over the usage of his or her personal information.”⁶⁹

⁶⁷ Ibid.

⁶⁸ Ibid.

⁶⁹ Ibid.

Furthermore, the act of constantly filling out personal information on websites in order to get this personalized user experience was tedious and time consuming for both the user and the service provider. The time and money involved in this data collection tended to outweigh any benefits that the process of personalization could offer.⁷⁰ Agents, Inc helped create the OPS to confront these time constraints and make them profitable within a culture more and more focused on time-management and its relationship to self-worth.

While the OPS did not have any legal force behind it and started out as more of a suggestion of one particular type of safeguard that could be implemented, it was eventually adopted into the Platform for Privacy Preferences Project (P3P), which attempted to make it easier for websites to declare the intended use of information they collect about browsing users. While the P3P is only one of many early competing protocols designed to protect user information and give users more agency in how their information gets used, it has been extremely influential in defining what fair practices in online information gathering should look like and what the ethics behind such practices consist of. These ethics always equate more choice and self-monitoring as an inarguable good that must be protected and thus work to facilitate postfeminist experiences in digital environments. This move from the political to the technological made these neoliberal and postfeminist ethics the hidden yet central ideology of online identity and consumerism.

In 1998, Microsoft was also working on improving its online consumer experience and took an interest in Firefly Networks' innovations in the standardization of online consumer data and security. They bought the company in April of that year and began to employ many of its core technologies throughout the Microsoft Network. They also almost immediately took the

⁷⁰ Ibid.

Firefly website offline. While Maes continued teaching at MIT, many of the others who had been working on the website, including its cofounder, Max Metral, were reassigned to help start work on the Microsoft Passport software, one of the first programs to implement the OPS in a far-reaching way. Now referred to as Windows Live ID, this program allows users to sign on to a variety of websites associated with Microsoft via one profile and one password that was shared by all of them. These same OPS principles also now underlie the software that allows one to use their Facebook user ID and password to sign in “securely” to any of a large number of other websites in exchange for Facebook knowing (and at times revealing) everything you do on these other sites, including what products you may have bought and what movies you may have seen. The OPS equated online access with surveillance and exchanged the privacy of users for convenience during a period in which the “wasting” of time for “menial” tasks like entering passwords was equated with a waste of the self.

Conclusion: The Afterlife of Firefly

Maes created the recommendations—the lure—that made the utilization and selling of identity in online spaces both tremendously popular and highly profitable. Many major websites now use some form of collaborative filtering and agent technology to help users sort through the data on their sites, and many, like Netflix, continue to offer Firefly-esque systems for recommending media. With the actual Firefly site now long dead and largely forgotten, the Microsoft Live ID is now the most direct remnant of this history. As the web matured and became structured and used more in the way that Maes imagined it, Microsoft and many of the other huge technology companies had to deal with the same issues that Maes had to confront during her experiments, concerning how to reconceptualize ideas of community, subjectivity,

privacy rights and agency for this digital postfeminist era. Not surprisingly, these companies used Maes' work as a framework for methods of identification for users across the W3. As a result, much of the rhetoric and original assumptions Maes espoused concerning the dilemmas of this era associated both with digital plenitude and changing gender roles, have become part of the very structure of the Internet and with it, our daily lives. I would argue that these two often very distinct frames through which to look at the world are actually entirely related with changes in information and knowledge affecting the ways gender is imagined, while changes in gender norms have equally affected what we privilege concerning the definitions and uses of information.

Maes received a great deal of press after *Firefly* was released. This positive reaction directly tied Maes' work to the continued larger effort during the postfeminist era to show women as highly capable of performing in careers that were previously only open to men. While various groups and labs at other academic institutions successfully implemented collaborative filtering and agent technologies around the same time, Maes was continually singled out as uniquely special for her contribution and these contributions were rhetorically used to promote MIT's new image of gender equality that they paradoxically connected to exceptionalism. Aside from winning an Ars Electronica prize for *Firefly*, over the next five years from 1995-2000 she was named a "Global Leader for Tomorrow" by the World Economic Forum; one of the "15 Most Perspicacious Visionaries" by the Association for Computing Machinery; a lifetime achievement award from the Massachusetts Interactive Media Council; one of *TIME Digital's* "Cyber-Elite" and "top 50 Technological Pioneers of the High-Tech World"; one of *Newsweek's* "100 Most Important People"; and perhaps most interestingly, one of *People Magazine's* "50

Most Beautiful People.”⁷¹ While Maes reportedly agreed to be profiled by *People* because she thought it would “be good for readers to see a woman recognized for her brains,” this plan backfired. The resulting article largely downplays Maes’ scientific credentials, referring to her instead as a “download diva” and misquotes her as saying that MIT “is almost a wasteland in terms of beauty.”⁷² By opposing attractiveness to intelligence and science, this article enacts what Diane Negra refers to as postfeminist culture’s “distorted rendition of choice” between domesticity and work that serves to reinforce “conservative norms as the ultimate best choices in women’s lives.”⁷³ Rather than stress the possibility of being both brilliant and attractive, *People Magazine* instead argues that women can indeed excel in academia, but only at the cost of giving up their femininity.⁷⁴

In conclusion, by continually framing her projects as efforts to help herself as well as others, female or male, confront many of the new challenges brought on by changing gender roles and related time constraints, the work and figure of Maes shows the deep, but often invisible connections between postfeminist culture and the digital technologies created within it. As the most influential proponent of collaborative learning and filtering during the mid-1990’s, a formative period for the Internet, Maes’ focus on solving problems related to labor, self-management and the burdens of choice are revealing of how the W3 has always been gendered in complex ways. Many factors were involved in making these algorithms a central part of

⁷¹ Pattie Maes, “Curriculum Vitae of Pattie Maes,” 1997, <http://web.media.mit.edu/~pattie/cv.html>.

⁷² “Pattie Maes,” *People Magazine*, May 12, 1997.

⁷³ Negra, *What a Girl Wants? : Fantasizing the Reclamation of Self in Postfeminism*, 2;4.

⁷⁴ In response to the article, Maes emailed her department to explain the misquote and then posted an explanation onto her homepage.

virtually every important and popular consumer focused website today from Google to Baidu, as whole global industries and user bases had to accept and adopt them.

Even so, Maes played a central role in shaping and popularizing collaborative filtering through the gender politics of postfeminism and neoliberalism. While her programs were originally designed for working professional women like herself, they have become an important tool for shaping users into consumers who can be bought, sold and stolen. What may have been intended to address the problems of neoliberalism and postfeminism have ultimately become instrumentalized by these ideologies and have led to new problems directly linked to this capitalist order.

CHAPTER 2

TiVo, Netflix and Digg: Digital Media Distribution and the Myth of the Empowered Consumer

Pattie Maes' digital recommendation systems and the collaborative filtering algorithms that they are based on are now common throughout the consumer web. Media distribution companies in particular have taken advantage of these technologies of recommendation and choice to encourage the growth of online communities arranged around a shared taste in media consumption. In this chapter, I argue that the notion of the "empowered consumer" who uses these technologies to make better choices is, in fact, a myth promoted by corporations who employ users' unpaid labor to increase consumption overall. Wendy Chun has shown how telecommunications companies conflated "racial and technological empowerment, color- and technology-blindness" in order to make the Internet appeal to everyday ¹consumers. Here I look at how recommendation systems created anxieties over how sexual identity and amorphous forms of diversity could be represented online in ways that made empowerment a contested space that pitted the Internet's promises of ever-increasing autonomous agency and community against each other.

I examine the discourses surrounding three influential recommendation systems – those of TiVo, Netflix, and Digg – that together illustrate the cultural and economic politics that have led to the popularity, rapid dissemination of, and also resistance to this technology. Throughout, I discuss the implications of these technologies in terms of the interpellation of users and the dynamics of the "communities" that digital recommendation systems produce.

¹ Chun, *Control and Freedom : Power and Paranoia in the Age of Fiber Optics*, 130.

I begin by examining the myth of the empowered consumer promoted by culture industries of choice, which suggests that digital recommendation systems increase and enhance users' freedom by creating communities of eco-minded sharers. This claim is undermined by the fact that users are rarely if ever allowed to communicate directly with one another and by the fact that the sole goal of their "empowerment" is to increase overall consumption. I suggest that these technologies give users an increased sense of agency while actually using their unpaid labor to gather information about them to further market to them. I contend that privacy laws seem to limit the ability of corporations to exploit their users but, in fact, often only achieve the opposite effect.

Next, I focus on how mainstream media has represented the relationship between privacy, community, and collaborative filtering through a Weird 'Al' Yankovic song, an episode of *The Mind of the Married Man*, a *King of Queens* episode, and a 2002 *Washington Post* article all concerned with the problem of what to do if TiVo's recommendation system "thinks you are gay." TiVo released one of the first Digital Video Recorders in 1999 and became famous for automatically recording media that it computed users might enjoy. I will address why much of the popular discourse around these automated recordings revolved around the question of what a user's taste in media suggests about his or her sexuality. These discussions illustrate the importance of sexuality in structuring how users conceive of their identity, agency, and privacy in relation to digital consumer companies and recommendation technologies.

I then address how US privacy laws have structured the ways in which media distribution and rental industries have used recommendation technologies. In particular, the 1988 Video Privacy Protection Act (VPPA), which prohibits companies from publically releasing video rental records without written consent, affected Netflix's plans to integrate its services with

Facebook and use its vast stores of user information to form communities and improve its media recommendations. After Netflix held ‘The Netflix Prize’ contest, in which they asked the public to use some of their supposedly anonymized user database to help them improve their recommendations, it was sued by an anonymous lesbian who was afraid that her rental history would reveal her homosexuality. I focus on the Netflix Prize and its resulting lawsuit in terms of how they placed users’ desire to protect their sexual identity and privacy in opposition to online consumerism’s utopian rhetoric of sharing, collaboration, and community.

And finally, I look at how producers of media distribution sites employ a “democratic” rhetoric that collapses consumerism with collaboration to encourage users to contribute their unpaid labor and content to make their sites profitable. Digg.com (Digg), a social news site, employs this strategy by asking users to submit news and entertainment stories and vote on which deserve more attention. This rhetoric created a series of problems when the producers of Digg transformed the site without input from its userbase and many of these users revolted. This episode in Digg’s history is an important case of how this rhetoric can create issues for the producers of sites who paradoxically want to maintain control and make money while also suggesting that their communities are democratic collectives.

The Myth of the Empowered Consumer

Recommendation systems have largely been heralded for their seeming support of democratic ideals and empowered consumers. These systems are central to a variety of businesses that rely on the economic model of collaborative consumption including Netflix, TiVo, Digg, ZipCar (an online car rental company) and AirBnB (a site where users can rent out their houses and apartments to other users). As Rachel Botsman and Roo Rogers argue,

collaborative consumption is a direct result of the “social networks, smart grids, and real time technologies,” made possible by the Internet and recommendation systems.² Much of the rhetoric of collaborative consumption celebrates this type of consumerism as the model community-building exercise for our digital era. *Time* Magazine describes collaborative consumption as a social form of consumption used to recreate communities: “In an era when families are scattered and we may not know the people down the street, sharing things—even with strangers we’ve just met online—allows us to make meaningful connections.”³ This rhetoric frames digital consumerism as ‘sharing.’

However, the right to share on these sites always comes with a price tag. Indeed, the use of sites like ThePirateBay and Torrent programs, which allow users to ‘share’ media and programs without payment is often illegal and the US considers the communities that develop on them to be criminal enterprises. Instead, legal sharing sites like Netflix or AirBnB often requires a subscription (and sometimes also a per-use fee) and many other sites like swap.com (a site where users can trade used goods) also require users to do the work of promoting their shareable goods through postings and comments. In many ways, collaborative consumption is an economic system that encourages users to become unpaid laborers with the often mistaken belief that these labors are helping the world rather than the owners of the company become wealthy. Despite their rhetoric, businesses that employ collaborative consumption do not create communities because of an overwhelming desire to save the planet or humanity, but because these communities lead to greater levels of consumerism. AirBnB and ZipCar, for instance, both

² Rachel Botsman and Roo Rogers, *What’s Mine Is Yours : the Rise of Collaborative Consumption*, 1st ed. (New York: Harper Business, 2010), xvi.

³ Bryan Walsh, “10 Ideas That Will Change the World,” *Time*, March 17, 2011, http://www.time.com/time/specials/packages/article/0,28804,2059521_2059717_2059710,00.html.

encourage user responses and host local events as forms of community building – in order to get their customers use their services more often.

In their advertising, Netflix and TiVo both stress not just their core objective of renting access to movies and television series (whether by mail or online streaming), but also their digital recommendation systems. These systems largely use collaborative filtering to help people search for and discover something they might enjoy on the site. While Netflix and TiVo speak of their users as a community and rely on them to create recommendations, however, they do not actually allow these users to communicate, come into contact, or learn anything at all about one another. Netflix and TiVo's databases organize users into nominal communities purely to help encourage them to watch more media through their site. As in Maes' Firefly, these recommendation systems work by comparing the likes and dislikes of all users in order to find media that individual users might enjoy. In the process, each individual plays an important role in structuring the experience of the site for everyone else. However, while users do affect each other on the site, these interactions are only useful for Netflix insofar as they encourage more users to subscribe and view more media.

Advertising for these recommendation systems suggests that they supply information to users solely to make their lives better. Digital marketers argue that the use of collaborative consumption and recommendation systems leads to “empowered consumers” who are more active and have more agency in their purchasing decisions. Rather than being critical of consumption itself, however, by this definition empowered consumers express their agency exclusively by purchasing more. They use the larger community of consumers on websites and the recommendations that they produce to make not just more educated purchases, but more

purchases in general. These are better consumers from the standpoint of corporations rather than from that of the consumers themselves.

MediaCom, an international marketing corporation argues that empowered consumers are a direct result of new technologies like recommendation systems that have “given consumers more choice, reducing the power of traditional media in some markets, fragmenting audiences and creating a much more complex landscape for messages to navigate.”⁴ As a result of this myriad of choice and fragmented audiences, it is more difficult for companies to reach consumers through mass advertising campaigns. Instead, companies advertise more and more through word of mouth campaigns and customer reviews via social networking technologies. The recommendation systems used by Netflix, TiVo and Digg automate this word of mouth process by bringing users content and advertising that their previous actions suggest they would enjoy.

Recommendation systems create consumers whose agency and empowerment are measured by the amount of time they spend viewing media and actively participating in the site’s community by posting reviews and making more recommendations. While MediaCom argues that empowered consumers are harder to keep as satisfied customers because of their insatiable desire for more and better products, this empowerment is too often measured by the amount that customers view and/or purchase. In a report on “Winning over the empowered consumer,” IBM argued that through “connectivity and collaboration—which enables [consumers] to know almost everything about every product and brand—these ‘smarter’ consumers ultimately decide which

⁴ MediaCom, *Rise of the Empowered Consumer: How to Reach Audiences in 2012*, White Paper, The Insider (MediaCom, February 2012), 4,

http://www.mediacom.com/media/2088012/mediacom%20the%20insider_the%20empowered%20consumer_whitepaper.pdf.mediacom

retailers have earned their trust.”⁵ Through its use of scare quotes around ‘smarter,’ IBM calls attention to its own doublespeak in effectively turning ‘smarter’ into a demographic branding adjective that equates intelligence with consumer desire. In this context, IBM equates intelligence and empowerment not with agency and individuality, but rather with an intense interest and participation in consumerism.

While often associated in the past with feminist efforts at helping marginalized groups achieve economic and civil equality, within collaborative consumption, contemporary empowerment rhetoric only encourages consumers to make more purchases. According to this rhetoric, rather than being concerned with governmental rights and freedoms, empowerment is a quality best achieved through the world of commerce. Moreover, such empowerment is only accessible to those who are already economically empowered and have the funds to consume what they want rather than those who only purchase what they need and/or can afford.

This rhetoric of collaborative consumption and empowered consumerism illustrates how digital recommendation systems have become an important apparatus for the continued dissemination of a neoliberal postfeminist ideology that values individual responsibility and personal achievement over collective action. Diane Negra and Yvonne Tasker have argued that the figure of the empowered consumer is often used to “commodify feminism,” moving the stakes of feminism from city hall to the shopping mall.⁶ Indeed, women in particular are now often represented as being able to gain equality with men primarily through their role as empowered consumers. Moreover, as Rosalind Gill Christina Scharff have argued, postfeminism

⁵ Melissa Schaefer, “IBM Winning Over the Empowered Consumer,” 2011, <http://www-935.ibm.com/services/us/gbs/thoughtleadership/ibv-empowered-consumer.html>.

⁶ Tasker and Negra, “Introduction: Feminist Politics and Postfeminist Culture,” 1.

and neoliberalism's focus on individuation marginalizes the idea that people are inherently subject to the influence and constraints of their larger communities.⁷ Instead of focusing on challenging societal inequalities for the good of one's larger community, Scharff argues, postfeminism and neoliberalism create subjects that "derive moral self-worth from navigating challenges and opportunities individually and self-responsibly."⁸ According to the rhetoric of post-feminism, empowered consumers use consumption as a tool for individuation and find self-worth through that process.

As I argue throughout this dissertation, recommendations have become an important discursive and technological tool of postfeminism and neoliberalism. It is through navigating choice, primarily within consumerism, that postfeminist neoliberal subjects are expected to manage themselves in order to become fully autonomous individuals. Yet this "choice" is increasingly automated. Digital recommendation systems have become a popular way to automate and vastly simplify the process of making choices from everyday film viewing selections to potentially life-altering decisions around who to date, where to go to school and what jobs to apply for.

In the process of using these technologies, the empowered consumer – largely a product of postfeminism and neoliberalism – may think of him or herself as part of larger group, but this is not a group that can mobilize itself for political action. While Rachel Botsman and Roo Rogers, in a rather utopian moment, argue that technologies that foster collaborative and empowered consumption are moving us away from "a hyper-individualist culture that defines

⁷ Rosalind Gill and Christina Scharff, "Introduction," in *New Femininities: Postfeminism, Neoliberalism and Subjectivity* (Palgrave Macmillan, 2011), 10.

⁸ Christina Scharff, *Repudiating Feminism: Young Women in a Neoliberal World* (Ashgate Pub Co, 2012), 11.

our identity and happiness based on ownership and stuff toward a society based on shared resources and a collaborative mind-set,”⁹ the types of consumption that these technologies encourage are “hyper-individualist” and neoliberal in nature. As Toby Miller has argued,

...when the economist proudly announces that consumers “are kings” because of new technology and transparent costs (does that mean see through price tags?) it is referring to an “All-seeing, All-knowing” surveillant, selfish, shopper—not a socially engaged collective force.¹⁰

The figuring of this ideal shopper continues to turn the consumer into “classless, raceless, sexless, ageless, unprincipled, magical agent[s] of social value in a multitude of discourses and institutions, animated by the drive to realize individual desires.”¹¹ These “empowered consumers” are quintessential neoliberal postfeminist subjects, concerned primarily with making rational purchasing decisions that showcase their autonomy rather than political decisions that might demonstrate their allegiance and subservience to larger social structures of power.¹² Capitalist enterprises equate autonomy with ever-increasing consumer choice and thereby encourage postfeminist neoliberal subjects to exercise their autonomy exclusively by purchasing more and more goods and services.

Yet, there is a fundamental contradiction in this activity as these consumers can only exercise their autonomy through technologies that limit that autonomy. Digital recommendation systems show users that a plethora of choices exist from which they can freely and individualistically choose while only recommending a very small portion as preferable options.

⁹ Botsman and Rogers, *What's Mine Is Yours : the Rise of Collaborative Consumption*, 81.

¹⁰ Toby Miller, *Makeover Nation : the United States of Reinvention* (Columbus: The Ohio State University Press, 2008), 10, <http://www.loc.gov/catdir/toc/fy0904/2008018820.html>.

¹¹ *Ibid.*, 31.

¹² *Ibid.*, 33.

While recommendation systems rely on information from the entire user community when making any one recommendation, this process is largely hidden from users. Instead, these systems rhetorically present their options as being automatically based on the individual user's previous actions and interests rather than being from a critic, company or expert in the field. In the process, these recommendations foster the user's sense of autonomy as they appear to originate from the users themselves rather than from an outside force. I refer to this false or limited sense of autonomy as an "autonomy effect."

Netflix, TiVo, Digg and many other digital companies that employ recommendations place a high value on the autonomy and individuality of users largely for economic reasons. Sharing recommendations is one thing, but sharing accounts is another. For Netflix and TiVo, there are no real barriers keeping users from sharing their passwords and accounts with others except that their recommendations may stop reflecting their individual taste and others may see what they have been viewing. Sharing causes problems for companies like Netflix and TiVo that rely on individual subscriptions. For many other companies like Facebook, Google and Digg that make money by selling user information to marketers and through personalized advertisements, sharing accounts means that the companies have less user information to sell and makes that information less accurate and therefore less valuable. If a family shares a Facebook account, the individual tastes of each family member makes it more difficult for the site to advertise products that any one member of the family may be interested in and thus leads to lower advertising income. Thus, these companies seek to find ways to link accounts to individuals by suggesting that recommendations will be more accurate if users have their own accounts, thereby amplifying the autonomy effect. Indeed, these companies seek to create an

individualized experience of their site for each user so that each user feels that her account is a private space—a room of one’s own for a postfeminist digital era.

Yet, this sense of privacy is largely an illusion. Information privacy protection standards intersect with the autonomy effect in complex ways. On the one hand, these protections help define how and whether companies can use and/or sell user information. In the process, they nurture the idea that users are autonomous on these sites and therefore are free to act in any way they choose without any oversight or repercussions. Liberal and neoliberal supporters of privacy laws argue that privacy is necessary for individuals to truly act ethically. As Jean Cohen has argued, liberalism and now neoliberalism have long articulated “the concept of a constitutional right to personal privacy as an individual right of ethical decisional autonomy (to form and pursue one’s conception of the good)[...]”¹³ Even though the Fourth Amendment’s search and seizure protections do not as yet apply to electronic data, connections between privacy and autonomy has carried over into the domain of digital consumerism. Like the media that users watch on TiVo or Netflix, the recommendations that automatically arise out of these choices is believed to be a private matter unseen and unjudged by anyone else.

On the other hand, this belief is unfounded as sites like Netflix and Facebook often reserve the right to sell user information and use it in marketing without users knowledge. Such rights and any privacy protections are established through Terms of Service (ToS) contracts that spell out the specific rights and responsibilities that users must agree to. Most every consumer website contains a ToS Page complete with an “end-user license agreement” (EULA) that acts as a contract between the site owner and users. The ToS and EULA stipulate what services the

¹³ Jean L. Cohen, “Personal Autonomy and the Law: Sexual Harassment, Privacy and the Dilemmas of Regulating ‘Intimacy’,” in *Privacies: Philosophical Evaluations*, ed. Beate Rössler (Stanford University Press, 2004), 76.

owner will supply, and what rights the user has while visiting the site.¹⁴ These rights often focus on how the site can use the private information of its members and whether or not they can give or sell this information to other sites.

ToS pages are notorious for their small print and for being generally ignored by users. While every new user must agree to the ToS and EULA when they first use a website, they are rarely actually read. They also place users in a difficult position because their only choice is usually to completely agree to the contract with no changes or decide to not use the site at all. In most cases, ToS pages primarily focus on privacy issues and how user information can be stored and used. These sites equate privacy and protection from commodification and surveillance with user autonomy. Yet on many sites, the exact limits of privacy and autonomy are left purposefully vague and open.

For example, Netflix's ToS lists many ways in which they collect and disclose user information but also states that this list is incomplete and that Netflix may use this information in any other unspecified way. Netflix argues that the collection, use and selling of this information is necessary to "provide, enhance and personalize our services and marketing efforts."¹⁵ Netflix also reserves the right to disclose information to marketers and any other company they work with along with any government that asks for it. Furthermore, Netflix stores their data in a variety of nations and they state that they cannot be held responsible if these nations have different privacy laws and protections that make it easier to take, sell, steal, publicize, or in any way use stored information in ways that violate the ToS. They do not guarantee the security of

¹⁴ Jack Balkin, "Law and Liberty in Virtual Worlds," in *The State of Play: Law, Games, and Virtual Worlds*, ed. J. M. Balkin and Beth Simone Noveck (New York: New York University Press, 2006), 86, <http://www.loc.gov/catdir/toc/ecip0616/2006018394.html>.

¹⁵ "Netflix Privacy Policy," July 23, 2013, <https://signup.netflix.com/PrivacyPolicy>.

the information on their site, nor do they accept liability for how this information is used by those they give or sell it to. This logic frames these uses and misuses of personal information as necessary for collaborative and empowered consumerism to take place.

On top of this, these contracts can be changed with no notice by the companies and no US or international laws keep them from breaking the terms of service at any time. Digital companies often behave as if they are themselves autonomous and above any national law. Netflix's March 6, 2013 ToS revision stated that as a user, "YOU AGREE TO GIVE UP YOUR RIGHT TO GO TO COURT to assert or defend your rights under this contract (except for matters that may be taken to small claims court). Your rights will be determined by a NEUTRAL ARBITRATOR and NOT a judge or jury and your claims cannot be brought as a class action."¹⁶ While ToS pages are supposed to guarantee certain rights to users, these terms instead protect companies and claim users have no inherent rights on these sites. This is precisely the opposite of the "empowered consumer."

An important result of these new information practices is a heightened discourse around the value of this data and what the damage of making personal information public might actually be. Daniel Solove and Jeffrey Reiman both argue that while no one piece of digital information may be specifically harmful to a user's privacy, if combined this information could lead to a damaging surveillance state.¹⁷ When creating their marketing information, major sites like Google and Facebook collate user information from a variety of partner sites across the W3 that

¹⁶ "Netflix Terms of Service," June 4, 2013, <https://signup.netflix.com/TermsOfUse>.

¹⁷ see Daniel J Solove, *The Digital Person: Technology and Privacy in the Information Age* (New York: New York University Press, 2004); Jeffrey Reiman, "Driving to the Panopticon: A Philosophical Exploration of the Risks to Privacy Posed by the Information Technology of the Future," in *Privacies: Philosophical Evaluations*, ed. Beate Rössler (Stanford University Press, 2004), 194–213.

Solove refers to as a “digital dossier.” Google, for instance, can gather a great deal of information about users from their emails, their search histories, medical records stored on Google Health, purchases, credit card information and various other information stored on their servers in combination with other public information such as DMV and criminal records.¹⁸ Thus, in combination, all of this information can paint a disturbingly accurate portrait of a given user.

While threats to one’s credit, medical, and criminal histories are often discussed by the mainstream press, the possibility that one’s sexuality may be revealed by the information gathered by these technologies has generated a great deal of public interest, fascination and alarm. As consumerism and surveillance have together entered the home through digital technologies and websites, they have transformed and reconfigured the relationship between this space, sexual identity and privacy. Users are often faced with the threat that the information they provide to collaborative consumption and filtering sites may reveal such traits and effectively “out” some users. Often privacy standards are specifically created to protect information surrounding a user’s sexuality, including the now ubiquitous “Private Browsing” mode on most Internet Browsers, which is informally referred to, even on Wikipedia, as the “porn mode.”¹⁹ This option is specifically designed to allow users to view porn online without your browser storing or sending any information about what you viewed.

“Private Browsing” arose to keep digital companies from recording users’ sexual proclivities and from incorporating those interests into their recommendations. While recommendation technologies rarely make it into the public imagination, when they do, it is

¹⁸ Google Health shut down on January 2, 2013 and all health records were destroyed at that time.

¹⁹ WikipediaContributors, “Privacy Mode,” October 20, 2011, http://en.wikipedia.org/w/index.php?title=Privacy_mode&oldid=456503921.

often because of the ways they both complicate and showcase the relationship between sexual desire, privacy and the postfeminist neoliberal subject in online spaces. In what follows, I will discuss these relationships in more depth by focusing on influential events in the history of recommendation systems and their effects on TiVo and Netflix. As these events suggest, the myth of the empowered consumer sometimes comes into conflict with the desires of the private individual, a conflict which must be worked out in relation to digital technologies.

My TiVo Thinks I'm Gay

Never missed "Melrose Place" or "Lost In Space"
I've seen each "Amazing Race" and "Without A Trace"
But I only watched "Will And Grace" one time one day
Wish I hadn't 'cause TiVo now thinks I'm gay²⁰

The logics of recommendation systems, collaborative filtering, and the collaborative consumption that they enable assume that what we buy and experience can reveal a great deal about who we are as digital consumers. New modes of postfeminist neoliberal self-management encourage people to use these systems to gauge what their online actions say about them and experiment with changing their actions in order to present themselves in different ways. Users shape and take control of their identities through consumerism as a central form of self-management. These actions have an impact on how recommendations are generated for everyone who uses a site, and yet they also obscure how and for what ends the information generated by these actions is used.

TiVo was crucial in popularizing the use of recommendation systems to facilitate collaborative consumption. In 1999, TiVo released one of the first and most successful Digital

²⁰ "Weird Al" Yankovic, *Couch Potato* (Volcano Entertainment, 2003).

Video Recorders (DVRs) on the market. With its ability to record series and skip through commercials, it became wildly successful and ushered in a new era of DVR technologies.²¹ In the process, TiVo changed when and how users watch television and what shows they are exposed to. Like Maes' work at the Massachusetts Institute of Technology, I argue TiVo was created for a postfeminist neoliberal culture in which many work and family schedules have changed and become much more complicated. While some telecommute and/or are able to design their work schedules around other familial obligations, many others must piece together their income from several jobs and short-term projects. In the process, long-standing network programming patterns, which place female-driven talk shows and soap operas on during the day, male-driven sports shows at night and on weekends, and family programming at night are no longer relevant to most viewers' schedules. Within the context of the new individuated work and leisure schedules of the postfeminist moment, TiVo and other DVR programs offer a way to individuate televisual flow as well. Contemporary scheduling conflicts related to a mix of unconventional work hours, family and other obligations (along with TiVo's ability to skip through commercials) also make it necessary and profitable for TiVo's to include a way for users to discover new series automatically.

TiVo's recommendation system has gone through several name changes over its lifespan and in 2011 was renamed the "Discovery Bar." This system uses collaborative filtering to record series and movies that users might like based on what they have watched and rated highly in the past. By 2004, TiVo had recorded 100 million ratings of approximately 30,000 television shows

²¹ While the VCR also made it possible to record television, it was often considered too complicated and unreliable for the programming of weekly series recordings. TiVo set themselves apart from the VCR by stressing its ease of use, dependability and intelligent algorithms.

and movies from its roughly one million users.²² While the aesthetics of the Discovery Bar have changed often throughout its lifetime, on the 2011 TiVo series 3 DVR, it appears as a long scrolling line of television series and movies that a user can click on. The user is then given a drop down synopsis of the show and a brief reason for why it was recommended and/or recorded. The example given of this on the TiVo website in 2011 showed an ad image for *The Office*, which was recommended because the user “watched *My Name is Earl*.”

For users, these automatic recordings reflect how they are viewed from an outside position—namely that of the TiVo corporation, which is constantly keeping track of what its users are doing. For such users, these automatic recordings act not just as a way to expand their televisual horizons, but also as a reflection of these users that skirts the boundaries of self-representation—one created through a combination of the viewer’s own recording and media consuming activities and TiVo’s algorithms that compare this data to all other users. This service conceives of the self as being made up of consumer choices and desires; this logic imagines that from this consumer data, everything about a person can be discovered. While this is not strictly a self-representation as it is made with a great deal of outside influence and focuses predominately on the user as a consumer, many of TiVo’s slogans like “My TiVo gets me” and “You’ve got a life, TiVo gets it” encourage and capitalize on the idea that their algorithms do not transform the self but rather reveal it.

²² Kamal Ali and Wijnand van Stam, “TiVo: Making Show Recommendations Using a Distributed Collaborative Filtering Architecture,” in *Proceedings of the Tenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining*, KDD ’04 (New York, NY, USA: ACM, 2004), 394–401, <http://doi.acm.org/10.1145/1014052.1014097>.

As many YouTube videos, blog and forum postings point out, these recordings may make the viewer wonder what exactly TiVo “gets” about him or herself.²³ Such ads suggest that TiVo not only “gets” that users now have more hectic schedules (i.e. “a life”) but also that this device is able to understand and present users at a deep level. Tivo’s recommendations encourage users to imagine how their actions could be construed by others; TiVo’s data accumulation thus becomes a mirror for users. These actions, including viewing certain series and/or rating them, are in aggregate becoming a significant way in which these digital consumer technologies are constructing a user’s sense of self.²⁴

One reaction to TiVo is a desire on the part of consumers for the recommendation system to get them “right” and a frustration when it does not do so. This has been especially true when it comes to the user’s sexual orientation. This has been thematized in both fictional and non-fictional accounts of TiVo users. In an episode of the HBO series *The Mind of the Married Man* (directed by the acclaimed Bruce Paltrow), for instance, TiVo is playfully framed as a serious menace to patriarchal, retrograde definitions of heteronormativity. This episode features TiVo as a central piece of product placement whose main feature appears to be that “if you record *Star Trek*, TiVo assumes you like that kind of thing and then when you aren’t home it records *The X-Files*.” At the beginning of the episode, the protagonist Micky Barnes (Mike Binder) announces to his coworkers that because he recorded a few episodes of *Will and Grace* and *Ellen*, TiVo now thinks he is gay and will not stop recording *Queer as Folk* and Judy Garland specials. Micky

²³ See *My TiVo Gets Me*, 2007, http://www.youtube.com/watch?v=YGIVA-kvpdM&feature=youtube_gdata_player; Leslie Talbot, “I Am TiVo,” *Singular Existence Blog*, 2002, <http://www.singularexistence.com/index.html>; jib, “TiVo Thinks I’m Gay Article,” February 16, 2006, <http://www.tivocommunity.com/tivo-vb/archive/index.php/t-287253.html>.

²⁴ Talbot, “I Am TiVo.”

explains that he has been trying to outfox the program in order to “get it to go the other way” by recording *MTV Spring Break*, *Playboy After Dark* and the *MTV Nipple Parade*. Unfortunately for Micky, “The thing won’t budge. It insists I’m gay; it’s a problem.” TiVo’s recommendations become a point of crisis for Micky as he goes through the rest of the episode considering what the relationship between his actions and his perception of himself really is. Throughout the episode, Micky’s TiVo recommendations force him to question himself and his relationship to his friends and colleagues.

This issue recurs in an episode of *King Of Queens*, wherein TiVo’s efforts at recommending media are described as a form of sexual harassment. This episode, called “Mammary Lane,” presents three narratives that each, in a lighthearted way attempt to present limit cases of sexual harassment in a way that beleaguer the importance of raising awareness of this issue. These narratives include one concerning a toddler who continually grabs her babysitter’s breasts, a man trying to be nice to an unattractive bowling alley attendant by trying to flirt with her, and a TiVo that records gay-themed series for its heterosexual owner and thus ruins his date. The victims of this “harassment” are shown in different states of trauma, with one fearing for her life in a parking lot and another rocking back and forth on her bed while she is accused of “asking for it.” Together, these three narratives depict a postfeminist backlash/hatred of feminism (if not women more generally) that suggests that TiVo’s suggestions are a form of sexual harassment while also making fun of the serious import of harassment.

TiVo is introduced in the episode by Spence Olchin (Patton Oswalt), who has just purchased it for his bachelor pad. In an attempt to impress a female neighbor who he has a crush on, he asks her, “Want to see my new purchase? It’s my TiVo; it’s this thing that records TV shows but the cool part is that it is intuitive. Once you program in some shows you like, it gets

to know your taste and then, automatically picks out other shows for you.” After explaining that he programmed in “*Sex and the City*, *Six Feet Under* and a few other favorites,” he checks to see what TiVo recorded for him automatically and finds *Priscilla, Queen of the Desert*; *Judy Garland, Live at Carnegie Hall*; *Decorating With Style*; and *Queer as Folk*. In a moment of panic, Spence yells, “Oh my God, TiVo thinks I’m gay!” His attractive neighbor then abandons him to his hetero-anxiety. Spence, much like all of the other people in the examples I have cited, displaces the agency behind these recommendations onto TiVo (which does indeed employ artificial intelligence technologies) in much the same way that patients might transfer their emotions and ideas to their therapists. TiVo appears to have an agency of its own, which makes Spence uncertain as to whether the machine is judging him or if it is instead simply mimetically reacting to his own actions.

In an odd turn, TiVo here is presented as an obvious piece of product placement even as it makes Spence extremely uncomfortable. Spence makes his neighbor check out his suggestions because he hopes that she will be impressed both by his expensive new machine and also by the suggestions themselves, which he hopes will portray him as the interesting heterosexual that he imagines himself to be. Even as Spence challenges the suggestions TiVo has for him, he never questions TiVo’s role as a self-representational technology, even though he does not like the representation it has come up with. Yet he questions the generated self-representation by imparting TiVo with agency. By placing these anxieties and the threat of TiVo suggestions to normative conceptions of identity within such a benign context, they are made to appear hyperbolic and silly. This situation both nods to the reality that TiVo can indeed create anxiety and a crisis around a user’s sense of identity, while it also makes it clear that this is not a serious issue, or an issue that should be taken seriously.

Yet, the humor of this episode leaves the troubling nature of this recommendation system intact. Rather than empowering Spence, TiVo becomes the primary source of agency and knowledge as it takes control of not just the situation but also eventually Spence's taste. The viewer can find humor in both the idea that Spence's conception of himself could be challenged by a Digital Video Recorder, as well as the idea that Spence would be surprised by a number of gay-themed television series appearing after he declared his interest in *Sex and the City* and *Six Feet Under*, two series that both appeal to a gay audience and deal with gay themes. At once, the episode pokes fun at Spence both because TiVo so easily challenges his unstable sense of self and because he cannot see a truth about himself that TiVo picked up on with what seems like very little information. There is also, of course, the extremely questionable idea that there is a direct relationship between enjoying a series with a gay-theme or a largely gay-audience and necessarily being gay. Both *Sex and the City* and *Six Feet Under* (as well as all of the other series that were mentioned) are notable not because they exclude a heterosexual audience but rather because they encourage such a metrosexual crossover. Yet, while these series and TiVo's Suggestions allow for a more fluid relationship between sexuality, taste and empowerment, here these efforts backfire as Spence reacts against them in favor of traditional heteronormativity and its static binaries.

While TiVo thinking Spence is gay is presented as inane, the episode continually displays TiVo's accuracy. Rather, the laugh track erupts at moments that reveal how anxious Spence becomes due to these recommendations and what they perhaps reveal to both himself and others concerning his own status as a heterosexual. Late in the episode, Spence tries to correct TiVo's "dumb mistakes" by recording Football, Nascar, and Basketball games. Spence does this in

order to let TiVo know that rather than gay, he is actually a “sports junkie,” an identity Spence assumes runs in opposition to homosexual culture.

In the end, Spence’s attempt to become re-empowerd by resting his ability to define himself from TiVo only results in him recording, watching and consuming more media—the TiVo corporation’s goal all along. Yet, he has misunderstood the TiVo system and assumed that later actions simply nullify past (recording) transgressions, when really TiVo’s algorithms work to find the intersections between such opposing programs. The result is a set of recordings like *Men’s Ice Dancing* and *Breaking the Surface: The Greg Louganis Story*.” While his neighbor takes TiVo’s side and suggests that it does seem to be intuitive, Spence responds with a sudden outburst: “I’m not gay. I love women, I stalk them, I’ll have sex with you right now if you want.” As the laugh track suddenly erupts, the neighbor leaves the apartment in a rush and Spence screams at his television, “Oh how dare you label me!” and then proceeds to call his TiVo gay. Later, Spence announces that he is being sexually harassed by TiVo.

This equating of “labeling” with sexual harassment ostensibly transforms Spence’s anger toward TiVo from purely homophobic, to one that would be upset by any form of identity judgment. Even immediately after he tries to embrace a borderline pathological masculinity by proudly stating that he stalks women and will have sex with a woman at the drop of a hat, he ironically employs feminist rhetorical strategies to challenge not only TiVo’s representation of himself as gay (or interested in gay subject matter), but also any form of representation that seeks to label people within static categories. Spence would not be angry if TiVo had presented him with a list of suggestions that had stronger heterosexual connotations (like *King of Queens* itself) not just because he thinks of heterosexuality as being a more positive category than homosexuality (which he largely thinks of as a slur), but also more importantly because he

identifies himself as a heterosexual. If Spence openly identified himself as a homosexual, he would perhaps not be upset by TiVo labeling him as such.

While *The Mind of the Married Man* and *King of Queens* are fiction, this anxiety concerning TiVo's disempowering effects and their relationship to sexual identity are not. On November 26, 2002, Jeffrey Zaslow of *The Wall Street Journal* reported on numerous people all experiencing the same discomfort with how TiVo rendered their identity. In his article titled "If TiVo Thinks you are Gay, Here's How To Set It Straight," Zaslow, at once humorous and earnest, discusses instances in which real people - along with television characters--fought back against TiVo's "cocksure assumptions about them that are way off base."²⁵ In Zaslow's article, Hollywood producers in particular voiced their concerns around privacy and sexuality. In their positions, they were also able to reproduce these themes in mainstream Hollywood filmmaking practices and thus make them more visible to a wider audience. One of the more notable executive producers Zaslow interviewed, Basil Iwanyk, described himself as the "straightest guy on earth" and would later produce such hyper-masculine opuses as *Clash of the Titans* (2010), *The Expendables* (2010) and *The Town* (2010).²⁶ Zaslow focused on Hollywood executives because especially in 2002 TiVo, a luxury item priced slightly out of reach for most people, could have been written off as a business expenditure for television and media producers.

For Iwanyk, the TiVo Suggestions Service became a thorn in his side when it started to "inexplicably" record programs with gay themes.²⁷ These suggestions, supplied by collaborative

²⁵ Jeffrey Zaslow, "If TiVo Thinks You Are Gay, Here's How to Set It Straight," *Wall Street Journal*, November 26, 2002. Jeffrey Zaslow, "If Tivo Thinks You Are Gay, Here's How to Set It Straight," Wall Street Journal November 26, 2002.

²⁶ Ibid.

²⁷ Ibid.

filters that search for what other TiVo users with similar tastes enjoyed, seemed to be telling Iwanyk that he desired the same things as others who gave a thumbs-up to gay-themed television series: namely other men. Given his penchant throughout his films for extreme close-ups of men caressing each other as a leitmotif, I can certainly understand why TiVo might have seen a certain trend in Iwanyk's ratings. If nothing else, such trends point to the inherent homosociality of the buddy film. Regardless of Iwanyk's assumption, being recommended *Queer as Folk* does not imply the user's sexuality. This recommendation could have been made for any of a number of reasons that have nothing to do with sexual preference. Yet, the mysterious nature of collaborative filtering make it threatening as an indicator of taste by not allowing users to understand how their actions generate recommendations.

While watching and enjoying *Queer as Folk* or any other gay-themed show does not imply homosexuality, TiVo's collaborative filtering method of making recommendations suggests that there is a link between a piece of media and the users that consume it. Yet, the qualities that unite them are rarely definable and TiVo software does not specify exactly why it generates the recommendations it does. Without such explanations, Iwanyk and others like him jumped to the conclusion that the quality that linked them with their recommended series was based around sexuality and that their actions were causing TiVo to represent, or even "think" of them as homosexuals. Without these users viewed TiVo as a disempowering force that made their tastes and sense of self more inscrutable than before.

Yet, TiVo's collaborative filtering algorithms do not take audience stereotypes into account and do not generate recommendations based on sexuality or any other identity marker. While collaborative filtering efforts move away from broad generalizations toward personalization and individualization, Iwanyk's reaction is an example how these strategies have

backfired as users continue to read stereotypes back into the generated recommendations. Instead of questioning TiVo, Iwanyk questioned himself, and started watching, recording and rating more television that he believed a heterosexual male would be interested in (i.e. series that he referred to as “guy stuff”).²⁸ Unfortunately for Iwanyk, he received suggestions like documentaries on Adolf Eichmann and Joseph Goebbels: “It stopped thinking I was gay and decided I was a crazy guy reminiscing about the Third Reich.”²⁹ Iwanyk’s reaction illustrates a confusion between gender and sexuality and his assumption that homosexuality is a form of femininity. In turn, Iwanyk’s recommendations suggest that he associated heteromascularity with pathological violence.

In this article, Iwanyk exemplifies the distance between TiVo’s recommendations and how Hollywood conceives of demographics and the tastes of audiences. In the process, Zaslow celebrates TiVo as a rapidly advancing utopian future in opposition to the dated mentality of Hollywood producers and marketers. While Iwanyk describes Hollywood’s reliance on crude and insulting stereotypes that split up audiences according to gender, sexuality, race, age and income, TiVo’s algorithms illustrate that these distinctions are not reliable for determining what any one individual may be drawn to. TiVo’s recommendations can be read as challenging stereotypes concerning the relationship between violence, gender and sexuality by suggesting that anyone (even this self-proclaimed “straightest guy on earth”) can like *Queer as Folk* or any other gay-themed series for any number of reasons. Iwanyk had the opposite reaction and assumed instead that TiVo thought he was gay because the series was designed to appeal to a gay audience.

²⁸ Ibid.

²⁹ Ibid.

All of the above descriptions exemplify users' desire for TiVo to get them "right." These users felt disempowered by TiVo precisely because it did not see them as they wanted to be seen. A contrasting reaction to TiVo, however, is the desire for it *not* to recognize the user correctly because some users experience this as a violation of privacy. While Zaslow's article is obviously geared toward (and is simultaneously making fun of) a rather homophobic audience afraid of being turned gay by its appliances, two of the people discussed identified themselves as gay and neither of them were comfortable with the idea that their devices could – accurately – recognize their sexuality. Ray Everett-Church, an internet privacy consultant, said his "TiVo quickly figured out that he and his partner were gay" and while this did not negatively effect them, they decided to try to "confuse the software by punching in 'redneck' programs, like Jerry Springer's talk show."³⁰ By recording content they were not interested in viewing, this couple tried to break the algorithm with the express purpose of regaining their agency which they equated with privacy. By this definition, empowerment meant actively misusing the digital recommendation system so that it would not work correctly.

Whether or not TiVo upset the users in Zaslow's article for "misrepresenting" their sexuality, for recognizing their actual sexuality, or if they were simply interested in what TiVo does and does not know about them, these users all think of TiVo's recommendations as a form of representation that they are not entirely in control of. As consumers, then, they do not experience themselves as "empowered" – unless they try to use the technology against itself. These users' desire and attempts to control how they were represented by TiVo, particularly in terms of sexuality, runs directly counter to how the program (and recommendation technologies in general) is designed to work. This desire (and in some cases, struggle) to control what TiVo

³⁰ Ibid.

recommends results from concerns over how digital surveillance technologies enact and encourage self-monitoring. Everett-Church uses self-monitoring specifically to hide his sexuality from TiVo and whoever TiVo shares its information with.

In turn, these efforts at containing their TiVo representations greatly affect how these users conceive of and collapse agency, autonomy and privacy in digital environments. In the United States and many other Western Countries, privacy has long been considered a negative liberty valued for making agency and autonomy possible. As people may feel more constrained in public than in private, surveillance hinders personal freedom. Eli Pariser and others argue that recommendation systems like TiVo threaten the free will of users by limiting and guiding what a user can easily come into contact with and therefore what they might become interested in. Yet, Iwanyk and Everett-Church did not fear TiVo's limiting effect in terms of access, but rather resisted how these recommendations hindered their ability to present themselves and their sexuality in the way they desired. By putting in fake positive ratings for series that they did not like, Zaslow's subjects make it impossible for the service to work effectively as a recommendation system. These users reclaim their agency, empowerment, and privacy precisely by "breaking" the system.

These subjects also illustrate the inherent contradictions that arise when users read their TiVo suggestions as self-representations, or what Mark Andrejevic calls data portraits.³¹ Classically, people make self-representations as an artistic and empowering act to illustrate themselves. If one thinks of TiVo as simply a tool that sorts data for users, then the suggestions it produces could be considered a self-representation. But if one thinks of TiVo as having its own agency or operating via someone else's control, then the suggestions are something else

³¹ Andrejevic, *iSpy : Surveillance and Power in the Interactive Era*, 6.

entirely. Indeed as TiVo is in many ways both a tool and an agent, its suggestions can be viewed either as a self-representation, a representation made by TiVo of users, or something in between. The data portraits that emerge from this data vex people not just because they go against how they would like to be thought of, but also because such technologies complicate and question the idea that people can and should have a say in both how they are represented – and how they are surveilled.

Moreover, the structure and conception of TiVo technologies overlaps in several important ways with Pierre Bourdieu's articulation of the habitus and its relation to agency and empowerment. For Bourdieu, the habitus describes the ways in which a person's historical, socio-cultural surroundings help to structure his or her sensibilities and tastes.³² Like Bourdieu, who uses this spatial metaphor to discuss communities that share the same taste, computer programmers who work with collaborative filtering often refer to those users who are grouped together by these filters as "neighbors" or "nearest neighbors."³³ Collaborative filtering organizes users around their individual habituses and the TiVo recommendations act as immaterial artifacts of these taste formations. TiVo's position as the creator and definer of what tastes and values define a class is the only empowered position in this system. Yet, while these "neighborhoods" are constantly transforming and often seem to allow for a multitude of identity types, users may not always like the digital habitus in which they find themselves categorized and Bourdieu allows for subjects to express agency under certain conditions by recategorizing themselves. As one TiVo user who had been suggested a Tom Green film explained, "I know

³² See Pierre Bourdieu, *Distinction : a Social Critique of the Judgement of Taste* (Cambridge, Mass.: Harvard University Press, 1984), 167–170.

³³ One of the common methods for collaborative filtering is called the "K-Nearest Neighbor Algorithm."

it's dumb to take it personally, but it's in your face. These are supposedly objective computers saying, 'This is what we think of you.'"³⁴ Even with this supposed state of "objectivity," this user could not accept TiVo's prediction, not because she did not think that there was a chance that she would like the film, but rather because she did not want to be associated with the audience of misogynist and immature boys that she assumed were Tom Green's core demographic.

While individuals experience choice as a mark of their uniqueness and autonomy, through recommendation systems like that of TiVo, these choices are in fact transformed into quantitative datasets that are statistically and algorithmically sorted in an effort to find other users that are similar (if not identical) in their media consumption habits. In the process, this data becomes a data portrait that reflects users as and through genre; users become generic. What is at stake for these users is not just the question of what these set-top boxes think of them, but also how they think of themselves as subjects. Programs like TiVo then help to naturalize this genre-self in ways that make it difficult for many people to describe who they are without relating it to what products they enjoy or media they like. While the stakes involved in TiVo mistakenly believing that a user likes Tom Green are relatively low, these moments of tension make visible how TiVo uses choice to commodify and genrify people rather than individuate them.

Another objection to TiVo appears to be that it does not help the postfeminist situation of never having enough time. While TiVo implemented suggestions to save users time by streamlining the process of making media-viewing decisions, many users have complained about not having enough time to view the recommendations. Even as cable provides hundreds of

³⁴ Zaslow, "If TiVo Thinks You Are Gay, Here's How to Set It Straight."

channels to choose from, many people are dropping their subscriptions because they cannot find enough to watch to justify the exorbitant cost. Within a postfeminist neoliberal culture that emphasizes ways in which equal opportunities within the workplace and new labor practices have led to more rather than less time constraints, TiVo became famous for making it easy for users to view the media they wanted to watch at whatever time they desired. During this period when seemingly limitless choice and information overload for the affluent in all areas of life is often presented as a hindrance, TiVo Suggestions works to save people time by making their media viewing choices for them. Yet rather than empowering consumers, TiVo Suggestions overwhelms users with recommendations that take too much time to implement – while also threateningly limiting their privacy, agency and autonomy.

While TiVo implies that their suggestions are self-representational tools that mirror rather than change a user's tastes, many of the examples I have cited show how people have reacted against these representations especially when their sexual identities are at issue. While the question of whether TiVo thinks you are gay is an amusing example, it reveals the central role of sexuality in how consumers construct their online identities in relation to, and in some cases against, algorithmic data portraits that may be created from personal data but are not entirely under our control.

The Brokeback Mountain Factor, or, Borking the Netflix's Prize

Every day Americans are forced to provide to businesses and others personal information without having any control over where that information goes. These records are a window into our loves, likes and dislikes. –Sen. Paul Simon (S. Rep. No 100-599 at 7-8 (1988)).³⁵

³⁵ Paul Simon, "The Right to Be Forgotten: Why Are Companies Holding Onto Your Sensitive Data Forever?,"

Edelson | The Law Is Evolving. So Is Your Lawyer., 2013, <http://www.edelson.com/case/14/>.

TiVo raised questions for users concerning the relationship between sexuality and one's place within a digital community by showing how mediated choices come back as data portraits whose contours may be disturbing either for being "wrong" or "right." With Netflix, these same issues arose when this seemingly private information became publicly available. Like TiVo, Netflix continually stresses how collaborative consumption on their site leads to greater user empowerment and agency as users are able to make better-informed decisions. At various points throughout its history, Netflix has also experimented with trying to create a more social community around cinephilia with the intention of both further enriching both the film viewing experience and the culture that surrounds it. These connections and the role of discourses around sexuality to it are most readily apparent in the 2006-2010 Netflix Prize competition and the many articles, discussions (and lawsuit) around privacy and sexuality that emerged out of it.

Founded in 1997, Netflix began its mail delivery DVD rental service at the same time that TiVo started selling DVRs in 1999. Like TiVo, Netflix also heavily marketed their "Suggestion Page" as a way to indicate the premium nature of their service and separate them from competitors. By 2006, Netflix was shipping 1.4 million discs per day and had amassed over 1.4 billion film ratings from its five million active customers.³⁶ By 2011, approximately 60% of Netflix users relied on these suggestions in order to decide which films to view.³⁷ Netflix has often cited their recommender software, called Cinematch, as being central to their popularity and growth. With over 100,000 films and television series available for rent, Netflix has needed to offer guidance to help users find the media they might like best. Reed Hastings,

³⁶ Talbot, "I Am TiVo."

³⁷ "Netflix Consumer Press Kit."

the president of Netflix, has said that this technology is necessary to help guide its subscribers through the difficulty of making a choice when confronted by an overwhelming number of possibilities.³⁸ Cinematch was central to Netflix's advertising throughout its early years as the company lured people away from their local video rental stores where they could easily browse through aisles of videos or ask a clerk for a suggestion. Cinematch is a technological effort to replace a clerk's suggestions in a space that features tens of thousands more viewing possibilities. It has largely been successful in this effort as, while CineMatch has improved, so has the number of positively rated films on the site, showing that people now generally rent films on Netflix that they end up enjoying.³⁹ Users view twice as many films than they did prior to joining the service and together rate about four million films a day.⁴⁰ Through these ratings, which in 2011 number over 5 billion, Netflix supplies its 23 million members with suggestions concerning what else they should watch.

One important result of the use of CineMatch along with Netflix's subscription based business model, is that while 80% of the films rented in stores are blockbuster new releases, this statistic is almost reversed for Netflix. On this site, 70% of the films rented are backlist titles, meaning that they are older films, foreign, or less popular new releases.⁴¹ With new releases often costing more to license and having more strings attached to their rentals, Netflix has a large incentive in trying to steer its customer base toward backlist titles.

³⁸ Steve Lohr, "Netflix Awards \$1 Million Prize and Starts a New Contest," *The New York Times*, September 21, 2009.

³⁹ Steve Lohr, "Netflix Awards \$1 Million Prize and Starts a New Contest," *The New York Times* (New York, September 21, 2009).

⁴⁰ Bennett, *The Cinematch System: Operation, Scale, Coverage, Accuracy Impact*.

⁴¹ Ibid.

Like Maes's early work on Firefly and like TiVo, Netflix's efforts address the same postfeminist era anxieties around the need to manage new time constraints and the rapid proliferation of consumer choices. In their press kit, this ability to create helpful recommendations is heavily promoted, as is their belief that much of Netflix's success is based on an ability to cater to a time-starved contemporary audience who demands "more value and control" from their home entertainment experiences. Like the users that Pattie Maes envisioned and the ones that TiVo tries to cultivate, Netflix users are enmeshed in discourses concerning agency and identity that stress the positive aspects of having one's media reflect (Netflix's conception of) oneself. However, as with TiVo, an accurate media reflection is not always regarded as a positive thing by users themselves.

While Netflix and other companies generally keep secret the exact ways by which their proprietary digital recommendation systems operate, in October of 2006, Netflix announced a contest that helped expose to the public the various technologies and assumptions upon which these systems are based. At this point, Netflix had been unable to markedly improve Cinematch's accuracy and feared the costs of hiring more software engineers who in the end might not be able to help them. Instead, they asked the public for help and offered one million dollars as a prize to anyone who could improve their Cinematch recommendations by 10%. To help contestants test their algorithms, Netflix released to the public a database containing 100 million ratings from 480,000 of their customers, covering 1800 movie titles.⁴² This dataset, which was anonymized and "perturbed" (slightly altered through statistical means) to protect users' confidentiality, was the largest of its kind ever made available to the public.⁴³

⁴² Ibid.

⁴³ Lohr, "Netflix Awards \$1 Million Prize and Starts a New Contest."

Even at one million dollars, this contest, known as The Netflix Prize, was cheap in comparison to salaries they would have otherwise paid to full-time programmers and also resulted in a great deal of free advertising. In a neoliberal economy that has forced many into low-paid and precarious labor, the Netflix Prize became a model for how companies could outsource even their most complicated and technical dilemmas. Rather than criticize Netflix for not hiring more experts in the field, business and technology blogs and magazines universally praised them for their creative solution and their ability to get hundreds of extremely intelligent people with a wide variety of skillsets across the globe to effectively work together for free on a problem that might not even have had a solution.⁴⁴ Many of the people working on this quandary worked on similar issues in their actual jobs and spent their free time trying to apply their knowledge to win the prize. While prizes have long been used to get people to contribute their unpaid labor and time to ultimately help a company make more money, Netflix has become the primary example of how this logic can be applied to the much larger audiences of the W3 in ways that make contestants happy even as they lessen the value of technical labor for everyone.

In September of 2009, Netflix award the one million dollar grand prize to the nine international members of the winning team, BellKor's Pragmatic Chaos. As many of the contestants were academics and computer science researchers, there are many conference and journal articles that chronicle both their successes and failures. These articles help to sketch out both the standard methods for rating films as well as the many theoretical and philosophical questions that must be addressed by such efforts. While filmmakers, theorists and video store

⁴⁴ Lohr, "Netflix Awards \$1 Million Prize and Starts a New Contest"; Eliot van Buskirk, "How the Netflix Prize Was Won | Wired Business | Wired.com," *Wired Business*, September 22, 2009, <http://www.wired.com/business/2009/09/how-the-netflix-prize-was-won/>.

clerks argue that audiences enjoy films based on genre and/or the people involved in their production, collaborative filtering offers a very different and much more ineffable vision of how film taste works. For instance, Martin Chabbert, one Netflix Prize contestant used a particular collaborative filtering method called singular value decomposition to discover that based on a large number of ratings from many users, there is a particular quality that unites “a historical movie, ‘Joan of Arc,’ a wrestling video, ‘W.W.E.: SummerSlam 2004,’ the comedy ‘It Had to Be You’ and a version of Charles Dickens’s ‘Bleak House.’”⁴⁵ While neither these statistical formulas nor any contemporary theoretical framework can help us to figure out what this similarity consists of or why a person who enjoys *Joan of Arc* and *Bleak House* would also likely find pleasure in the *W.W.E.: SummerSlam 2004*, Chabbert’s algorithms showed that this is in fact the case.

Other contestants focused on questions of similarity and pondered how many sequels, remakes, seasons of a series and rehashed scripts a viewer would enjoy before becoming fatigued. Even such capricious aspects like the time of day, the weather forecast, and a user’s dating status were discussed for how they might affect the enjoyment of a film. This was further complicated by the issue that users’ opinions of films and their concurrent ratings tended to change by about half a star within just a month. Still others concentrated on those polarizing films that do not seem to fit into any clear genre or category and which are therefore very difficult to accurately recommend; this was referred to as the “Napolean Dynamite” problem because, for films like this, there seemed to be no obvious predictors for whether a user would

⁴⁵ Clive Thompson, “If You Liked This, You’re Sure To Love That,” *The New York Times*, November 23, 2008.

enjoy it or not.⁴⁶

The question of what data was necessary to make good predictions was central. Some tried to integrate user information from social networking sites in their recommendations believing that knowing more about a person and his or her community would be helpful in divining their filmic taste.⁴⁷ Others tried to use qualitative information from Wikipedia about each film to make recommendations with the belief that a person who liked one particular kind of film would continue to like other films of that particular type.⁴⁸ Surprisingly, neither information about a film nor about a user from a social networking site improved Netflix's existing system, which only takes into account ratings created by users.⁴⁹ Instead, the winning method by BellKor's Pragmatic Chaos improved on the system Netflix already had in place by analyzing the user data with a much larger number of collaborative filtering algorithms (each of which have their own strengths and weaknesses) and finding the average of all of their computed ratings.

This contest was very popular and led to freely available advances in recommendation systems that the entire industry prospered from. As a side benefit, many academics and inventors were able to use the extremely large number of anonymized user ratings that Netflix released in their own experiments and for their own purposes. For instance, the Association for

⁴⁶ Clive Thompson, "If You Liked This, You're Sure To Love That," *The New York Times* (New York, November 23, 2008).

⁴⁷ See *Ibid.*

⁴⁸ Shinhyun Ahn and Chung-Kon Shi, "Exploring Movie Recommendation System Using Cultural Metadata," ed. Z. Pan et al. (presented at the Transactions on Edutainment II, Springer-Verlag, 2009), 119–134; István Pilászy and Domonkos Tikk, "Recommending New Movies: Even a Few Ratings Are More Valuable Than Metadata," 2009.

⁴⁹ John Lees-Miller et al., "Does Wikipedia Information Help Netflix Predictions?," 2008.

Computing Machinery used the dataset to create their own contests on a variety of topics. Netflix's release of their dataset also allowed Arvind Narayanan and Vitaly Shmatikov, two researchers at the University of Texas at Austin the chance to study and invent methods for de-anonymizing datasets. With their algorithms, they were able to show that by cross-referencing information on Netflix with various other websites including the Internet Movie Database (IMDB.com), one could locate an individual within the dataset even with imprecise knowledge: "The dates may only be known to the adversary with a 14-day error, the ratings may be known only approximately, and some of the ratings and dates may even be completely wrong."⁵⁰ If a user rated a few movies on a site like IMDB or made them public in another way (by having them appear in a magazine or blog), Narayanan and Shmatikov's program could accurately find him or her within Netflix's dataset if they were included in it. Their program could also tell if a person was not included in the dataset.

This potential for de-anonymizing Netflix's user data led to concerns over whether the data could reveal the sexual identities of users. While sexual identity is not something one can predictably infer from a person's media interests, Narayanan and Shmatikov argued that this would not stop bosses, relatives and significant others from trying.⁵¹ This revelation caught Netflix by surprise as they had contacted several data privacy experts and had gone to great lengths to make sure the data was truly anonymous. They had even assumed that it would be impossible for a person to locate him or herself within the data because they had falsified parts of

⁵⁰ Pilászy and Tikk, "Recommending New Movies: Even a Few Ratings Are More Valuable Than Metadata."

⁵¹ Arvind Narayanan and Vitaly Shmatikov, "Frequently Asked Questions," "*How to Break Anonymity of the Netflix Prize Dataset*" *FAQ*, November 28, 2007, <http://www.cs.utexas.edu/~shmat/netflix-faq.html>.

it.⁵² Yet, using statistical modeling tools and information culled from public websites, those who tried were able to find individuals within the huge amount of data. As an example, Narayanan and Shmatikov focused on a user who they were able to locate within the data and suggested from his movie ratings that they could gather his name, political beliefs, religion, sexuality and “further lurid details.”⁵³

While these findings were discussed on several websites, it is hard to pin down exactly what the negative outcome of someone finding out what films you liked or disliked could be. Many bloggers and comment board posters expressed nebulous fears connected to a general belief that privacy is an inalienable right, and that video rental histories are necessarily private. As Narayanan and Shmatikov point out, the proliferation and varied uses of online data shows that “the simple-minded division of information into personal and non-personal is a false dichotomy.”⁵⁴ Users in these discussions primarily feared the possibility that their sexuality might be inadvertently discovered in the data—that the data might “out” a user. As one anonymous commenter posted, “Let's say you're running for public office, and you've found out through the Netflix data that your opponent primarily rents S&M porn and films glorifying mass murderers? Think you're not going to use that data?”⁵⁵ By revealing the potentially public nature of Netflix records, Narayanan and Shmatikov suggested that personal taste could have consequences especially in relationship to sexual identity. In the process, they disrupted the relationship between user’ agency, taste and autonomy.

⁵² Narayanan and Shmatikov, “Robust De-anonymization of Large Datasets (How to Break Anonymity of the Netflix Prize Dataset),” 1.

⁵³ Ibid.

⁵⁴ Ibid., 16.

⁵⁵ Ibid., 11.

There has long been a deep overlap between conceptions of privacy around both a user's video rental history and his or her sexuality. During the ill-fated United State Supreme Court confirmation hearing of Robert Bork, Michael Dolan at the *Washington City Paper* discovered where Bork rented videos and got a copy of his rental history from the clerk with the understanding that "the only way to figure out what someone is like is to examine what that someone likes."⁵⁶ He further wondered what it would mean if "Robert Bork only rented homosexual porn...or slasher flicks...or (the...horror...) Disney."⁵⁷ In fact, Dolan ended up finding a banal rental history, discovering only that Bork was something of a cinephile, having rented 146 films in two years, and particularly enjoyed films directed by Alfred Hitchcock or that starred Cary Grant.⁵⁸

Although Dolan's findings were quite banal, this story became national news because of its reliance on video store records—a type of data that many thought was private. Dolan justified his actions by suggesting that Bork himself, against not only *Roe v. Wade*, but all conceptions of rights to privacy, would have considered the data to be fair game. He made this connection explicit in the tag line for the article: "Never mind his writings on *Roe v. Wade*. The inner workings of Robert Bork's mind are revealed by the videos he rents."⁵⁹ Many believe that at the very least, this story added fuel to the fire making it more difficult for him to be voted into office as the privacy of Bork's video rental histories became linked to the much broader fight over the

⁵⁶ Paul Ohm, "Netflix's Impending (But Still Avoidable) Multi-Million Dollar Privacy Blunder," *Freedom to Tinker*, September 21, 2009, <https://freedom-to-tinker.com/blog/paul/netflixs-impending-still-avoidable-multi-million-dollar-privacy-blunder>.

⁵⁷ Michael Dolan, "The Bork Tape Saga," 2005, <http://www.theamericanporch.com/bork4.htm>.

⁵⁸ *Ibid.*

⁵⁹ *Ibid.*

privacy arguments of *Roe v. Wade* and a woman's right to choose and make decisions concerning her own body.

Dolan's story sparked a great deal of fear in a Congress that realized they might also have their rental histories broadcast to the general public. Congress almost immediately in 1988 passed the federal Video Privacy Protection Act (VPPA), which made the disclosure of rental information to the public, markets and the police a crime, punishable by not less than a \$2500 fine per video unless the consumer had specifically consented or warrants had been issued.⁶⁰ This act also required video stores to destroy rental records no later than a year after the termination of an account. During the floor debate, Senator Chuck Leahy explained the necessity of the VPPA as in ““an era of interactive television cables, the growth of computer checking and check-out counters, of security systems and telephones, all lodged together in computers....”⁶¹ This act became the first to attempt to protect the privacy of personal data in the face of new media and digital environments that could make all such data public. The act quickly made video rental records one of the only protected forms of consumer information.⁶² VPPA provides more protections to video rental privacy than even the 1996 Health Insurance

⁶⁰ See Glee Harrah Cady and Pat McGregor, “Protect Your Digital Privacy: Survival Skills for the Information Age,” in *Protect Your Digital Privacy! : Survival Skills for the Information Age* (Indianapolis: Que, 2002), 375; “Video Privacy Protection Act,” *Hot Policy Issues*, n.d., <http://epic.org/privacy/vppa/>; JudiciaryCommittee, *Video Privacy Protection Act (Pub. L 100-618)* (Washington D.C., 1988).

⁶¹ Glee Harrah Cady and Pat McGregor, “Protect Your Digital Privacy: Survival Skills for the Information Age,” in *Protect Your Digital Privacy! : Survival Skills for the Information Age* (Indianapolis: Que, 2002), 375; “Video Privacy Protection Act,” *Hot Policy Issues*, n.d., <http://epic.org/privacy/vppa/>; JudiciaryCommittee, *Video Privacy Protection Act (Pub. L 100-618)* (Washington D.C., 1988).<http://epic.org/privacy/vppa/>

⁶² Electronic Privacy Information Center- www.epic.org, “Electronic Privacy Information Center,” accessed December 30, 2012, <http://epic.org/privacy/vppa/>.

Privacy and Portability Act affords to health records. The VPPA created a legal framework for privacy concerns and consumer powers in a digital and postfeminist era within which surveillance has become an ever-increasing concern.

While the VPPA has rarely been invoked, many of the later laws regarding the privacy of digital records grew out of it. In addition, it has played a large role in how major rental corporations like Netflix and Blockbuster organize their businesses and write their privacy statements. While Netflix has been able to integrate certain social networking abilities from Facebook into its service around the world, including the ability to see what others in your social network are viewing, this law has kept them from doing so in the United States.

The Video Privacy Protection Act also played a major role during the aftermath of the Netflix Prize. As a result of the outpouring of positive publicity and the success of their contest, Netflix immediately began preparing a Netflix Prize 2 that was meant to start soon after the first contest ended. For this second contest, Netflix planned to make available another dataset that included even more anonymized data concerning users, including the “renters’ ages, gender, ZIP codes, genre ratings and previously chosen movies.”⁶³ Netflix wanted contestants to use this data to “model individuals’ ‘taste profiles,’” or in other words to create explanations for why films like *Bleak House* seem to go well with *W.W.E. Summerslam 2004* for some users and not others.⁶⁴

As some, including law and privacy scholar Paul Ohm discussed, since Narayanan and Shmatikov had already proven that the original dataset could be de-anonymized, if Netflix were to release even more data, they could be opening themselves up to a multi-million dollar class

⁶³ Farhad Manjoo, “The Netflix Prize Was Brilliant,” *Slate*, September 22, 2009.

⁶⁴ Lohr, “Netflix Awards \$1 Million Prize and Starts a New Contest.”

action lawsuit because of the Video Privacy Protection Act.⁶⁵ On December 17, 2009, before Netflix Prize 2 had started and before the second dataset had been released, this is exactly what happened. In a Class Action Complaint filed in San Jose, Ca. the lawyers for Jane Doe, et al. argued that the right “to privacy does not appear to be significant to Netflix” and that they had perpetrated “the largest voluntary privacy breach to date.”⁶⁶ While these complaints are related to the first Netflix Prize dataset, this case was started in the hopes of creating an injunction against the second Netflix Prize.

While the VPPA suggests that unchecked surveillance of video records is harmful in and of itself, *Doe v. Netflix* uniquely goes out of its way to explain how someone could be personally harmed as a result of making their data public. Led by attorney Joseph Malley, who had previously won a multimillion-dollar settlement with Facebook over similar issues, the Netflix case largely focused on the complaint of Jane Doe, “a lesbian, who does not want her sexuality nor interests in gay and lesbian themed films broadcast to the world.”⁶⁷ While the court brief certainly brings up many reasonable arguments concerning a desire to protect citizen’s general freedom to privacy, the most concrete example of how this loss of privacy might harm someone is the possibility that the data might “out” users by showing that they “had strong—ostensibly private—opinions about some liberal and **gay-themed films**...”⁶⁸ This bolded statement makes clear just how central sexuality is to digital privacy not just for consumers but also for citizens. This case proposed both that it could be dangerous if Doe’s community learned of her interests

⁶⁵ Ibid.

⁶⁶ Kamber, Malley, and Parisi, *Doe Vs. Netflix Class Action Complaint*.http://www.wired.com/images_blogs/threatlevel/2009/12/

⁶⁷ Kamber, Malley, and Parisi, *Doe Vs. Netflix*.http://www.wired.com/images_blogs/threatlevel/2009/12/

⁶⁸ Ibid.

and also that if she had known the data could be made public, it may have changed the types of media she watched and presented an interest in.

While there are other types of personal information listed that one might be able to discover from the Netflix dataset, including one's religious beliefs, political affiliations, struggles with "domestic violence, adultery, alcoholism, or substance abuse," these fears are all listed under the broader fear, labeled as "The 'Brokeback Mountain' factor."⁶⁹ While not defined within the lawsuit, this fear centers around the possibility that one's film preferences and interest in the "Gay & Lesbian" Netflix movie category will reveal details concerning one's sexuality far too readily and in the process both disempower and threaten users.

Settled privately, this lawsuit resulted in the cancelling of the Netflix Prize 2.⁷⁰ The lawsuit argues at many points that rental choices are "confidential, sensitive and personal information" that Netflix was specifically entrusted with under the condition that they would not make it public.⁷¹ The lawyers quoted from one anonymous Netflix user who stated that "The only way I would ever be willing to participate in any of these community features would be if I could remain completely anonymous."⁷² As the lawyers argue throughout the lawsuit, Netflix broke the trust and thereby the foundation of their user community by violating this principle of anonymity that helped to support the CineMatch recommendations and seemingly empower the userbase more generally by offering a sense of autonomy.

Doe v. Netflix illustrates how anonymity has become an alias for privacy in an era when

⁶⁹ Ibid.

⁷⁰ Ibid.

⁷¹ Ibid.

⁷² Ibid.

surveillance is constant and largely unregulated. Yet, this focus on privacy simply for the sake of anonymity obscures how these principles also work to collapse empowerment with autonomy rather than community. These rearticulations are deeply connected to sexual identity as the privacy laws that sustain them too often have the deleterious effect of hiding the extent of domestic abuse and keeping it from being recognized as a public trauma, *Doe v. Netflix* showcases how digital anonymity also protects sexual liberty. While the stakes for this type of privacy are highest for those closeted in the LGBTQIA community, many heterosexuals would also like to keep their personal tastes a private matter. Without VPPA protections, Doe would have felt restricted in expressing her desires not just in public, but also in private and online. The VPPA helps to protect digital consumers and make sure they feel free to express themselves in online spaces.

As an effect of this lawsuit and the restrictions of the VPPA, Netflix cancelled both their Netflix Prize 2 competition and their plan of creating a stronger community element by allowing users to share their information via Facebook. In the process, the VPPA makes sexual identity a tool for the strengthening of autonomy. This case illustrates how the desire to make sexual identity a private matter bars and antagonizes the creation of online communities of consumers. Of course, Netflix designs these communities to foster consumerism in ways that collapse purchases and desires with identity. The central role of desire in this consumer identity creates a difficulty for those who want to remain autonomous and keep their sexual desire private while creating communities through consumerism. As the lawsuit suggests, by protecting the privacy of sexuality, the VPPA preserves user's sense of autonomy, which allows CineMatch to work correctly, but at the cost of stopping a community from forming. In the process, the VPPA also stopped Netflix from being able to marketize this community by making them better consumers

and by selling their data in personalized ways. Without such an agreement, a woman like the Jane Doe who instigated the lawsuit would not be able to honestly rate films on the site, nor would she be able to rent the films she actually wanted to see. This would affect not just her own Netflix experience but also everyone else who uses CineMatch to decide what films to view.

However, since this 2009 lawsuit, The US government has stripped away much of video records' privacy protections in favor of creating a more social, public and lucrative community. On January 10, 2013, as a result of lobbying pressure from Netflix, President Obama signed an amendment to the VPPA that allows rental companies to collect consent forms from customers that allow them to collect and make public their rental histories for up to two years at a time. In comparison to the previous law, which forced companies to collect signed consent forms every time a customer rents a movie, the process of having a user check a box at the end of a paragraph in small print when they first sign on to Netflix is much more lax. In the House Republican's summary, they argued that this bill "would modernize the way in which consumers can share information about their movie or TV show preferences... In the 1980s, when one wished to recommend a movie to friends, they would likely call them on the telephone. In the 1990s, they would send an email. Today, they post their opinions on their social networking page."⁷³ While this summary suggests that the law allows for users to post their recommendations on social networks, this was already legal. Instead, this law allows Netflix to post recommendations on the behalf of users and also incorporate information from these networks into their database of user information.

⁷³ Bob Goodlatte, *Video Privacy Protection Act Amendments Act of 2012*, H.R. 6671, 2013,

<http://www.govtrack.us/congress/bills/112/hr6671>.<http://www.govtrack.us/congress/bills/112/hr6671#summary/hou>
serepublicans

During a period of extreme hostility between the House of Representatives and the President, it is notable that this amendment was passed with little fanfare, no changes or additions, and with a bipartisan majority. The surveillance into what Sen. Paul Simon once called a “window into our loves, likes and dislikes” is no longer feared but is instead now celebrated as a profitable community and consumer building venture. The possibility that some might be harmed in the process goes unconsidered; the potential that those in the LGBTQIA community may be threatened by this amendment into abandoning Netflix and digital spaces is actively ignored.

Thus, if the lawsuit resulting from the Netflix Prize can be considered an attempted to create genuinely empowered consumers who retain control over their own information, the amendment to the VPPA can be viewed as a rescindment of this empowerment. Indeed, power was ultimately returned to the corporations in the name of promoting “community” but ultimately as a means of encouraging further consumption. If, during the height of the feminist movement privacy was considered a crucial right, under the regime of postfeminist neoliberalism it appears to be regarded mainly as an impediment to the flow of capital.

‘Digg has Broken an Axle’

In contrast to TiVo and Netflix, Digg.com (Digg) is an example of a site that relies on users engaging in conversation and creating communities. Created in 2004, Digg became popular as a site where users could discover, share and recommend news and entertainment media, often responding directly to one another. While it has recently become less popular and in 2012 was sold and redesigned by its new owner BetaWorks, during its heyday from 2006-2010 (the period I will focus on) Digg had millions of unique monthly viewers and was

perennially one of the top 150 visited sites globally and one of the top 100 in the United States.⁷⁴ On the one hand, by encouraging users to directly interact with one another, this site acts as a counterexample that illustrates how digital recommendation technologies can foster public communities focused on collaboration. On the other hand, however, certain aspects of the website reveal how corporations use the democratic and empowering rhetoric around these technologies to hierarchize, monetize, and manipulate online collaborative communities. Revolts against certain of Digg's actions reveal the way in which its status as a corporation worked to undermine its insistent use of this rhetoric. Although Digg claimed to be a space in which users were fully empowered and in control, within a postfeminist neoliberal context this claim could not be fulfilled.

On Digg, users submit news and entertainment stories and the rest of the community votes on whether or not the story is worth reading. Rather than charge for this service, Digg makes money by creating personalized advertising on their site based on the stories that individual users liked and disliked. Digg's most unique characteristic is its influential voting system which allows users to either "digg" a story, thereby declaring that it is interesting and should be noticed by others, or "bury" it, thus asserting that the story is not worth checking out. This voting system relies on the same collaborative filtering recommendation technologies as TiVo and Netflix. The more popular a story is, the higher up on the list it goes until it arrives on the front, main page of Digg and can therefore become noticeable to the highest number of people. As blogger Scott Karp has argued, Digg's use of collaborative filtering demonstrates that rather than having value simply because of the seemingly endless amount of information it

⁷⁴ "Digg.com Site Info," *Alexa.com*, June 8, 2011, <http://www.alex.com/siteinfo/digg.com>.

holds, “the web is most valuable when it is defined and delimited.”⁷⁵ By presenting those articles “defined and delimited” by their userbase as a whole, Digg makes itself more valuable.

Kevin Rose, a cofounder and chief architect of Digg has repeatedly declared that he wanted the site to be a “true, free, democratic social platform devoid of monetary motivations.”⁷⁶ Even though Digg relies heavily on a combination of venture capitalist funds and advertising dollars to survive and grow, Digg has often employed democratic rhetoric celebrating equality and diversity to present itself more as a community than a corporate enterprise. This rearticulation of Digg users from customers of a business to members of a collaborative community encourages them to contribute their unpaid time and expertise to Digg’s growth and success as a business. This strategy has been quite auspicious as users on Digg vie for influence on the site by getting other users to like the stories they upload. Digg encourages this competitive streak as it has led to a very active userbase – and, hence, more advertising income. This combination of democratic rhetoric and corporate interest was always present. However, when in 2008 and 2010 Digg attempted to transform their algorithms, these efforts were met with a backlash from users who interpreted them as an attempt to both make the voting system more favorable to advertisers and encourage other users to join who might make the site more profitable. By examining how Digg tried to make their site more diverse and equal and the way their userbase rebelled, I will illuminate the complex relationship between choice, empowerment, and online consumerism.

⁷⁵ Scott Karp, “Digg Demonstrates The Failure Of Completely Open Collaborative Networks,” *Publishing 2.0*, January 24, 2008, <http://publishing2.com/2008/01/24/digg-demonstrates-the-failure-of-completely-open-collaborative-networks/>.

⁷⁶ Donna Bogatin, “Digg Democracy: Can Algorithms Trump Human Nature? | ZDNet,” *ZDNet*, October 2, 2006, <http://www.zdnet.com/blog/micro-markets/digg-democracy-can-algorithms-trump-human-nature/495>.

In 2011, the creators of the site described it as:

A place for people to discover and share content from anywhere on the web. From the biggest online destinations to the most obscure blog, Digg surfaces the best stuff as voted on by our community. We're here to provide tools for our community to discover content, discuss the topics that they're passionate about, connect with like-minded people, and make some new friends in the process. By looking at information through the lens of the collective community on Digg, you'll always find something interesting and unique. We're committed to giving every piece of content on the web an equal shot at being the next big thing.⁷⁷

This description focuses on Digg's interest in creating a collaborative, connected and collective community empowered to make stories that mainstream news media may have missed. By framing the site as a passive tool that allows users to discover and discuss content, however, Digg obscures the ways in which its algorithms encourage certain discoveries, discussions and communities over others. Digg's collaborative filtering algorithms, rules and systems and the way it brings certain stories into the public eye while neglecting others are largely proprietary and invisible to most users. Rose has stated that the Digg algorithm treats all users as the same and viewpoints and stories become more prominent only by the concerted effort of the community as a whole.⁷⁸ While Rose asserts that Digg made the site's algorithm purposefully

⁷⁷ "What Is Digg?," 2011, <http://about.digg.com/about>.

⁷⁸ Kevin Rose, "Is Digg a True Democracy? | Kevin Rose | Big Think," *Big Think*, June 19, 2008, <http://bigthink.com/videos/is-digg-a-true-democracy>.

opaque and complicated only to ensure that users cannot easily manipulate it, this lack of transparency makes the site appear to be (falsely) value-neutral.

Even as Digg states that it gives all online content an “equal shot,” they programmed their algorithms to give some types of content a better shot than others. Many in the Digg community have reported on their experiences concerning which behaviors on the site most successfully lead to stories reaching the front page. In 2007, Muhammad Saleem, a prominent social media blogger, asserted Digg does not require a specific number or percentage of votes for a story to reach the front page. Rather, Digg’s algorithm takes into account the recent participation levels of users and their followers (those that have requested to be alerted when specific users contribute content) in deciding how easily it will be for them to get stories onto the front page. Along with participation, if many “‘high-value’ users” (known as “power diggers”), quickly dig a story, it will take far fewer votes for it to reach the front page.⁷⁹

From at least 2006-2008, while Digg asserted that it gave each user an equal say on the site and every piece of content “an equal shot,” the proprietary collaborative filtering algorithms behind their voting system made the votes of prolific voters worth more than those who rarely interacted with the site. Rand Fishkin, creator of Moz, an online marketing firm, argues that “far from being a mass of opinion, Digg is instead showing, primarily, the content opinions of just a few, select folks.”⁸⁰ Rather than a system of equality and diversity, Digg operated as a frat

⁷⁹ Muhammad Saleem, “It’s The (Other) Algorithm, Stupid! Understanding DiggRank,” *Search Engine Land*, November 28, 2007, <http://searchengineland.com/it%E2%80%99s-the-other-algorithm-stupid-understanding-diggrank-12790>.

⁸⁰ Rand Fishkin, “SEOMoz | Top 100 Digg Users Control 56% of Digg’s HomePage Content,” *Seomoz*, October 10, 2007.

where it “pays to know the right people.”⁸¹ In the process, Digg’s actions “empowered” certain users more than others.

In 2006, the top 100 Digg users were responsible for submitting 56% of all stories. In addition, the top 20 users contributed nearly 21% of the 25,260 stories that reached Digg’s front page.⁸² While this number dropped slightly in 2007, these rarefied power diggers continued to dominate the site by submitting 44% of all stories. The top Digger in 2007 was even responsible for 3% of all front-page stories.⁸³ The extra weight Digg’s voting system give to these users as well as the tit for tat relationships that develop within this community created this extreme imbalance. Power diggers spend many hours on this site and develop friends in the process who are able to both chat together and follow what each other are digging. Members in these groups help each other out by digging each other’s articles. As a result, those who are more connected to the larger community are rewarded by having more of a say concerning what content makes it to the front page and thereby which stories will get noticed by other readers and potentially also other mainstream media outlets.

Neoliberal economics and the move toward precarious and unpaid labor forces have spurred on Digg’s privileging of these power diggers. Becoming a top user requires a huge time commitment as to keep their influence, Digg’s algorithms require these users continually find interesting stories that others have not yet located, engage in many discussions concerning these articles (and other power digger contributed articles) and digg popular articles of others. Digg offers more influence to these users as a quid pro quo for their otherwise unpaid labor. The site

⁸¹ Ibid.

⁸² Ibid.

⁸³ Muhammad Saleem, “The Power of Digg Top Users (One Year Later),” Blog, *ProNet Advertising*, October 11, 2007, <http://www.pronetadvertising.com/articles/the-power-of-digg-top-users-one-year-later34409.html>.

relies on these users to cultivate a loyal community by constantly contributing content in order to attract other users who may not contribute but are instead interested in using the site as a primary news source. Some of these non-contributing users click on advertisements, which helps Digg make money. Digg has also relied on its readership and contributor numbers in order to get millions of dollars in funding from venture capitalists, and Digg's creators have used the size and scope of its community in repeated attempts at selling the site to Google and other companies.

Much of Digg's value arises from the contributions of both content and labor from their loyal following and the large readership that their work creates. Digg enables this loyalty through both their voting system and the utopian rhetoric that surrounds it. Digg continually celebrates its "democratic" objective of allowing users, regardless of their wealth, fame and/or power, to influence the national dialog. Rose made a video in 2008 emphatically stating that Digg is a democracy that views its users as equals. Digg's unique status as a news site where the users are the editors has been widely reported as stemming from democratic aspirations.⁸⁴ Rose also hosted a weekly podcast from 2005-2012 called Dignation in which Rose and others discussed those articles that were currently popular on Digg while advertising and imbibing a wide assortment of alcohols and iced teas. Users also often employ a similar rhetoric when

⁸⁴ Chris Wilson, "The Wisdom of the Chaperones," *Slate*, February 22, 2008,

http://www.slate.com/articles/technology/technology/2008/02/the_wisdom_of_the_chaperones.html; Navneet

Alang, "Democracy Is Overrated: On Digg's Unlikely Rebirth," *Hazlitt*, May 8, 2013,

<http://www.randomhouse.ca/hazlitt/blog/democracy-overrated-digg%E2%80%99s-unlikely-rebirth>; "Digg's Failing Democracy," *Download Squad*, accessed July 6, 2013, <http://downloadsquad.switched.com/2007/10/22/diggs-failing-democracy/>.

describing Digg and their relationship to it and have themselves been called the “Digg Nation.”⁸⁵ Groups of power diggers have referred to themselves variously as brigades, patriots and rebels.⁸⁶ Users have also accused Digg of creating an “army” devoted to advertising certain stories over others.⁸⁷

Digg’s use of this rhetoric shows how the catchphrases of both nationalism and participatory democracy rather than online consumerism are used to create a community of users willing to work to make the site a success. While user contributions are a form of work, Digg uses discourses of nationalism to suggest that this work is a form of altruism designed to improve the community and the lives of users rather than the value of the site itself and the economic prosperity of its owners. In the process, Digg and its users conflate democracy with the economic model of the corporation. Thus democracy here becomes a neoliberal tool for the exploitation of users’ labor.

Digg has attempted to maintain this utopian rhetoric while simultaneously using its voting system to create an invisible infrastructure and hierarchy that Digg uses to exploit users and reap the benefits. In 2006, power digger SuperNova17 was banned from the site for using his

⁸⁵ Om Malik, “A Very Angry Digg Nation,” *GigaOM*, May 1, 2007, <http://gigaom.com/2007/05/01/a-very-angry-digg-nation/>.

⁸⁶ “Hunting Down Digg’s Bury Brigade,” *WIRED*, accessed December 30, 2012, <http://www.wired.com/techbiz/people/news/2007/03/72835>; “Digg Patriots,” *Schott’s Vocab Blog*, accessed July 7, 2013, <http://schott.blogs.nytimes.com/2010/08/13/digg-patriots/>.

⁸⁷ Jacob Gower, “Digg Army: Right in Line,” *ForeverGeek*, April 19, 2006, http://forevergeek.com/news/digg_corrupted_editors_playground_not_userdriven_website.php; Jonathan Richards, “DRM Group Pledges to Fight Digg Rebels | The Times,” *The Times (London)*, May 4, 2007, <http://www.thetimes.co.uk/tto/technology/article1858438.ece>.

influence to promote a story for cash.⁸⁸ This event illustrates Digg's owners insistence that they be the only ones who profit from this system and how they convinced their users that this arrangement was in their best interest. Given the amount of time, effort and expertise required to become a power digger, it is not surprising that some power diggers have tried to earn income in the process. While getting paid to advertise a story is against the Digg ToS, it is clear from many comment boards and blog posts that this event upset users on many comment boards primarily because SuperNova17 used Digg not to promote good content but rather for economic gain.⁸⁹ Other users saw this as a threat to both Digg's independence and democratic goals. Digg, as a pushback against the corrupting corporate nature of mainstream news sources, created its voting system specifically to keep money from influencing what news could be. The general Digg userbase get riled anytime money is an impetus for either how an individual user votes or Digg itself alters its rules and algorithms. At the same time, many power diggers had been paid by online marketers to advertise specific stories and try to get them prominently displayed. Advertisers set up whole businesses to specifically help corporations get their content to the front page of Digg and at least one source reported that on average a marketer could get \$500 per story that made it to Digg's front page.⁹⁰ In this case, SuperNova17's supposedly democratic

⁸⁸ Allen Strider, "Digg Users Automatically Blacklisting Known Spammer Supernova17," *WebUpon*, December 22, 2006, <http://webupon.com/social-bookmarking/digg-users-automatically-blacklisting-known-spammer-supernova17/>.

⁸⁹ Bill Israel, "Did Digg Game Its Own System To Benefit Publisher Partners?," *Dumplings From This Panda!*, October 25, 2010, <http://ltgenpanda.tumblr.com/post/1403230157/did-digg-game-its-own-system-to-benefit-publisher>.

⁹⁰ Michael Arrington, "Want On the Digg Home Page? That'll Be \$1,200," *TechCrunch*, September 3, 2008, <http://techcrunch.com/2008/09/03/want-on-the-digg-home-page-thatll-be-1300/>.

“choices” were actually in the service of another corporation, not the community. The user outrage conveniently ignored the fact that Digg itself is a corporation making money off of users. In fact, the case of SuperNova17 illustrates the way in which Digg.com simply became a temporary battleground between competing corporate interests that used democracy and anti-corporate rhetoric to their benefit.

At other times, however, users have asserted their power by forcing Digg’s hand when the site appeared too focused on protecting its corporate interests. One of the most virulent revolts against Digg occurred on May 1, 2007 when a user posted an encryption key that made it possible to make copies of Blu-Rays and HD-DVDs. Fearing legal recourse, Digg took down the post and banned the user and several others who promoted it. In response, many power diggers began contributing and promoting thousands of stories that had the encryption key in their titles or were otherwise in direct response to Digg’s actions. While many simply renamed articles with titles like “My name is ’09-F9-11-02-9D-74-E3-5B-D8-41-56-C5-63-56-88-C0,” one user changed Digg’s Wikipedia entry to list May 1, 2007 as “the day that Digg died.”⁹¹ Users also discovered that the HD-DVD promotion group had advertised recently on the Diggnation podcast, which led to rampant speculation that Digg was deleting these stories not for legal fears but instead purely for commercial reasons.

This episode illustrated that power diggers conceived of their role on Digg not simply as “empowered consumers” but as actual producers of the site with a vote concerning both the site’s content and the way the site operated. Technology blogger Tamar Weinberg touted this event as a “democratic milestone” that illustrated the citizen-like power of users on sites that depend on

⁹¹ Ryan Block, “Users Turn Against Digg: Anatomy of a Massive Online Revolt – Ryan Block,” *Ryan Block*, May 1, 2007, <http://ryanblock.com/2007/05/users-turn-against-digg-anatomy-of-a-massive-online-revolt/>.

collaborative communities.⁹² Technology blogger Ryan Block highlighted the stakes of this event that pitted Digg's democratic ideals against its corporate economics when he asked, "But how did such a loyal userbase as Digg's so quickly divert its all-consuming energy to defying — even damaging — the company to which it was so loyal?"⁹³ In terms of content, Digg users felt that their votes made them equal not just with other users but also with the owners and operators of the site. Their loyalty was based on a shared sense of ownership and pride in the site. By blocking content without the permission of users, Digg exerted an authoritarian, corporate level of control over the content on the site and threatened the site's democratic aura that they had worked to develop.

After witnessing the user outcry, Rose relented and unblocked all of the posts that had included the HD-DVD and Blu-Ray code in them. On Digg's blog, Rose argued that Digg has always blocked unlawful and harmful content and compared the blocking of the code to Digg's regular blocking of pornography, racial hate sites and illegal downloads. Rose irately stated that after "reading thousands of comments, you've made it clear. You'd rather see Digg go down fighting than bow down to a bigger company. We hear you, and effective immediately we won't delete stories or comments containing the code and will deal with whatever the consequences might be."⁹⁴ By simultaneously celebrating the user's democratic idealism and also suggesting that their anti-commercial spirit could be the downfall of the site, Rose illustrates the thin line Digg's owners tried to navigate between their democratic branding and corporate interests.

⁹² Tamar Weinberg, "Social Media Revolt: Digg and Democracy," *Seroundtable.com*, May 2, 2007, <http://www.seroundtable.com/archives/013339.html>.

⁹³ Ryan Block, "Users Turn Against Digg: Anatomy of a Massive Online Revolt – Ryan Block."

⁹⁴ Kevin Rose, "Digg the Blog » Blog Archive » Digg This: 09-f9-11-02-9d-74-e3-5b-d8-41-56-c5-63-56-88-c0," *Digg the Blog*, May 4, 2007, <http://blog.digg.com/?p=74>.

As a further result of the incommensurable conflation of democracy and corporate governance on Digg, there have been numerous instances where the Digg Nation rebelled. During the period from 2006 – 2010 when it was most popular, there were many instances in which Digg’s owners weighed its responsibilities to their shareholders against their desire to keep their users (especially power diggers) happy. The resulting conflicts concerning the interrelated status of user rights, powers, diversity and equality often revolved around changes in Digg’s voting system that affected how Digg privileges worked in relationship to corporate interests. In 2008, Digg’s owners tried to introduce algorithm changes and other efforts designed to increase the number and diversity of contributors. Of course, while this sounds like a noble goal, Digg wanted more contributors partly to increase the commercial and mainstream content on Digg’s front page with the expectation that more contributors would lead to more advertising income. Power diggers pushed back because such changes reduced their influence and ability to control content on the front page. Digg is in many ways an example of how the logic of democracy is unsatisfactorily combined with online consumerism in ways that enable ideological arguments that destabilize democratic ideals of equality and diversity for economic gain.

Before their algorithmic changes, Digg.com gave power diggers influence at the cost of creating a diverse contributor pool. These power diggers wielded a significant amount of control and would sometimes form coalitions that worked together to get articles they liked to the front page and bury those that they did not support. Users constructed and deconstructed coalitions constantly in order to get a particular, often fringe, type of story or message seen by a broader audience. Such was the case in late 2007 when a group calling themselves the Bury Brigade buried positive articles on any presidential candidate that was not Ron Paul.⁹⁵ While Bury

⁹⁵ David Cohn, “Hunting Down Digg’s Bury Brigade,” *Wired Magazine*, March 1, 2007.

Brigade added diversity to Digg's front page by adding their libertarian perspective to the discursive realm that was too often only focused on Barack Obama and John McCain, this was not the kind of diversity that Digg, the company, desired. Rather than viewing the Bury Brigade's contributions as an expression of an alternative viewpoint, Digg's owners and the larger community referred to them as spam.⁹⁶ Digg programmers saw this and other similar collaborative activities as efforts to game their voting system in order to squelch the site's diversity and, hence, profitability.

Whereas diversity traditionally values the need for everyone to have an equal voice, in this consumer focused segment of cyberspace, Digg felt that the best way to increase diversity was to make the votes of new and less active users (whose voices may not have been heard before on the site) worth more. They accomplished this on January 22, 2008 by modifying their voting system to incorporate what they called a "diversity algorithm."⁹⁷ Rather than imagining diversity as a plethora of ethnicities, genders and races, their diversity algorithm made it so that for a story to gain prominence, it had to be dug by a wide range of users who had each previously presented an interest in articles of different types and perspectives.⁹⁸ With this change, Digg transformed from a site that favored the creation and proliferation of special interest groups and users who expressed themselves through single-issue politics to one that encouraged users to take an interest in a wide number of topics.

⁹⁶ Ibid.

⁹⁷ P Chandra, "New Digg Algorithm Favors Diversity for Front Page Stories," *Quick Online Tips*, January 25, 2008, <http://www.quickonlinetips.com/archives/2008/01/new-digg-algorithm-favors-diversity-for-front-page-stories/>.

⁹⁸ Like in the Netflix Prize competition, Digg uses Singular Value Decomposition algorithms to define what these different interests are and therefore what diversity consists of.

Power diggers saw this change as a direct attack against them and their power. After the voting system's modification, these diggers immediately noticed that it was more difficult for their contributions to make it to the front page. Saleem complained that while before the algorithm change, his stories would make it to the front page after approximately 130 votes, after it took more than 200.⁹⁹ In contrast, new users were now able to get stories to the front page with only 40 votes. Power digger MrBabyMan asserted that Digg's change was a "fairly transparent strategy to clean house of the submitters who have been dominating the front page for a while now. Essentially [they] adjusted the diversity factor to skew against popular submitters."¹⁰⁰ These changes angered many dedicated users who felt that since they had been digging for longer, they had more expertise in finding important stories and therefore they should be given preferential treatment.

While these power diggers presented themselves as a benevolent technocracy, several readers and bloggers complained about their exclusivity and undemocratic elitism. Technology blogger Ian Smith complained that as a result of this power structure, "in short, like most real world Democracies, Digg is becoming nothing more than a rubber stamp for the powerful, the prominent, and the well funded."¹⁰¹ Ironically, the diversity algorithm became a tool for promoting more mainstream material to Digg's front page. By making it easier for contributions submitted and voted on by a diverse and novice audience to make it to the front page, they increased the number of front page stories that appealed to more mainstream, centrist users. As Rose explained in a Digg blog post, "one of the keys to getting a story promoted is diversity in

⁹⁹ Jordoan Golson, "New Digg Algorithm Angers the Social Masses," *Gawker*, January 23, 2008, <http://gawker.com/348338/new-digg-algorithm-angers-the-social-masses>.

¹⁰⁰ Ibid.

¹⁰¹ "Digg's Failing Democracy."

Digging activity. When the algorithm gets the diversity it needs, it will promote a story from the Upcoming section to the home page. This way, the system knows a large variety of people will be into the story.”¹⁰² For example, while before stories could easily make it to the front page with only the support of Ron Paul voters, after these stories also needed to appeal to users who had previously expressed an interest in Obama and/or McCain supporters. Rather than diverse stories, this change made only the most average of stories, those that were in fact the least diverse and least fringe, also the most prominent.

Although they employed the rhetoric of democratic diversity, Digg preferred the kind of diversity offered by their new algorithm rather than that proposed by coalitions like the Bury Brigade for economic reasons. While coalitions like the Bury Brigade increased diversity of content on the site by promoting articles from fringe perspectives, Digg instead focused on increasing the number of users themselves by making the site’s content appeal to a more general audience. Like many other Internet startups, Digg’s success was dependent on continually growing its userbase and advertising income. Giving power diggers more influence by making their votes worth more may have made the site’s content more diverse and less mainstream, but it also made the site communities very exclusionary and stifled the growth of the userbase as a whole. Digg used a combination of diversity rhetoric and modifications to its voting algorithms not to increase the viewpoints and types of articles on the site but rather to increase their general userbase and thereby the economic value of their site for investors and potential buyers.

Rather than critique the particular ways in which Digg defined and employed diversity and democracy in their marketing, many bloggers used the backlash against the diversity algorithm to argue that democracy in online spaces was an altogether futile venture. As blogger

¹⁰² Kevin Rose, “Digg: New Algorithm Changes,” *Digg The Blog*, January 23, 2008, <http://blog.digg.com/?p=106>.

Scott Karp argues, Digg could have left the algorithms as they were but this would have allowed the power diggers to gain even more control over the site's content.¹⁰³ Yet the diversity algorithm did not in fact create more equality on the site but instead illustrated how voting made Digg appear to be a democracy when it was actually just a business that valued its shareholders more than its users. Digg's creators viewed the user's collaborations as a threat to (rather than a product of) democracy and diversity. Drew Curtis, the creator of Fark.com, one of Digg's competitors, first compared the Digg community to a Student Union that is "completely ignored by the administrators, created for the appearance of having a say in what's going on." Curtis then suggested that because of the mentality of venture capitalists interested only in increasing page views, Digg was like the "Soviet Russia, where you're told you've got freedom and a voice and can make a difference, but you really can't do shit."¹⁰⁴ While hyperbolic, Curtis's reaction points to how Digg's voting system and the collaborative filtering algorithms that support it do not create equality but rather help to create and obscure a top-down organization that heavily relies on the unpaid labor of users. Once again, the rhetoric of empowerment is used to obscure exploitation.

The back and forth struggle between the owners and users of Digg came to a head on August 25, 2010 when the owners of Digg updated their site from version 3 to 4.0 with several notable changes to their voting system. From looking at comment boards shortly after the changes, it is clear that what upset the users the most were the changes made to the voting system and the ability of users to follow the digging activities of others.¹⁰⁵ Voting and keeping

¹⁰³ Karp, "Digg Demonstrates The Failure Of Completely Open Collaborative Networks."

¹⁰⁴ Jordaoan Golson, "New Digg Algorithm Angers the Social Masses."

¹⁰⁵ JD Rucker, "On Digg Today, Everything Went Better Than Expected," *Soshable*, September 2, 2010, <http://soshable.com/on-digg-today-everything-went-better-than-expected/>.

track of other users are the two main functions on the site that allowed users to contribute to and collaborate with the larger Digg community. These changes most noticeably consisted of getting rid of features like an easy way to see what friends had submitted to the site; a variety of changes to the searching and browsing mechanism; getting rid of subcategories and certain types of searches; the absence of an area where you could store your favorite stories; and perhaps most importantly, the removal of the bury button and with it any way for diggers to meaningfully regulate content on the site, from spam to pieces that the users simply did not like. Digg also gave corporations the ability to bypass users altogether and upload their own stories and advertising to the site themselves. The disappearance of the bury button and the emergence of stories contributed by corporations very clearly eliminated users' ability to control their experience of the site, disempowering their relationship to the technology.

Digg also completely revamped MyNews, their personalized recommendation system from one that worked strictly through collaborative filtering like Netflix, to one like Facebook where users had to first manually decide which other users and businesses to follow. In Digg 4.0, when users first signed up on the site, they were greeted with a page of suggested newsfeeds, including ones from the *New York Times*, *the Huffington Post*, Fox News, Playboy.com, Cracked.com, *Wired Magazine* and other major news, entertainment, technology and softcore porn sites. Digg's MyNews page was also made the default page and rather than showing what was popular overall, the MyNews page only showed stories that had been uploaded by these businesses and other users that you were following. While the Digg owners' uneasy relationship between the democratic and commercial aspects of the site perpetually antagonized users, the ostentatious and sudden preferential focus on commercial perspectives in version 4.0 seriously rankled many users on the comment boards who felt that this and many of the other changes

were made to appease the advertisers and venture capitalists behind the site at the expense of the users themselves.¹⁰⁶

Spam also created issues because without a bury button, Diggers had no way to quickly remove obvious phishing, spam and hateful and/or racist sites from appearing on the Digg main page. In response to a particularly spurious article concerning “Obama’s Disdain for America’s traditional Allies,” a variety of commentators wrote variations on “Good god where’s the bury button when you need it,” “How is this on the front page???” and “If you could bury lame articles, all the sponsors would be upset.”¹⁰⁷ The last comment refers to perceived changes in Digg’s voting algorithms that made it more difficult for users to get rid of articles from Digg’s sponsors. While these users saw nothing wrong with the issue that all of the popular stories on Digg version 3 were from a very particular masculine perspective that pretended to speak for everyone, this story, which seems to speak for not just a commercial group but a particularly conservative element was greeted with outright hostility.

Digg’s update resulted in a rather sudden loss of over 25% of traffic on the website in the United States and 35% in the UK, lowering it from around the 45th most popular website to approximately the 150th.¹⁰⁸ Perhaps even more meaningfully, sites like TechRadar that had previously gotten a huge amount of traffic from stories posted on Digg saw this traffic decrease by over 86% after the changeover, making Digg a significantly less consequential news

¹⁰⁶ See Jared Keller, “Digg’s Newest Corporate Sponsor: BP America,” *The Atlantic Monthly*, October 7, 2010.

¹⁰⁷ Beirut, “Digg Users Declare ‘Quit Digg’ Day,” *ThoughtPick*, August 31, 2010,
<http://blog.thoughtpick.com/2010/08/digg-users-declare-quit-digg-day.html>.

¹⁰⁸ Charles Arthur, “Digg Loses a Third of Its Visitors in a Month: Is It Deadd?,” *The Guardian*, June 3, 2010,
<http://www.guardian.co.uk/technology/blog/2010/jun/03/digg-dead-falling-visitors>.

destination than it had previously been.¹⁰⁹ The users responded to these changes via various forms of protest, including a boycott; a “quit Digg day;” an effort to upload hundreds of stories onto Digg that would direct traffic toward Reddit, Digg’s main competitor; and a great deal of aggressive behavior on the site’s comment boards.¹¹⁰ What was most noticeable during the months after this change was that while beforehand, the top stories on the site were viewed and made popular by thousands and tens of thousands of users, after the switchover a site could easily become prominent with less than a hundred votes, and often less than 20. Months later, after many of the changes that the user base originally rebelled against were changed back, the top story on Digg had only garnered 523 votes when before it would have often been somewhere between 5,000 to 20,000 votes.¹¹¹ What this change suggests is that the 25% who emigrated from Digg were those who were the most active users on the site, those who voted the most and were the most dedicated to the creation and furtherance of the larger Digg community. While every vote on Digg counted, this 25% appeared to matter just a bit more than the rest. As one Digger put it during this mass exodus, “The implosion of Digg is happening. It is an unstoppable conclusion to events that have been in motion since last week and will continue until the full implosion event similar to the final shrinking of the universe.”¹¹²

Ironically, as many commenters also pointed out, the changes to the structure of Digg did not actually seem to radically change the content of Digg all that much as the sites that automatically uploaded their stories had always been rather popular with actual Diggers and they

¹⁰⁹ Ibid.

¹¹⁰ Brennon Slattery, “Has Digg Dug Its Own Grave? | PCWorld,” *PCWorld*, August 31, 2010, http://www.pcworld.com/article/204571/Has_Digg_Dug_its_Grave.html.

¹¹¹ Rucker, “On Digg Today, Everything Went Better Than Expected.”

¹¹² Ibid.

would have probably dug up those stories anyway. Rather, power diggers revolted because their relationship to the content on the site had shifted. These users felt that the Digg owners were marginalizing their role in maintaining and constructing the culture of the site in order to appease commercial interests. Comments following a Cracked.com discussion on “Six Movies That Didn’t Realize they Let The Villain Win” expressed anger not because the story itself was silly or banal, but rather because it only took 42 Diggings and no comments for the article to make it to the Front Page. “Digg is Dead,” wrote one Digger; “Digg let the bad guys win,” wrote another. The “bad guys” referred to here are commercial entities, like Cracked and CollegeHumor.com that began to advertise more heavily on Digg after the version change. Yet, this commenter appears to be less upset by the backlash rhetoric of these sites than by their clear status as commercial organizations of any kind.

Users also voiced their fears that along with these more obvious and transparent changes, the site’s very structure and voting mechanism had also been transformed to give corporations more rights than actual Diggers. One user went so far as to statistically analyze the differences between content before and after the version update in order to show that changes must have been made to the voting algorithms to make it easier for the sites that sponsored Digg to get their stories in more prominent positions.¹¹³ This critique was made more damning by the sudden appearance of BP advertisements on the front page that masqueraded as digg stories. During the BP Gulf Oil Spill cleanup, Pro-BP stories like “Offshore world looks good after Gulf oil spill, scientists say” would appear on Digg’s front page and be derided by the user community.¹¹⁴

¹¹³ dnynameondigg and skyebeka, “6 Movies That Didn’t Realize They Let The Villain Win,” September 10, 2010, http://digg.com/news/offbeat/6_movies_that_didn_t_realize_they_let_the_villain_win.

¹¹⁴ Keller, “Digg’s Newest Corporate Sponsor: BP America.”

While Digg eventually did pull these ads after suggesting that their policy was to accept advertisements from anyone, the presence of this ad furthered the impression that with version 4, the site had changed from one that was primarily concerned with facilitating users' activities and communities to one that was first and foremost interested in garnering corporate support. Soon after Digg's version change, Kevin Rose stepped down as CEO and the company laid off 37% of its staff. It never regained the same level of popularity that it once had and was eventually sold off in pieces to various companies.

The changes to Digg's voting system illustrated that the users' ability to make something that they thought was interesting or entertaining noticed by a larger community was central to Digg's democratic aura. For instance, Amy Vernon, named the most powerful female digger of Digg 3.0 by *the New York Times*, stated that the first time she posted a story on Digg that made it to its front page she got "an adrenaline rush."¹¹⁵ It is of note that Vernon's story made it to the front page not simply because it was interesting or entertaining, but because she had for six months previously been digging all day, everyday the stories of other Power Diggers in the hopes that they would eventually start digging the content she posted as well. Digg used democratic rhetoric to present this kind of unpaid labor as a social responsibility that was rewarded by quid pro quo recognition and an adrenaline rush. When this was no longer possible and Digg was revealed as what it had always been – a business – the community fell apart. In the story of Digg, democracy became a neoliberal marketing term that – temporarily – disguised subservience as empowerment.

¹¹⁵ Todd Wasserman, "Can Digg Find Its Way In The Crowd?," *The New York Times*, September 18, 2010.

The recommendation systems used by TiVo, Netflix and Digg are all embroiled in the attempt to use digital technologies to exploit users under the banner of collaboration, community, and democracy. As choices are automated or manipulated, democracy and empowerment became buzzwords for increased corporate revenue and unpaid labor on the part of users. These recommendation systems and the collaborative filtering algorithms that maintain them rearticulate the relationship between consumption practices, identity, and community in a postfeminist neoliberal culture that exclusively privileges consumption and defines freedom as the freedom to buy. By defining collaborative communities and empowerment in relationship to self-representation and privacy, these communities also become embroiled in questions of who gets to define sexual identity for users and what the role sexuality can have in such automated communities. In the next chapter, I will discuss how these issues are at play within contemporary interpersonal relationships through dating sites and the recommendation systems that support them.

CHAPTER 3

Commodifying Love: eHarmony's Matchmaking System and the Quantification of Personality

In the last chapter, I discussed how media distribution sites describe their recommendation systems through a rhetoric of empowerment and collaboration. I showcased examples wherein this rhetoric created friction with privacy concerns specifically around sexual identity. This friction results in the individuation and concomitant potential exploitation of users and with concerns about user agency. Here I look at how eHarmony.com uses matchmaking recommendation systems that rely on psychological personality tests to guide users toward marriage and a host of other life goals. I will demonstrate the ways in which these digital matchmaking systems purport to empower users in the quest to “find love” but ultimately commodify identity and undermine the role of individual choice even in this most intimate realm of human experience.

Dating sites like eHarmony justify the use of these systems through appeals to science. They assert that users should not rely on their own personal feelings and individual choice in finding love. Instead, they assert that users will have a better chance of becoming happily married if they rely on the statistical and psychometric expertise of the site's creators and follow their advice on how to become more desirable to compatible suitors. I argue, however, that online dating systems delegitimize the role of individual choice in the search for love and instead favor statistical and psychological methods that reduce users to generic quantifiable traits that can – supposedly – be mixed with those of others to create a soul mate or “perfect match.” I demonstrate how these sites represent and enact choice in dating, focusing on the role of personality tests and matchmaking programs in online dating's industrialization and

commercialization of both personal identity and the search for love. The online dating industry presents itself as empowering for those in search of a safe way to meet new people and experiment with new ways of presenting oneself. Yet, these matchmaking practices remove agency from the dating experience and simultaneously reinscribe gender stereotypes onto the possible roles, representations, and desires of daters.

While the first online dating sites like Matchmaker.com emerged in the mid 1980s, it has only been in the last decade that this industry has become central to mainstream American culture. A third of all married couples in America now meet online and 45% of these couples meet on dating sites.¹ With the help of personality tests and recommendation systems that act as matchmakers, online dating has become a multi-billion dollar industry responsible for approximately one in six new marriages. As Stephanie Pappas argues, “For many people in their twenties, accustomed to conducting much of their social life online, it is no less natural a way to hook up than the church social or the night-club-bathroom line.”² Whether they are aimed at Muslims in India or scientologists in Los Angeles, these websites look and function similarly, all stressing the need for technology to help make dating both easier and more fulfilling than all other forms of contemporary dating habits. These sites and their tests are designed largely to help people meet others with similar interests and personalities over large distances or in urban areas where there are simply too many potential matches for one person to easily sift (or date) through. They present matchmaking software as a tool that automates this sifting with the help of information about their users (whether from short questionnaires, lengthy personality tests, or

¹ Stephanie Pappas, “Online Dating: The Secret to a Happy Marriage?,” *LiveScience.com*, June 3, 2013, <http://www.livescience.com/37100-online-dating-happy-marriages.html>.

² Nick Paumgarten, “Looking for Someone,” *The New Yorker*, July 4, 2011, 5, http://www.newyorker.com/reporting/2011/07/04/110704fa_fact_paumgarten.

data gathered from previous actions on the site or partner sites, etc.). Instead of presenting users with all of the other available users on the site, these programs present them with a handful of others that their algorithms suggest would make a good match.

Matchmaking software is based on the same technologies that support other types of recommendation sites like Google, Netflix, and TiVo. Amarnath Thombre, an engineer at Match.com, the largest dating site, which uses upwards of 1500 variables to suggest possible matches, argues that the closest analogy to its process is “Netflix, which uses a similar process to suggest movies you might like—‘except that the movie doesn’t have to like you back.’”³ Chemistry.com, an eHarmony competitor, has been called a “TiVo for humans.”⁴ Sam Yagan, the CEO of OkCupid, one of the most popular dating sites, claims “We are the most important search engine on the web, not Google. The search for companionship is more important than the search for song lyrics.”⁵ Although his claim is debatable, it is telling that Yagan does not think of searching for a partner and a song as being fundamentally different operations, as dating websites largely match people in the same way that the iTunes Genius recommends songs to users, and both rely on the same underlying collaborative filtering technologies that Pattie Maes helped engineer in the 1990s.

The use of these same technologies on dating sites has helped to transform online dating into an experience of consumerism, wherein people often visually appear like ads in a catalog and are described based on their statistical demographics. Moreover, while these sites and their tests can help connect two people who would never find each other in any other way, their search

³ Ibid., 6.

⁴ Virginia Vitzthum, *I Love You, Let’s Meet: Adventures in Online Dating* (Little, Brown and Company, 2007), 90.

⁵ Vitzthum, *I Love You, Let’s Meet*, 90.

features also make it difficult (if not impossible) for many others to ever meet. And while matchmaking software limits the number of potential dates presented to users so that they do not feel overloaded with too many choices, these inclusions and exclusions too often rely on gendered stereotypes justified by spurious science.

I begin by exploring how and why romance, dating, and the single lifestyle have become central foci of debates that weigh the gendered tradeoffs of trying to have a career, a family, or both. The self-help industry – of which online dating is a central niche – has helped to manufacture this debate in order to make the desire to “have it all” (i.e. both a career and a family) seem daunting and anxiety inducing. The self-help industry nurtures the debate about “having it all” in order to sell products and services in order to alleviate the anxiety they themselves helped create and perpetuate. Dating websites stress the difficulty and time-sensitive nature of finding partners with compatible lifestyles and goals, especially for those who want to have children. They present matchmaking software as the answer to this dilemma that will automatically and immediately bring compatible people together.

I then discuss the prehistory of online dating and how it both elucidates and complicates the justifications for matchmaking software. Scholars, students and entrepreneurs programmed computers to act as matchmakers even in the 1950s, which makes this one of the earliest commercial uses for computers. These programmers argued that computerized matchmaking was necessary because of the rapid movement of young people away from their home communities into cities looking for work. They used computers to bring these lonely, homesick people together with the ultimate goal of creating happily married couples who would spur economic growth by purchasing houses and starting families. During the sexual revolution, computerized matchmaking companies contrasted themselves to newspaper personal ads that

they asserted only led to one-night stands and casual relationships. Instead they marketed their ability to create long-term relationships and everlasting love. In the face of movements for gender equality, these companies attempted to create relationships by matching people based on patriarchal gender norms that encouraged men to be breadwinners and women to be housewives.

I then demonstrate how this longer history of computerized matchmaking has affected contemporary online dating by exploring how eHarmony presents and uses its personality test and profile to match its users together. I focus primarily on how this site works to create heterosexual relationships in an American context as the nuclear family ideal continues to be the model relationship type in online dating. (Yet these online dating practices and the ways they interact with American consumerism and postfeminism are of global importance as many sites – including eHarmony – export these same techniques and technologies internationally and work to create heterosexual monogamous relationships worldwide.)

eHarmony was launched in 2000 by founder Neil Clark Warren, an evangelical marriage counselor with a Master of Divinity Degree, and Galen Buckwalter, a psychology professor at USC. Warren also authored several self-help guidebooks including *Finding the Love of Your Life: Ten Principles for Choosing the Right Marriage Partner* (1994) and *Finding Contentment: When Momentary Happiness Just Isn't Enough* (1997). Many of his books focus on the difference between long term and momentary happiness and describe the importance of forming a relationship around what he describes as essential and core aspects of oneself rather than fleeting feelings. With a monthly subscription of approximately \$60 a month (with frequent sales and promotions), eHarmony is one of the most expensive online dating services.⁶ In 2009,

⁶ In 2013 the subscription model for eHarmony changed and there is now a wide range of services available at different price points, though a full membership subscription still costs approximately \$60 per month.

eHarmony reported its gross income as 250 million dollars and had 20 million members (approximately 700,000 of which were active on the site).⁷ While they do not regularly publicize these statistics, the data analytics and marketing firm FindTheBest reported that eHarmony had 3.8 million unique visitors a month as of 2013.⁸ At the same time, 438 eHarmony members get married everyday, which accounts for 4% of the total number of marriages in the United States.⁹ Nearly 15,000 people take their personality test everyday.¹⁰ In order to create these matches, eHarmony uses an exhaustive hours-long multiple-choice personality test that in 2009 included 436 questions and now features a still impressive 258. These tests ask users about everything from the cleanliness of their rooms to their interest in beaches. Based on Warren's clinical experience, eHarmony's test matches users based on their trademarked "29 Dimensions of Compatibility," which heavily stresses the need for similarity between the personalities and activities of partners.

There are hundreds of dating websites that focus on casual rather than long term relationships. Yet, since the beginning of online dating, personality tests and matchmaking software have, with few exceptions, only been used to create long-term monogamous relationships. Instead of using matchmaking software that automates the search for a date, casual

⁷ These statistics are a matter of some dispute. See Christian Rudder, "Why You Should Never Pay For Online Dating « OkTrends," *OkTrends*, April 7, 2010, <http://www.columbia.edu/~jhb2147/why-you-should-never-pay-for-online-dating.html>.

⁸ "eHarmony | Dating Website," *Www.findthebest.com*, accessed August 16, 2013, <http://dating-websites.findthebest.com/l/282/eHarmony>.

⁹ "eHarmony," *eHarmony*, August 16, 2013, <http://www.eharmony.com>.

¹⁰ "Eharmony- First Step at Dating 101?," *Examiner.com*, accessed January 1, 2013, <http://www.examiner.com/article/eharmony-first-step-at-dating-101>.

dating sites like AshleyMadison.com, AdultFriendFinder, and Fling.com either tend to present users with a large database of people they can search through on their own, or, in the case of many mobile phone apps like Grindr, they simply display images of users who are at that moment nearby and looking for a date. As matchmaking systems imagine not just the type of person a user would be compatible with now but also far into the future as they grow older, dating sites often use them to mark that their users are specifically interested in marriage.

Matchmaking programs like eHarmony's recommend dates to people rather than simply allowing them to search through their user databases themselves, as is the case with Match.com. In the process they present personal choice as a burden for those who have neither the time nor the expertise necessary to find true love themselves. To alleviate this "burden," eHarmony recommends users to each other based on personality tests and profiles that break people down into generalizable character types. In the process, these profiles encourage users to more fully adopt the generic traits of their attributed types. eHarmony further presents advice on how users should act and be in all areas of life in ways that best mirror their individual personality traits. In the process, I argue, these dating sites instrumentalize their users in ways that help to both sustain heterosexist, patriarchal norms and promote conformity.

Constructing a Postfeminist Neoliberal Dating Culture

Shifts in dating culture and the success of online dating are in part due to the changing status of women within contemporary culture and the ways in which the corresponding new choices, freedoms, and expectations are represented. Online dating has particularly marketed itself as a tool for managing the desire and struggle to have both a career and a family. Feminists have long encouraged women to become empowered by gaining an education and a career. In

the process they have worked to create and defend gender equality in these and all other areas of life. Yet, according to Stéphanie Genz, these movements have spurred a backlash by a variety of groups that argue first that feminism is outdated because gender equality has been achieved, and second, that feminism's victories have caused catastrophic side effects and have not made women happier or their lives better.¹¹ This logic both elides the myriad of ways in which discrimination continues to exist and devalues the increased number of choices in women's lives, suggesting that this increase has made it more difficult and stressful to make any single decision including major decisions like a career path, who to marry, and whether to have children. By this logic, feminism has not made it more possible for women to achieve their own individual life goals and instead has only led to anxiety concerning, first, how to decide which goals are best and, later on, whether or not the chosen path was really the best. This critique applies a consumerist logic to all aspects of life and assumes that people choose jobs and relationships in the same way they decide on a shampoo brand. In the process, postfeminism also obscures the many women who need rather than choose to hold a job.

By suggesting that the gains of feminism have only made the lives of women more stressful, postfeminists often resort to essentializing gender norms that suggest women are not happy because their place is naturally in the home. Thus, even with unlimited choices, the life of a homemaker continues to be the privileged option for women. Postfeminists tend to emphasize personal choice when confronted with the question of why there are so few women in high corporate positions when women now often outnumber men in higher education.¹² Rather than

¹¹ Stéphanie Genz, *Postfemininities in Popular Culture* (Houndmills, Basingstoke, Hampshire ; New York: Palgrave Macmillan, 2009), 51; Faludi, *Backlash : the Undeclared War Against American Women*, 2.

¹² In 2012, while 60% of college degrees now go to women, only 14.5% of Fortune 500 companies had women executive officers. See Anne Fisher, "Boys Vs. Girls: What's Behind the College Grad Gender Gap? - Fortune

focus on continuing discriminatory practices and prejudices that keep women from succeeding at the highest levels, several articles instead change the subject by asking the much more leading question: why do successful female professionals (who are often represented as the ideal feminist subject) choose to leave the workforce?

The percentage of U.S. women working outside of the home steadily rose from 34% in 1950 to 60% in 2000. This number has since dropped throughout the 2000s to 58.8% in 2013 due in part to neoliberal regulatory practices that have led to a recession and stagnant wages.¹³ However, while U.S. Census Bureau data shows that women with the lowest incomes were the most likely to leave the work force (partly due to the high cost of child care),¹⁴ journalists have been far more interested in discussing the experiences and rationale of wealthy women who choose not to work. In an influential 2003 *New York Times* article, Lisa Belkin spectacularized this relatively small group of women by referring to them as “The Opt-Out Revolution.” While Belkin states that discrimination continues to exist in the form of not just a “glass,” but also a “maternity ceiling,” she focuses instead on “the very women who were supposed to be the professional equals of men” who actively chose to give up their careers in favor of becoming a

Management,” *CNN Money*, March 27, 2013, <http://management.fortune.cnn.com/2013/03/27/college-graduation-gender-salaries/>; Catalyst, “Catalyst Quick Take: Statistical Overview of Women in the Workplace,” 2013, <http://www.catalyst.org/knowledge/women-leaving-and-re-entering-workforce>.

¹³ Joan Blades et al., *MoveOn’s 50 Ways to Love Your Country How to Find Your Political Voice and Become a Catalyst for Change* (Audio Partners,, 2004).

¹⁴ *Table Fg8: Married Couple Family Groups with Children Under 15 by Stay-at-home Status of Both Spouses: 2011* (U.S. Census Bureau, 2012), <http://www.census.gov/hhes/families/data/cps2011.html>.

homemaker.¹⁵ In Belkin's article, Shirley Tilghman, the former president of Princeton University presents her ideal "fantasy" world as one where "there are two kinds of people -- ones who like to stay home and care for children and ones who like to go out and have a career [...] In this fantasy, one of these kinds can only marry the other."¹⁶ Yet, as Belkin argues, ambitious women are often attracted to ambitious men and when these couples decide to have children, the woman is the one who makes the "choice" to become less ambitious. Rather than consider the role of social expectations and inequalities in the making of this "choice," Tilghman blames evolution seemingly for making women more submissive, less suitable for ambitious careers, and more interested in parenting than men.¹⁷

By focusing on how each of these women personally chose to reject the workplace instead of how "the workplace failed women," Belkin paradoxically both individuates these women with a strong sense of agency and autonomy while also essentializing all women as being unsatisfied with workplace culture's "awful padded-shoulder suits and floppy ties" and its success measured through "the male definition of money and power."¹⁸ While the women

¹⁵ Lisa Belkin, "The Opt-Out Revolution," *The New York Times*, October 26, 2003, sec. Magazine, <http://www.nytimes.com/2003/10/26/magazine/26WOMEN.html>.

¹⁶ Ibid.

¹⁷ Ten years later, Judith Warner revisited several of the women in Belkin's article and commented on the difficulties of even affluent women wanting to regain their old careers. While many of these women did not regret their earlier choice, several argued that women should always work enough to support themselves in case of a tragedy or a divorce. See Judith Warner, "The Opt-Out Generation Wants Back In," *The New York Times*, August 7, 2013, sec. Magazine, <http://www.nytimes.com/2013/08/11/magazine/the-opt-out-generation-wants-back-in.html>.

¹⁸ Belkin, "The Opt-Out Revolution."

interviewed in this article appreciate that feminism gave them the possibility to work if they wanted to, they also present their decision not to choose work as natural and biological in nature.

While building a career and starting a family can be difficult, these conflicts are too often explained through this essentialist rhetoric that presents women as naturally inferior in male workspaces. Belkin's postfeminist argument claims that while feminists fought for the equal rights of women and the ability to choose any life path they wanted, women ultimately do not run the world not because of discrimination but rather "because they don't want to." This teleological reasoning first assumes that women now opt-out of high paying careers as an expression of their individual agency and then uses their opting-out as proof that discrimination is not an important factor in their decision. Liz Peek takes this approach further in an article for *The Fiscal Times* concerning why only 60% of women who graduate with a BA (and 35% who graduate with an MBA) from top tier universities become full time workers. She asserts that "with all the focus on equal pay for equal work, and with opportunities continuing to expand for female employees, the exodus of women from our labor pool is surprising. And, possibly, a tad inconvenient for those charging that businesses still discriminate against women."¹⁹ Rather than consider the current recession, the continuing wage gap and/or longstanding gender conventions and expectations, Peek like Belkin suggests that women give up corporate careers because of their single-minded devotion to motherhood and because they "enjoy life beyond the office." She also suggests that the 23% wage gap between men and women does not dissuade women

¹⁹ Liz Peek, "Why Women Are Leaving the Workforce in Record Numbers," *The Fiscal Times*, April 17, 2013, <http://www.thefiscaltimes.com/Columns/2013/04/17/Why-Women-Are-Leaving-the-Workforce-in-Record-Numbers.aspx#page1>.

from working but instead results from women entering and leaving the workforce more often than men.

Rather than an issue of equality, Peek expresses concern over the waste of their education and the loss of their high skilled labor to the global economy. Yet, many women leave the workforce because of an inequitable economy and the stresses and indignities of its neoliberal rationale. In contrast to much of Europe, the United States has no law guaranteeing paid maternity leave. Women in the United States now make up forty percent of primary family breadwinners (including single parent families), but for many this growth “feels like less of a feminist victory than simply being overworked, under-supported and broadly stigmatized.”²⁰ Even as women continue to be expected to be in charge of childcare and in a ForbesWoman survey, 92% of working mothers and 89% of stay at home mothers expressed feeling overwhelmed by childrearing and keeping house,²¹ there is no government support for childcare or anything else that would help support women who want to have both a career and a family.

Neoliberalism’s push for increased autonomy and personal responsibility has only helped to magnify this postfeminist anxiety over choice. As David Harvey argues, neoliberal economics and politics suggests that anyone can achieve their dreams while simultaneously privatization and deregulation strategies create structural disadvantages that have severely widened the income gap between the most affluent and everyone else.²² Neoliberalism’s celebration of individuality and personal responsibility encourages those who lose their jobs, do not make a

²⁰ Jill Filipovic, “The Rise of ‘Breadwinner Moms’ Is Less a Win for Equality Than It Looks,” *The Guardian*, June 6, 2013, <http://www.theguardian.com/commentisfree/2013/jun/06/breadwinner-moms-equality>.

²¹ Bonnie Rochman, “News Flash: Moms Resent Dads for Not Doing Enough at Home,” *Time*, June 20, 2011, <http://healthland.time.com/2011/06/20/newsflash-moms-resent-dads/>.

²² Harvey, *A Brief History of Neoliberalism*, 2–3.

living wage, and are otherwise unable to achieve their economic goals to blame themselves – rather than to challenge the structures and ideologies of contemporary capitalism.

Popular culture often applies this same neoliberal postfeminist logic to contemporary dating. Tuula Gordon, Yvonne Tasker and Diane Negra have singled out recent romantic comedies and the chick lit genre for how they suggest that anyone can find love while they also downplay the economic and social structures that make finding compatible partners a challenge.²³ As Angela McRobbie has argued, figures like Bridget Jones in *Bridget Jones's Diary* (2001) who spend much of their time fretting about their inability to find someone to marry even as they are presented with a variety of eligible (if not optimal) bachelors are quintessential postfeminist subjects because they experience their loneliness as a personal failing tied to their irreparably bad decision to attempt to have both a career and a family.²⁴ If these characters do not find love, these texts suggest, they have no one but themselves to blame. Bridget Jones's constant diary-writing and discussions concerning her attempts at becoming more desirable by following advice from magazines illustrates how the self-help industry markets itself as a cure-all for alleviating this postfeminist anxiety over potentially missing out on love.

The self-help industry is responding, in part, to the fact that people are generally waiting longer to marry. The movement of women into the workplace along with an increasingly unstable and inequitable economy have helped create a shift away from or a delay in marriage. While in 1960 the average age at first marriage for women and men in the United States was 20

²³ See Tuula Gordon, Karen Remmler, and Steven B. Kaplan, eds., *Single Women: On the Margins?* (NYU Press, 1994); Tasker and Negra, "Introduction: Feminist Politics and Postfeminist Culture."

²⁴ Angela McRobbie, "Postfeminism and Popular Culture: Bridget Jones and the New Gender Regime," 28.

and 22 respectively, in 2013 that age has jumped to 27 and 29.²⁵ The marriage rate has also continuously dropped from 92.3 marriages per 1000 people in 1920 to 31 in 2012 with a 60% drop since 1970.²⁶ For the first time, married couples now represent less than half of all American households; marriage is no longer compulsory.²⁷

While marriage in the 1950s “defined gender roles, family life and a person’s place in society,” “cohabitation lost its taboo label” as women entered the work force and became increasingly economically self-sufficient.²⁸ While praiseworthy for increasing gender equality, the growth of women in the workforce outside of the home and white-collar professions is partly due to neoliberal policies that have increased debt, low wages, and precarious work for everyone. To some extent, a focus on women’s ability, freedom, and desire to work and gain careers masks the reality that the large majority—including those in monogamous relationships—needs to work in order to avoid falling into poverty. Many college-educated women now prioritize their careers and wait to get married. While they wait longer, these women are now more likely to marry (and stay married) than women with a high school diploma. By often waiting until after 30 to get married, these women on average make over 50% more than their counterparts who married

²⁵ Eleanor Barkhorn, “Getting Married Later Is Great for College-Educated Women,” *The Atlantic*, March 15, 2013, <http://www.theatlantic.com/sexes/archive/2013/03/getting-married-later-is-great-for-college-educated-women/274040/>.

²⁶ “Marriage Rate in US Plummets - Health - Boston.com,” July 19, 2013, <http://www.boston.com/lifestyle/health/2013/07/19/marriage-rate-plummets/Mz96razlJ8dw19uHpOuS9J/story.html>.

²⁷ Sabrina Tavernise, “Married Couples Are No Longer a Majority, Census Finds,” *The New York Times*, May 26, 2011, sec. U.S., <http://www.nytimes.com/2011/05/26/us/26marry.html>.

²⁸ Ibid.

before age 20.²⁹ However, as tuition has dramatically increased and income has stagnated, rising college debt has also become a factor causing many to marry later. At the same time, a rising income gap has made it less likely for those with a college degree to marry those without one. This gap has also resulted in many less educated women deciding not to marry high school-educated men who have increasingly become under or unemployed during times of recession.³⁰ Those successful women who might like to marry while maintaining their career are having a harder time finding a suitable match; thus, many end up turning to technology to help them find a partner.

The online dating industry uses matchmaking software to help people manage the challenges of creating satisfying relationships and marriages during this period of increased debt, low wages, and precarious work schedules. Working with rather than against the rhetorics of postfeminism and neoliberalism, dating sites do not try to change or reverse current inequities and inequalities but instead foster dating and marriage strategies that address the “problem” of transforming gender norms. As journalist Nick Paumgarten argued:

The twentieth century reduced it all [i.e. social structures for mate-finding] to smithereens. The Pill, women in the workforce, widespread deferment of marriage, rising divorce rates, gay rights—these set off a prolonged but erratic improvisation on a replacement. In a fractured and bewildered landscape of fern bars, ladies’ nights, Plato’s Retreat, “The Bachelor,” sexting, and the concept of the “cougar,” the Internet promised reconnection, profusion, and processing power.³¹

²⁹ Barkhorn, “Getting Married Later Is Great for College-Educated Women.”

³⁰ Tavernise, “Married Couples Are No Longer a Majority, Census Finds.”

³¹ Paumgarten, “Looking for Someone,” 5.

Here Paumgarten presents online dating as a technological answer for all of the cultural and economic transformations over the last century that he blames for making dating more complicated and relationships less permanent. As more people marry after they leave “natural dating pools like high school and college, they must employ other methods to meet potential partners.”³² A new focus on careers for women has also resulted in more people moving great distances for school and employment, where they need to rebuild a community from scratch. Rather than present these changes as part of a larger positive feminist movement toward gender equality, the online dating industry focuses on them as problems that their products can solve. As Trish McDermott, “VP of Romance” at Match.com (the leading online dating site) argues: “More and more people are moving from home, putting their career first and getting married later. We bring people together who share core values and a lifestyle but who otherwise would never have met.”³³ McDermott here presents the desire for (or necessity of) a career as the problem that prevents personal relationships.

In the process of addressing this “problem,” however, these sites consumerize and industrialize relationships. Indeed, dating sites, whether they make money through advertising or subscriptions, tend to treat their users as commodities, which leads users to think of others as products and the dates that are created on the sites as an economic transaction. In her ethnographic study on online dating, journalist and sex columnist Virginia Vitzthum presented many women who describe dating websites as an improvement on a flea market and the experience of using a dating website as a shopping cart that one can load up with potential

³² Rose M Kreider, *Number, Timing, and Duration of Marriages and Divorces: 2001*, Household Economic Studies, Current Population Reports (US Department of Commerce, February 2005), 2.

³³ Brad Stone, “Love Online,” *Newsweek Magazine*, February 19, 2001, <http://www.thedailybeast.com/newsweek/2001/02/18/love-online.html>.

dates.³⁴ This consumerist lens created a feeling in these women of never being completely satisfied with any one person. Moreover, on OkCupid, which primarily makes money through advertising, user profiles are mined for a wide variety of data including users preferences “for skiing, David Sedaris, Lingerie, cruises and send you the ads you’ll fall for along with your newest matches.”³⁵ As Adam Arvidsson has argued, online dating has become “but one aspect of a more general trend to commodify our ability to construct a common social world through communicative interaction, putting it to work in generating economically valuable outcomes.”³⁶ In a neoliberal fashion, these sites treat users as autonomous individuals whose identities can be broken down into discrete units for the purpose of commercialization – to marketed to one another and to corporations.

By presenting the movement of women into work as a crisis for family structures, the figure of the single woman has become central to the many challenges, negotiations and self-management techniques of postfeminism and neoliberalism. Anthea Taylor argues that the “single woman is an important figure through which to consider not only how a subject is governed, disciplined or regulated in ever more intimate ways, but how ideas of choice, agency and autonomy can be seen to have become central to that regulatory project.”³⁷ Via the single woman, postfeminists present feminism as being monomaniacally anti-marriage in order to present postfeminism as pro-romance and pro-love; by constructing singleness as a problem and

³⁴ Vitzthum, *I Love You, Let’s Meet*, 98.

³⁵ *Ibid.*, 90.outline 90

³⁶ Adam Arvidsson, “‘Quality Singles’: Internet Dating and the Work of Fantasy,” *New Media & Society* 8, no. 4 (August 1, 2006): 673.

³⁷ Anthea Taylor, *Single Women in Popular Culture: The Limits of Postfeminism*, 1st ed. (Palgrave Macmillan, 2011), 14–5.

dating as the only positive choice for women, marriage becomes “the ultimate act of postfeminist agency.”³⁸

Online dating sites with matchmaking programs expressly recommend users to each other who – the system believes – are compatible for marriage, thereby facilitating this postfeminist neoliberal logic and its concomitant limited form of agency. Like the self-help industry more generally, online dating sites promise to help manage the “negative” effects of feminism through technological fixes. Simultaneously, they help to disseminate the individualistic, consumerist ideologies associated with neoliberal economics. Those sites that rely on matchmaking software present the search for love paradoxically as an act that is at once both deeply individualistic and nearly impossible to accomplish on one’s own. Rather than encourage users to ask friends and family for help and advice, these subscription and advertising-driven sites enable them through self-help articles and automated personalized suggestions. Their recommendation technologies turn users into “empowered” consumers and in turn treat this hunt for love as an opportunity to commodify individuality.

Computers and Dating: A History

The current hypercapitalist state of online dating has grown out of a much longer history of computerized dating, a nexus for the emerging fields of quantitative psychology, statistics, and computer engineering. While computer analysis began in the 1950s, many of the original tests were developed in the 1940s in response to changes in gender norms and urban lifestyles during World War II. Dating companies saw the economic potential of this changed market and used tests as a way to atomize personality in order to scientifically hypothesize how to statistically use

³⁸ Ibid., 26.

these elements to create happy couples in this community. The computational analysis of psychological data encouraged this data to be divided up into as many bits as possible in the hopes of getting more specific and accurate results.

Viewed as a dilemma of national importance, Eleanor Roosevelt proclaimed that the country's third-greatest sociological problem was that strangers in a big city have difficulty in "meeting suitable companions of the opposite sex."³⁹ In response, Herbert Gersten, a Rutgers student who heard a related talk by Vassar Professor Joseph Kirk Folsom on the "solitary and/or mismatched state of many young metropolitans," started an early statistical dating service called "Introduction, a Service for Sociability" in Newark, New Jersey in 1942.⁴⁰ This service was one of many Introduction Services and Matrimonial Bureaus around the country that opened to take advantage of this growing market of urban daters.⁴¹ He convinced several "civic bigwigs, clergymen, educators and clubwomen" to fund his "idea of harnessing Cupid to statistics" and proceeded to experimentally match 500 random people up in dates in order to perfect a statistical rating system.⁴² This service asked applicants "to fill out blanks giving their age, height, religion, education, occupation, interest and hobbies" along with recommendations from family doctors or ministers. For a two-dollar registration fee and 25 cents per date, Introduction paired people off if they had similar hobbies, educations, heights, and preferences for what to do on a date.

A *LIFE* magazine article and advertisement for Introduction argued that anyone from any class and background could profit from this scientific form of dating. In order to emphasize this

³⁹ Time, "Life Goes on a Date Arranged by Statistics," *LIFE*, August 3, 1942, 78.

⁴⁰ *Ibid.*, 79.

⁴¹ Kiplinger Washington Editors, "Dating Services for Singles," *Kiplinger's Personal Finance*, May 1978.

⁴² Time, "Life Goes on a Date Arranged by Statistics," 79.

point, in the article Gersten discusses the potential of using scientific dating services to bring together *even* vegetarians, a small group “who will consort only with non meat-eaters like themselves.”⁴³ The article also featured a photomontage of two college students meeting through the service and their first idyllic date to a dance and carnival. While based in science and statistics, these dates largely confirmed stereotypes around attraction, including that women prefer “tall men with money” and “men are content with a good sport.”⁴⁴ Importantly, Introduction also advertised itself as a licensed real estate broker, ready to make money by selling houses to the happy couples they were busily creating. While never more than a local novelty business with a few hundred clients, Introduction is one in a long line of dating services that has its roots in efforts to find empirical ways to measure and create loving relationships.

In 1957, Dr. George Crane started the Scientific Marriage Foundation, the first computer dating organization. Crane had long been a psychologist famous for his widely syndicated newspaper column and many pamphlets that featured tests in which married couples could rate their relationships. One of his more famous 1930s pamphlets, “Tests for Husbands and Wives,” featured a long and varied list of questions created through “the composite opinions of 600 husbands [and 600 wives] who were asked to list the chief merits and demerits of their wives [and husbands].”⁴⁵ Questions for husbands included such things as whether they call “‘Where is...?’ without first hunting the object” and whether they make sure “that wife has orgasm in marital congress.” For wives, questions ranged from whether they squeeze “tooth paste at the

⁴³ Ibid.

⁴⁴ Ibid.

⁴⁵ George W. Crane, “Tests for Husbands and Wives,” *Scribd*, accessed November 4, 2012, <http://www.scribd.com/doc/3086410/Tests-for-Husbands-and-Wives->.

top” to whether they are “willing to get a job to help support the family.”⁴⁶ As can be seen in the above questions, while parts of the test seem to promote traditional gender roles, others promoted the importance of equality amongst partners as long as it is in the service of improving the family unit.

Crane marketed his early theories and personality tests through the Scientific Marriage Foundation. Via this service, customers would first complete an interview with a counselor and send in references and photographs to Mellott, Indiana, where an IBM sorting machine would pair couples off according to their stated preferences and desires. Much like eHarmony, Crane’s company relied on a combination of “scientific” surveys and the input of various religious leaders to create matches.⁴⁷ While the company only lasted three years, they advertised that during that short period they were able to create 5,000 marriages.

Although the Scientific Marriage Foundation failed to take hold, hundreds more companies arose throughout the 1960s to cater to changing dating demographics and a perceived lack of satisfactory mates.⁴⁸ Computerized matchmaking became an important part of a mushrooming “institutionalized dating” industry of singles bars, hotels, apartments, washaterias, etc. in the 1960s created to serve “America’s eight million singles and tap the \$50 billion they spend each year—mainly in pursuit of each other.”⁴⁹ While much of this industry focused on casual dating, computerized matchmakers advertised instead to those in search of long-term commitments and marriage. A 1967 *LIFE* magazine article on new dating trends echoed Roosevelt’s earlier worries and argued that during this feminist period when sexual mores and

⁴⁶ Ibid.

⁴⁷ Time, “Life Goes on a Date Arranged by Statistics,” 78.

⁴⁸ Kiplinger Washington Editors, “Dating Services for Singles,” 23.

⁴⁹ Time, “New Rules for the Singles Game,” *LIFE*, August 18, 1967, 61.

gendered dating rules were loosening, “free as a lark” singles complain “it has become almost impossible to meet members of the opposite sex, especially in the cities. Life, says one secretary, is an endless subway ride, a day at the office, an evening at home in a double-locked apartment.”⁵⁰ This article asserts that computer matchmakers serve their young single demographic by offering to manage and minimize the time constraints and anxieties of feminism and the sexual revolution by focusing on creating lifelong monogamy rather than an opportunity for sexual experimentation. Without a computer matchmaker singles could meet a “leftover” date from a friend or family member, but computer matchmakers offered singles for \$5-\$150 depending on the service, a safe way to meet interesting and compatible people in an increasingly “mobile” world.⁵¹

Many of these services tried to compare themselves favorably to newspaper personal ads by suggesting that their matchmaking software made dating safer and could create long lasting relationships while personal ads could be very dangerous and only led to one night stands. As Harry Cocks has argued, personal ads in the 1960s became connected to homosexual and counter cultures and the police often censored ads for leading to prostitution, swinging, and other non-heterosexual monogamous relations.⁵² These views were strengthened in 1968 when *Exit* and *Way Out* magazines in England were found guilty of conspiring to corrupt public morals through their personal ads.⁵³

While most computerized dating companies focused on creating monogamous

⁵⁰ Ibid., 65.

⁵¹ Ibid.

⁵² H. G. Cocks, *Classified: The Secret History of the Personal Column* (London: Cornerstone Digital, 2009), 161.

⁵³ “The Secret History of the Personal Ad,” *BBC*, February 5, 2009, sec. Today, http://news.bbc.co.uk/today/hi/today/newsid_7868000/7868125.stm.

heterosexual relationships in a safe environment, a handful of companies focused on a homosexual clientele. While many new companies catered specifically to heterosexual customers interested in ever-lasting love, some like Man-To-Man, Inc. were designed specifically for homosexual men who wanted to “forget standing on street corners—being harassed by the authorities—searching through smoky bars—Now! Do it—the easy-scientific way.”⁵⁴ As Lucas Hilderbrand has discussed, an ad for this service promised to “rationally make romantic matches” via “scientific” punch cards in order to make “romance efficient and clean” and eliminate the “thrill of transgression.”⁵⁵ While cruising had been framed only as a way to pick up a trick, the ability to “cruise by gay computer” promised the possibility of a long-term relationship. Thus, even companies targeting the homosexual market reinforced the notion that the goal of dating was monogamy and stability.

Just as yentas have been imagined as being better at creating successful matches because of their older age and lifetime of experience, advertisements often touted computers’ great matchmaking capabilities because they could take into account more variables and compute more data than any human. One advertisement for the computer dating company Compatibility Research, Inc. from 1969 promoted the computational power of their “IBM 360/40 Computers” that “will do more in an hour than a highly qualified individual can do in a year.”⁵⁶ Companies like Compatibility argued that there was room in the marketplace for their particular service by

⁵⁴ Lucas Hilderbrand, “Undateable: Some Reflections on Online Dating and the Perversion of Time,” *Flow* (April 22, 2011), <http://flowtv.org/2011/04/undateable/>.

⁵⁵ Lucas Hilderbrand, “Undateable: Some Reflections on Online Dating and the Perversion of Time,” *Flow* (April 22, 2011), <http://flowtv.org/2011/04/undateable/>

⁵⁶ Time Inc, “How to Be Comfortable with Computer Dating (Compatibility Computer Dating Advertisement),” *LIFE*, August 8, 1969, NY1.

asserting that while a short-term fling in the middle of the sexual revolution was easy to engineer, lifelong romances were now beyond the capabilities of most humans to create.

One of the most influential of these companies was Project TACT, which operated on New York's Upper East Side starting in 1965. Clients paid five dollars to enroll in Project TACT (Technical Automated Compatibility Testing), a computerized dating service that included a hundred-question personality test.⁵⁷ As Paumgarten has described, like many of these tests, questions were often highly gendered and while men were "asked to rank drawings of women's hair," women were asked "where they'd prefer to find their ideal man: in a camp chopping wood, in a studio painting a canvas, or in a garage working a pillar drill."⁵⁸ Questions like this reinforce the idea that men are defined by what they do while women are defined by how they look. These test answers were then fed through an IBM 1400 Series computer, which would "spit out your matches: five blue cards, if you were a woman, or five pink ones, if you were a man."⁵⁹

During the mid to late 1960s, computerized dating programs like this were viewed as a response to the positive gains of feminism. The Upper East Side was known as a "an early sexual-revolution testing ground" full of "young educated women who suddenly found themselves free of family, opprobrium, and, thanks to birth control, the problem of sexual consequence."⁶⁰ Patricia Lahrmer, the first female reporter at New York radio station 1010 WINS focused on TACT for her first feature story focusing on how modern New York couples meet. In her story, she compared TACT to Maxwell's Plum, one of the first singles bars in New

⁵⁷ Paumgarten, "Looking for Someone," 2.

⁵⁸ Ibid.

⁵⁹ Ibid.

⁶⁰ Ibid.

York, stating that they were both places that “so-called ‘respectable’ single women could patronize on their own.”⁶¹ While her story celebrates how the sexual revolution has led to more women being able to search for dates and ask men out, it also separates these positive effects from sexual experimentation, viewed here as disreputable. Stories like hers promoted computerized dating as being clean and safe in order to ease women’s fears of potentially being tagged as sexually promiscuous if they used the service.

After the success of projects like TACT, many other similar programs were started around the country. In response to these contemporary trends around changing gender norms, three Harvard students envisioned Compatibility as an answer to the “irrationality of two particular social evils: the blind date and the mixer.”⁶² These students used the sexual revolution as a justification for their service and envisioned computers as a rational response to the difficulties of contemporary dating practices, which were themselves responses to changes in gender expectations and a rapid opening up of educational possibilities to women as a result of second wave feminism. Their first effort in 1968, called Operation Match, was aimed at using computers to generate dates and matches for college students that were “more permanent than a mixer, and more fun than a marriage bureau.”⁶³ With help from friends in the Harvard Sociology department, Operation Match created their “scientific” questionnaire in two weeks. Soon after, a member of the company, Vaugh Morrill, appeared on “To Tell the Truth,” a CBS quiz show to promote the company and computer dating. On the show, Operation Match was lauded for being able to “take the blindness out of your next blind date,” but was also criticized for demystifying

⁶¹ Ibid.

⁶² “Operation Match,” *The Harvard Crimson*, accessed November 4, 2012, <http://www.thecrimson.com/article/1965/11/3/operation-match-pif-you-stop-to/>.

⁶³ Ibid.

romance and rationalizing love.⁶⁴

Following their CBS appearance, Operation Match sponsored the trip of Vicki Albright, a UCLA coed who had just been selected by the UCLA Law School as their “Woman of the Year” to Harvard, where she was set up by their high speed Avco 1790 computer with a date with a Harvard man. Stories of their date and Operation Match circulated across the country and resulted in Compatibility Research opening nine offices across the United States and an enlargement of their customer base to also include high school students who, for around 25-50 cents, could be matched with other students for school sponsored social events.⁶⁵ They also opened several international offices and a London television advertisement showcased the “transistorized pairings, hundreds of them, dates by the dozen and many marriages” created by Operation Match.⁶⁶ At the height of their success, they reportedly had over a million customers who each paid three dollars to sign up.⁶⁷

In the 1980s, computerized matchmakers gradually gave way to online matchmaking services that were often just postings on a bulletin board like site. However, in 1986, Matchmaker.com became the first modern dating site to offer a multiple-choice personality test, essay questions, and a recommendation system. Their test asked users a wide range of questions, including what kind of temper they had, what languages they spoke, what kind of relationship

⁶⁴ John Hendel, “Old, Weird Tech: Computer Dating of the 1960s,” *The Atlantic*, February 14, 2011, <http://www.theatlantic.com/technology/archive/2011/02/old-weird-tech-computer-dating-of-the-1960s/71217/>.

⁶⁵ Ibid.

⁶⁶ “London - Computer Marriages Aka Operation Match - Computer Matched Couples Get Together” (London, 1968), <http://www.britishpathe.com/video/london-computer-marriages-aka-operation-match>.

⁶⁷ Ibid.

they wanted, how they dealt with conflicts, and what their feelings on conformity were.⁶⁸ The program would then generate a list of possible matches on the site for the user and list them in order of who had given the most similar answers. Throughout much of the 1990s, Matchmaker.com was the most successful dating site but dropped in popularity in the 2000's due in part to competition and a lack of advertising.⁶⁹ With its test and rating system, however, Matchmaker.com's influence pervades eHarmony.

eHarmony and the Commodification of Personality

Companies like Operation Match, Project TACT, and Matchmaker.com are direct precursors to contemporary online dating services like eHarmony. Like these earlier companies, online dating uses the same rhetoric around the changing nature of society and the increasing difficulty of finding and sustaining love to argue that their personality tests and matchmaking software are necessary for creating stable, ever-lasting relationships in an otherwise chaotic universe. They advertise a safe and empowering form of dating as long as users give up some control over the kind of person these dates are with. Like these earlier dating companies, modern dating sites now advertise the empirical, scientific nature of their personality tests and assert that central life choices are too difficult for the individual and that people need help in order to make them. This rhetoric assumes that changes in gender norms brought on by the feminist movements are at least partly at fault for making the world more chaotic and love less

⁶⁸ eric_s_@cup.portal.com, Matchmaker.com, "Electronic Matchmaker(tm) Questionnaire --Draft 6.85," December 26, 1992, https://groups.google.com/forum/#!msg/alt.personals/nrWxsw6_vdE/F89-qvvFy6gJ.

⁶⁹ Wikipedia contributors, "Matchmaker.com," *Wikipedia, The Free Encyclopedia*, May 30, 2013, <http://en.wikipedia.org/wiki/Matchmaker.com>.

sustainable and that this must now be rectified in our contemporary postfeminist culture.

Online dating sites – and eHarmony in particular – suggest that customers are incapable of finding a good relationship on their own. As Rob Horning, the executive editor of *The New Inquiry*, writes:

Dating sites know that their product typically reveals to users that they don't really know what they want in a partner, even when they can try to specify it with Sahara-level granularity. The sites' wager is that these frustrating experiences, combined with a sense that there is nonetheless no "convenient" alternative to them, will lead to a willingness to instead trust what the sites' algorithms tell us about who we should be interested in, based on the behavior it has recorded and the questions we've volunteered or refused to answer. This is how, at the level of the most basic yearning for human companionship, consumerism can potentially fuse with a neoliberalist ethos, eliciting a flexible consumer who can desire whatever's required and accept that yearning as authentic. If that means hundreds of first dates, then so be it.⁷⁰

Online dating sites thus actively participate in a neoliberal postfeminist culture industry of choice that presents both mundane and life-altering choices as being so complex that outside consultants, experts, and technologies are needed for guidance. eHarmony suggests that its algorithms can find users better relationships than they could find on their own.

In the process, however, people become consumable goods. Sociologist Eva Illouz

⁷⁰ Rob Horning, "Single Servings – The New Inquiry," *The New Inquiry*, February 12, 2013, <http://thenewinquiry.com/essays/single-servings/>.

argues that online dating sites depict their abundance of singles consumerist terms and thereby effect not just the number of possible dating choices, which is often in the millions, but also the number of people a user is in competition with for those dates. These sites not only look like a mall but also place people “in a market in open competition with each other.”⁷¹ Illouz has argued that these sites are “organized under the aegis of the liberal ideology of ‘choice’ and construct the self not just as a ‘chooser’ but also as a “commodity on public display” to be chosen.⁷²

Like Netflix, TiVo, Digg, and other companies, dating websites present their recommendation systems as tools for dealing with “information overload.” They suggest that the condition of being inundated with so much information and choice makes sifting through data and making one’s own mind up a frustrating and difficult process. As Illouz explains,

The volume of interactions is so high that websites themselves have developed techniques and markers designed to help users cope with the large quantity of people, as hot lists, stars, peaches, trophies and flames that read ‘hot.’ The law of numbers is crucial here and seems to have significantly changed the ways in which romantic life unfolds. As was the case in the realm of economic production at the turn of the twentieth century, people in the arena of romantic relationships now face the problem of knowing how to handle a much greater volume and speed of romantic production,

⁷¹ Vitzthum, *I Love You, Let’s Meet*, 57,79.

⁷² Eva Illouz, *Cold Intimacies : the Making of Emotional Capitalism* (Cambridge, UK ; Malden, MA: Polity Press, 2007), 79, <http://www.loc.gov/catdir/enhancements/fy0802/2007295461-b.html>
<http://www.loc.gov/catdir/enhancements/fy0802/2007295461-d.html>
<http://www.loc.gov/catdir/enhancements/fy0802/2007295461-t.html>.

exchange and consumption.⁷³

Sites with matchmaking systems suggest that even dating sites that do not have matchmaking systems fall prey to this problem. Indeed, companies like eHarmony often present the experience of online dating on sites like Match.com as a sifting through “large amounts of irrelevant results” in the hopes of finding a diamond in the rough.⁷⁴ Online dating sites like Match.com or fling.com display an overabundance of dates and in so doing also suggest a need for a system to control this information overload. eHarmony then addresses this need through the use of technological yentas in the form of matchmaking software.

Themes of abundance and scarcity run throughout eHarmony’s marketing and business strategies that showcase the ease of finding one’s soul mate through their matchmaking service. They also reveal ways in which eHarmony reconfigures an abundance of choice as a problem and enforced scarcity as its solution. For their 10th Anniversary, eHarmony hired Errol Morris to direct a series of television commercials to inspire “singles to believe that their other half – the partner who can love them deeply, genuinely and completely – is out there and that eHarmony’s proven matchmaking process can help bring them together.”⁷⁵ eHarmony here proposes that soul mates and fairy-tale true love exist but are hard to find; while this search may often feel fraught, they sell a sense of surety through their “proven matchmaking process.”

By arguing that there is an abundance of daters but a scarcity of soulmates, eHarmony

⁷³ Ibid., 84.

⁷⁴ Lukas Brozovsky and Vaclav Petricek, “Recommender System for Online Dating Service,” *arXiv:cs/0703042* (March 9, 2007): 1, <http://arxiv.org/abs/cs/0703042>.

⁷⁵ “eHarmony® 10th Anniversary Ad Campaign Declares: Love Begins Here,” *eHarmony Press Releases*, August 16, 2010, <http://www.eharmony.com/press-release/30/>.

frames its service as a consumer market where users can continually search for dates in the hopes of finding ever newer and better matches. In *Love in the Time of Algorithms*, Dan Slater argues that a scarcity of potential partners has traditionally acted as a regulatory mechanism for morality and ethics and that these regulations have been dismantled by the abundance of suitors generated by the free market of online dating.⁷⁶ Using a neoliberal rhetoric, Slater celebrates the increased choice and concomitant increase in freedom that online dating affords even as he condemns the negative effects this new marketplace has had on the way people treat each other in these relationships. In response to Slater's book, however, journalist Peter Ludlow argues that online dating sites try to turn dating into a "frictionless market" "that puts together buyer and seller without transaction costs" and makes "the shopping part laughably easy."⁷⁷ Ludlow argues that by making love easier to find, dating website make it seem less valuable. As users can theoretically easily find a new date quickly after a breakup, the pain and risk associated with a relationship not working out diminishes. Ludlow also argues that while abundance in markets encourages customers to continually trade up their products, scarcity and friction often leads to customers "taking chances on things they wouldn't otherwise try," leading to unlikely and happenstance pairings.⁷⁸ However, online matchmakers discount happenstance in favor of "science" as an organizing principle to create matches.

eHarmony makes dating purposefully complex, laborious, expensive, and time

⁷⁶ Dan Slater, *Love in the Time of Algorithms: What Technology Does to Meeting and Mating* (London: Penguin Books, 2013).

⁷⁷ Peter Ludlow, "The Many Problems With Online Dating's Radical Efficiency," *The Atlantic*, January 7, 2013, <http://www.theatlantic.com/sexes/archive/2013/01/the-many-problems-with-online-datings-radical-efficiency/266796/>.

⁷⁸ *Ibid.*

consuming in order to both attract users highly motivated to find a long-lasting relationship and make the resulting dates as promising as possible. The length of their test is meant to dissuade those not serious about long-term commitment from using their site. As Marylyn Warren, the senior vice-president of eHarmony and wife of eHarmony founder Neil Clark Warren, suggests, “If you want a date for Saturday night, we probably are just not the place to come.”⁷⁹ Users first take a 258-question personality test that generates a profile of each user.⁸⁰ Over twenty web pages long, the test asks for a wide variety of information from users largely in the form of a multiple choice question survey. On the first page of the test, instructions inform users that the lengthy test both provides “insight about yourself” and enables eHarmony to “find people who are highly compatible with you.”⁸¹

The test begins with general questions concerning the age, ethnicity, marital status, education level, income, height, attractiveness, and gender of the user. It also asks users how much they care about these factors in their matches. For instance, users fill out their ethnicity from a list of possible choices and then also choose which ethnicities they would be willing to date. Jenée Desmond-Thomas at *Time Magazine* criticized dating sites for allowing users to specify race, calling them “the last refuge of overt racial preference.”⁸² She pointed to statistics from OkCupid that showed how allowing users to pick certain races over others created a

⁷⁹ Randy Dotinga, “Online Dating Sites Aren’t Holding People’s Hearts,” *Christian Science Monitor*, January 27, 2005, <http://www.csmonitor.com/2005/0127/p11s02-stin.html>.

⁸⁰ While the site changes its structure relatively often, this is a description of the eHarmony dating process in 2006 at the height of its popularity and influence.

⁸¹ “eHarmony Relationship Questionnaire,” *eHarmony Questionnaire Page 1*, 2010, www.eharmony.com.

⁸² Jenée Desmond-Harris, “Seeking My Race-Based Valentine Online,” *Time*, accessed January 1, 2013, <http://www.time.com/time/magazine/article/0,9171,1963768,00.html>.

discriminatory environment that heavily privileged white males and almost entirely excluded black women and East Indian men. These sites do not create new forms of intolerance that did not exist before, but they do automate this intolerance with a single click of a mouse.

Many of eHarmony's questions are quite ambiguously phrased, which makes it difficult to tell exactly what effect the answers will have on generating matches. For instance, answering "Very Important" to the question "How important is your match's age to you?" could result in the test eliminating all matches that are older than the user, or all matches that are not the same age as the user, or matches that are over a particular age regardless of the age of the user.

eHarmony asks similar questions about the importance of a match's education, religion, income, ethnicity, etc. Several of these questions make stereotypical assumptions about users based on class, gender, and other social factors. In turn, they force users to think of themselves through this stereotyped vision. By asking users "how important is your match's height to you?" instead of whether they are attracted to shorter, taller or similar-sized people, eHarmony makes a gendered assumption that any woman who cares about height only desires taller men and men want petite women. Similarly, the test does not allow for users who specifically want someone older than them or with less education, income or spirituality than them. Thus, eHarmony uses its test and technologies to naturalize certain neoliberal and postfeminist assumptions concerning what is and should be valued and presents them as common sense. Users cannot state that they are interested in someone who is unattractive, uneducated, or has a low income; they instead must state that they do not care about the level of their attractiveness, education, or income at all and hope that some of their matches fit the criteria they desire.

Users are then given a five-page list of adjectives and are asked to state how well the words describe them from "Not at all" to "Very Well." The list appears random but includes

many opposites like “warm” and “aloof” or “predictable” and “spontaneous.” These questions test both for a user’s sense of self as well as whether they are lying or filling the test out randomly. At the end of this list of adjectives, users must state which four adjectives their friends would use to describe them. This section both encourages users to think of themselves from an “objective” outside perspective and tests users on how well their sense of self maps onto how they think others see them. Much of the rest of the test presents users with statements, social values, activities, and skills. Users rate how well they identify with the statements and social values and state how interested and knowledgeable they are concerning the stated activities and skills.

The test ends by asking users a few pointed questions concerning whether they care if their matches smoke, drink, have kids and/or want kids. Galen Buckwalter, the co-creator of eHarmony’s personality test has stated that smoking is an especially divisive issue and their algorithms will not even match a complete non-smoker with someone who suggests he or she would be willing to date someone who smoked occasionally.⁸³ While also divisive, pairing questions on alcohol and smoking together with ones on children gives these questions a moral weight that they would not necessarily have on their own. The last page of the test asks users what zip code they live in and how far they are “willing to search to find your life-long love?” This phrasing encourages users to spatially broaden their searches as much as possible and can even elect to receive matches from anywhere in the world.

After reviewing the profile, users must answer a handful of short questions like “What are you most passionate about?” and “What is the one thing that people don’t notice about you

⁸³ “My eHarmony Experiment: Can This Marriage Be Matched?,” *New York Times: TierneyLab*, February 1, 2008, <http://tierneylab.blogs.nytimes.com/2008/02/01/my-eharmony-experiment-can-this-marriage-be-matched/>.

right away that you wish they would?”⁸⁴ Only then will eHarmony send users matches with a minimum of 10-25 matches per year. After receiving a match, users can see each other’s profiles and choose to either communicate via email immediately or go through four rounds of guided communications where they are able to ask each other a series of pre-approved questions with multiple-choice answers. Users then send each other a list of what they need and what they can’t stand in a romantic partner. This stage is followed by a period in which users may send each other personally-written open-ended questions. At this point, those users who chose to go through the question and answer period can communicate via email and by exchanging photos through eHarmony’s anonymous and protected email server. eHarmony uses this extremely complex and regulated dating procedure to differentiate itself from its competitors like Match.com, the largest online dating site, which does not focus exclusively on long-term relationships and allows users to search on their own and communicate immediately.

This emphasis on long-term monogamous relationships is not accidental. Neil Clark Warren has long been the main spokesperson for eHarmony. He appears in many commercials and the site prominently displays his image, academic credentials, and clinical psychology experience. The site lists Warren’s “expert guidance that underlies everything we do” as “one of the greatest benefits of using eHarmony.”⁸⁵ He himself has underlined his and eHarmony’s paternalistic attitude by stating, “We do try to give people what they need, rather than just what

⁸⁴ Stacey Goldstein, “» eHarmony.com: One Girl’s Point of View - Psych Central,” *Psych Central*, 2006, <http://psychcentral.com/lib/eharmonycom-one-girl%e2%80%99s-point-of-view/000781>.

⁸⁵ “Dating Experts - Relationship and Dating Guidance on eHarmony,” eHarmony, 2013, <http://www.eharmony.com/why/dating-experts/>.

they want.”⁸⁶ Warren’s views on relationships are rooted in Christian values including abstinence as he argues both that couples should wait two years before getting married and that premarital sex “clouds decisions.”⁸⁷ Warren has also disparaged premarital sexuality throughout his writing and thinks of eHarmony as a tool to combat the lack of Christian values that “the so-called ‘cohabitation epidemic’” connote.⁸⁸ Warren designed eHarmony’s matchmaking program to restrict dating choices around his particular moral conception of what a relationship should consist of and advertises this program by suggesting that his way of creating relationships has been scientifically proven to be the best.

A lengthy YouTube commercial shows a day in Warren’s life as he goes to work at eHarmony, attends meetings, and talks to people in offices and cubicles.⁸⁹ He discusses his wife and narrativizes his professional history and desire to use eHarmony and his personality test to lower the divorce rate and the number of unhappy marriages more generally. To back up Warren’s claims, eHarmony continually publishes and advertises statistics from Harris Interactive surveys, a peer-reviewed article in the 2012 *Proceedings of the National Academy of Sciences*, and other sources that show not just that eHarmony produces more marriages than any other site but also that these marriages tend to be more satisfying and lead to fewer divorces than

⁸⁶ Janet Komblum, “eHarmony: Heart and Soul,” *USA Today*, May 18, 2005, online edition, http://usatoday30.usatoday.com/life/people/2005-05-18-eharmony_x.htm.

⁸⁷ Ibid.

⁸⁸ Jennifer Hahn, “Love Machines,” *AlterNet*, February 22, 2005, http://www.alternet.org/story/21291/love_machines/?page=3.

⁸⁹ *eHarmony - A Social Revolution*, 2013, http://www.youtube.com/watch?v=vkfdghHbiwk&feature=youtube_gdata_player.

those produced via any other meeting place, online or off.⁹⁰ These ads display Warren's central position and hands-on approach at eHarmony and encourage users to think of him as the actual matchmaker behind eHarmony's algorithms. In turn, they declare the importance and centrality of the personality test and resulting profile to eHarmony's business and advertising strategy.

However, the inextricable connection between Warren and eHarmony as a company became a hindrance in 2007 when many journalists began to criticize Warren's religious views and ask whether eHarmony had a Christian agenda. Before starting eHarmony, Warren was not only a marriage counselor but also a seminary professor and Christian theologian. He had also closely associated himself with James Dobson, the founder of the evangelical activist and media production group Focus on the Family (FOTF), which promoted conservative Christian values and opposed LGBT rights along with a host of other "vices" which they felt undermined traditional Christian family values. Warren regularly appeared on Dobson's radio show and published many of his self-help books through FOTF. Although eHarmony had always been open to a secular audience, it was originally marketed as "based on the Christian principles of Focus on the Family author Dr. Neil Clark Warren."⁹¹ Warren had also conceived of his company in evangelical and Christian colonial terms and in 2003 took his business global in the hopes of serving missionaries.⁹² While early on 85% of eHarmony's members were Christian, Warren never wanted the site to be exclusive and instead argued that "sometimes non-Christians

⁹⁰ eHarmony, "eHarmony Ranks #1 for Most Online Marriages and Marital Satisfaction," *eHarmony Press Releases*, June 3, 2013, <http://www.eharmony.com/press-release/57/#a>.

⁹¹ Janet Komblum, "eHarmony: Heart and Soul."

⁹² Carol Steffes, "Online Matchmaking," *Family.org: a Web Site of Focus on the Family*, 2002, <http://web.archive.org/web/20030423181531/http://www.family.org/married/youngcouples/a0021741.cfm>.

need Christian efforts” like his.⁹³ While this marketing helped eHarmony gain an audience early on, by 2007 it had become a drawback as they tried to gain more members by reaching out to more secular audiences.

By 2005, Warren had stopped appearing on Dobson’s show, bought back the rights of his books so that they would not have FOTF on their covers and erased any mention of specifically Christian values from eHarmony’s website and advertising.⁹⁴ However, eHarmony refused to allow homosexuals to use their site for matchmaking, claiming that they only tested their matchmaking technology on heterosexuals and therefore could only match these kinds of relationships. Many on both the right and left read this as “transparently convenient.”⁹⁵ On the right, Warren received questions like: “The site says that eHarmony doesn't offer homosexual matching because you have ‘no expertise when it comes to same sex matching.’ How do you defend that politically correct answer?” He responded by emphatically stating his opposition to homosexuality, but explained, “Cities like San Francisco, Chicago or New York — they could shut us down so fast. We don't want to make enemies out of them. But at the same time, I take a real strong stand against same-sex marriage, anywhere that I can comment on it.”⁹⁶ Warren presents his scientific rhetoric around the differences between heterosexual and homosexual relationships as a conciliatory cover for his bigotry. Moreover, this answer suggests eHarmony’s larger efforts at using “science” as an alias for Christian values. Academics and journalists alike have long been skeptical of eHarmony’s scientific claims since they rarely present data at

⁹³ Ibid.

⁹⁴ Janet Komblum, “eHarmony: Heart and Soul.”

⁹⁵ John Cloud, “Is eHarmony Biased Against Gays?,” *Time*, June 1, 2007, <http://content.time.com/time/business/article/0,8599,1627585,00.html>.

⁹⁶ Carol Steffes, “Online Matchmaking.”

conferences and never publish their proprietary methodologies or findings.⁹⁷ Social psychologist Benjamin Karney argued that eHarmony was duping customers and said their “scientific methods” were “basically adorable.”⁹⁸ In turn, Warren uses statistics on the happy marriages that eHarmony has produced as proof of eHarmony’s scientific validity. Rather than focus on the experiments that led to the creation of eHarmony’s matchmaking software, Warren uses these statistics to frame eHarmony itself as what journalist and self-help writer Lori Gottlieb called “the early days of a social experiment of unprecedented proportions, involving millions of couples and possibly extending over the course of generations.”⁹⁹ In the process, Warren’s conservative Christian traditionalism, which he now refers to as a secular “folksy wisdom,” becomes the hypothesis that eHarmony works to prove.¹⁰⁰

Those on the left rejected Warren’s “scientific” claims as the basis for excluding homosexuals, and several parties sued. As a result of settled discrimination lawsuits in New Jersey and California, in 2009 eHarmony created Compatible Partners, a same-sex dating site, that like eHarmony specializes in creating “lasting relationships” complete with a virtually

⁹⁷ See Katherine Bindley, “eHarmony Duping Customers, Researchers Say,” *Huffington Post*, accessed September 2, 2013, http://www.huffingtonpost.com/2012/04/23/eharmony-duping-customers-researchers-say_n_1446468.html; Amanda Lewis, “UCLA Professors Say eHarmony Is Unscientific and Its Customers Are ‘Duped.’ Here’s Why.,” *Public Spectacle*, April 16, 2012, http://blogs.laweekly.com/arts/2012/04/eharmony_research_bullshit.php; Eli Finkel et al., “Onling Dating: A Critical Analysis From the Perspective of Psychological Science,” *Psychologica Science in the Public Interest* 13 (2012): 3–66.

⁹⁸ Bindley, “eHarmony Duping Customers, Researchers Say.”

⁹⁹ Lori Gottlieb, “How Do I Love Thee?,” *The Atlantic*, March 2006, <http://www.theatlantic.com/magazine/archive/2006/03/how-do-i-love-thee/304602/>.

¹⁰⁰ *Ibid.*

identical personality test and matchmaking program.¹⁰¹ eHarmony now redirects users interested in same-sex dating to Compatible Partners, though it does very little to advertise this service and mentions it only at the very bottom of their homepage in a small font. Ironically, Cupid's Library, a prominent review site for online dating services, criticized Compatible Partners for being too similar to eHarmony and for assuming that a dating service for heterosexuals would work for homosexuals as well.¹⁰² Even so, 200,000 people signed up for the site within the first year.¹⁰³

However, eHarmony remains exclusionary in that 20% of all people are rejected from the site based on their personality test answers. While these users are able to see their profiles, eHarmony first sends them to a page stating something similar to: "We're very sorry, but our matching system cannot predict good matches for you."¹⁰⁴ The site does not give any specific reasons to the users regarding why they were specifically rejected but statistics about these rejections are available. One-third of those rejected are currently married or separated.¹⁰⁵ A fourth of those rejected are younger than their minimum age of 21, an age cutoff to which

¹⁰¹ "Compatible Partners - Gay Dating and Lesbian Dating for the Relationship-Minded Gay Singles & Lesbian Singles," *Compatible Partners*, 2011, <http://www.compatiblepartners.net/>; Rachel Gordon, "eHarmony Settles Lawsuit over Gay Matchmaking," *SFGate*, January 27, 2010, <http://www.sfgate.com/bayarea/article/EHarmony-settles-lawsuit-over-gay-matchmaking-3274826.php#src=fb>.

¹⁰² "Compatible Partners Review," *Cupid's Library*, 2012, <http://www.cupidslibrary.com/sites/compatible-partners>.

¹⁰³ Michelle Garcia, "The Online Dating Game," *Advocate.com*, March 31, 2010, <http://www.advocate.com/politics/commentary/2010/03/31/online-dating-game>.

¹⁰⁴ "eHarmony--Cannot Provide Service," *eHarmony*, April 28, 2010, <http://www.eharmony.com/singles/servlet/login/noservice>.

¹⁰⁵ Paul Farhi, "They Met Online, but Definitely Didn't Click," *The Washington Post*, accessed August 31, 2013, <http://www.washingtonpost.com/wp-dyn/content/article/2007/05/12/AR2007051201350.html?hpid=topnews>.

eHarmony adheres because 85% of marriages before the age of 20 end in divorce.¹⁰⁶ eHarmony also rejects people under 60 who have been married more than four times. Another 9% are blocked for giving inconsistent answers on the test that suggests they were not paying attention, were lying, or have psychological issues. Regarding the latter, eHarmony uses a proprietary Dysthymia (chronic but not severe depression) scale to screen users who might have depression. They suggests that it only screens out severe depression, but dysthymia scales are not that accurate and screen for any kind of depression,¹⁰⁷ which Warren equates with both “low energy” and “a lack of emotional health.”¹⁰⁸ They also screen for obstreperousness as they link this characteristic to being hard to please and unable to enjoy long lasting relationships. Warren explained these rejections by stating, "You'd like to have as healthy people as you can. We get some people who are pretty unhealthy. And if you could filter them out, it would be great. We try hard. And it's very costly.”¹⁰⁹ While Warren frames these rejections as scientific, no research supports the online diagnosis of emotional instability via multiple-choice questions. By relying on them, eHarmony participates in a larger culture of overdiagnosis that helps support both pharmaceutical and self-help industries. As Allan Francis, the chair of the task force behind the DSM-IV, has argued,

The U.S. is experiencing a dangerous moment in which political and financial forces are pushing people to think of themselves as abnormal, and “the counterbalancing forces pushing normal don’t remotely counterbalance and aren’t nearly forceful enough.” In other words, there are many people who profit from

¹⁰⁶ Carol Steffes, “Online Matchmaking.”

¹⁰⁷ Farhi, “They Met Online, but Definitely Didn’t Click.”

¹⁰⁸ Carol Steffes, “Online Matchmaking.”

¹⁰⁹ Janet Komblum, “eHarmony: Heart and Soul.”

the idea that a staggering proportion of Americans are mentally ill, and these groups are powerful, well organized, and politically effective.¹¹⁰

eHarmony does not tell such users that they have been deemed too mentally ill to be part of the dating pool and rejects them while also suggesting they study their Personality Profile for “valuable insights” for help in improving themselves.¹¹¹ Rather than encouraging these users to see a psychologist, eHarmony directs them toward their secondary business of providing self-help advice designed to give them lessons on how to help themselves. In 2007, *Time* emphatically stated that eHarmony’s actions constituted discrimination and labeled it one of five worst dating sites, stating, “Our main beef with this online dating site is its power to cause utter despair.”¹¹² In its bid to produce successful, monogamous relationships, eHarmony in fact passes judgment about who appears to “deserve” a relationship and who does not.

Amid this criticism, Warren retired from his company in 2007 but returned five years later as its CEO. Since then, Warren has stressed his desire to broaden eHarmony from a dating site to a full-service self-management “relationship site” that can “help users make new friends, find the right job, become better parents, cope with aging and solve interpersonal problems,

¹¹⁰ Jesse Singal, “America’s Epidemic of Psychiatric Over-Diagnosis,” *The Daily Beast*, June 21, 2013, <http://www.thedailybeast.com/articles/2013/06/21/america-s-epidemic-of-psychiatric-over-diagnosis.html>.

¹¹¹ “eHarmony--Cannot Provide Service.”

¹¹² “5 Worst Websites,” *Time*, July 9, 2007, http://content.time.com/time/specials/2007/article/0,28804,1638344_1638341,00.html; Cloud, “Is eHarmony Biased Against Gays?”; Farhi, “They Met Online, but Definitely Didn’t Click”; Lisa Miller, “An Algorithm for Mr. Right,” *Newsweek Magazine*, April 26, 2008, <http://www.thedailybeast.com/newsweek/2008/04/26/an-algorithm-for-mr-right.html>.

among others.”¹¹³ As it begins to advise on and recommend not just long-term relationships but also friends, jobs, lifestyles and perhaps the various products that go with them, eHarmony restyles itself as hyper-guided version of Facebook. Many of these operations employ the same huge amount of information that eHarmony mines from its users through personality tests and the recording of how users behave on the site.¹¹⁴

Many of eHarmony’s ads focus on what users can learn about themselves from these personality profiles and argue that it is worth checking out eHarmony for this service alone. One ad encourages users to take eHarmony’s personality test “to get instant, objective feedback on yourself and how you relate to other US Singles.”¹¹⁵ Many of these ads also explain that their personality test, or “patented Compatibility Matching System matches you with other singles based on 29 deep dimensions proven to create happier, healthier relationships.”¹¹⁶ eHarmony breaks down these “deep dimensions” into many categories that they suggest illustrate a combination of “core traits” that remain largely unchanged throughout adulthood and “vital attributes” that do change through life events and personal decisions.¹¹⁷ Core traits include such things as emotional temperament (self-concept or how people feel about themselves and how

¹¹³ Andrea Chang, “eHarmony Founder Has His Heart Set on Reviving the Dating Site,” *Los Angeles Times*, December 13, 2012, <http://articles.latimes.com/2012/dec/13/business/la-fi-eharmony-20121214>.

¹¹⁴ Spandas Lui, “eHarmony Translates Big Data into Love and Cash | ZDNet,” *ZDNet*, November 6, 2012, <http://www.zdnet.com/eharmony-translates-big-data-into-love-and-cash-7000006884/>.

¹¹⁵ “eHarmony Advertisement,” *Marie Claire*, accessed August 27, 2013, <http://www.marieclaire.com/sex-love/men/thoughts-on-pda-080807>.

¹¹⁶ *eHarmony Advertisement*, Online Advertisement, accessed August 10, 2013, <http://pronkpapers.files.wordpress.com/2010/07/eharmonyad.jpg>.

¹¹⁷ “29 Dimensions of Compatibility,” *Dating and Relationship Compatibility Matching on eHarmony*, 2013, <http://www.eharmony.com/why/dating-relationship-compatibility/>.

they react emotionally to events), social style (character and how people relate to others), cognitive mode (types intellect and how people interpret the world) and physicality (energy level and appearance). Vital attributes include relationship skills (communication styles and conflict management), values and beliefs (spirituality, ambition and goals) and key experiences (family background, status and education).

Other than stating that this test is based on Neil Clark Warren's findings after studying thousands of relationships over 35 years, the site gives no evidence to support why it labels certain traits as vital and others as core. Referring to certain aspects as mutable and others as essential appears arbitrary as physical attributes and how people react to events and each other often change much more over time than values and beliefs. Many of the core trait categories focus on how people react to stimuli but there is only a vague differentiation between social, emotional, cognitive and physical reactions. Is crying a physical, emotional, or cognitive reaction? Does one have to cry in public to make it a social style? This itemization of identity reifies a Cartesian separation between the cognitive, emotional, and physical realms that much of contemporary theory from phenomenology to feminism and postmodernism has worked to undo.

The site encourages people to use these profiles as a self-management tool to help them better identify who they are and what they want out of a relationship. eHarmony's growth has slowed over the last few years, so Warren stresses the value of these profiles and the massive amount of data they collect on users in helping them to broaden their company away from a dating site toward a relationship site. Yet, Warren also uses this data-based business model to please investors, increase their membership, and keep these members for life rather than only until they find a spouse. As Horning has argued:

Technology is changing "meeting and mating" not by changing our values but by

driving specific entrepreneurial opportunities that can't be neglected. As far as capitalism is concerned, this is the purpose of technological innovation: to make new business models possible and improve the efficiency of markets.¹¹⁸

In order to maintain their customers even after they have found a match, eHarmony periodically sends out advice emails with short articles like “Signs You are Dating the Wrong Person” and “Ten Ways to Increase Your Self-Esteem” and “Is Sexting Cheating or Not?”¹¹⁹ Thus, using similar software, a matchmaking site becomes – or attempts to become – an all-purpose self-management and relationship-management site. In addition, their data collection operations also give them ample opportunities to generate income by selling information on their user's individual personalities.

eHarmony's personality test uses proprietary algorithms to take the “29 deep dimensions” of users and generate an in-depth profile, which breaks users down into a series of five broad traits and a lengthy horoscope-like description of what these traits means and how users might personally act them out. eHarmony proposes that it tests people to find out who they are as individuals, these reports turn them into generic types that can easily be matched up with other types.

However, these types are hardly ideologically neutral. While Warren and Buckwalter together created eHarmony's personality test and profiles, they based it on the principles of the Big Five Personality Inventory test originally developed out of Sir Francis Galton's 19th century

¹¹⁸ Rob Horning, “Single Servings – The New Inquiry.”

¹¹⁹ eHarmony Advice, “How Many Dates Before You Decide It's Not a Match?,” August 27, 2013, donotreply@e.harmony.com.

founding theories on psychometrics, eugenics and the lexical hypothesis of personality. A half-cousin of Charles Darwin, Galton was the first to use questionnaires and apply statistical methods to the study of human behavior and intelligence. He also invented the statistical concept of correlation, which all digital recommendation systems now employ. Rather than look to socioeconomic injustices and prejudice, Galton believed that rich and successful families rose to power often because of their better genes. Because of this, he thought that the state should pay high-ranking families and other eminent people to intermarry at an early age so that they might have more babies and improve the human race through eugenics. His focus on nature over nurture and belief that some individuals are inherently more successful than others reverberates throughout current neoliberal thought. eHarmony echoes this eugenic sensibility through its focus on compatibility and similarity in matchmaking in the hopes of creating successful families. Like Galton, eHarmony also has the extremely broad goal of improving national divorce and relationship happiness statistics.

Galton hypothesized that personality differences between people would be encoded in language and that therefore one could create a comprehensive list of personal attributes by focusing on the words used to describe such personalities. In 1936, Gordon Allport and S. Odbert applied this lexical hypothesis to the creation of a list of more than 4,500 adjectives that described human traits. In the 1940s, Raymond Cattell culled this list down to 171 unique descriptors, which he then arranged into sixteen discrete personality categories.¹²⁰ In 1961, Ernest Tupes and Raymond Christal reorganized these personalities into five broad categories.

¹²⁰ Oliver P. John, Laura P. Naumann, and Christopher J. Soto, "Paradigm Shift to the Integrative Big Five Trait Taxonomy: History, Measurement, and Conceptual Issues," in *Handbook of Personality, Third Edition: Theory and Research*, ed. Oliver P. John, Richard W. Robins, and Lawrence A. Pervin, Third Edition edition (New York: The Guilford Press, 2010), 120.

Since then, several psychologists have redrawn these categories in various ways and in 1981, Lewis Goldberg reformulated them as: “Extraversion or Surgency (talkative, assertive, energetic);” “Agreeableness (good-natured, cooperative, trustful);” “Conscientiousness (orderly, responsible, dependable);” “Emotional Stability versus Neuroticism (calm, not neurotic, not easily upset);” and “Culture (intellectual, polished, independent-minded).”¹²¹ While there continues to be debate concerning the exact names and definitions of these categories, psychologists now widely use these “Big Five Personality Traits” to describe human personality at an extremely broad (“big”) level. Psychologists and sociologists use this set of traits and the tests used to define them largely to study how different backgrounds and stimuli affect personalities.

While studies have used the Big Five Traits to study the relationship between different personalities and job and/or school performance, eHarmony alone uses and studies (via its eHarmony Lab) Big Five Traits for creating relationships.¹²² eHarmony’s personality profiles are roughly identical to the standard Big Five Traits except that instead of “culture” and “neurotic,” eHarmony refers to these traits using the more value-neutral terms “openness” and “emotional stability.” Each category has two adjectives that are (falsely) opposed to one another and the test explains where users fall between them. For example, in the “Conscientious” report, “focused” is opposed to “flexible” and users could be labeled as either one or both. In the

¹²¹ Ibid., 125.

¹²² Center for Applied Cognitive Studies, “CentACS WorkPlace and SchooPlace Big Five Profile,” *Center for Applied Cognitive Studies*, 2013, <http://www.centacs.com/>; Oliver P. John, Laura P. Naumann, and Christopher J. Soto, “Paradigm Shift to the Integrative Big Five Trait Taxonomy: History, Measurement, and Conceptual Issues,” 125.

“Agreeableness” report, “Taking Care of Others” is opposed to “Taking Care of Yourself.”¹²³

The report labels users as more inclined toward one or the other, or they fall into the middle as “Taking Care of Others and Taking Care of Yourself.” These reports go on to list an extended series of adjectives that might describe the user, a “General description of how you interact with others” and negative and positive responses people may have toward you. In general, these descriptions read like a broad horoscope that takes pains to simultaneously describe everyone and no one. At times highly contradictory, these reports for instance label those who both take care of others and themselves as simultaneously “rational” and “indulgent.” The personality report also suggests that people might have a problem with these caring individuals both for being too slow and too fast to help out. At the same time, the report states that everyone (including the “tough-hearted” who hate helping people) should generally like these balanced helpers. This report goes to great pains to contradict itself at every turn in order to appeal to everyone and offend no one.

No evidence suggests that the Big Five Traits can help predict love or marital satisfaction. Psychologist Dan McAdams has referred to these traits as extremely vague and general: “It is the kind of information that strangers quickly glean from one another as they size one another up and anticipate future interactions.”¹²⁴ Such information is not specific enough to guess at a successful relationship, nor is there any proof that any traits based on the lexical hypothesis could be helpful. While this hypothesis assumes that there is a direct relationship between emotions and the language we use to describe them, semioticians like Charles Peirce and Ferdinand de Saussure have argued that this relationship is much more complex and not

¹²³ “Agreeableness,” *eHarmony Personality Profile*, April 28, 2010, www.eharmony.com/.

¹²⁴ Dan McAdams, “What Do We Know When We Know a Person?,” *Journal of Personality* 63, no. 3 (1995): 374.

direct at all. Furthermore, these traits ignore the many ways in which philosophers and theorists have associated love and emotions with the unsayable. Literary theorist William Franke argues, “What we most strongly and deeply think and believe, what we passionately love or ardently desire, inevitably escapes adequate articulation. It is always more, if not completely other, than what we are able to say.”¹²⁵ By not including the ineffable, the lexical hypothesis and Big Five Traits ignore those parts of oneself that govern attraction.

While the Big Five Traits are not generally used to hypothesize relationship satisfaction, the Myers Briggs Type Inventory (MBTI) often is.¹²⁶ Warren and Buckwalter created their matchmaking algorithms in ways that largely mirror how the creators of the MBTI suggest people should use their test to find relationships. The MBTI is a personality test similar to the Big Five except that it generates four personality categories instead of five and these categories are based entirely on Carl Jung’s typological theories.¹²⁷ It was originally developed in 1942 to help women who had never worked before identify the kind of job for the war efforts that they would be most “comfortable and effective” at doing.¹²⁸ Many industries now employ it when making hiring decisions and the recession that began in 2007 has only increased its use as “many firms want to hedge their bets and cannot afford to pick the wrong people. Tighter profit

¹²⁵ William Franke, “A Philosophy of the Unsayable: Apophasis and the Experience of Truth and Totality,” in *Imaginatio Creatrix*, ed. Anna-Teresa Tymieniecka, *Analecta Husserliana* 83 (Springer Netherlands, 2004), 65, http://link.springer.com/chapter/10.1007/1-4020-2245-X_6.

¹²⁶ PerfectMatch.com also loosely based its matchmaking system on the Myers-Briggs test. Eli Finkel et al., “Onling Dating: A Critical Analysis From the Perspective of Psychological Science,” 21.

¹²⁷ Isabel Briggs Myers and Peter B Myers, *Gifts Differing: Understanding Different Personality Type* (Mountain View, Calif.: CPP, 1995), ix.

¹²⁸ *Ibid.*, xiii.

margins also mean working under more stress and companies want to make sure their employees get on. Disagreements are costly and inefficient.”¹²⁹ In *The Cult of Personality*, Annie Murphy Paul criticizes these tests and the desire to break down identity into manageable “neat little boxes” to serve our purposes as “quintessentially corporate America.”¹³⁰ Using personality tests like the MBTI to guide decisions in all areas of life naturalizes neoliberal corporate America as a guiding ideology that defines how people perceive themselves, others, and the world around them.

During a period when industries are replacing their workers with computers and robots, eHarmony and other online dating sites now use the MBTI to help both men and women find meaningful relationships they would feel equally “comfortable and effective” in. By using the same logic to create monogamous relationships, eHarmony implies that what makes someone a good coworker would also make them a good spouse. These efforts participate alongside and help to sustain neoliberal economic practices that break down the separation between family and work time and space. eHarmony designs and advertises its services to those workers most affected by these practices whose time constraints due to careers and other obligations make meeting and dating a challenge. They advertise to them by suggesting that their service can help them create a relationship around their career and lifestyle. In the process, their matching programs help these users manage these neoliberal pressures both by making these relationships more possible and by breaking down the distinctions between home and work.

In her explanation of the history and function of the MBTI, Isabel Briggs Myers explains

¹²⁹ Lucy Ash, “Can Personality Tests Identify the Real You?,” *BBC*, July 6, 2012, sec. Magazine, <http://www.bbc.co.uk/news/magazine-18723950>.

¹³⁰ *Ibid.*

that while people with opposing personality profiles may work well together, relationships can be more harmonious if the people in them have similar if not identical personalities. People with opposing personalities can have great relationships but must always “take the necessary pains to understand, appreciate, and respect each other.”¹³¹ Those with similar personalities theoretically share the same perspective on the world and can more easily understand and appreciate each other’s reactions and feelings.

While Briggs Myers argues that opposing personalities make relationships more challenging but no less possible, eHarmony does not take this risk and instead only tries to bring similar people together. Buckwalter has stated that “it’s fairly common that differences can initially be appealing, but they’re not so cute after two years. If you have someone who’s Type A and real hard charging, put them with someone else like that. Its just much easier for people to relate if they don’t have to negotiate all these differences.”¹³² As Warren described on an episode of PBS’s *Small Business School*, “These are the two principles we believe in: emotional health and finding somebody who’s a lot like you.”¹³³ This effectively means that eHarmony encourages users not to seek interactions with those who are different, implicitly reinforcing various kinds of social segregation.

The above analysis reveals how matchmaking sites like eHarmony participate in tandem with the discourses and logic of consumerism and neoliberalism. eHarmony operates as a neoliberal market where people are broken down into quantifiable and interchangeable parts and

¹³¹ Myers and Myers, *Gifts Differing*, 129.

¹³² John Tierney, “Hitting It Off, Thanks to Algorithms of Love,” *The New York Times*, January 29, 2008, sec. Science, <http://www.nytimes.com/2008/01/29/science/29tier.html>.

¹³³ Hahn, “Love Machines.”

then “reviewed” by matchmaking algorithms and each other. People are turned into consumer items and encouraged to see other people in this way. While presenting their technology as “scientific” and ideologically neutral, eHarmony and similar sites also reaffirm gender and class divides and stereotypes. At the same time, eHarmony attempts to be the antidote to the problem of overwhelming choice by only presenting users a small handful of matches instead of the entire dating pool all at once. By not allowing users themselves to search, eHarmony treats choice as a problem with a technological fix. As with other digital technologies that rely on recommendation systems, online dating is shaped by a postfeminist neoliberal logic that structures consumer and personal choice not as freedom, but rather as a burden. While a site like Match.com or OkCupid.com may show users hundreds of potential dates, eHarmony works under the assumption that unlimited choice paralyzes users by generating anxiety and indecision. eHarmony’s matches exemplify a larger trend of turning the freedom of choice into what Barry Schwartz has called “the tyranny of choice.”¹³⁴ While Dan Slater argues that eHarmony recommends matches in order to make the choices more meaningful and actually increase the amount of control and agency users have, Horning retorts:

But the only way to become empowered by this form of control is to accede to being controlled on a higher level. To capitalize on convenience and autonomy in a consumer marketplace, we must first allow our desires to be commodified and suppress the desires that don’t lend themselves to commodification. We have to permit more intrusive surveillance to enjoy the supposed benefits of customization. We have to buy into a quantity-over-quality ethos for aspects of

¹³⁴ Barry Schwartz, “The Tyranny of Choice: Scientific American,” March 22, 2004,

<http://www.scientificamerican.com/article.cfm?id=0006AD38-D9FB-1055-973683414B7F0000>.

life where it has never made any sense, like intimacy.¹³⁵

This trend began in the consumer sphere with grocery stores deciding just how many varieties of jam, crackers, and chips they should carry and how they should present these choices.¹³⁶ Sites like eHarmony have since technologized and instrumentalized this consumerist logic in the search for relationships. They advertise their services, matchmaking technologies and personality tests as the answer to those fears and anxieties that they themselves helped to generate. Users give up agency and submit to surveillance and data collection technologies in the hope of finding human connection. In doing so, however, they simultaneously end up quantifying, categorizing, and dehumanizing themselves.

¹³⁵ Rob Horning, “Single Servings – The New Inquiry.”

¹³⁶ “The Tyranny of Choice: You Choose,” *The Economist*, December 16, 2010, <http://www.economist.com/node/17723028>.

CHAPTER 4

The Mirror Phased: Digital Imaging Technologies, Beautification Engines, and the Technological Gaze

In chapter three, I focused on how eHarmony and other dating sites use matchmaking technologies to help create compatible relationships given a situation in which there appear to be too many choices in terms of finding a mate and too little time in which to do it. In the process, I argued, the online dating industry commodifies the individuality of users and teaches them to think of dating as a marketplace, reinforcing traditional gender stereotypes and hierarchies. Here, I examine how cosmetic surgeons and cosmetics companies use digital imaging software based on the same digital recommendation technologies to help patients and users imagine how their bodies could look after a surgery or makeover. Without fail, these companies recommend generic bodily changes – such as larger breasts, flatter stomachs, straighter noses and rounder buttocks – even as they also assert that users should think of such changes as an expression of personal identity, agency, and choice. Surgeons use digital imaging to edit and modify images of patients in order to both give them a sense of what their bodies will look like after particular surgeries and teach them what constitute the aesthetic standards and goals of surgeries.

The companies that create these technologies, like Canfield and AnaFace, assert that they divine their aesthetic standards and recommendations via scientific and statistical means. However, I argue that, just as dating sites treat user identity as an amalgamation of generic personality types, digital imaging technologies teach users to think of themselves as a combination of interchangeable generic body parts that can be upgraded at will and simultaneously reinforce homogenous classed and gendered identities. They encourage the

adoption of what Anne Balsamo refers to as a “technological gaze,” a gaze which treats bodies as objects to be physically modified and “improved” according to a standardized set of criteria. At the same time, I argue these imaging technologies present the body as a site of playful fantasy and the companies that use them advertise such upgrades as a choice that will produce greater individual happiness.

Digital imaging technologies, based on digital recommendation technologies, have become central to a plethora of digital applications and websites designed to help users judge, regulate, and modify their own bodies. These programs contain wide variations in their interfaces and the types of modifications they allow for, depending on the uses for which they are specifically designed. Those that allow users and surgeons to manually modify images largely behave as heavily simplified and constricted versions of Adobe Photoshop. In contrast to Photoshop (a professional arts and design program that includes a vast number of tools and options for the manipulation of digital images that requires intensive classes to learn) body modification programs designed for surgeons usually only include a few options and can be learned easily. They primarily feature only two primary tools: one that allows users to stretch body dimensions to thin or add curves to bodies and one designed to blur images to eliminate wrinkles and uneven skin tones. These tools simulate major surgeries like breast augmentation and lipoplasty and non-invasive procedures like chemical peels and botox. While these technologies are also useful for reparative and reconstructive surgeries, I will here primarily discuss their use in elective cosmetic surgeries wherein the patient has no medical need for the procedures. As I will later discuss, in a contrasting move, self-help sites recommend changes by showing users how they may look in the future if they continue to smoke, suntan, and/or eat unhealthily. Although these self-help sites do not encourage a technological gaze, they

nonetheless use digital image technologies to present the body as a site of potential transformation – in this case a transformation that must be avoided through self-discipline. In both cases, digital technology is used to teach users how their bodies “ought” to be and what they should do to achieve this goal.

Unlike many of the modes of recommendation I have discussed so far, which generally attempt to cater to all tastes, those that digitally reshape the body often imply a universal standard. They implicitly define what beauty is and therefore what users should want. Although there are some body modification sites that rely on collaborative filtering and other crowdsourcing techniques where users can vote on what is beautiful, most are determined by companies and their program designers who often invoke either contemporary science or classical aesthetic theories that all tend celebrate Western Caucasian conceptions of beauty. Moreover, along with various elements of popular culture that celebrate the ability of people to remake themselves through their bodies like the television series *Extreme Makeover*, *The Swan*, and *Nip/Tuck*, digital imaging technologies facilitate the normalization of cosmetic surgery both in the United States and around the world. As Anne Jerslev has argued, the real and fictional surgeons on such series at times employ digital imaging technologies to help patients visualize their transformed bodies in ways that treat bodies as commodities and make surgical changes appear as natural, simple, and painless as putting on makeup.¹

In 2011, surgeons performed 6.3 million cosmetic invasive (surgeries like lipoplasty and mammoplasties) and 8.3 million non-invasive (chemical peels, laser treatments and injectables

¹ Anne Jerslev, “The Mediated Body: Cosmetic Surgery in Television Drama, Reality Television and Fashion Photography,” *Nordicom Review* 27, no. 2 (2006): 135.

like Botox) procedures around the world.² In the United States alone, cosmetic surgery in 2012 was an eleven billion dollar industry responsible for 10 million procedures.³ These procedures occur within a culture that rewards attractive people with as much as 10% higher incomes, more and better job offers, and relationships with more highly educated people with greater earnings potential.⁴ As a result, economists at the University of Texas-Austin have argued not only that beautiful people are happier, but that the type of beauty that brings happiness can only be gained through cosmetic surgery rather than makeup and clothing as “your beauty is determined to a tremendous extent by the shape of your face, by its symmetry and how everything hangs together.”⁵ Valerie Ablaza, president of the New Jersey Society of Plastic Surgeons, argues that the recession did not greatly impact the cosmetic surgery industry because many saw surgery as a way to increase their chances at re-entering the work force.⁶ Not simply descriptive, Ablaza’s

² ISAPS, “ISAPS International Survey on Aesthetic/Cosmetic Procedures Performed in 2011,” *International Society of Aesthetic Plastic Surgery*, 2012, <http://www.isaps.org/files/html-contents/Downloads/ISAPS%20Results%20-%20Procedures%20in%202011.pdf>.

³ ASAPS, “2012 Statistics: A Cut Above for Cosmetic Surgery,” *American Society for Aesthetic Plastic Surgery*, April 10, 2013, <http://www.surgery.org/consumers/plastic-surgery-news-briefs/2012-statistics--cut-cosmetic-surgery-1050547>.

⁴ Steven E. Landsburg, “Hey, Gorgeous, Here’s a Raise!,” *Slate*, July 9, 2001, http://www.slate.com/articles/arts/everyday_economics/2001/07/hey_gorgeous_heres_a_raise.html.

⁵ Brad Tuttle, “Why Are Beautiful People Happier? Mainly Because Good Looks Help Them Get Rich,” *Time*, March 30, 2011, <http://business.time.com/2011/03/30/why-are-beautiful-people-happier-mainly-because-good-lucks-help-them-get-rich/>.

⁶ Rhea N. Bernard, “Three Questions: A Female Plastic Surgeon Talks About Why so Few Women Enter the Field,” *The Star-Ledger - NJ.com*, May 18, 2012, http://www.nj.com/business/index.ssf/2012/05/three_questions_a_female_plast.html.

argument recommends cosmetic surgery as a tool for economic and social gain and to encourage people to treat the body as a commodity that one must choose to improve on. This effort to normalize cosmetic surgery argues that “choosing to not alter one’s appearance in accordance with dominant beauty standards means choosing ugliness” and hence an impoverished future.⁷

I argue that digital imaging technologies facilitate the naturalization of cosmetic surgery and its concomitant makeover culture that celebrates the body modifications as a sign of individuality and agency. I begin by describing current debates that frame cosmetic surgery either as an oppressive form of control or as a liberating expression of empowerment. This debate largely centers around the role of choice and recommendation in patients’ decisions about both whether to get surgery and what changes they would like to make: Are these choices an empowering expression of the patient’s individuality or are they heavy-handed recommendations from popular culture and their surgeons that patients willingly accept? By focusing on the digital imaging technologies that mediate the patient/surgeon relationship, I add nuance to this debate by showing how this apparatus paradoxically constructs cosmetic procedures as an individuating and empowering experience for the patient even as the surgeon remains the center of power and authority. I consider how these technologies – as they appear both inside and outside of clinics – encourage people to hunt for their “imperfections” and to then refashion themselves in ways that better fit current cultural beauty trends. In the process, cosmetic surgeons use these technologies to make themselves part of a culture industry of choice that presents personal choice over how one looks as a form of individual empowerment freed from the influence of the surgeons themselves.

⁷ M. Leve, L. Rubin, and A. Pusic, “Cosmetic Surgery and Neoliberalisms: Managing Risk and Responsibility,” *Feminism & Psychology* 22, no. 1 (November 7, 2011): 131.

To add context to these technologies and how cosmetic surgeons currently use them in their practices, I explain how photography and “before-and-after” shots have historically been used in these settings. Surgeons have long used photography to help give patients a sense of how they look from different unfamiliar angles so as to simulate an “objective,” outsider perspective. (These photos of patients before and after surgery could then serve as evidence both for future study and potential lawsuits.) Over time, the aesthetics of these photos became standardized as surgeons studied which angles, distances, and lenses produced the “best” views of patients. This amassing of standardized before-and-after photos helped to institutionalize cosmetic surgery as a medical field with specific measurements of aesthetic success and failure. In the process, particular ways of viewing patients’ bodies also became normalized and these patients were taught to judge themselves from unfamiliar perspectives, as “others” to themselves. These efforts taught patients to take on the surgeon’s perspective – and that of the dominant culture – when judging their own bodies.

I then compare this history of cosmetic surgery photography to the current use of digital imaging technologies. Much of the advertising for these technologies focuses on how they can make the judging of beauty in a practice both more scientific and more fun for patients. Many surgeons now feature such technologies on their websites as lures to entice potential patients to their actual clinics. In many cases, companies present these technologies as a chance for users to playfully explore and reshape their faces and bodies, while also suggesting that digital modifications can be achieved through actual surgery. These technologies thus domesticate cosmetic surgery by presenting it purely as fun and spontaneous. While this movement from the clinic to the home in some ways gives people more control over how they potentially can imagine their new bodies, it also normalizes and domesticates certain ways of viewing oneself in

which one constantly searches for new imperfections to modify and makeover. Surgeons use these technologies that allow for the manipulation of photographic images in a variety of ways that affect the level and types of control patients have over their surgery decisions. However, the technology itself ultimately limits the types of bodies that patients are encouraged to desire and achieve. Several of these programs completely automate these virtual body modifications for users. Anaface, for instance, automatically scores the attractiveness of users from one to ten and suggest surgical ways in which they could improve their scores. In contrast, Tommer Leyvand's Beautification Engine software automatically transform the subject's face in order to make him or her look more attractive with the least noticeable difference. These technologies treat attractiveness as a scientifically measurable, objective phenomenon that crosses all cultures. However, it is actually based in Western platonic aesthetic ideals that heavily value thin noses, high cheekbones, round eyes, and complete facial symmetry. In the process, they encourage users to feel that if they are not a "perfect ten," surgeries and other body transformations can help them gain a perfect body and that if they do not get these surgeries, they are choosing to be ugly.

I close by discussing how self-help companies and organizations use digital imaging technologies to suggest lifestyle changes. These companies create programs that show users what they will look like later in life if they continue to smoke, eat unhealthily, and/or suntan. Users input information about their lifestyles and these programs automatically modify their images to show how their present life choices will affect the way they look ten, twenty, or thirty years later. I discuss how companies like Accenture incorporate these technologies into self-management products and services marketed to adults that keep track of and encourage their users healthy daily habits.

Throughout this chapter I examine how digital imaging technologies mediate and

structure relationships between people and their bodies in both medical and domestic spaces. Depending on their interfaces, these programs construct the choices and expectations of users in ways that simultaneously encourage them to experiment with their virtual bodies as an expression of personal fantasy and unlimited choice while they also continually recommend certain dominant, culturally determined options over others. As in other areas of the culture industries of choice, users can experiment and choose from a variety of options but these technologies always privilege certain recommendations over others. Ultimately, these recommendations affect both how people feel about and imagine their bodies and – if actual surgeries are involved – how they will look in the future.

Postfeminism, Neoliberalism, and the Plastic Body

The effects of cosmetic surgery and all types of cosmetics and body modifications affect women far more than men. While 90% of all cosmetic surgery patients in the United States are women, approximately 92% of surgeons are men.⁸ With such a large imbalance, many – including Susan Bordo and Naomi Wolf – have argued that cosmetic surgeries “oppress women by coercing them to sculpt their bodies to fit a male-defined vision of femininity.”⁹ For cultural

⁸ Amanda Hess, “When Will ‘Aesthetic Plastic Surgery’ Empower Men, Too?,” *Washington City Paper*, April 29, 2010, <http://www.washingtoncitypaper.com/blogs/sexist/2010/04/29/when-will-aesthetic-plastic-surgery-empower-men-too/>.

⁹ L. Pecot-Hebert and H. Hennink-Kaminski, “I Did It For Me: Negotiating Identity and Agency,” *Health, Culture and Society* 3, no. 1 (August 14, 2012): 78; Naomi Wolf, *The Beauty Myth: How Images of Beauty Are Used Against Women*, 1st Anchor Books (New York: Anchor Books, 1992),

<http://www.loc.gov/catdir/bios/random056/92006830.html>

<http://www.loc.gov/catdir/description/random046/92006830.html>; Susan Bordo, *Twilight Zones: the Hidden Life of*

studies and feminist scholarship, cosmetic surgery and other forms of body modifications have long been heavily contested topics. They simultaneously point to both the liberating potential of being able to determine and control one's own body and the too often oppressive reality that these transformations are not a choice but a mandate that leads to only greater levels of objectification. In studies focused on interviews with former female cosmetic surgery patients, Kathy Davis has argued that these women think of themselves as independent agents who chose to have these surgeries for themselves rather than others. Davis suggests that, although these decisions are made within a patriarchal culture that places a great deal of value on a woman's body, cosmetic surgery is nevertheless an experience of "exercising power under conditions which are not of one's own making."¹⁰ Llewellyn Negrin and Sue Tait criticize Davis for only considering how women can choose to act within a system of "gender inequity" and not focusing on how "that system might be interrogated or undermined."¹¹ Negrin and Tait both argue that cosmetic surgery is a "submission to hegemonic standards of beauty" and that this submission is what enables a patient's "experience of liberation."¹² According to Negrin, cosmetic surgery has "ultimately conservative effects" that lead to a woman's estrangement to her own body.¹³ Indeed,

Cultural Images from Plato to O.J (Berkeley: University of California Press, 1997),

<http://www.loc.gov/catdir/bios/ucal051/97002223.html>

<http://www.loc.gov/catdir/description/ucal042/97002223.html>.

¹⁰ Kathy Davis, *Reshaping the Female Body : the Dilemma of Cosmetic Surgery* (New York: Routledge, 1995), 163; L. Negrin, "Cosmetic Surgery and the Eclipse of Identity," *Body & Society* 8, no. 4 (December 1, 2002): 25.

¹¹ Sue Tait, "Television And The Domestication Of Cosmetic Surgery," *Feminist Media Studies* 7, no. 2 (June 2007): 121.

¹² Ibid.

¹³ Negrin, "Cosmetic Surgery and the Eclipse of Identity," 25.

the fact that patients choose cosmetic surgery and then experience it as empowering, does not negate the social, cultural and economic factors that push women toward this choice.

This debate over the place of cosmetic surgery within the lives of individual women as well as American society as a whole mirrors larger issues around the role of personal choice within postfeminist neoliberal culture. Postfeminist culture frames feminism as successful but flawed as many women have not experienced the kinds of benefits and happiness they hoped for. In an article on diversity for The London School of Economics blog, Aisling Marks argues that as “western society-at-large has opened up opportunities for women that would have seemed interminably out of reach to those in the suffragette movement and even the second-wave feminists of the 1970s,” many contemporary women view feminism as “a void concept, which perpetuates the image of ‘victimisation’, fixing its locus on its struggle rather than its success.”¹⁴ Thus, postfeminists portray feminism as an outdated approach that does not acknowledge the power of the individual to produce her own happiness. Indeed, ignoring structural ills that may limit one’s sense of agency and happiness, postfeminism suggests that women just need to make better personal choices – regardless of their effects on others. Contemporary feminists stress the continued need for collective action and community building in their efforts to create a more equitable and equal culture for all; postfeminists posit that feminists won these communal fights for equality and that individual women must now empower themselves through their personal choices – not as part of a larger community, but rather as autonomous individuals.

Within postfeminist culture, the body becomes a site for continual cosmetic makeovers

¹⁴ Aisling Marks, “Postfeminism and the Modern Woman: A Cause for Concern,” London School of Economics and Political Science, *Equality and Diversity at LSE: Redefining Difference*, March 21, 2012, <http://blogs.lse.ac.uk/diversity/2012/03/postfeminism-and-the-modern-woman-a-cause-for-concern/>.

designed to physically display oneself as an individual agent who makes personal choices designed – paradoxically – to better fit into the dominant culture. Anthony Giddens has stressed how the body is now “a phenomenon of choices and options.”¹⁵ This representation of identity becomes linked to “the consumer choices one makes to ‘enhance’ it.”¹⁶ In the case of the cosmetic surgery industry, a focus on recommending the “right” personal choices designed to lead to the most empowerment via economic and social gains has led to bodies that display conformity rather than distinctiveness. Kathryn Morgan has referred to this phenomenon as a “paradox of choice” wherein “what looks like an optimal situation of reflection, deliberation and self-creating choice often signals conformity at a deeper level.”¹⁷ Relying on Michel Foucault’s conception of discipline, in which constant coercion at the level of the individual leads to docile bodies that can be “subjected, used, transformed, and improved,” Morgan considers the power relations between patients, surgeons, and popular culture that make cosmetic surgery a tool for the patriarchal colonization of the female body rather than an opportunity to “celebrate idiosyncrasy, eccentricity, and uniqueness.”¹⁸ As she argues, cosmetic surgery tends to only value and reproduce a Western ideal beauty through the erasure of ethnic features, most famously large noses associated with Jews and epicanthic eyes associated with Asians. As more and more women get these operations, these definitions of beauty are further reinforced and cosmetic surgery becomes less a choice than a coercive imperative.

¹⁵ Anthony Giddens, *Modernity and Self-Identity: Self and Society in the Late Modern Age*, 1 edition (Stanford: Stanford University Press, 1991), 8.

¹⁶ Pecot-Hebert and Hennink-Kaminski, “I Did It For Me,” 84.

¹⁷ Kathryn Pauly Morgan, “Women and the Knife: Cosmetic Surgery and the Colonization of Women’s Bodies,” *Hypatia* 6, no. 3 (October 1, 1991): 36.

¹⁸ *Ibid.*, 35.

At the same time, neoliberal economics and culture have contributed to the celebration of cosmetic surgeries as a form of self-empowerment. Intertwined with postfeminism, neoliberal policies promote individualism and self-management strategies by increasing corporate privatization and decreasing governmental regulations. These efforts propose that people can succeed in a free market if they make the right choices and suggest that if they do not make the right choices, they have no one to blame but themselves. Neoliberalism treats these choices as tools for self-determination and economic advancement that treat the self and the body as plastic. Sociologist Kelly Moore has argued that “movement, dynamism, and consumption for improvement characterize the ideal neoliberal citizen.”¹⁹ This formulation has led to a reconfiguration of the working-to-middle classes into what she calls a “striver class” defined by its mobility aspirations. With the collapse of unionized labor and stable life-long work, these strivers are now expected to continually search for investments and opportunities in the hope of not just economic gain, but more importantly economic stability in a precarious period of high unemployment and heightened class divisions. While neoliberal rhetoric around strivers implies that the free market is an equal playing field, the austerity policies that support it largely work to support the status quo and ignore those most in need.

These same rhetoric and policies encourage subjects to publically demonstrate their commitment to self-discipline and improvement in a variety of ways including body modification projects from dieting to surgery. Moreover, a striver’s self-discipline practices are “expected to be joyful” signifiers of their commitment to continual economic self-

¹⁹ Kelly Moore, “Fear and Fun: Science and Gender, Emotion and Embodiment Under Neoliberalism,” *S&F Online* 11, no. 1–2 (Fall /Spring 2013 2012), <http://sfonline.barnard.edu/gender-justice-and-neoliberal-transformations/fear-and-fun-science-and-gender-emotion-and-embodiment-under-neoliberalism/>.

improvement.²⁰ Cosmetic surgeons use neoliberal rhetoric when they advertise their services as a way for women to celebrate their control over their own bodies and lives. L. Pecot-Hebert and H. Hennink-Kaminski have documented how this industry's advertising has ceased relying solely on "a language that privileges 'beauty', and instead have begun to tout intrinsic motivations (e.g., improved self-esteem, or doing something for oneself) as a way to connect with female patients."²¹ These ads ask patients to think of cosmetic surgery as a form of self-improvement that can help them take control of their lives. Yet, this neoliberal logic also suggests that these patients are ultimately responsible for their choices, regardless of the outcomes.²² With these risks, patients turn to recommendations from both surgeons and technology to circumscribe their choices.²³ And, indeed, with digital imaging technologies, surgeons can now show patients the projected effects of a variety of procedures and these visuals can help strengthen the power of their recommendations.

In many ways, these bodily recommendation systems follow the same logic as the Makeover TV genre. In *Makeover TV: Selfhood, Citizenship, and Celebrity*, Brenda Weber defines this genre as one in which "subordination empowers, where a normalized appearance confers individuation."²⁴ According to Weber, these series largely focus on making the body conform to only the most conservative models of heteronormative "gender, sexuality, race, class

²⁰ Ibid.

²¹ Pecot-Hebert and Hennink-Kaminski, "I Did It For Me," 80.

²² Leve, Rubin, and Pusic, "Cosmetic Surgery and Neoliberalisms," 12.

²³ Shelley Cobb and Susan Starr, "Breast Cancer, Breast Surgery, and the Makeover Metaphor," *Social Semiotics* 22, no. 1 (February 2012): 89.

²⁴ Brenda R. Weber, *Makeover TV: Selfhood, Citizenship, and Celebrity*, *Console-ing Passions: Television and Cultural Power* (Durham: Duke University Press, 2009), 2.

and ethnicity” with the belief that “to look unique and special, one must look and act like everyone else.”²⁵ While software that allows users to change their virtual bodies and often recommends particular bodies to emulate could display non-normative transformations, it is still largely tied to a larger cultural logic that demands that bodily change be used only to allow a person to fall more in line with legible performances of gender normativity.

As these programs are increasingly used from home, they also domesticate practices of viewing that originate in medical offices turn the body into a pathological object of consumption in need of a cure. Foucault calls this mode of viewing a “medical gaze” while Mary Anne Doane refers to it as a “clinical eye.”²⁶ They both describe “a disciplinary gaze situated within apparatuses of power and knowledge that construct the female figure as pathological, excessive, unruly, and potentially threatening of the dominant order.”²⁷ This body is “threatening” not just because of its pathological nature, but because it is impossible to ever completely cure; the focus of this gaze lies on the body’s continual aging and inevitable death. As Anne Balsamo further elaborates in regard to the female body, “this gaze disciplines the unruly female body by first fragmenting it into isolated parts—face, hair, legs, breasts—and then redefining those parts as inherently flawed and pathological.”²⁸ Balsamo further argues that “In the application of new visualization technologies, the relationship between the female body and the cultural viewing apparatus

²⁵ Ibid., 4.

²⁶ Mary Ann Doane, “The Clinical Eye: Medical Discourses in the ‘Woman’s Film’ of the 1940s,” *Poetics Today* 6, no. 1/2 (January 1, 1985): 210.

²⁷ Anne Marie Balsamo, *Technologies of the Gendered Body: Reading Cyborg Women* (Durham: Duke University Press, 1996), 56.

²⁸ Ibid.

has shifted again; in the process, the clinical eye gives way to the deployment of a technological gaze.”²⁹
Instead of focusing on the uniqueness of each patient, surgeons use imaging technologies

Cosmetic surgeons use technological imaging devices to reconstruct the female body as a signifier of ideal feminine beauty. In this sense, surgical techniques literally enact the logic of assembly line beauty: 'difference' is made over into sameness. The technological gaze refashions the material body to reconstruct it in keeping with culturally determined ideals of feminine beauty.³⁰

Foucault, Doane, and Balsamo all theorize this gaze as one that originates out of a disciplinary power model wherein systems of visible surveillance and supervision regulate personal behaviors and beliefs through the creation of clear and stable distinctions between spaces (the office, home, etc.) and time (work, free, family, etc). Yet, neoliberal policies works to disrupt these boundaries by creating precarious labor with unstable work hours and free market global economies wherein jobs can be done by anyone at anytime. This blurring of boundaries, facilitated by nonvisualizable digital networks, has led to what Gille Deleuze has called a movement from a discipline society to a “control society,” wherein everything is continuously linked and this linking acts to obscure the loci of power and ideology. As Wendy Chun has described it,

Whereas disciplinary society relied on independent variables or molds, control society thrives on inseparable variations and modulations: factories have given way to

²⁹ Ibid.

³⁰ Ibid.

businesses with ‘souls’ focused on on metaproduction and on destroying unions through inexorable rivalry; schools have given way to continuing education and constant assessment; new prison techniques simultaneously offer greater freedom of movement and more precise tracking; and the ‘new medicine ‘without doctors and patients; identifies potential cases and subjects at risk’ without attempting treatment.³¹

Control societies paradoxically allow for but constantly monitor freedom of movement in order to shape ideology and support the status quo. Chun further describes how these techniques of control have led to a movement from a rhetoric of “liberty” to a rhetoric of “freedom.” Liberty is always linked to one’s relationship to institutions while freedom is more nebulous. Indeed, to “have liberty is to be liberated from something; to be free is to be self-determining, autonomous.”³² Postfeminist logic argues that while women may now be more “liberated” than ever before, this liberty has not resulted in “freedom” which it equates with a sense of being able to control one’s life by making the “right” personal choices. By declaring that people desire freedom instead of liberty, culture industries of choice frame recommendations as a path to freedom. Cosmetic surgery companies and their digital imaging technologies, present freedom as the ability to control one’s body by making the “right” choice about how to change it.

Indeed, as this medical gaze has spread throughout a variety of cosmetic fields, it takes on the dynamics associated with a control society and becomes technologically automated and more extreme. This technological gaze and the systems that facilitate it

³¹ Chun, *Control and Freedom : Power and Paranoia in the Age of Fiber Optics*, 8.

³² *Ibid.*, 11.

collapse the rhetoric of freedom with the rhetoric of control in order to better commodify the human body and further commercialize those cultural markers that come to define ideal beauty. Digital imaging systems fragment the body into isolated and generic parts so that it becomes a vehicle for continual upgrades. As this gaze trains subjects to view their bodies as endlessly pathological, they require endless modifications. Bernadette Wegenstein argues that via this gaze, subjects view their own and others' bodies as "incomplete projects" and this gaze encourages these subjects to use technology and cosmetic surgeries to reveal their "real" or true self.³³ Through an ethnographic study, Wegenstein, like Davis before her, shows that patients view cosmetic surgery and its concomitant technologies as tools to individuate themselves in ways that treat "the body as a vehicle for self-expression."³⁴ They do not view the body as naturally expressive but instead believe it can become so through modifications. Paradoxically, as Balsamo has noted, while patients decide which operations they would like, these modifications, whether a new nose, breasts or stomach, do not individuate, but rather "reconstruct the body to cultural and eminently ideological standards of physical appearance."³⁵ Surgeons use digital imaging technologies to help patients adopt a surgical gaze that allows them to better measure themselves against the dominant cultural standards.

By promoting the virtual manipulation and reshaping of bodies, digital imaging technologies and the companies that develop and use them promote the cosmetic gaze. Some of

³³ Bernadette Wegenstein, *The Cosmetic Gaze [electronic Resource]: Body Modification and the Construction of Beauty* (Cambridge, Mass.: MIT Press, 2012), 109.

³⁴ Alexandra Howson, *The Body in Society: An Introduction* (Cambridge, UK Malden, MA: Blackwell, 2004), 96, <http://www.loc.gov/catdir/toc/ecip042/2003007446.html>.

³⁵ Balsamo, *Technologies of the Gendered Body : Reading Cyborg Women*, 58.

these technologies simply provide digital tools and instructions on how to retouch one's own image for photos on social networks, dating sites, in yearbooks and headshots, in order to make one look as beautiful or handsome as one possibly can. Others actually automate this task for users. In both cases, these recommendation tools have become central to how many people now view, imagine, and interact with their bodies; as such, they have become fundamental to how choices around bodily changes are now both constructed and constrained within a postfeminist framework.

Photography and the Standardization of Plastic Surgery

While people have only recently begun using digital recommendation technologies to judge the physical body, the practices that surround it arise out of a much longer history concerning the intersections between visual media and medicine, which has helped to create certain standards not just of beauty, but also of normality. Photography has long been central to plastic surgeons' efforts at both standardizing particular conceptions of beauty and, in a related move, at turning their field into a venerable profession. Early on, photography and its ability to document and record the pre-operative and post-operative body helped create standard practices and objective criteria for the profession. These photos could be used to create specific expectations for future patients and also teach medical students what the proper outcomes of these surgeries should be. Moreover, basing the success or failure of a cosmetic surgery operation solely on the surgeon and patient's memory of his or her former body was deemed unacceptable as the surgeon and patient might remember this body differently or have had different expectations as to what was possible through a surgical operation. At the same time, certain "defects" like asymmetries in facial features that were invisible before surgery might

become more noticeable after a surgery, and a photographic record could provide proof that the asymmetry, while perhaps unnoticed, had always been present. These before-and-after photos provided evidence as to whether these surgeries were ultimately successful or not, which is important both for professional and legal purposes. As cases in which the patient is unhappy with the surgery outcomes can often end up in court, these photos could provide a sense of objective proof as to whether the surgery should be considered a success or not.

However, since a subject may look wonderful from a high angle medium shot through a 35mm lens, but terrible in a low-angle close-up with a 15mm lens, photography had to become standardized for this medical field.³⁶ Cosmetic surgeon and UCLA Medical School Instructor Robert Kotler has argued that since different lighting, angles, and expressions can affect how a person looks as much as any surgery, before-and-after photos must be “technically consistent” so consumers “can make an honest judgement” of a surgeon’s artistry.³⁷ Instead of hiring professional photographers to document patients and surgeries, doctors or their assistants normally took these photos and therefore required some training in the techniques and technologies of this artistic field. In 1988, Gerald D. Nelson and John L. Krause for the Clinical Photography Committee of the American Society of Plastic and Reconstructive Surgeons prepared *Clinical Photography for Plastic Surgeons*, a landmark collection of essays that served to codify the best practices around clinical photography. In this textbook, surgeons and lawyers both historicized the long history of medical imaging (stretching back to Albrecht Durer but

³⁶ Allan Sekula discusses how a similar standardization of body photography disciplined the bodies of criminals.

See Allan Sekula, “The Body and the Archive,” *October* 39 (1986): 3.

³⁷ Robert Kotler, “How Cosmetic Surgeons Use Photos,” *WebMD Videos*, May 2012,

<http://www.webmd.com/beauty/video/before-after-photos-cosmetic-surgery>.

focusing on the beginning of photography and the interest in “documenting deformity, disease, and injury”) and gave detailed descriptions for doctors on how to photograph surgical subjects.

To provide the greatest evidentiary value and create a sense of objectivity to cosmetic surgeries, every element of photography had to be standardized in order to allow this largely qualitative evidence to be generalized and turned into quantitative statistics, the lingua franca of contemporary medicine. The authors in *Clinical Photography in Plastic Surgery* worked to create a set of best practices concerning how to standardize their photography as much as possible. This textbook first goes over the types of cameras, lenses, lighting, and film stock to use when photographing a nude body at a distance, close up (with special focus on shots of the inside of the mouth), and in an operating room. Later articles then go on to address how to best project these images, how to store them and the special ethical considerations concerning these photos in relation to patient’s privacy concerns and the fiduciary duty of physicians. In the process, these articles provided a framework for the standardization of the relatively new profession of medical photography.³⁸

As each element of the photographic apparatus will distort the body in a variety of different ways, these standards make clear which forms of distortion are not simply acceptable, but also which are considered the least mediated and ultimately the most normative way of viewing the body. Harvey Zarem, the author of a chapter on “Standards of Medical Photography” in Nelson and Krause’s collection, argued that cosmetic surgeons have the same duty as laboratory scientists to make sure their data collection techniques (in this case

³⁸ Gerald D. Nelson and John L. Krause, *Clinical Photography in Plastic Surgery*, 1st ed. (Boston: Little, Brown, 1988), ix.

photography) “are reliable and consistent.”³⁹ Surgeons use these photographs as evidence of their skill, innovations and efforts in advertisements for their practices, lawsuits, conference papers and journal articles. While in the short term, pre- and post-surgical photos could help refresh the memory of surgeons, over the period of years, photography helps surgeons visualize larger “trends, evolutions, and outright discoveries” that can lead to more knowledge concerning plastic surgery and changes in the aesthetic evaluation of the human body.⁴⁰ These photographs also developed a “socioeconomic importance” as insurance companies rely on photographs when deciding whether to cover a patient’s condition.⁴¹

Since cosmetic surgery has far less governmental regulations than most other medical fields, the industry collects photographs and other documentation as part of a medical record in order to standardize and legitimize its practices as scientific and safe. As late as 2012, many states did not require any accreditation or licensing of medical offices where cosmetic surgery operations take place; those that do often only regulate surgeries where the patient is fully anesthetized and/or in the rare case when private insurance or Medicare covers the bill.⁴² Along with surgeries that result in patients’ unexpected aesthetic outcomes, this lack of regulation has led to cases of patients dying from infections due to unsterilized environments and untrained doctors performing surgeries with tools and machines they did not know how to operate.⁴³

³⁹ Harvey A. Zarem, “Standards of Medical Photography,” in *Clinical Photography in Plastic Surgery*, ed. Gerald D. Nelson and John L. Krause, 1st ed. (Boston: Little, Brown, 1988), 73.

⁴⁰ Nelson and Krause, *Clinical Photography in Plastic Surgery*, ix.

⁴¹ Ibid.

⁴² Jayne O’Donnell, “Cosmetic Surgery Laws Often Aren’t Enough,” *USA Today*, December 10, 2012, Online edition, <http://www.usatoday.com/story/money/2012/12/10/cosmetic-surgery-laws-effect-debated/1759839/>.

⁴³ Ibid.

While there are few statistics available on the number of lawsuits that result from these practices, in Great Britain, where many procedures are unregulated, cosmetic surgery made up “80% of the rising number of legal actions” in 2010 and 45% of these cases were upheld (compared to an average 30% across medical fields).⁴⁴ Thus, cosmetic surgeons take and store photographs of patients for use as evidence in court to help curb such lawsuits when possible.⁴⁵

As new photographic and digital technologies have developed, articles on what the standards and practices should be have proliferated and appear often in widely read journals ranging from *Plastic & Reconstructive Surgery* to *The Annals of Plastic Surgery*.⁴⁶ These plastic surgery journals largely address the differences between how to record, archive, and present celluloid film versus digital images. This creation of standards and best practices helps to make these digital images (with their more tenuous indexical status) suitable as evidence in both court cases and scientific studies.

Many of the authors of *Clinical Photography in Plastic Surgery* already focused on how photographs are important, not simply for surgeons, but also for how they act as a “reinforcement to the patient that he or she is part of the process” and can lead to an overall

⁴⁴ Denis Campbell and Health Correspondent, “More Patients Sue Plastic Surgeons over Faulty Cosmetic Operations,” *The Guardian*, January 8, 2012, <http://www.theguardian.com/society/2012/jan/08/patients-sue-plastic-surgeons-faulty>.

⁴⁵ Noah Scheinfeld, “Photographic Images, Digital Imaging, Dermatology, and the Law,” *ARCH DERMATOL* 140 (April 2004): 473.

⁴⁶ See Reha Yavuzer, Stefani Smirnes, and Ian Jackson, “Guidelines for Standard Photography in Plastic Surgery,” *Annals of Plastic Surgery* 46, no. 3 (March 2001): 293–300; John DiSaia, Jeffrey Ptak, and Bruce Achauer, “Digital Photography for the Plastic Surgeon,” *Plastic and Reconstructive Surgery* 102, no. 2 (August 1998): 569–573; Joseph Niamtu III, “Image Is Everything: Pearls and Pitfalls of Digital Photography and PowerPoint Presentations for the Cosmetic Surgeon,” *Dermatological Surgery* 30 (2004): 81–91.

greater “confidence in plastic surgery as well as in modern medical treatment.”⁴⁷ In addition to allowing surgeons to learn from past surgeries and to protect themselves from lawsuits, photography is also regarded as a way for the patient to be – or at least feel – like he or she has had an active part in the modification of his or her own body.

Digital Technology and Clinical Recommendations

The standards of beauty that were developed via photography are now used as a model to digitally transform physical images of potential cosmetic surgery patients. These manipulated images are then used as templates for actual physical changes through surgical operations. Just as plastic surgeons have long been trained in the proper practices of photographing the body, they now often use Adobe Photoshop and other more specialized programs focused on image (and virtual body) manipulation.⁴⁸ While not yet widespread, those plastic surgeons that offer such services often heavily advertise them on their websites as both a cutting-edge and pleasurable technique that separates them from competitors.

Unlike the before-and-after photo, these digital manipulations not guide the patient through the process of imagining what their body could eventually look like but also to help manage the expectations and fantasies of patients concerning what kinds of bodies are possible. One article on the use of these technologies at the Parker Center for Plastic Surgery in New Jersey noted that “for any cosmetic surgery patient, trying to articulate exactly what they want

⁴⁷ Nelson and Krause, *Clinical Photography in Plastic Surgery*, ix.

⁴⁸ See Grant S Hamilton 3rd, “Photoshop Tips and Tricks Every Facial Plastic Surgeon Should Know,” *Facial Plastic Surgery Clinics of North America* 18, no. 2 (May 2010): 283–328, Table of Contents.

done is often one of the most difficult parts of the entire process.”⁴⁹ While these digital imaging programs can certainly help patients articulate their desired physical shape and try on a variety of new bodies with no consequences, these programs are primarily used to help the surgeon make a particular recommendation and convince the patient that that recommendation, whether or not it is what the patient originally came in asking for, is actually the best course of action. After patients discuss how they would like to look after the surgery and what parts of their bodies they would like to change, the doctor takes photos and digitally manipulates them to the patient’s specifications—either by changing the shape of the nose, enlarging the breasts, decreasing the size of the stomach, or any of a number of other changes. Even though these programs can potentially be used to manipulate and morph these bodies in any imaginable way, in practice these programs are used to restrict the possibilities of physical change to focus those changes that are most normative. Thus, as digital technologies help manage new and often complicated and confusing personal choices around bodily modification, their recommendations guide patients toward particular surgical decisions that are often the most conservative: focused on erasing difference and accentuating traditional gender norms through the shape of the body.

Many of the digital image manipulation technologies commonly used by and made specifically for plastic surgeons are only slightly different from consumer programs like Adobe Photoshop. These programs range in price and functionality with the low-end starting at \$1,000 with programs like Seattle Software Design’s AlterImage, This program includes automatic photo editing tools for body manipulation that make stretching and blurring extremely simple. Unlike Photoshop, with its hundreds of functions and complex interface, the original version of

⁴⁹ “Digital Technology Gives New Jersey Plastic Surgery Patients a ‘Sneak Peek’ Before Going Under the Knife,” March 7, 2009, <http://www.prweb.com/releases/cosmetic/surgery/prweb2214634.htm>.

AlterImage featured just three main tools for digital manipulation: Warp, Stretch, and Smooth.⁵⁰ Warp, the primary tool, is used to alter the shape and angle of “tissue to alter shape. Neck lifts, jowl correction, cheek implants, and most of what you need to do with rhinoplasty are performed with this tool.”⁵¹ Stretch both lengthens and thins out body tissue. Smooth blurs out skin blemishes and also melds any warping and stretching to help blend all the new pieces of the virtual body. In later updates to the program, AlterImage added a special new “Double Eyelid Tool” that could automatically add an eyelid fold to images, a surgery that has become extremely popular with Asians (and Asian-Americans) as the pressures of Western Cultural ideals have become more global.⁵² As one clinic using AlterImage explains on its website, these technologies show the patient on their “computer screen what's surgically feasible and what's not” in order to make them “better informed, more satisfied” patients.⁵³ However, the limiting of function to Warp, Stretch, Smooth, and Double Eyelid Tool suggests a limited range of possibilities.

Along with the addition of the Double Eyelid tool, most of the changes between versions of AlterImage focused on adding utilities like color correction, aspect ratio control, and saturation for making the generated images look better for presentations and publications. These images become the basis for “medical records, education, development of personal libraries and

⁵⁰ Andrew Barnett, “AlterImage - a New Price/Performance Standard for Digital Image Manipulation,” April 2007, <http://sites.google.com/site/alterimagesimulation/home/white-paper>.

⁵¹ Ibid.

⁵² Sandy Kobrin, “Asian-Americans Criticize Eyelid Surgery Craze,” *WeNews*, August 15, .

⁵³ “Mirror DPS Digital Imaging in Albany,” 2012, <http://www.theplasticsurgerygroup.net/plastic-surgery/digital-imaging.cfm>.

publications” within the cosmetic surgery industry.⁵⁴ The technologies that create these images are central to the teaching of plastic surgery and determining which aesthetic changes are considered more attractive, and which are not. In the process, these technologies and the dissemination of the images they produce play an important role in creating the image of what types of bodies are better than others.⁵⁵

Other, more expensive programs (over \$40,000) are much more specialized in digital imaging. Like many other companies in the field, Crisalix, the maker of E-stetix 3D, a professional web based 3D breast implant simulation site, describes itself as aiming “to develop scientific technologies in the field of plastic and aesthetic surgery to improve surgeon-patient relationships.”⁵⁶ For Crisalix and the medical imaging industry in general, improvements in this relationship equate to a higher number of surgeries per patient. Crisalix specifically markets its E-stetix 3D program by focusing on its ability to “increase consult-to-surgery conversions” by both “boosting patient confidence.”⁵⁷ On the [crisalix.com](http://www.crisalix.com) “testimonial” page, where one would usually see accounts from patients on their experience with the technology, Crisalix posts quotes from a number of surgeons, including Dr. Serge Le Huu who raves that e-Stetix increased his “conversation rate for breast augmentations from 60 to 86%.”⁵⁸ Furthermore, Dr. Thomas Biggs,

⁵⁴ See McG Taylor et al., “A Study of the Personal Use of Digital Photography Within Plastic Surgery,” *Journal of Plastic, Reconstructive & Aesthetic Surgery* 61, no. 1 (April 2, 2006): 37–40.

⁵⁵ Ibid.

⁵⁶ “Crisalix | 3D Medical Imaging Technology Software Company,” 2012, <http://www.crisalix.com/en/about>.

⁵⁷ “3D Breast Implant Simulation Online: Web-Based Software | e-Stetix,” 2012, <http://www.crisalix.com/en/products>.

⁵⁸ “3D Simulation Software For Plastic Surgeons: Testimonials | Crisalix,” 2012, <http://www.crisalix.com/en/testimonials>.

the editor-in-chief of the *International Confederation for Plastic Reconstructive & Aesthetic Surgery Journal* is quoted as saying that “the likelihood that the patient will make a positive decision regarding the surgery increases.”⁵⁹ It is clear here that “a positive decision” can only mean surgery, and more specifically, a surgery recommended by Dr. Biggs and illustrated by the E-stetix 3D program.

Moreover, these 3D digital imaging programs are used to not just support a recommendation for an individual surgery, but also to increase the number of surgeries per patient. Canfield’s Vectra 3D camera and Sculptor 3D Simulation software is one such high end system that is sold to surgeons specifically as both a way to “differentiate your practice” and “increase complementary procedures.”⁶⁰ This effort is alluded to on the website for Beverly Hills Simoni Plastic Surgery Clinic, where the use of 3D imaging is explained for use on patients who ask for rhinoplasty, since this operation “can potentially affect the balance of the entire face.” These images make it easier for Dr. Payman Simoni to argue that by changing the nose, other elements of the face might also need to change. His website says that “3-D imaging is one more way for him to communicate with his prospective Rhinoplasty patients what the goals for the surgery should be” so that he can lead them toward “sounder decisions.”⁶¹

These “sounder decisions,” of course, conform to a particular aesthetic, something especially true in relation to the nose. While virtual recommendations for almost every other body part appear differently depending on the particular patient, the altered nose always appears to be the same, with a concave curve and a thin bridge. “The goal” of rhinoplasty, according to

⁵⁹ Ibid.

⁶⁰ “Canfield Scientific Inc,” 2012, http://www.canfieldsci.com/imaging_systems/imaging_software/Sculptor_3D_Simulation.html.

⁶¹ “Virtual Plastic Surgery | 3D Computer Imaging,” 2012, <http://www.drsimoni.com/virtual-plastic-surgery.htm>.

these images, is always to achieve (or get as close as possible to) this particular shape specifically because it is associated with whiteness and a lack of ethnicity. Many plastic surgery sites call these operations that seek to replace a “bulbous” appearance and/or “wide and flat bridge” specifically ethnic rhinoplasties as they seek to erase semitic cultural markers from the patient’s body.⁶² This particular look is also one of the easiest to accomplish via most cosmetic surgery digital imaging software, as it requires just one or two movements of the mouse to erase the convex curve. By designing the software to make this technique so simple and by only showcasing this one particular shape of the nose that is specifically associated with whiteness, surgeons like Simoni end up severely limiting the types of bodies that patients can adopt and the forms of beauty that are encouraged to exist. As in other areas of postfeminist culture, these limitations help to suppress difference and celebrate the dominance of whiteness.

The logic of normalizing cosmetic surgery through a guided digital imaging wherein the surgeon will go through and make as many changes as possible reaches a high point on sites like virtualplasticsurgeryoffice.com, the online presence of a Los Angeles cosmetic surgery clinic that specializes in “extreme makeovers” which require multiple procedures that result in dramatically different appearances. This site supplies a great deal of information and encourages Skype interviews for potential out of town patients who might fly in for multiple surgeries at a time including “designer laser vaginoplasty,” “Brazilian Butt Lifts” and “Vaser Hi Def Liposculpturing.” When getting “a breast job, bootylicious J-Lo butt, and a Designer Vagina all at one time,” this clinic offers its trademarked “Wonder Woman Makeover,” also commonly

⁶² For one example, see “Ethnic Rhinoplasty in Los Angeles,” 2012, <http://www.rodeodriverhinoplasty.com/ethnic-rhinoplasty.html>.

known as a “Mommy Makeover.”⁶³ This package of surgeries, which often costs between ten and fifteen thousand dollars, seeks to eliminate all signs of pregnancy from the body of a new mother. In doing so, it “seeks to pathologize the postpartum body” and treats “motherhood as a stigma.”⁶⁴ By packaging these surgeries together, the cosmetic surgery industry turns “badges of motherhood” into “badges of shame” in order to create a new and very lucrative market to treat a pathology that previously did not exist.⁶⁵ By packaging and recommending multiple surgeries at once, these mothers become more likely to get them even if they originally only wanted one. They also encourage those mothers who had not previously thought of their changing bodies as a stigma to consider surgery.

Digital imaging thus works to create a sense of being flawed even where it did not exist before. Theorist Susan Bordo described an experience that occurred when she went to a dentist to repair a discolored tooth. Her dentist created an image of her post-operation mouth and in the process suggested a handful of other, much more invasive operations that would improve her overall smile. While she told him she was not interested, he still mailed her “a computer-generated set of recommendations,” written in such a way to suggest that “all the options that were *his* ideas” actually represented her own “expressed dissatisfactions and desires.”⁶⁶ These new recommended operations consisted of much more invasive procedures on her gums and had a price tag of \$25,000. As Bordo argues, every mark on the body becomes magnified by these

⁶³“At Home Virtual Cosmetic Plastic Surgery Consultation Online Via Skype,” 2012, <http://www.virtualplasticsurgeryoffice.com/>.

⁶⁴ Natasha Singer, “Is the ‘Mom Job’ Really Necessary?,” *The New York Times*, October 4, 2007, sec. Fashion & Style, <http://www.nytimes.com/2007/10/04/fashion/04skin.html>.

⁶⁵ Ibid.

⁶⁶ Bordo, *Twilight Zones : the Hidden Life of Cultural Images from Plato to O.J.*, 55.

technologies as they tend to teach subjects to view their bodies with an ever more acute visibility.⁶⁷ This way of looking at the body – the surgical gaze – commodifies every portion of the body and trains subjects to view it as a “fixer-upper,” full of defects that must be worked on and eventually replaced. Repudiating Davis’s argument that most cosmetic surgeries are performed on patients who just want to appear “ordinary” rather than beautiful, Bordo argues that “in a culture that proliferates defect and in which the surgically perfected body (‘perfect’ according to certain standards, of course) has become the model of the ‘normal,’ even the ordinary body becomes the defective body.”⁶⁸

The individual experience of patients with these technologies depends upon the way surgeons employ them and whether they use them as a way to help patients articulate their own ideas of how they would like to look, or as a way to impose a particular dominant form of beauty onto the patient. To get a better idea of how these technologies are actually used within a clinical setting, I asked three plastic surgeons, John Cochran, Samuel Nelson Pearl, and Eric Okamoto in the San Francisco Bay Area over email how they use digital imaging in their individual practices. While their responses were brief and anecdotal, their disparate responses helped elucidate the lack of standardization of how surgeons employ digital imaging technologies and how these differences can effect the individual experience of patients in a variety of ways.

Each surgeon pointed out that the regular software and 2D images are more than adequate for their uses and for their main purpose of communicating with the patient in a visual way what changes they would like to make and whether these changes are feasible. These three surgeons also made it clear that there is no real consensus on how best to use these programs. One said he

⁶⁷ Ibid., 50.

⁶⁸ Ibid., 56.

used these programs all the time and that he found that they allowed him not just a better way to communicate his ideas to his patients, but they also helped him to better perform surgeries because the experience gave the patient a chance to point out aspects of his or her body that the doctor had not fully appreciated.⁶⁹ In general, his use of the technology helped to make the patient a more active participant in the surgery and helped to make the surgery more customized to both the patient's body and wishes.

Another surgeon stressed that he felt the technology was only useful in certain circumstances and with certain body parts. He used it all the time with rhinoplasties because he found patients tend not to know exactly what they want when they ask for one, and do not necessarily know how to communicate their desires in general; a patient saying that he or she would like a smaller nose could mean any of a number of things. With other surgeries, such as liposuction and facelifts, he pointed out, it was often simpler to just use a mirror and manipulate the body parts by hand.⁷⁰ This surgeon rarely used the technology to facilitate a back and forth discussion of possible alternatives to how the body might be modified. He viewed the technology as mainly being for the patient, as he could already see the changes that he would make as soon as he looked and touched the patient's nose. His patients may come into the office with a particular idea of what kind of nose they would like, or perhaps a picture of a celebrity's nose, but this surgeon used the imaging technologies to steer the patient away from these possibilities if he felt they would not look good, and toward alternatives that he thought would work better. He also used the software to show other areas that could be changed in tandem with

⁶⁹ John Cochran, Samuel Nelson Pearl, and Eric Okamoto to Jonathan Cohn, "Plastic Surgery Technology Questions," December 6, 2009.

⁷⁰ Ibid.

the body part they were already thinking about modifying—his example was an Asian patient who asks for more of a bridge to her nose: “I show [her] an augmented bridge on her profile and usually talk about refining the tip at the same time. Bottom line is that I am able to define changes better than vague suggestions about making the nose larger, smaller, thinner, etc. An average patient might have two things on his shopping list – after our consultation, there might be 5 changes to consider.”⁷¹ By referring to these operations as a shopping list, this surgeon frames the patient as a consumer and her body as a collection of products. As in the case of dating websites, recommendations are here used to place the patient within a marketplace structured around the commodification of the body.

The last surgeon I talked to said he simply did not use these technologies at all because he thought they implied a warranty of the outcome. Most, if not all surgeons make sure to specify that digital imaging is not a guarantee of outcome, often in written legal documents and disclaimers, if they are going to offer such services. While these technologies can get plastic surgeons into legal trouble and can only serve as a sketch rather than a schematic during surgery, they are still very popular because they provide the part of the plastic surgery experience in which one may experiment with one’s own body and reshape and re-envision it in ways that one might not have had a chance to before. Oddly, this technology allows for an excitement and enjoyment of cosmetic surgery that the surgery itself does not actually allow for—or, at least that is what these technologies’ marketing departments would have prospective patients believe. Recommendations and imaging here work to turn surgery into a commercial enterprise and the patient’s body into a commodity while they simultaneously make patients feel as if they have agency in the process.

⁷¹ Ibid.

Broadening the Surgical Gaze

While the use of body morphing digital imaging technologies started in cosmetic surgery clinics as a way to guide the personal choices of patients and homogenize the kinds of bodies and beauty that are deemed acceptable, these technologies have now become part of the larger digital media environment. Just as they became popular for patients because they are enjoyable to use and turn the body into a site of possibility and potentiality, they are now just as popular as a source of online entertainment. In the process, plastic surgery as an industry has achieved its original goal of using photography (and the surgical recommendations that sprang from them) as a way to not only standardize and legitimize itself, but also become a normal, if not everyday activity around which a variety of online communities have formed.

These digital imaging programs entered online spaces first via companies that allow both potential patients and casual users to email (or mail) in pictures of themselves with instructions concerning what types of surgeries they would like to simulate. For anywhere between \$19.99 and \$69.99, these sites would send back a modified image to prospective patients of what they would look like if such changes were implemented. BeautySurge.com, “the cosmetics surgery supersite,” that acts as a community center, resource, and store for those interested in discussing and/or getting surgery became an early purveyor this service in 2004 when they announced that through “advanced software and an in-depth knowledge of plastic surgery,” they would now offer patients the chance to see the “expected results” of their proposed surgeries.⁷² Without any real conversation, editors will digitally transform users’ photos in whatever shape the editors

⁷² Danya Hoenig, “‘Virtual Plastic Surgery’ - BeautySurge.com Announces Launch of Cosmetic Surgery Digital Imaging Services,” 2004, <http://www.prweb.com/releases/2004/03/prweb109961.htm>.

choose. This removes patient agency even more so than occurs in clinics, as the patients have no chance to interject with their own ideas of how they would like to look.

Other sites suggest that the purpose of these digital manipulations should only be for testing out new bodies, transforming one's image rather than one's actual body via surgery. FinishMyFoto.com advertises its "digital plastic surgery" service by explaining,

Now there is no need to go under the knife...at least as far as your pictures are concerned. Foto Finish artists can take years off your face and neck, remove scars and blemishes, whiten teeth, remove lipstick from teeth, and correct other unsightly problems. We can digitally apply makeup, fix stray hairs, and more. You'll still look like you...only better!⁷³

These sites stress that anything, any kind of manipulation is possible in a photo and also suggest that image manipulation is a useful and acceptable practice, especially when the changes you want to make are somewhat minimal and would not necessarily be noticed by someone meeting you in real life for the first time. For the purposes of presenting yourself to acquaintances on Facebook, getting a job via LinkedIn or another jobseeking site, or even getting a date from an online dating site, the possibility of manipulating your photo is advertised as a simple way to "improve" oneself visually. The changes in these photos must be subtle so that those people that users meet via these sites assume that they had an excellent but real photo rather than a digitally-altered one. However, since so much of one's life is now conducted online, one's digital image has become as important – and in some cases more important – than one's actual appearance. At

⁷³ Heather Hurst, *Digital Plastic Surgery*, 2011, <http://www.finishmyfoto.com/digital-plastic-surgery.html>.

the same time, such technologies may in fact encourage some users to eventually opt for actual surgery.

As in other areas of postfeminist culture, transforming the self is here presented as a form of pleasurable agency associated with autonomy and freedom. The above tutorial also suggests that the process is “so simple and easy, you’ll be tempted to use it on photos of people who honestly don’t need it.”⁷⁴ By asking the user to view everyone as a possible candidate for rhinoplasty, regardless of their need simply because it “was so much fun and so easy to do!” this web tutorial encourages a surgical gaze that is common throughout websites devoted to digital cosmetic surgeries.⁷⁵ These sites ask users to view and modify everything as if they were magazine editors who feel the need to transform the shape and dimensions of their cover models. Rather than becoming a site for genuine free play, however, the digitized body becomes a site of further discipline. One website notes that “digital Technology can liposuck you, hide every fault from bumps to lumps, wrinkles to crinkles, complexion, hair, cellulite and teeth which are all digitally enhanced and every imperfection is fixed to achieve a flawless look.”⁷⁶ Through this focus on the photographed and transformed body, this surgical gaze homogenizes not just beauty, but as Bordo put it, also normality, through the figure of the digitized body.

Moreover, online play with the digitized body is often intended as a gateway to actual body modification. Indeed, plastic surgeons have been very successful in normalizing and popularizing their profession through the dissemination of online digital imaging programs

⁷⁴ Steve Patterson, “Photoshop Tutorials: Easy Digital Nose Job in Photoshop,” *Photoshop Essentials*, 2012, <http://www.photoshopessentials.com/photo-editing/nose/>.

⁷⁵ Ibid.

⁷⁶ compu-smart, “Models & Celebrities Without Makeup: Digital Cosmetic Surgery Facts,” 2012, <http://compu-smart.hubpages.com/hub/digital-cosmetic-surgery>.

designed to both ease potential patients into the clinic and expand their customer base to wider clientele. For example, on Facetouchup.com, for \$9.95, users can upload up to ten pictures of themselves and use their simple editing tool to edit their body in the way they would like. This website specifically targets users who are interested in plastic surgery but are “on the fence.”⁷⁷ After modifying their image, users are encouraged to download their images and/or email them directly to their surgeon in order to make these currently uncertain users into full-fledged patients. While doing this at home by themselves certainly allows users to experiment with their bodily shapes in ways that they would not be able to in a surgeon’s office, there are still many guides on the site that encourage them to shape their bodies in the same ways they would be if a surgeon was making the edits.

Before modifying their own bodies, users are encouraged to practice on one of three pre-loaded faces featuring a white woman and man both looking to the right, and an African American woman looking straight ahead. While the angle on the two white people showcases the slightly convex shape of their noses, the African American woman’s photo foregrounds the broadness of her nose. This program showcases non-caucasian ethnicity (both semitic or African) and encourage users to transform/delete them. Video tutorials on the site first explain how to transform these noses to make them narrow and concave (i.e. less ethnic). One tutorial goes further and suggests that after completing one edit, the user should consider “a more ambitious procedure” and proceed to transform other parts of the face to show how the user would look with not just rhinoplasty, but also a chin augmentation and neck lift.⁷⁸ Just like in a surgeon’s office, this digital imaging tool encourages users to transform bodies into a

⁷⁷ “FaceTouchUp,” 2011, <http://www.facetouchup.com/>.

⁷⁸ Ibid.

conservative and specifically white ideal of beauty through as many costly surgeries as possible. During this process, these users are taught to view their bodies through this surgical gaze.

Along with the tools on their website, Facetouchup.com sells desktop digital imaging programs to surgeons for use in their practices and will also create custom iPhone and iPad apps to help advertise their clinics. The 15 apps that they have so far made, which are all advertised on their site, all look very similar and all include the same basic services including videos, contact information, and the same morphing technology available on their website. After users have modified their images, they are encouraged through an automatic prompt to email the surgeon for a price quote, send the image to a friend, and publish it on Facebook.⁷⁹ Through these prompts, this software pushes users to not only become more serious about being a patient, but also to make this public knowledge and a topic of conversation through social networking. These tactics are a way to make plastic surgery more than simply a one-time (and often hidden) event into a normative lifestyle choice that communities can center around.⁸⁰

This effort to create communities and lifestyles around plastic surgery is a common thread that runs throughout many online digital imaging programs. While Crisalix markets its 3D imaging technology to plastic surgeons via crisalix.com, they also host sublimma.com, a website that markets e-Stetix 3D technology and breast augmentation surgery specifically to patients and consumers. Complete with links to Twitter, YouTube and the roughly 1,400 people who have “liked” it on Facebook, Sublimma.com offers a variety of ways to create a community

⁷⁹ “Plastic Surgery iPhone App Development,” 2011, <http://www.facetouchup.com/products/plastic-surgery-iphone-app-development.html>.

⁸⁰ In *The Body and Society*, Alexandra Howson describes a variety of ways in which the commodification of the body (through forms of modification ranging from jogging to tattoos) can become a method for identifying with a particular lifestyle. See Howson, *The Body in Society: an Introduction*.

around a shared interest in breast augmentation. While Crisalix offers testimonials from surgeons who valorize the software's ability to convince patients to get a surgery, Sublimma.com offers quotes from patients who largely describe the way the technology taught them a new way to view themselves. In the conditional tense, one person remarked that "seeing myself in 3D allowed me to look at my body from a whole new perspective" as if this 3D effect was more revelatory than viewing oneself in a mirror or on video.⁸¹ Many other patients remarked that their surgeons would suggest a particular implant for them and then use e-Setix 3D to visualize their new bodies, which they describe as "a real motivational factor!"⁸²

While on Sublimma.com and FaceTouchUp.com digital imaging is discussed primarily as an educational tool that can help users see their body from "a whole new perspective," NKP Medical Marketing's SurgeryMorph.com is much more interested in the entertainment and playful aspects of the tools. While David Phillips, the CEO of NKP Medical Marketing commented on these tools' ability to take "the guesswork out of the process," the reason he believes it is really special is that it does so in "a manner that is both fun and easy."⁸³ On the SurgeryMorph website, this hypothetical surgery technology is described at one point as "an exciting and fun tool."⁸⁴ A connected video tutorial simulates a liposuction, blemish removal and breast augmentation using a photograph of an attractive white woman in a bikini while the Beach Boys' *California Girls* plays as a soundtrack. Users are then encouraged to share their images on Facebook, where their modified image will appear with the statement "I have been

⁸¹ "3D Simulation for Breast Augmentation Plastic Surgery | Sublimma," 2012, <http://www.sublimma.com/>.

⁸² Ibid.

⁸³ "Online Plastic Surgery Simulator, Photo Editing Tool SurgeryMorph Helps Patients Visualize Potential Outcomes," *AllVoices*, December 1, .

⁸⁴ "3D Simulation Software For Plastic Surgeons: Testimonials | Crisalix."

using NKP Medical SurgeryMorph to play with different cosmetic procedures! NKP Medical SurgeryMorph is available at www.surgerymorph.com.⁸⁵ Since, as the video exclaims, this technology is “fun-easy-viral,” even if people use the software without actually getting one or multiple surgeries, their Facebook friends may see the pictures and decide to try this virtual service out themselves. By encouraging users to make their virtual surgical fantasies and interests public, SurgeryMorph changes cosmetic surgery from a hidden and shameful act to a celebrated act of personal agency and fun consumption. This focus on sharing these images via Facebook, Twitter, and other social networking technologies is common on many sites ranging from BodyPlastika’s iPhone app to plastic-surgery-before-after.com’s downloadable software.

Indeed, these digital imaging sites have greatly proliferated and have themselves become standardized. All of these programs use the same basic tools and they all look very similar and contain identical legal language explaining that while these sites are fun, they do not replace a conversation with an actual surgeon. While these programs have become standardized, they have also been adopted for other kinds of beauty and bodily enhancement, ranging from skin-care and makeup visualizations to programs that allow you to try on clothing on your iPhone. For example, ModiFace, a company started by Parham Aarabi using research he completed in graduate school and as a tenured professor and Canada research chair at the University of Toronto (positions he received at the age of 24), works to create and improve “face processing algorithms,” the kind of underlying code that is the basis for all cosmetic surgery digital imaging programs. Aarabi’s work won a worldwide innovation award from MIT and according to the ModiFace website, Aarabi and his company have published 112 scientific papers on the topic.⁸⁶

⁸⁵ *SurgeryMorph Video Demonstration*, FLV File (SurgeryMorph, 2012), <http://www.surgerymorph.com/video.php>.

⁸⁶ “About ModiFace,” 2012, <http://modiface.com/index.php?about>.

With this technology, ModiFace specializes in creating virtual makeover applications for major media outlets, magazines and cosmetic brands, including a wide range of clients like Garnier, Stila, Good Housekeeping, Harpers Bazaar and NBC Universal. Their original algorithms and software, used first in digital imaging programs that specialize in cosmetic surgery, are now used as the basis for a huge variety of makeover tools that are central to over 60 different online and computer applications and 30 different iPhone apps. Over five million of their apps have been downloaded and they have a million active users.⁸⁷ If one uses a makeover application located on the website of a major media or cosmetics outlet, whether it be to test out an anti-aging crème, a new lipstick color, a wedding gown, or a face lift, he or she is more than likely interacting with ModiFace.

While most other digital imaging programs require the user to manually reshape their faces by pushing and pulling on the skin, ModiFace automatically detects different facial areas (i.e. eyes, nose, mouth, etc.) and performs these edits automatically. On LiftMagic, a ModiFace “instant cosmetic surgery and anti-aging makeover tool,” users can upload their images and have the program simulate up to 16 different surgical operations at once, ranging from various “injectable” to rhinoplasties and neck lifts. After LiftMagic automatically generates a post-surgery image, it offers to upload that image to one of several other ModiFace websites, where users can digitally lose up to fifty pounds of weight or try on make-up and “1000s of celebrity hairstyles.”⁸⁸ After users have completed their extreme digital makeover, they are offered the possibility of seeing how their image would look on a billboard in a virtual but photorealistic

⁸⁷ “#1 Creator of Mobile/Tablet Beauty and Fashion Apps,” 2012, <http://modiface.com/index.php?mobile>.

⁸⁸ “LiftMagic--Cosmetic Surgery and Anti-Aging Makeover Tool,” 2008, <http://makeovr.com/liftmagic/liftupload.php>.

Times Square or in a number of other public venues using PicMee.com. In the process, these virtual body modifications quickly become normalized and then spectacularized. While ModiFace and many other digital imaging programs are designed for private use and personal bodily experimentation, by offering people the chance to share their images on Facebook or the side of a skyscraper, users are encouraged to think of their bodies as a spectacle and their actions as part of a larger culture of celebrity and homogenized beauty.

Capitalizing off of this trend, Dr. Salzhauer at the Bal Harbour Plastic Surgery Clinic in Miami released his own digital imaging software as both a feature on his webpage and as iSurgeon, an iPhone app. While still an advertisement for his clinic and for plastic surgery more generally, this app has a very playful tone and uses fonts that appear to be based off of the look of bubblegum. While users manipulate their faces, the sound of drills and other surgical devices plays in the background, which is both jolting and ridiculous. During one television news interview, Dr. Salzhauer took a photo of his interviewer and used iSurgeon to make her look more like a witch (with a long nose and a recessed chin) in order to show off that “in the end, this app is for fun and is meant to help you satisfy your curiosity about how you would look with that elusive perfect body and face...or not.”⁸⁹ MTV found the playful tone of this app interesting and built it into their HeidiYourself program, in which users can have a chance to see themselves after “surgery like the stars.”⁹⁰ Named after Heidi Montag, a star of MTV’s *The Hills* reality television series who reportedly had ten cosmetic surgery operations in one day, this website parodically offers users the chance to see how so many surgeries would transform their own bodies. Even as Heidi Montag herself has expressed regret concerning her extreme makeover,

⁸⁹ *Virtual Plastic Surgery Segment*, 2010, <http://www.youtube.com/watch?v=rdooNK9zqAE>.

⁹⁰ “Heidi Yourself | MTV UK,” 2010, <http://www.mtv.co.uk/heidiyourself>.

this site encourages users to experience the same effects. As one blogger put it, “You can do some interesting things to yourself with those tools and by the end, I look pretty crazy.”⁹¹ Yet, HeidiYourself is not designed to show the horrors of plastic surgery but rather points to the ways in which one’s body should be viewed as a plastic object that one can reshape in whatever way one likes. While one may not want to do anything as drastic as what Montag did, this site does not judge her for her choice and instead encourages users to exercise their own personal choice in deciding whether or not to digitally (and then surgically) transform their bodies however they like.

Collaboration and Beauty Rankings

Sites that help users experiment with transforming their own bodies also often encourage them to invite others to weigh in on the decision through Facebook messages and other collaborative social means. Friends on Facebook are asked whether these surgeries are a disaster or are actually flattering and worth the danger. While these outside perspectives from friends can act as a voice of reason, they also impose their own perspective as the normative ideal of beauty; this virtual social environment and the recommendations that come out of it affect how users make their personal choices concerning bodily modifications.

While not programmed into code, this method of bodily recommendation is primarily collaborative in nature, but unlike the other collaborative filters I have discussed throughout this dissertation, this method of collaboration usually creates recommendations that are only based on the opinion of a few people, rather than millions. While the use of Facebook to both advertise

⁹¹ Rosemina Nazarali, “Heidi Montag ‘Heidi Yourself’ Plastic Surgery App,” *29 Secrets*, 2011, <http://29secrets.com/sections/daily-whisper/heidi-montag-heidi-yourself-plastic-surgery-app>.

and get advice on plastic surgery is common, there are also many sites that take a more direct approach to using collaboration to generate recommendations. On Makemeheal.com, a site that sells skin care products, and cosmetic surgery supplies ranging from Botox injections to post-op mastectomy bras, users can upload images of themselves and ask other users both whether they should get surgery and what kind of surgery to get. Some simply want to know whether their body really needs a surgery while others use it as a space where they can question which surgery they should get. While few people comment on these pictures, many of them receive thousands of views and votes on whether they really need the surgeries or not. Users also post images of their completed surgeries on this site, whether successful or not, and provide insight to the community on how to deal with any problems that might arise. Through this process of recommendation and advice, users form communities on this site and become acclimated to a surgical culture.

These exercises in judging which types of bodies need surgery and which do not are also built into the Virtual Plastic Surgery Simulator. This digital imaging program, available for use on personal computers, a large variety of mobile devices, and even as a Facebook app, allows users to manipulate their photos through blurring, stretching and warping.⁹² After completing a modification, users are given the option of uploading their image to the company's befaft.com website, where other users can vote on whether the proposed surgeries should actually be done or not. These other users are asked to decide both whether the proposed changes are actually an improvement, and whether this improvement is large enough to make it worth the cost and pain of the necessary surgeries. This process turns this program into an entertaining game for the user base as a whole as they can see how many people think that particular surgeries should be done

⁹² "Virtual Plastic Surgery Simulator," 2011, <http://www.plastic-surgery-simulator.com/>.

or not. Often, the community does not purely agree or disagree and users can also write responses and explain their reasoning for why a surgery should or should not be done. If users allow it, Befaft.com will then automatically publicizes their pictures, votes and comments by posting them onto their Facebook and Twitter accounts. In the process, the program teaches users how the community as a whole defines beauty, and what kinds of appearances one should strive for when engaging in both digital editing as well as surgery. Like many other programs, this one also offers tutorials and demonstrations of how to use the virtual surgery tools on their site and suggests proper ways to edit your body. Along with demoing breast augmentation, weight loss, liposuction, and other typical surgeries, this site also displays what they call an “ethnic” surgery, which consists of before and after pictures of a dark skinned woman who has elected to get rhinoplasty to narrow the bridge of her nose.

This method of recommendation is heavily influenced not just by the culture of plastic surgery, but also by the collaborative filtering of social networks. MakeMeHeal.com and Befaft.com are both aesthetically and functionally very similar to hotornot.com, a site where people can rate people based on photos. This site, which itself is based on FaceSmash.com, Mark Zuckerberg’s first foray into social networking wherein people would vote on which Harvard students were most attractive, is now not simply a site to judge beauty, but is also a site where people are encouraged to get in touch with others that are voted to be of a similar level of attractiveness.⁹³ Friendships, romantic relationships and whole communities have grown out of hotornot.com that are largely based on similar bodies rather than interests. Digital Imaging Sites work off of this by making their communities focused around ideals of beauty and the measures one can take in trying to attain this goal.

⁹³ “Hot or Not,” *Meet People on HOT or NOT, Make New Friends, Chat, Flirt*, 2012, <http://hotornot.com>.

While these sites most commonly rely on actual users to collaboratively recommend whether to get a surgery or not, there are efforts to automate this process of voting and even to suggest specific surgeries to these potential patients. These particular issues around how algorithmic recommendation technologies can affect how the body is imagined are brought into focus by the “beautification engine,” a piece of experimental software for rating and transforming images of the human face. Developed by researchers at Tel Aviv University and Microsoft and presented at SIGGRAPH 2008, the beautification engine “uses a mathematical formula to alter” an image of a face “into a theoretically more attractive version, while maintaining what programmers call an ‘unmistakable similarity’ to the original.”⁹⁴ Leyvand programmed this engine with a set of collaborative filtering algorithms similar to those used by TiVo and Netflix that try to replicate the recommendations that communities on sites like MakeMeHeal.com would offer. However, instead of measuring interest and desire, the beautification engine measures 234 different parts of a face, including such things as the distance between one’s eyes and between one’s lips and chin.⁹⁵ The program also contains a list of sets of measurements that are supposedly the most ideal and the same types of measurements used by surgeons themselves. The beautification engine works by looking through the pre-programmed measurements to find the set that is closest to the image of the user’s actual face. It then tries to transform the user’s image with the end goal being to make it match up as closely as possible to an ideal set of measurements while still remaining recognizable as the user, leaving “the person’s essence and character largely intact.”⁹⁶ Leyvand imagined that such digital manipulations could

⁹⁴ Sarah Kershaw, “The Sum of Your Facial Parts,” *The New York Times*, October 8, 2008.

⁹⁵ Ibid.

⁹⁶ Ibid.

become a common procedure in commercial photography's "ever-growing arsenal of image enhancement and retouching tools available in today's digital image editing packages. The potential of such a tool for motion picture special effects, advertising, and dating services, is also quite obvious."⁹⁷

It is through these types of algorithms that plastic surgery not only disciplines the body, but as a plastic object that encourages users to speculate upon and actively control through modifications.

In many ways this technology embodies a Pygmalion impulse to imprint certain dominant cultural modes onto an/other's physicality. A *New York Times* article on this technology mentions that the researchers created their program specifically with a "beauty estimator" algorithm that focused on white notions of beauty. Their beauty estimator was in fact based only on the responses of 68 men and women, age 25 to 40 who were all born either in Israel or Germany. This tiny subset was then shown "photographs of white male and female faces and picked the most attractive ones."⁹⁸ Leyvand and his coauthors then suggested that while this subset is small, the resulting beautification engine had universal appeal and could transcend "the boundaries between different cultures, since there is a high cross-cultural agreement in facial attractiveness ratings among different ethnicities, socio-economic classes, ages, and gender."⁹⁹ Leyvand has also stated that "attractiveness ratings are, in fact, universal[...]'Beauty is not in the eye of the beholder,' Leyvand says. 'If I took the same photo and showed it to people from

⁹⁷ Tommer Leyvand et al., "Data-Driven Enhancement of Facial Attractiveness," in *ACM SIGGRAPH 2008* (presented at the SIGGRAPH 2008, Los Angeles, 2008), 2, <http://www.leyvand.com/research/beautification2008/attractiveness2008.pdf>.

⁹⁸ Kershaw, "The Sum of Your Facial Parts."

⁹⁹ Tommer Leyvand et al., "Data-Driven Enhancement of Facial Attractiveness," 1.

10 different regions with 10 different backgrounds, I would get roughly the same results.”¹⁰⁰ Even if very diverse, 68 men and women is far too small of a group to base such a universal conclusion on. He further argues for the universality of his findings by pointing out that even infants spend more time looking at attractive faces, “regardless of the faces’ gender, race, or age.”¹⁰¹

While Leyvand and his research group have yet to make one for “nonwhite racial and ethnic groups,”¹⁰² they reported that they would work next on trying to change their algorithms to modify not just the geometry of the face, but also the color and texture of hair and skin.¹⁰³ It is more than a bit ironic that people from the two countries that are most closely identified with the horrors of genocide and eugenics are now responsible for coming up with a new standard of universal beauty that is easily compared to the one created by Third Reich. Indeed, Leyvand received much of his inspiration from Thomas Galton, the father of eugenics whose work also influences online dating site recommendations.¹⁰⁴ Galton made composite images of various groups of people including convicted violent criminals by superimposing their images on top of each.¹⁰⁵ He would then measure the distances of (and between) the facial features on these

¹⁰⁰ Maggie Bullock, “TECH SUPPORT,” *ELLE*, April 14, 2008, <http://www.elle.com/beauty/golden-ratio-perfect-face>.

¹⁰¹ Tommer Leyvand et al., “Data-Driven Enhancement of Facial Attractiveness,” 1.

¹⁰² Kershaw, “The Sum of Your Facial Parts.”

¹⁰³ Leyvand et al., “Data-Driven Enhancement of Facial Attractiveness,” 8.

¹⁰⁴ Amit Kagian et al., “A Machine Learning Predictor of Facial Attractiveness Revealing Human-like Psychophysical Biases,” *Vision Research* 48, no. 2 (January 2008): 2.

¹⁰⁵ Francis Galton, “Composite Portraits,” *Journal of the Anthropological Institute of Great Britain and Ireland* 8 (1878): 136.

composite images in order to divine what an average or ideal criminal would look like. He also imagined that his invention would be most useful for identifying an ideal member of a race, a family (by superimposing images of siblings), or even an ideal image of a specific person (by superimposing his or her image from various periods). Leyvand relies on the same basic phrenological concept in his efforts to define beauty and mold people to this image.

Importantly, what is also noticeable in the transformed images is that “a blandness can set in.”¹⁰⁶ Those “imperfections” that are often the most striking about a person are often stripped away by these algorithms as they seek to make everyone “more attractive,” specifically by making them less physically diverse. Galton’s theories have recently regained traction. As the authors in the edited collection, *Facial Attractiveness: Evolutionary Cognitive, and Social Perspectives* make clear, many now challenge the idea that beauty is in the eye of the beholder via both scientific and cultural studies. Overall, this collection argues that while “certain extremes, symmetry, youthfulness, pleasant expressions, and familiarity all contribute,” “averageness is the key to attractiveness.”¹⁰⁷ By automating this process and by having these physical alterations take place in a digital photo rather than on a person's actual body, Leyvand’s beautification engine reveals how radically the relationship between users and their physical representations are changing during this current moment when it is often far more likely to be seen and recognized online rather than in person. As psychologist Nancy Etcoff explained, “Everyone wants to look better. And we keep taking it further and further to all these images that have been doctored. There is a whole generation of girls growing up who think it’s normal not to

¹⁰⁶ Kershaw, “The Sum of Your Facial Parts.”

¹⁰⁷ Leslie Zebrowitz and Gillian Rhodes, “Introduction,” in *Facial Attractiveness: Evolutionary, Cognitive, and Social Perspectives (Advances in Visual Cognition, V. 1)*, ed. Leslie Zebrowitz and Gillian Rhodes (Praeger, 2001), vii.

look the way they really look.”¹⁰⁸ This trend is only growing as social media websites like Facebook and various dating websites become more important for communication, and it is less and less important to have images of a user look exactly like him or herself.

While the beautification engine tries to automate digital imaging and the rating of beauty, there are many other programs that try to accomplish this by relying on proprietary algorithms that take into account “neoclassical beauty, modern research papers, and [their] own scientific studies/statistical analysis.”¹⁰⁹ Anaface.com is one such site that allows users to upload images of their face. Users then click on specific points of their faces, including the bottom and top of their earlobes, the edges of their noses, mouths and eyes, and various other coordinates. The program then uses these points to calculate how attractive these users are on a scale from one to ten. Anaface.com also lists out everything that is positive and negative about your face and these comments can provide the basis for deciding what types of surgeries to get. The program focuses on issues of symmetry and the ratios of different facial features to one another. While it may say that “your face is too narrow/too long,” it may also try to soften the blow by also explaining that “the ratio of your mouth width to nose width is nearly ideal.”¹¹⁰ Throughout this process, it is very clear that the camera lens used to take the picture can drastically affect how the program judges the face in question. Just as in-office digital photography became standardized as a way for surgeons to appear more objective in its aesthetic judgments and recommendations, this program suggests that certain angles and distances will produce a more accurate rating. While the lens on a webcam might distort the image in ways that make the ratios less attractive

¹⁰⁸ Kershaw, “The Sum of Your Facial Parts.”

¹⁰⁹ “Anaface--Facial Beauty Analysis--Score Your Face,” 2011, <http://anaface.com/>.

¹¹⁰ Ibid.

to the algorithm, a 35mm or 60mm lens might drastically improve it. Users can upload several different photos of themselves and get completely different results from the program depending on the variables of digital photography.

Programs that analyze beauty and recommend ways to become more beautiful often claim that their algorithms are objective and accurate because they are based on both classic, “timeless” ideas of beauty as well as contemporary scientific research. These ideals importantly always privilege whiteness and make ethnicity a problem. Many of these programs, including anaface.com, the Beauty Analyzer iPhone app, and FaceBeautyCheck.com refer to various classical ratios, like the Golden Ratio, or Fibonacci Sequence as the numerology that underlies the way we compute aesthetics. Developed by Euclid around 300 B.C., the Golden Ratio (represented in algebra as phi) is a geometric ratio apparent throughout nature in the shape of flower petals, pinecones, shells, galaxies and DNA molecules. In terms of physical beauty, many have used the Golden Ratio to define an ideal face as “two-thirds as wide as it is tall, with a nose no longer than the distance between the eyes.”¹¹¹ In 1935, Hollywood makeup artist Max Factor used this ratio to create a “beauty micrometer” mask that used metal strips and screws to help other makeup artists reveal minute defects in actors’ faces and register their “facial measurements and disclose which features should be reduced or enhanced in the makeup process.”¹¹² In an effort to update this work, cosmetic surgeon Stephen Marquardt in 1997 created a new mask and 3D digital template that could be applied to people’s real or virtual faces to locate flaws. He developed this mask specifically to guide users toward surgical procedures to

¹¹¹ Maggie Bullock, “TECH SUPPORT.”

¹¹² With its collection of screws and metal, the beauty micrometer also inspired the look of Hellraiser. “‘Beauty Micrometer’ Analyzes Facial Flaws for Makeup - Modern Mechanix (Jan, 1935),” *Modern Mechanix*, April 15, 2006, <http://blog.modernmechanix.com/beauty-micrometer-analyzes-facial-flaws-for-makeup/>.

make their faces “more like the mask” and therefore more attractive.¹¹³ However, he also envisioned a time when people could modify not just their faces, but also their DNA to better fit his aesthetic model.¹¹⁴ Rather than celebrate the beauty of difference in all its forms, Leyvand, Factor and Marquardt all propose the positive benefits of the homogenization of physical identity and the principle that through physical and genetic conformity, everyone will become beautiful.

Like anaface.com, FaceBeautyRank.com and the personal computer software the site sells allows users to “evaluate the beauty of a face” based on the golden ratio, which they refer to as “geometric aspects of beauty” that are “somewhat ‘stable’ as compared to opinions and views.”¹¹⁵ While these other sites suggest that such evaluations should be performed for their own sake, FaceBeautyCheck.com offers its services primarily to people who are trying to find an objective, if seemingly random way to both pick which of their photos to post on dating websites, and to “help you decide on your new date! Rank human faces objectively and automatically with a computer program to help you make a decision.”¹¹⁶ At the same time, underlining the horoscope-like nature of these recommendations, the website states at the bottom that it “cannot be a trustworthy tool for assessing beauty” and asks users to “not take the results of the program too seriously! Do not criticize your self-esteem and the self-esteem of other people judging from the Beauty Rank!”¹¹⁷ Yet, they also market their software directly to those

¹¹³ “Making Beauty,” *MBA California*, accessed September 25, 2013,

http://www.beautyanalysis.com/index2_mba.htm.

¹¹⁴ Stephen Marquardt and Eugene Gottlieb, “Dr. Stephen R. Marquardt on the Golden Decagon and Human Facial Beauty,” *Journal of Clinical Oncology* 36, no. 6 (2002): 342.

¹¹⁵ “Face Beauty Rank: Beauty Assessment,” 2012, <http://www.facebeautyrank.com/beautyassessment.html>.

¹¹⁶ “Face Beauty Rank,” 2012, <http://www.facebeautyrank.com/>.

¹¹⁷ *Ibid.*

developing dating web sites as a way to automatically select the best pictures of users, which will then help “visitors find their perfect match!”¹¹⁸ In the process, FaceBeautyRank sells itself as a program to help people better present themselves online who seemingly have trouble making even basic choices concerning how they want to appear.

The Beauty Analyzer iPhone app also rates user’s faces based on the golden ratio. Created by the Nascio Development company, the Beauty Analyzer automatically rates the faces of users on a 100 point scale. It also gives users detailed feedback on their various facial features and how well proportioned they are to each other. Nascio advertises that while it may be fun to use, it is a serious app that provides “genuine results based on scientifically tested rules.”¹¹⁹ The algorithm behind this app is based on a 2007 academic paper by Kendra Schmid et al that seeks to “predict the attractiveness of a face using its geometry” and its relationship to “neoclassical canons, symmetry, and golden ratios.”¹²⁰ This study asked 36 students and employees at the University of Nebraska to rate the attractiveness of 232 photos of random Caucasian people and Hollywood stars known for being attractive. From this information they created a list of what the most ideal facial measurements were and noted that the golden ratio and other related neoclassical mathematical conceptions of beauty do have “an important role in attractiveness.”¹²¹ Given their small and very localized group of participants and their focus only on Caucasians, these findings could lead to a variety of conclusions concerning the historical and social effects

¹¹⁸ Ibid.

¹¹⁹ Amanda Parker, “Beauty Analyzer,” *App Store*, June 4, 2012, <https://itunes.apple.com/us/app/beauty-analyzer/id471731380?mt=8>.

¹²⁰ Kendra Schmid, David Marx, and Ashok Samal, “Computation of a Face Attractiveness Index Based On Neoclassical Canons, Symmetry, and Golden Ratios,” *Pattern Recognition* 41, no. 8 (2007): 2710.

¹²¹ Ibid., 2716.

on what constitutes beauty. Rather than consider these effects, this article concludes by suggesting that human perception of attractiveness is ahistorical and biological and can be objectively mapped and rated.

The golden ratio and the mathematical basis for beauty has become such an engrained idea that many math tutorial websites now use images of beautiful people to teach the principles of ratios and fractions. One such website showcases a variety of artworks created via the golden ratio and natural elements that approach the golden ratio including Leonardo Da Vinci's "Vitruvian Man," the Greek Parthenon, and Jessica Simpson's face to show how "beauty is mathematical!"¹²² Users are then urged to measure the faces of various celebrities to see if they are really as beautiful as we think they are. These automatic recommendation technologies, beauty analyzing apps and other tools that rely on the golden ratio and other ancient western aesthetic ideals proliferate the idea that beauty is an objectively measurable trait and promote the homogenization of human bodies as a fun and playful exercise.

These playful technologies that rate and recommend beauty have also been used to modify bodies to imagine how they will look years later. While certainly not commonplace, technologies of this sort have begun appearing in expensive self-management equipment that keeps track of users lifestyles and daily regiments including their level of exercise, smoking, eating, tanning, drinking. One of the first of these products designed to be sold to medical clinics (though never actually released) based on these techniques is Accenture's Persuasive Mirror, an in-home system designed to help users "maintain a healthy life style."¹²³ This technology

¹²² Murray Bourne, "The Math Behind the Beauty," 2011, <http://www.intmath.com/numbers/math-of-beauty.php>.

¹²³ Ana C. Andres del Valle and Agata Opalach, *The Persuasive Mirror* (Sophia Antipolis, France: Accenture Technology Labs, n.d.).

includes various cameras and a mirror surface designed to also be used as a bathroom mirror. A camera in the mirror itself takes pictures of users and generates an image of what they will look like in the future based on their current lifestyle. The Persuasive Mirror also relies on surveillance cameras placed throughout a person's house to gather information about the user and his or her lifestyle. The image that the "mirror" produces changes based on the users' daily activities and makes them look better based on certain behaviors, and worse based on others. In the spirit of Dicken's the Ghost of Christmas Future, this generated image is meant to show the user the future consequences of current behaviors in order to change the lifestyles of said users. The mirror adds weight, wrinkles and other signs of aging to the bodies of users who have not been exercising or sticking to their diets. To further encourage change, the transformed image also tries to incorporate colors and shapes that the surveillance equipment has discovered that the user dislikes. Thus, this future-body is made ugly. In contrast, if the user has been "good," he or she will be greeted with an image that tries to portray the user in the way that the surveillance equipment suggests the user would like to be viewed. Thus, this technology visualizes different modes of temporality to motivate users towards long-term goals.

This software, with its focus on trying to influence the everyday actions of users in order to educate and promote everything from healthier eating habits to world peace, is part of a larger movement in the computational sciences known as captology, an acronym for "computers as persuasive technologies."¹²⁴ Coined by Stanford Professor B.J. Fogg in 1996 and discussed in detail in his 2003 book, *Persuasive Technology: Using Computers to Change What We Think and Do*, captology focuses on the question of how software designers can use "the power of computers to change what people believed, how they behaved, and how could this then be

¹²⁴ See "What Is Captology," 2010, <http://captology.stanford.edu/about/what-is-captology.html>.

applied to improve the world in some way?”¹²⁵ This description is a utopian version of Deleuze’s control society made possible by the domestic surveillance networks of programs like Accenture’s Persuasive Mirror. Such products control actions by keeping track of all actions and heavily recommending certain actions over others by making all other actions literally appear monstrous. While at one point extremely controversial because of fears over the kind of society that this form of control would afford, these persuasive technologies are now central to the Internet through, most notably, recommendation systems. Just as technologies ranging from Apple operating systems to Gmail and Facebook try to transform to better fit each individual user, they also work to reshape the user to better fit the technology.

As I have argued throughout this dissertation, recommendation systems and other captological technologies play a vital role in facilitating the subjectivity of users so as to better fit into a postfeminist neoliberal culture. Yet, when applied to human body, captology is not simply concerned with influencing human beliefs, but also with shaping what it means to be human. While these technologies are used to actively reshape the contours and dimensions of the human body, many of those that currently exist are focused on reshaping them in order to help sustain dominant ideologies around beauty and aging.

Digital imaging technologies, beauty rankers, cosmetic surgery recommenders and self-management technologies stress that while the desire to be thin, young and tight skinned is an essential part of human nature, the possibility of having such a body is not based in biology, but rather in personal choice. The Persuasive Mirror suggests that having an ideal body is an achievable goal and all one has to do is make the choice to transform your lifestyle in order to

¹²⁵ BJ Fogg, “Thoughts on Persuasive Technology,” 2010, <http://captology.stanford.edu/resources/thoughts-on-persuasive-technology.html>.

attain it. By stressing how the shape of one's body an issue of choice, those that cannot attain a Vitruvian body or perfectly ratioed face are simply not trying hard enough and suffer from a lack of both self-control and self-esteem. Yet, as in other areas of postfeminism, the choice to become fitter, happier, more beautiful and therefore more economically valuable, is one that is much more available to those who can afford it. Technologies like the Persuasive Mirror with its complicated surveillance equipment, if ever released, will be extremely expensive and available only to those who can afford it. Beyond this, while this technology makes a causal link between an attractive physique and happiness, cosmetic surgery makes it unnecessary to make lifestyle changes to make this new body a reality.

The use of photography and digital imaging in and out of plastic surgery clinics has led to the creation and proliferation of a medical gaze that that encourages people to view their bodies as plastic and modifiable within a consumer marketplace. Whole communities have been created by these technologies and this shared practice of looking. This process of regulating, recommending, and automating these bodily modifications in a digital space has played a fundamental role in situating the body as a contested site of personal choice. In the process, they both participate in and facilitate forms of neoliberal postfeminist control that shape bodies, subjectivities, and contemporary culture.

**CONCLUSION:
On Handling Toddlers and Structuring the Limits of Knowledge**

When dealing with a toddler learning “the ability to express their wishes,” through both new vocabulary and tantrums, parenting manuals often suggest offering choices as a way to guide behavior: “Unfortunately, their wishes often differ from our own. So how do you allow your children to express their desires – and get them to cooperate at the same time?”¹ While asking children what they would like to wear to school can result in nightgowns, costumes, or any of a number of other socially unacceptable possibilities, offering them two options (i.e. the blue or the white dress) allows “her to feel like she’s getting her way, while still keeping you in charge.”² As one person on the EverydayFamily Blog commented, “I think that offering choices is a great way to make the toddler feel like they are [*sic*] in control without them actually being in control.”³

In this dissertation, I have argued that structured choice now operates as a form of control not just for toddlers but for everyone. I focused on how digital recommendation systems automate this process by guiding users toward certain choices over others. In the process, they facilitate larger cultural trends that favor the status quo. Discursively, the notion of choice has gradually become less associated with possibility and liberty and more with anxiety; or, more accurately, choice has become a tool that rearticulates liberty as a burden. These systems treat people like toddlers who may be afraid, unsure, and anxious about the decisions they make and their potential outcomes. Recommendations have thus taken the place of free choice as both a

¹ Sara McTigue, “It’s All About Choices: Getting Your Toddler to Cooperate,” *EverydayFamily*, June 14, 2013, <http://www.everydayfamily.com/blog/its-all-about-choices-getting-your-toddler-to-cooperate/>.

² Ibid.

³ Ibid.

rhetorical and technological tool that guides users decisions in order to shape their desires and sense of self. Recommendation systems guide people toward normative and standard choices, framed as both the safest and most advantageous for the production of individual happiness rather than liberty. In the process, recommendations not only configure subjects for a neoliberal postfeminist culture, but also make this precarious culture manageable.

The companies that rely on digital recommendation systems operate as part of a global culture industry of choice. Adorno and Horkheimer saw the culture industries as standardizing culture through the reproduction of consumable goods that all perpetuate the same normative ideology in support of the domination of the affluent. Rather than simply standardizing processes of production, however, culture industries of choice standardize methods of distribution and, under the guise of enhancing personal decision-making, lead individuals toward conformity and oppression through apparent acts of autonomy. These industries participate in a larger culture of neoliberalism and postfeminism that operates through a profound display of doublespeak wherein conformity becomes autonomy, oppression becomes liberty, consumerism becomes empowerment, autonomy becomes collaboration, stagnation becomes happiness, and recommendations become transcendent potentialities.

As I have demonstrated, these technologies have their origin in the early days of the World Wide Web and the implementation of some of the first recommendation systems in the form of scheduling applications, email sorters and music recommenders. Pattie Maes at the Massachusetts Institute of Technology created many of these systems to help her manage her own time constraints as a professor in the process of starting a family. Maes discussed her technologies in terms of the gendered choices that women must make in terms juggling career and family expectations. Rather than confronting and critiquing these expectations, Maes

envisioned recommendation systems as a tool people could use to better participate, survive, and excel within them. I illustrated how this early history has continued to frame the cultural stakes and gendered dynamics of automated recommendations.

These stakes have become more apparent as recommendation systems have become ubiquitous and dominant. As these systems record and use personal data on the actions, purchases and online habits of people, they have become tied to digital privacy concerns related to both the potential of identity theft along with unlimited corporate and governmental spying. By exploring a variety of accounts (both real and fictional) of people fearing that their TiVo's could guess and reveal their sexuality to others, I illustrated how data privacy concerns become related to digital practices of self-representation. I then explored how these practices became governed by the 1988 Video Tape Privacy and Protection Act meant to make video rental records private but have since become the most important and impactful digital privacy laws in the United States. This law has affected how digital communities can form and how collaboration takes place. Digg.com and its catastrophic recommendation system changes exemplify how collaboration has become a tool that corporations use to individualize and monetize users. Digg and other social networking sites employ a rhetoric of user empowerment and community while simultaneously treating these users as information commodities and unpaid labor.

I then examined how this logic works on dating websites as a way to recommend not just objects but people to each other. Echoing Maes, eHarmony and other dating sites use these technologies to create relationships to survive a neoliberal and postfeminist culture full of precarious employment and the time constraints of having a family where both parents may work full time. These programs treat recommendations as yentas and users as ill-equipped and unable

to make this most important and personal of life choices—specifically because it is important and personal.

These technologies and the rhetoric of recommendations has also become commonplace in cosmetics and cosmetic surgery industries wherein they shape conceptions of beauty and normalcy. I discussed a variety of technologies that rate and suggest body modifications in both clinical and domestic settings. Together, recommendations have created a technological gaze that treats women especially as objects that must be continually upgraded through aesthetic transformations.

Throughout this dissertation, I have discussed various academics whose work popularized recommendation systems. Indeed, many businesses including eHarmony and Modiface, which rely on recommendation systems were started as class or thesis projects by students and their professors. Along with Pattie Maes, the professors at the University of Milwaukee's GroupLens Lab continues to act as an incubator for recommendation system applications and companies. Perhaps most famously, both Facebook and Google began as projects by students interested in shaping and managing their own academic cultures.

While academics created recommendation systems to help manage postfeminist and neoliberal expectations and stresses within the consumer sphere, these systems have also played a crucial role in transforming the academy for neoliberal times. Advertisements for humanities academic positions now routinely ask for scholars who teach, artistically produce, and research a variety of topics in multiple geographic areas and time periods, using both qualitative and quantitative research methods. At the same time, universities have heavily supported the growth of the digital humanities, a sector that, while helpfully introducing quantitative analysis and large

data sets to the study and pedagogy of literature, arts and history, has also siphoned off much of the funding of qualitative and critical scholarship in those same areas.⁴

As governments slash the public funding of higher education and administrators in turn cut humanities programs, recommendation systems have become a tool that promotes multidisciplinary as a way to do more with less. I relied heavily on the recommendation systems I studied to guide my research. In particular, Amazon.com, Google, and Google Scholar's search and recommendation algorithms pointed me toward scholarly and popular works on both recommendation systems and discussions that I would not have known existed otherwise. With the help of these systems, I pulled information from a diverse set of fields including among others psychology, information sciences, sociology, media studies, communication studies, film studies, gender studies, computer science, economics, and philosophy. These fields all focus on the relationship between choice, agency and desire but in very different ways. Without the help of Amazon's recommendations, I would never have made many of the critical links in this dissertation especially concerning the relationship between choice and postfeminist culture. Without Google, I would not have known about the use of recommenders on many websites including cosmetic surgery sites.

Yet, while I am extremely grateful for these technologies and their help in making this work possible, I also wonder how they imprinted themselves into my approach by making certain evidence easier to locate and thereby certain critiques more visible than others; which scholarship, perspectives, and even fields of study did I miss out on because I did not know the correct search terms and they did not come to me as recommendations? While "Google's

⁴ For a more detailed discussion of this process, please see Toby Miller, *Blow up the Humanities* (Philadelphia, PA: Temple University Press, 2012).

mission is to organize the world's information and make it universally accessible and useful," this organizing is not ideologically neutral and promotes certain types of access and use over others.⁵ With a critical eye, I have relied on these practices of organizing to build my arguments and gain experiential insight into both the problems and potentials of digital recommendation systems.

Throughout this dissertation, I have modeled a critical and qualitative approach to the study of digital technologies and their relationship to contemporary culture. It is my hope that this work will inspire others to interrogate digital technologies of all kinds. While my study focused primarily on contemporary recommendation systems within a North American context, these technologies are global and my analysis may prove helpful for exploring the relationship between choice and technologies in other cultures. At the moment, these systems function primarily within sites of consumerism but I hope that as digital artists begin to incorporate them within their work, a more knowing and critical form of recommendation may evolve that allows us to better interrogate if and how these technologies can be used to fight the often harmful and divisive ideologies that generated them.

⁵ "Google Company Overview," *Company-Google*, 2013, <http://www.google.com/about/company/>.

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