ABSTRACT

SHEPHERD, DAWN RENEE. Technologies of Matching: Romantic Matchmaking, Power, and Algorithmic Culture. (Under the direction of Drs. Carolyn R. Miller and Jeremy Packer.)

This dissertation serves to enhance our understanding of a number issues related to rhetorical studies and cultural studies of digital media while offering a model for how we might take a more holistic approach to such analyses. Using an organizational structure informed by Alexander Galloway's *Protocol*, this project critiques the billion-dollar online dating industry by analyzing romantic matchmaking on three levels: historical, procedural, and cultural. The introductory chapter elucidates our understanding of the recursive processes of matching and categorization and identifies their mislabeling (as searching, collaborating, and recommending) in discourse surrounding website capacities in order to examine internet romantic matchmaking (i.e., online dating) as a matching technology—a set of technical capabilities, human practices, and cultural conditions that is unique to the contemporary moment and operates within logics of Foucauldian biopower and Deleuzian control. The second chapter weaves together investigations of marriage, family, and romantic matchmaking into a meshwork of relations that provides a more nuanced view of those affiliations as a marriage assemblage. It relies on Gilles Deleuze and Félix Guattari's assemblage theory, as well as Manuel DeLanda's explication of assemblage theory for social formations, and Foucauldian-Deleuzian understanding of power and control. Using that framework, Chapter Two examines the contingent social, cultural, familial, economic, and technological relationships that make up the marriage assemblage. In particular, this analysis focuses on the practice of romantic matchmaking as part of that assemblage and a) defines it in terms of three conditions—intermediation, mediation, and automation—and b) positions it
in relation to regimes of power. In the third chapter, this project shifts focus to procedurality, primarily rooted in Ian Bogost's work on procedural rhetoric, and operationalizes that framework for digital technologies other than videogames, such as mass-customized web applications. Chapter Three is an analysis of internet romantic matchmaking (IRM) as a formal apparatus, examining the complex of computational processes, logics, and cultural assumptions that enable the functionality of three online dating sites—eHarmony.com, Match.com, and OKCupid.com—and their relationship to the construction of subjects. In the fourth chapter, this investigation of subjectivity and IRM moves from descriptive analysis of processes to the study of knowledge production. Using Michel Foucault's discussion of the historical development of sexuality and its relationship to biopower, especially through the act of confession, Chapter Four scrutinizes the role that a new discursive formation, the IRM success story, as a biopolitical technique for converting risky single subjects into the stabilized married couple. The fifth chapter locates IRM and matching technologies within societies of control. Chapter Five situates marriage and family as two challenging institutions for this transition into control societies and problematizes the synchronic logics of control and IRM with the diachronic logics that enable persistent marriage and familial formations, offering one potential new technique for marriage and family—the renewable marriage contract.
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Technologies of Matching: Romantic Matchmaking, Power, and Algorithmic Culture

by
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For Bright and Hattie, John and Beryl, Donny and Amey
BIOGRAPHY

Dawn Shepherd is a rhetoric scholar with interests in digital media and cultural critique. She grew up in Gibsonville, North Carolina and received a B.A. in English education with a minor in Dramatic Arts from the University of North Carolina at Chapel Hill. Before earning her Master of Arts in English with a concentration in rhetoric and composition from North Carolina State University, she spent ten years working in the private sector, with five years' experience in the technology industry. Dawn began her doctoral education in the Communication, Rhetoric, and Digital Media program at North Carolina State University in 2007. Her primary research brings together the fields of rhetorical studies and cultural studies, and she has a secondary interest in writing program administration. Her work with Carolyn R. Miller on genre studies and weblogs has been reprinted in the Norton Book of Composition Studies, and she has presented work at the National Communication Association Conference, the College Conference on College Composition and Communication, the Biennial Conference of the Rhetoric Society of America, the Watson Conference on Rhetoric and Composition as well as local and regional conferences and symposia.
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CHAPTER ONE: INTRODUCTION

The January 2011 issue of Wired Magazine features a special report on artificial intelligence. The cover showcases a toppled wind-up toy robot with the headline, "Artificial Intelligence is here. But it’s nothing like we expected." In the introductory essay, veteran technology reporter Steven Levy describes an artificial intelligence revolution that is very different from the one imagined by science fiction, one based in algorithmic models rather than robots and replicated human thinking. The report includes accounts of algorithmic processing that impacts our lives, from its current role in our financial system to the future of the driverless car. These computational processes have slowly infiltrated everyday life through search engines, online shopping recommendations, and personalized web radio stations.

With the growing popularity of mass customization and user-generated content on the web, user-application exchanges have changed in recent years.\(^1\) Although the activity of looking for an address or buying a book online may not feel different for the user, the processes that enable those activities—and the information made available by them—have changed significantly. The internet of the late twentieth century generally relied on simple one-to-one retrieval in which a user requested information and a browser displayed it. This relationship was transactional, meaning each exchange between the user and the application was isolated from any past and future exchanges and any exchanges other users might have

\(^1\) Throughout this dissertation, I use internet and web interchangeably.
\(^2\) The fourteen techniques of continuity identified by Galloway are as follows: conceal the
with the application. In contrast, the internet of the early twenty-first century offers a variety of user-site relationships in which sites record vast amounts of information on users and their behavior, going beyond a cookie deposited on a hard drive. Although they are called by many names—code, procedure, protocol, algorithm—the logics that manage these processes online have become increasingly prevalent and increasingly complex. They have gained additional attention from scholars outside computer science and engineering, particularly in regard to their relationship to human behavior. Early in internet studies, Lawrence Lessig pointed out the double meaning of code in this context—as legal code regulating the behavior of individuals and organizations and as source code regulating the behavior of site or program elements. Today, Alexander R. Galloway’s work, both in his 2004 book *Protocol: How Control Exists after Decentralization* and with Eugene Thacker in 2007’s *The Exploit: A Theory of Networks*, focuses attention on the relationships among power, distributed networks, and computers and the computational processes that enable them. Galloway's understanding of protocol is native to the current historical moment; however, it is rooted in previous uses and understandings of the term. Protocol is the organizing code, the "management style," that, along with digital computers and distributed networks, defines "a new apparatus of control that has achieved importance at the start of the new millennium" (*Protocol* 25). This new attention represents both means and opportunity for examining contemporary computer-mediated computational processes and their relationship to previous human practices.
One mainstay of these new technologies, and a process that most of us have encountered online, is mass customization. A concept adopted from manufacturing and engineering, mass customization is "the ability to provide customised [sic] products and services to individual customers or niches on a large scale, without losing the benefits of mass production" (MacCarthy 34). For example, Dell Computers allows users to personalize certain laptop components—hard-drive specifications, software preloads, shell color—at the time of purchase, enabling the computer manufacturer to customize the consumer’s purchase while still producing its laptops on a large scale. With the flexibility that internet technologies afford, it is no wonder that many of the most-visited sites on the web offer some degree of mass customization. During the height of the dotcom boom, high-profile sites such as Yahoo! allowed users to customize content (e.g., movie listings, weather, horoscopes) displayed on a web portal page designed to serve as the user's primary access point for the web. And while some companies had already begun to use aggregated user data to enhance the user experience, Amazon was able to patent its BookMatcher recommendation service in 2000 after years of use (Wolverton). Today, Amazon uses data on customers' past buying and viewing behaviors to display individualized pages for its users. More recently, Google Instant updates search results onscreen as users type.

In his discussion of reality television and "surveillance economy," Mark Andrejevic describes mass customization as functioning on both a symbolic and a practical level:

It advertises itself as a means of overcoming the stultifying uniformity of mass culture while simultaneously allowing for intensified forms of consumer surveillance
and exploitation. … The attempt to both manage and anticipate increasingly volatile patterns of consumption (patterns that correspond to a need to sell the goods made available by enhanced productive capacity) leads to an intensive reliance on marketing research. The development of information and communications technologies (ICTs) has allowed for the proliferation of strategies for rationalizing such research, and, perhaps more significantly, for shifting much of the burden to the consumer. One of the canny strategies of mass customization is its claim that surveillance works to the advantage of consumers by allowing producers to more closely meet their wants and needs. (Andrejevic “Kinder” 256)

Andrejevic also notes that, by providing the information marketers rely on for producing these customizations, at minimum consumers are taking on the responsibility of providing market research for the companies they patronize. Beyond that, when participating in the design process (e.g., choosing a shell color and selecting software when ordering a new Dell laptop), customers are not only not paid for the work they are doing but also "buy[ing] back the added value generated by the additional labor" (Andrejevic “Kinder” 257). As Tiziana Terranova points out, this "free labor" is a pervasive component of the postindustrial economy that destabilizes the boundary between production and consumption by turning consumers into producers of that which they consume (Terranova). Mass customization and user-generated content are examples of this phenomenon online.

In addition to collapsing production and consumption, this personalization creates what Eli Pariser calls "the filter bubble": 
The new generation of Internet filters looks at the things you seem to like—the actual things you’ve done, or the things people like you like—and tries to extrapolate. They are prediction engines, constantly creating and refining a theory of who you are and what you’ll do and want next. Together, these engines create a unique universe of information for each of us—what I’ve come to call a filter bubble—which fundamentally alters the way we encounter ideas and information. (Pariser 9)

Pariser identifies three important characteristics of the filter bubble. First, the filter bubble is isolating. While we may choose the information we consume through other media—such as choosing which television programming to watch, which cable news sources to trust—we are still experiencing the same programming as millions of other viewers. With personalization, we are solitary; the filter bubble acts as "a centrifugal force, pulling us apart" (9). Second, it is concealed. Search engines do not tell us how they produce their results. Indeed, volumes of patents frequently protect their processes. We don't know how—or in many cases, whether—they are making assumptions about us. Third, the filter bubble is compulsory. We elect to watch a particular twenty-four hour news network or read a particular newspaper. And while we may not always take the opportunity, we can choose to engage with it critically. We can determine who authored the article we are reading and who edits the publication it's in. We can examine, evaluate, and interrogate the credibility of the source. We "don't make the same kind of choice with personalized filters" (10), primarily because of their concealment. As a 2006 New Yorker article on Facebook notes, the site is closely tied to user's status and identity, making it difficult to opt out.
Facebook’s founders understand the site’s power to confer social standing. "If you don’t have a Facebook profile, you don’t have an online identity," Chris Hughes said … "It doesn’t mean that you are antisocial, or you are a bad person, but where are the traces of your existence in this college community? You don’t exist—online, at least. That’s why we get so many people to join up. You need to be on it." (Cassidy)

Facebook's proliferation both on and off campus in the past five years has made it even more difficult to avoid. And although we may choose not to use Facebook or popular search engines, such as Google, that tailor information to our interests and tastes, there are still traces of us there—in photographs or status updates of others and in the information about us on other sites. Whether they’re called recommender systems, collaborative filtering, or search engines, these mass-customized technologies engage in complex, interrelated methods of categorization and matching to determine what (and sometimes how) information is presented to users, and these protocols rely on algorithmic calculation to stand in for human decision-making.

We can take the seemingly simple example of making a reading recommendation to a friend as an example of both matching and categorization. We must sort through what we know about our friend’s interests and reading preferences before we can make a suggestion. For example, I might reflect on conversations he and I have had about books he has read and sort those books into categories based on any number of criteria (e.g., his enjoyment level, the plot's complexity, the book's genre). I can eliminate titles I know he won't enjoy, based on his distaste of predictable plots and detective fiction, and select works he might enjoy,
based on his preferences for science fiction and intricate storylines. Using these categorizations, I can then recommend to him (match him with) a number of options I think he would like. This example brings up two important points. First, the processes of matching and categorization are recursive. In fact, I would argue that categorizing is a special case of matching. Matching, in its primary, definitional sense, is a method of making associations or connections between X and Y. While these connections may be based on any number of qualities—equality, similarity, compatibility, complementarity, opposition—they are connections nonetheless. Categorization, more specifically, would link X with Y based primarily on similarity. When I am categorizing books based on genre or plot complexity, then, I am engaging in a particular kind of matching, classifying like items. When I use that information (e.g., genre categorization) to determine whether my friend would enjoy a particular book, I am engaging in a different kind of matching, putting together complementary components. The other significant point that arises from the book suggestion example is that matching precedes recommending. I must categorize books and match some of them to my friend before I can advocate one over another. This happens so quickly and on such a basic level that it generally doesn’t enter into our consciousness. As George Lakoff puts it in the introduction to *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind*,

>Categorization is not a matter to be taken lightly. There is nothing more basic than categorization to our thought, perception, action, and speech. Every time we see something as a kind of thing, for example, a tree, we are categorizing. … Without the
ability to categorize, we could not function at all, either in the physical world or in our social and intellectual lives. An understanding of how we categorize is central to any understanding of what makes us human. (6-7)

We engage in these processes all the time, though we rarely do so consciously. It is easy to understand, then, how we might begin to outsource these processes to technologies without realizing it. However, if we follow Lakoff, this outsourcing has significant implications and in order to understand better these implications, I examine the growing integration of technology with cultural practices of matching, primarily through an extended examination of romantic matchmaking.

**Technologies of Matching**

We engage with these matching processes online, but they are not labeled as such. They are known by a variety of names, but none of them is sufficiently descriptive of the computational processes that power functionalities like mass customization. In fact, they belie both a) the tension between these processes and the ways in which users experience them and b) their relationship to other technologies (e.g., those used for military and intelligence purposes). In order to shed light on the tension between user experiences on the web and the underlying processes that enable them, I propose a new term, *technologies of matching*. I will address why matching is a more appropriate descriptor by discussing it in relation to three of the processes named in their current labels, *searching, collaborating,* and
recommending. Indeed what we now call searching, collaborating, and recommending online are all examples of matching.

Search, in general use, has an exploratory connotation—organizing a search party, searching for lost keys or the meaning of life. In that sense, it is appropriate to describe the user experience in many web-enabled transactions (e.g., using Google to find statistics on global broadband penetration or Match.com to find a date). However, search does not adequately describe the technological processes that enable the user to locate the information (or product or person) she seeks; match is a more descriptive term in that case. In fact, Amit Singhal, a Google Fellow instrumental in the search engine’s 2001 rewrite, remarked in a recent Wired article on Google’s algorithm, "The holy grail of search is to understand what the user wants. Then you are not matching words; you are actually trying to match meaning" (quoted in Levy 116, emphasis added). Singhal's comments underscore the importance of distinguishing between what the user experiences (search) and the technical processes that enable that experience (match).

Just as recommending and collaborating are distinct, frequently interrelated processes, the technologies named after them (i.e., recommender systems and collaborative filtering) also work in concert. In other words, recommender systems generally rely on collaborative filtering to match aggregated user data and make suggestions. A recent Time Magazine article on these tools offers an example. The piece begins with a discussion of Pandora, the popular music-streaming site that allows users to create a custom radio station by choosing an artist or song as a starting point. Subsequent songs are chosen based on two
criteria. The first criterion is the result of Pandora’s Music Genome Project. The company employs experts who analyze every new song released, categorizing it based on a list of four hundred musical components (e.g., instrumentation). The second criterion is whether the listener (and other users) like or dislike the song. This complex process of mass customization allows the station both to play songs and artists the listener already enjoys and to expose him to new ones (Grossman). Although Pandora’s Music Genome Project is unique, its second criterion, collaborative filtering, has become "quietly ubiquitous" (Grossman 44). Collaborative filtering makes use of data on user choices, preferences, and behaviors, and the most popular sites on the internet integrate these algorithm-powered processes into the user experience. For example, Facebook makes friend suggestions based on a combination of factors, including friends two users have in common; similarly, the "like" feature enables the site to determine which items to include in a user’s Top News feed, which ads to show him, and what to list in his Recommended Pages section (e.g., musical artists or television shows he might like, businesses or products he might patronize or enjoy). Likewise, Amazon uses aggregated data on the items purchased, viewed, and wished for by consumers to make recommendations to individual users, and Netflix’s Cinematch uses millions of movie ratings to predict the viewing choices of its members. Even Google, the most-visited site on the internet, uses a complex and highly guarded set of algorithms to match searchers with information based on choices both they and other users have made in the past.
Although thinking of these technologies as recommender systems or collaborative filtering is convenient, it is not sufficiently descriptive. First, *collaboration* is generally associated with cooperation. In the classroom, instructors implement collaborative-learning projects that require students to work together in order to facilitate their learning and hone their ability to perform as members of a team. When musicians team up for a performance or organizations pool resources, we refer to their efforts as a *collaboration*. There is a presumption of intent and knowledge whenever we collaborate. To put it differently, we know when we are participating in a collaboration. The technologies that allow Facebook and Amazon to suggest friends and books do not require the user’s intentional participation in the process, or even her knowledge of it. *Matching*, therefore, is a more appropriate term.

Similarly, *recommending* has a specific rhetorical connotation. As the *Time Magazine* article notes, we are accustomed to receiving recommendations from people—friends and librarians, salespeople and critics. The act of recommending, then, could be—and generally would be—more than sharing a list of names or titles. A recommendation is an argument, specifically an engagement in epideictic rhetoric in which the recommender praises that which is recommended. The intricacy of the argument varies based on any number of factors. For example, if we return to the example of recommending a book to a friend, I might simply hand him a book and say, "Here, read this." Based on our previous discussions of books we’ve both enjoyed and his knowledge of my attitudes and tastes, he could fill in the assumptions that underlie my imperative. However, while working summers in a bookstore, I found precious few customers who would take my recommendations at face value. It might
require offering the similarities between my pick and other books the customer liked, identifying the genre to which it belonged, or providing a synopsis of the plot. Other recommendation processes work similarly. Only the closest of friends could arrange a blind date without providing some discussion of the qualities that make the potential suitor attractive. And the most formal of these processes, such as recommending someone for employment, often require documentation (i.e., the letter of recommendation). Although I won’t vilify these technologies to the level of the recent accounts that describe them as "e-commerce robots" (L. Miller, "Fine Art," par. 1) or "the enemy of serendipity and Great Books and the avant-garde" (Grossman 47), I will say that they jettison the act of praising, offering instead a list of potential books to read (or people to date or employees to hire) with little reasoning as to why it is being offered. When reasoning is provided, it is categorical (e.g., others with similar purchasing patterns also purchased these products) rather than celebratory. With that in mind I offer matching as a more appropriate label.

Conventionally, as discussed earlier, categorization is a kind of matching. Whereas recommending involves demonstrating the value of the recommendation, matching precedes the recommendation, discerning whether two (or more) things fit together. We might match our shoes to our belt, an interlocutor’s intensity in an argument, or cards in a children’s game. In rhetorical terms, this is a difference in stasis. Stasis concerns what is at the heart of a matter, and includes four levels of questions: fact, definition, quality, and jurisdiction. Each level of stasis builds upon the next, so that it must first be established whether something exists or occurred (fact) before we can determine how to categorize it (definition), whether it
is good or bad (quality), and how it should be handled (jurisdiction). Not all of these occur explicitly in every argument, but determining the level of stasis on which a debate occurs is a powerful opportunity. As Carolyn R. Miller points out in her discussion of expertise in risk analysis, the trend of quantification—a privileging of numbers over expert opinion—had serious implications on the nuclear-power safety debate. One rhetorical implication she identifies is the "technicizing" of the issue, or a stasis shift from evaluative to technical (C. R. Miller "Presumptions" 197). She notes that the third and fourth stasis levels are evaluative and call for decisions based on values. Conversely, the first and second stasis levels rely on knowledge or expertise. While I do not contend that whether to read a particular book is as important as determining the safety of nuclear-power facilities, it is noteworthy that the process of recommending as practiced by recommendation engines is not an evaluative question (is this a good book?) but rather a technical one (which book have other people who purchased this book also purchased?). It is, then, about matching like objects, and

*technologies of matching* seems a more appropriate label than recommending or collaborating or searching. Indeed, unifying these technologies through the term *matching* gets at the underlying similarities among these three processes, including their reliance on similar protocols.

There are two weightier concerns related to these technologies. First is their use in tracking individuals who potentially pose national security threats and coordinating military and intelligence efforts. Sometimes called collaborative decision making systems (Raghu, Ramesh and Whinston; Wang), these technologies employ processes similar to those used by
online retailers and social-networking sites. By uniting these surveillance procedures with those of recommendation engines and collaborative filtering under the umbrella of *technologies of matching*, we are able to get a clearer picture of the continuum on which they function. Second is their use in establishing romantic relationships. The online dating industry employs matching technologies in its romantic matchmaking efforts. Indeed, this seemingly mundane activity serves as the primary case study for examining technologies of matching here.

**The Case for Romantic Matchmaking**

I have chosen romantic matchmaking as a case study because it offers both a low point of entry and the most fertile ground on which to operate. Since matchmaking is a long, and generally familiar, tradition, it supplies an opportunity to make explicit connections that will be accessible to the widest audience. In addition, starting at the most-accessible point of entry will facilitate comparative and analogous pairings with other, less familiar technologies and/or processes. Third, offering a critique of the billion-dollar online dating industry (Paumgarten) will supplement the body of current, primarily social scientific, research. Most significantly, understanding technologies of matching through romantic matchmaking and the establishment of procreative relationships allows for a deeper understanding of the relationship between these technologies and biopolitical regimes of power. Scholars, in the social sciences particularly, have begun to focus attention on the internet and romantic relationships. Most of this work has fallen into one of two categories: 1) studies examining the role of internet communication in the maintenance of existing—online-only and offline-
native—relationships and 2) those that investigate the internet as a medium for establishing new romantic relationships. Of these two primary categories, the latter has received the most attention. Specifically, researchers have focused on the use of online dating sites for meeting new relationship partners.

Not surprisingly, most of the work to date on the maintenance of relationships via the internet has dealt with issues of interpersonal communication, and a significant portion of it has been focused on relationships that were established and maintained online. For example, Wildermuth and Vogl-Bauer surveyed 202 members of an internet discussion group about their online romances. Participants wrote narratives of their experiences, and their responses were coded for themes of how they felt about their online relationships. They found that participants seemed to use increasingly rich communication media, perhaps moving from a discussion group to text-based chat to voice over IP (VOIP), as they knew their relationship partners longer and better (Wildermuth and Vogl-Bauer). Additionally, Pauley and Emmers-Sommer studied thirty-six individuals who were involved in online-only relationships in order to understand better uncertainty reduction and self-disclosure strategies. They surveyed participants regarding their use of various kinds of synchronous and asynchronous internet-enabled communication (e.g., chat, instant message, e-mail, discussion groups, VOIP). While they found a relationship between the perceived possibility of meeting the online-relationship partner in the future and uncertainty reduction, they did not find a conclusive relationship between media richness and intimacy (Pauley and Emmers-Sommer). Use of internet technologies in the maintenance of relationships established offline has received scholarly
attention as well. Most notably, Sidelinger et al. surveyed 123 undergraduates who were in romantic relationships about how they use e-mail and instant message to maintain those relationships. They found a number of significant correlations, including one between participants' satisfaction with their relationship and their communication satisfaction (Sidelinger).

In the past five years, online dating has become a significant object of study, isolated not so much as a set of practices or technologies but rather almost as a condition. Research into online dating, with its reliance on models related to the "marriage market" and its focus on issues of presentation, mimics research in marketing effectiveness and branding. Some research uses economic models to examine the connection between the internet and romantic relationships. Heino, Ellison, and Gibbs used telephone interviews to examine Match.com in terms of social comparison theory and the "marriage market," or the tendency of singles to search for the maximum cost-benefit exchange within the relationship, to "enter a relationship with others that can, and are willing, to provide resources they need in exchange for their own resources" (3). They noted the complexity of the market metaphor in online dating: the ability to search profiles is convenient and empowering, but "shopping" for a partner denies the importance of emotional connection. Hitsch, Hortaçsu, and Ariely used economic modeling to examine mate preferences, specifically using the Gale-Shapley algorithm to account for preferences in categories such as age and education (Hitsch, Hortaçsu and Ariely).
At present, much of the work on online dating deals with presentation and self-disclosure. Gibbs, Ellison, and Heino studied the relationship between anticipation of in-real-life (IRL) interactions and self-disclosure. They found that the expectation of future face-to-face meetings affected users' self-disclosure and level of honesty (Gibbs, Ellison and Heino). Ellison, Heino, and Gibbs used phone interviews with thirty-four online dating participants in order to understand the relationship between projection of an "ideal self" and realistic self-presentation. Participants seem to balance these conceptions in their profiles and used the knowledge they gained from self-reflection in order to evaluate the profiles of others (Ellison, Heino and Gibbs). Toma, Hancock, and Ellison used cross-validation to verify profile accuracy. After recording claims made in eighty profiles, they checked their accuracy through face-to-face interaction. They found that although men had a tendency to be dishonest about their height, and women about weight, people were most honest about their current relationship status and relationship history (Toma, Hancock and Ellison). Yurchisin, Watchravesringkan, and McCabe's ethnographic study explored how eleven individuals used online dating sites to experiment with identity and how they used both online and offline feedback from other users to actualize possible selves (Yurchisin, Watchravesringkan and McCabe). One study that stands out is Arvidsson's work on Match.com. Arvidsson's examination includes both a textual analysis of user profiles and a cursory examination of the functionality of the site. As he puts it

Match.com caters to a symbol analytical labour which lacks both the time and freedom to pursue its basic reproductive and intimate needs. But it does this in ways
that makes its fantasizing and communicative investments of affect evolve within a branded space, which in turn makes it directly economically productive. The basic biopolitical condition of this class of symbol analysts—the mediatization of their lifeworld and the mobility and flexibility of their productive condition—is positioned as a source of surplus value. (686-87)

In his work, Arvidsson raises a number of issues that require further (and, I would argue, extensive) inspection, and this dissertation examines the political and economic implications in detail.

Two observations bolster my belief that internet romantic matchmaking offers an appropriate case study for better understanding technologies of matching. The first observation is that online romantic matchmaking mirrors online shopping. In Fall 2007, I analyzed the About Me and Who I’m Looking For (AMAWILF) section of fifty Match.com user profiles for users’ descriptions of themselves and of their perfect match. I found that the apparent social action in practice in the dating profiles seemed to run counter to the expected goal of online dating. The majority of profiles examined dedicated less than a third of the AMAWILF to describing the user’s perfect match. In addition, only a quarter of those who described their perfect match used the expected character allotment to depict the personality of that match. Based on the profiles studied, the exigency for participating in online dating may be as simple as maintaining cultural standards. Although it was surprising that the users did not devote equal proportion of characters to describing themselves and whom they would like to meet, the results were in line with use of social-networking sites, as some critics have
labeled that phenomenon "ego-casting" (Bugeja). The most striking observation from these two studies was the similarity between the profile-page layout on this internet romantic matchmaking site and product-page layouts for online retailers, such as Amazon.

The second observation is that researchers must look beyond basic assumptions about dating and begin to examine technical functionalities, actual user practices, and the larger implications of their interplay. A look at two studies—both presented at CHI: Conference on Human Factors in Computer Systems and both with Fiore as lead author—serves as an example. The first study, presented in 2005, centered on profile and site usage information from a large romantic matchmaking site. Fiore and Donath examined 65,000 online dating profiles to determine the extent to which people look for partners like themselves. They found that people were more likely to have contact (i.e., exchange messages) with other users who share "bounding characteristics" (e.g., religion, race, smoking habits) than could be accounted for by chance (4). In the second, a 2008 study by Fiore et al., sixty-five university faculty, staff, and students rated online dating profiles for attractiveness. Participants reviewed entire profiles and rated both the individual components—photograph(s), open-ended personal description, and closed-ended categorizations (e.g., religion)—and the overall profile for attractiveness. Ratings of the photographs were the best predictor of the overall attractiveness rating, but the open-ended personal description also played a role. The participants' ratings of the closed-ended categorizations had little to do with their evaluation of a user's overall attractiveness (Fiore).
Interestingly, the second study seems to contradict the first. On the one hand, when search functionality is removed from the equation, fixed-choice categories (e.g., body type, religion, race) do not factor in. On the other hand, people seem to use these categories in order to decide whom they will contact. In other words, when study participants were asked to evaluate attractiveness based on profiles presented to them in an environment decontextualized from the experience of mate selection, categories reified by the site in drop-down lists and search categories did not influence their impressions. But this result does not reflect the way in which individuals seem to use the site, presumably the same in both instances, as reported on by Fiore and Donath earlier. This discrepancy in findings underscores the need for research into the computational processes, user practices, and cultural implications of internet romantic matchmaking (IRM) that does not isolate these elements from one another but rather understands them in relation to—and in circulation with—one another.

A protocological approach that considers user experience, site functionality, and cultural context as a historically situated, contingent set of relations informs this project. It is hard to imagine that a person would engage exclusively in online dating as a means for meeting a mate. In fact, it is nearly impossible, as the stated goal of online dating is to facilitate face-to-face meetings that culminate in romantic relationships. It would make sense, then, that IRM would exist in a complex of active and passive activities for meeting others, like flirting with coworkers or other patrons in a bookstore or restaurant, attending a singles mixer at a local coffee shop, or going on a blind date arranged by friends. In addition, people
might meet potential romantic partners through other internet practices such as playing a massively multiplayer online role-playing game (MMORPG) or conversing about politics or music on a message board or discussion group.

In addition, IRM is a collection of technologies with varying functionalities. On one level, users experience Match.com, for example, primarily as a search tool; they can design searches and look for other users based on any number of physical characteristics, economic, employment, and education factors, and hobbies and tastes. Beyond that, users experience it as a communication tool through which they can exchange information with others who are registered with the service. They can express interest in others in a range of ways, some more explicit than others. Match.com members can set their preferences so that they can see when other users have viewed their profile, making the mere act of viewing a covert way to express interest. In addition, they can "wink" at one another. When users wink at someone to whom they are attracted, the other user receives a notification of that interest. Finally, they can send free-form messages through the site. In many ways, these technologies are designed to mimic offline communication techniques. If a person is interested in someone she sees on a bus or in a restaurant, she can let him catch her looking at him, give him a smile, or walk over to him and start a conversation. As discussed earlier, IRM sites can also function as a personal presentation tool. A user can set up a profile that includes a personal narrative, self-categorization in searchable classifications, and descriptions of his favorite places, his background, his ethnicity and education. In fact, since users are not required to contact or respond to others, they can use the site for the sole purpose of constructing an online self or
engaging in identity play. And this complex of functionalities is associated with one site, Match.com. As we will see in Chapter Three, the processes used by Match.com to match users are markedly different from those employed by eHarmony.com or OKCupid.com.

While IRM does make an excellent case study for the examination of technologies of matching, it also includes one significant shortcoming. Most IRM sites privilege "traditional" romantic unions, especially marriage, and in doing so they generally exclude gay, lesbian, bisexual, and transgender users. In addition, since one goal of this project is to position IRM historically, the second chapter focuses on the position of romantic matchmaking within the marriage assemblage. While I do touch on the use of matchmaking technologies for establishing otherwise restricted relationships, such as the use of classified advertising by gay men in the late nineteenth century, much of the analysis takes a heteronormative perspective.

**Contemporary Scholarship on Computational Processes**

In order to elucidate the integration of technology with cultural practices of matching, it is necessary to examine a complex web of relationships—between users and technologies, between technologies and the larger cultural contexts in which the function, between individuals and those same contexts. A body of work has emerged around these connections, and increasing attention has been paid to technological protocols that enable them. In *My Mother Was a Computer*, N. Katherine Hayles discusses what she calls the Regime of Computation—a tradition that views computational processes as elemental to all function, be it human, natural, or technical. She notes that "the pervasiveness and importance of
computing in contemporary culture continue to reinforce the idea that computation is a fundamental process” (Hayles 30), and recently the humanities and social sciences have taken up the examination of computation.

Not surprisingly, much attention has been paid to the ways in which computational processes play an increasing role in our relationship to social space and mobility. There is significant interest in what some call algorithmic surveillance (Graham and Wood; Introna and Wood; Lyon). According to Introna and Wood, algorithmic surveillance is

… surveillance technologies that make use of computer systems to provide more than the raw data observed. This can range from systems that classify and store simple data, through more complex systems that compare the captured data to other data and provide matches, to systems that attempt to predict events based on captured data.

(181)

Research on algorithmic surveillance tends to focus on the ways in which facial recognition, movement recognition, and biometric technologies are used to observe, record, and analyze the movement of bodies through space and time. Although the research acknowledges potential positive implementations of these technologies, such as eliminating corruption and bias (Graham and Wood; Introna and Wood), most focuses on the negative repercussions. Computational processes are used to determine levels of access in a number of arenas, including who receives priority when routing calls in customer-service call centers (Beer; Graham; Graham and Wood), who is allocated increased bandwidth when accessing the
Internet (Graham), and who has the right to travel on certain roadways (Graham; Graham and Wood). By controlling access to both public and private resources, these technologies are implicated in both the privileging and marginalizing of populations. In the conclusion to "Software-Sorted Geographies," Stephen Graham explicitly states their importance: "[I]t is very clear from this discussion that software-sorting must be at the center of any attempt to conceptualize the formation, maintenance and experience of social and geographical inequalities within contemporary capitalist societies" (Graham 575).

Another important theme is computation’s management of mobility. Mark Andrejevic looks at mobility in a moment of m-commerce (mobile commerce) and mass customization. Drawing on a Foucauldian-Deleuzean understanding, he argues against the belief that increasingly networked, modular interaction marks the end of individuation and, therefore, subjectivity. Instead he argues that, through mass customization and mobile technologies, the same processes simultaneously enable homo- and heterogeneity. Using the example of Vindigo, a location-aware city guide with maps, movie listings, and other local information, he argues that by presenting users with distinctive views of their own paths through space and time, their "[s]ubjection to interactive surveillance becomes the precondition for orientation and, at the same time, a form of individual expression" (Andrejevic "Monitored" 142). Likewise, Jeremy Packer complicates the relationship between mobility and control. On the one hand, with its flexibility and ease of expansion, mobility enables control. On the other hand, that same flexibility makes mobility a threat to control. In his discussion of DARPA’s proposed implementation of combat zones that see (CTS), he offers a number of
concerns related to their potential implementation for domestic use. Perhaps most significantly, he notes,

Recognition is dependent entirely upon pattern recognition culled from movements in space and time. Through a series of ever-modulating algorithms, themselves based upon the movements within the system itself, the future is created. In essence, the identity of a threat is the prognostication of future 'force protection threats', not in terms of a particular terrorist, but rather 'vehicles'. Identities become risk assessment algorithms of mobilities. It is not who is a threat, but what vehicular movement can be used to predict a threat. This is not to say that traditional identity categories used in profiling will disappear. But, in a state of perpetual war-mindedness, when it is unclear who may come to next threaten US hegemony, ever-modulating hybrid threat identities are likely to be produced. ("Becoming Bombs" 392)

Risk is identified, then, not with the individual but rather with the very activity of mobility. This reification is akin to what Andrejevic labels "categorical suspicion" ("Monitored" 136), or what Burrows and Ellison warn against when they discuss the use of postal codes to identify positive and negative neighborhood attributes (Burrow and Ellison).

Although most of the discussion of computation’s relationship to social space and mobility does not necessarily address internet applications, researchers exploring computational processes, technological protocols, and participatory concerns seem to focus their attention on the web, especially in relation to authority and trust. As Pariser notes in his
discussion of the filter bubble, the primary obstacle to online deliberation is the homogeneous character of interactions online; through familiar processes such as social networking and hyperlinking, users "receiv[e] information from like-minded others" (110). In their work on maximizing the deliberative potential of the internet, Azi Lev-On and Bernard Manin suggest that attracting participants with opposing points of view is necessary for proper and productive deliberation. The authors identify three "drivers" of this homogeneity, and among them is "collaborative filtering and popular feedback loops" (111). In many discussion venues online, members are able to review both the contributors and their contributions, and those ratings are often used to rank submissions automatically. As a result, the best-liked users/content will likely be the most viewed. Under the best of circumstances, they suggest, the better-written or better-argued pieces will make their way to the top. Under the worst, the voice of the majority will drown out dissent, limiting the opportunity for deliberation. Similarly, David Beer questions the potential for "new participatory web cultures" in Web 2.0 (995), especially in light of the invisible processes that power those technologies. He notes the impact of technologies like collaborative filtering, which conceals itself while making suggestions. "This is undoubtedly an expression of power, not of someone having power over someone else, but of software making choices and connections in complex and unpredictable ways in order to shape the everyday experiences of the user" (997).

In her prescriptive piece on trust and collaborative filtering, Jo Ann Oravec notes the power of the Regime of Computation and offers a potential solution to the anxiety Beer
seems to be expressing. She points out examples of both erosion (e.g., failure to mitigate abuse of eBay customer reviews) and bolstering (e.g., a discussion forum that uses collaborative filtering but also publishes reviews of contributors/contributions) of consumer trust in online systems. She demonstrates both rhetorical and technical strategies, such as the name shift from "social" to "collaborative" filtering after the former was associated with ethnic cleansing, for potentially instilling trust in users (Oravec). Clay Shirky likewise addresses trust in his discussion of *algorithmic authority*, or "trust in a new class of aggregators and filters" (Shirky, par. 1). Using Wikipedia as the primary example, he identifies a three-step process for the development of algorithmic authority. First, a resource draws data from multiple, unvetted sources, and the resulting information is published instantaneously without the requirement for (human) authorization, beyond that of the user making the edit, for the change to appear on the page. Next, the resource consistently returns reliable results that instill trust in its users. Finally, when users realize that other users also trust the resource, it has attained algorithmic authority. This algorithmic authority, the trust in the Regime of Computation that has become more integrated with—and sometimes substituted for—human decision-making in a variety of contemporary activities (e.g., Amazon purchase recommendations), will remain important throughout the discussion of IRM in this dissertation.

Clearly there is a distinction between Shirky's discussion of trust and its function as described by Oravec. Oravec’s example of a trustworthy system is the filtered discussion forum that includes reviews of participants and their submissions; her illustrations of eroded
trust in these systems include the abuses of eBay customer reviews and the exploitation of Yahoo! News’ photo-ranking system. In other words, Oravec focuses on human practices in collaborative filtering/recommender systems (and whether those humans are behaving well or poorly), while Shirky discusses how the system’s processes are built to work. In rhetorical terms, we could think of the former, as Carolyn R. Miller puts it, as "a Ciceronian ethos of sympathy" and the latter as an "Aristotelian ethos of rationality" (C. R. Miller "Expertise" 211). Miller’s delineation comes as a part of a discussion of the ethos of intelligent agents (e.g., bots that assist users in online environments) functioning in computational systems. Miller argues that in order for these agents to interact effectively with humans, they must be social as well as intelligent. This seems to gel with Oravec’s understanding of collaborative filtering as systems that must demonstrate trustworthiness to their users; she argues that "[collaborative filtering] developers can provide means for participants to receive more easily digestible information about how rankings and reputations are calculated and updated" or, in the case of less visible collaborative filtering, "offer forms of explanation capability (or at least provide overviews of their functions)" (115). Shirky’s view, by contrast, emphasizes the intelligent, rather than social, features in his discussion. These differing views on trustworthiness in computational systems once again emphasize the importance of understanding the processes that enable them.

In her discussion of the Regime of Computation, Hayles, following Wendy Hui Kyang Chun, imagines software as ideology. She notes that the metaphors used to orient users (e.g., desktop, trashcan) come with sets of expectations that convert people into users
but that this conversion "into the machinic system does not require his or her conscious recognition of how he or she is being disciplined by the machine to become a certain kind of subject" (61). In *What Computers Still Can't Do*, Herbert L. Dreyfus likewise argues that the twentieth-century failures of AI development can be linked to four classes of flawed assumptions—biological, psychological, epistemological, and ontological—that have fueled the unwarranted optimism of researchers in the field that supports the ideology of the Regime of Computation.

The *biological* assumption hinges on the idea that "on some level of operation—usually supposed to be that of the neurons—the brain processes information in discrete operations by way of some biological equivalent of on/off switches" (156). In actuality, if the brain-as-computer analogy holds up, the brain seems to be more analog than digital. The processes that govern human decision-making are not "an all-or-none affair, comparable to the binary digit" that can be turned on and off or parsed into discrete units (160). The *psychological* assumption depends on the idea that "the mind can be viewed as a device operating on bits of information according to formal rules" (156). The "thinking as data-processing" model reduces the mind to the level of tool, making decision-making "a third-person process in which the involvement of the 'processor' plays no essential role" (157). The data-processing model is rooted in an understanding of information in an engineering sense in which meaning is inconsequential and that follows Claude Shannon's cybernetic theory, originally intended for gauging the transmission capabilities of telephone networks. However, as Dreyfus notes, meaning and context are important for human decision-making.
And even if the brain does function according to Shannon's information-processing model, "there might be no flow chart, no series of rule-governed steps on the information-processing level, which would describe its activity" (166). The epistemological assumption, according to Dreyfus, rests on the idea that "all knowledge can be formalized, that is, that whatever can be understood can be expressed in terms of logical relations" (156). The information-processing model cannot sufficiently account for the activities people engage in when thinking, acting, or making decisions, nor can it provide evidence that those activities can be replicated through AI. The epistemological assumption differs from the psychological assumption in that it does not suppose that information processing of humans and machines rely on the same rules, only that human decision-making can be codified into processes replicable by digital computers.

The ontological assumption is the most fundamental of the four assumptions. As Dreyfus explains, it relies on the idea that "all relevant information about the world, everything essential to the production of intelligent behavior, must in principle be analyzable as a set of situation-free determinate elements" (156). Indeed, the belief that human thinking should be translatable to "discrete, explicit, and determinate" elements (206) is so integral to AI research that it's never addressed directly. Dreyfus traces this need for certainty all the way back to Plato, and he argues that it cannot account for the situatedness of human experience.

A mistake, a collision, an embarrassing situation, etc., do not seem on the face of it to be objects or facts about objects. Even a chair is not understandable in terms of any
set of facts or "elements of knowledge." To recognize an object as a chair, for example, means to understand its relation to other objects and to human beings. This involves a whole context of human activity of which the shape of our body, the institution of furniture, the inevitability of fatigue, constitute only a small part. And these factors in turn are no more isolable than is the chair. They all may get their meaning in the context of human activity of which they form a part. (210)

Much of this challenge comes from conflating situation with physical state.

As Dreyfus's work demonstrates, the biological, psychological, epistemological, and ontological assumptions that AI research has typically relied on cannot sufficiently account for the complexity of human decision-making, but these suppositions are duplicated and then reified in and through algorithmic processing and computer code. When, as Hayles notes, computation has been positioned as fundamental to human, natural, and technical function, it is important both to understand the Regime of Computation as ideological. That is to say, asserting the primacy of computation depends on a particular worldview and a particular (faulty) understanding of human decision-making, but the computer's pervasiveness and the reliance on simple, convenient metaphors (e.g., desktop) to describe its utilities mask that perspective and all of its underlying assumptions. Recent work has begun to focus attention on computational processes as historically situated and implicated in contemporary cultural systems. One such work, Alexander Galloway’s *Protocol: How Control Exists after Decentralization*, will serve as an organizational structure for my three-layered investigation of IRM. I examine the computational processes that enable matching technologies and the
cultural, social, and political expectations that support their logics through that frame. My analysis provides a history of romantic matchmaking that takes into account its relationship to technology and positions IRM within its current cultural moment.

**Protocol**

*Protocol* in Galloway’s sense is the organizing principle that manages interactions in networks, and he discusses it on three levels: physical (or network), form (or apparatus), and power. These three levels inform the structure of this project and allow me to examine IRM historically, procedurally, and culturally without losing focus on matching as a process. Galloway emphasizes that protocol is "*against interpretation*" (Galloway *Protocol* 52, emphasis original). Protocol may capture and store information, but it is generally indifferent to that content.

To follow protocol means that everything possible within that protocol is already at one’s fingertips. Not to follow means no possibility. Thus, protocological analysis must focus on the possible and the impossible (the envelope of possibility), not demystification of some inner meaning or "rational kernel" within technology.

*Protocol is a circuit, not a sentence.* (Galloway *Protocol* 53, emphasis original)

The implication for protocological analysis, then, is that researchers must focus on logics rather than interpretations—or, in Galloway’s terms, on possibility not meaning.

The physical media of protocol are associated with the *kind* of network. Galloway notes that "protocol is not by nature horizontal or vertical, but that protocol is an
algorithm whose form of appearance may be any number of different diagrams or shapes" (Protocol 30, emphasis original). Galloway discusses three varieties of networks: centralized, decentralized, and distributed. The key features of centralized networks are hierarchy and authority, and all components are organized around a central core. He offers the United States judicial system as an example, with the Supreme Court serving as the center. All lower courts may have their own jurisdictions, but they work in a hierarchical relationship with the Supreme Court, which holds final authority. Currently the most common schema is the decentralized network, which works like a "multiplication of the centralized network" (Protocol 31). The American airline system serves as an illustration of this diagram—a web of numerous hubs with their own networks, none of which serves as the center of the larger system. The final network structure, and the one Galloway is most concerned with, is the distributed network. This schema has "no central hub and no radical nodes" (Galloway Protocol 33). Galloway likens the distributed network to the rhizome:

Reacting specifically to what they see as the totalitarianism inherent in centralized and even decentralized networks, Deleuze and Gauthtari instead describe the rhizome, a horizontal meshwork derived from botany. The rhizome links many autonomous nodes together in a manner that is neither linear nor hierarchical. Rhizomes are heterogeneous and connective… They are also multiple and asymmetrical… Further, the rhizome has complete disregard for depth models, or procedures of derivation. (Protocol 33)
Two examples of distributed networks are the United States interstate highway system and the internet, both of which were developed contemporaneously for military purposes but have since proved useful for civilian and economic functions as well (Protocol 37-38).

The next level of protocol is the formal apparatus. Galloway associates it with software, and defines it as "the totality of techniques and conventions that affect protocol at a social level, not simply a technical one" (Protocol 55). Galloway focuses this discussion on the internet, and he identifies continuity as a significant component. He defines continuity as "the set of techniques practiced by webmasters that, taken as a totality, create this pleasurable, fluid experience for the user" and argues that, since the internet does not employ the same narrative and temporal elements as other media (e.g., television), continuity is what captivates users. He goes on to identify fourteen techniques of continuity, but I will only cover one in detail here, as it holds special relevance for a discussion of technologies of matching.2 Galloway's final technique of continuity is that identity on the internet is "anonymous but descriptive" (Protocol 69, emphasis original). In other words, although internet applications store a host of information on users and traffic, the "real identity of those movements is irrelevant" (Protocol 69).

Demographics and user statistics are more important than real names and real identities. On the Internet there is no reason to know the name of a particular user,

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2 The fourteen techniques of continuity identified by Galloway are as follows: conceal the source, eliminate dead links, eliminate no links, green means go, true identity, remove barriers, continuity between media types, prohibition against low resolution, highest speed possible, prohibition on crashes, prohibition on dead media, eliminate mediation, feedback loops, and anonymous but descriptive (Galloway Protocol 64-69).
only to know what that user likes, where they shop, where they live, and so on. The clustering of descriptive information around a specific user becomes sufficient to explain the identity of that user. (Protocol 69)

Galloway aligns this conception of identity with Foucault’s *biopower*—"the power to interpret material objects as information, to affect objects at the statistical or informational level, not at the level of individual content" (Protocol 69), which he covers in greater depth in his discussion of power. Significantly, this technique of continuity is in direct contradiction to the user experience (but not the process of algorithmic dividuation) in systems of mass customization, which make users feel individuated, unique, and catered to.

The final level of protocol is power, where Galloway "consider[s] protocol in a political sense, as a pseudo-ideological force that has influence over real human lives" (Protocol 81). For this discussion, Galloway returns to the work of both Foucault and Deleuze, specifically the former’s concepts of *biopower* and *biopolitics* and the latter’s notion of *control*. As Galloway notes, Deleuze’s "Postscript on Control Societies" discusses a new regime of power (control) that relies on information technologies to observe and manage movements of bodies, as demonstrated in the work of both Andrejevic and Packer discussed earlier. This, for Galloway, is a protocological control that "affects the functioning of bodies within social space and the creation of these bodies into forms of ‘artificial life’ that are *dividuated*, sampled and coded" (Protocol 12, emphasis original). Being dividuated, based on Deleuze’s *dividual*, is oppositional to being individuated. In other words, individuals are absorbed here by the (distributed) network of control societies, and this distinction can be
likened to the difference between site functionality and user experience in mass customization. Sites *dividuate* users; they collect information on users' behaviors, tastes, etc. and convert it into data that is then aggregated with information from other users. This aggregation is then used to personalize sites' appearance and content for users, creating a feel of *individuation*.

For Galloway, Foucault’s biopower and biopolitics are also protocological, as they are concerned not with the control over death but with "the calculated management of life" (Foucault *History* 138–40). Galloway describes biopower thus:

Foucault argues that the deployment of sexuality in the modern age is a perfect example of this type of "calculated management of life," for human lives themselves are engendered with a real, material sexuality during this period. He writes that *life enters history* at this moment—life was not a viable category before. "Power would no longer be dealing simply with legal subjects over whom the ultimate dominion was death, but with *living beings*, and the mastery it would be able to exercise over them would have to be applied at the level of life itself." Foucault lists the achievements of biopower: "[it gives] rise to the infinitesimal surveillances, permanent controls, extremely meticulous orderings of space, indeterminate medical or psychological examinations, to an entire micro-power concerned with the body." *(Protocol* 85–85)
Closely related is the conception of biopolitics. According to Foucault, biopolitics is "the endeavor, begun in the eighteenth century, to rationalize the problems presented to governmental practice by the phenomena characteristic of a group of living human beings constituted as a population: health, sanitation, birthrate, longevity, race" (quoted in Galloway Protocol 13). As the individual body was the object of previous forms of power, the population is the object of biopolitics, and this system requires statistical information for the management of population. Biopower and biopolitics, like Deleuzean control, are protocological. They "are Foucault’s terms for the statistical coding, the making statistical, of large living masses, such that any singular life-form within that mass may be compared in its organic nature to the totality" (Protocol 87, emphasis original). As we have seen, Galloway's work in Protocol draws heavily on the study of regimes of power begun by Foucault and continued by Deleuze. As he notes, by considering technologies (e.g., the digital computer), network structures (e.g., distributed networks), and organizational logics (e.g., protocol) that are native to the current moment, we can expand our understanding of the emerging regime of power, control. Likewise, this project relies on a Foucauldian-Deleuzean understanding of power.

Historically, romantic matchmaking has played a role in the establishment of procreative relationships and has therefore been a consistent tool of power across formations. In the current milieu, IRM works among long-established biopolitical tools of population management (e.g., birth and marriage rates). Recent scholarship has begun to address the biopolitical implications of matchmaking generally, and this work contributes to that
understanding. In their critique of international internet dating, Agathanagelou and Killian note, for example, that IRM sites are "political strategies [deployed] to target, control, manage, and discipline in border crossing toward the formation of a different life" (113). Indeed, most of the recent work on matchmaking and biopolitics centers on non-Western cultures, such as "social engineering" in Singapore (Ong) or "eugenic matchmaking" in Japan (Robertson). Although he does not address romantic matchmaking specifically, John Cheney-Lippold's *new algorithmic identity* merits attention. This discussion of categorization and identity construction addresses, though not through explicit reference, the "anonymous but descriptive" character of subjectivity online. He notes that, as we saw earlier in this introduction, the relationships between sites and their visitors have changed since the early days of the web and that contemporary computational processing models allow for sites to "know" their users—based on the pages they visit, products they purchase, and media they watch/listen to. Further, this knowledge is no longer site-specific; it follows users through the web, as anyone who has seen an advertisement for shoes on a news site after visiting Zappos can attest. He traces the shift in market research from use of demographics to psychographic information, a move from understanding consumers in terms of statistical categories (e.g., age, gender) toward relying on attitudes and values (e.g., political affiliation, religion). He notes a new logic—one rooted in consumption patterns, computational processing, and categorization—that he calls *new algorithmic identity*.

Like Galloway, Cheney-Lippold links this new identity formation with biopolitics and control, as "enacted through a series of guiding, determining, and persuasive mechanisms"
of power" (169). This "cybernetic categorization" produces a new kind of biopower. Population is not only made statistical through annual reporting of birth and marriage rates, for example, but also through constant surveillance and information gathering online. He calls this soft biopolitics, or "how biopolitical processes give meaning to the categorizations that make up populations and through which we can look at the variable indirect processes of regulation" (173). Whereas categorization was a mechanism through which "hard" biopower managed population, soft biopower manages categories themselves. Soft biopolitics, then, "constitutes the ways that biopower defines what a population is and determines how that population is discursively situated and developed" (175).

Cheney-Lippold goes on to tie soft biopower/politics to control through the technique of suggestion. He defines suggestion as "the opening (and consequent closing) of conditional access as determined by how the user is categorized online" (175), and these categorizations are "always changeable, following the user and suggesting new artifacts to be visited, seen, or consumed" (176). In that way, this conception of suggestion is what we describe as matching, and he notes the importance of these (matching) technologies for contemporary subjectivity.

The individual user is incapable of really experiencing the effect that algorithms have in determining one’s life as algorithms rarely, if ever, speak to the individual. Rather, individuals are seen by algorithm and surveillance networks as members of categories. So instead of positioning the individual as the locus of research, the addition of the level of the category can enable us to better understand the structuring
Chapter One

of our lives under surveillance as well as the myriad ways control can work on both individuals and categories. And it is here that the potential for discourse around identity becomes problematic. The identifications that make us as subjects online are becoming more opaque and buried, away from our individual vantage points and removed from most forms of critical participation. They are increasingly finding mediation outside the realm of traditional political intervention and inside the black boxes of search engines and algorithmic inference systems (Becker and Stalder, 2009). (176-77)

With instruments of subjectification increasingly hidden while simultaneously further integrated with consumption, the importance of understanding matching technologies on multiple levels, especially the procedural level, is clear. When those matching technologies are used for the establishment of procreative relationships, their scrutiny is even more important. To that end, I employ a mixed-methods approach with a tripartite structure that examines IRM on three levels—historical, procedural, and cultural.

On the first level of analysis, I position romantic matchmaking historically. In order to understand matching in circulation with a network of associations, I rely on Gilles Deleuze and Félix Guattari's assemblage theory, as well as Manuel DeLanda's explication of assemblage theory for social formations, and Foucauldian-Deleuzean understanding of power and control. Using that framework, I examine the contingent social, cultural, familial, economic, and technological relationships that make up the marriage assemblage. In particular, I focus on the practice of romantic matchmaking as part of that assemblage and a)
define it in terms of three conditions—intermediation, mediation, and automation—and b) position it in relation to regimes of power. Intermediation describes the condition in which the marriage match is facilitated by active human decision-making and is closely associated with sovereign power configurations in which kin relations play an important role in how societies are organized, resources are managed, and power is exercised. Like intermediation, mediation is a condition that relies on human decision-making. However, that decision-making no longer belongs to a human intermediary who introduces the potential couple but rather initiates from individuals who engage in their own matching practices using communication technologies as mediators. Mediation is most closely associated with disciplinary power configurations in which institutions must, after changes that include urbanization and mobility, govern at a distance. Automation is a condition in which matching is outsourced to non-human operators, specifically computer-mediated matching that usually relies on algorithmic processing. Although this matching may be based in human decision-making, such as social-scientific research, that human decision-making is not visible in the interactions between the matchmaker and the matched. Automation is most closely associated with governmental/biopolitical power configurations in highly mobile, networked societies that require management of population.

On the second level of analysis, I analyze IRM as a formal apparatus through in-depth exploration of computational processes, logics, and cultural assumptions that enable the functionality of three online dating sites—eHarmony.com, Match.com, and OKCupid.com—and their relationship to the construction of subjects. I begin with a discussion of
procedurality and procedural rhetoric. Grounding this inquiry in procedurality allows me to move beyond issues of representation to examine subjectivities in terms of the persuasive processes that enact them. Specifically, I examine the data preparation, matching, and communication workflows from the perspective of both user experience and site functionality. Since the kind of information that is employed to match users reveals much of how sites conceive of subjects, I pay special attention to the data preparation logics of each site, which operate during the initial account setup phase. In the end, I discuss the particular ideological perspective that informs the operations of each site in terms of the construction of subjects and their relationship to regimes of power.

On the third level of analysis, this investigation of subjectivity and IRM moves from descriptive analysis of processes to the study of knowledge production. I begin with Foucault's discussion of the historical development of sexuality and its relationship to biopower, especially through the act of confession. Next, I turn to the contemporary American moment and the complex relationship among biopower, procreation, and non-interventionist politics, as well as the pervasiveness of the public confession, in order to understand the role that a new discursive formation, the IRM success story, plays in the construction of subjects on the same three IRM sites examined in Chapter Three. I analyze both format and content of success stories and position them as a significant component of IRM's position as a biopolitical technique for converting risky single subjects into the stabilized married couple.
Finally, I locate technologies of matching within societies of control. I first return to Deleuze's "Postscript on Societies of Control" and the "new weapons" of power he identifies in the shift from disciplinary to control societies ("Postscript" 178). Next, I situate marriage and family as two challenging institutions for this transition and problematize the synchronic logics of control and IRM with the diachronic logics that enable persistent marriage and familial formations by offering one potential "new weapon" for marriage and family—the renewable marriage contract. I then expand our potential for understanding technologies of matching with a brief discussion of another potential case study, Netflix's Cinematch. I end by offering further recommendations for future investigations.

The goal of this dissertation is to enhance our understanding in a number of areas while also offering a model for how we might take a more holistic approach to the analysis of digital media. Perhaps most obviously, it adds much-needed cultural critique of online dating that supplements the small body of excellent work already done (see, for example, Arvidsson) and weaves together investigations of marriage, family, and romantic matchmaking into a meshwork of relations that provides a more nuanced view of those affiliations as a marriage assemblage. Beyond that, in addition to the work in this introduction that elucidates our understanding of the recursive processes of matching and categorization and identifies their mislabeling (as searching, collaborating, and recommending) in discourse surrounding website capacities, this project offers an examination of IRM as a matching technology—a set of technical capabilities, human practices, and cultural conditions that is unique to the contemporary moment and operates
within logics of Foucauldian biopower and Deleuzean control. Likewise, this examination of IRM includes a focus on procedurality, rooted in Ian Bogost's work on procedural rhetoric, and operationalizes that framework for digital technologies other than videogames, such as mass-customized web applications. Perhaps most significantly, this dissertation offers an example of how rhetorical studies and cultural studies approaches can be wed for a nuanced approach to studying digital media.
CHAPTER TWO: ROMANTIC MATCHMAKING AND THE MARRIAGE ASSEMBLAGE

In his conclusion to The Audible Past, Sterne warns against allowing ideas about technology to transform into doxa:

A variety of theoretical and political perspectives can be doxic, but doxic views tend to be treated as self-evident by those who hold them. Many of the pieties that we find in the writing on technology, sound, communication, and culture in fact protect authors' intellectual decisions from scrutiny because they conform to doxa of one sort or another. (336)

One of the primary doxa of concern to Sterne is the technological imperative. For Sterne, the technological imperative is rooted in a consumerist understanding of need. As new technologies emerge, they are translated into must-haves of social life by "advertising talk masquerading as academic discourse" (336). We need personal computers, tablets, and mobile phones—just as, Sterne points out, we needed headsets in 1925. By placing these pervasive new technologies in the context of need, we allow them to become transparent, resistant to examination. Instead, he suggests that we ask probing questions, such as "Why these technologies, now? What social forms, what social relations, do they encapsulate?" (337).

To answer these questions for internet romantic matchmaking (IRM), it is necessary to situate it historically, in terms of the cultural practices and technologies that came before
it. Within an organizational structure that is informed by Alexander Galloway's *Protocol*, that means starting with networks. The three-network delineation—centralized, decentralized, distributed—as discussed by Galloway offers a good starting point. Centralized networks, such as the United States court system, are networks of hierarchy and authority. Though decentralized networks are *less* centralized, they are still hierarchical and operate under the assumption that some points in the network—certain nodes in the airport system, for example—are more important than others. Decentralization is a proliferation of the centralized network rather than a different network logic. It is not until distributed networks begin to emerge that we see something different, a rhizomatic meshwork of connection. As we saw in the introduction, distributed networks (e.g., the United States interstate highway system) are non-hierarchical structures that function much differently than the centralized and decentralized networks that came before them. As Galloway notes of the highway system, travelers may embark on any number of routes when driving from Los Angeles to Denver, choosing to travel through San Francisco, Las Vegas, or perhaps Albuquerque. He notes, "The highway system is a distributed network because it lacks any centralized hubs and offers direct linkages from city to city through a variety of highway combinations … The routes are varied, not predetermined. If one route is blocked, another will do just as well" (*Protocol* 35).

As Galloway notes in the introduction to *Protocol*, his project focuses on a diagram (distributed network), a technology (the digital computer), and a management style (protocol)
In order to resist the technological imperative in our discussion of IRM, it is necessary to move beyond the computer network in this chapter to situate IRM—and the logics and practices implicated with it—historically. In other words, in order to understand why this technology (and logics and practices) now, we must first understand its antecedents. Assemblage theory affords us this opportunity.

Assemblage Theory

Assemblages, as conceived of by Gilles Deleuze and Félix Guattari most notably in *A Thousand Plateaus*, are dynamic multiplicities of relations "necessarily act[ing] on semiotic flows, material flows, and social flows simultaneously" (12-13). Deleuze and Guattari reject a split between fields of reality, representation, and subjectivity in favor of understanding all fields in relation to one another. Elsewhere Deleuze labels assemblages as *hodgepodges*, "combinations of interpenetrating bodies" and clusters of lines that both open up and shut off relations, that unify disparate elements; these relations are best exemplified by the questions "How do things take on consistency? How do they cohere?" (Deleuze "Eight Years Later" 177-79). Approaching romantic matchmaking from the perspective of assemblage theory offers a conceptual framework—and accompanying terminology—that resists the

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3 Recent work in social theory has developed a more nuanced treatment of *network*. For a thorough discussion of these developments, see Stephen B. Crofts Wiley, Daniel M. Sutko, and Tabita Moreno Becerra's "Assembling Social Space." In it, they define *network* as "the virtual links—that is, the potential articulations, or ties—that connect subjects to assemblages … the work of netting, or assembling, disparate elements" (344), and they focus on three particular network "milieus": social, technological, and geographical (345).
technological imperative and situates romantic matchmaking within a set of contingent relations, *the marriage assemblage*.

Since Deleuze and Guattari identify territory as "the first assemblage" (323), then the concept of territorialization is key to understanding assemblage theory for my purposes. Deleuze and Guattari begin Chapter 11, "1837: Of the Refrain," of *A Thousand Plateaus* with three brief narrative accounts: a child singing in the dark to allay his fear, "home" as a place defined through organizing spatial and sonic elements, and the break in a circle as a means of escape or entry (311). Each is an instance of a refrain, and the refrain can serve as an entry point to understanding territorialization (and assemblage).

The refrain has all three aspects [of the narrative accounts], it makes them simultaneous or mixes them: sometimes, sometimes, sometimes. Sometimes chaos is an immense black hole in which one endeavors to fix a fragile point as a center. Sometimes one organizes around that point a calm and stable "pace" (rather than a form): the black hole has become a home. Sometimes one grafts onto that pace a breakaway from the black hole. (312)

These three narratives—and the three "sometimes"— are aligned with three forces associated with assemblages. The *infra-assemblage* is the "threshold of the territorial assemblage," or its becoming from chaos (312). The *intra-assemblage* is when "one organizes the assemblage," when elements coalesce and consistency emerges (312). The *inter-assemblage* is when "one leaves the territorial assemblage for other assemblages, or for somewhere else entirely," the
"components of passage or even escape" (312). These forces are closely related to territories, as they "confront each other and converge on the territorial refrain" (312).

Deleuze and Guattari discuss the infra-assemblage first in terms of milieus, rhythms, and transcoding. Everything exists in milieus—the inside, outside, and in between of all living things—that react to chaos through rhythms. For the authors, milieu is used as a technical term that encompasses its three senses in the original French: "'surroundings,' 'medium' (as in chemistry), and 'middle'" (xvii). Rhythm is the product of transcoding as "one milieu serves as the basis for another, or conversely is established atop another milieu, dissipates in it or is constituted in it" (313). Milieus persist, they endure through repetition, but it is their distinction one from another that creates rhythm. Milieus' interplay—layering, subsuming, consolidating—is rhythmic, and Deleuze and Guattari offer the relationship between spider and fly as an example: "It has often been noted that the spider web implies that there are sequences of the fly's own code in the spider's code; it is as though the spider had a fly in its head, a fly 'motif,' a fly 'refrain'" (314). In other words, transcoding the fly milieu into the spider milieu creates a rhythm in between. As that rhythm persists, it becomes territorialized into a refrain (317).

Significantly, while milieus persist through coding (repetition), territories develop through decoding, and Deleuze and Guattari offer two examples from animal courtship to illustrate processes of territorialization and deterritorialization. According to Deleuze and Guattari, a territory is more than an aggregation of, or interaction among, milieus: "The territory is in fact an act that affects milieus and rhythms. It amounts to the same thing to ask..."
when milieus and rhythms become territorialized, and what the difference is between a nonterritorial and a territorial animal. A territory borrows from all the milieus; it bites into them, seizes them bodily (although it remains vulnerable to intrusions)" (314). Deleuze and Guattari note another difference between territorial and nonterritorial animals: the latter are more coded than the former, and this gets at territorialization and the "very rich and complex" force of the intra-assemblage (322-23). As an example, the authors offer the "territorial assemblage" and "assembled, territorialized functions" of the wren. The male wren establishes a territory, marking it with his warning song and his nests. At the arrival of the female, he summons her to the nest and lessens the forcefulness of his singing in order to woo her. There are repetitions here, to be sure, but what marks the male as a territorializing animal is variety. For example, the male wren is more colorful in appearance and more diverse in his singing than his female counterpart. Still, both the nest and the song serve as territorialized functions in this territorial assemblage, and they circulate with a variety of diversified elements, such as the male wren's song, coloring, scent, and movements—as well as the ways in which he structures them—and his organization of the physical aspects of the territory. What makes the territory cohere "is a question of consistency: the 'holding together' of heterogeneous elements. At first, they constitute no more than a fuzzy set, a discrete set that later takes on consistency" (323, emphasis original). Consistency should not be read as linearity or hierarchy or totality. Rather, consistency is rhizomatic; it "concretely ties together heterogeneous, disparate elements as such: it assures consolidation of fuzzy aggregates" (507).
The flipside of this territorialization is deterritorialization (and any subsequent
reterritorialization):

In many cases, a territorialized, assembled function acquires enough independence to
constitute a new assemblage, one that is more or less deterritorialized, en route to
deterritorialization. There is no need to effectively leave the territory to go this route;
but what just a minute ago was a constituted function in the territorial assemblage has
become the constituting element of another assemblage. As in courtly love, a color
cesses to be territorial and enters a "courtship" assemblage. The territorial assemblage
opens onto the courtship assemblage, which is a social assemblage that has gained
autonomy. (324)

This new assemblage exists independent of the original territorial assemblage, even if the
new assemblage remains within the original territory's spatial confines. To put it another
way, as the male and female wren from our earlier example go through the courtship and
then mating processes, they may stay within the male's original territory, but they have been
deterritorialized from that territorial assemblage and reterritorialized as a new mating
assemblage. This interaction between assemblages is the force of \textit{inter-assemblage},
multiplicities of assemblages.

These multiplicities of assemblages are marked by exteriority and contingency. In \textit{A
depicts assemblages as "wholes characterized by relations of exteriority" (3). In his effort to
operationalize assemblage theory into a method for studying social networks, he is working against both organic totalities that reify potentialities and essentialism that naturalizes emergent qualities, and exteriority is perhaps the most important thing for him. Relations of exteriority have two primary implications. First, they are at least partially autonomous. In other words, an assemblage's component parts may be removed from it and reconfigured in another assemblage with different relations, as we saw with the wren mating assemblage. By way of another example, this process can be likened to disassembling a radio to see what it is made of and then reassembling it to see it work. Loosely associated components like batteries can be removed easily, but so can more tightly integrated parts. For instance, the speakers can be taken out and inserted into another assemblage in which they play a similar role, such as serving as external speakers for an MP3 player, or they can play an entirely different one, such as becoming galvanometers for an Arduino-powered laser light show. The speaker-radio assemblage, therefore, is a relation of contingency. Second, exteriority prohibits the whole from being explained by the properties of the component parts. In fact, the whole is "the result not of an aggregation of the components' own properties but of the actual exercise of their capacities" (11). If we return to Galloway's notion of protocol, for example, protocological networks only come into being through processing: "Networks are only networks when they are 'live,' when they are enacted, embodied, or rendered operational" (Galloway and Thacker 62). Likewise, assemblages like the United States airport system only exist in use. Chicago's O'Hare is only an airport hub connected to other nodes when flights go in and out of it. Removed from the airport system, it will still belong to multiple other
assemblages—the city of Chicago, for example—just not that one. In fact, it is only through
the activation of the airport system that O'Hare exists as such. It seems, then, that much of
exteriority for DeLanda lies in its contingency. By thinking of assemblages as closely related
but not required, as "contingently obligatory" (DeLanda 12), we are able to resist totalizing
and essentializing tendencies when examining romantic matchmaking in the marriage
assemblage.

There are three important implications of this discussion of assemblage theory for my
examination of romantic matchmaking and its circulation within historical systems:

1. Assemblage theory exposes totalizing tendencies. If we complicate a history
of romantic matchmaking in terms of the organization of component parts,
then we will resist the periodizing and totalizing predispositions and not lose
sight of the assemblages in place.

2. Assemblage theory exposes that which is prior to standardization. When we
consider romantic matchmaking in terms of processes of territorialization,
deterritorialization, and reterritorialization, then we can see fluctuations, the
back and forth of stabilization and destabilization, and understand power in
terms of the assemblages in which it circulates. When marriage is
denaturalized, then we are able to understand it—and romantic
matchmaking—as constructed in particular historical and cultural contexts
within different articulations.
3. Assemblage theory exposes contingency. By understanding romantic matchmaking and the assemblages in which it operates in terms of *contingently obligatory* relations, we are able to disassemble and reassemble even the most sacred of institutions, such as marriage.

**Romantic Matchmaking: Intermediation, Mediation, and Automation**

We can think of romantic matchmaking in terms of its intervention into everyday lives and its place in a set of relations we will call the marriage assemblage, a contingent set of relations that includes the cultural practices, material conditions, and linguistic components that seek to define, enable, and constrain marriage. Though the purpose of romantic matchmaking is cast fairly consistently throughout most of history as facilitating marriage, the ways in which matchmaking has intervened, and the relationship between the matchmaker and the matched, vary both across histories and within cultures. Contemporary users of matchmaking services seek a range of relationship formations in addition to marriage (e.g., dating, casual sexual, cohabitating), but the longest-running matchmaking objective is arranging marital unions. In order to situate romantic matchmaking historically, I will begin by considering it alongside marriage initially and complicate that connection in subsequent chapters. I analyze matchmaking in terms of three conditions—intermediation, mediation, and automation—that describe the relationship among matchmaking, the potential couple, and matching technologies. At times during this discussion I diverge into brief histories of marriage. For those divergences, I rely primarily on Stephanie Coontz's *Marriage, a History: From Obedience to Intimacy, or How Love Conquered Marriage,* a
social history of marriage that is ideal in its extensive treatment of both time periods and cultures as well as its keen criticism of widely held assumptions about "traditional" marriage.

**Intermediation**

Intermediation describes the condition in which the marriage match is facilitated by active human decision-making. It is closely associated with cultural formations in which kin relations play an important role in how societies are organized, resources are managed, and power is exercised. This process can be more or less formalized, depending on the situations in which the matching occurs. For example, the earliest articulations of the marriage assemblage most likely emerged as way to arrange sex, childrearing, and division of labor as nomadic groups used marriage as a way to establish relationships with other groups. Men, women, and children within the same camp hunted, gathered, and shared their resources reciprocally. Sharing was rewarded with increased status in the group, while hoarding resources was punished and could result in being shunned (Coontz). Children with familial bonds in multiple camps extended cooperative relationships between tribes. The ways in which these cross-camp bonds were forged varied—families exchanged offspring, men exchanged spouses—but the primary goal was coordination among nearby groups by mingling resources and members. A prominent member of the community likely facilitated these exchanges. In fact, within conditions that require marital bonds as a mechanism for cooperation and basic survival, it is difficult to imagine a marriage match that was not intermediated. In other words, in a situation that warrants the broadest possible cooperation, why would mate selection be anything other than a communal act?
As humanity began to produce surpluses and "became more sedentary, populous, and complex," cooperation and reciprocation were diminished (Coontz 44).

As kin groups began to assert permanent rights over territory and resources, some families amassed more goods and power than others. When that happened, the wealthier families lost interest in sharing resources, pooling labor, or developing alliances with poorer families. Gradually, marriage exchanges became a way of consolidating resources rather than creating a circle of reciprocal obligations and connections. (44)

As marriage became the primary means for transferring status and property, it became more formal and restrictive. To put it another way, the earliest articulations of the marriage assemblage were less stabilized, informal arrangements that arose as a mechanism for creating both loose tethers between groups and partner relations for organizing sex and childrearing. Through spatial territorializations—settling land, producing crops, establishing more permanent housing structures—the first attempts to stabilize the marriage assemblage emerged. These attempts focused primarily on maintaining and transferring ownership through advantageous connections and were rooted more often than not in local traditions rather than law.

Similarly, in ancient societies across the globe, rule was based primarily on familial relationships and bloodlines. This manifested itself in two important ways. First, claims to authority were made based on ancestry—"descent from the gods or from an earlier king or
legendary hero" (Coontz 54). Second, strong kinship ties were necessary both for asserting rights to the throne and to maintaining rule. Whether as a mechanism for ensuring purity of bloodlines or cementing kin relationships, marriage played a key role in the assertion and maintenance of power. Marriage was also important outside the aristocracy.

In the millennia before the development of banks and free markets, marriage was the surest way for people lower down the social scale to acquire new sources of wealth, add workers to family enterprises, recruit business partners, and preserve or pass on what they already had. People who aspired to even the lowest rungs of government office often found it crucial to contract a marriage with the "right" set of in-laws. Intensified demands for tribute and taxes forced peasants to choose mates and in-laws who could help them increase agricultural production. (Coontz 54)

In these conditions, marital choice was highly controlled, though more by familial and cultural traditions and expectations than by laws or religious edicts.

These territorializations did not lessen the need for intermediation. In fact, just as marriage became increasingly territorialized, so did marriage matching. This more formalized matching gives rise to the matchmaker. In the Jewish tradition, this marriage match is a shidduch, and the oldest known agreement is found in the Torah, when Eliezer pairs Abraham's son Isaac with Rebekah ("Shidduch"). Historically, a shadchan (matchmaker) would approach the family when its daughter reached marrying age. After "measur[ing] the family's background and reputation and the daughter's devotion to the Torah
as well as her physical looks," the *shadchan* would match the young woman with appropriate young men (Caspi 31). The parents are presented with his selections and determine whether the matches are suitable. Upon parental consent, the couple would meet. Once they were acquainted, a determination would be made about marriage. The matchmaker would be paid upon completion of a successful match. This is, of course, in contrast to the less formal Jewish tradition of matchmaking frequently associated with a *yenta*, the Yiddish term for a nosy woman, who takes it upon herself to make matches among young people with whom she is acquainted. Both the professional and informal practices of matchmaking persist today, the former primarily in Orthodox communities (Caspi).

Other, larger assemblages in which the marriage assemblage is situated also affect the conditions within it. For most of history, marriage was a communal concern, a union that included the husband and wife, their parents, their siblings, and their neighbors. The married couple increased in visibility and importance with rise of the merchant and artisan classes in the early Modern period in Europe, but those conditions were not like contemporary matrimony.

The greater prominence of the married couple household in northwestern Europe should not be confused with nuclear family self-sufficiency. The poor lived in truncated families with their teenagers and sometimes even their young children sent to work in others' homes. The rich, along with lower-class youths who worked as their servants, lived in large households that gave a married couple little privacy. Even among the middle classes, households typically included servants or lodgers.
Few couples could carve out private spaces where they might take their meals, or even conduct their sex lives, discrete from other household members. (Coontz 128)

With economic shifts that found most people working away from the home, with changes in transportation that enabled/required people to live farther away from their birthplaces, with juridical and medical changes that allowed women more freedom, a logic of romantic attachment plays a more central role in the marriage assemblage. As that happens, the relationship of the matchmaker to the component parts of the marriage assemblage changes as well. Most significantly, they shift from contracting with the parents of marriageable children to establishing relationships with the marriage-minded individuals themselves.

Another extensive and well-known matchmaking tradition exists in Ireland. Matchmakers in rural Ireland have long been uniting unmarried land-owning men with "attractive" (whether that be beautiful of skilled) women in order to ensure the maintenance of family farms and to preserve the larger culture. These men were generally traders, such as livestock dealers, who traveled frequently and knew many families. As rural life changed, and as the concept of marrying for love emerged in the seventeenth century, the need for the matchmaker appeared to wane. In the 1950s, automobiles and dance halls became increasingly prevalent in the countryside, enabling greater potential for matching without professional intermediation. As the focus shifted from fortuitous matches to a desire for "[p]ersonality and sense of humour," the rural matchmaker was all but eliminated (Winn 33). Nevertheless, the annual Lisdoonvarna Matchmaking Festival continues today in County
Clare, and Ireland still has at least one rural professional matchmaker, Willie Daly (Spano; Winn). Daly keeps a ledger of potential matches,

… an ancient, leather-bound book, crammed with scrawled notes, painstakingly scripted letters and telephone numbers. Dog-eared photos show farmers in their best suits and studio shots of women. One photograph is of eight Filipino maids, with a plea to find each of them husbands. (Winn 35)

Daly's processes have changed very little across time, and he recently published a memoir entitled *The Last Matchmaker*. By the late 1930s, marriage bureaus, companies providing upper-class clientele with introduction services, were gaining popularity in England (Cocks). These intermediaries tended to highlight both the status and wealth of their potential matches and their discretion. One example is the Marriage Bureau, founded by Mary Oliver and Heather Jenner, two former debutantes, in 1939. Personnel met personally with each client and then selected potential matches for them. By the 1950s, the Marriage Bureau had become a fixture of British high society and "claimed to have arranged over 5,000 marriages, only three of which had ended in divorce" (Cocks 124).

There are three significant holdovers in contemporary professional matchmaking. First, just as the *shadchan* assessed familial status and the Irish matchmaker looked for heartiness, contemporary professional matchmakers rely on both information they gather and their impressions of their clients and potential matches. They depend on face-to-face communication, generally conducting at least one interview and engaging in follow-up after
the initial date. Beyond that, some agencies even require supplementary services (e.g., wardrobe consulting, mock dates, home visits) of their clients (Geraci). Second, the primary purpose of intermediation is still marriage, and it seems that all professional matchmakers require that their clients be marriage minded and seeking "traditional" relationships. In fact, Patti Stanger, founder of the Millionaire's Club and host of Bravo's *Millionaire Matchmaker*, prohibits her clients from having sex on the first date and encourages them to wait until they are "in a committed relationship that could lead to marriage" (Nguyen, par. 6). Third, most boutique matchmaking services will not take on female clients. High-profile New York City matchmaker Janis Spindel, Lisa Clampitt (co-founder of the training-certification organization for professional matchmakers, The Matchmaking Institute), and Melinda Maximova (founder of Perfect Search), all work exclusively with men. Stanger's Millionaire's Club only takes on male clients, and her series has featured only two female millionaires. While Stanger's reality television show and IRM's growing popularity may have raised the profile of professional matchmakers in recent years, it accounts for little of the romantic matchmaking, at least in this country, where cultural mythos values qualities such as perseverance and work ethic over bloodlines and birthright.

**Mediation**

Much as decentralization is a compounding of centralization, mediation is similar to intermediation. Like intermediation, mediation is a condition that relies on human decision-making. However, that decision-making no longer belongs to a human intermediary who introduces the potential couple. Instead, individuals engage in their own matching practices
using communication technologies as mediators. In addition, although the preferred, or at least sanctioned, match may be "traditional" marriage, mediators are used to secure a variety of kinds of matches, including companionship, sexual liaisons, and same-sex relationships.

The shifts mentioned earlier—in economic systems, in transportation and mobility, in the legal position of women—most certainly play a role in when and how mediation takes hold. The development of new technologies, especially the invention of printing press and the proliferation of the newspaper, significantly affects the processes of mediation. Stabilizations and destabilizations in the legal position of marriage are closely related to conditions of mediation as well. Mediation, then, is most closely associated with cultural formations in which institutions must, after changes that include urbanization and mobility, govern at a distance.

As we saw in the discussion of intermediation, it is important to understand the position of marriage in order to make sense of the condition of mediation. Leading up to the time in which mediation emerges, there are attempts to assert control over the institution of marriage by both governments and religious institutions, and the rise of Christianity serves as an example of the tug of war between familial relationships, religious authority, and governmental institutions. As Christianity flourished, and as religion sought be the centerpiece of everyday life, the Church began to claim dominion over the institution of marriage. Marriage was considered a threat to self-control, and church oversight of marriage (and divorce) and personal behavior was necessary. However, European marriage practices were "so diverse and so informal" that in the mid-twelfth century Pope Alexander III
withdrew a ruling that all marriages had to be sanctified by the church in order to be official (Coontz 106). Indeed, attempts to territorialize the marriage assemblage led to some difficult contradictions for the Church. Prior to the middle of the twelfth century, the Church agreed with the traditionally held belief that only mutual consent and consummation were necessary for a valid marriage. However, the Bishop of Paris, Peter Lombard, subsequently argued that, under that condition, Mary and Joseph would not have had a legally recognized marriage. He suggested that a pledge to wed without consummation was not a marriage but that an exchanging of consensual vows in the present (e.g., "I take you as my husband") was a marriage, regardless of whether the vow was consummated. This belief became church teaching, but it put the church in an untenable situation. First, if the Church supported the claim made by an individual that he had privately exchanged vows with a woman, then she was committed to that "marriage" for life, regardless of whether they had engaged in sexual congress, or whether the vow exchange had ever even taken place. In addition, the Church was now in the position of defending the unions of defiant young people who had wed privately despite their parents' reprisals.

In 1215, the Fourth Lateran Council declared that all marriages must include a bridal dowry, the prior public proclamation of the couple's intent to marry, and a wedding held in a church, requirements that resulted in lengthy betrothal periods and the continued dependence of daughters on their families. This coding attempts to solidify the marriage assemblage. Still, rebellious couples did marry in private with only the exchange of vows, and the Church reluctantly recognized those unions (Coontz). By the Protestant Reformation, religious
leaders' position on the importance of marriage shifted. It was no longer considered a
detriment to self-control, and sermons on love between man and wife and the married
couple's right to privacy became increasingly common. At the same time, Luther and his
followers encouraged tightening of marriage laws in order to prevent young people from
marrying without parental permission. Continuing concern over marriage by consent in the
sixteenth century makes two things clear. First, attempts to code marriage by the Fourth
Lateran Council three centuries prior had had little effect on actual marital practices in
Europe. In addition, it exposed a new concern during that time, the rise of a "new breed of
'masterless' men and women" (Coontz 136).

During this period, the same social changes that were creating more family
partnerships and increasing independence of the nuclear family were eroding the
constraints that had led youths to defer willingly to parents and neighbors on matters
of marriage and sex. More and more individuals were making their living by doing
day labor for wages, rather than by farming, entering long-term apprenticeships, or
being live-in servants. (136)

Unmarried women especially were both a moral and an economic threat, and clergyman and
bureaucrats worried that they would fall into ill repute or become wards of the state.

After centuries of dispute over the control of marriage, interests of the Church and
State began to coalesce as a means for reigning in these "masterless" young people. There
was a decline in marriage by consent, fueled in no small part by government intervention.
More jurisdictions passed laws that either required the presence of witnesses at the exchange of vows or would undo the unions of young couples who married without parental permission.

In 1534 Nuremberg officials ruled that parental consent, up to the age of twenty-five for men and twenty-two for women, was needed for a legal marriage. In the 1520s and 1530s, Strasbourg raised the legal age of marriage for men to twenty-five and for women to twenty, and then changed it again to twenty-five for both sexes in 1565. Protestant courts were quick to invalidate clandestine marriages, even if based on "words of the present" and consummated by sexual intercourse or long-term cohabitation. (Coontz 136-37)

In the mid-sixteenth century, governments across Europe were penalizing sex outside marriage as well, including new laws in both Germany and Switzerland that prohibited consummation of a marriage prior to the wedding and in both England and France that required punishment for unwed mothers (Coontz), attempting to further standardize the marriage assemblage. By the early seventeenth century, a unique marital formation "capable of very rapid transformation" had taken root in Western Europe that included stringent divorce laws, delayed age of marriage, and couples who were closer to each other in age and lived in homes away from their families (145).

During the eighteenth century the spread of the market economy and the advent of the Enlightenment wrought profound changes in record time. By the end of the 1700s
personal choice of partners had replaced arranged marriage as a social ideal, and individuals were encouraged to marry for love. For the first time in five thousand years, marriage came to be seen as a private relationship between two individuals rather than one link in a larger system of political and economic alliances. … Where once marriage had been seen as the fundamental unit of work and politics, it was now viewed as a place of refuge from work, politics, and community obligations. (145-46)

It's not surprising that, as marriage was an increasingly private affair, processes of coding occurred in the form of more formalized definition of marriage and stronger divorce laws. The married couple's retreat from the public sphere necessitates increasing juridical intervention.

It is during this time that mediation emerges, and the exemplary romantic-matchmaking mediator was the personal classified advertisement. In Classified: The Secret History of the Personal Column, H. G. Cocks offers a detailed look at the history of personal advertising in the United Kingdom. According to Cocks, the first "short ad," the brief ads of tight prose that are the antecedents of modern classified and personal advertising, was a declaration on Easter festival procedures printed in The Pyes of Salisbury in 1477. These ads began being used for locating husbands and wives in the 1690s, a mere five decades after the development of the modern newspaper (Cocks). These early advertisers searched almost exclusively for marriage, and the advertisements were used especially by people without kinship connections for making marital arrangements. The history of personal classified advertisements is similar in the United States, with the first appearing three centuries ago and
focusing primarily on marriage. Many of these personals were by lonely farmers left isolated as increasing numbers of young people moved to urban areas (Schaefer). Midway through the nineteenth century, these advertisements became a regular feature and matrimonial papers, publications with "pages of hopeful brides and bridegrooms, with handy information about the specific contents of bank accounts as well as detailed physical descriptions" appeared (Schaefer 31).

By the end of the nineteenth century commentators in Britain were concerned that established notions of courtship were no longer appropriate. There were early experiments with social networks of unmarried people at this time, and by World War I, entrepreneurial-minded journalists concluded that these ads could be used to facilitate other kinds of social connections, such as friendship or companionship, or relationships based purely in shared interest in an activity (Cocks). *The Link*, published by Alfred Barrett, was the first publication devoted entirely to companionship advertisements, and it raised quite a stir.

Published monthly, the pamphlet was divided into three advertising sections for 'Ladies,' 'Soldiers and Sailors,' and 'Civilians', all of whom were seeking 'companions', and 'friends of both sexes'. In addition to the advertisements, which were free, the paper offered a service that would provide up to twelve introductions to other suitable subscribers. (Cocks 3)

*The Link* was different from its predecessors in the seventeenth and eighteenth centuries because it sought to bring together unmarried individuals for social interactions that were not
intended to lead to marriage, and that included both heterosexual and same-sex pairings. Barrett labeled his venture a "social medium," and the tone of the advertisements was much more jovial than earnest (Cocks 4). According to Cocks, Barrett "encouraged the idea that a succession of 'companionships' might be more appealing to his customers and more in tune with contemporary tastes than an immediate statement of marital intent" (12).

*The Link* came under fire from R. A. Bennett, an anti-prostitution campaigner, and Barrett was eventually tried for indecency. He argued that his periodical was not indecent because it was intended to soothe the isolation he saw as endemic of the early twentieth century. In fact, a number of mainstream publications were already trying to serve the population of single people interested in "palling up" (Cocks 16), the notion of meeting members of the opposite sex for non-committed social, and sometimes physically intimate, companionship. The claims of indecency leveled at Barrett highlight a potential anxiety at both the intervention of this new technology and the new relationship formations that were surfacing during the time. As Cocks puts it, "We think of networks like MySpace or Facebook as inherently modern inventions, dependent on the immediacy of contemporary technology, but they were actually invented in 1898, and relied on the more mundane ministrations of the Post Office" (Cocks 16).

Since their inception, personal advertisements in Great Britain have struggled against their negative characterization as pointless at best and possibly dangerous (Cocks). Plagued by the threat of fraud—one case included an advertiser who claimed to be a wealthy young widow defrauding four different men of travel expenses—and a lack of respectability, many
major American newspapers (e.g., *The New York Times, Atlanta Constitution*) stopped printing personals in the late-nineteenth to early-twentieth centuries (Schaefer). When they returned to prominence in the 1940s, they "still retained a somewhat tarnished image though, not helped by cases such as that of the 'lonely hearts killers' Raymond Fernandez and Martha Beck, who in 1948 defrauded and murdered a series of correspondence club members in the USA" (Cocks 131). During that time, the moneysaving abbreviation system surfaced, and today's print personal advertisements can be nearly impossible to decipher without a key (Schaefer). Perhaps because of their early accusations of indecency, or their adoption for arranging alternative relationships, first as companionship ads and same-sex personals in the early twentieth century and later for arranging swinging and wife-swapping in the 1960s, personal classified advertisements never seemed to catch on as a mainstream use for marriage facilitation.

Around the same time that Barrett was publishing *The Link*, W. T. Stead started the Wedding Ring Circle, an association for facilitating middle-class marriages:

[The Wedding] Circle relied on a growing feeling that in the anonymous modern city, traditional middle-class courtship, which relied on introductions to the family home, was increasingly inadequate. Bourgeois writers complained that while other classes had their own tried and tested methods of organizing relations between the sexes, such as the aristocratic 'season' or the free and easy 'monkey parade' promenading of working-class youth, there was nothing specifically designed for them. The young men and women of the middle class, increasingly immured in offices during the day,
and spending their evenings in poker rooms in distant suburbs, required their own, new means of interaction. (Cocks 17)

The Wedding Ring Circle eventually expanded to include those looking for "intellectual friends" of the opposite sex. The Wedding Ring Circle vetted its members and tightly controlled access to all member information. Members could access two collections housed in the Wedding Ring Circle office, an album with member photographs and a journal with members' thoughts on topics of interest, to learn more about other members in order help them select whom they would like to get to know better. "Members retained their anonymity through all correspondence, and the [Wedding Ring Circle] only revealed their identity with the consent of both parties when they were perfectly satisfied with their companion's bona fides" (Cocks 18).

Contemporary networking services, organizations that facilitate single individuals' meeting one another without matching specific people with each other, work similarly. In the 1980s, a number of such networking services emerged in large cities. Singles clubs held members-only events for people who paid an annual fee. In Washington, D.C., for example, Entrees and Turning Point held large dinner or cocktail parties for their members (Bain), and Florida's Southern Fantasies arranged themed mixers, designed to appeal specifically either to men or to women (Gofen). This trend persisted into the twenty-first century. Today, DinnerWorks arranges dinner parties in popular restaurants to which four men and four women, all single, are invited. At nuts-and-bolts parties the male invitees receive a nut, and females a bolt. The goal is to find the member of the opposite sex with the complementary
piece of hardware. In addition, agencies dedicated to singles' travel (e.g., Meet Market Adventures) and speed dating, an event during which individuals have multiple timed dates with up to twenty different members of the opposite sex, have surfaced (Deziel).

There is one obsolete technology that also merits attention. In the late 1980's, video dating achieved some popularity. With video dating, clients delivered a sort of dating monologue that was videotaped by the social introduction services provider. Some services, such as Washington, D.C.'s Georgetown Connection, worked as video-dating/matchmaking hybrids, with a representative directing clients as to what information to include in their videos ("first name, job, education, interests, and what they're looking for in a relationship") and then selecting videotapes of potential matches for them to view (Krucoff C-5). On the other hand, the country's largest video-dating service, Great Expectations, initially allowed users to comb their local branch's video library without assistance from one of the service's representatives. As Jeffrey Ullman, founder of Great Expectations, put it in 1989, "We believe the best person to select who you'll go out with is you. You know who you want, you know what you want, and there's no so-called expert who's more of an expert about you than you" (qtd. in McManus). In addition, their service allowed a number of different kinds of relationship options for its clients (not just marriage) with various levels of commitment (McManus). Within three years, and after sixteen years in business, Great Expectations changed its model. Perhaps in response to market conditions, or perhaps because of the rising concern over AIDS, the company decided to focus instead on "communicating itself as a service that makes marriage-minded matches" (Hinsberg). In addition, branches began
providing assistance to their clients, as Ullman notes, "Most adults are just not good selecters [sic]. They might choose a blonde with blue eyes and a big bust. She might be wrong for him; he just lets his lust make the decision" (qtd. in Hinsberg). The portrayal of the potential wrong match as a sexualized woman seems to indicate that the company's choices were probably at least in part due to changing sexual practices in the larger culture, and the shift in focus to marriage matching may indicate an ideological shift, rather than a choice made to increase customer satisfaction, on the part of Great Expectations.

Much as decentralized networks were an expansion of centralized networks that responded to a more dispersed population, so does mediation modify intermediation to respond to territorializations of the marriage assemblage and the changing position of the married couple. The resilient marriage assemblage ebbs and flows with significant changes, but the end of the twentieth century marks the beginning of another matchmaking condition.

**Automation**

Automation is a condition in which matching is outsourced to non-human operators, specifically computer-mediated matching that usually relies on algorithmic processing. Although this matching may be based in human decision-making, such as social-scientific research, that human decision-making is not visible in the interactions between the matchmaker and the matched. Automation began to emerge in the 1960s, but the roots came at the turn of the twentieth century. As marriage choice became an expectation, marriage facilitation changed as well. Just as the contingent associations and meshlike organization of
distributed networks mark a significant departure from the linear associations and hierarchical organization of decentralized networks, so does automation break from mediation—both in terms of its reliance on non-human decision-making and its division of marriageable individuals into quantitative data. Automation is most closely associated with highly mobile, networked societies that require management of population.

By the 1890s, the middle-class tradition of calling, "an elaborate courtship ritual whereby a young man would be invited to 'call' at a woman's home and the two would develop their romantic relationship in the parlor or on the front porch, closely supervised by the girl's family," had become common (Coontz 199). In the tradition of calling, parents were able both to maintain control over who was allowed to call and to supervise the couple during their interactions. In addition, the girl and her family invited callers, and a boy would never call uninvited. By the early twentieth century, calling had given way to dating, and power dynamics shifted. First, dates happened away from home, distancing the parents' control and supervision. In addition, since the girl's financial standing was subordinate to the boy's, he was now in the driver's seat.

Just as spatial territorializations did with intermediation and the prominence of the married couple with mediation, changes in mobility play a significant role in the emergence of automation. The circumstances in which dating emerged is what Raymond Williams calls mobile privatization. He identifies a number of developments—including the expansion of consumer goods, increased automobility, radio broadcasting—that coalesced:
Socially, this complex is characterised by two apparently paradoxical yet deeply connected tendencies of modern urban industrial living: on the one hand mobility, on the other hand the more apparently self-sufficient home … that which served an at-once mobile and home-centered way. (Williams 19)

By the middle of the twentieth century, marriage had become the center of adult life. In the 1960s, ninety percent of people married: "Marriage in the long decade of the 1950s was simply the be-all and end-all of all of life. In a remarkable reversal of the past, it even became the stepping off point for adulthood rather than a sign that adulthood had already been established" (Coontz 227).

This unprecedented marriage system was the climax of almost two hundred years of continuous tinkering with the male protector love-based marital model invented in the late eighteenth century. That process culminated in the 1950s in the short-lived pattern that people have since come to think of as traditional marriage. So in the 1970s, when the inherent instability of the love-based marriage reasserted itself, millions of people were taken completely by surprise. Having lost any collective memory of the convulsions that occurred when the love match was first introduced and the crisis that followed its modernization in the 1920s, they could not understand why this kind of marriage, which they thought had prevailed for thousands of years, was being abandoned by the younger generation. (228)
One of the greatest destabilizations of the mid-twentieth century is the result of the contraception revolution of the 1960s. Before the availability of dependable birth control that women managed for themselves, women "clung to the notion that sex was acceptable only with someone they loved because they still had to worry about pregnancy" (254).

For the first time, any woman with a modicum of educational and economic resources could, if she wanted to, separate sex from childbirth, lifting the specter of unwanted pregnancy that had structured women's lives for thousands of years. Within five years of FDA approval, more than six million American women were taking the pill. By 1970, 60 percent of all adult women, unmarried as well as married, were using the birth control pill or an intrauterine device or had been sterilized. (254)

With the first successful human artificial insemination in the 1950s and the first in vitro fertilization in the 1970s, as well as the growing popularity of adoption, the act of procreation was further separated from sex. Not only does this make it easier for women to have premarital sex, it also allows couples to choose to have children later in life or not at all, and for same-sex couples to have children.

Finally, the political and legal battle surrounding same-sex marriage, especially in the United States, is important to any discussion of contemporary marriage and the condition of automation.

In July 2000, Vermont made same-sex civil unions legally equivalent to marriage. In 2003, Canada legalized gay and lesbian marriage in two of its most populous
provinces. On November 18, 2003, the Massachusetts Supreme Court ruled that its state constitution guaranteed equal marriage rights for same-sex couples. (273)

Within three months, President Bush called for the protection of marriage in his State of the Union address, prompting the mayor of San Francisco to instruct city officials to begin issuing marriage licenses to same-sex couples (Coontz). The debate over same-sex marriage is emblematic of much of the concern over the state of contemporary marriage. As the love match becomes the dominant marriage paradigm, and its ties to its original purposes—consolidating power and resources, arranging sexual relationships, allowing for procreation—are loosened, some want to shore up its place in society. It is, as we will see in Chapter Four, an important technique of power.

Though short-lived, computer dating was the first automator. Computer dating used questionnaire responses to match compatible users. Although it did not reach prominence until the 1980s, the first service was founded at Harvard University in 1964. Operation Match used a computer program to connect singles based on their "vital statistics" and responses to "hypothetical, and awkward, situations" (Rapp). Within a year, Lewis Altfest and Robert Ross had launched Project Technical Automated Compatibility Testing (Project TACT). For a fee of five dollars, customers were matched based on their answers to over one hundred questions (Paumgarten). It seems that most computer-dating services (e.g., Compatibility Unlimited) connected singles based on a variety of demographic and personality features (Ahuvia and Adelman; Levey). Love Quest, a program developed and run by celebrity sex therapist Joyce Brothers and the Sexual Analysis Group of Miami, matched users based on
sexual compatibility as well (Del Sesto). As Leigh Rothschild said of Love Quest's multi-dimensional matching system more than a decade ago, "If you're Mary from Miami and you want to be matched with Harry from Miami you might get John from Maryland. If the computer does not feel two people are compatible it will not match them up even if Mary and John are the only people in the computer data base" (qtd. in Del Sesto 5, emphasis original).

Contemporary IRM sites offer a variety of methods for singles to meet potential partners. Some sites focus primarily on their searchability (offering clients access to customizable tools that they can use to search profiles), while others emphasize their efficiency (matching members based on personality assessments). Either way, IRM's most marketable quality seems to be the sheer volume of available singles registered with sites. Popular online dating sites, such as Match.com and eHarmony, widely publicize the large number (in the millions) of registered users, and I will discuss IRM in detail in the three remaining chapters.

**Romantic Matchmaking and Regimes of Power**

As we've seen, the contemporary relationship between the romantic matchmaker and the couple is different than in previous iterations of the marriage assemblage. Intermediation describes human intervention into the pairing, first at the behest of parents and later of the couple themselves. Mediation describes human intervention into their own matching, as people used traditional one-to-many communication technologies to make pairings. Automation describes a computer intervention for matchmaking. In this condition, it is not
individuals who are matched. Rather, the computational processes match data—preferences, tastes, behaviors, personality profiles—not people. Understanding romantic matchmaking in terms of the marriage assemblage and conditions for matching draws attention to the relationship between power formations and the institution of marriage. During intermediation, marriage was central to the consolidation of power and accumulation of wealth, but marriage laws were less stabilized. The matchmaker and the couple's parents maintained tight control over the matchmaking process—determining who would be matched with whom and when the couple would be allowed to meet. As marriage became increasingly coded through religious and juridical involvement in its management, and as the married couple became central to everyday life, the focus of romantic matchmaking shifted. It is during the condition of mediation, when familial forces exerted less direct control over the match, that romantic matchmaking is characterized as frivolous and potentially subversive. In the contemporary condition of automation, marriage is again facing deterritorialization as more and more heterosexual couples choose cohabitation and decoding as same-sex couples seek access to marriage. In automation, as is the case with all matching technologies, individuals may feel they have greater control over their matchmaking, but they are subject to invisible categorizations and calculations that make determinations for them.

As Galloway notes in the introduction to Protocol, it is by considering networks historically and in relation to power that we can understand them more explicitly. Highlighting matchmaking's position in the marriage assemblage offers an ideal opportunity for understanding matching in terms of Michel Foucault's three regimes of power—
sovereignty, disciplinarity, and governmentality. Foucault begins *Discipline and Punish* with the juxtaposition of two forms of punishment. The first is a lengthy and graphic description of a public execution in Paris in 1757, including the boiling and tearing of flesh and the eventual quartering of a prisoner. The second is a highly regimented schedule for Parisian prisoners published in 1837. These two examples—the public execution and the timetable—represent sovereignty and disciplinarity, respectively.

Sovereignty is the primary relation to power circulating during the time of feudal monarchy, a system in which nobility of birth determines the ability to reign. Under this relation, the law is an extension of the monarchy. As such, the expectation in sovereignty is complete obedience to all laws. Since the law is an extension of the king himself, transgression is subjected to visible, bodily, and spectacular punishment. Intermediation is likewise concerned with bloodlines and birthright, and it is in this condition that the greatest explicit control is exerted over both the marriage match and the marriage. Matching is associated almost exclusively with the body—the extension or mingling of bloodlines, procreation, physical labor—and the marrying couple had little-to-no say in their pairing. Once married, the couple remains physically connected to family through close living quarters that made even the most private parts of what we might call the marital body—sexual intercourse, childbirth—visually and audibly present for the entire household.

Through the seventeenth and eighteenth centuries, as the dominant organization of nation states transitioned from monarchy to representative forms of government, spectacles such as public execution were eventually outlawed. Foucault notes, "The disappearance of
public executions marks therefore the decline of the spectacle, but it also marks the slacking of the hold on the body" (*Discipline and Punish* 10). If sovereignty is about rights and corporeal intervention onto bodies, then discipline is about normalization and the management of bodies at a distance. As the second example above demonstrates, disciplinarity applies constant control to the individual *docile bodies* by exercising "holds on [them] at the level of the mechanism itself—movements, gestures, attitudes, rapidity" (*Discipline and Punish* 137). The best-known model of this normalization at the level of individual bodies is Bentham's panopticon, the prison design with a central guard tower encircled by banks of cells in which both inspection and surveillance are pervasive.

In disciplinary societies, power is exerted at not the level of the flesh but rather at the level of the individual. In other words, the prisoner is not shackled, but his movements are observed (from the guard tower), his time structured (by the timetable), and his behavior managed (through guidelines and regulations). As the love match emerges and the married couple is physically distanced from the larger family, individuals are allowed increased flexibility in mate selection. Just as marriage was an important instrument of power in sovereignty—through continuing bloodlines, for example—so was marriage central to containment of individuals in disciplinary societies. In mediation, concern shifts from strengthening familial bonds to shoring up the couple's relationship. It is during this formation that we see increasing attempts by both church and state to codify marriage. In addition, sermons began to address the married couple (Coontz), and magazines such as
Ladies’ Home Journal advised young people on both genders on the intricacies of appropriate behavior (Cocks).

Governmentality moves from the disciplining of individual bodies to the management of population. In this relation to power, Foucault is concerned with "the 'governmentalization' of the state" (Security, 109):

I understand the ensemble formed by institutions, procedures, analyses and reflections, calculations, and tactics that allow the exercise of this very specific, albeit very complex, power that has the population as its target, political economy as its major form of knowledge, and apparatuses of security as its essential technical instrument. (Security 108-09)

In this regime of power, governing becomes the overarching logic of power and management of population becomes its primary concern.

Similarly, Gilles Deleuze names this relation to power control societies, a post-disciplinary type of power that rules not through bodily intervention or confinement but through permission (Deleuze "Postscript" 175). The signature gives way to the password, and individuals become *dividuals*, compilations of data that can be disassembled and reassembled, deterritorialized and reterritorialized, as needed. In the condition of automation, a marriageable individual is dissected into innumerable discrete categories, pulled together into a pool of similarly identified matching units, and reconstructed as a match. The computational processes, cultural assumptions, and power relations that govern this practice
vary based on its purpose. In the three remaining chapters, I will explore the condition of automation in greater depth, in terms of internet romantic matchmaking specifically in Chapters Three and Four and of technologies of matching more generally in Chapter Five.
CHAPTER THREE: INTERNET ROMANTIC MATCHMAKING, PROCEDURALITY, AND THE CONSTRUCTION OF SUBJECTS

As I discussed in the introduction, Galloway describes the formal apparatus as "the totality of techniques and conventions that affect protocol on a social level, not simply a technical one" (Protocol 55). He reminds us that if network is concerned with the physical field of the internet that is the focus of network administrators, then form is the responsibility of the webmaster. The internet is a paradox, hierarchical and territorializing in its organization and potentially distributed and deterritorializing in its use. So while the user may experience the web as a meander, clicking through a seemingly endless stream of text, image, and sound, the internet itself relies on stable hierarchies—of transfer protocols, of site architecture. Galloway argues that the reason the internet is so compelling despite this contradiction is its continuity. Despite its lack of reliance on narrative- and time-based techniques present in other media, such as film and television, the web creates a generally fluid movement within/among sites and actions that makes the user feel comfortable. In addition, its integration with other technologies (e.g., applications available for smart phones) creates a seamlessness that extends this feeling of continuity.

This conception of continuity is important to the study of internet romantic matchmaking (IRM) because it allows IRM sites to draw on, and circulate within, larger cultural narratives, both old and new, about romantic love, sexuality, and the importance of marriage. Much of that can be seen in the ways in which these sites market themselves, and those claims are fairly obvious. For instance, eHarmony's marketing campaigns regularly
feature couples who met through the service, such as the one featured on the splash page shown in Figure 1 below. The headline above the image of the happy pair reassures the presumably disheartened viewer. Love is out there. Elsewhere on the page the site boasts both that it is the "#1 Most Trusted Online Dating Site" and that nearly five percent of U.S. marriages resulted from its matchmaking.

Figure 1: eHarmony splash page, June 2011

However, what is less obvious is the way in which IRM sites rely on those same cultural assumptions—about the necessity of marriage, the importance of marrying for love—in the relationships they have with their users. How do computational processes and cultural assumptions work together in IRM? How do the techniques and conventions, the
formal apparatuses, employed by IRM sites constitute users as subjects and influence our understanding of romantic love? In Chapter Two, we began to understand romantic matchmaking as part of the marriage assemblage, a set culturally and historically situated of contingent relations that exist in three conditions—intermediation, mediation, and automation. In this chapter, I will deepen our understanding of automation by examining three IRM sites—eHarmony, Match.com, and OKCupid—as procedural rhetorics. Specifically, I will analyze the formal apparatuses at work in the sites' initial account setup phase. By situating IRM within Galloway's analytic of the formal apparatus, we will better comprehend IRM, and matching generally, in relation to subject formation and regimes of power.

Procedural Rhetoric

In *Persuasive Games: The Expressive Power of Videogames*, Ian Bogost marries rhetoric to procedurality in order to develop a style of analysis appropriate to videogames. Procedurality is "a way of creating, explaining, or understanding processes" (3). If protocol is the *what* of the internet, then procedurality is its *how*. Like Galloway's protocol, procedurality is not exclusive to computers, and Bogost points out that procedures rule interactions we engage in daily. I would like to highlight three conditions of procedurality: as possible, as culturally determined and contingent, and as "nonobvious" (8). First, just as protocol includes both possibility and impossibility, procedurality contains both constraints and affordances, determining what is and is not possible. For example, a network of procedures governs our transactions with retailers. For the most part, the procedures are not
apparent to us. We stand in line to make a purchase, pay for items we have chosen, and then take possession of them. Even when it seems procedure is being broken—Bogost offers the example of cashiers allowing the return of items after a store’s grace period has expired—that is not the case. "[T]hey are mustering new processes—for example, a process of promoting repeat business, or for preventing a commotion—and seamlessly blending them with the procedure for product returns" (6). Procedures, such as return policies, not only restrict behavior but also permit it. As Bogost points out, we might not even consider returning an item if stores did not have return policies. This mirrors an example from the economics bestseller *Freakonomics: A Rogue Economist Explores the Hidden Side of Everything*. In order to combat the problem of parents’ retrieving their children after closing time, a group of daycare centers enacted a financial penalty for each tardy arrival. The centers saw an actual increase in late pick-ups after implementing the fee, as parents were introduced to the possibility of being late (Levitt and Dubner). Second, procedures are culturally determined and contingent. If we return to the retail example, the manner in which customers wait is culturally determined. Standing in a line that forms in front of the cashier is typical in the United States. In other cultures, waiting is less restricted, with customers forming small crowds in front of or around the attendant. These procedures may feel "flexible and porous," but "they are crafted from a multitude of protracted, intersecting cultural processes" (Bogost 7). Third, procedurality is generally "nonobvious" (8), either as a result of intentional concealment or process complexity. Military procedures might be purposefully hidden for national security reasons; the complex processes that enable a word-
processing program are obscured by the interface through which the user accesses them, both to simplify use and to protect proprietary information. Regardless of intention, these examples of procedurality are not obvious to the public, or the casual user. While moments of procedurality, such as the system of processes involved in passing through airport security, are visible and actively experienced, most of the time its operation is not visible to us.

When combined with rhetoric, according to Bogost, procedurality becomes procedural rhetoric, "the practice of authoring arguments through processes" (29):

Procedural rhetoric is the subdomain of procedural authorship; its arguments are made not through the construction of words or images, but through the authorship of rules of behavior, the construction of dynamic models. In computation, those rules are authored in code … " (29)

At its core, then, procedural rhetoric is "a new and promising way to make claims about how things work" (29, emphasis original). By way of illustration, Bogost offers the example of *The McDonald’s Videogame*, in which players manage four enterprises: a cattle farm in the developing world, a slaughterhouse, a franchise, and the company’s home office. This game "mounts a procedural rhetoric about the necessity of corruption in the global fast food business, and the overwhelming temptation of greed, which leads to more corruption" (31). He compares the game to recent publications that make similar arguments (e.g., Eric Schlosser’s *Fast Food Nation*), but asserts that "these written media do not express their arguments procedurally; instead, they describe the processes at work in such systems with
speech, writing, or images” (31). These processes, and the unique variety of engagement they afford, seem to be the heart of procedural rhetoric. So by examining IRM sites as procedural rhetorics, we will shed light on them as formal apparatuses through examination of the subjectivities and relationship formations permitted—and denied—by the sites.

**Data Preparation, Matching, and Communication: A Vocabulary**

An examination of procedurality in IRM sites requires a vocabulary that distinguishes what a site does from what a user encounters. Just as we distinguish between a) the action of the user (search) when trying to locate a restaurant using Google and the action of the site (match) that locates results for the user, so must we discuss these sites in terms of both user experience and site functionality. EHarmony's 2004 patent document offers a convenient way to make these distinctions. In it, the system is broken into three stages—data preparation, matching, and communication—that map easily onto the mechanisms through which IRM works. Of course the patent document discusses all three of these stages in terms of the role of the system—preparing empirical data, generating relationship satisfaction estimators, classifying and then matching complementary users, facilitating user contact—rather than how the user interacts with the site. However, in order to understand the way the site functions while in use, it is important to understand both system utilities and user encounters and how they interact throughout the process. In addition to providing a means for examining user experience and site functionality, this three-pronged model also presents a means for comparing sites to one another. The one shortcoming, however, is the linear, temporal connotation of *stages*. EHarmony's initial functionality cycle through data preparation,
matching, and communication is sequential, but some processes do recur after a user account has been established. In addition, the user experience is not as straightforward, and user and site activities in the same stage do not necessarily take place simultaneously. As a result, workflow is a more appropriate term for describing processes, both in terms of site utility and user practice. In addition, the term workflow emphasizes IRM's procedurality and will serve as a reminder of our focus on understanding IRM as a set of processes.

The layers of user experience on IRM sites produce additional complications that require further delineation. While engaging with IRM, users are both trying to attract the attention of others and identifying people whom they find attractive. As such, they engage in both self-presentation and other-evaluation, sometimes simultaneously. This division requires discrete naming for these two primary roles, presenter and evaluator, when describing or analyzing web pages or activities that bring them together. For example, a profile page can be discussed from two user perspectives; the information on the profile page presents User A (the owner of the profile, or presenter) but is evaluated by User B (the viewer of the profile, or evaluator). The processes in which users engage are complex, and this demarcation will simplify our discussion of them.

**eHarmony.com**

EHarmony.com (EH) launched in 2000, after three years of research and development led by Neil Clark Warren, a clinical psychologist and marriage counselor, and Galen Buckwalter, a research psychologist. The privately held company claims to have had thirty-
three million registered users across its history and to have been responsible for nearly five hundred fifty marriages daily in 2009 ("eHarmony FAQ"). The site matches users based on their potential for relationship satisfaction and their level of compatibility. After surveying over a thousand successful married couples on their relationship satisfaction, the team determined twenty-nine traits the couples consistently shared. For matching purposes, these characteristics became the site's *29 Dimensions of Compatibility (29 D)*, and EH divides them into two categories: core traits and vital attributes. The former includes personality characteristics, while the latter centers on background and socialization.

Warren discusses these dimensions in greater detail in *Falling in Love for All the Right Reasons: How to Find Your Soul Mate*, and a quick look at that text will help elucidate the matching procedures employed by the site as well as the ideologies that inform them. In the book, Warren positions EH's *29 D* in opposition to the "wishy-washy" public understanding of compatibility, positing that "the culture is satisfied with an extremely thin, narrow base of compatibility, usually settling for five main qualities: [appearance, chemistry, a sense of humor, status, and front-end personality]" (34). By characterizing compatibility as something that is fixed and knowable, and then further characterizing the conventional notion as capricious, Warren is able to create a favorable comparison for his research-based, social-scientific approach to compatibility and EH's matchmaking system. This air of certainty is present in all three of the site's workflows. While the EH breaks the twenty-nine traits into two categories, Warren organizes them according to four groups: screening dimensions, core
personal dimensions, skills that can be developed, and qualities that can be developed. Either way, the 29 D are intended to be used as a tool for finding a suitable marriage partner.

The seven Screening Dimensions are, as the name implies, baseline characteristics. Just as an employer might screen applications to ensure that prospective employees have a stable job history or do not have a criminal record, Warren encourages readers to screen out "bad" relationship partners. Although they are not intended to help identify a specific would-be spouse, they are the must-haves (or must-not-haves). For Warren, the central screening dimension is Good Character—"integrity, honesty, moral uprightness" (56). If we think of these dimensions as located on axes related to their importance and their probability of change, character would fall in the high importance, low probability of change quadrant, making it the central screening characteristic. The next four screening dimensions—Good Self-Conception, Red Flags, Anger Management, and Obstreperousness—are important and difficult to change, though less fixed than a person's character. The final two—Understandings about Family and Family Background—are important and unlikely or, in the case of a person's background, impossible to change.

Once potential mates have been screened for their suitability, the Core Personal Dimensions come into play. These sixteen characteristics are also difficult to change, but they are not either-or propositions. In other words, in Warren's schema a person either does or does not possess integrity and good moral character. If she does not, she is immediately skimmed off the top, as she does not belong in the pool of conceivable marriage partners. In contrast, her ambition or her level of artistic passion or her spirituality does not preclude her
from being a potential soul mate; it simply makes her more or less compatible based on the ambition, level of artistic passion, and spirituality of her match. To put it another way, it's a question of degree rather than quality, and Warren seems to endorse matching based on similarity rather than opposition (or even complementarity) for qualities in this grouping of the 29 D—*Intelect, Energy Levels, Spirituality, Education, Appearance, Sense of Humor, Mood Management, Traditional (or Nontraditional) Personality, Ambition, Sexual Passion, Artistic Passion, Industry, Curiosity, Vitality and Security, and Autonomy (or Closeness)* (99-160).

The final two groups—*Skills and Qualities That Can Be Developed*—are still important, but their probability for change is more likely. The former includes *Communication, Conflict Resolution, and Sociability,* while the latter is made up of *Adaptability, Kindness,* and *Dominance/Submissiveness.* Everyone is capable of developing skills in communication, conflict resolution, and sociability, and Warren recommends that couples have similar styles rather than advocating one style over another. However, he treats the qualities that can be developed much like the screening dimensions. It is imperative, in other words, that all romantic partners be adaptable and kind. Interestingly, dominance and submissiveness are the only qualities for which Warren recommends complementarity rather than similarity. He doesn't encourage complete opposition but rather that "one person is somewhat dominant and the other is slightly submissive" (194). It is this schema, Warren's experience as a marriage counselor and clinical psychologist, and his religious beliefs that inform all of EH's interaction with its users.
As mentioned previously, EH was granted a patent in 2004 for its matchmaking method and system. This process is divided into three workflows: data preparation, matching, and communication. These workflows are initially sequential, but the latter two recur throughout the relationship between the user and the site, both in terms of the former's experience and the latter's functionality. In addition, users can reinitiate a truncated data preparation workflow by changing any of the small subset of data that can be altered (e.g., location). During the data preparation workflow, the system assigns numerical values to user responses and creates a user database. It then uses correlation matrices to identify and classify the user's potential for relationship satisfaction (Buckwalter et al.). This stage lines up with the initial account setup phase, but this functionality is concealed from the user. In the first-round matching workflow, the site identifies other users of the appropriate gender (male for female, in the case of opposite-sex matching) with similar potential for relationship satisfaction (Buckwalter et al.). The matching stage is invisible to users as well, and it does not become visible to them until the site shares the results of the matching process during the communication workflow. Finally, in the communication workflow, EH presents the user with a list of matches and the choice of whether to communicate with them individually (Buckwalter et al.). At this point, the user experience realigns with site processes. EH presents matches to them both on and off the site through the site's My Matches page and e-mail messages.
In the Figure 2 diagram, I offer an overview of all three workflows. In it, circles represent user processes, and rectangles represent site processes. The clouds represent events that trigger the return to the data preparation workflow. In other words, when new users join...
the site, this triggers a re-matching of the initial user that may result in a new communication workflow in which the site presents the user with new ideal matches. In the communication workflow, two users participate in a regimented, four-stage communication interchange on the site that culminates in the ability to exchange messages freely.

There are two other processes—one generated by the initial user and one generated by the site—that can prompt a new matching workflow. First, if the initial user makes changes to certain information or preferences, the site may either recreate or broaden the initial match set. For example, if a user moves across the country, he would have a new set of local best matches. If he extends the distance he is willing travel to meet potential partners, his local match set would simply be expanded. Second, in order to maintain user engagement, the site will generate new matches if the initial user has not received any recently. This is accomplished by expanding the match pool to include more than the most ideal matches.

**Data Preparation**

By completing the EH initial account setup phase, the user initiates the data preparation workflow. Because of the site's reliance on the 29 Dimensions, this procedure is the most labor intensive of the IRM sites examined. It includes a minimum of twenty-four screens, the bulk of which are centered on gathering information that is used to match users. The first three collect information typical for most IRM sites. The first page asks for users' gender, birth date, marital status (never married, divorced, separated, widowed), and
education level. In addition, users rank the importance of their match's age and educational level in relation to their own. On the next screen users provide their income level, their occupation, their height, their ethnicity, the ethnicities they are willing to be matched with, and their physical appearance. Users rank the importance of a) their match's income and height in relation to their own and b) their match's ethnicity. They also rate their satisfaction with their physical appearance and the importance of their partner's physical appearance. On the last of these three screens, users select their religious affiliation, religious affiliations they would accept in a match, and the importance of the match's religion and/or spirituality. If users identify themselves as Christian, they are shown another screen that offers additional choices, including a number of Protestant denominations.

Figure 3: eHarmony relationship questionnaire ("Personal Characteristics" page)
This is the only site examined that does not have users select usernames, presumably because profiles are not viewable by others unless they have been matched by the site. Users are addressed by the site—and presented to others—using their first names. The information submitted on the first three screens is the only data from the initial account setup phase that users can revisit and change after that workflow is complete. As Figure 3 shows, all of these data, except potential match characteristics, are submitted by clicking a radio button, prohibiting users from choosing more than one answer. In this and all other sections of the initial user account setup phase, users can neither skip nor return to any questions, presumably to prevent them from manipulating their previous answers based on questions asked in later sections. This practice is frequently used in online personality tests, such as those used by employers to determine the forthrightness of potential employees. This, coupled with the use of real first names, lends an air of seriousness and reliability from the beginning of the user's relationship with the site. Of course, there is nothing to prevent users from using pseudonyms, and some no doubt do, but it is unlikely that the most earnest, marriage-minded members of the site are cognizant of that possibility. This burgeoning air of trustworthiness is potentially dangerous. A recent civil case filed after a Match.com user was sexually assaulted by a man she met through the service sheds light on the fact that IRM sites generally do not conduct background checks on their users (Paumgarten). From a rhetorical perspective, the apparent certainty and lack of anonymity of this process builds the site's *ethos* early in its relationship with its users. Indeed, it is what the site does not allow—using the back button, clicking next without answering questions—that fosters this trustworthiness.
Figure 4: eHarmony relationship questionnaire ("Self Description" page)

Most of the remaining twenty-one screens include questions related to the user's or the ideal partner's personality. These questions make up the Relationship Questionnaire (RQ), and responses allow EH to develop a personality profile that is used during the matching process. Seventeen of those screens are broken into ten subsections: About You, Self Descriptions, Personality Characteristics, About Your Feelings, Relationship Orientation and Values, Important Questions, About Your Personality, Your Personal Interests, Living Skills, and Communication Style. For the most part, the screens do not map directly onto the 29 D. For example, on the Self-Description screen in Figure 4 below, users are asked to rate how well fourteen traits describe them. These terms appear related to
characteristics from many of the core personal dimensions, such as ambition (over-achiever) and energy level (calm), as well as qualities that can be developed (kind) and even screening dimensions (self-aware).

Of the 272 personality questions, 249 use a Likert scale. In the first three subsections, users are asked to indicate how well a statement (e.g., I usually stand up for myself) or an adjective (e.g., warm, aggressive) describes them. In About Your Feelings, users indicate how often they have had certain feelings (e.g., hopeful, misunderstood) during the past month. On the Relationship Orientation and Values page, they rate their level of agreement with statements (e.g., Being monogamous causes relationships to get boring over time). This screen seems designed to determine the user's potential for relationship satisfaction, the cornerstone of EH's functionality that is not covered by the 29 D. Important Qualities asks them to indicate how important certain characteristics (e.g., The chemistry between me and my partner) are. These two pages appear to address the importance of the 29 D in the user's ideal partner. The About Your Personality page includes nineteen true-false questions (e.g., I dislike some people), and this seemingly simple page may play an important role in the site's screening process. As highlighted in Chemistry.com's "Rejected by eHarmony" advertising campaign, EH does not provide services to all users who complete the initial account setup phase. First, the company did not offer same-sex matching until 2009, after settling a class-action lawsuit in California. A second reason discussed in the patent document is a user's low likelihood for relationship satisfaction. Finally, it is probable that users whose responses to the questionnaire do not satisfy the screening dimensions, such as good character or anger
management, are excluded. It is noteworthy that these screening dimensions are addressed through true-false questions. Again, putting such limitations on responses works to assure users. It is either true or false that I sometimes exceed the posted speed limit—or that I raise my voice in anger at times or that my house is often cleaner when I am expecting guests—and that truth (or falsehood) is an important indicator of my potential for relationship satisfaction.

Just as the *Relationship Values and Orientation* page asks questions related to relationship satisfaction, the *About Your Personality* page addresses the high importance, low probability for change traits of the screening dimensions, such as good character. *Your Personal Interests* and *Living Skills* require users to indicate the level of their interest and their ability in a number of things, such as gadgets and socializing. Finally, on the *Communication Style* screen, users select how well statements (e.g., I try to drop an issue once its [sic] resolved) describe them. As with *About Your Personality*, this page seems related to high-importance traits. However, this time the questions address the higher probability for change attributes, especially communication and conflict resolution.

The last four pages in the EH initial account setup phase return to standard IRM questions. The *Matching Information* pages collect information related to lifestyle—smoking, drinking, having children—and location, and the final two pages allow users to upload a photograph and subscribe to the service. Members can complete the *RQ* and receive matches for free, but they must subscribe to view photographs and engage in *Guided Communication* with other users. It is important to note that most of the information
displayed on the profile page is not gathered during the initial account setup phase. In fact, responding to the twenty-five pages of questions will complete only about twenty percent of the user profile.\(^4\) In order to have a robust profile, users must answer additional questions related to interests, values, and interpersonal relationships, as well as upload photographs, in the *Complete My Profile* tab on their profile management dashboard. If users do not answer additional questions, then answers to only three questions will be displayed after their basics in the profile page: "The three things which I am most thankful for," "I typically spend my leisure time," and "My friends describe me as." This information is gathered when the user completes the RQ.

In Figure 5, I show the sections included in the initial account setup phase. Since completing the RQ and preparing the user profile are independent processes, the site is able to separate the 29D on which it relies for matching from the "wishy-washy" characteristics (e.g., physical attractiveness) conventional notions of compatibility depend on. This procedure has the added effect of creating two distinct subject positions for users—the fixed quantifiable dataset identified by the RQ and the free-floating contingent face of the profile. We will discuss the processes of subjectivity at work in all three IRM sites in greater detail later in this chapter.

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\(^4\) After completing the initial account setup phase without uploading a photograph and subscribing, my profile completion meter indicated 22% completion.
Figure 5: eHarmony initial account setup phase

Although user profiles are only partially complete at the conclusion of the RQ, that is when the site's portion of the data preparation workflow begins. Once users have completed
the initial account setup phase, the system converts their answers to numerical data and establishes a user database. According to the 2004 patent,

[T]he approximate individual satisfaction index [is] generated from empirical data. The empirical data is [sic] generated from survey completed by different individuals. Each survey includes a plurality of inquiries into matters that are relevant to each individual in forming relationships with other people. The inquiries can have numerical answers. The answers are used in a factor analysis to identify factors that are each a function of one or more individual inquiries. These factors are used in the individual satisfaction estimator and the couple satisfaction estimator. Because the factors are a function of several inquiries, the use of the factors reduces the number of variables considered in generating the approximate individual satisfaction index and the couple satisfaction index. However, the complexity of the relationship between the variables (question answers) is retained in the results because each of the variables are [sic] taken into consideration when generating the factors. (Buckwalter et al.)

Each user's data are then compared with the site's individual satisfaction estimator (ISE) for the user's match group to classify the user based on her or his potential for relationship satisfaction. Match groups are broad categories based on gender and sexual orientation, and a match group's ISE is the aggregate of individual satisfaction of its members. After users are classified based on their likelihood for satisfaction (unlikely, average, good), the site determines their suitability for matching and proceeds to the matching workflow, in which
their couple satisfaction estimator is generated in conjunction with other users. The site's portion of the data preparation procedures is concealed from its users.

This labor-intensive process both maintains the continuity Galloway identifies as so important to the internet and functions almost as an imperative. There are inspirational messages interspersed throughout the RQ—testimonials from former users who found marriage partners through the site, reminders to respond instinctually to questions, words of encouragement from Warren—but prohibiting use of the back button and not allowing users to see their answers ever again feels less like encouragement, or even persuasion, and more like coercion. In addition, the Likert-scale and true-false questions that make up the bulk of the RQ require little reflection. Quite the opposite. These sorts of questions are designed for near-mindless, "natural" responses that capture respondents as they are rather than as they could—hope to—be. EH exerts great control over the data preparation workflow. Although this control can engender trust in the site, by communicating a level of expertise, it is more the trust a small child feels for a parent than that shared by two adults on equal footing. Here, let me take care of that for you. In fact, that paternalistic treatment persists across the relationship between the user and the site.

**Matching**

In the matching workflow, users are matched with other users based on their relationship satisfaction index (RSI) class and their match group. RSI is broken into three categories (unlikely, average, good) of likelihood for happiness in a romantic relationship.
Both the match group and RSI are determined based on user information captured during the initial account setup phase. In the case of heterosexual matching, for instance, a man in the average RSI classification would be selected for a woman in the same category (Buckwalter et al.). The site then uses other factors provided by users to determine the ideal available range of matches. Other factors include the standard data gathered by IRM sites—age, ethnicity, religion, lifestyle, etc.—and the user's individual preferences associated with them.

One of the identified candidates is selected. Data for the user and data for the selected candidate is [sic] compared to the approximate satisfaction the user would have with the candidate. This is repeated for each of the identified candidates. The results are studied to identify the candidate and user combinations that would result in the most satisfaction. The user and the identified candidates are then given the option of communicating with one another. (Buckwalter et al.)

It is important to note that while EH creates "personalized" pairings for users during the matching workflow, this personalization is not an idiosyncratic process of handpicking potential partners but rather a process akin to mass customization that uses previous relationship satisfaction studies to predict satisfaction for future couples. Once matches are filtered for these other factors, the site presents the results to the user in the communication workflow.

Users cannot access the matching workflow until its results are delivered to them at the transition into the communication workflow. Users may further filter matches after they
have been delivered by choosing with whom they would like to communicate, but they cannot engage in self-matching workflows. In other words, the matching workflow is concealed from users. Other than making changes to acceptable match criteria (e.g., decreasing the importance of the potential match's age), users cannot activate processes in the matching workflow. Although information about the site's functionality is available—in the patent document, in Warren's self-help books, on the site's "Why eHarmony" page—it is doubtful that most users read it with critical attention, if at all. In procedural rhetorical terms, EH's matching workflow relies on opacity and constraints. Like the data preparation functionality, these invisible and tightly controlled matching procedures inspire confidence by taking the work of searching for and evaluating potential partners out of the user's hands. Much like stylists prescreen awards-show attire for their celebrity clients, or Netflix makes viewing recommendations through each user's personalized Top 10 list, EH introduces its users to their most-compatible matches, narrowing the pool and lessening the number of profiles they will have to evaluate.

**Communication**

The first phase of the EH communication workflow is consistent with the role taken on by other IRM sites that offer greater flexibility for interaction between users. The workflow begins when the site shares a potential match with the user. Matches are sent to users via e-mail and are also available from the site dashboard in the *My Matches* tab. The e-mail message and *My Matches* page include only the potential match's first name, location,
and age; the e-mail also includes a picture of the candidate.\(^5\) Each candidate is introduced in an individual e-mail with a subject line such as "Meet Craig and see what a difference compatibility can make." If the user would like additional information on a match, she must click a link to view his profile. This workflow recurs whenever new candidates who are a good match for the user join the site or when the initial, best set of candidates has been exhausted and less ideal (e.g., outside age or location range) matches are sent.

The EH profile page uses blocks to organize information (see Figure 6). In the upper left corner, there is a blue rectangle that includes the profile picture and responses to two questions, "The one thing I am the most passionate about" and "The most important thing I am looking for in a person is." Just to the right is the Next Steps block, which offers the evaluator a number of potential actions. In addition to a large orange button for beginning EH's Guided Communication (GC) process, the evaluator is also presented with the opportunity to send an EH mail or to request a secure call. Users must subscribe to the site in order to use those functionalities. The rest of the right column includes the Something to Talk About box, which highlights something the presenter and evaluator have in common (e.g., an interest in travel), an advertising block, and a Communication Advice section with links to site-authored articles on dating. Unlike most sites, which offer an ad-free experience to subscribers, EH presents all users with advertisements, regardless of their subscription status.

\(^5\) Since only subscribers can view photographs, e-mails sent to other users include only a placeholder for the photograph.
These ads are generally for self-improvement services (e.g., weight-loss programs), which is in line with EH's paternalistic relationship with its users.

Figure 6: eHarmony user profile page

The bulk of the EH profile page includes information about the presenter gathered during the initial account setup phase. This large block takes up most of the left column and is organized around three tabs, About Me (default), Icebreakers, and Mailbox. Just to the
right of these tabs is a link to the presenter's personality profile. If he chooses to share it openly with all of his matches, the evaluator can click this link and read his detailed report. *About Me* begins with the presenter's occupation, age, height, ethnicity, religion, whether and how often he drinks, whether there are children living with him, and when the presenter and the evaluator were matched. It also includes additional information about the presenter, such as his interests, how his leisure time is spent, and who has been the biggest influence on him. If the evaluator decides she would like to begin communicating with the presenter, this is where the similarity to other IRM sites ends.

The site's default contact sequence is its *GC* system. If both users agree, they may choose to proceed directly to the final stage of *GC*, but that is not the site's preferred method. For an additional fee, users may also make voice calls through the site without sharing their phone numbers with others. All functionality after the initialization of the communication workflow is available only to subscribers.⁶ In addition, non-subscribing members cannot view photographs. *GC* occurs in four sequential steps. First, users each answer five questions of the other's choosing. Next, they trade lists of ten relationship *Must Haves* and *Can't Stands*. Third, they each answer three open-ended questions selected by the other. Finally, they proceed to EH mail, which allows users to send messages through the site. Either user may terminate the connection at any point during the *GC* process. The site's *GC* procedures make communication between users visible by placing constraints on it. In other words, by

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⁶ Non-subscribing members may send icebreakers, one-sentence messages selected from a dropdown list (e.g., "Your profile brought a smile to my face!").
distinguishing GC from other electronic messaging systems that users are more familiar with (e.g., e-mail, Facebook messages), GC loses its transparency. It becomes a mechanism for really getting to know potential partners.

**People change, but not much**

A son talking with his father about a woman the son was considering as a marriage partner. "Isn't she great, Dad? She's so beautiful, and she really motivates me to better myself."

"Yes, I can see that she's very attractive," the father said, stroking his chin, "and I'm sure she can be quite motivating…but she seems a bit selfish. Have you noticed that she always wants to do what she wants, and doesn't seem to be interested in what everyone else would like?"

"Oh, yeah, Dad, but she's really flexible. I can talk her into seeing things my way."

"I noticed that she doesn't like to be inconvenienced, either."

"Oh, I know, Dad. But she has a really great attitude. Don't worry, after we're married, she'll change."

The father looked his son straight in the eyes and said, "Yes, son, people change, but not much." (99)

This excerpt from the introduction to the core personal dimensions in *Falling in Love for All the Right Reasons* resembles a Platonic dialogue with the father, presumably a stand-
in for Warren, in the role of interlocutor. In it, the father warns his son against marrying his selfish girlfriend because "people change, but not much," and the entire EH experience is predicated on that notion. The procedures in the data preparation workflow simulate a process of forward momentum but not toward anything new. None of the screens in this initial account setup phase include navigation that allows users to return to previous screens. In fact, users may not view previous pages by using their browser's back button, either. Although users may save their work and return later to complete it, they may not start over. In addition, none of the responses made on the twenty-one pages that make up the RQ may ever be changed, or even viewed, after they are submitted to the site. Of course, since EH relies on personality testing to select candidates during the matching workflow, this is a necessity in order to gain "authentic" self-impressions of users as they are and always will be.

This underlying assumption does not account for multiple subjectivities, even as it depends on them in its users. For example, users of the site must oscillate between a) self-presentation when selecting and uploading photographs of themselves, developing self-descriptions for their profile pages, and composing responses to others during GC and b) other-evaluation when viewing the profiles of matches and interpreting messages received from them during the communication process. Such oscillations are common, unconscious acts in a culture with pervasive communication technologies. In the case of IRM, they are especially closely tied to mate selection and physical desire, and this apparent fixity can jettison emotional responses and instead rely on—or rather, give the appearance of reliance
on—wholly rational social scientific methods and computational processes of the site, all the while ignoring the ideologies that informed the development of those processes.

All of the non-textual data collected during the initial account setup phase are used during the matching workflow, and only elements in the Basics section can be changed. The items that can be edited from the My Profile page of the account dashboard—height, education, whether users have children, ethnicity, religion, smoking and drinking habits—are mostly related to lifestyle. In order for users to change their name, location, or preferences related to the Basics categories, they must click the My Settings button. Links to edit both of these pages are located in the right corner of the top navigation of the profile page, similar to the location of Settings in Gmail, not in the main body of the page. Their placement keeps them segregated from the site's primary workflows, both discouraging users from accessing them and creating an impression of certainty. Religious beliefs and smoking habits are what they are, and they don't change. Not much, anyway. In addition, the site's reliance on self-report seems to presume a certain singular truth of identity that will be transparently communicated through the RQ rather than being answered strategically in an effort to increase one's attractiveness to others.

As we saw in the discussion of the 29 D, the site's functionality is rooted in a narrow worldview, and the subjectivities and relationships between users afforded by the site mirror that. For example, it is sensible to expect that an IRM site designed to facilitate marriage collects user marital statuses to ensure married people are not joining the site. If that is the case, then we could expect users to certify they are not married, or to choose between
"unmarried" and "married" statuses. However, EH requires users to choose between "never married," "divorced," "separated," and "widowed." Although there are legal ramifications for the difference between being divorced and being separated, there is little practical difference between the other three. Presumably, there is a qualitative difference between them for the purposes of EH. Is it that a woman who has never been married is more attractive than one who is widowed? Is a man of a certain age who is divorced marriageable, but one who has never been married afraid of commitment? What if he is separated? Strikingly, marital status cannot be changed. So if a user moves from the legal designation of separated to that of divorced, he cannot represent that change through his EH marital status. The choices for ethnicity are similarly limiting. Users can be White or African-American or Other, for example, but they cannot be bi- or multiracial. Finally, users cannot be homosexual, bisexual, transgender, or queer on EH. Although EH is legally required to provide same-sex matching, that functionality is not handled on the EH site but rather is relegated to another URL, CompatiblePartners.net. Although the site design and functionality appear to be exactly the same, including parsing marital status in the way discussed above, the two sites remain segregated. Neither EH nor CompatiblePartners.net acknowledges sexualities beyond the couple binary, such as bisexuality or polyamory.

Although the matching workflow is inaccessible to users, EH makes information about it available to them. It is difficult to say how many users read the Scientific Matching and 29 Dimensions of Compatibility pages on the site—or whether they are familiar with the more than fifty texts available through Amazon either authored or co-authored by Warren.
Regardless, EH's patented matching system is regularly featured in its advertisements, and the introduction to the *RQ* highlights it: "Now it is time to complete our comprehensive Relationship Questionnaire and receive your detailed Personality Profile. The results will provide you with insights about yourself and will enable us to find people who are highly compatible with you." Interestingly, the personality profile is also linked from the top navigation, along with the *Basics* page. Users may share the results of the personality profile with others, but they are not required to. This report includes five categories (agreeableness, openness, emotional stability, conscientiousness, and extraversion), and each page of the report is broken into a number of subheadings. It is surprising that this information would remain buried, but it makes sense given both the site's paternalistic approach and its stance on identity stability. There is no need to overburden users with too much detail, either about how the site works or how it has cast them as individuals. Besides, even if they did access these insights into their personalities, what would they do, other than marvel at them? After all, people don't change much.

Finally, the inflexibility of EH's *GC* system deepens the appearance of certainty. By moving couples through a highly regimented communication process, the site gives the impression that it can protect its users, mitigating ambiguity or deceit, as if they will know their matches better when they begin communicating more openly and/or meet face to face. However, this assumes both self-awareness and honesty that actual matches may not possess. In the most innocent of cases, users may not have reflected sufficiently on their relationship requirements, thus providing misinformation when considering their *Must Haves*. In more
insidious circumstances, there is nothing to stop manipulative users from answering questions in ways they believe members of their complementary match group would find attractive. Sixty dollars for a one-month subscription is a small deterrent for someone preying on users who have let their guard down within the safe confines of the paywall.

**Match.com**

Founded in 1995 by Gary Kremen, Match.com (Match) is one of the oldest IRM sites. The site was originally conceived as an online classified advertising platform called Electric Classifieds. After noticing the popularity of personal ads in the San Francisco area, Kremen made a shift in concept from online classifieds to IRM. Match launched on April 21, 1996. In 1998, it was purchased by Ticketmaster Online-CitySearch, a subsidiary of IAC (Angwin). With twenty-nine million users today, it is also the largest IRM site ("Dating Site Reviews"). Like EH, users can complete the initial account setup phase without paying the monthly subscription fee, but only subscribers may communicate with other users. Unlike EH, all members can view the photographs of other users. In the data preparation workflow, the site assigns numerical values to user responses. In the initial matching workflow, the site identifies candidates for the user based on both the user's and the candidate's responses and stated preferences. In the communication workflow, users are presented with potential matches, both on and off the site. Match offers one of the most flexible matching and communicating programs, allowing subscribers to contact others at any point after their

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7 Like eHarmony's icebreaker, Match's wink allows non-subscribing members to express interest in potential matches.
profile is activated. In addition, users may return to previous pages during the initial account setup phase.

![Match.com workflows](image_url)

**Figure 7: overview of Match.com workflows**

As I show in Figure 7, Match users play a role in all three workflows and are even capable of triggering workflows themselves. They initiate the data preparation workflow
procedures in the initial account setup phase and through any status changes (e.g., marital status) or profile updates (e.g., adding or changing "Last Read"). As soon as the original data preparation workflow is complete, the site generates users' initial match set—group of potential romantic partners—and presents it to them. At that time, and at anytime during membership in the site, users may initiate matching workflows for themselves by using the site's search functionality. They may create and save their own searches using variables stored by the site. Subscribers may contact users through the site at any point as well.

**Data Preparation**

Match's initial account setup phase takes users through a series of screens that are divided into eight categories: **Basics, Appearance, Interests, Lifestyle, Background/Values, Get to Know Me, About My Date, and In My Own Words**, most of which require users to select information from dropdown lists or enter information (zip code, for example) into text boxes with pre-determined formats and/or lengths. It is important to note that most of the information gathered to this point relates directly to the classic triumvirate of identity studies: race/ethnicity, class, and gender. As some have pointed out (e.g., boyd; Cheney-Lippold; Madrigal), relying on categorization has significant implications for users as they interact with the site and one another. For example, requiring users to select race from a menu of pre-defined options does not account for the complexity of racial identity. What if a user identifies with multiple races or an ethnicity not included in the list? In addition, including such categories further emphasizes them, perhaps adding selection criteria to users' searches
they may not have otherwise considered, just as a store's return policy creates the possibility of returning a purchase.

The final two categories allow users to write lengthier descriptions, with character counts as the only limitations. The information users share with Match is used, generally speaking, for two purposes. Most obviously, it is searchable by other users of the site. In addition, the data provided are used to present potential matches to users, both by e-mailing Top Matches and by displaying users with similar profiles when a member views another user’s page. As with EH, one of the site's most significant assumptions is revealed right up front. By allowing users such limited responses from the beginning, the site creates an appearance of competence. During the initial account setup phase, users first answer the question, “What brings you here today?” In the rest of the Basics section, users provide their relationship status, gender, and the desired gender and age range and location (i.e., mile radius from their zip code) of potential matches. On the same page, they then choose whether they are interested in matches who do not include a photograph before moving on to the next screen, where they indicate the country in which they were born and their astrological sign.

In the Appearance section (see Figure 8 below), users select height, body type, hair color, and eye color from dropdown lists, and the Interest section includes three screens related to pastimes and tastes, both of users and their ideal matches. On the first of these pages, users select the kinds of sports and exercise they enjoy from a list of twenty-three options, including billiards/pool, martial arts, skiing, and yoga. This page also includes two optional text boxes in which users describe their favorite pastimes and places in more detail.
The second page asks users to check interests they would like to share with their dates (e.g., shopping/antiques, music and concerts, business networking, playing sports) and offers two more optional text boxes—this time related to “favorite things” and the last book read. The kind of information gathered during Match's initial account setup phase distinguishes its matching procedures and ideological perspective from EH's.

![Figure 8: Match.com account setup screen ("Appearance" page)](image)

The final page in this section asks users to select the kind of movies they enjoy, and it is one of three pages that differ significantly from the others in the initial account setup phase. Instead of asking users to select options from checkboxes or dropdown lists, the third Interests page (Figure 9) includes eight options, each with a picture that represents a film genre. Since responses provided on this page are not searchable by other users, they have less to do with sharing information and more to do with what those choices say about
respondents. What does it mean, for example, when a user chooses the black-and-white photograph of an Audrey Hepburn lookalike dressed as Holly GoLightly rather than the bright computer drawing of a flying saucer or the color photograph of the young couple looking into each other’s eyes as they smile and share a red-wine toast? This sort of personality-based matching is at the core of EH's functionality, but it is relatively new to this site and may be related to Match's launch of Chemistry.com in 2006. A separate compatibility-based IRM site designed to compete with EH, Chemistry.com uses questions related to sex drive, sense of humor, and social skills that frequently include photographs and other images. Chemistry categorizes users into four personality types associated with hormones and neurotransmitters (Gottlieb), and Match seems to be integrating some of Chemistry's functionality into its own on this page.

The Lifestyle section includes two pages. On the first screen, users share how often they exercise, whether and how often they smoke and drink, their occupation, and whether they have children. They may also provide additional information regarding their employment in an optional textbox. On the second page in this section, users provide their current annual income range and whether they own, like but don’t own, or don’t have an opinion on seven kinds of pets. The Background/Values section includes two pages, and users select their ethnicities and their faith on the first. The former is selected using checkboxes, which allows users to identify with multiple ethnicities; for the latter, users click a radio button. This is unlike EH, which only allows users to choose one ethnicity. They may provide more information about their “roots, heritage, or culture” and/or their faith in the
optional text boxes on the same page. On the second page in this section, users share which languages they speak, their politics, and their level of education.

Figure 9: Match.com personality-based question ("The kinds of movies I like" page)

The Get to Know Me section appears to be another attempt at creating a personality profile for making recommendations to users. The first page in this section includes the following questions:

1. Tell us your birth order

2. If my friend and I ended up at a party where I didn’t know anyone else I would...

3. I’m most drawn to charities that...
4. Which of these comedians makes you laugh the most?

5. Let’s say you got a big bonus. What would you do with it?

The second page in this section asks users to complete the following statement: “If I had 2 weeks off and could take any vacation I desired, I’d …” and includes five options. As with the earlier page on favorite film genres, this screen contains photography representing each of the choices and neither of the questions in this section is searchable by other users. These questions related to sense of humor and social skills are similar to those used by Chemistry.

Unlike EH, Match’s data preparation procedures permit users to share a variety of preferences about their potential partners. The About My Date section asks users to identify their ideal matches and includes three subsections: Appearance, Background/Values, and Lifestyle. On the Appearance screen, users select a preferred height range and mark checkboxes for hair-color, eye-color, and body-type preferences. If they do not have a preference in the final three categories, they may indicate that as well. On the Background/Values screen, users choose their potential dates’ ethnicity/ies, religion(s), education level(s), and language(s) spoken. The Lifestyle subsection is made up of two screens. On the first, users select appropriate occupations, preferred salary ranges, and smoking preferences. On the second page, they indicate drinking preferences and suitable marital and parenting statuses. If users identify preferences, they must specify how important those preferences are by clicking either a "must have" or "nice to have" radio button. They may also choose to indicate when they have no preferences.
Except for the photo-upload option, *In My Own Words* is the final section in the initial account setup phase. Here users are asked to describe both themselves and their ideal match in 200-4000 characters: “This is a short description of who you are and what you’re looking for.” They also must write a maximum 140-character dating headline that appears both at the top of their dating profile and in the abbreviated view of their profile displayed in the search results of other users. On this page users are also presented the opportunity to double their chances by uploading their profile to Chemistry.com.

After users have completed the initial account setup phase, Match has two primary tasks to complete in the data preparation workflow. First, user data are converted to numerical values and stored in a database that is searchable by other users and used by the site to identify potential matches. Next, users' self-description (*In My Own Words*) and dating headline are evaluated by the site. Users' profiles will not become active (i.e., they will not appear in search results, and the user cannot view the profiles of others) until they have completed those two elements, submitted them and had them approved by Match. Once they are approved, the site initiates the matching workflow, and both matching and communication workflows become available to the user.

**Matching**

Match's matching workflow is the most mysterious of the three sites discussed here. Unlike EH, Match does not hold a patent for its matching procedures and provides no explicit explanation of them on its site. It is clear that at least some of the matching is based on
preferences of users. For example, if a heterosexual woman lists a preference for non-smoking men between the ages of 25 and 35, she is probably not going to be matched with a 53-year-old heterosexual smoker or a 32-year-old gay non-smoker. Beyond that, however, it is difficult to surmise. One guess proffered by Emily Gould in a 2010 *Technology Review* piece on IRM is that the site uses a combination of statistical measures. First, it is likely that the site recognizes patterns and makes recommendations based on the probability that certain shared characteristics (e.g., political views) would make a good match. Second, the site seems to employ data-mining methods similar to those used by Google and others to rank results.

Explanations that Match gave me ("You share a birth month!") were simplifications.

It generated them after it found a match by observing whose profiles I spent the most time reading and whose profiles others like me have liked, among any number of other factors. (Gould 75)

According to Nick Paumgarten's extensive 2011 study of IRM published in *The New Yorker*, Match relies on this process of *revealed preference*, in combination with stated preferences, to identify similar users—whose revealed and stated preferences conflict in similar ways and "whose behavior [the user seems] to resemble" (Paumgarten).

An engineer named Amarnath Thombre oversees Match's base algorithm, which takes into account fifteen hundred variables: whether you smoke, whether you can go out with a smoker, whether your behavior says otherwise. These are compared with the
variables of others, creating a series of so-called "interactions." Each interaction has a score: a numerical expression of shared trait-tolerance. The closest analogy, Thombre told me, is to Netflix, which uses a similar process to suggest movies you might like—"except that the movie doesn't have to like you back." (Paumgarten)

These techniques are used for matching workflows that occur after the initial account setup phase in the data preparation workflow, when more data on the users' habits and preferences are known. I would offer one more distinction. When using Netflix, users are aware that the site is using their preferences to make viewing suggestions. Netflix subscribers are encouraged to rate movies in order to improve recommendations, and a "best guess" at the user's star rating is displayed above the average user rating on each product page. On Match, these procedures are either concealed entirely or masked—claiming that a match is based on one criterion (e.g., a shared birth month) when it is actually more likely based on an aggregate of behaviors and preferences of similar users.

In a sense, this may help explain Match's popularity despite its high level of secrecy. Users are familiar with the experience of finding movies to watch on Netflix or employing a search engine to locate information. It makes sense that an IRM site that uses similar functionality would capitalize on that familiarity. Popular e-commerce sites (e.g., Amazon) make recommendations based on page views and preferences of similar users as well, furthering the feeling of comfort and familiarity. Beyond that, the ability to search freely based on parameters selected on the fly by individual users, a kind of self-matching not made available by EH, implies a level of autonomy and agency for them; however, nearly all of the
search categories are pre-determined by the site. In a previous site design, users could attach *MatchWords*, user-generated tags, to their profiles and search for them in the profiles of others. That option has been removed in the most recent redesign. The only flexible search option now available is a keyword search that makes profile essays (e.g., *In My Own Words*) and usernames searchable. However, completion of most text-based fields is optional. Only the *About Me & Who I'm Looking For*, which must be completed for account activation, is required.

Regardless of how the site matches users, they may engage in self-matching at any point after their profile is activated, and there are two ways to activate the search functionality. They can use a simple search—based solely on sexual orientation, age and location range, and whether users have a photograph and are online currently—from their account dashboard, or they can match themselves based on more than twenty additional categories and any keywords. The more intricate search preferences are savable, and the user can rerun them at a later time. The difference between these two is comparable to the difference between simple and advanced searches of library databases. The apparent autonomy available to Match users conceals its underlying limitations. Users may be able to conduct profile searches whenever they like—and to include as few or as many variables as they choose—but it's a site-specific search. In other words, they cannot search based on data not gathered by the site, no matter how important they may be to the user.
Communication

Once the site has matched users with potential romantic partners, they receive a *Top Matches* e-mail message that includes username, photograph, total number of candidate's photographs available, age and location, and a link to view the profile page for up to twelve matches. The candidates in the message are divided into two categories: *Mutual Matches* and *Members We Selected for You*. The former is made up of candidates who fit the user's preferences and whose preferences the candidate fits; the latter includes additional, less-ideal matches chosen by the site. As long as users are visiting the site regularly, they will receive these messages daily. In addition, for an extra fee, premium subscribers are included in the initial message sent to new users who fit within their matching preferences, regardless of whether the premium subscriber meets the preferences of the new user. Users may also view these candidates at anytime on the *Matches* page and take a quiz (*Like at First Sight*) in which they are shown a number of photograph arrays (e.g., containing celebrities, automobiles, dating scenarios) and asked to choose which in the group is most attractive. They are then presented with the option of viewing additional matches based on those choices. Similarly, Match includes a *Daily 5* page linked from the main navigation banner. On this page, users are presented with five potential matches and asked, "Does he [or she] spark your interest?" They then respond to the question by clicking a button (yes, no, or maybe) and are presented the next match. The banner of the *Daily 5* page proclaims, "The more you rate, the better matches you get." It appears that, in addition to the data-mining
techniques discussed earlier, Match uses an aggregated system of user rankings similar to Netflix's Cinematch\(^8\) to determine which candidates to present to users.

![Match profile page](image)

**Figure 10:** previous Match profile page (Purdue University, COM 435, Fall 2005)

Although the kind of information gathered during the initial setup phase has changed only slightly, the Match profile page underwent a significant redesign in 2010 ("New Profile"). Until that time, the profile page functioned primarily as a display of the data.

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\(^8\) Netflix asks users to rank videos they've seen on a five-star scale. The site then uses its Cinematch system for matching users with movies, television shows, etc. that they might enjoy by comparing their rankings to aggregated data from all of its users.
gathered during account initiation and its layout resembled that of a typical ecommerce page. As Figure 10 shows, "above the fold" on the previous user profile page was a user photograph and what may be called a "digital calling card" that took up about two-thirds of the horizontal space and around which the other elements were distributed.

Figure 11: Match.com user profile page

The digital calling card began with the presenter's username, activity status (e.g., online now), and dating headline. The rest was broken into two paragraphs, and the first included the presenter's age, gender, and location as well as the gender and the preferred age range and proximity of potential matches. The second paragraph included the presenter's relationship status, ethnicity, body type, height, sense of humor, and astrological sign. These two paragraphs remained visually consistent, and users were required to provide all of the
information in both. Although a presenter could choose not to report all of this information, the categories all appeared on every profile; unanswered categories remained and were marked in gray text with "No Answer."

The current site design (Figure 11) includes a few social features that make visible some of the potential connections and similarities between the presenter and the evaluator. This shift from a typical e-commerce layout to one more akin to a social-networking profile page works as a technique of concealment. By mirroring the look and feel of sites users are accustomed to spending time on—first Amazon and now Facebook—Match is able to seamlessly fit into users' online experience in a way that EH cannot. The Match profile page begins with a banner that includes a thumbnail photograph of the presenter, his username, and his dating headline on the left and a button to "favorite" him on the right. Just below the username is a menu with three tabs—His [or Her] Story, Photos, and Our History. The first tab is the default main screen for the profile page. The majority of the page "above the fold" is divided into two columns. The first column takes up two-thirds of the screen horizontally. On the left, there is an enlarged view of one of the presenter's photographs. Just to the right of that, there are thumbnails of additional photographs and additional information about the presenter. The second column includes buttons and links for evaluator actions, including e-mailing or instant messaging the presenter, viewing additional profiles of similar users, or forwarding a link to the profile to a friend's e-mail address; neither this column nor the banner changes when the evaluator chooses the Photos or Our History tabs.
If the evaluator scrolls down on the default profile screen, she will find the presenter's About Him [Her] & Who He's [She's] Looking For. This section includes the required self-description as well as information related to his interests, leisure activities, education, etc.

The final section of the default page is a table that includes information about appearance, lifestyle, and background/values for both the presenter and his ideal date. Just below the table is the Ways You Match checkbox. When the evaluator selects it, the table alters to show only the categories on which both agree. Selecting the Photos tab on the profile page banner allows the evaluator to see all of the presenter's photographs, and Our History contains a record of contact between the evaluator and the presenter. If the two have not been in contact, the page displays a large blue arrow pointing to the evaluator action buttons/links with the message, "Every relationship starts with a first move, [sic] make yours now." After reviewing the profile page, a subscribing evaluator can send the presenter a direct message at any time. If she is not interested in the presenter, she may either return to potential matches identified by the site or engage in another phase of self-matching.

**Find Love. Guaranteed.**

Match's current slogan ("Find Love. Guaranteed.") and its most recent former tagline ("It's Okay to Look.") align the site with search capabilities in the user's mind. Whereas EH's tightly controlled process gives a feeling of certainty, Match's focus on "finding" and "looking" engenders an overall atmosphere of user agency that is supported by the site's reliance on user self-matching and open communication. As is the case with search engines, this feeling of freedom belies the level of control exerted by the site. For example, both
categories (e.g., interests) and their members (e.g., music and concerts) are all predetermined by the site. Users may not add categories or members of categories. If users were only interested in meeting other users born in a particular setting, such as a large metropolitan area or a farming community, they could not search based on that category. Likewise, users could not add interests that people are often passionate about (e.g., comic books, fantasy sports, knitting) to that category.

If EH is a controlling parent, then Match.com is an absentee one. By allowing users to work fairly autonomously on the site—users do not, for example, have to engage in the lengthy directed communication process of EH and may write and save their own searches and contact other users at any time—Match has the appearance of being removed from relying on and perpetuating these assumptions. Still, by providing this information in the seemingly stable frame of a dropdown list (in the case of categories such as gender, salary range, occupation) or a set of checkboxes (as is the case with ethnicity), Match is complicit in them.

In his discussion of identity theft, Mark Poster notes, "Identity fragments into an aspect of consciousness (an awareness of continuity in time and space) and a complex of media content contained in information machines that combine to define an individual" (113-14). More and more of how we conceive of ourselves as human is tied up with machines, especially as identity becomes synonymous with information stored in databases. Establishing a Match profile is a time-consuming process. Users are forced through screen after screen of drop-down lists through which they must record basic demographics and
information about their appearance, interests, lifestyle, background, and values. They go through the same process regarding the person they would like to meet before they can complete the *In My Own Words* portion of the profile and provide a textual account of who they are. And their profile will not be activated until they provide at least 340 characters of self-expression. The search and suggestion functionalities available through Match require the conflation of individual identity with media content. Poster notes that identity in post-modernity is "a mixture of materiality and consciousness" (113), and the reduction of people to the product of a database search is representative of this notion. In fact, as many have noted (e.g., Heino, Ellison and Gibbs), Match works very much like online shopping. Users can search for potential partners in the same way that they might search an online retailer for a pair of shoes. They select desired characteristics (size, color, style), receive a list of matches that fit the criteria, and then view images and read descriptions in order to determine which one of the potentials is the perfect fit.

**OKCupid.com**

OKCupid.com (OKC) is a free online dating site co-founded in 2006 by a group of Harvard College graduates who also founded TheSpark, a collection of online study guides that eventually became SparkNotes ("About Us"). As of March 2011, the site had 3.5 million

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9 OKCupid does offer A-List, an add-on service that includes access to additional search filtering options and special discussion forums, the ability to add attachments to messages and to change usernames, and an advertisement-free view of the site.
active users\textsuperscript{10} internationally ("About Oktrends"), and that year Match purchased the company for fifty-million dollars ("IAC"). The site is intended to be different from other IRM sites and includes a number of social features. OKC incorporates forums on which users can discuss issues related to dating and relationships and a broad catalog of both site- and user-authored personality tests. Users are encouraged to share the results of these tests with their social circle, either through e-mail or integration with social-networking sites. The site also allows users to keep journals and to give one another awards (e.g., Eye Candy, Brilliant Profile) and offers a number of tools and games. In addition to MyBestFace, an application that allows members to upload and compare their profile pictures in order to determine which is the most attractive, OKC includes both single and multi-player games and two concept maps that visualize results of answers to questions used during the matching workflow. The \textit{Match Map} uses question responses to display the states and countries in which a user is most likely to find compatible relationship partners, and \textit{Flowchart to My Heart} presents the path of responses that leads to a date with—or rejection by—the user. Although OKC is billed as an IRM site, individuals are not required to use it for that purpose. Some members seem to join simply to take the personality tests, and many who join the site for dating appear to maintain active profiles after establishing a relationship so that they may continue to take tests, play games, and write and read journals.

\textsuperscript{10} OKCupid defines "active user" as someone who has logged on at least once in the past week.
During the initial data preparation workflow, users complete a brief initial account setup phase, and the site converts user responses to numerical values and establishes a user database. Users must complete a secondary question-answering phase prior to the site's initializing the matching workflow. Once a user has met a fifty-question benchmark, the site engages in a second round of data preparation, this time converting and weighting user
responses for matching. In the matching workflow, the site analyzes users' answers and preferences in order to match them with candidates. These matches are shared with users, both on and off site, as part of the communication workflow. As is the case with Match, OKC users may begin self-matching and communicating as soon as they have completed the first-round data preparation workflow. As I demonstrate in the Figure 12 diagram, users play a role in OKC workflows that is similar to their position within Match. They can add or make changes to profile information and engage in self-matching at any point. In addition, they can contact other users throughout the process.

**Data Preparation**

OKC's initial account setup phase includes three required screens, many fewer than Match's seventeen pages and EH's twenty four. Users begin on a welcome screen that asks them to identify gender (female, male), sexual orientation (straight, gay, bisexual), and relationship status (single, seeing someone, married). On the second page, they enter their birth date, location (city and either country or zip code), and e-mail address. Finally, users select a public username and password and complete a captcha. Clicking the "Done!"

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11 Of the sites discussed, both OKC and Match have the same entry point for opposite- and same-sex matching. Although, at least according to its patent document, eHarmony's Relationship Questionnaire would be similar for heterosexual and gay and lesbian couples, eHarmony uses a different site (CompatiblePartners.net) for same-sex dating. In addition, only OKC allows for bisexual matching and openly facilitates non-monogamous relationship formations (e.g., casual sexual, polyamorous). Only OKC uses the same entry point for all matching, including international.

12 A captcha requires users to enter into a textbox a series of characters in an image. This serves as a test to ensure the account is being requested by a person and not a bot. Since OKC is the only site examined that does not require a subscription in order to send messages to
button on the final page redirects users to a welcome page on which they may upload a photograph, update their profile with additional information, answer questions, or send a message to another user. At this point, users have access to all of the site's functionality, including searching for potential romantic partners, though the site's portion of the matching workflow will not be initiated until they have answered fifty *Match Questions*. Users may choose to complete the secondary setup phase immediately or return to it another time. Like Match, OKC's seeming ease of access conceals site complexity.

The *Tell us about yourself* page is the starting point for the secondary setup phase, and it includes areas for user details, desired characteristics for potential partners, and ten "essay" blocks. *My Details* includes information commonly included in IRM user profiles: online status; height and body type; ethnicity; whether and how often the user smokes and drinks; whether the user has children and/or pets; the user's religious affiliation and level of commitment to it; and the user's education level, job, and income. In addition to these categories, OKC's *My Details* contains the user's diet (e.g., vegetarian, kosher) and how strictly it is maintained; the user's frequency of drug use; the user's astrological sign; and the user's languages spoken and level of fluency. Except for ethnicity, all of the *My Details* categories are selected from dropdown lists. Like Match, users identify their ethnicity using checkboxes, allowing for identification with more than one. Although both EH and Match allow users to identify their ethnicity as "other," only OKC allows users to choose not to other members, presumably this step is included to prevent infiltration of the site by spammers.
disclose this information. The *I'm Looking for* section permits the user to report on age range, proximity, relationship status, and sexual orientation and gender of potential partners as well as the kind(s) of relationships (e.g., friendship, short- or long-term dating, casual sexual) the user is interested in. The ten essay sections give users the opportunity to provide additional information about themselves; there are no word-count requirements for these sections. In addition to *My Self Summary*, they include headings like *I'm really good at* and *On a typical Friday night I am*. The information provided by users in this section is both viewable and searchable by other users. Unlike EH and Match, all site content, including journal entries and discussion forum posts, is searchable.

As discussed earlier, users need only choose a username and password, enter some basic identifying information, and complete a captcha in order to begin using OKC. However, users do not receive suggestions for potential partners and *Match Search* results until they have answered a minimum of fifty *Match Questions*, an additional process in the data preparation workflow. These questions (see Figure 13 below) consist of the actual question, a range of answers acceptable to the user, the questions importance to the user, the user's response to the question, and the user's explanation of her answer, if provided. The default state for all questions is public, but users may choose to keep their answers private. Users whose answers are not publicly visible cannot compare their answers to those of their matches (*"Match Questions"*).
Matching

OKC's user experience seems to lie somewhere between EH and Match. Like Match, OKC allows its users to search for, view, and contact other users without restriction. Like EH, OKC matches users based on answers to *Match Questions*, a kind of compatibility matching, and the site sorts questions based on "how well they divide the population" ("Calculating Match Percentages"). Questions are also organized by "genre" so that users are presented with different kinds of questions, and by "raciness" so that users who consistently

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13 Users may choose to block other individual users. If User A blocks User B, B will not be able to view or contact A.
skip sex- or drug-related questions no longer receive them ("Match Questions"). Match Questions are the cornerstone of OKC's matching procedures.

**Figure 14: example questions for calculating OKCupid's match percentage**

After users have answered a minimum of fifty questions, the site begins the initial matching workflow. Match percentage between any two users is based on their responses to—and the importance of—questions they have both answered. For example, if Users A and B both answered the question in Figure 13 ("Which makes a better relationship?"), that question would be included in the set used to determine their compatibility. All questions in the set do not receive equal weight. Users rank the questions, and the site converts them to
numerical weights: *irrelevant* (0), *a little important* (1), *somewhat important* (10), *very important* (50), or *mandatory* (250). User A is awarded points for answers that fit within User B's parameters—and vice versa; the points awarded are divided by the points available in order to determine a satisfaction percentage. The two users' satisfaction percentages are multiplied, and the square root of them is then taken. This number is the calculated match percentage for Users A and B. This percentage is then adjusted for margin of error,¹⁴ and the result is the true match percentage that is displayed to both users.

For any pair of users, there are six factors in play for every question: User A's and User B's answers, User A's and User B's preferred answers from other users, and the importance of the question for Users A and B. Figure 14 provides an example from OKC’s *Calculating Match Percentage* page. For User A, the first question was very important, and the second was a little important. User B's answers fit within User A's acceptable range for the first question but not for the second. User A's satisfaction with User B's answers would be calculated thus:

\[1(50) + 1(0) = 50/51 = 98\%\]

¹⁴ OKC uses a margin of error based on the number of questions a pair of users has both answered (S). If S is 1, the margin of error is 1.00, and the highest possible true match percentage is 0%. If S is 1000, the margin of error is .001, and the highest true match percentage is 99.9% (“Calculating Match Percentages”). The full margin of error chart is available at http://www.okcupid.com/faaaq.
For User B, the first question was a little important, and the second was somewhat important. User A's answer for the first question does not fit within User B's acceptable range but does for the second. User B's satisfaction with User A's answers would be calculated thus:

\[ 1(0) + 1(10) = 10/11 = 91\% \]

The match percentage is then calculated by taking the square root:

\[ \sqrt{98\% \times 91\%} = 94\% \]

OKC uses this match percentage to identify candidates for users, but users can also engage in self-matching by searching the site. *Match Search* begins with a simple search that includes options for sexuality, age and location range, when last online, relationship status, and whether a photograph is included in the profile. They can also select from an additional twenty advanced search options, including body type, *Dating Persona*\(^{15}\) test results, and the number of match questions answered. Some of these options, such as body type, are only available to paying members. Unlike Match's search page, which lists all available search criteria, The OKC *Match Search* page uses a small banner for selecting search criteria and uses the bulk of the page for presenting potential matches. OKC explains matching procedures on the "About" page and highlights its reliance on mathematical calculations both on its blog (OKTrends) and in its public relations.

\(^{15}\) Dating Persona is a personality test offered by the site.
Communication

Once the initial matching workflow has been completed, the site sends an e-mail message to users with a photograph, username, location, age, gender, and an excerpt from one of the candidate's essays for multiple potential matches. The site also presents potential matches in the You might like... block in left-hand border of the page when the user is logged on to the site. This block persists on subsequent visits to the site and is refreshed with new potential matches with each new page viewed. After subsequent matching workflows, the site also provides Quiver and Quickmatch candidates to users. Quiver is a set of three potential matches delivered on both the Quiver page and via e-mail message. When users indicate they are not interested in one (or all) of their matches, the selections are noted and new Quiver matches are provided. Quickmatch is available through the Quickmatch page and presents a profile with the username stripped out. Users are then asked to rate the profile in order to see the username. Just as Match's Daily 5 uses profile ranking to refine matches, so the Quickmatch captures additional data on user preferences.

As Figure 15 shows, the top block on the main OKC profile page is divided into three columns. The right column includes information about the presenter: his photograph; his compatibility with the evaluator viewing his profile; his username; his age, gender, sexual orientation, and relationship status; and his location and distance from the evaluator. The next column includes any awards he has received, and the final column includes buttons for evaluator actions (e.g., message, save). The rest of the main presenter profile page is the

\[16\] Match's Daily 5 appears to be based on OKC's Quickmatch.
presenter's *About* section, which is made up of information provided by him on his *Tell us about yourself* page. Each presenter profile contains subpages that are accessible through six additional tabs just above the *About* section. These additional tabs hold photographs, an infographic representing a comparison of the presenter's personality traits (e.g., more trusting, less spiritual) with others, his journal, results of tests he has taken, awards given to him accompanied by the awardee's comments, and a comparison of the presenter's and the evaluator's response to questions.

![OKCupid user profile page](image)

**Figure 15: OKCupid user profile page**

*"… like your friend in the real world"*

When interviewed for Paumgarten's 2011 *New Yorker* piece, OKC Co-Founder, President, and Creative Director Chris Coyne described the site's matching processes as "software that would be like your friend in the real world": "If I were your friend and I told
you that So-and-So would be the perfect date, your response would be to start asking me questions. … On the Internet, people will ask—and answer—extremely personal questions" (Paumgarten). Indeed, the look and feel of the site is clearly designed to feel fun and friendly, encouraging users to be forthcoming. The color scheme and typography used on the site are playful, and even the way the site refers to itself is tongue in cheek. The site's main landing page, shown in Figure 16, features a pleasant-looking female avatar welcoming the visitor to "the best dating site on Earth," and e-mails sent to users on behalf of the site frequently originate from Staff Robot. Features that encourage users to hang out on the site—quizzes, journals, discussion forums—contribute to the air of sociability.

![OKCupid landing page](image)

**Figure 16: OKCupid landing page**

Co-Founder and CEO Sam Yagan likens the experience of finding a date through OKC to the process offline:
In the real world dating is social. One girl will call up her girlfriend and say, "Hey, let’s all go out tonight." They all get dressed up and they never explicitly say, "Hey, we’re looking to get picked up by a guy." They just tell themselves that they’re going out to have a good time. No one had ever invited me to join Match.com. No one ever said "go to Match.com, you’ll have a great time". [sic] Match.com was a very lonely experience. So our vision from the very beginning was to build an online bar, a place where you go with a bunch of friends, you observe other people and decide which ones seem the most appealing to you. Then you gradually and slowly begin to strike up a conversation with them.

This atmosphere instills a level of comfort in certain kinds of users, people who enjoy and make time for socializing. The questions OKC asks of its users do deal with deeply personal and taboo issues, and the site has amassed over eight hundred million answers (Paumgarten). The site's original and most prominent quiz, The Dating Persona, probes topics such as drug use, promiscuity, and sexual predilections in detail and then suggests that users share their results on their profiles, send them to contacts through e-mail, and post them to social-networking sites. And as with social-networking sites, OKC uses the data it collects for a variety of purposes beyond matching users with one another. In-house researchers use data gathered to conduct investigations into issues related to IRM on OKTrends, the site's blog. OKC also sells user data for scholarly studies. For example, a team of political scientists from Stanford and Yale is currently working with an OKC data set (Paumgarten). OKC relies on the impression of playfulness and sociability to keep users sharing.
IRM and the Construction of Subjects

As we saw in our earlier discussion, procedurality is a way of understanding processes that includes in it conditions of possibility, contingency, and concealment, and procedural rhetoric is a mechanism for making arguments through those processes. By examining IRM sites procedurally, we have been able to see both how sites function and how they build relationships with their users—through what those processes permit and deny, by concealing some things and making other things visible. On one level, all three of the sites examined include some significant similarities in their processes. They all use constraints and affordances to help define their relationships with their users. Indeed, all three sites rely heavily on limitations to instill confidence in their users. Early on, EH sets an expectation of reliability and trustworthiness, using its highly constrained data preparation workflow as a mechanism for fostering confidence in its users. By rigidly structuring interactions between users during the communication workflow, EH continues to project an air of confidence. Match's and OKC's data preparation workflows may appear to be more flexible, but they too collect particular information from their users in particular ways. Although the matching and communication workflows are more flexible, it is through that flexibility that those sites make connections to users' larger lives.

All three sites also rely on concealment and exposure. Through the depth and breadth of the initial account setup phase, the data preparation workflow is both visible and invisible in all three sites. By filling out the personality profile, providing information on lifestyle and tastes, or answering match questions, users experience the data preparation, but the sites
reveal little about how the information will be used. In the matching workflow, EH continues to rely on concealment, and this workflow is primarily unavailable to them. Matching workflows on Match and OKC are concealed to varying degrees. Users are allowed to engage in self-matching procedures, a process that appears to be transparent, but users only have data available to them that is gathered by the site. In addition, Match publicizes very little about its matching procedures, and OKC's complexity may limit the understanding of many users. The EH communication workflow is visible and deliberate, while Match's and OKC's communication workflows remain invisible through their similarity to other, more familiar electronic communication technologies, such as e-mail and social-networking messaging.

It is in contingency that the three sites converge, and it is through examination of this condition that we will gain a better understanding of the cultural assumptions that undergird each of the sites and their relationship to the construction of subjects. As we discussed in the previous chapter, conditions for romantic matchmaking are closely associated with both the regimes of power with which they circulate and the relationship between those regimes of power and their subjects. While all three sites rely on the components of the automation condition discussed in Chapter Two (e.g., modulation) and processes of categorization, each site draws on specific, divergent ideologies that govern the kinds of user information they collect and store and how they connect users to one another.

EH's functionality is rooted in a social-scientific, modernist understanding of subjectivity. Within this logic, individual identity is fixed and quantifiable, and relationship
satisfaction is predictable. And under the tight control exerted through all workflows, there is little likelihood that users could diverge from that construction. In other words, if EH determines that certain characteristics govern the potential for relationship satisfaction, and then weeds out all people who do not possess those characteristics, all EH users will possess them—and all EH successes will have relationships based on those principles. In *Falling in Love for All the Right Reasons*, Neil Clark Warren paints a pretty bleak picture of the prospect of marriage success—"'And they lived happily ever after' for many people is a colossal hoax!" (41)—before offering a pitch for EH's ideological perspective. He predicates his argument for EH's matchmaking method on the scientific makeup of the system:

> After countless hours of meticulous, empirical research, a team of psychologists and I have discovered the twenty-nine dimensions that happily married people have taken seriously, and unhappily married people have matched poorly. Simply put, if you learn to recognize these twenty-nine dimensions and discover how to determine whether you are well matched with a particular person, you will have a nearly foolproof litmus test to determine your potential for enjoying a lifetime of great marital success—or not—with that person. (42)

After all, people can change—but not much.

> Interestingly, this mechanism for sorting the desirable from the undesirable harkens back to the confinement of madness in disciplinary societies. According to Foucault, until the mid-seventeenth century, the world was "strangely hospitable, in all senses, to madness", and
insanity—along with unemployment and prostitution—hovered at the margins of society (Foucault *Madness* 37). By 1656, Foucault marks the founding of Paris's Hôpital Général as a significant milestone, madness was characterized as a moral shortcoming that should be restricted and scrutinized. For EH, individuals identified as deficient of character, who appear to have difficulty controlling their anger, who are not self-actualized, who are stubborn or defiant, who have been "raised in a dysfunctional family" (Warren and Abraham 90), who are neurotic, are denied access to their services.

In a way, this denial works much like the exclusion of lepers in the Middle Ages and then madmen in the Renaissance. According to Foucault, as late as the sixteenth century the salvation for madness was its isolation, though not necessarily its confinement. By the mid-seventeenth century, madness was reconfigured as something to be confined, studied, and treated. In the case under discussion, EH seems interested in isolating the "abnormality" without addressing it through treatment. Indeed, EH makes an argument, both through the site's matching procedures and in Warren's self-help texts, that these maladies are resistant to treatment. This practice of labeling certain behaviors or proclivities as risky is akin to the use of actuarial science by automobile insurance companies to classify unsafe drivers. As Jeremy Packer notes, certain populations (e.g., motorcyclists, young people) are identified, and in some instances constructed, as dangerous based on assessments of their potential for loss. Packer describes this technique as the "free-floating legitimator" (Packer "Driving" 152):

The claim that some activity, product, or form of conduct is unsafe automatically legitimates public concern, media worthiness, litigation, and governmental
involvement. The space for public debate about nearly any topic is limited not by what is the just, the good, or the democratic, but rather by what is safe. ("Driving"
152)

"Safe" on EH means the potential for success in a particular kind of relationship: marriage of a heterosexual, usually religious, couple. Interestingly, the site does not address what might well be day-to-day safety concerns of their users; there is no criminal background check or sexually transmitted disease screening, for example. Rather, EH eliminates those with certain personality characteristics or family backgrounds, presumably closing off, or at least limiting, their opportunities for procreative relationships.

Individual identity is quantifiable—and essentially fixed—on Match, though not in the same way as on EH. Although users may edit their responses to nearly all questions they answer during the data preparation workflow, it is hard to imagine that many users would choose to review those seventeen pages. Despite this similarity to EH, the ideological perspectives of the two sites differ significantly. Rather than matching people based on personality profiles, Match's processes are based on patterns of consumption. Much of the information acquired during the data preparation workflow is related to lifestyle, leisure activities, and tastes. In addition to being asked about their enjoyment of nearly fifty sports- and exercise-related activities and about experiences they would like to share with their date, Match users are asked to describe their favorite pastimes and places ("local hot spots and travel destinations") and to share their tastes in music, television, film, food, and books. Clearly this envisages a particular kind of user—one with the money and free time to travel,
dine out, participate in organized sports or exercise classes, and relax with a good book. Not only will the site's matching procedures be based, at least in part, on patterns of consumption, but also people's self-matching practices will generally be anchored in tastes, leisure activities, and the like.

As we saw in our discussion of the site's matching workflow, Match relies on a) a comparison of whom users say they want to meet (stated preferences) and what their behavior says about whom they want to meet (revealed preferences) and b) the stated and revealed preferences, as well as behaviors, of similar users. *Behavior* on an IRM site includes exchanging messages and "winks" with other users, to be sure, but much onsite activity is made up of viewing and evaluating user profiles. In that way, matching procedures are based on "consuming" other users as well. Indeed, as Match's Amarnath Thombre noted, this process mirrors Cinematch, Netflix's system for recommending media consumption to its clients. As users' stated and revealed preferences are aggregated and rearticulated, new understandings of attractiveness and compatibility emerge. In his critique of categorization, John Cheney-Lippold calls this recursive process *soft biopolitics*, and he uses the example of gender identity as a case throughout that work. He argues that a user's viewing of certain kinds of information online (e.g., visiting a news site) might be coded as male, and as that user engages in other activities online, and as the viewing habits and activities of other users are combined through algorithmic calculation with the original user's, and then as new recommendations are made to the original user based on those combinations and calculations, *maleness* is constructed, reified, and re-presented throughout the process. For
example, Ars Technica contributor Casey Johnston recently drew attention to user
categorizations in Google Ad Preferences. Based on users' search habits and viewing
behaviors, Google develops individualized age and gender profiles for targeted advertising.
In addition to reporting responses by Ars Technica staff to Google's construction of them,
Johnston encouraged readers to view their own Ad Preferences profiles (Johnston). As my
profile page (Figure 17) shows, frequent searches related to technology and education have
marked me as a male, age 35-44.

![Google Ad Preferences profile page](image)

**Figure 17: Google Ad Preferences profile page**

This process of constructing gender identity through computational processing
becomes a kind of "statistical stereotyping" (Cheney-Lippold 171):

Rather than maintaining a particular and concrete relationship to maleness in the
offline world, a cybernetic conception of gender would position maleness as a
modulating category, based on a vector and composed of statistical assessments that
define male group membership. … Instead of standards of maleness defining and disciplining bodies according to an ideal type of maleness, standards of maleness can be suggested to users based on one’s presumed digital identity, from which the success of identification can be measured according to ad click-through rates, page views, and other assorted feedback mechanisms. The regulation of gender as a category then becomes wholly embedded within the logic of consumption, where categorical behaviors are statistically defined through a cybernetics of purchasing and research that marketers have deemed valuable for identification and categorization.

(171)

Cheney-Lippold notes that these categorizations have become aligned with consumption. For example, advertising has long been a means for communicating information related to biopolitical endeavors for mitigating risky behavior, such as public-health campaigns for preventing sexually transmitted diseases. If based on my interests in mobile computing and education, Google characterizes me as a 34-44 year-old male, I may be presented with advertisements for condoms rather than, say, the Human Papillomavirus (HPV) vaccine. Of course, these same targeted-advertising techniques are used in all media. However, when I watch a football game, I am aware that advertising content is generally geared toward a male audience, and I am familiar with, as most of us no doubt are, the uneasiness of being misconstrued by television advertising. However, online ad tailoring (indeed, most matching technologies, such as mass customization) is invisible, and these invisible technologies are permitting or denying access to information based on gender (or, as Eli Pariser points out,
political affiliation). On Match, desirability is predicated on patterns of consumption—both in terms of users' individual tastes and lifestyles and their viewing of others' profiles. These patterns of consumption are reproduced through the site's matching procedures (i.e., soft biopower) and through the procreative relationships established on the site.

In some ways, OKC's conception of subjectivity is the most fluid. Unlike EH and Match, OKC does not presume a fixity of identity. OKC offers the most diverse array of relationship formations (e.g., bisexual, polyamorous, casual sexual, friendship), and it allows users to submit questions to be used during its matching workflow. Like EH and Match, OKC requires a conception of identity as quantifiable. Still, OKC does not rely on traditional indicators of compatibility, such as particular personality traits or patterns of consumption. Instead, users are matched based on the comparison between their opinions, attitudes, values, and self-perceptions; the opinions, attitudes, values, and self-perceptions of others; and their relative importance to the individuals being compared. The questions designed to address compatibility range from the practical (Which best describes your method for paying off debt?) to the explicit (Have you ever tried sexual roleplaying?) to the mundane (Watching cartoons as an adult is… ?). Although the site doesn't seem invested in determining universal factors that predict compatibility, that is not to say that OKC is not rooted in a particular ideological perspective. First, although OKC does not screen users in the manner of EH, the site's flexibility, the openness to non-heteronormative sexualities, and the tolerance of sexually explicit content may create an uncomfortable environment for some potential users. In addition, the carefree and humorous tone of much of the site, as well as its playful color
scheme and graphics, may convey an air of flippancy that undermines credibility with some users. Finally, similar to EH and its social-scientific approach to matching users, OKC relies on mathematical calculation, and OKC's mathematical approach, as opposed to personality profiles or consumption patterns, is the underlying ideology.

Despite their differences, all three sites exhibit characteristics of Pariser's filter bubble, and this may account for their viability. As we saw in the introduction, the filter bubble has three important characteristics. First, by means of personalization, it isolates users through mass-customized content that can skew their perspectives. Second, it conceals its procedures of personalization from users. Third, it coerces users into participation through opacity and pervasiveness. Although it would seem that IRM sites should be engines of connection rather than isolation, they serve to encapsulate users in pockets of heterogeneity in which they lie at the center. All site activity—whether matches are being delivered to her or she is searching for them—appears to revolve around the user. But this is an illusion. All of the personalized recommendations are not produced by a special relationship between her and the site. Rather, they come out of data on behaviors and preferences of millions of users. Even EH, a site that generates a custom personality profile for each of its members, positions that profile within a range of relationship satisfaction possibilities informed by both the actions of similar users on the site and relationship satisfaction research conducted offline. These processes are, characteristic of the filter bubble, compulsory and unseen by users. On some IRM sites, users can only be matched based on these processes, but even sites that
allow users to engage in self-matching don't permit users to opt out of the site's matching processes.

This condition is also similar to what Jeremy Packer and Kathleen F. Oswald call "screening." Extending Raymond Williams's mobile privatization beyond the era of broadcast television, Packer and Oswald define screen technologies as "the technologies and practices that act as both personal viewing technologies (e.g., cell phones, Global Positioning System (GPS), netbooks) with practices and technologies of socially screening persons (e.g., airport security, biometrics, profiling) to manage appropriate conduct" (313), and they intend screen in a double sense—as both the viewing screen and the sifting screen. Digital iterations of these screening technologies act much like modular "sieves [that] can be altered one individual at a time, acting differently in one place rather than another and according to differing schedules" (314). They note that these screens not only capture viewers' attention but also gather resources and information related to them. The sieve adjusts itself based on that information, and in turn it can be adjusted as it is integrated into new spatial, social, and technical networks by viewers.

Packer and Oswald's sieve harkens back to Deleuze's discussion of control societies. Indeed, Deleuze contrasts the mold of disciplinary societies with control's modulation, "like a self-forming cast that will continuously change from one moment to the other, or like a sieve whose mesh will transmute from point to point" (Deleuze "Postscript"). In many ways, IRM exemplifies this conception of control technology. The matching technologies that enable IRM are, on the one hand, highly flexible, modular screening mechanisms for identifying
potential relationship partners, and they work in concert with users' own practices (running onsite searches, sorting potential partners recommended by the site, interacting with and evaluating other singles both on- and offline). The way matches are made generally and the kinds of matches delivered to specific users can change based on any number of factors—updates to algorithms or computer processing, new social-scientific research, larger pools of user data, prolonged exposure to an individual user's behavior.

This is not wholly dissimilar from the recursive human processes of matching and categorization, but there are some significant differences. If we return to the example of recommending a book to a friend, this procedure begins by first establishing categories of interest to the friend, cycling through familiar titles that fit within those categories, and making recommendations based on knowledge of both the friend and popular fiction. The matching-categorization-matching process engaged in by IRM sites is like receiving a suggestion from the passenger seated next to us on a plane or a professional acquaintance or anyone with whom we have a finite, situated relationship. There is a qualitative difference between the act of receiving a reading recommendation from a close friend and from someone we've just met. No matter how much information users provide or how much time they spend on the site, all categorizing and matching of users in IRM is based exclusively on what happens there. This is a particular context that requires identification with a particular role, the single subject. This context only butts up against other user identities—a single parent, a biking enthusiast, or a devout Catholic, for example—but the site does not adequately account for them. It can match users who have children living at home with other
users who are interested in (or not opposed to) meeting parents, but it cannot account for all
the joys, anxieties, and energies that come with the role of single parent. I am reminded of a
scene from the 1992 Cameron Crowe film *Singles*. After joining a dating service, a woman
arranges a date with an avid cyclist. She embarks on a journey to meet him, on her new bike
and decked out in new biking gear. After it becomes clear that there has been a
miscommunication about the meeting location, she learns that he has received her address
from the service and will meet her at her apartment. She arrives home, wearing bright pink
spandex, to find her potential love interest dressed casually in jeans and a worn leather jacket
and making popcorn with her roommate. Her expectations for this man, and the service's
restrictive framing of him, are the result of the reliance on a narrow data set that is limited to
information made available in the dating space.

In addition, the relationship between the site and its users is isolated in time, both in
terms of how long they spend there and where in users' histories their participation with the
site falls. While a user's past experiences will no doubt influence how he interacts with the
site, they are not present on the site per se. No matter how forthcoming we are with the
stranger seated next to us, she cannot know our tastes, interests, and history as well as our
oldest friend. Likewise, no matter how much information an IRM site gathers, it cannot
account for a user's entire romantic history. Even sites that rely on personality profiling do so
based on specific ideologies that only capture a particular part of user identity. Just as a skin
biopsy may be used to check for skin but not breast cancer, a personality test can only be
used to match based on the dimensions it accounts for. This is the paradox of IRM. These
matching technologies offer great flexibility, but they operate under a limited, relatively
fixed, quantifiable understanding of both identity generally and individual users specifically.

However, in the end, the effectiveness/ability of IRM to predict "real" compatibility is
irrelevant. What is important is that, through a variety of persuasive processes and ideologies,
IRM sites are able to motivate individual participation. Identity is modulated into
categorizations that are used for matching procedures. Singles are transformed into users.
They are objectified, converted into units stored in databases, analyzed, and reconfigured as a
*match*, the product of an algorithmic calculation. It is not until individuals pass from the risky
condition of singlehood to the (re)productive (married) couple that they are reconstituted as
subjects on the site. They move from the object position of the profile (product) page to the
subject position of the couple narrative.
CHAPTER FOUR: DISCOURSES OF SUCCESS, BIOPOWER, & CONTROL

In the two previous chapters, we examined romantic matchmaking on the level of network by situating it as part of the marriage assemblage and on the level of form through in-depth analysis of computational processes, logics, and cultural assumptions that enable the functionality of three internet romantic matchmaking (IRM) sites. We will now turn our attention to the level of power in order to understand matching technologies in terms of their relationship to subjectivity and knowledge production. In the third chapter of Protocol, Galloway discusses protocol in "its political sense, [as] a pseudo-ideological force that has influence over real human lives" (Protocol 81). He argues that protocol is strongly related to Deleuze's control, a new regime of power that relies on information technologies to observe and manage people’s movements, and Foucault's idea of biopolitics, or the use of quantified data for the management of population. One example Galloway provides that is especially meaningful here is collaborative filtering's use of "powerful algorithms to determine and at the same time reflect the identity of the user" (Protocol 114).

Collaborative filtering is therefore an extreme example of the protocological organization of real human people. Personal identity is formed only on certain hegemonic patterns. In this massive algorithmic collaboration, the user is always suggested to be like someone else, who, in order for the system to work, is already like the user to begin with! Collaborative filtering is a synchronic logic injected into a social relation. That is to say, like the broad definition of protocol I use, collaborative
filtering is a set of rules based on a pool of user dispositions that affects each member of the pool. (*Protocol* 114-15)

In a short piece published in *Theory, Culture & Society* as a part of its New Encyclopaedia Project, Galloway further underscores the importance of algorithms and collaborative filtering. His entry, "Protocol," was published in the project’s first volume ("Problematizing Global Knowledge"), which focused on concepts and issues (e.g., "Culture," "Language," "Public Sphere") important to the construction of knowledge in a contemporary global context. In addition to providing a history of protocol and discussing briefly the relationship between distributed networks and control, Galloway offers a list of important issues that must be taken into account for future research in computer/network studies. Most notable is "the de-politicization of the algorithm" ("Protocol" 319). Galloway notes that the algorithm has received little critical attention and that its operation has been viewed generally as a matter of usefulness and efficiency. He asserts, "We need a viable critique of collaborative filtering. … An examination of the de-politicization of algorithms will help" ("Protocol" 320). Although not all matching technologies rely on collaborative filtering, they do all use complex algorithmic calculations to match users with other users, consumer goods, or information.

The use of computational logics is especially important in IRM because they are implicated in one of society's most fundamental institutions, marriage. As we saw in Chapter Two, how we define marriage is culturally determined. With increasing rates of cohabitation, later age of first marriage for both men and women, and the continuing debate around same-sex marriage, we are experiencing a destabilization—and accompanying attempts at greater
codification—of the institution of marriage. Under such conditions, control over any piece of people's perception of marriage is increasingly significant, and IRM is uniquely situated to impact how people establish romantic unions and evaluate their success. Despite some outliers (e.g., Ashley Madison, which facilitates extramarital affairs), marriage seems to remain the sanctioned form of union for IRM. In fact, most sites mark success with the number of marriages they make possible, and popular press coverage (with notable exceptions such as Nick Paumgarten's critique published in The New Yorker) constructs a consistent, positive narrative. Although stories may have different "angles" (e.g., reporting new enrollment statistics, covering the launch of a new site), most articles included the success story of single people who met through the service. Understanding how site users define IRM success in publicized narratives will help us to understand better the relationship among IRM and current political and economic conditions and contemporary marriage.

**Power, Knowledge, and Discourse**

As we discussed in Chapter Two, disciplinarity functions at the level of the individual, managing *docile bodies* through mechanisms of constant surveillance, confinement, and regulation; governmentality functions at the level of population, managing masses through statistical data. According to Foucault, just as sovereignty wasn't completely displaced by disciplinarity, the emergence of governmentality in the last half of the eighteenth century does not mean the end of discipline.
This technology [of governmentality] does not exclude the former, does not exclude disciplinary technology, but it does dovetail into it, integrate it, modify it to some extent, and above all, use it by sort of infiltrating it, embedding itself in existing disciplinary techniques. This new technique does not simply do away with disciplinary technique, because it exists at a different level, on a different scale, and because it has a different bearing area, and makes use of very different instruments. (Society 242)

Indeed, sovereign, disciplinary, and governmental regimes of power circulate in contemporary society. The concept of right, so important to sovereignty, reinforces the relationship between nation-states, citizens, corporate interests, and the law, even today. Many of the most contentious national debates are fought where the rights of the state collide with the rights of individuals. Take, for example, the use of backscatter x-rays by airport security. Which is more important, individuals' right to privacy and control over images of their bodies or the state's right to minimize threats to flight security? At the site of the potential threat, the airport security line, a disciplinary power is exerted at the level of the individual body as passengers pass through the x-ray machines. Invisibly, a governmental power has analyzed millions of pieces of passenger data in order to identify potential threats through algorithmic calculation.

Governmentality works through techniques of biopolitics. In Galloway's estimation, biopolitics and biopower are protocological; they are "Foucault's terms for the statistical coding, the making statistical, of large living masses, such that any singular life-form within
that mass may be compared in its organic nature to the totality" (*Protocol* 87, emphasis original). Foucault first examines biopower in *The History of Sexuality, Vol. 1: An Introduction* (*HoS*). In *HoS*, Foucault frames the historical formation of sexuality as an apparatus of control. He notes that for the ancient Greeks, sex served as a mechanism for teaching and learning: "In Greece, truth and sex were linked, in a form of pedagogy, by the transmission of a precious knowledge from one body to another; sex served as a medium for initiations into learning" (*History* 61). Since that point, sex has shifted in the West from a means of knowledge production to a "problem of truth" (*History* 56), and by the seventeenth century, the confession had become a way of managing it.

While discussion of sex had long been an expected component of confession, the degree of detail and scope of content shifted during the Counter Reformation. Parishioners had long been advised to discuss sins in great detail, including comprehensive description of the sex act. Within the Counter Reformation's increased attention to self-examination and penance, the focus on confessions of the flesh moved from detailed description of sexual acts to thorough cataloging all sex-related transgressions, including dreams and impure thoughts. Moreover, talk of sex became a concern of public interest.

Toward the beginning of the eighteenth century, there emerged a political, economic, and technical incitement to talk about sex. And not so much in the form of a general theory of sexuality as in the form of analysis, stocktaking, classification, and specification, of quantitative or causal studies. … [O]ne had to speak of [sex] as a thing to be not simply condemned or tolerated but managed, inserted into systems of
utility, regulated for the greater good of all, made to function according to an optimum. Sex was not something one simply judged; it was a thing one administered. (History 24)

It is during this time that the population emerges as "an economic and political problem," and the government's concern shifts from a management of subjects as individual people to the management of population "with its specific phenomena and variables: birth and death rates, life expectancy, fertility, state of health, frequency of illnesses, patterns of diet and habitation" (Foucault History). It is at this point that a new kind of power develops, a schema … focused on the species body, the body imbued with the mechanics of life and serving as the basis of the biological processes: propagation, birth and mortality, the level of health, life expectancy and longevity, with all the conditions that can cause these to vary. Their supervision was effect ed through an entire series of interventions and regulatory controls: biopolitics of the population. (History 139, emphasis original)

This new biopolitical power of governmentality worked alongside discipline, the earlier form of power over life.

During the eighteenth century, disciplinary power manifested in institutions such as the military, schools and educational systems, apprenticeship programs, and marriage and family. Governmental power develops through the use of demographics, management of resources, and analysis of wealth distribution and movement. Significantly, these two forms
of power coalesce to "make up the great technology of power in the nineteenth century: the deployment of sexuality would be one of them, and one of the most important" (History 140). During the same period, marriage experienced some of its most significant transformations in the West. As Stephanie Coontz notes in Marriage: A History, it was not until the eighteenth century that marrying for love, what she calls the love match, became the ideal.

Until the late eighteenth century, most societies around the world saw marriage as too vital an economic and political institution to be left up to the free choice of the two individuals involved, especially if they were going to base their decision on something as unreasoning and transitory as love. (Coontz)

By the Victorian era, "marriage harbored all the hopes of romantic love, intimacy, personal fulfillment, and mutual happiness" (178). In addition to narrowing the center of marriage—from the extended family to the married couple—the growing prominence of the love match also brought calls for more liberal divorce laws in Europe and North America (Coontz 180). It is not surprising, then, that new apparatuses for managing procreative relationships emerged.

In the contemporary United States, we see similar struggles as marriage and birth rates fall. As a part of its Social and Demographic Trends series, the Pew Research Center reports that in 2010 just over half of Americans over the age of eighteen were married, a decline of twenty percent since 1960. In addition, the median age of first marriage has risen to 26.5 for women and 28.7 for men (Cohn). According to the Centers for Disease Control
and Prevention, both the registered births and general fertility rate (GFR) decreased in 2010. Furthermore, the GFR of 64.1 births per 1000 women aged 15-44 reached its lowest point since the late 1990s (Hamilton, Martin and Ventura 2). Given such trends, it is not surprising that new attempts to facilitate and manage procreative relationships, such as legislative proposals and corporate enterprises, have increased.

One biopower response to this problem of population is political. With developments such as the rise of the Tea Party movement in the Republican party, we have seen increasing attention paid to governmental intervention into citizens' everyday lives. For example, according to her House of Representatives website, Michele Bachmann, one-time candidate for the Republican presidential nomination and founder of the House's Tea Party Caucus, almost exclusively supports efforts to limit the powers of the federal government, including reducing federal taxes, eliminating the Department of Education, cutting energy regulation, and defunding the healthcare reform law. There are two significant exceptions that relate directly to the management of life. First, Bachmann, a member of the Pro-Life Caucus, introduced the Heartbeat Informed Consent Act to the House, legislation requiring doctors to "make the heartbeat of an unborn child visible and audible to its mother" prior to receiving consent to perform an abortion (Bachmann "Life"). Second, Bachmann is an original co-sponsor of H. J. Res. 45, legislation supporting a Constitutional amendment defining marriage as the union of a man and a woman (Bachmann "Family Values"). Bachmann's position on these two issues is consistent with views espoused by other Tea Party members
of Congress, such as Idaho freshman Representative Raul Labrador, and other candidates for the 2012 Republican presidential nomination, such as social conservative Rick Santorum.

These paradoxical stances—against abortion rights and same-sex marriage rights—are interventions by the state that are directly related to the management of life. Imposing limitations on how women maintain their reproductive health—the aforementioned proposed legislation but also resolutions that would require transvaginal ultrasounds prior to an abortion or allow employers to deny prescription coverage of birth control—appears to be less about preserving the sanctity of life and more about privileging procreation as the sacred act. Even if we bracket issues related to preserving life from the rest of her political platform, Bachmann seeks to defund the recent healthcare reform law, which is connected to life expectancy and quality of life. On this issue she comes down on the side of "competition and individual choice," criticizing the current law as "mandates and heavier tax burdens" ("Health Care Reform").

In the case of same-sex marriage, the inability to procreate is the only qualitative difference between gay and lesbian matrimony and the heterosexual ideal. Denying these couples access to marriage—and to all of the legal rights that go along with it—seems to hinge, then, on the fact that they cannot create life. As we saw in Chapter Three, certain populations are identified/constructed as dangerous. We are not concerned with what is fair when making decisions about women's reproductive rights or same-sex couples' marital legitimacy. Rather, we are concerned with reforming dangerous subjects. For example, when arguing to limit access to abortion, women who choose not to carry a pregnancy to term are
generally imagined to be sexually promiscuous and irresponsible. Rarely do we consider victims of spousal rape or women (or couples) who determine that they are not equipped to raise a special-needs child. Without abortion and birth control, the argument goes, sex would be reformed as a procreative act between the married (heterosexual) couple.

**Discourses of Success**

As we discussed earlier, romantic matchmaking has generally been intended to facilitate marriages. First, leaders from nomadic bands that traveled similar territories would arrange marriages between members of their groups in order to encourage resource sharing and cooperation. Once we settled down, marriage became a way to consolidate land ownership, wealth, and power. With religious, political, economic, and technological change, marriage changed as well. In prior articulations of the marriage assemblage, the terms of matching success were fairly obvious. A successful match was one that ended in an advantageous marriage for those on both sides of the aisle. The definition of *advantageous* has never been static, but it has generally meant that both families would profit from the union—again, by consolidating wealth, land, resources, power, access, etc. These advantageous matches were situated within a complex family history, impacted by the unions preceding them and impacting those that would follow. In such a context, matchmaking would function diachronically, taking into account prior marriages and current familial needs as well as anticipating future requirements and obligations.
In contemporary culture, when the couple is the center of married life, when parents and in-laws have been pushed to the margins, when the expectation is that unmarried people make their own choices in marriage partners, romantic matchmaking relies primarily—as Galloway writes of collaborative filtering—on synchronic logic. People began to marry for different reasons, and the activity of romantic matchmaking changed; however, its fundamental purpose did not. In other words, as discussed in Chapter Two, parents no longer held primary responsibility for initiating the matchmaking process. Marriageable individuals were allowed authority over their own matches and began establishing their own relationships with matchmakers. Technological developments also allowed for mediated matchmaking through the use of classified advertising, for example. These new opportunities have been both lauded and condemned at different times for their subversive potential, and they have facilitated taboo (e.g., sexual liaisons, swinging) or restricted (e.g., same-sex relationships) connections as well as traditional relationships leading to marriage.

Those problematic alternative matches, as well as the emergence of the love match, have been a source of anxiety since the beginning of the new view of marriage. Coontz notes, From the moment of its inception, this revolutionary new marriage already showed signs of the instability that was to plague it at the end of the twentieth century. As soon as the idea that love should be the central reason for marriage, and companionship its basic goal, was first raised, observers of the day warned that the same values that increased people's satisfaction with marriage as a relationship had an inherent tendency to undermine the stability of marriage as an institution. The very
features that offered to make marriage such a unique and treasured personal relationship opened the way for it to become an optional and fragile one. (Coontz 5)

Today, when the question could be not only when or whom to marry but also whether to marry, the increasing prominence of IRM requires our attention. Although site success could be defined in a variety of ways based on the stated and revealed preferences of users—relationship satisfaction (regardless of marital status), length of relationships established, number of dates facilitated, percentage of dates that lead to sexual intercourse—most sites and popular-press coverage of the industry define success as marriage. In order to understand the importance of IRM, and to grasp its role in attempts to re-stabilize the institutions of marriage and family, we will return to the three IRM sites—eHarmony.com, Match.com, and OKCupid.com—examined in Chapter Three.

As discussed earlier, the confession held an important position in the historical formation of sexuality. And just as we see a transition in the role of marriage in everyday life, so has the role of confession changed across time. In HoS, Foucault argues that the confession is significant not only to the church but also to broader knowledge production in the West. He notes that through most of history, individuals were understood in terms of their associations, a phenomenon we discussed at length in our examination of marriage and romantic matchmaking in Chapter Two. People were first judged in terms of their bloodlines, political alliances, and kinship. As conditions changed, people were validated as individuals, and the "truthful confession was inscribed at the heart of procedures of individualization by power" (History 58-59). Today, confession is pervasive. As Foucault points out, "It plays a
part in justice, medicine, education, family relationships, and love relations, in the most ordinary affairs of everyday life, and in the most solemn rites" (*History* 59). We see it in the high-profile confessions of indiscretions by political and religious leaders, the rise of the literary genre of the memoir, over-sharing on social networking sites, and the proliferation of reality television programming and documentary-style sitcoms in which characters break the fourth wall.

This pervasiveness impacts subjectivity and subjection. According to Foucault, confession includes a power dynamic that assumes an audience, whether present or not, that compels the confession and acts as its evaluator. In addition, the truth that develops through the confession is confirmed by that which it must overcome in order to be expressed. Finally, it is through this very expression that the confessor is transformed. Through this ritual, those who confess take on the double position of the subject, as both the confessing subject (the *I* of the confession) and the subject of power who is constituted by it. The very act of participating in IRM is confessional in nature. Users share information with multiple audiences in an attempt at overcoming their "risky" single status and being transformed into one half of a happy couple. The ultimate confessional and transformative act on the IRM site, therefore, is the success story. IRM success stories are narratives describing the experiences of couples who have met through a site. In another context, these first-person accounts might be called customer testimonials. They are, after all, recommendations for a service provided by satisfied patrons. There are two primary reasons I will consider the success story as a confession rather than a testimonial. The first reason is that, as we established in our
discussion in Chapter One, recommending is an act of epideictic rhetoric in which the recommender praises the recommended. However, IRM success stories also include the elements of confession discussed previously. They address a dual audience—both the site and its representative and singles seeking partners—that is both spatially and temporally distant. In addition, just as sinners reach absolution through cataloging their transgressions and repenting, couples reach the status of success by detailing their journey. Finally, the assumption of the label of "successful relationship" transforms the individuals into the success couple, regardless of the realities of their day-to-day lives.

The second reason is that transformation. A satisfied customer is not necessarily transformed. As discussed earlier, site success could be based on various criteria (e.g., number of dates facilitated). At least one woman, Jessica Sporty,\textsuperscript{17} admits to using Match.com to arrange dates for the purpose of receiving free meals and cocktails, and she was able to garner twelve hundred dollars' worth of meals and drinks monthly (Scinto). While the endeavor of having her lifestyle subsidized by potential suitors could be labeled a success, it is far more likely that Sporty would call herself a satisfied customer. Indeed, she eventually withdrew from the site, calling the process "exhausting" (quoted in Scinto). As we will see in the discussion that follows, IRM success stories seem much more in line with the complex work of constructing subjects and stabilizing our understanding of relationship success than the endorsement of a matchmaking service.

\textsuperscript{17} After numerous negative comments on the online article, BusinessInsider.com disabled commenting and Jessica Sporty was addressed by a pseudonym, Minerva McDonagall. Articles on other sites (e.g., Jezebel) still refer to Sporty using her real name.
All three of the IRM sites examined in Chapter Three include user-generated success stories. On eHarmony (EH), they are located on the public portion of the site, and visitors may read them without registering with the service. This subsection of the site, labeled "Single," also contains a site tour and information on EH's personality profiling, matching technique, and user communication procedures that are designed to convert visitors to users. Match.com's (Match) success stories are located on a "success@match" page. Site visitors can browse stories there, or read weekly "Featured Success Couple" posts on the Match blog. OKCupid.com's (OKC) success stories are featured less prominently on a sub-page of its "About" section. I examined one third of the success stories available on EH and OKC, ninety-seven entries in the case of the former and forty three for the latter. Since Match's stories are not searchable, I reviewed all of the fifty-three "Featured Success Couple" posts on Up to Date, the company's blog.\(^1\)

As mentioned previously, EH includes success stories in a pre-login section of the site. The user-submitted stories are organized into thirteen categories, and a couple's narrative may appear in more than one. Most of the categories seem designed to anticipate objections a visitor might have to joining the site in order to offer them the opportunity to read about successful users who were in similar situations or once had similar concerns. So, for example, older users or parents might choose to click the 50+ or Singles with Children links. Discouraged singles might find the Nearly Gave Up accounts persuasive, and those living in areas where they are unlikely to encounter people they don't already know might be drawn

\(^{1}\) All searches were conducted in early October 2011.
to the *Long Distance* page. Although some of the content of stories might be different based on the section they're located in—those in the *Singles with Children* section usually reference the challenges of balancing dating with parenting, and *Long Distance* tales often reference the unexpected advantages of starting a relationship with someone who lives far away—the structure and content of EH success stories are remarkably similar across categories.

**Figure 18: eHarmony success story**

The length of the couple profiles varies from a short paragraph to approaching eight hundred words. Most, however, are similar in length to the example in Figure 18, which is in the range of three-hundred words. Since the stories are submitted by users, they are usually written as first-person accounts. Rarely users will choose to tell their stories in third person, but that is not the expectation. In addition, most are written by one member of the couple, usually the woman. EH's success story page elements present the most traditional view of
success. As the figure shows, each page includes a picture of the couple, their first names, their location, their status, and the date of their union.

Although there are thirteen categories of stories, there are only three potential statuses for EH success couples: married, engaged, and matched. The site does not preclude users from posting other kinds of success stories, however. The invitation to share their experiences reads, "If you met someone wonderful through eHarmony, we'd love to hear your news," and the gallery of images of success couples is labeled "eHarmony Dating Success Stories." While undoubtedly many EH matches culminate in co-habitation or pleasant, long-term relationships that do not ultimately end in marriage, those relationship formations do not seem to be coded as "successes" by users. Of the narratives reviewed, only one had a status of matched. Much like the account setup and Guided Communication processes discussed in Chapter Three, including a relationship status and date for every success story conveys a sense of certainty. There is no ambiguity about their relationship. The photographs posted by users underscore this. Like the example in Figure 18, all but two of the photographs show the happy couple touching—either holding hands (as pictured), arms around waists, or faces cheek to cheek. Many of the entries feature professional-quality wedding or engagement portraits; few use candid photographs or snapshots. The couple is almost always smiling.
Match's success stories are displayed on a subsection of the site called "success@match" and on the company's blog. Unlike eHarmony and OKC, and despite the label used by the site, Match's success stories cannot be browsed easily. In other words, although visitors may click a link to browse stories, what they are actually doing is searching them (see Figure 19), a practice that models visitors' future experiences if they become Match members. Users may search success stories by location, keyword, and category. The ten categories include some (e.g., 50+) used by EH, but they also allow visitors to search for success stories of same-sex couples (Gay, Lesbian) and those who have chosen relationships other than marriage (In a Relationship). Like the couple profiles on EH, the profiles posted on the Match blog also vary in length, but they tend to be longer rather than shorter. They are also almost exclusively written in first person, and all are written by a member of the couple.

Figure 19: success@match
The success stories posted on the Match blog include the couple's first names and a photograph, but they are not formatted to include relationship status, though the posts do frequently discuss proposals and marriages. This absence of relationship status reflects the site's ideology. Just as the kinds of relationships represented on Match are more varied than with EH, so are the photographs included in them. As with EH, nearly all photographs include the couple touching—holding hands, embracing or kissing, pressing faces cheek to cheek. Whereas EH users tend to share formal portraits or professional-quality photographs, Match blog posts are more likely to include snapshots, as in Figure 20. Many show the couple in social environments—sports stadiums, restaurants, parties, cultural landmarks.
OKCupid shares a few things in common with eHarmony and Match but diverges in many ways as well. Of the three sites examined, OKC's success stories are the most difficult to find. They are located in the site's About section, but they are not linked either from the home page or the section's landing page. The success stories are divided into six categories, and a story can be tagged with more than one classification. These categories are broad: Long Distance Love, Second Chances, Almost Gave Up, Blinded with Science, Weddings, and OKBabies. OKC success story page elements include the couple's first names, a title, and images of the couple. Couples may choose to include more than one photograph, and viewers may click the image currently displayed to move to the next one. Success stories on OKC are the least likely to include formal portraiture or professional-quality photography. Indeed,

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19 The success stories are a recent addition, probably a result of OKC's purchase by Match.
many stories include quirky snapshots, and the profile example in Figure 21 includes both the image displayed with the couple in a carnival cutout and a photograph of them in Halloween costumes.

In conjunction with the confessional elements mentioned previously, there are three components that success stories on all three IRM sites generally share: discussion of the type of relationship, explanation of the reasons for engaging in IRM, and description of the first date. Additionally, success stories focus on other factors, such as describing the proposal or wedding, that are indicative of the particular relationship formations privileged by the site.

EH, Match, and OKC success stories generally reveal the couple's relationship type. As discussed earlier, all EH success stories are labeled with the couple's status (engaged, married, or matched). The stories on this site portray the most "traditional" view of marriage. Of the stories I reviewed, only one couple was not either married or engaged; their status was listed as matched. As discussed in the previous chapter, EH is the most marriage-focused of the sites. Marriage is the primary concern of all aspects of the site, of its marketing, and of the books authored by its founder. In addition, EH focuses exclusively on opposite-sex matching, and therefore all of its members have access to federally recognized marriage. Likewise, OKC couples discuss their relationship status. However, the variety of relationship types discussed in OKC success stories is unparalleled by the other two sites. The OKC sample included a number of gay and lesbian relationship successes, and one post from a

\[\text{20}\text{The company does provide same-sex matching services, but that matching is performed on a separate site, CompatiblePartners.net.}\]
bisexual woman who initially joined the site in hopes of meeting a woman but ended up in a relationship with a man. The site offers activities other than romantic matchmaking—such as quizzes, multi-player games, journals, and discussion forums. As a result, other relationship formations are possible, and the portrayals reviewed included a friendship success story. Of all the sites examined, Match's success stories are the least likely to explicitly state the relationship status of the couple, and over a quarter of the success stories featured on the site's blog do not include the relationship status of the couple. This is consistent with the idea that Match lies somewhere between eHarmony and OKC. The relationship expectations are a bit more flexible than EH—Match, for example, offers same-sex dating—but are not as open as OKC, which welcomes users who are bisexual or polyamorous as well as those who are only interested in taking quizzes or playing games. Still, regardless of the relationship type, naming it as such is integral to the transformation into a successful union, and that is perhaps why other varieties of site success (e.g., finding numerous sexual partners) do not make their way onto the success story pages.

The second trait success stories shared across the sites is a reference to why the author either chose to join the specific site or to use IRM generally. On EH, these references are all usually related either to a hectic schedule or distaste for conventional means (e.g., bars, parties) of meeting potential partners. Specifically, many users are single parents who mention the difficulty of balancing those responsibilities with social activities. EH success couples also discuss how their friends or family encouraged them to participate. In fact, EH allows gift subscriptions and includes a category, *Gift of Love*, dedicated to success stories
that resulted from someone else, usually a family member, purchasing the subscription for half of the couple. Interestingly, however, few people talk about how much time it takes to engage in IRM. Like EH, many Match success story authors explain why they tried IRM. Usually they mention how busy they are ("my work schedule often kept me from going out and meeting people") or how a friend's success inspired them ("I owe my newfound happiness to my best friend and her involvement with Match.com"). When OKC users comment on why they joined, they usually refer to the site's non-dating components, such as "I'd only ever used the site to take tests and make a couple of long distance friends" or "I barely had a profile and was mainly on the site for the quizzes [sic]." Providing the reasons for joining the site helps to contextualize the journey from singlehood to relationship success.

The third trait shared by the three IRM sites is a discussion of the first date. This detailing of the relationship journey is the ritual through which the ideology of success is articulated. Most eHarmony success stories discuss the first date, frequently in great detail. Here's an example from Jeannette and Daniel, who were married on February 15, 2007:

Our first date was incredible. We spent that night talking over dinner from appetizers, to main course, to dessert, to coffee, and more coffee. The connection we had felt through emails, and on the phone, was now even more intense. Daniel was attentive and engaging. I also remember him gently holding my hand on the way back to the car, and the sweet kiss on my cheek at the end of the night. We continued dating and both quickly agreed to withdraw our profiles from eHarmony.
Those accounts frequently end like this one, with a declaration of relationship status change that includes removing profiles or ending subscriptions. Match success couples also discuss their first dates, though generally not in such detail. They primarily recount the logistics of the date. For example, Nicole and Stephen's first date is recounted point by point in two sentences:

A week later we had our first date at a local restaurant, followed by a movie, and a two hour conversation near a fountain. The agreed short dinner turned into a six hour date.

OKC first dates are depicted similarly, but sometimes include references to sexual contact, such as this excerpt from Janice and Raymond's success story:

Our first date was on Presidents' Day. We went to see Juno and he kissed me during the credits, out of no where, and when we went out side he had my cheap red lipstick all over his face. We laughed an awesome belly-laugh and went to Starbucks.

The first date descriptions from EH, Match, and OKC success stories are suggestive of each site's ideological perspective. Success stories also include at least one distinct characteristic that sets them apart from the other sites. For eHarmony, it is a discussion of the proposal and/or wedding, for Match the communication process, for OKC sexual contact. In addition, each site's success stories share a tone that is representative of ideologies that undergird it.
Almost every eHarmony profile examined talks about the proposal, the wedding, or both. Here's the description of Daniel proposing to Jeanette (and a brief mention of their wedding):

Through this all, I knew that Daniel and I were kindred spirits. Then one evening in August 2006, Daniel took me to the same restaurant he had taken me on our first date. Daniel recreated that first night together, food and all. It was even a more magical moment then [sic] the first, ending with a marriage proposal! After a, “Yes of course I will marry you”, [sic] we came home and celebrated with our children. We were married on February 15, 2007 in a small ceremony with our closet [sic] friends and family.

These descriptions, coupled with the account of the first date, create a trajectory, a feeling of logical progression from match to first date to engagement to marriage, a kind of fairy-tale narrative with a happy ending. Although most IRM sites make claims about the relationships they have facilitated—EH, for example, claims that five percent of US marriages resulted from its matchmaking—that doesn't convey the reality of most users' experiences. It does, however, create an ideal or model for unmarried people. Everybody's doing it (getting married, it seems), and so can you.

The tone of eHarmony's success stories conveys an energy and earnestness that is representative of the belief systems endorsed by the site. Some, such as Jenny and Scott's, even mention founder Neil Clark Warren by name:
Thanks Dr. Warren for providing two people with a "harmony" of values and beliefs. We feel like we are well-positioned for a healthy, successful marriage!

Success couples focus on the value of the service offered by the site and their appreciation for it, and this gratitude is symptomatic of the tone of eHarmony success stories and the site more generally.

Unlike eHarmony, Match has an open and fluid communication process. Subscribers to the site may contact any other users they find intriguing, and all users may send a "wink," an expression of interest similar to Facebook's "poke" option. Perhaps because of this flexibility, Match users are far more likely to describe communicating on the site prior to meeting in person. For example, here's a snippet from Nicole and Stephen's success story.

He winked at me, and I being shy, winked back. Then he sent me a message. We talked through Match.com for a few weeks before we exchanged another method of contact.

Often these stories even include days of the week or dates of communication, such as this example from Shannon and Beecher:

Beecher signed up for match.com on Sunday Nov. 29 I signed up on Monday Nov. 30 and he showed up on my daily 5 on Tuesday December 1. Friday Dec. 18 he emailed me…3 times in an hour.

Perhaps these descriptions are intended to be instructive for potential members. Since Match is the least structured of the three sites, there is no presumption that all users proceed through
the same communication process on Match. Authors may either be offering models for communicating with matches or reassurance that perseverance through multiple contacts can lead to a successful relationship, and by doing so they are acknowledging half of the dual audience addressed by their discourse. Whatever the case, this cataloging of communication activities, much like the point-by-point detailing of first-date activities, creates the impression of momentum seen in EH's proposal and wedding narratives. Although Match may foreground dating in a way that EH does not, Match's most recent advertising campaign features current subscribers on first dates, it still emphasizes its ability to lead to long-term relationships. Each of the current spots includes voiceover such as the following:

We know every relationship begins with a first date. And while not all first dates lead somewhere, some lead everywhere. At Match.com, we focus on getting you started, and even though we can't tell you where it will end up, Match.com first dates have led to more relationships and more marriages than any other dating site. Join today.

There is a subtle difference between a site's framing itself as a place to find a marriage partner (EH) and positioning itself as a means for finding a relationship that could lead to marriage (Match). The former may seem like skipping the dating step, but in fact it replicates practices in prior marriage assemblages, when parents arranged marriages. As the success stories above demonstrate, Match's successful couples take a tone that mirrors Match's current marketing campaign, emphasizing the process of dating. In addition, since Match is the IRM site most like ecommerce sites that users are accustomed to interacting with, it is not surprising that users would tell their stories in a less effusive tone.
OKC users are more likely to mention sexual contact in their success stories. Portrayals on other sites rarely discuss physical contact, and when they do, it's a hug or, as we saw with Jeannette and Daniel, a "sweet kiss on the cheek." OKC users, on the other hand, frequently describe sexual contact. Janice and Raymond's success story not only includes an account of their first kiss but also a description of a prolonged one:

On December 28th, 2008 he returned from visiting his parents up north and his father came back with him. There was no place for us to be alone. We searched college campuses and local parks, but everywhere was too crowded. So we settled for my parents' backyard porch-swing, and we kissed till we were out of breath.

In addition, Judy and Paul's success story appears to allude to sexual intercourse on the first date:

So we talked, email then phone, then met 2 weeks later. It was a hug, kiss & then back to my apt. I am not usually like that but it was right & we knew.

These expressions of sexual contact set OKC apart from eHarmony and Match. That is not to say that members of those sites do not use them to facilitate sexual encounters. No doubt some, perhaps many, do. However, that is a hidden, unsanctioned use of the site. OKC is different. As Paumgarten notes, "It is not OK Cupid's concern whether [two users] are suited for a lifetime together" (Paumgarten). In addition, casual sex is among the preferred relationship types users may select when they register. Still, the majority of success stories reviewed did portray marriages and engagements.
As with EH and Match, the tone of OKC success stories fits with the general tenor of the site. OKC posts largely maintain a casual, often sarcastic, tone. Here's an excerpt from Lauren and Scott's:

Once upon a time... okay, let's cut that shit now. It's not how we roll. We are much more cool and crass than that and apparently you guys down at OkCupid already knew that about us and figured we'd be a really cute, callous and sarcastic couple. … It all started with a woo on the 26th of July, the summer of '07. It had been a really fun summer but I then decided I wanted to throw a cute boy into the mix which is why when this mohawked, dorkwad, cutiepie woo'ed me I messaged back.

Many successful OKC couples self-identify as outsiders. They describe themselves as nerds, jerks, dorks. Just as mention of sexual interaction in success stories resonates with the way the site presents itself, so does the tone of its success stories.

Clearly IRM success stories perform work beyond recommending a particular site to potential customers. It should not be surprising that, although EH, Match, and OKC differ both in terms of how they interact with their users and how they position themselves in the larger culture, users of all three sites define success similarly. The tone and content of the sites and their success stories vary, but for the majority of stories examined marriage is synonymous with success. Sixty-four percent of Match's, fifty-five percent of OKC's, and all but one of EH's success stories were for engaged or married couples. As we saw in our discussion of the condition of automation in Chapter Two, IRM develops as part of a
marriage assemblage that includes mobile privatization. This paradoxically mobile and home-based configuration, in addition to the changing status of women, developments in birth control and fertility, and a growing concern for civil and human rights, necessitates new ways of managing unmarried adults. Much of that management has taken the form of voluntary participation in IRM and the perpetuation of established formations of relationship success—i.e., the heterosexual married couple. Indeed, this need may also account for site use that does not fit the marriage-equals-success equation. Deemphasizing the marriage imperative, focusing on dating rather than marriage, allowing for alternate relationship formations, all serve to pull unmarried adults into a system that can both account for them and potentially motivate their establishment of a procreative relationship. In other words, a young single woman who joins OKC to take quizzes is simultaneously quantified into data to be studied (both by OKC and the clients who purchase data sets for social-scientific study) and marked as someone who is interested in dating services by search-engine software (e.g., Google's Ad Preferences). While engaging in activities on the site not related to dating, she may well find herself casually browsing profiles of singles, eventually contacting them online, meeting them in person, and perhaps forming romantic ties.

On the surface, understanding the computational processes that enable this matchmaking may not appear as important as examining algorithms used for security purposes or constructing a no-fly list. However, the use and proliferation of these seemingly innocuous technologies have significant consequences. In a 2010 piece published in The Atlantic, Alexis Madrigal discusses a study of race and online matchmaking conducted by
OKC and published on the site's blog, OKTrends. This research found that messages sent by white men were more likely to be returned by women, regardless of their race. Black women, in contrast, were both the most likely to respond to messages sent to them and the least likely to have theirs returned. He notes that, in systems based on compiled user behavior data, certain groups (e.g., white men, black women) could appear more or less in search results:

By drawing on data about the world we live in, they end up reinforcing whatever societal values happen to be dominant, without our even noticing. They are normativity made into code—albeit a code that we barely understand, even as it shapes ourselves. (37)

Madrigal points out that certain groups (e.g., black women) could be marginalized in systems that rely on aggregated user behavior for making recommendations. In fact, I believe they necessarily are.

As Pariser notes in *The Filter Bubble*, Facebook excludes conservative friends from his newsfeed on the site because of his progressive politics. Such homogeneity is bad for politics, but when employed in establishing procreative relationships it borders on eugenics. By depending on stated and revealed preferences of users or social-scientific research informed by religious fundamentalism, IRM privileges those groups already privileged in our culture. The OKTrends study highlighted by Madrigal found white men's messages were most likely to be returned, after all. In addition, EH has relegated its same-sex marriage matching to a second-tier domain, and Match's blog features a single success story from a
gay couple. Flexible systems like those that power IRM could foreground any number of
categories, but "hegemonic patterns" (in Galloway's terms) of race, gender, class, and sexual
orientation remain front and center in IRM. In many ways, this is the same basic logic that
has functioned throughout history, simply mediated in another way. However, in this case,
the logic functions on the level of population at which individuals don't matter. As we've
seen, key identity concepts (e.g., "maleness") are defined and represented through
categorization in IRM and other matching technologies. Regardless of how the experience
may feel for users, people are not matched with other people. They are categorized,
prioritized, and reconstituted into a new formation, the match. All the while, they are made to
feel special, as unique beings to whom customized lists of potential soul mates are delivered
on a regular, sometimes daily, basis. As such IRM doesn't just perpetuate hegemonic
patterns; it serves as a complex of techniques that help the destabilized institutions of
marriage and family remain relevant.
CHAPTER FIVE: POSTSCRIPT ON MATCHING SOCIETIES

I began my discussion with the proclamation, "Artificial Intelligence is here, but it's not what we expected." As we saw in the pages that followed, AI has permeated the corners of everyday life through seemingly innocuous technologies that rely on intricate processes of calculation and categorization to make us into matches. We saw that romantic matchmaking exists in a set of contingent social, cultural, familial, economic, and technological relationships within the marriage assemblage, and that those relationships can be described in terms of how they mediate interactions of the matcher and the matched. This contemporary moment of ubiquitous AI is a condition of automation. In the condition of automation, the primary automator of matching for romantic purposes is internet romantic matchmaking (IRM), and a complex of computational processes, logics, and cultural assumptions undergird it. IRM sites rely on persuasive procedures to build connections with users, even as they are converting them into data objects. They emerge on the other side, or so the success story goes, as (re)productive subjects. This process of modulation is a significant feature of control societies.

In "Postscript on Control Societies," Deleuze contrasts Foucault's disciplinary societies and their reliance on confinement with control societies that use "free-floating control" to govern ("Postscript" 178). In his discussion he highlights five important institutions of confinement—prison, hospital, factory, school, and family—that are threatened as control societies emerge.
We are in a generalized crisis in relation to all the environments of enclosure—prison, hospital, factory, school, family. The family is an "interior," in crisis like all other interiors—scholarly, professional, etc. The administrations in charge never cease announcing supposedly necessary reforms: to reform schools, to reform industries, hospitals, the armed forces, prisons. But everyone knows that these institutions are finished, whatever the length of their expiration periods. It's only a matter of administering their last rites and of keeping people employed until the installation of the new forces knocking at the door. These are the societies of control, which are in the process of replacing disciplinary societies. … There is no need to fear or hope, but only to look for new weapons. ("Postscript" 178)

He goes on to compare the logics that govern both disciplinary and control regimes and then to describe potential techniques of control. He notes that under control, we move from an analogic way of knowing in which we are always beginning anew to a digital one in which we are never finished. In disciplinary systems, we "went from school to barracks, from barracks to factory" ("Postscript" 179). In systems of control, the factory gives way to business, and the school becomes continuing education. Deleuze points out that we can see this most clearly in the transformation of worker wages in capitalism's transition from producing goods to selling services. Factory workers became "a body of men whose internal forces reached an equilibrium between the highest possible production and the lowest possible wages" ("Postscript" 179). Business employees are "constantly [introduced to] an inexorable rivalry presented as healthy competition, a wonderful motivation that sets
individuals against one another and sets itself up in each of them, dividing each within himself" ("Postscript" 179).

At the end of "Postscript on Control Societies," Deleuze discusses some of the early techniques put into place in control societies. He notes that prison systems had already begun to experiment with "alternatives' to custody," such as the use of electronic monitoring systems for non-violent offenders ("Postscript" 182). By the end of the twentieth century, school systems had already entered a process of "continuous assessment" and had begun establishing relationships between schools and business interests across all levels ("Postscript" 182). Hospital systems had initiated using risk assessments of populations to determine treatment of individual patients. Business systems had started to take advantage of "new ways of manipulating money, products, and men, no longer channeled through the old factory system" ("Postscript" 182). Deleuze's prescient "Postscript" previews many early adoptions of control mechanisms that have become pervasive in our contemporary culture.

Although he explicitly names the family as an *interior in crisis*, Deleuze does not return to it in the end of "Postscript." Perhaps Deleuze does not address the threats to the family—and any attendant new weapons of control—because the family in the late twentieth century was a more problematic case than the prison, the hospital, the factory, or the school.

As the oldest social institution, both in terms of human history and individual lives, the family perseveres as a tool for bodily intervention, management of individuals at a distance, and regulating populations. Unlike transitions into (and out of) other institutions in disciplinary societies, we perpetually exist in familial relations—as children, siblings,
parents. In addition, even as the realities of those relations and the way we define the term have changed across time, the concept of family has remained an important factor, both as an abstraction and as a component of everyday life. Even as economic and political systems ebb and flow, the family endures. Indeed, recent legislative edicts either permitting or prohibiting same-sex marriage are frequently cast as either saving or condemning the family. On the one hand, proponents point to same-sex marriage as important to the preservation of families. For example, Ed Murray, a Washington State Senator said of that body's January 2012 vote on the issue, "Those of us who support this legislation are not, and we should not be accused of, undermining family life or religious freedom. Marriage is how society says you are a family" (quoted in La Corte, par. 6). On the other hand, opponents see same-sex marriage as threatening the traditional family. In a speech given to diplomats at the Vatican on January 9, 2012, Pope Benedict XVI noted the importance of family in children's development: "Among these [settings], pride of place goes to the family, based on the marriage of a man and a woman. This is not a simple social convention, but rather the fundamental cell of every society. Consequently, policies which undermine the family threaten human dignity and the future of humanity itself" (Pope Benedict XVI, emphasis original). Though the place of same-sex marriage is contested, at least in religious and juridical spaces, the variety of possible familial formations has expanded to include, for example, cohabiting couples, married couples without children, single parents and their children, divorced couples who co-parent, adult children caring for parents, urban tribes. Families can be blended, biological, adopted, socially constructed.
A more flexible understanding of familial formations is designed to be inclusive. However, as the case of same-sex marriage indicates, this ancient and pervasive institution of family is in a period of decoding. While an expansive definition may indicate the sustainability of the family as a social institution, it also calls into question its continued effectiveness as a disciplinary apparatus. After all, childless heterosexual couples, cohabitating homosexual couples, and latchkey children are all potentially "dangerous" identities that may resist traditional disciplinary techniques, and anxiety over these new familial formations is only heightened.

Just as our understanding of what it means to be a family has changed, so have the conditions of the married couple. As social historian Stephanie Coontz notes, the character of heterosexual marriage has "steadily become more fair, more fulfilling, and more effective in fostering the well-being of both adults and children than ever before in history" (Coontz 301). Although Coontz's claims of fairness and fulfillment may be a bit overstated, her point that the position of women and children in the family has changed is well taken. In addition to political, economic, and technological changes that play a role in the improvements in marital relations, marriage's discretionary status permits greater flexibility. According to Coontz, marriage no longer serves as an obligatory part of a "credentialing process that people have to go through to gain adult responsibility and respectability" (276):

[Marriage] was the gateway to adulthood and respectability and the best way for people to maximize their resources and pool labor. This is no longer the case.

Marriage still allows two people to merge resources, divide tasks, and accumulate
more capital than they could as singles. But it is not the only way they can invest in their future. In fact, it's a riskier investment than it was in the past. The potential gains of getting married need to be weighed against the possibilities offered by staying single to pursue higher education or follow a better job. And the greater likelihood of eventual divorce reinforces the appeal of leaving your options open while investing in your own personal skills and experience. (276-77)

So in all of this, marriage seems to become both more *fulfilling* and more *fragile*.

Conventional discourse surrounding contemporary marriage is of an equitable, emotionally supportive relationship between two partners, and both access to and acceptance of divorce make those expectations real and urgent. As Coontz puts it, "The historical record suggests that these two seemingly contradictory changes are inextricably intertwined. Even more than love and marriage, fulfilling and fragile seem to 'go together like a horse and carriage'" (301)

There are two significant contemporary challenges for regimes of power when it comes to managing marriage and family, and this is where Deleuze had it right, both in conceiving of the family as an *environment of enclosure* threatened in control societies and in leaving it out of the institutions that had developed new techniques in relations of control. First, the family is the one institution mentioned that isn't institutionalized. That is not to say that families are unregulated, as both same-sex marriage legislation and investments in social welfare programs related to mothers and children demonstrate; however, there is no spatial institutionalization of the family. The family—unlike the school, the hospital, the factory, and the prison—does not name a spatial enclosure. The spatial enclosure of the family is the
family home, and even in disciplinary societies the family exists at a second arm's length from the surveilling eye. In fact, even programs designed to protect children from neglect, abuse, and addiction intervene only in the most extreme cases. It is considered best to keep children with their families. Second, conceiving of marriage as a risky endeavor runs counter to its position as the cornerstone of the institution of the family. In the contemporary context marriage both is and is not optional. Individuals are no longer expected to marry in order to transition into adulthood, but many of the privileges of adult romantic partnerships—such as sharing insurance benefits, filing joint taxes, making end-of-life decisions for each other—are reserved for married couples. From a legal and financial perspective, it is the best interests of couples who have access to marriage to marry. But that notion presupposes the (heterosexual) couple. As Coontz points out, other goals (e.g., educational, professional) might be more easily achieved when unencumbered by romantic ties.

The crisis of the family in control societies, it seems, is a crisis of marriage, and this is the point on which both the Washington State Senator and the Pope agree. Marriage makes the institution of the family. Not so long ago, announcing annual birthrates by unmarried females, instituting programs for young adult sex education, or publishing articles on women's difficulty of marrying after a certain age were all rhetorically effective mechanisms for perpetuating the marriage imperative. Today, converting singles to marrieds is a more challenging enterprise. Indeed, a post-marriage condition necessitates persuasive mechanisms for reconstructing the marriage trajectory, and the proliferation of IRM is one such system. As we saw in Chapters Three and Four, IRM works to preserve the marriage imperative.
During the data preparation, matching, and communication workflows, the IRM sites examined use site procedures to create confidence in their users. EHarmony uses constrained data preparation and matching processes, as well as rigidly structured user interactions, to set an expectation of reliability and trustworthiness. Match.com and OKCupid.com use flexibility across workflows to make connections with users. Though the tone and content may vary across sites, IRM success stories generally create a trajectory from match to date to relationship that contradicts both the actual experience of most IRM users and the contemporary destabilization of marriage.

If we return to the position of IRM within the marriage assemblage, we can shed light on additional challenges for the institutions of marriage and family in control societies. As we have already seen, the family works better as a disciplinary apparatus than as a mechanism of control. Before the emergence of the love match, when marriage functioned under a diachronic logic and was implicated in complex associations beyond the relationship satisfaction and romantic fulfillment of the married couple, parents, in-laws, and the community exerted primary influence over marital decisions. After the marriage, couples generally remained physically close to their extended family, often remaining in the same dwelling. In our contemporary context, marital choice operates more or less under a synchronic logic isolated spatially and temporally. Although singles undoubtedly consider their futures when making nuptial decisions (Will he be a good father? Will she be a faithful spouse? Will he take care of me when I grow old? Is she financially secure?), in most cases they hold the ultimate responsibility for deciding whom to marry. Couples are no longer
expected to share a dwelling with, or even live in the same city as, their families, further destabilizing the family as a device of control.

Declining marriage rates and delayed age of first marriage also threatened the effectiveness of marriage and family as instruments of power. Under disciplinary regimes of power, periodic marriage crises (e.g., declining marriage and/or birth rates) have been a source of anxiety. As we saw in Chapter Two, shifting economic and labor conditions in the sixteenth century led to a class of young "masterless' men and women" (Coontz 136) that caused concern for the church and state, and similar anxieties arose around increased attention to sex at the turn of the twentieth century (Coontz 215). In both instances, uneasiness is the byproduct of the decreasing confinement of individuals within the family. In the case of the former, more young people were choosing wage labor over working on farms or in others' homes or becoming apprentices and were therefore less likely to fall subject to parental control; for the latter, teenagers and young adults were freed from parental scrutiny by automobility and dating as well as working outside the home and college attendance (Coontz). Today, this spatial and temporal distancing is intensified by mobility, immigration, and globalization, and the increasing acceptance of relationship formations that are not heterosexual marriage (e.g., cohabitation by couples, regardless of sexuality), has brought about apprehension in the face of a new marriage, the effects of which we discussed earlier in this chapter and in Chapter Four.

It would seem that free-floating control, especially its modularity, should offer a fitting response to the challenges of confinement. Just as electronic-monitoring anklets serve
as a device of control for the prison, IRM helps marriage to remain relevant by pulling the contemporary "masterless" unmarried men and women into the enclosure of the marriage assemblage. Indeed, it is not insignificant that romantic matchmaking takes place on sites, as this spatial metaphor underscores the importance of confinement for the institutions of marriage and family to function as channels of power that can have significant impact on the unmarried, regardless of their intentions when engaging with IRM. For even with the use of the sites for unsanctioned activities, such as experimenting with identity formation or arranging fleeting sexual encounters, IRM participants are being constituted as marriageable individuals, quantified and managed. However, even as marriage and family "look for new weapons," control's modularity could be their undoing. As I discussed earlier, family persists, and although there may be no mold for the modern family, it is not exactly modular, either.

There is a tension between the synchronic logic of control—which presupposes a dividual subject, particles of behavior and traits that are isolated in particular (though not necessarily unreplicable) circumstances—and the diachronic logic of marriage—which relies on a unified, relatively stable subject.

One potential adaptation of contemporary matrimony is the renewable marriage contract. Proposals for such arrangements have been considered in both Mexico and the Philippines (Araullo; Leff). Mexico City, which has already legalized same-sex marriage, is also considering renewable marriage contracts. Under the proposal, couples who plan to wed would determine the length of their initial nuptial contract, with a minimum two-year commitment. At the conclusion of that period, the couple could consider the state of the
marital union and choose whether or not to renew, again for a term agreed upon by the couple (Leff). By allowing couples to reconsider their relationship throughout the length of the marriage, such a proposal of modular marriage could address the challenge of postmodern, fractured subjectivity. Rather than attempting to reverse fragmentation through rehabilitation efforts (e.g., marriage counseling) or ignoring it all together, the renewable marriage contract is consistent with it. The mere act of acknowledging the destabilized subject, not to mention accounting for it from the onset of the marriage, might even entice more hesitant adults to enter into the vulnerable institution of marriage.

**Technologies of Matching: Areas for Further Study**

Other technologies of matching address different problems of power and establish different relationships to subjects. As we have seen, for example, making reading or viewing recommendations is similar to IRM. Sites like Amazon and Netflix use comparable processes. For example, just as Match.com makes matches based on the preferences users state explicitly in their account profiles and the preferences they reveal in their behavior on the site, Netflix make suggestions to users based on both how they rate specific films or television shows and the films and television shows they choose to watch. In both cases, the sites aggregate data from millions of users in order to make mass-customized recommendations for individuals, and both provide seemingly unique user experiences that belie the massing procedures that enable them.
There are two subtle yet significant differences between IRM and most commercial applications of matching technologies. The first distinction is that IRM engages in a process of double dividuation. As we discussed in Chapter Three, IRM users take on two roles on the site: presenter (of self) and evaluator (of others). The initial account setup procedure and ongoing account management are processes of self-presentation in which users portray themselves as desirable individuals whom their matches should get to know better. Viewing profiles of site- and self-selected matches are processes of other-evaluation in which users decide whether they would like to get to know their matches better. In other words, on both sides of these processes are dividuals, people who have been translated into discrete data units. In contrast, most commercial applications of matching technologies engage in one-sided dividuation. These technologies use member data to match them with objects (products, media content, travel destinations, etc.) rather than other members.

The second distinction is that IRM sites and other technologies of matching create different subjectivities for their users. As we saw in Chapters Three and Four, IRM requires users to assume the subject position of the single subject. Both IRM and consumer matching rely on the quantification of components of identity for their ability to reconstitute individuals into new subjectivities, but the other technologies of matching call for another identity, the consumer. These matching technologies are able to deconstruct components in such specific ways that some of the most closely held identifiers (e.g., race, gender) can be filtered out entirely. While romantic matchmaking still relies heavily on categories such as race, class, gender, age, and sexual orientation for its pairings, sites like Netflix don't
consider them at all. The old joke that nobody knows you're a dog online is not only outdated but also potentially, depending on whom "nobody" refers to, wrong. Netflix knows you're a dog; it just doesn't care. The site stores identifying information, but that is not what is used for its matching. For Netflix, we are consumers, and it is much more interested in us as consumers of particular kinds movies and television shows than anything else.

Although some IRM sites, especially Match.com, rely heavily on consumption and consumer logics to make connections between users, that reliance is concealed. While much of the information gathered relates to leisure, lifestyle, and popular culture, it is matching and compatibility rather than consumption that stands front and center. And while all IRM users are necessarily both consumer and product—both in terms of evaluating others/being evaluated and serving as the inventory sold by sites—it is qualitatively different from being a consumer and a product in traditional ecommerce contexts. Simply, when shopping on Amazon or choosing what to watch on Netflix, as Match.com engineer Amarnath Thombre puts it, "The movie doesn't have to like you back" (quoted in Paumgarten). Acts of evaluation in IRM are tempered by this notion, and acts of presentation are complicated by it. There are no ratings or reviews in IRM, though OKCupid does allow users to give others (positive) badges such as Eye Candy. If there were rating or review systems, it is difficult to imagine that they would be anything other than positive, for fear of retribution or a poor reflection on the evaluator. In addition, users' self-presentation seems to function more as a process of identity construction than as product advertisement.
In order to develop an understanding of technologies of matching more broadly, we must investigate other matching technologies as procedural rhetorics. One potential case study is Netflix, its Cinematch system, and the Netflix Prize. Netflix is an online film- and television-viewing rental service. Launched in 1999, Netflix initially allowed users unlimited DVD rentals by mail for a monthly subscription fee, and within three years it had six hundred thousand customers. In 2007, Netflix enhanced its service with "Watch Instantly," which allowed members to watch streaming video; today it has over twenty million subscribers ("Company Overview"). Much like brick-and-mortar video stores of the past relied on knowledgeable staff to set them apart from others, Netflix depends on the suggestions it makes to attract and keep its clients. The expectation is that by understanding users' viewing preferences, the site is able to make more accurate recommendations for future viewing. The happier users are with what they are watching, the more likely they are to maintain their subscriptions (Bell et al.). An increasingly crowded streaming video market that includes iTunes, Amazon, cable service providers, and even Wal-Mart necessitates maintenance of existing memberships. The company uses Cinematch, a matching technology that compares user viewing habits and ratings of content with the viewing habits and ratings of others, to match users with viewing options.

The Cinematch recommendation system automatically analyzes the accumulated movie ratings weekly using a variant of Pearson's correlation with all other movies to determine a list of "similar" movies that are predictive of enjoyment for the movie. Then, as the user provides ratings, an on-line, real-time portion of the system
computes a multivariate regression based on these correlations to determine a unique, personalized prediction for each predictable movie based on those ratings. If no personalized prediction is available, the average rating based on all ratings for the film is used. These predictions are displayed on the website as red stars. (Bennett and Lanning 1)

By 2007, Netflix had gathered nearly two billion ratings of more than eighty-five thousand videos by nearly twelve million users at a pace of two million ratings a day (Bennett and Lanning).

Rather than make human resources investments to ensure continued advancements in its Cinematch system, Netflix introduced the Netflix Prize on October 6, 2006 (Bell et al.). The international competition was open to anyone, except residents of six countries (Cuba, Iran, Myanmar, North Korea, Sudan, Syria), and the goal of the contest was to produce a predictive algorithm that would net at least a ten percent increase in the accuracy of the company's current matching technology; winning came with a million-dollar paycheck (Bell et al.; Bennett and Lanning; Rules”). The Netflix Prize was scheduled to run through October 2, 2011 ("Rules"); however, two teams submitted solutions that met the contest criteria on July 26, 2009 ("Awards"). During its nearly three-year run, The Netflix Prize received attempts from over forty-thousand teams representing nearly two hundred countries ("Awards"). The winning team, BellKor's Pragmatic Chaos, was a collaboration of three teams, and their solutions have all been published and are easily available for download on
the Netflix site. This offers access to logics that govern these particular matching
technologies, logics that are usually concealed with the "black box."

This brief discussion of Netflix has given us one potential case study, but there is
much more to be done. First, this work has focused primarily on understanding web
applications in terms of how they work and how they establish and maintain relationships
with users. Although Chapter Four did include the "voices" of users in terms of how they
define success, there has been little discussion of how users actually engage with the sites.
One potential avenue, then, is ethnographic research that gets at actual user practices,
enhancing our understanding of how users conform to and subvert site expectations for
construction of themselves as subjects online. Do user motivations persist or shift over time,
and how do those motivations impact user practices? For example, we have engaged with
site-sanctioned IRM success stories, but do they reflect the experiences of a broad
constituency of users? Are the relationship formations presented in success stories the kinds
established, or even sought, by users? What difference does it make, then, that Match.com is
perfecting its ability to match users with one another, or Netflix is spending millions of
dollars on research and development, if users don't actually pay attention to the
recommendations?

Second, it will be important to understand matching technologies and the attendant
user practices in circulation with users' offline practices and other media as well. We have
positioned IRM historically, but an in-depth examination of popular-culture artifacts could
enhance our understanding. For example, how do women's magazines, reality television, and
self-help books contribute to biopower and control in distributed networks? How do technologies of matching remediate old media within those distributed networks?

Finally, in addition to subversive use of IRM, it is important to look beyond marriage and procreative relationships. Work must be done on non-heterosexual interactions with IRM. This study maintained a hetero-normative perspective both in order to understand better the relationship between IRM and the institutions of family and marriage and because most of the dating industry, and the coverage thereof, does the same. One potential case study could compare eHarmony's heterosexual matching procedures discussed in this dissertation with those on the company's same-sex IRM site, CompatiblePartners.net. By beginning to explore these areas, we can lay a foundation for an informed, historical understanding of technologies of matching and their relationship to subject formation and regimes of power.
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