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## **Introduction**

A major drawback to existing research on interracial intimate relationships is that it almost exclusively studies heterosexual relationships. This is in large part because most studies rely on national intermarriage rates, which by definition exclude the same-sex population. Because this population is small, most alternative sources of data for cohabitation and dating unions contain too few cases to analyze. However, increasing evidence from qualitative studies and a few enterprising analyses of same-sex cohabitation using the Census data suggest that interracial partnering is significantly more common among the gay population than it is among the straight population. This difference is commonly interpreted as a result of weaker racial preference among the gay population (Schwartz and Graf 2009) although others have speculated it stems from a smaller, more constrained partner market (Ellingson 2004; Harry 1984; Kurdek 2003 and 2004). This paper investigates these emerging findings in further detail, bringing unique interaction-level data to bear on what might be driving the difference between the same-sex and heterosexual mating. By examining the behavior of both gay and straight daters on a large dating website we provide new insight on whether gay men and women have weaker racial preferences than straight daters.

## **Same-Sex Partnering: What Do We Know?**

The literature on race and gay intimate partnerships is small but growing. Some qualitative research suggests that interracial boundaries are more commonly crossed in same-sex couplings (Stacey 2011; Kennedy and Davis 1993). This has been impossible to measure until recently and remains difficult to quantify due to data limitations with the U.S. Census. However, preliminary quantitative analyses have generally borne out the increased interracial partnering trends suggested

by the earlier qualitative data. Descriptive statistics on household racial exogamy from the 2000 U.S. Census show that gay householders are more likely to be in different-race partnerships than straights. For example, Figure 1 shows percentages of co-residential partners ages 20-34 who differ from one another in their racial background. Heterosexual marriages display the lowest levels of racial exogamy with only 9% of different race couples. By contrast, 21% of gay male partners and 17% of gay female partners are exogamous.

[Figure 1 about here]

Large scale data on cohabiting patterns are a relatively new phenomenon, and data pertaining to same sex cohabiters is even more recent. Previously, unmarried cohabiting couples were not identified separately from individuals sharing households as roommates. With increasing trends toward unmarried cohabitation, U.S. Census collection altered its relationship data measurement in 1990 allowing householders to check off “unmarried partner” instead of classifying them as roommates. However, the Census recategorized as different-sex married couples all same-sex householders who indicated that they were married. This created an undercount of same sex households. By contrast, Census 2000 and 2010 data edited marital status (to unmarried) instead of changing the gender in such cases, making more recent censuses more reliable than previously but introducing an overcount in cases where gender had been miscategorized (Cohn 2011).

Multivariate analyses of 1990 and 2000 census data show evidence for unexplained higher rates of interracial unions among same-sex households. In 1990, same-sex couples were more likely to be interracial than either different-sex married or cohabiting households (Jepsen and Jepsen 2002). The paper’s premise was that different-sex couples should be less homophilous than same-sex households on characteristics such as age, education, and employment due to differing gender norms. An unanticipated exception was their race finding, showing that same-sex partners, particularly men, differ most often on race. Additional studies using the 2000 census yielded similar

results. Overall, same sex partnerships are more likely to be interracial than different sex cohabiting partnerships, and especially more so than different sex marital unions (Rosenfeld and Kim 2005; Schwartz and Graf 2009; Gates 2012). Furthermore, gay male partnerships are more likely than lesbian couples to be interracial (Schwartz and Graf 2009). No Census study to date has analyzed specific racial pairing patterns among same sex couples.

These compelling findings on same sex partnerships merit further exploration and theorization. Census statistics are unable to shed light on the causes of such trends. Furthermore, a significant drawback to emerging Census data on same sex partnering trends is the indirect way in which it identifies the same sex population. Because there is no way for non-cohabiting individuals to indicate their sexual identity, the census only measures a small slice of the LGBTQ<sup>1</sup> population, yielding an incomplete picture of relationship formation yielded by non-cohabitators.<sup>2</sup> Because census data is one of the few secondary data sources with large enough samples of LGBTQ individuals, it is the primary window into same-sex behavior.

### **What is the cause of greater racial exogamy among same sex householders in the U.S.?**

It has sometimes been argued that the same sex population is more progressive and liberal-leaning than the straight population, even beyond such differences associated with demographic characteristics.<sup>3</sup> If this is true, it may be that same sex individuals draw less restrictive race boundaries around their intimate partner choices.

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1 Hereafter referred to as LGBTQ, a common acronym for the lesbian, gay, bisexual, transsexual and queer identified population.

2 There may also be measurement error of the same sex population the census does capture. First, it is likely that same-sex couples underreport on the census since sexual identity continues to be a controversial subject. At the same time, the effect of the Census' recategorization process, combined with individual error in indicating household status and gender, may lead to a separate overcount and misidentification of same-sex couples (Cohn 2011).

3 A disproportionate number of LGBTQ individuals live in urban areas and more diverse neighborhoods (Black et al 2002; Gates and Ost 2004:35-36). While urban resettlement is likely to represent both a push effect (exodus from conservative small towns) and a pull effect (toward more gay-friendly communities), one study finds that gay men are more likely to live in cities mainly because their residential preferences are less affected by school district quality (Black et

This may be driven in part by selectivity. In a heteronormative society, individuals who both self-identify as gay and live in a same-sex partnership may be more prone toward racial inclusiveness than closeted individuals. Yet there may also be something about life experienced as a marginalized sexual minority that lends itself to more socially progressive personal views. It has been argued that transgressing one societal boundary (sexual identity) enables one to more easily transcend other societal boundaries (Rosenfeld and Kim 2005). And some evidence suggests that the same sex population is more liberal in its attitudinal orientation. Lesbians in particular report a more egalitarian division of labor in their cohabiting relationships than heterosexual couples (Blumstein and Schwartz 1983; Kurdek 1993). Same sex individuals also vote more liberally than the national population (Hertzog 1996).

Rosenfeld and Kim (2005) theorize that same sex couples are less influenced by familial control since gay couples tend to live farther away from their families of origin. In addition, qualitative data shows that the same sex population is more likely to experience emotional alienation from their families. To the extent that intergenerational family influence has a conservatizing effect on offspring, it would not be surprising that those furthest from the locus of family control would be less traditional in many of their behaviors, including partner choice.

An alternative argument is constrained partner markets. For a population that experiences identity stigma in an already-small population demographic,<sup>4</sup> locating similar potential partners may be challenging. In addition to the small size of the same sex population, the same sex dating market is less developed and still stigmatized compared to heterosexual dating markets. One study of

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al 2002). Urban residence exposes individuals to greater numbers of people of diverse social backgrounds and may thus increase the likelihood of interracial dating and partnership. In addition, those with higher educational attainment are more likely to form crossracial marriages (Rosenfeld 2007). Recent studies using multiple data sources indicate that gay and lesbian (self-identifying) individuals have higher educational levels than other men and women (Black et al 2000).

<sup>4</sup> Comprising an estimated 1-3% of the national population (Laumann et al. 1994; Black 2000).

college men shows that gay men are disadvantaged in their search for romantic partners because they lack access to normative dating structures that straight men enjoy (Barrios and Lundquist 2012). Thus, the prevalence of cross-racial pairings may simply reflect less opportunity for homophilous mate selection on a number of dimensions compared to different sex couples (Ellingson 2004; Harry 1984; Kurdek 2003 and 2004). It has therefore been suggested that exogamy in the gay market is primarily driven by the thin dating market, not by greater race-open preferences.<sup>5</sup>

Furthermore, in contrast to the foregoing scholarship suggesting greater race-openness, other literature on same sex culture does not paint a particularly race-friendly picture. Gay minorities frequently report marginalization in what are seen as white-centered gay social settings (Stokes and Peterson 1998; Riggs 1989; Beeker, Kraft, Peterson, & Stokes, 1998). Studies of the gay movement have documented pervasive central exclusions along lines of race, gender and class (Armstrong 2003). Indeed, most research has documented the reproduction of larger society's racial inequalities within the same sex community (Chasin 2000). Stigmatic terms to describe gay men who date outside their race are commonly described, such as "dinge queen" and "snow queen" (Boykin 1996; Reid-Pharr 2001). And white men are generally viewed as the most desirable partners among gay men (Wilson 2009).

The growing field of masculinity studies sheds light on the complexities of race and desire among gay men, while knowledge in this area continues to be understudied for lesbian women. The idealization and construction of hegemonically-masculine norms has been documented among gay men (Connell 1992), which manifests itself in interesting ways at the intersection of racial

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<sup>5</sup> Although one working paper tests the utility of the constrained market theory and finds the opposite of what the constrained market explanation would predict: that is, the larger the same sex market the more likely same sex households are to be interracial (Schwartz and Graf 2012). However, the data is limited by lack of potential partner characteristics and not being able to measure exposure rates to the entire local LGBTQ population (only to same sex household prevalence), which raises a larger issue about using household couple data to make claims about the LGBTQ population in general.

stereotypes. Racialized images of black men as virile and hypermasculine have led to the fetishization of the black body by white gay men (Collins 2004; Greene 2008; Reid-Pharr 2001; Wilson 2009). The constrictive “erotic capital” of this black male archetype plays out in male escort services, where black dominants (tops) receive the highest price for their services, while more effeminate men (bottoms) are the most penalized and least desired (Logan 2010). The erotic premium enjoyed by those black men who do not violate their sexually aggressive stereotype is unlikely to pay off beyond sexual relations, however. In 70 interviews with gay men, Green (2008) finds that Asian and Black men alike more often experience romantic rejection compared to white men, who enjoy a privileged position of being desired by both minorities and whites alike.

Rather than having a liberalizing effect on other social boundaries, the transgression of one identity in the race, class, gender tripartite may instead bring about greater pressure to conform to the remaining boundaries. This effect has been shown in a study of identity formation among youth (Wilkins 2008) and homophobia among straight African American men has been attributed to this (Froyum, 2007).

#### *Expressed Racial Preference Studies*

One way to gain leverage on the greater- race-openness hypothesis versus the constrained-dating-market theory is to ask people directly. Only a few studies have examined the expressed racial preferences of LGBTQ daters and they yield conflicting information. Dating websites provide a convenient way to get at expressed preferences, since they are about the only remaining social venue where it is still acceptable to announce one’s racial preferences—and exclusions--of others. Only two internet-based preference studies examine the dating behaviors of same sex adults, and each finds little evidence to support greater race openness among LGBTQ daters. The first study found that same sex daters were overall more likely to prefer whites than straight daters (Tsunokai, Kposowa, and Adams 2009). Specifically, while gay daters did not differ from straight daters in their

exclusionary behavior toward black daters, they were more exclusionary than straights toward Asians and less exclusionary toward dating Latinos. The study did not test for interactions between gender and sexual identity or between race and sexual identity so it is unclear how these patterns may vary across gay versus lesbian identities or white versus minority gays. The other study, which focused only on male daters, found that gay white men were five times more likely than straights to express a same race preference (Phua and Kaufman 2003).

While these studies suggest that LGBTQ daters are less race open than straights, a survey on ideal relationships among young people found that same-race partnership was *more important* to straight youth than to lesbian and gay youth (Meier, Hull, and Ortyle 2009). Importantly, racial preferences appear to be gendered within sexual identity group, with lesbians expressing the most race-openness, followed by straight women and gay men, and with straight men being least open. An older study showing that lesbians deemphasize physical and economic characteristics in favor of personality and hobbies of their potential dating partners (Deaux and Hanna 1984), further suggesting that lesbians place less emphasis on race than straight women.

Although little quantitative data has been collected on romantic racial boundaries among the same-sex population, a prodigious amount has on the different-sex population. We briefly outline what is known about assortative mating patterns among heterosexuals in order to provide a baseline for the current study.

Interracial marriage & cohabitation among different sex couples is still relatively rare (Qian and Lichter 2007). Only 4% of all marriages in the US are interracial,<sup>6</sup> despite the fact that interracial marriages would comprise about 40% of all marriages if partnering were random. Although cohabitation & dating unions cross racial boundaries more often than marital unions (Blackwell and Lichter 2004; Joyner and Kao 2005), interracial relationships are still the exception to the rule—most

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<sup>6</sup> This is less true of younger generations, with 15% of recent marriages being interracial (Passel et al 2010).

especially for whites. In-group preference is implicitly assumed to be the reason behind why Whites have lower interracial partnership rates than their population composition would imply. However, such rates are an outcome to a process; they tell us little about the context leading up to the pairing decision. In a society where racial segregation continues to define everyday realities, romantic partnerships may simply reflect the racial composition of exposure. Indeed, it would be surprising if the marriage market were any more integrated than the residential, schooling and labor markets that compose one's social networks to begin with. Survey data indicates that 86% of Americans approve of interracial marriage; yet a tiny percentage of such marriages are exogamous (Jones 2011; Census 2012).

Online dating preferences of different sex daters generally show that straight whites express greater same-race preferences than straight minorities (Feliciano, Lee, and Robnett 2011). Another consistent finding is that straight women of all races appear to have more rigid race boundaries in their preferred partners than do straight men (Feliciano, Lee, and Robnett 2011; Feliciano, Robnett, and Komaie 2009; Robnett and Feliciano 2011; Yancey, Tsunokai, Kposowa, and Adams 2009). This may be due to findings showing that men prioritize physical characteristics and attractiveness in selecting a mate whereas women prioritize income and economic stability (Goode 1996; South, 1991). It may be that women use race as a proxy for predicted socioeconomic status. Historically, women's sexual and relationship behavior has been more rigorously enforced by family and society norms (Bogardus 1959). It is often assumed that women would be more race-tolerant than men because they are socialized to be more affective and cooperation focused (Cross and Madsen 1997; Johnson and Marini 1998). But a wide-ranging analysis of gender differences across two well-known national surveys showed no evidence for gender differences among whites in their attitudes toward



minorities (Hughes and Tuch 2003). However, a recent survey of younger Americans found that women were more open than men to dating outside their own race (Meier, Hull, and Ortyle 2009).

The other commonality that emerges from the online dating preference literature is a relatively consistent hierarchy in racial preferences, which basically match the patterns seen in interracial marriages. Among those daters who indicate their racial preferences, straight white men most commonly exclude black women while straight white women most commonly exclude Asian men (Feliciano, Robnett, and Komaie 2009). Some scholars have invoked gendered racial formation theory to explain such patterns, arguing that they reflect deeply instilled societal notions of desirability which has historically defined ideal masculinity and femininity according to racial identity (Omi and Winant 1994; Collins 2004; Nemoto 2006, 2008).

While stated dating preference scholarship is an innovative strategy to avoid the exposure measurement problems inherent to interracial partnering outcome studies, there are significant drawbacks. For one, these analyses focus primarily on individuals who express racial preferences in their profiles. Yet it is unclear based on widely varying data how common it is for individuals to post racial preferences to begin with. In addition, one's stated preferences (or lack thereof) are unlikely to reflect how an individual will behave for a few reasons. For one, studies find that current survey data on racial attitudes is unreliable due to social desirability bias (Pager and Quillian 2005). In addition, classic studies in psychology suggest that individuals' self-assessments of what drives their judgments and decision-making behavior is largely inaccurate (Nisbett and Wilson 1977). The field of behavioral economics has also echoed this, showing, for example, that individuals' preferences are highly contingent on context and that hypothetical choices made in the absence of comparisons are likely to be inconsistent (Ariely 2008). Indeed, a speed dating study found that mate preferences stated prior to the session had no correlation to the characteristics of the actual partners chosen by

the end of the session (Eastwick and Finkel 2008). We argue that hypothetical racial archetypes are unlikely to match an individual's actual experience of another person. As a case in point, the Yahoo preference studies (Robnett and Feliciano 2011) have shown that white daters universally reject the "Middle Eastern American" category from their pool of preferred daters; yet in a separate study of online daters' actual behaviors (Lin and Lundquist unpublished), the authors find that white daters are as likely to message Middle Eastern American daters as they are other white daters. It is likely that the image most Americans hold in their mind's eye of Middle Eastern Americans is based on a stereotype, one that is less "white" and less "American" than the actual profiles they encounter on the web site.

#### *Behavioral Racial Preference Studies*

One way to remedy the problems inherent both to interracial partnership outcome data and to online dating preference behavior is to examine behaviors observed in the dating process. This provides a window into *all* of the potential partner choices to which daters are exposed and substitutes hypothetical preferences with "revealed preferences." But observing the full universe of such interactions is almost impossible to do. One lens into this process is speed dating studies, which have found general evidence for heterosexual same-race preference with greater discrimination by straight women than men (Fisman et al 2006; Kurzban and Weeden 2006).

An even more promising innovation is the observation of romantic interaction using data from online dating websites. Online dating is more ubiquitous and less selective than speed dating events and allows for the measurement of far more cases and variables. Only two projects have focused on the role of race in online romantic interactions among (heterosexual) daters. Hitsch et al (2010a, 2010a) examined mate preferences among daters from two cities in 2003, finding that female daters who state they are open to dating members of other races do not behave accordingly. Instead,

their messaging initiation patterns reveal that they initiate contact primarily with those of the same race. But since the majority of all initial contacts are made by men, analyzing only patterns of initiation is problematic for estimating female behaviors. Moreover, initiating contact is likely to be biased toward those whom one might expect to respond. Therefore analyzing response rates in addition to initiation rates is a crucial piece of the process. A more comprehensive and recent study of internet daters in the largest 20 US cities examines not just the initiation of messaging behavior but also whether or not daters respond to initial messages sent to them by other daters (Lin and Lundquist 2013). The sample is large enough to document the preference hierarchies of all racial groups while also controlling for substantial variation in members' characteristics and partner preferences. The authors find that same-race homophily plays a stronger role than almost every other factor, including education, in predicting who contacts whom and who responds to whom. Importantly, they find that racial boundaries operate differently at various levels of social interaction. When initiating contact, men and women primarily contact members of their same racial group. But upon reciprocation they find evidence for a strong racial hierarchy, reinforcing Bonilla-Silva's tri-racial stratification model (2004) where whites enjoy a privileged position, Asians and Latinos occupy the middle ground, and blacks occupy the bottom of the hierarchy. However, similar to other studies, they find significant variation by gender. Men are more responsive than women to every out-group except black women. Women, on the other hand, tend to ignore every out-group except whites.

## **Our Approach**

We argue that an online dating setting has far fewer partner market constraints than most social settings, and thus, provides a unique opportunity to examine the racial preferences held by gay and lesbian daters. We examine whether white same-sex daters are more racially inclusive than their different sex white counterparts. If this is the case, we can confirm that more open racial preferences

are at least partially responsible for the coupling patterns of same sex individuals. On the other hand, if we find that same sex daters are no different from different sex daters, or even less inclusive, then we can conclude that market constraints play a critical role in generating the interracial pairing differences between the gay and straight population.

We go beyond the limitations of previous studies by analyzing how white gay, lesbian and straight daters *interact* with other daters on a mainstream online dating website. To date, no internet study has focused on same-sex dating interactions, only race preferences stated in dating profiles. Using millions of observations from a popular American dating website, we have an unprecedented bird's eye view of the market of potential daters and are able to measure characteristics not just of those whom one finds appealing, but of those whom one does not. Thus, our analysis is able to answer the question of preference within the context of exposure, a line of inquiry that neither census data nor profile preferences can offer. Daters in our sample have an incentive to accurately report their correct sexual identity in order to locate and attract a desirable partner, and thus we avoid another major measurement issue of census data. At the same time, daters have no disincentive to initiate contact and respond to other gay-identified to whom they are attracted, enabling us to avoid social desirability bias that affects dating profile preference studies.

Finally, we examine interracial pairing behaviors at an unprecedented level of detail. While census studies have looked only at the extent to which the LGBT cohabiting population as a whole partners outside its race, they have not examined specific racial sorting patterns among potential out-group partners. We examine whether similar racial hierarchies exist within same sex partnering patterns as they do among straight women and men. We ask, do white gay women and men have weaker racial and in-group preferences than straight women and men? And, if so, do such preferences vary by the specific racial identity of the out group?

*The Utility of Online Dating Data*

While internet dating offers an unparalleled opportunity to get around the partner exposure conundrum, how comparable are online daters to face-to-face daters? A recent study found that internet daters differ little from daters who met in person after controlling for internet access and computer usage (Sautter, Tippett, and Morgan 2010). Moreover, the Pew Research Center's Internet & American Life Project has shown that the digital divide is rapidly decreasing. Among Americans ages 18-49, 91% report using the internet (Zickuhr and Smith 2012). Seventy four percent of American internet users who report looking for romantic partners have used the internet to find dates; half of these individuals have gone on to date the people they met online and 17% have entered into committed relationships as a result (Madden and Lenhart 2006). Nor is there any evidence that interracial couples are more likely to have met on the internet than in face-to-face settings (Rosenfeld and Thomas 2012). A nationally representative survey that examines relationship formation finds that the internet is now one of the primary ways that heterosexual and LGBTQ couples meet one another (Rosenfeld and Thomas 2012).

### *Data*

We obtained the data from one of the largest U.S. dating and social networking websites, which facilitates both heterosexual and same-sex dating for millions of active users. Similar to most dating websites, registered users can create a personal profile, search and view other users' profiles, and contact fellow users through a website-based messaging system. A typical user profile contains basic information such as sex, sexual orientation, geographical location, age, race, height, body type, religion, language, life style and socio-economic status, as well as photographs and short essays. Unlike most large dating websites that charge a membership fee to contact other users, this website places no restriction on searching, viewing, sending, and responding to messages, which, we believe, makes this website one of the best data sources for studying online dating behaviors in the United

States. It should also be noted that this website does not recommend potential matches by ethnic-racial status. The only criteria used to select which profiles to display are age, sexual orientation, and the matching score which is derived from personality questions.

Though we do not claim that our dataset is representative of the general population, it is more powerful than conventional survey data in a number of ways. First, this data contains actual interactions among internet daters, which allows us to observe what people do instead of what people say. Second, since our dataset is generated from interactions within a definite population, it allows us to examine how race determines the likelihood of interaction in a bounded probability space. Third, because all the variables are extracted from digital records, our data set is largely immune to measurement problems such as social desirability bias and recall errors that are common in conventional survey data.<sup>7</sup> Fourth, the size of our dataset gives us the opportunity to contrast the detailed racial preferences between white gay men and white lesbian women, which is not systematically examined in the literature. Lastly, because we have access to almost as much information as the users on the website, we are confident that our estimates are less biased by unobserved variables.

The original data set consists of approximately nine million registered users worldwide and 200 million messages, from November 2003 to October 2010. In essence, the data set consists of numerous social networks where the users are nodes with various attributes and the messages are directional ties that connect nodes. However, unlike typical social network data, both our nodes and ties have a temporal property: each user has a definite lifetime and each tie is formed at a specific time point.

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<sup>7</sup> Of course, some daters might not report their true attributes, but this is not problematic since we are measuring how other daters respond to the same information.

To facilitate the analysis, we filter the users in three steps. First, we limit our scope to users who reside in the 20 largest metropolitan areas in the US.<sup>8</sup> This facilitates the reconstruction of opportunity structure (discussed below) and brings down the sample size to about three million daters. Second, we exclude users who did not send or receive at least one message, did not upload at least one photograph, who listed their birth year later than 1992 or earlier than 1911, or who fit the profile of spammer users.<sup>9</sup> This is because, similar to most free membership websites, some of the users did not actively engage or even return to the website after initial registration and a few users are likely to be fake identities created by spammers. We thus retain only genuine dating website members; that is, users who had the opportunity to legitimately interact with other users in the dataset. Our final sample consists of 32,351 gay women, 51,606 gay men, 405,021 straight women and 528,800 straight men (we exclude people who identify as bisexual who we analyze at another time).

We identify a user's racial identity using the information on their personal profiles. There are ten ethnicity boxes the users can check when they fill out their personal profiles. The options are Asian, Middle Eastern, black, Native American, Indian<sup>10</sup>, Pacific Islander, Hispanic/Latino, white,

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<sup>8</sup> The metropolitan areas alphabetically include 12060 Atlanta-Sandy Springs-Marietta, GA; 12420 Austin-Round Rock, TX; 12580 Baltimore-Towson, MD; 14460 Boston-Cambridge-Quincy, MA-NH; 16980 Chicago-Naperville-Joliet, IL-IN-WI; 19100 Dallas-Fort Worth-Arlington, TX; 19820 Detroit-Warren-Livonia, MI; 26420 Houston-Sugar Land-Baytown, TX; 31100 Los Angeles-Long Beach-Santa Ana, CA; 33100 Miami-Fort Lauderdale-Pompano Beach, FL; 33460 Minneapolis-St. Paul-Bloomington, MN-WI; 35620 New York-Northern New Jersey-Long Island, NY-NJ-PA; 37980 Philadelphia-Camden-Wilmington, PA-NJ-DE-MD; 38060 Phoenix-Mesa-Scottsdale, AZ; 38900 Portland-Vancouver-Beaverton, OR-WA; 41740 San Diego-Carlsbad-San Marcos, CA; 41860 San Francisco-Oakland-Fremont, CA; 42660 Seattle-Tacoma-Bellevue, WA; 45300 Tampa-St. Petersburg-Clearwater, FL; 47900 Washington-Arlington-Alexandria, DC-VA-MD-WV.

<sup>9</sup> After consulting with the managers of the website, we identify spammers as users 1) who did not answer any personality question; 2) whose profiles were deleted or blacklisted; and 3) who had account lifetime that was shorter than an hour.

<sup>10</sup> It should be noted here that, while Indians are conventionally categorized as Asian, it is treated as an independent ethnic group in the dataset and is not included in the Asian category throughout our analysis.

Other, and Undeclared. Users can check as many boxes as they prefer. We categorize those who did not check any box as Undeclared and those who checked more than one box as multiracial. Our initial sample thus consists of eleven ethnic-racial groups, with the ten default categories and the multiracial group.

[Table 1 about here]

Table 1 presents the ethnic and racial composition of our analytical sample. About half of the user populations self-identify as non-Hispanic white<sup>11</sup>, although this number is slightly lower for gays than straights.<sup>12</sup> About 24% of the straight sample did not specify any ethnic and racial identity compared to a slightly lower percentage of the gay sample.<sup>13</sup> Blacks and Hispanics are significantly under-represented in our sample, especially among straights. About 4% of the users identified themselves as black (this is only slightly higher when excluding “undeclared”), in contrast to 12% in the US population. Slightly higher percentages of the users identified as Hispanic/Latino, in contrast to 16% of the US population.<sup>14</sup> One group that is over-represented are multi-racial users (at between 7% and 8% for straights and 10%-11% for gays), who are often counted as 2% in the national

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<sup>11</sup> We hereafter refer to this group as white.

<sup>12</sup> Other data has shown that more gay-identified individuals than straights identify as non-white (Easton 2008; Barrios and Lundquist 2012)

<sup>13</sup> We conducted three sensitivity tests around these respondents and determined that their missing ethnic identity more reflects tendency in reporting behavior than conscious omission. First, we had a group of undergraduates systematically code through photographs for respondents who left their race missing. In a sample of 150 profiles, no systematic pattern emerged where people of one particular ethnicity were any more or less represented. Second, we conducted factor and logistic analyses predicting the correlates of missing on race and found that being missing on height, on education, smoking behavior, and drinking behaviors correctly predicted being missing on race 93% of the time. Third, as Table 1 indicates, racially undeclared daters receive among the fewest emails, indicating that other daters dismiss them as illegitimate or less-engaged prospects because their profile is incomplete on other important factors as well.

<sup>14</sup> Since Hispanic is often conceptualized as an ethnic rather than a racial category, those who are conventionally counted as Hispanic might identify with both Hispanic and white on the website. Our analysis shows that such inclusion would add two additional percentage points for the Hispanic population.



population.<sup>15</sup> For the analyses that follow in this paper, we focus only on White users' messaging behaviors toward White, Asian, Black, Hispanic<sup>16</sup>, and other users.

### *Summary Statistics*

We focus our analysis on initial messages exchanged between any two users who both reside in the same metropolitan area. Table 2 presents the descriptive statistics on the initial messages received by and sent from white daters. The first detail to note is that the likelihood of interaction, on the whole, is quite low across all the groups, which indicates that when solicitations and, more rarely, responses do occur, they are meaningful—even though we do not know the content of the messages themselves. Even considering that the express purpose of the website is for singles to find romantic partners, if there was a high degree of email chatter between users, we might be less confident in deducing that messages indicate some degree of attraction between daters. Online interaction is asymmetrical in several ways (which can only be observed among the straight population). The pattern fits the gendered heteronormative expectation that men initiate contact: white straight men in our sample on average sent 70% more messages than their white straight women counterparts but received less than half their number of messages. Of the groups, initial messages sent by white straight men to women were the least likely to get a response. Only 2.82% of the messages sent by white straight men received a response, in contrast with 5.6% of messages sent by white straight women. Some of this difference may stem from the straight gender ratio imbalance

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<sup>15</sup> Our ongoing analysis of biracial groups shows that users who identify as white-Asian, white-Hispanic, and white-Native American behave similarly to those who only identify as white and do not show particular preference to users of their minority identity. However, those who identify as white-black show preference to both users who identify as white only and those who identify as black only

<sup>16</sup> Though Hispanic is officially defined as an ethnic rather than racial category, we believe it is analytically meaningful to juxtapose it with Asian, black, and white as a distinct racial group. This is not only because Hispanics, along with Asians, are often considered as occupying the racial middle (Bonilla-Silva 2004; O'Brien 2008) but also because scholars argue that the Hispanic population has been increasingly racialized in the past decades (Massey 2007).

we find in our data, at 12% more straight male users than straight female users. Among white gay daters, men have higher volumes of message exchange than lesbians, exchanging twice as many among one another compared to women. The difference between the distribution of messages sent and that received is also worth noting. For white straight men, gay men, and gay women, the variance of the messages sent is significantly larger than that of the messages received, indicating a large degree of heterogeneity in the level of active participation.

[Table 2 about here]

## Multivariate Models

Our main analytical inquiry focuses on dyadic interaction controlling for each individual's demographic and personal characteristics. We first examine, among all probable dyads, how the racial identity of the potential sender and that of the receiver jointly predict whether an initial message is sent. To do so, we randomly sample a subset of users and reconstruct their opportunity structure on the website<sup>17</sup>, which generates all probable dyads on the website for this subset of users. We then merge these dyads with the initial messages that were actually sent, yielding a binary outcome where 1 indicates that the probable dyad was realized and 0 otherwise.

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<sup>17</sup> We randomly sample 300 white users by sexual identity, gender, and from each metropolitan area who joined the website in 2009. We construct the opportunity space as such: Say there are  $n$  partners of racial group  $i$  and sexual identity  $g$  and  $m$  partners of racial group  $j$  and sexual identity  $h$  in a given metropolitan area. Presumably, each partner can send  $m$  initial messages and so the total number of potential combinations of initial messages from a person of group  $i$  to a person of group  $j$  is  $n \times m$ . Among these dyads, we exclude any cases where the account lifetime of the potential sender did not overlap with that of the potential receiver. We also exclude the cases where the potential receiver is younger or older than the potential sender's default age range. We calculate the overlap between two users for each dyad as a measure of exposure. Finally, for ease of computation, we randomly draw 1,000,000 dyads from each sender group as the sample of analysis.

We also examine the likelihood of responding to an initial message. Particularly, we estimate how the likelihood of a response is conditional on both the racial identity of the sender and that of the receiver, while controlling for all of the other attributes of each partner. The sample of this analysis is all initial messages sent among the daters with a dichotomous outcome indicating whether the recipient responded (1) or not (0). We model both sending and responding behaviors by fitting a series of generalized estimating equations (GEE) using a logit link function and an exchangeable correlation structure.<sup>18</sup> We control for confounding factors with the following covariate groupings: basic demographic information, lifestyle, socio-economic status, and the degree of online engagement. Basic demographic information includes age,<sup>19</sup> height,<sup>20</sup> body type, and geographic location. Lifestyle variables include smoking, drinking, drug use habits and parental status/preferences. Socio-economic status consists of education level, income level, and the number of languages one speaks. In addition, we control for the daters' degree of engagement, which includes total time spent on the website, total account lifetime (from registration to the last login), the number of photographs uploaded to the website, and the number of personality questions answered on the website.

[Table 3 about here]

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<sup>18</sup> There are advantages to analyzing our data with the GEE approach. First, the GEE approach addresses dependency among observations and optimizes the statistical power of the correlated data by estimating clustered correlations. In contrast to mixed effects or hierarchical models, the GEE approach makes little demand of within-cluster variance and thus is more suitable in our situation where the participation of the users follows a power-law distribution and a significant number of our observations are singletons. We believe that exclusion of the singletons would create serious selection bias and therefore do not think a random intercept approach is suitable for our analysis.

<sup>19</sup> Due to anonymity concerns, we do not have access to birth dates beyond year for each user. The age here is calculated as the difference between one's birth year and the year they last logged in to the website.

<sup>20</sup> If one did not report his or her height, we impute the average height minus a standard deviation by gender. For very few cases, we also top- or bottom-code one's height by gender if the reported number is dramatically above or below the mean. Three dichotomous variables are added in our model to indicate imputation, top- coding, and bottom-coding in the regression analysis.

### *Control Variables*

Table 3 presents the descriptive statistics for the control variables. As one might expect, the average age of the sample is younger than that of the general population. Gay and lesbian daters are about 2 years younger than straight daters. White daters also have higher educational attainment than the national population. Between forty-three and fifty-one percent of gay and straight men and women report a college degree or more, in contrast with 32.8% of Americans aged 25 to 34.<sup>21</sup> The heights of male and female users are also about 10-centimeter/4-inches higher than the average American.<sup>22</sup> We suspect this is due to the tendency that users over-report their height rather than the selectivity of internet daters. In any case, inconsistencies of this sort should not bias the results, since other daters are also using this same information, however exaggerated, to determine whether or not to interact with any given online dater. White lesbian women report slightly higher levels of smoking and drug use behaviors than the three other groups.

Table 4 also shows that there are a number of gender differences between the groups. Regardless of sexuality, women are more likely than men to consider themselves overweight, while men are more likely to describe themselves as average or fit. While majorities of all four groups decline to disclose their income, straight men are least likely to do this. There are also differences in online engagement. Although straight women spend similar amounts of time on the website as men, they have the shortest account lifetimes. This may be due to the gender ratio imbalance on the website, with straight women in greater demand and more quickly able to locate potential matches

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<sup>21</sup> U.S. Census Bureau, Current Population Survey, 2010 Annual Social and Economic Supplement: Table 3. Detailed Years of School Completed by People 25 Years and Over by Sex, Age Groups, Race and Hispanic Origin: 2010 (<http://www.census.gov/hhes/socdemo/education/data/cps/2010/tables.html>)

<sup>22</sup> <http://www.cdc.gov/nchs/fastats/bodymeas.htm>

(or grow overwhelmed and give up). Men, both gay and straight, have longer account life times and answer more personality questions on their profiles. Gay daters are also more likely than straights to upload greater numbers of their pictures to the site.

### Analytical Strategy

We examine how racial preferences predict the likelihood of sending and responding to an initial message among white daters. Our first set of models focus on in-group preference. We specify the model predicting the sending behavior as:

$$\begin{aligned} \text{logit} \left( P(y_{i,j} = 1) \right) \\ = \alpha_1 + \sum_k^K \beta_{1,k} G_k + \beta_2 O + \sum_k^K \beta_{3,k} G_k O + \sum_p^P \beta_{4,p} X_{p,i} X_{p,j} + \beta_5 W_{i,j} + \beta_6 M_i \\ + \varepsilon_{i,j} \end{aligned}$$

where  $y_{i,j}$  denotes whether an initial message was sent from  $i$  to  $j$ ,  $G$  denotes the sexual identity group of the sender,  $O$  denotes whether the out-group (i.e. non-white) status of  $j$ ,  $\beta_3$  denotes the interaction effects between  $G$  and  $O$ ,  $X$  denotes the attributes of user  $i$  and  $j$  in Table 3,  $W$  denotes the log-transformed overlapping website membership periods between  $i$  and  $j$ , and  $M$  denotes the number of messages user  $i$  received per 100 days. Similarly, we specify the model predicting the responding behavior as

$$\begin{aligned}
& \text{logit} \left( P(y_{j,i} = 1) \right) \\
&= \alpha_2 + \sum_k^K \beta_{7,k} G_k + \beta_8 O + \sum_k^K \beta_{9,k} G_k O + \sum_p^P \beta_{10,p} X_{p,i} X_{p,j} + \beta_{11} S_{i,j} \\
&+ \beta_{12} M_j + \varepsilon_{j,i}
\end{aligned}$$

where  $y_{j,i}$  denotes whether user  $j$  responded to the initial message sent by user  $i$ ,  $\beta_9$  denotes the interaction effects between G and O,  $S$  denotes the matching score<sup>23</sup> between  $j$  and  $i$ , and  $M$  denotes the number of messages user  $j$  received per 100 days.

Our second set of models go beyond the in-group/out-group divide and examine the details of racial preference. The sending model here is specified as:

$$\begin{aligned}
& \text{logit} \left( P(y_{i,j} = 1) \right) \\
&= \alpha_3 + \sum_k^K \beta_{13,k} G_k + \sum_q^Q \beta_{14,q} R_q + \sum_k^K \sum_q^Q \beta_{15,k,q} G_k R_q + \sum_p^P \beta_{16,p} X_{p,i} X_{p,j} \\
&+ \beta_{17} W_{i,j} + \beta_{18} M_i + \varepsilon_{i,j}
\end{aligned}$$

where R denotes whether  $j$  identifies as Asian, Black, Hispanic, White, or Other, with  $\beta_{15}$  allowing the racial preferences to vary across the four sexual identity groups. Similar, the responding model is specified:

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<sup>23</sup> This is determined by the answers to the personality questions on the website, which is shown to both users as an indicator of compatibility.

$$\begin{aligned}
& \text{logit} \left( P(y_{j,i} = 1) \right) \\
&= \alpha_3 + \sum_k^K \beta_{19,k} G_k + \sum_q^Q \beta_{20,q} R_q + \sum_k^K \sum_q^Q \beta_{21,k,q} G_k R_q + \sum_p^P \beta_{22,p} X_{p,i} X_{p,j} \\
&+ \beta_{23} S_{i,j} + \beta_{24} M_j + \varepsilon_{j,i}
\end{aligned}$$

where R denotes whether i identifies as Asian, Black, Hispanic, White, or Other.

Since interaction decisions are nested within individuals ( $i$  in the sending model and  $j$  in the responding model), a dependence structure is expected. We thus model both the sending and the responding behaviors by fitting a series of generalized estimating equations (Liang and Zeger 1986; Hanley et al. 2003; Zuur et al. 2009) with the logit link function and an exchangeable correlation structure.<sup>24</sup>

To avoid unobserved heterogeneity bias by assuming each comparison group has the same residual variation (see Allison 1999 and Mood 2010 for discussion), we contrast the racial preferences among sexual identity groups with predicted probabilities rather than the coefficients of the interaction terms (i.e.  $\beta_3$ ,  $\beta_9$ ,  $\beta_{15}$ , and  $\beta_{21}$ ). We first measure the in-group preference as the ratio between the predicted probability of interacting with a non-white dater and that of interacting with a white dater. We second measure the preference toward Asian, Black, and Hispanic daters,

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<sup>24</sup> There are advantages to analyzing our data with the GEE approach. First, the GEE approach addresses dependency among observations and optimizes the statistical power of the correlated data by estimating clustered correlations. In contrast to mixed effects or hierarchical models, the GEE approach makes little demand of within-cluster variance and thus is more suitable in our situation where the participation of the users follows a power-law distribution and a significant number of our observations are singletons. We believe that exclusion of the singletons would create serious selection bias and therefore do not think a random intercept approach is suitable for our analysis.

respectively, as the ratio between the predicted probability of interacting with a dater from that racial group and that of interacting with a white dater.

## Results and Discussion

In our first group of models, we interact the characteristics of each daters' and their potential partners' characteristics with one another, including one's sexual preference and their relative likelihood of interacting with *any* out-group member versus a same race member. Figure 2 shows the relative likelihood of interacting with an out-group dater for each group. We generate predicted probabilities by holding all independent variables at their observed values, and we depict the relative predicted probability ratios by dividing the predicted probability of interacting with an out-group by the predicted probability of interacting with an in-group. Thus, the larger the ratio, the weaker the same-race preference. While the ratios show that each group is more likely to contact an in-group dater over an out-group dater, there are clear group differences in how *strong* same-race preferences are. Panel A depicts the relative probability of sending an initial message to a non-white group, while Panel B shows the relative probability of responding to an out-group dater after first receiving a message from them (estimates from the full GEE models are shown in Appendix 1).

Figure 2 shows that straight white women (yellow) are less likely than any other group to send or respond to out-groups. Straight men (blue) and lesbians (green) are most likely to contact and respond to out-groups. Gay men (red) fall somewhere in between these two trends. A notable difference between Panel A and B is that responding ratios are larger than sending ratios. This indicates that white daters are generally more likely to respond to out-groups than they are to initiate contact with out-groups. However, despite becoming more open to out-groups in the context of responding, the patterned hierarchy of how white gender and sexual identity groups respond does



not change. This pattern also remains consistent when we estimate conditional predicted probabilities across each percentile of specific key variables (see Appendix 2).

[Figure 2 about here]

To what extent are these patterns being driven by *which* racial out-group white daters choose to contact? Our second model thus asks how the patterns shown in Figure 2 break down when we examine interaction within each specific racial out-group. Panel A shows greater overall spread depending on which racial group is being contacted, indicating that, regardless of sexual identity and gender, all groups are less likely to contact Black (versus white) daters. But as for how racial preference distributes itself across each of the white groups of daters, most of the same basic directional patterns hold from Figure 2. For example, white straight women are still consistently the group with the lowest probability of interacting with each out-group and straight men are consistently the group most likely to do so. But there are some new variations. When it comes to contact with Asian daters, the basic story is that straight men and lesbians are most likely to interact with Asians, while straight women and gay men are less likely. Specifically, straight white men are the most likely group to initiate contact with Asian daters and lesbians and straight men are most likely to respond to messages from Asian daters. Straight white women and gay men are least likely to send messages to Asians, and straight women are the least likely group to respond to Asian daters' messages.

In predicting the probability of contacting black daters, the confidence intervals show considerable overlap among the white daters, indicating that all groups are about equally unlikely to send a message. But in responding to messages send by black daters, white straight men and lesbians are the most likely groups to return a message. Finally, Hispanic daters are most likely to be

contacted and responded to by straight men and least likely by straight women. Gay men and lesbians both fall about equally in between these two extremes. As in Appendix 2, we estimated conditional predicted probabilities across each percentile of specific key variables and the patterns shown in Figure 3 are consistent. (figures are available upon request).

[Figure 3 about here]

How do these results square with what we know from the literature? Earlier preference-based data found that gay whites behaved no differently toward black daters than straights, but that they were less open to Asians and more open toward Latinos (Tsunokai, Kposowa, and Adams 2009). We find this same pattern when comparing straight and gay *men* but not women. Our results also corroborate the findings of Phua and Kaufman (2003) which found that gay white men were overall more exclusionary than straight white men. But perhaps most notable of all is our finding that the biggest contrast in preference behavior is between white straight males and white straight females. Hitsch et al. (2010 a, 2010b) and Lin and Lundquist (2013) have documented gender differences among straight daters previously, but when put in the context of a comparison to gay and lesbian daters the pattern is particularly striking. It becomes clear that racial preference behavior may be linked more to gender identity than to sexual preference identity, even though the debate until now has focused almost exclusively on straight versus gay behaviors.

## **Conclusion**

Returning to the motivating question of this analysis, when white same-sex daters are privy to a large dating market, do they behave more race-inclusively than different-sex daters? The answer, as it turns out, is that it is highly dependent on the gender of the dater. Previous work suggesting non-straight individuals are more race open than straight individuals used data that obscures gender,

either by relying on couple-level data (Schwartz and Graf 2010) or using data that does not distinguish lesbians from gay men (Tsunokai, Kposowa, and Adams 2009; Phua and Kaufman 2003). Our findings suggest that straight men and women differ significantly, and that more race-open preferences held by heterosexual men are more similar to lesbians while gay men's less race-open preferences are more similar to heterosexual women. The general pattern for inter-group interaction is that all four white groups are most likely to contact or respond to same-race daters; however, when interactions *do* occur with non-white daters, it happens most often among straight white men, second most often among white lesbians, third most often with gay white men, and least often with straight white women.

So, in answer to the original question asking whether white same-sex daters are more racially inclusive than their different-sex white counterparts, we conclude that white lesbians and gay men are more race-open than heterosexual women, but less or similarly race-open as heterosexual men. Thus, we tentatively surmise that *neither* dating market constraints nor more race-open attitudes among LGBTQ people is the explanation for interracial pairing differences documented by Jepsen and Jepsen (2002) and Schwartz and Graf (2009). A more likely explanation is that there is some process operating at the *couple-level* among heterosexuals that results in fewer interracial unions than might otherwise be predicted by the more race-open behaviors among straight white men that we document here. Do straight women have a conservatizing effect on straight men at the couple-level? Are straight men differently selective when it comes to household partners instead of more casual dating partners? We can't speak to what the explanation may be in this paper but provide the first unique observation that homophily among straight whites may be highly dependent on couple-level processes.

Because the behaviors we document are more similar among straight men and lesbian women and among straight women and gay men, we speculate that the explanation is rooted in

normative gender structures that operate conventionally for heterosexuals and that are more apt to be reversed among the same-sex community (Weinberg and Williams 2005; Kayzak 2010). And given continuing gender and race gaps in income (cites), it may be that straight women and gay men are more able to leverage race as a proxy for predicting a partner's potential SES status. This calculus might be less relevant for straight men and lesbians seeking female partners since women earn lower incomes regardless of race. In ongoing analyses we will attempt to investigate this pattern further by bringing in a comparison between daters who seek relationships (the current sample analyzed in this paper) versus those who seek casual sex only. If race is being used by gay men and straight women daters to proxy for SES, presumably short-term liaisons will be less subject to racial boundaries.

In addition, we plan to extend this analysis to examine whether similar racial preferences exist among non-white daters.

Table 1. Ethnic-Racial Composition of the Sample

Race	Straight Men	Straight Women	Gay Men	Gay Women
Asian	3.28%	3.69%	4.92%	2.63%
Middle Eastern	0.36%	0.26%	0.39%	0.32%
Black	3.35%	3.86%	3.67%	4.96%
Native American	0.23%	0.26%	0.12%	0.23%
Indian	0.81%	0.47%	0.51%	0.18%
Pacific Islander	0.25%	0.24%	0.60%	0.33%
Hispanic	4.97%	4.66%	7.83%	6.43%
White	52.05%	53.67%	50.59%	48.67%
Other	1.47%	1.48%	1.59%	2.21%
Undeclared	25.24%	24.36%	19.63%	22.70%
Multiracial	7.99%	7.05%	10.15%	11.34%
N	528,800	405,021	51,606	32,351

Table 2. Descriptive Statistics On Initial Messages Exchanged Among Users

	White Straight Men		White Straight Women		White Gay Men		White Gay Women	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Avg. # of Messages Received	2.9591	5.3920	7.9588	10.7429	5.2194	6.9141	2.0027	2.7607
Avg. # of Messages Sent	6.0270	30.1753	3.5180	13.5413	4.7360	18.0046	1.9531	7.6592
Total # of Messages Received	814402		1730076		136264		31535	
Response Rate	5.47%		2.58%		4.56%		5.03%	
Total # of Messages Sent	1658718		764749		123642		30754	
Others' Response Rate	2.82%		5.59%		5.04%		5.16%	

Table 3. Descriptive Statistics on Control Variables

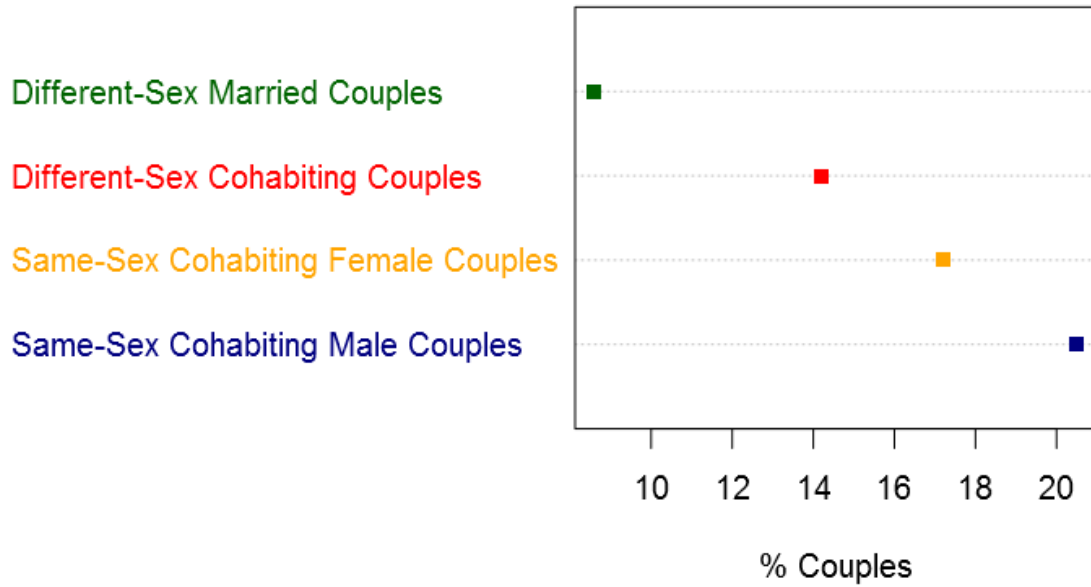
	White Straight Men	White Straight Women	White Gay Men	White Gay Women
Age	30.53546	30.13907	28.68112	27.91699
(S.D.)	9.339786	9.751257	8.444882	8.143663
Height (in c.m.)	179.9817	165.932	179.3466	165.9287
(S.D.)	7.411955	7.065475	7.207267	7.138083
Height-Not Specified	0.0096106	0.0098814	0.0078906	0.0144164
Height-top coded	0.0005668	0.0004186	0.0003064	0.000381
Height-bottom coded	0.000763	0.0003174	0.0002298	0.000381
Body Type				
Thin	0.080911	0.102871	0.1609913	0.1017401
Overweight	0.0718163	0.2069473	0.0858007	0.1851899
Average	0.2135232	0.200921	0.2426935	0.213451
Fit	0.2929481	0.1352891	0.2338836	0.1805538
Unspecified	0.3408014	0.3539716	0.2766308	0.3190652
Region				
Northeast	0.3317176	0.3849222	0.4255181	0.3732376
Southeast	0.1013495	0.0894383	0.0676064	0.0857361
Midwest	0.1558848	0.1545871	0.1430651	0.1404801
West	0.3117442	0.2808505	0.2908798	0.3188111
Southwest	0.0993038	0.0902019	0.0729306	0.081735
Smoking				
Yes	0.2682184	0.2449225	0.2594323	0.356535
No	0.6856469	0.7093187	0.6918068	0.5916423
Unspecified	0.0461347	0.0457588	0.0487609	0.0518227
Drinking				
Often	0.1350975	0.1316733	0.1575823	0.135463
Socially	0.6101171	0.6428772	0.6086107	0.6169821
Rarely	0.1450497	0.1405472	0.1310377	0.1421948
Not at all	0.0827023	0.0586671	0.0735435	0.073606
Unspecified	0.0270333	0.0262353	0.0292259	0.0317541
Drug Use				
Never	0.7399751	0.7931861	0.7408358	0.6631525
Sometimes	0.1082023	0.073388	0.1091661	0.147339
Unspecified	0.1518226	0.133426	0.1499981	0.1895084
Parental Status/ Preference				

Has Children	0.1244913	0.1737058	0.0129084	0.0635082
Likes Child	0.4679561	0.4943854	0.4298464	0.5070494
Doesn't like/want child	0.0880072	0.0876212	0.1823266	0.1384479
Unspecified	0.3195454	0.2442876	0.3749186	0.2909945
Education				
High School or Less	0.3673042	0.3417993	0.3516298	0.4089293
Some College	0.0532673	0.0459474	0.0276171	0.0299124
College	0.3566144	0.377387	0.3915425	0.3308142
Professional	0.0943659	0.1226383	0.1193933	0.1018036
Unspecified	0.1284482	0.112228	0.1098173	0.1285406
Income				
< 20,000	0.0721506	0.067794	0.0840771	0.0854185
20,000-50,000	0.1611207	0.1072689	0.1038036	0.1012321
50,000-80,000	0.0804677	0.0349896	0.0361589	0.0255938
80,000-150,000	0.0470503	0.0113212	0.0188072	0.0087006
> 150,000	0.0224006	0.0067256	0.0097675	0.0083831
Unspecified	0.6168101	0.7719007	0.7473858	0.7706719
Engagement				
Online Time (in 15 min)	143.8164	145.0926	137.8887	149.2872
SD	527.8249	518.9548	499.0924	503.9877
Account Life Time (in day)	387.4653	286.1773	391.6356	343.0782
SD	478.1145	400.816	464.9862	430.2237
Photos Uploaded	3.879865	4.014362	4.459034	4.485203
SD	2.563427	2.624826	2.637885	2.738584
Questions Answered	233.0265	183.8354	215.4153	196.4782
SD	407.3353	339.4315	345.4013	344.5125

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**Figure 1.** 2000 Census: Percentage of Age 20-34 Same Sex and Different Sex Interracial Households



Data taken from weighted 5% 2000 IPUMS sample

Figure 2. Predicted Probabilities of Interacting with Out-Group Relative to In-Group

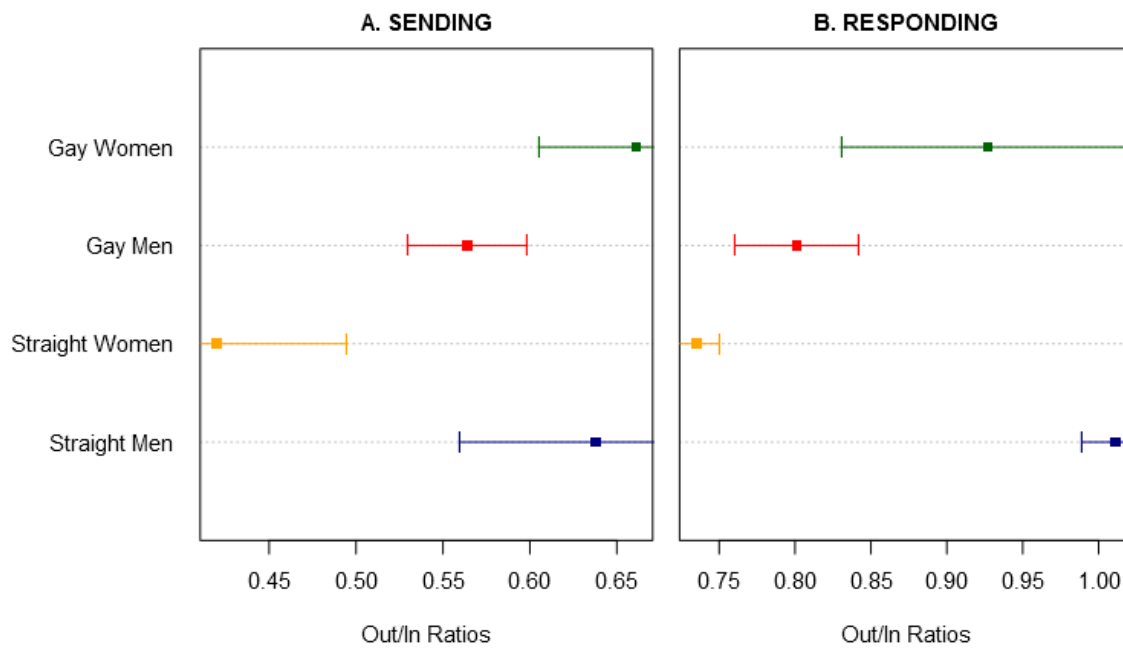
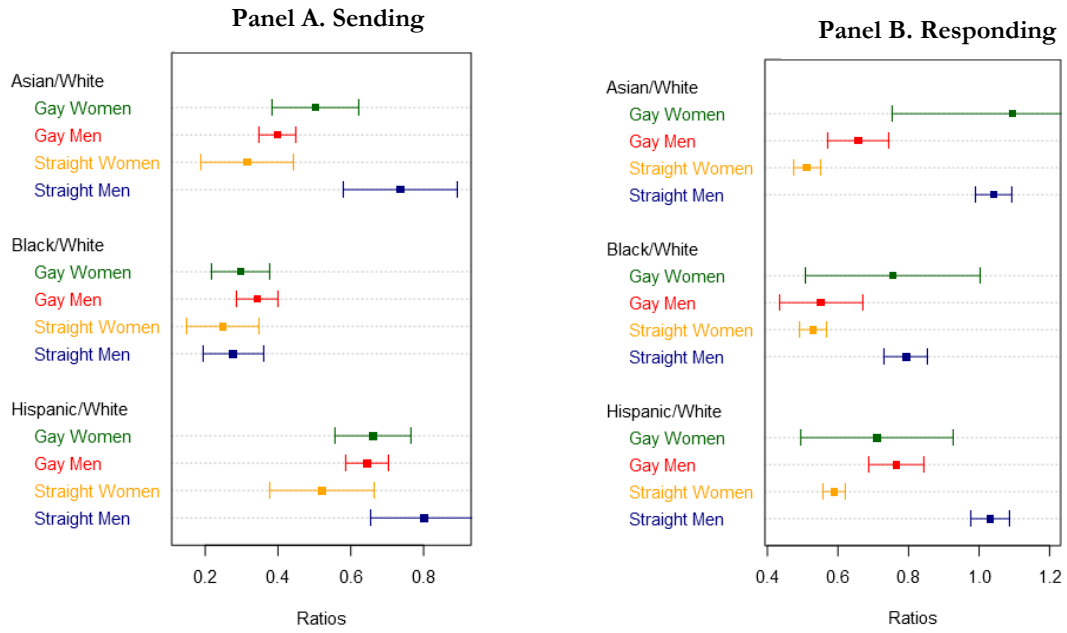
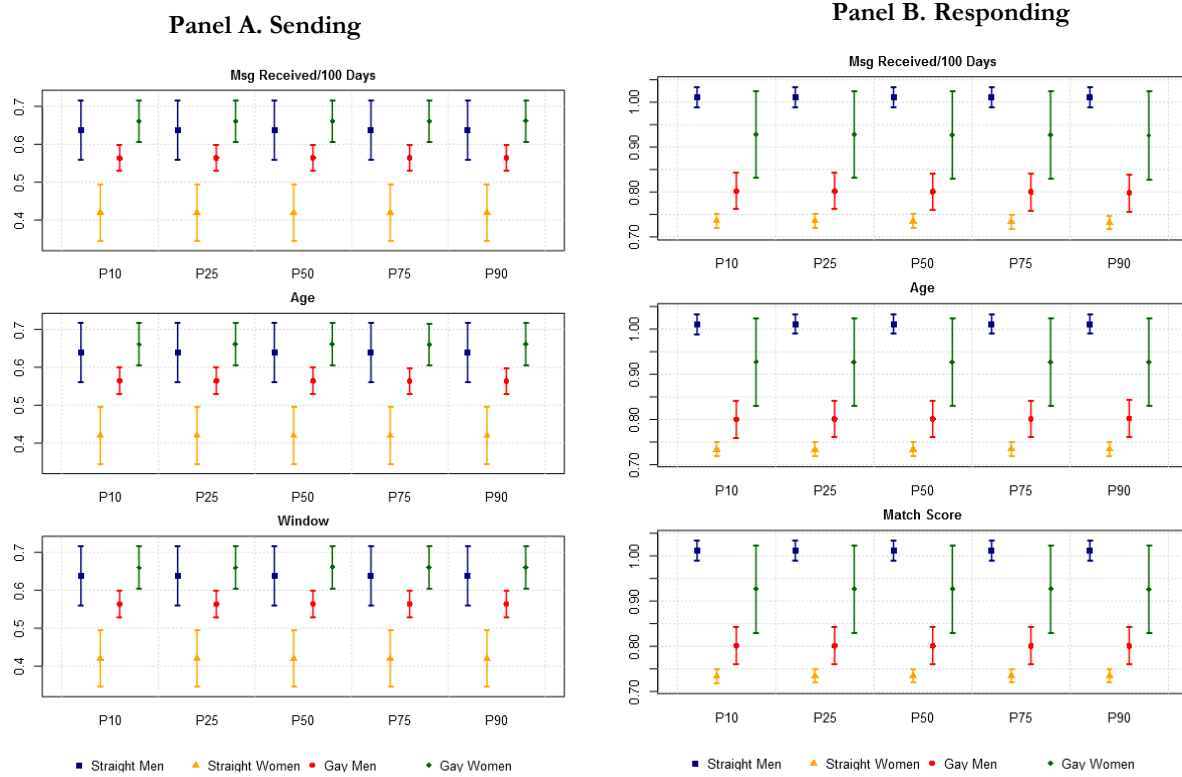


Figure 3. Predicted Probabilities of Interacting with each Racial Out-Group Relative to White In-Group



## Appendix 2. Predicted Probabilities of Sending and Response to Out-Groups at Varying Percentiles for Three Key Independent Variables



Predicted Probabilities at 10<sup>th</sup>, 25<sup>th</sup>, 50<sup>th</sup>, 75<sup>th</sup>, and 90<sup>th</sup> percentiles for 3 variables: Message Received/100 Days, Sender/Responder Age, and Opportunity Window/Matching Score.

## References

- Alba, R. (2009). *Blurring the color line: The new chance for a more integrated America*. 1st ed. Cambridge, MA: Harvard University Press.
- Alba, R., & Nee, V. (2005). *Remaking the American mainstream: Assimilation and contemporary immigration*. Cambridge, MA: Harvard University Press.
- Allison, P. D. (1999). Comparing logit and probit coefficients across groups. *Sociological Methods & Research*, 28 (2), 186-208.
- Allport, G. W. (1954). *The nature of prejudice*. New York: Doubleday Anchor Books.
- Ariely, D. (2008). *Predictably irrational*. New York: Harper Collins.
- Armstrong, E. (2003). *Forging gay identities: Organizing sexuality in San Francisco, 1950-1994*. Chicago: University of Chicago Press.
- Beeker, C., Kraft, J. M., Peterson, J. L., & Stokes, J. P. (1998). Influences on sexual risk behavior in young African-American men who have sex with men. *Journal of the Gay and Lesbian Medical Association*, 2, 59-67.
- Black, D., Gates, G., Sanders, S., & Taylor, L. (2000). Demographics of the gay and lesbian population in the United States: Evidence from available systematic data sources. *Demography*, 37 (2), 139-154.
- Black, D., Gates, G. J., Sanders, S., & Taylor, L. (2002). Why do gay men live in San Francisco? *Journal of Urban Economics* 51 (1), 54-76.
- Blackwell, D. L., and Lichter, D. T. (2004). Homogamy among dating, cohabiting, and married couples. *Sociological Quarterly* 45 (4), 719-737.
- Blumstein, P., and Schwartz, P. (1983). *American couples: Money, work, sex*. New York: William Morrow and Company.
- Bogardus, E. 1959. *Social Distance* Yellow Springs, OH: Antioch Press.

- Bonilla-Silva, E. (2004). From bi-racial to tri-racial: Towards a new system of racial stratification in the USA. *Ethnic and Racial Studies* 27 (6), 931-950.
- Boykin, K. (1996). *One more river to cross*. NY: Anchor.
- Chan, C. (1989). Issues of identity development among Asian American lesbians and gay men. *Journal of Counseling and Development*, 68, 16–20.
- Chasin, A. (2000). *Selling out: The gay and lesbian movement goes to market*. New York: St. Martin's.
- Cohn, D. (2011). *How accurate are counts of same-sex couples?*  
<http://www.pewsocialtrends.org/2011/08/25/how-accurate-are-counts-of-same-sex-couples>.
- Collins, P. (2004). *Black sexual politics: African Americans, gender, and the new racism*. New York: Routledge.
- Connell, R. (1992). A very straight gay: Masculinity, homosexual experience and the dynamics of gender. *American Sociological Review*, 57 (6), 735-751.
- Cross, S. and Madson, L. 1997. "Models of the Self: Self-Construals and Gender." *Psychological Bulletin*. 122: 5-37.
- Deaux, K., & Hanna, R. (1984). Courtship in the personals column: The influence of gender and sexual orientation. *Sex Roles*, 11, 363-375.
- Dube, E. M., & Savin-Williams, R. C. (1999). Sexual identity development among ethnic sexual-minority male youths. *Developmental Psychology*, 35 (6), 1389-1398.
- Eastwick, P. W., & Finkel, E. J. (2008). Sex differences in mate preferences revisited: Do people know what they initially desire in a romantic partner? *Journal of Personality and Social Psychology*, 94, 245-264.
- Ellingson, S., Laumann, E. O., Paik, A., & Mahay, J. (2004). The theory of sex markets. In E. O.

Laumann, S. Ellingson, J. Mahay, A. Paik, & Y. Youm (Eds.), *The sexual organization of the city* (pp. 3-38). Chicago: University of Chicago Press.

Emerson, M. O., Kimbro, R. T., & Yancey, G. (2002). Contact theory extended: The effects of prior racial contact on current social ties. *Social Science Quarterly*, 85, 745-761.

Feagin, J. R. (2000). *Racist America: Roots, current realities, and future reparations*. New York: Routledge.

Feliciano, C., Lee, R., & Robnett, B. (2011). Racial boundaries among Latinos: Evidence from Internet daters' racial preferences. *Social Problems*, 58, 189-212.

Feliciano, C., Robnett, B., and Komaie, G. (2009). Gendered racial exclusion among white Internet daters. *Social Science Research*, 38, 39-54.

Fisman R., Iyengar S., Kamenica E., & Simonson I. (2006). Gender differences in mate selection: Evidence from a speed dating experiment. *Quarterly Journal of Economics*, 121, 673-697.

Froyum, C. M. (2007). "At least I'm not gay": Heterosexual identity making among poor black teens. *Sexualities*, 10 (5), 603-622.

Gates, G. (2012). Same-sex couples in Census 2010: Race and ethnicity. Williams Institute, UCLA School of Law, April.

Gates, G. J., & Ost, J. (2004). *The gay and lesbian atlas*. Baltimore: Urban Institute Press.

Goode, E. (1996). Gender and courtship entitlement: Responses to personal ads. *Sex Roles*, 34, 141-169.

Green, A. (2008). Erotic habitus: Towards a sociology of desire. *Theoretical Sociology* 37, 597-626.

- Greene, B. (Ed.). (1997). *Ethnic minority lesbians and gay men: Mental health and treatment issues*. Thousand Oaks, CA: Sage.
- Hanley, J. A., Negassa, A., Edwardes, M., & Forrester, J. E. (2003). Statistical analysis of correlated data using generalized estimating equations: An orientation. *American Journal of Epidemiology*, 157 (4), 364-375.
- Harry, J. (1984). *Gay couples*. New York: Praeger.
- Hertzog, M. (1996). *The lavender vote: Lesbians, gay men, and bisexuals in American electoral politics*. New York: New York University Press.
- Hitsch, G., Hortaçsu, A., & Ariely, D. (2010a). "Matching and Sorting in Online Dating." *American Economic Review* 100(1):130-163. Retrieved May 18, 2012.
- Hitsch, G., Hortaçsu, A., & Ariely, D. (2010b). What makes you click?: Mate preferences in online dating. *Quantitative Marketing and Economics*, 8 (4), 393-427.
- Jacobs, J. A., & Teresa G. Labov. (2002). Gender differentials in intermarriage among sixteen race and ethnic groups. *Sociological Forum*, 17, 621-646.
- Jepsen, L. K., & Jepsen, C. A. (2002). An empirical analysis of the matching patterns of same-sex and opposite-sex couples. *Demography*, 39 (3), 435-453.
- Johnson, M. K., & Marini, M. M. (1998). Bridging the racial divide in the United States: The effect of gender. *Social Psychology Quarterly*, 61 (3), 247-258.
- Jones, J. M. (2011). *Record-high 86% approve of black-white marriages*. Gallup. <http://www.gallup.com/poll/149390/record-high-approve-black-white-marriages.aspx>. Accessed 7 March 2013.
- Joyner, K., & Kao, G. (2005). Interracial relationships and the transition to adulthood. *American Sociological Review*, 70 (4), 563.



- Kennedy, E. L., & Davis, M. D. (1993). *Boots of leather, slippers of gold: The history of a lesbian community*. New York: Routledge.
- Kurdek, L. A. (1993). The allocation of household labor in homosexual and heterosexual cohabiting couples. *Journal of Social Issues, 49*, 127-139.
- Kurdek, L. A. (2003). Differences between gay and lesbian cohabiting couples. *Journal of Social and Personal Relationships, 20*, 411-436.
- Kurdek, L. A. (2004). Are gay and lesbian cohabiting couples *really* different from heterosexual married couples? *Journal of Marriage and Family, 66*, 880-900.
- Kurzban, R., & Weeden, J. (2005). HurryDate: Mate preferences in action. *Evolution and Human Behavior, 26* (3), 227-244.
- Kazyak, E. 2010. *The Space and Place of Sexuality: How Rural Lesbians and Gays Narrate Identity*. Dissertation.
- Laumann, E. O., Gagnon, J. H., Michael, R. T., & Michaels, S. (1994). *The social organization of sexuality: Sexual practices in the United States*. Chicago: University of Chicago Press.
- Logan, T. (2010). Personal characteristics, sexual behaviors, and male sex work: A quantitative approach. *American Sociological Review, 75* (5), 679-704.
- Lundquist, J., & Lin, K.-H. (Under revision). Mate selection in cyberspace: The intersection of race, gender, and education. *American Journal of Sociology*.
- Madden, M., & Lenhart, A. (2006). *Online dating*. Pew Internet and American Life Project. <http://www.pewinternet.org/Reports/2006/Online-Dating.aspx>.
- Manalansan, M. F. (1996). Double minorities: Latino, black, and Asian men who have sex with men. In R. C. Savin-Williams & K. M. Cohen (Eds.), *The lives of lesbians, gays, and bisexuals: Children to adults* (pp. 393-415). Fort Worth, TX: Harcourt Brace.

- Massey, D. S. (2007). *Categorically unequal: The American stratification system*. New York: Russell Sage Foundation.
- Meier, A., Hull, K. E., & Ortyl, T. A. (2009). Young adult relationship values at the intersection of gender and sexuality. *Journal of Marriage and Family*, 71 (3), 510-525.
- Mood, C. (2010). Logistic regression: Why we cannot do what we think we can do, and what we can do about it. *European Sociological Review*, 26 (1), 67-82.
- Nemoto, K. (2006). Intimacy, desire, and the construction of self in relationships between Asian American women and white American men. *Journal of Asian American Studies*, 9 (1), 27-54.
- Nemoto, K. (2008). Climbing the hierarchy of masculinity: Asian American men's cross-racial competition for intimacy with white women. *Gender Issues*, 25 (2), 80-100.
- Nisbett, R., & Wilson, T. (1977). Telling more than we can know: Verbal reports on mental processes. *Psychological Review*, 84, 231-259.
- Omi, M., & Winant, H. (1994). *Racial formation in the United States: From the 1960s to the 1990s*. New York: Psychology Press.
- Pager, D., & Quillian, L. (2005). Walking the talk? What employers say versus what they do. *American Sociological Review*, 70 (3), 355.
- Passel, J. W. W., & Taylor, P. (2010). *Marrying out: One-in-seven new U.S. marriages is interracial or interethnic*. Pew Research Center. <http://pewresearch.org/pubs/1616/american-marriage-interracial-interethnic>. Accessed 4 June 2010.
- Phua, V. C., & Kaufman, G. (2003). The crossroads of race and sexuality. *Journal of Family Issues*, 24 (8), 981.
- Qian, Z. (1997). Breaking the racial barriers: Variations in interracial marriage between 1980 and 1990. *Demography*, 34 (2), 263-276.

- Qian, Z., & Lichter, D. T. (2007). Social boundaries and marital assimilation: Interpreting trends in racial and ethnic intermarriage. *American Sociological Review*, 72 (1), 68.
- Qian, Z., & Lichter, D. T. (2011). Changing patterns of interracial marriage in a multiracial society. *Journal of Marriage and Family*, 73 (5), 1065-1084.
- Reid-Pharr, R. (2001). *Black gay man*. New York: New York University Press.
- Riggs, M. (1989). *Tongues untied*. A documentary produced by Marlon Riggs.
- Robnett, B., & Feliciano, C. (2011). Patterns of racial-ethnic exclusion by Internet daters. *Social Forces*, 89 (3), 807-828.
- Rosenfeld, M., & Kim, B. S. (2005). The independence of young adults and the rise of interracial and same-sex unions. *American Sociological Review*, 70 (4), 541-562.
- Rosenfeld, M. J., & Thomas, R. J. (2012). Searching for a mate: The rise of the Internet as a social intermediary. *American Sociological Review*, 77 (4), 523-547.
- Sautter, J. M., Tippett, R. M. & Morgan, S. P. (2010). The social demography of Internet dating in the United States. *Social Science Quarterly*, 91 (2), 554-575.
- Savin-Williams, R. C. (1998). *"...And then I became gay": Young men's stories*. New York: Routledge.
- Schwartz, C. R., & Graf, N. L. (2009). Assortative matching among same sex and different sex couples in the United States, 1990-2000. *Demographic Research*, 21, 843-878.
- Schwartz, C. R., & Graf, N. L. (2010). *Can differences in partner availability explain differences in interracial/ethnic matching between same and different sex couples?* CDE Working Paper 2010-07.
- Sherkat, D. E., De Vries, K. M., & Creek, S. (2010). Race, religion, and opposition to same-sex marriage. *Social Science Quarterly*, 91, 80-98.

- Sigelman, L., & Welch, S. (1993). The contact hypothesis revisited: Black-white interaction and positive racial attitudes. *Social Forces*, 71, 781-795.
- South, S. J. (1991). Sociodemographic differentials in mate selection preferences. *Journal of Marriage and the Family*, 53, 928-940.
- Stacey, J. (2011). *Unhitched: Love, marriage and family values from West Hollywood to western China*. New York: New York University Press.
- Stokes, J. P., & Peterson, J. L. (1998). Homophobia, self-esteem, and risk for HIV among African American men who have sex with men. *AIDS Education and Prevention*, 10, 278-292.
- Tsunokai, G. T., Kposowa, A. J., & Adams, M. A. (2009). Racial preferences in Internet dating: A comparison of four birth cohorts. *The Western Journal of Black Studies*, 33 (1), 1-15.
- U. S. Census. 2010. America's families and living arrangements. Table FG-4. <http://www.census.gov/population/www/socdemo/hh-fam/cps2010.html>. Accessed 23 November 2011.
- Martin S. Weinberg and Colin J. Williams, "Fecal Matters: Habitus, Embodiments, and Deviance, *Social Problems*, August, 2005.
- Wilkins, A. C. (2008). *Wannabes, goths, and Christians: The boundaries of sex, style, and status*. Chicago: University of Chicago Press.
- Yancey, G. (2002). Who interracially dates: An examination of the characteristics of those who have interracially dated. *Journal of Comparative Family Studies*, 33 (2), 179-190.
- Yancey, G., & Yancey, S. W. (2002). *Just don't marry one: Interracial dating, marriage, and parenting*. Valley Forge, PA: Judson Press.
- Zuur, A. F., Ieno, E. N., Walker, N., Saveliev, A. A., & Smith, G. M. (2009). *Mixed effects models and extensions in ecology with R*. 1st ed. New York: Springer Press.

Zickuhr, K., & Smith, A. (2012). Pew Research Center.

[http://pewinternet.org/~media/Files/Reports/2012/PIP\\_Digital\\_differences\\_041312.pdf](http://pewinternet.org/~media/Files/Reports/2012/PIP_Digital_differences_041312.pdf).