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Reconceptualizing the Role of Essentialism in Attitudes Toward Gays and Lesbians: The Intersection of Gender and Sexual Orientation

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Reconceptualizing the Role of Essentialism in Attitudes Toward Gays and Lesbians:
The Intersection of Gender and Sexual Orientation

by

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A dissertation submitted in partial fulfillment
of the requirements for the degree of
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Table of Contents

List of Tables	iii
List of Figures	iv
Abstract	v
Introduction	1
Essentialist Beliefs – Kinds and Consequences	2
Essentialist Beliefs as Motivated Cognitions	7
Gender Inversion Theory and Symbolic Beliefs	10
Summary	13
Study One	16
Purpose and Hypotheses	16
Method	17
Participants	17
Materials and procedure	17
Results	23
Discussion	27
Study Two Pilot	37
Purpose	37
Method	37
Participants	37
Materials and procedure	38
Results	40
Study Two	42
Purpose and Hypotheses	42
Method	42
Participants	42
Materials and procedure	43
Results	44
Discussion	45
General Discussion	50
Exploring the Role of Implicit Inversion Theory	52

Significance of Current Findings and Future Directions	53
References.....	55
Appendix A: Study One Materials.....	60
Appendix B: Study Two Materials	65

List of Tables

Table 1. Examining Influence of Demographic Variables - Study One	29
Table 2. Gender Essentialism, Endorsement of Traditional Gender Role Norms, and their Interaction	30
Table 3. Gender Essentialism and Total Sexual Orientation Essentialism Composite.....	31
Table 4. Gender Essentialism and Subdivided Sexual Orientation Essentialism Composites.....	32
Table 5. Effect of Gender Essentialism Mediated by Symbolic Beliefs.....	33
Table 6. Mediating Effect of Participant Sex by Gender Essentialism and Symbolic Beliefs	34
Table 7. Mediating Effect of Right Wing Authoritarianism by Gender Essentialism and Symbolic Beliefs	35
Table 8. Comparison of Samples for Essentializing and De-essentializing Conditions....	47
Table 9. Examining Influence of Demographic Variables - Study Two	48

List of Figures

Figure 1. Interaction of Gender Essentialist Beliefs and Gender Role Norm Endorsement on Heterosexist Attitudes.....	36
Figure 2. Effect of Research Summary Condition by Evidence of Comprehension.	49

Abstract

Social psychology researchers have become increasingly interested in the role of essentialist beliefs in predicting attitudes toward social groups. However, there is little agreement about what the term actually means, whether it means different things for different groups, what endorsement of essentialism (or its sub-components) means for attitudes, and how much this varies depending on the relevant social context. This underlying lack of clarity helps to explain some of the difficulty in understanding the relationships between essentialist beliefs about sexual orientation and attitudes toward gay men and lesbians. In the current project, I suggest a fundamental shift in the approach to this issue. Specifically, I examine the effects of essentialist beliefs related to *gender* (rather than essentialist beliefs related to sexual orientation) on heterosexual attitudes. In study one, I explore the interrelationships among gender- and sexual orientation-related beliefs and attitudes toward gays, revealing that essentialist beliefs about gender are more consistent and unitary in their relationship to heterosexism than the sexual-orientation related analogues. In my second study, I demonstrate a causal link by manipulating essentialist beliefs about gender. Increasing the salience of gender essentialist beliefs produced higher heterosexism scores relative to decreasing the salience of such beliefs. Taken together, these studies demonstrate the interconnectedness of sexism and the gender hierarchy with heterosexism and discrimination against gays. More importantly, study two forecasts a possible intervention strategy for reducing anti-gay prejudice.

Introduction

Over the last few decades, research on the topic of essentialism has expanded greatly, and researchers have become progressively more attentive to the implications of essentialist thinking for social psychology. At its most fundamental level, essentialism can be defined as a belief that categories have a set of defining or ‘essential’ features, or (put another way) that each category has an underlying essence. As this concept has been explored in psychology, however, the term has been used in a variety of ways, and while some variations are quite subtle and perhaps purely semantic, others hint at a true divergence in what the concept of ‘essentialism’ implies, as well as its effects (Haslam, Rothschild, & Ernst, 2000). Much of the terminology employed in this area derives from language that was originally used to talk about categories that exist in nature (‘natural kinds’), and this creates some ambiguity when adopted to discuss categories that are either entirely socially constructed or imbued with social meaning beyond what the ‘natural’ category requires.

This ambiguity may partially explain the striking inconsistencies that have been observed when examining the relationship between essentialist beliefs about sexuality and attitudes toward gay men and lesbians. However, I believe the problems in deciphering this link are more acute, suggesting a deeper process at work. The current project aims to resolve this difficulty by considering the relationship between heterosexism and essentialist beliefs related to *gender*, rather than essentialist beliefs related to sexual orientation. I propose that the link from these beliefs to attitudes toward gay men and lesbians will be more reliable and coherent, and may help shed to new light on the roots of anti-gay prejudice.

Essentialist Beliefs – Kinds and Consequences

Psychological research on essentialism has been around for at least a quarter of a century (e.g. Medin & Ortony, 1989; Rothbart & Taylor, 1992), however in 2000 Haslam, Rothschild, and Ernst broke new ground by taking a more systematic approach. Synthesizing several authors' incorporation of essentialism into the field of psychology, they distilled nine basic elements of essentialism:

Discreteness:	Boundaries between categories are sharp and clear-cut, not fuzzy and indefinite.
Uniformity:	Category members are highly similar to one another (also called homogeneity)
Informativeness:	Knowing someone's category membership can tell you a lot about that person (also called inductive potential)
Naturalness:	The category exists naturally rather than being artificially created
Immutability:	Members in the category cannot easily become non-members (e.g. when membership is attributed to a biological cause)
Stability:	The category has always existed and its characteristics have not changed much over time
Inherence:	Under the surface, category members have an 'underlying reality' or sameness
Necessity:	There are certain characteristics without which one cannot be a member of this category
Exclusivity:	Someone belonging to this category cannot belong to another category (within the same domain).

They then empirically examined these nine types of beliefs as they applied to forty different social categories (e.g. males, Republicans, homosexuals) along twenty different domains (e.g., sex, political party, sexual orientation). Participants each rated only one of the two categories within each of the twenty domains, and these were counterbalanced. First by examining item inter-correlations, and then using exploratory factor analysis, Haslam et al. (2000) discovered that these nine elements could be grouped along two independent dimensions, the first of which

most closely resembled a perception that a given category is a ‘natural kind’ (including the elements of discreteness, naturalness, immutability, stability, and necessity), and the second reflecting a belief that the category represented a coherent entity (including the elements of uniformity, informativeness, inherence, and exclusivity). For brevity, they named the first dimension “naturalness” and the second dimension “entitativity”.

Examining the mean of all participants’ ratings, Haslam et al. found that while naturalness perceptions on their own were not significantly linked to the evaluative status of different categories, entitativity perceptions were. Groups for which mean-level ratings of entitativity were high were generally perceived as having lower status. Most interesting, the authors found an interactive effect between naturalness and entitativity, such that (although naturalness was not linked to status on its own) groups that were highly rated on *both* dimensions were seen as having the lowest status.

Other researchers have developed different taxonomies for describing the way essentialist thinking operates in response to social categories. For instance, rather than viewing entitativity as one independent dimension under the broader umbrella of essentialism, Yzerbyt, Corneille, and Estrada (2001) instead characterize it as a separate but related construct to what they term ‘subjective essentialism’. Never the less, they emphasize that the two go hand in hand. They present evidence of a bi-directional relationship between perceiving surface similarities among group members (entitativity) and inferring an underlying ‘essential’ cause (subjective essentialism). There is a constant dialogue, they argue, between perceived evidence and attributional beliefs. They also suggest that people may selectively perceive information in order to protect and maintain their essentialist categories.

In an earlier study, Yzerbyt and colleagues found that perceived entitativity exacerbates the (well-documented) tendency to attribute outcomes to dispositional rather than situational causes (Yzerbyt, Rogier, & Fiske, 1998). While in their study entitativity was manipulated, the authors point out that the tendency toward this type of thinking is also an individual difference variable. Consistent with this suggestion, Bastian and Haslam (2006) found that a tendency toward essentialist thinking about human attributes was predictive both of greater stereotype endorsement and also the belief that stereotypes about certain groups persist because of factors inherent to that group (rather than environmental or social causes).

There is an interesting parallel between this observation and the basic tenets of system justification theory. In their 2004 review article, Jost, Banaji, and Nosek (2004) present the various mechanisms through which system justification tendencies work to justify inequality. System threat, they argue, can lead to greater stereotype endorsement in order to justify and maintain the status quo. The desire to rationalize group differences is so strong, the authors maintain, that even people disadvantaged by the inequality will see explanations for the group-level differences as more legitimate than they actually are. While at this point we can only speculate, it is possible that lay theories related to essentialism play a role in this process. That is, essentialist beliefs related to gender may persist in part because of the psychologically protective function they serve, and people (including women) may endorse essentialist explanations for why inequalities between men and women endure.

Following up on their 2000 findings, Haslam, Rothschild, and Ernst (2002) extended their investigation beyond mean-level (i.e. shared) essentialist beliefs about groups (and the linkage of these shared beliefs to group status) to individual differences in endorsement of these beliefs, and the individual level relationship between such endorsement and negative attitudes

toward the group in question. This study focused specifically on essentialist beliefs about women, black people, and gay men. The same basic factor structure as was identified in their 2000 article (naturalness versus entitativity) was replicated here, for each of the three social groups.

Participant ratings along the naturalness dimension tended to be high for evaluations of women and black people, but barely above the midpoint for evaluations of gay men. Ratings for the entitativity dimension showed the opposite pattern (ratings well above the midpoint for gay men, but slightly below the midpoint for women and black people). Further, while essentialist beliefs about race and sex were not reliably predictive of racism or sexism¹, essentialist beliefs about sexual orientation were strongly (though not uniformly) predictive of attitudes toward gay men. Perceiving homosexuality as changeable and informative was related to more negative attitudes, whereas perceiving homosexuality as an inherent and historically stable construct was related to more positive attitudes.

These findings are especially interesting because they show that the relationship of essentialist beliefs to heterosexism is not unitary even when the dimensions of naturalness and entitativity are considered separately. That is, one might make the argument on the basis of Haslam et al.'s (2000) findings that entitativity should predict negative attitudes while naturalness (on its own) might predict positive attitudes. However, inherence (the perception that below the surface, category members have an 'underlying reality' or sameness) was consistently found to load more strongly with the entitativity dimension in all of the factor analyses conducted by the authors, yet the relationship between this variable and attitudes toward gay men was positive. The authors speculated that the inconsistency may stem from a perception that

¹ But see Brescoll and LaFrance (2004), who found that manipulating the proposed explanation for a trivial gender difference (as biological versus social) predicted endorsement of gender related stereotypes.

inherence implies a lack of choice, and that choice (and the culpability it connotes) is often a major component in the stigma attached to certain social categories.² The authors conclude that the relationship between essentialist beliefs and prejudice may not be as straightforward as early theorists proposed, and that the role of these types of beliefs “may vary as a function of self-categorization and social context” (Haslam et al., 2002, p. 98).

These inconsistencies in the relationships between various facets of essentialism and attitudes toward gay men and lesbians have been borne out by other researchers. Whereas the link between positive attitudes toward gays and a belief that sexual orientation has biological roots or is otherwise immutable has been replicated with relative consistency (see e.g. Hegarty & Pratto, 2001; Hegarty, 2002; Haslam & Levy, 2006; Jayaratne et al., 2006), other aspects of essentialism have more complicated relationships to attitudes. For instance, Hegarty and Pratto (2001) identified a ‘fundamentality’ dimension to essentialist beliefs, which they found to be negatively correlated with ‘immutability’ beliefs, and negatively related to attitudes toward gay men and lesbians.

Similarly, Haslam and Levy (2006) found that essentialist beliefs classified under the label ‘discreteness’ predicted negative attitudes toward gay men and lesbians, and that these beliefs mediated the relationship between participant sex and attitudes toward gay men (specifically men’s greater negativity toward gay men), while a newly-defined ‘universality’ factor positively predicted attitudes toward gays, and endorsement of these beliefs mediated the relationship between race and attitudes (specifically, white participants’ greater positivity toward gays) as well as the negative relationship between attitudes and religiosity.

² But see Demoulin, Leyens, and Yzerbyt (2006) who demonstrate that endorsement of the type of essentialist belief captured by the ‘inherence’ item is independent of whether the a group is generally considered to be a forced social category (FSC) or chosen social category (CSC), and argue that inherence beliefs should actually be construed as a separate (and more direct) measure of essentialism.

Finally, Hegarty (2002) challenges the idea that immutability beliefs genuinely correspond with more positive attitudes toward gays by demonstrating that this link is actually dependent on the cultural construction that such beliefs are an expression of tolerance. In his study, he replicated the correlation between immutability beliefs and attitudes in an American sample, but showed that the correlation was absent in a British sample. Even more tellingly, he demonstrated that in both cultures the correlation between immutability beliefs and attitudes was dependent on participants perceiving that gay-tolerant (rather than condemning) people were the ones most likely to agree with the immutability items. Thus, Hegarty argued, “people may be constructing their beliefs about brain nuclei, genes and hormones to fit their sexual politics rather than the reverse” (p. 163).

Overall, there is very little consistency in the literature regarding the relationship between so-called essentialist beliefs related to sexual orientation and attitudes toward gay men and lesbians. This calls into question the idea that ‘essentialism’ is even a meaningful term under which to categorize the various belief statements that have traditionally made up this composite in reference to other groups, once these statements are translated into the sexual orientation context. Finally, this suggests that a new approach is needed in order to more fully understand how essentialist ideology (in general) may interact with anti-gay prejudice.

Essentialist Beliefs as Motivated Cognitions

Extending this logic somewhat further, Verkuyten (2003) suggested that it may be useful to reconceptualize essentialism as a social practice rather than an internal psychological process or set of beliefs. This practice, they assert, can be deployed oppressively or progressively, depending on the particular context and the way in which it is performed. For instance, essentialist rhetoric can be useful to minority groups attempting to defend against unrealistic

assimilationist demands, and seeking to gain institutional acknowledgment of their cultural practices. On the other hand, de-essentializing language is crucial for defending against the negative stereotypes and stigma that are often attached to minority groups by the majority, as well as for guarding against attempts at discrimination or segregation.

Castano, Sacchi, and Gries (2003) demonstrate an analogous point in their experimental study manipulating the perceived entitativity of the European Union (EU). They found that entitativity had a polarizing effect on perceptions of the EU's actions between people who had generally positive or generally negative attitudes of the EU. Thus, it was not the case that perceived entitativity directly influenced judgments for good or ill, but rather that this perception heightened the attitude pattern that already existed. Analogously, participants were more persuaded by a research article purporting to have discovered important sex differences in cognition when the interpretation of the findings was affirming to their own gender (Morton, Haslam, Postmes, & Ryan, 2006). This pattern was enhanced when the type of research described was based on neuroscience (which arguably enhanced the essentializing thrust of the findings) compared to when it involved more mundane social psychology research methods (in-depth interviews and surveys).

Adding further complexity to an already complicated picture of the motivations behind endorsement of essentialist beliefs is the role of perceived system stability. Morton, Postmes, Haslam, and Hornsey (2009) manipulated perceptions of the gender hierarchy via fake news articles that either depicted the hierarchy as unstable (with women making gains), stable (with men on top) or already changed (with women now holding higher status than men). They found that sexist men were more supportive of essentializing research related to gender differences when the hierarchy was depicted as changing than when it was depicted as stable or already

changed. Consistent with the overarching themes from the work of Yzerbyt and colleagues discussed above, this implies a perception that essentializing gender difference can be a tool to protect the status quo when it is under threat.

Further demonstrating the effectiveness of essentialism as a defensive and system-legitimizing tool, the authors' third study showed that when participants were exposed to an account of gender differences that attributed the variation entirely to evolved biological drives (versus an account that also included evidence *challenging* the importance of biology in creating differences), men were more likely to view the current system of gender treatment as fair and endorse the use of discriminatory practices against women. More striking, both men *and* women in the sample were more accepting of social dominance ideology in general, and were less likely to think that social change was likely, when exposed to the purely biological account.

The authors posit that essentialist beliefs should not be thought of merely as internal philosophies that people hold 'in and of themselves', but rather as tactical arguments to be employed selectively when a system is under threat. The link between essentialism and prejudice, therefore, is not one-to-one, but has to be considered in the context of who is essentializing whom, and for what purpose. That is, essentialism is employed strategically by groups "to argue for or against particular visions of intergroup relations" (Morton et al., 2009, p. 663). It is for this reason that I suggest gender essentialism may provide a useful avenue for understanding attitudes toward gay men and lesbians – and perhaps to a greater extent than essentialist ideas about sexual orientation. As I will describe in greater detail below, the motivations behind gender essentialism (to preserve the status quo with regard to gender roles) are undermined by same-sex relationships, which could presumably open the door for anti-gay attitudes, whereas it is unclear what motivations essentialist beliefs about sexual orientation

serve, or that these motivations are consistent enough across the different sub-domains of essentialism to even be properly categorized under a unified moniker.

Gender Inversion Theory and Symbolic Beliefs

A great deal of research has exposed the tendency to treat gender as a discrete category and to punish those men and women who blur the lines. In three studies, Costrich, Feinstein, Kidder, Maracek, & Pascale (1975) demonstrated how gender role violators are punished in third party evaluations. They also found that men were more consistent punishers, and more consistently punished (specifically, women were less consistently punishing of norm violating women, Costrich et al., 1975). The tendency to view gender as a bipolar and unidimensional construct is theoretically entangled with the implicit inversion theory. This theory hinges on the idea that masculine and feminine roles and identity are categorical opposites sharing a one-to-one relationship with biological sex and sexual orientation. Under this script, men must be masculine and sexually prefer women, whereas women must be feminine and sexually prefer men. If an individual violates one part of this script, an implicit inversion is imputed, and people assume consistent violation to other parts of the script (McCreary, 1994). Thus, people who violate gender norms are assumed to be homosexual (Deaux and Lewis, 1984, McCreary, 1994), and homosexuals are assumed to have traits that are more like opposite-sex than same-sex heterosexuals (Kite & Deaux, 1987).

This implicit connection seems to be stronger for gay men than for lesbians. There was some ambivalence among participants in Kite and Deaux's study about the link between sexual orientation and gender performance for women – specifically, men in the study showed a strong correlation between the characteristics assigned to lesbians and to heterosexual males, whereas women in the study did not. Overall, gay men and straight men were viewed as more dissimilar

than lesbians and straight women. In McCreary's (1994) study, a male target described with stereotypical feminine characteristics was judged more likely to be homosexual than a cross-gender acting female target. Consistent with these findings, Madon (1997) undertook a painstaking examination of the stereotype content related to gay men and found two over-arching themes: 1) belief that gay men exhibit positive feminine-typed qualities (e.g., warm hearted, compassionate, open about feelings); 2) belief that gay men violate acceptable norms for male behavior (e.g., walk like girls, transvestites, limp wristed). The latter of these two sub-types was more dominant. Furthermore, previous research has shown that negative attitudes toward gay men and lesbians stem in part from the perception of these individuals as gender role violators (MacDonald & Games, 1974; Laner & Laner, 1979, 1980).

Probably the single most consistent and robust predictor of attitudes toward gay men and lesbians, however, is endorsement of authoritarian beliefs – often called Right Wing Authoritarianism, or RWA (Altemeyer, 1981). In my 2012 meta-analysis, I found a staggeringly high summary correlation between authoritarianism and heterosexism ($\bar{r} = .62$) with evidence that the relationship is even growing stronger over time.³ Broadly defined, authoritarianism is a belief system that promotes order and social cohesion by adherence to legitimate authorities and denigration of individuals who disrupt the status quo. Haddock, Zanna, and Esses (1993) show evidence that the relationship between RWA and heterosexism may be driven by a specific set of symbolic beliefs (which they define as “beliefs that social groups violate or promote the attainment of cherished values, customs, and traditions,” Haddock et al., 1993, p. 1106) as well as perceived value discrepancy (a perception that a group endorses values that differ from one's own). The authors assessed participants' symbolic beliefs about gays in two separate studies, and

³ Notably, the next highest summary correlation observed in my meta-analysis was with gender attitudes: $\bar{r} = .44$.

in both cases beliefs that gays violate traditional family values were among the most common. While the authors did not give detail about participants' specific responses to the symbolic beliefs and value discrepancies items, there is reason to suspect that investment in the gender binary may have been entangled with the concept that they labeled 'traditional family values'.

Evidence from a 2007 meta-analysis by Sibley, Wilson, and Duckitt of the robust relationship between Right Wing Authoritarianism and endorsement of Benevolent Sexism provides tangential support for this theory. The authors explain that while RWA is not directly related to a desire to subjugate women, it corresponds with a belief that men and women fulfill complementary (if unequal) roles within society. The relationship between RWA and BS, therefore, is the result of a motivational process in which people who are high in RWA seek to "maintain the cohesion of the ingroup and establish clear boundaries for the prescriptive roles that men and women play within the contexts of the ingroup" (Sibley, Wilson, and Duckitt, 2007, p. 163). Prejudice is to be expected, therefore, toward groups that threaten this cohesion and undermine these consensual ideologies. Brandt and Henry (2012) take this logic one step further, and assert that the psychologically protective function of RWA might be particularly alluring for women in individualist societies with high levels of gender inequality. The authors found that within those societies, not only were women more endorsing of authoritarian values than men, but that the degree of their endorsement was correlated with the degree of stigma against women. Conversely, in more egalitarian individualist societies, men endorsed RWA more than women did.

Returning to the results of Haddock et al. (1993), the authors discovered that for participants high in RWA, symbolic beliefs were more highly predictive of attitudes toward gay men and lesbians than either affective responses or endorsement of negative stereotypes. They

explain that not only do people high in RWA tend to hold more traditional values, but they also assign these values more importance in their daily lives (Haddock et al., 1993, referencing prior work). Interestingly, the correlation between RWA and heterosexism became small and non-significant after partialling out the variance attributable to symbolic beliefs and perceived value dissimilarity (strength of correlation reduced from .40 to .11).

Further, the authors demonstrated that not only was RWA (mediated by symbolic beliefs) predictive of more negative attitudes toward gays, but that this particular formula of attitude formation may lead to greater consequences for gay rights. Among participants who all held equally negative views toward gays, those who were high in RWA advocated a greater funding reduction for a gay rights group than participants low in RWA (45% compared to 25%). The authors also found that it was those participants whose negative attitudes were driven by their negative symbolic beliefs who advocated the greatest funding reduction (52%). Thus, greater understanding of the symbolic beliefs that undergird the relationship between RWA and heterosexism could be quite instrumental in helping to develop prejudice reduction strategies and avert future discrimination against gays and lesbians.

Summary

Previous research suggests that essentialist beliefs related to gender are more pervasive than those pertaining to any other social category, and gender is perceived (to a greater extent than other categories) to be a 'natural kind' rather than an artifact. When categories are perceived as natural, then differences between groups are 'inferred to be fundamentally and even morally correct' (Haslam, 2011, p. 819). Furthermore, essentialist beliefs lead people to view groups as necessarily distinct and different from one another, while each group's members remain fundamentally similar to each other. Because homosexuality both constitutes a per se gender role

violation regarding sexual object choice, and implies a host of other gender role violations via implicit inversion theory, it poses a problem for the maintenance of gender as a natural and discrete category, fueling negative attitudes toward gay men and lesbians. Considering the evidence that essentialist beliefs about a category become stronger when the status hierarchy within that category is under threat, it is possible that this attitudinal chain is strengthened by the recent focus on women's increasing equality in the workplace, and the fabled decline of the traditionally masculine man.

Essentialist beliefs about gender, deployed to protect the status quo, are challenged by the existence and increasing visibility of gay men and lesbians, and the gender flexibility they exhibit, imply, or with which society stereotypically imbues them. For these reasons, one could expect a direct and consistent relationship between essentialist gender beliefs and heterosexism, whereas the relationship of heterosexism with essentialist beliefs about sexual orientation has been inconsistent in strength and direction, fractured among the various facets of essentialism, even splintering those sub-domains of essentialist thinking that previous research has identified as hanging together. In drawing this connection, however, it will be important to distinguish gender essentialism from the more general endorsement of traditional gender role norms, and to demonstrate that gender essentialism can contribute to the prediction of heterosexist attitudes beyond just being a proxy for gender role ideology. Further, it will be worthwhile to specifically test the proposed justification for why gender essentialism influences attitudes toward gays – that is, the symbolic belief that gays threaten gender-related values should mediate this relationship.

A relationship between gender essentialism and heterosexism may help to explain why studies frequently (though not universally) find that men have more negative attitudes toward gays, and in particular toward gay men. If the gender hierarchy is under threat, it is reasonable

that men should be more motivated and invested in its preservation. Indeed, research has found that men are more likely to endorse essentialist beliefs about gender, and are more consistent in punishing gender role violators. The fact that attitudes toward gay men tend to be more negative than attitudes toward lesbians is consistent also with the greater stringency in gender role norms for men and the greater perceived link between sexual orientation and gender identity for gay men than for lesbians. Based on this, we may expect essentialist beliefs about gender and symbolic beliefs that gays threaten gender related values to mediate the sex difference in attitudes toward gays. Finally, symbolic beliefs related to ‘traditional family values’ have already been found to mediate the heterosexism-predicting effect of Right Wing Authoritarianism (the single most robust and consistent predictor of attitudes toward gays yet to be observed). Considering that ‘family values’ are likely to be fundamentally tied up with traditional notions of gender, gender essentialism and more *broadly* construed symbolic beliefs about gays’ effect on gender issues might do so as well.

Research examining the role of gender attitudes on heterosexism has not yet explored the role of essentialism, and research examining the influence of essentialist beliefs on group-related attitudes has not yet tested a cross-domain relationship. In addition to demonstrating this relationship, a further goal of this project will be to provide support for the specific causal chain implied by the theory described above, by experimentally influencing the salience of gender essentialist beliefs. By testing if the effect is manipulable, it will illuminate a possible avenue for interventions to reduce anti-gay prejudice.

Study One

Purpose and Hypotheses

The primary goal of the first study was to explore the relative strength of relationships between gender essentialism, endorsement of gender role norms, beliefs about sexual orientation (including symbolic beliefs and essentialist beliefs), and attitudes toward gay men and lesbians. I expected that gender essentialism would be positively related to the endorsement of gender role norms, and that together these variables would account for a significant proportion of variance in attitudes toward gay men and lesbians, but was particularly interested in what gender essentialism could contribute in *addition* to or in *combination* with the influence of gender role norms (Hypothesis 1). Second, I predicted that gender essentialism would *uniformly* predict attitudes toward gay men and lesbians, whereas essentialist beliefs related to sexual orientation would not be so consistent or reliable (Hypothesis 2).

Third, I predicted that the relationship between gender essentialism and attitudes toward gays would be mediated by symbolic beliefs that gay men and lesbians threaten gender-related values (Hypothesis 3), acknowledging the possibility that this pattern might only emerge amongst those participants whose beliefs about gays were heavily influenced by the implicit inversion theory. Finally, I proposed that gender essentialism and symbolic beliefs about gays' influence on values related to gender could account for a substantial portion of the influence typically attributed to two of the most commonly observed predictors of heterosexism: participant sex and Right Wing Authoritarianism (Hypothesis 4).

Method

Participants. Two hundred twenty-three participants were recruited from M-Turk⁴ (110 male, 112 female, and 1 who did not report sex). The median age of the sample was 30, and participants self-identified as (non-Hispanic) White / European American (79.4%), Black / African American / Caribbean (4.9%), Hispanic / Latino(a) (4.9%), Asian / Pacific Islander (7.6%), and Other (3.1%). Ninety-two percent of the sample identified as exclusively or predominantly heterosexual.⁵

Materials and procedure. Participants completed each of the scales described below via a survey linked through Qualtrics. Except where noted, each scale was presented on a separate page. In order to minimize the potential for systematic effects of exposure to any one scale's content on responses to another scale, the order of presentation was randomized. All participants viewed the consent statement first and completed demographic information last, however. Each of these scales can be found in their entirety in Appendix A. The scale titles are for reference only, and were not included in the materials presented to participants.

Essentialist beliefs related to gender and sexual orientation. These items were adapted based on prior work by Haslam, Rothschild, and Ernst (2002), Haslam and Levy (2006), as well as Hegarty and Pratto (2001), in order to efficiently cover the sub-domains of essentialist thinking which have been most fruitful in prior work, and are most likely to be relevant to the

⁴ Twelve of these participants completed the survey twice, thus my initial dataset contained 235 cases. Only the data from their first survey attempt were retained, however, yielding the *N* of 223 reported above.

⁵ In both of my studies I elected not to exclude participants on the basis of sexual orientation. From a statistical perspective, this was done to preserve maximum power for the analyses and because sexual orientation did not independently predict heterosexist attitudes in either study. From a theoretical perspective this was done because restrictive attitudes about gender are influential within the LGBT community as well as without, and while it should be expected that this group would exhibit less heterosexism and possibly be less endorsing of gender essentialism overall, this section of the sample still represents a meaningful segment along the spectrum of these attitudes and their interaction, thus I felt it would be both desirable and appropriate to capture these perspectives in my data. I did, however, retest each of the analyses described below excluding participants indicating a sexual orientation of 4 or higher (indicating bisexuality or homosexuality) and all significant effects remained significant.

current examination: discreteness, immutability, uniformity, informativeness, and universality. These sub-domains include two which fall under Haslam et al.'s (2002) original 'naturalness' domain (discreteness and immutability), and two falling under the original 'entitativity' domain (uniformity and informativeness), adding the 'universality' component which was later identified as important by Haslam and Levy (2006) as a predictor of more positive attitudes toward gays (compared with the negative predictive power of 'discreteness'). Note that while Hegarty and Pratto (2001) arrived at an entirely different typology for essentialist beliefs about sexual orientation (extracting an 'Immutability' factor and a 'Fundamentality' factor), the items selected for the current project are poised to capture these opposing dimensions as well: informativeness, discreteness, and universality items all contributed to the Fundamentality factor in Hegarty and Pratto's analysis (though the loading for universality was negative).

Although the items related to gender were administered on a separate page from the items related to sexual orientation, and the order of these scales was randomized, the items for each scale were worded somewhat differently, in order to reduce the likelihood of response contamination on whichever scale was completed second. Also, note that for the gender essentialism items, beliefs related to *gender*, not sex, are of interest. That is, most people quite likely view biological sex as a discrete and immutable category, without this belief interacting with gender role expectations and influencing attitudes toward norm violators. What is more relevant to the current project is the idea that gender is a binary rather than a continuum, that masculinity and femininity are immutable, and naturally follow from one's biological sex, and so on.

The five gender essentialism items were averaged to form the Gender Essentialist Beliefs composite (GEB, $\alpha = .76$). Higher scores on this composite mean greater endorsement of

essentialist beliefs regarding gender. A five-item composite for Sexual Orientation Essentialism (SOE) was created in the same fashion, but because of the incredibly low reliability ($\alpha = .24$), an Exploratory Factor Analysis was conducted (using principal axis factoring and Oblimin rotation, allowing extracted factors to correlate) to determine whether the items should be treated as a unified composite, or if they would more accurately be characterized by two or more factors. Results suggested a two-factor solution, with items 1 (immutability) and 5 (universality) loading on the second factor, and the remaining three items (informativeness, uniformity, discreteness) loading on the first.⁶ Importantly, this division among the items also reflects a division in their relationship to Heterosexist Attitudes (see below for further description of that scale). While those SOE items that loaded on Factor 1 are all significantly related to greater levels of heterosexism (r s between .24 and .47, p s < .001), the remaining two items correspond to more positive attitudes toward gays, thus *negatively* predicting heterosexism (r s = -.39 and -.46, p s < .001). I therefore created two additional composites: SOEPos (items 2, 3, and 4, $\alpha = .58$) and SOENeg (items 1 and 5, $\alpha = .41$).

Endorsement of gender role norms. Three items were selected from the Gender Role Beliefs Scale (Kerr & Holden, 1996), and three items were selected from the Sex-Role Orientation Scale (Brogan & Kutner, 1976). These scales were selected primarily due to their content relevance, but secondarily due to their demonstrated association with attitudes toward gay men and lesbians. The particular items within the scales were chosen in order to include (in a very limited number of items) perceptions of masculine norms, feminine norms, and norms regarding male/female interaction, with an eye toward avoiding items that used outdated

⁶ By contrast, the same analysis when performed on the GEB items resulted in extraction of a single factor accounting for over 50% of the variance (Eigenvalue = 2.53, with potential remaining factors exhibiting Eigenvalues of .81 or below). All five items were positively related to this dominant factor, with loadings ranging from .51 to .70.

language or expressed ideas that modern participants would be unlikely to endorse. Changes in wording were made to two of the items, so that each dimension would have one positively worded and one reverse-coded item. For the survey administration, these items were mixed in with the GEB items on a page labeled “General beliefs about gender”. Responses to these items were averaged, reverse-coding where necessary, to form the Gender Role Norms composite (GRN, $\alpha = .71$). Higher scores on this composite indicate greater support for traditional gender role norms.

Symbolic beliefs. I generated this scale based on information from Haddock, Zanna, and Esses (1993) to serve as a direct measure of the degree to which participants view gays and lesbians as threatening the gender dichotomy. In order to reduce potential for demand characteristics, filler domains were included to reduce the focus on gender within this scale, but of particular interest were responses to item #2 (family happiness), item #5 (harmony between the sexes), and item #9 (positive gender development). To determine whether the items of interest formed a meaningful cluster as expected, a series of exploratory factor analyses were performed, using principal axis factoring. The simplest factor structure was achieved when three factors were extracted and the factors were permitted to correlate with one another (Oblimin rotation). This solution yielded minimal cross-loading (only one item produced a loading above .30 on more than one factor) and all but one item showed a strong loading on a single factor (loadings = .52 and greater). The three items of interest all loaded on the first factor, along with two additional items (health and public safety, and meritocracy). No theoretical justification is apparent for why these two filler items should be conceptually related to the other three, and reliability analyses confirmed that among the five items, the two fillers showed the lowest item-total correlations. I therefore proceeded to create the initially intended Symbolic Beliefs

composite (SB, $\alpha = .80$). Higher scores on this composite indicate more positive symbolic beliefs about gays (that is, that they *contribute positively* to, rather than threaten, values related to gender and the family).

Endorsement of the Implicit Inversion Theory. I generated these items based on information from Kite and Deaux (1987) to construct a face-valid measure of the belief that gay men and lesbians more closely resemble opposite sex heterosexuals than their same-sex heterosexual counterparts, and the endorsement of stereotypes about gays and lesbians that are predicated on gender-based assumptions. For the survey administration, these items were mixed in with the SOE items on a page labeled “General beliefs about gays and lesbians”. Responses to these items were averaged to form an overall Implicit Inversion Theory composite (IIT, $\alpha = .82$).

Attitudes toward gay men and lesbians. The items within this scale come from a variety of sources, and were selected in order to efficiently capture attitudes toward gays along five main facets: Affective; Aversive; Equality; Heteronormativity; and Perceived Threat. In my own research (Hettinger and Seybert, forthcoming) this scale has demonstrated high internal reliability (alphas ranging from .96 to .98) as well as concurrent and criterion related validity.

Specifically, this scale has demonstrated very high correlations (r s ranging from .91 to .96) with Herek’s (1984) 20-item Attitudes Toward Lesbians and Gay Men scale, which is one of the most frequently used scales within this area of research. It has also shown robust correlations with the conceptually related Ambivalent Sexism Inventory (Glick and Fiske, 1996, $r = .48$) and Right Wing Authoritarianism scale (Zakrisson, 2005, $r = .72$), both of which very slightly exceeded the correlations of these measures with Herek’s scale (r s = .46 and .69, respectively). Finally, in a lab study, scores on this scale (administered separately as a part of mass testing) significantly predicted participants’ evaluations and hiring recommendations for job candidate

who was presented and recognized as gay. When presented with two candidates (one depicted as being in heterosexual marriage, and the other living with a same-sex partner), participants scoring higher on the 5-category Heterosexism Scale gave the gay candidate lower ratings ($\beta = -.23$, $t(109) = -2.51$, $p = .01$), and were less likely to recommend hiring or giving a second interview to the gay candidate ($\beta = -.27$, $t(109) = -2.89$, $p < .01$).⁷ In the current sample the scale once again showed exceptionally high reliability, and the items were averaged (reverse-coding where necessary) to form the Heterosexist Attitudes composite (HA, $\alpha = .98$). Higher scores on this composite indicate greater levels of heterosexism.

Right Wing Authoritarianism. The items selected from this scale were derived from Zakrisson's (2005) version of the scale. This version was selected due to its enhanced brevity and reliability, as well for its more general conceptualization of the authoritarian concept; many RWA scales include items that specifically reference stigmatized groups, creating some ambiguity as to whether it is truly authoritarianism or merely the preponderance of these items that leads to correlations with prejudice. Five of the fifteen items were eliminated in order to further maximize these goals (one item was eliminated for lack of clarity, and four were eliminated for their reference to religion and/or sexual conduct). The remaining items were edited where necessary for grammatical purposes. These items were averaged, reverse-coding where appropriate, to create the Right Wing Authoritarianism composite (RWA, $\alpha = .86$). Higher scores on this scale indicate more authoritarian attitudes.

Demographic items. Participant sex, age, race, sexual orientation, strength of religious affiliation / fundamentalism, and political orientation were also assessed as part of a

⁷ Running these regressions with Herek's scale as the predictor instead yielded similar, if slightly weaker, effects: for ratings, $\beta = -.19$, $t(109) = -2.05$, $p = .04$; for recommendations, $\beta = -.26$, $t(109) = -2.76$, $p < .01$.

demographic questionnaire. For specific wording of the questions, see Appendix A. For the purpose of statistical analyses, participant sex (Sex) was dummy-coded 0 for female and 1 for male. Based on previous research which has consistently indicated more positive attitudes on the part of White respondents compared to other races, and more negative attitudes on the part of Black respondents compared to other races, Race in this study was divided into two dummy codes, the first reflecting identification as White (0 = non-White, 1 = White) and the second reflecting identification as Black (0 = non-Black, 1 = Black). Thus, White participants were identified by the codes 1, 0, Black participants were identified as 0, 1, and all other participants received the codes 0, 0. The items pertaining to religion were Z-transformed prior to being combined to form the religiosity composite (Religiosity, $\alpha = .87$). The three items pertaining to political ideology were averaged to form the Political Orientation composite (PO, $\alpha = .90$).

Results

As a preliminary matter, a regression analysis was conducted to determine which demographic variables were substantially related to Heterosexist Attitudes (HA) and therefore should be included as potential covariates. HA was regressed onto Sex, the two race codes (White; Black), Age, Sexual Orientation, Religiosity, and Political Orientation (PO). The full results of this analysis can be found in Table 1.⁸ Sex, Age, Religiosity, PO, and identifying as Black all significantly predicted HA. The failure of Sexual Orientation to emerge as a significant predictor is somewhat surprising, but (given the relative lack of non-heterosexual participants in the sample) should not be over-interpreted. Unless otherwise noted, the five variables to emerge as independently significant predictors were treated as control variables in the subsequent

⁸ Because many of the variables involved in this project have known relationships with one another, collinearity diagnostics were requested for each regression analysis performed. Examination of Condition Indices, Tolerance and Variance Inflation Factors indicated that collinearity was within acceptable margins.

analyses.⁹ This reduced the total number of participants included in the analyses to 220, because three participants were missing data for one or more of these demographic variables.

Hypothesis 1a: Essentialist beliefs related to gender (GEB) will be positively related to endorsement of traditional gender role norms (GRN) as well as heterosexist attitudes (HA).

To test this hypothesis, a partial correlation analysis was conducted, examining the interrelationships among these variables both with and without the covariates listed above. In both cases, the relationships with GEB were significant (GEB / GRN: $r = .58, p < .001; r_p = .45, p < .001$; GEB / HA: $r = .54, p < .001; r_p = .30, p < .001$).

Hypothesis 1b: GEB and GRN will both positively predict HA (independently and/or interactively), such that people who score highly on both of these scales will exhibit the greatest levels of HA.

Before proceeding to the next analysis, centered versions of the composites were created (to reduce potential issues of collinearity), and an interaction term was computed by multiplying these centered predictors. HA was regressed first onto the covariates mentioned above, and (in a second step) onto GEB_C , GRN_C , and their interaction. Full results of this analysis can be found in Table 2, but both steps produced significant changes in R^2 . While GEB only marginally predicted HA in this model ($p = .06$), GRN and the interaction term were both highly significant predictors ($ps < .001$). Simple slopes analyses revealed that the effect of GEB was significant ($p < .001$) when GRN was high (+1 SD), but not when GRN was low (-1 SD, $p = .36$). Similarly, the effect of GRN was significant when GEB was high ($p < .001$), but was reduced to marginal

⁹ To ensure that the observed results were not merely a product of suppression effects, these same analyses were also performed with the covariates omitted. All significant effects remained significant. The main effect of GEB (Hypothesis 1b) and the main effect of SOE (Hypothesis 2) moved from marginally significant to significant when the covariates were omitted. The direction of these effects was unchanged.

significance when GEB was low ($p = .06$). Thus, the two constructs appear to work in tandem, each amplifying the effect of the other. Figure 1 shows the pattern of results.

Hypothesis 2: GEB will be a stronger and more consistent predictor of HA than will a composite of essentialist beliefs related to sexual orientation (SOE).

As in the previous analysis, HA was first regressed onto the covariates, while GEB and SOE (total) were entered on the second step. Both steps resulted in significant changes to R^2 , and the full model revealed the anticipated result: while GEB emerged as a highly significant positive predictor ($p < .001$), SOE emerged as a marginally significant *negative* predictor ($p = .07$, see Table 3 for full results). A dominance analysis (Azen & Budescu, 2003) confirmed that approximately 93% of the extra variance in HA explained by the second step of the model ($\Delta R^2 = .05$) was attributable to GEB, whereas SOE contributed only 7%.

Examining the sub-divided SOE composite, however, yielded a different picture. Regressing HA on GEB, SOEPos, and SOENeg revealed that GEB was once again a significant positive predictor ($p = .01$). SOEPos also emerged as a positive predictor ($p = .02$), while SOENeg was a robust *negative* predictor ($p < .001$) of HA (see Table 4). A subsequent dominance analysis showed that 56% of the extra variance accounted for by the addition of these predictors to the model ($\Delta R^2 = .13$) was attributable to SOENeg, while 22% was explained by GEB and 21% by SOEPos. For completeness, a third dominance analysis was conducted with GEB and SOEPos alone, revealing that 51% of the extra variance accounted for by a model including only those predictors on Step 2 ($\Delta R^2 = .06$) was carried by GEB, while 49% was carried by SOEPos.¹⁰

¹⁰ I continued to treat GEB as a 5-item composite in this analysis because each of the GEB items was correlated to HA in the same direction and with comparable strength, however results are similar (if not slightly more favorable toward GEB) when a reduced composite mirroring that of SOEPos was used. This analysis, including a composite

Hypothesis 3: The relationship between GEB and HA will be mediated by endorsement of symbolic beliefs (SB) that gay men and lesbians threaten important values related to gender.

For this and subsequent mediation models, I used Preacher and Hayes' (2004) bootstrapping method. This method provides a non-parametric test of mediation that does not depend on assumptions of normality. In this model, Symbolic Beliefs (SB) were examined as a potential mediator of the relationship between GEB and HA, while Sex, Age, Religiosity, PO, and identifying as Black were entered as covariates. Standard errors and confidence intervals were estimated from 5,000 bootstrap samples created using random sampling with replacement. When the 95% confidence interval for an indirect effect does not contain zero, the indirect effect is significant at $p < .05$. Results indicated significant partial mediation (see Table 5). Higher GEB predicted more negative symbolic beliefs ($p = .02$), SB in turn was significantly related to HA ($p < .001$), and significantly mediated the relationship between GEB and HA, though the direct effect remained significant. Sex, Religiosity, and PO also significantly influenced HA.

Hypothesis 4: The predictive influence of participant sex (Sex) and of Right Wing Authoritarianism (RWA) on HA can be partially explained by GEB and/or SB.

To test this hypothesis, I performed two additional bootstrapping analyses, one with Sex as the independent variable, and one with RWA as the independent variable. In both analyses, HA was the dependent variable and GEB and SB were both entered as potential mediators. Because I was not interested in demonstrating the independent predictive influence of Sex or RWA on HA per se, but rather with the potential for GEB and SB to account for variance that is typically *attributed* to Sex and RWA, no covariates were included in these models. For the first analysis, GEB (but not SB) emerged as a significant mediator of the relationship between Sex

made from GEB items 2-4 ($\alpha = .64$) revealed that gender essentialism accounted for 54% of the extra variance (ΔR^2 again = .06, after covariates were accounted for) while sexual orientation essentialism accounted for 46%.

and HA. That is, men more highly endorsed essentialist beliefs about gender ($p < .01$), GEB predicted greater heterosexism ($p < .001$), and although the relationship between Sex and HA remained significant with the mediators in the model ($p = .04$), GEB significantly mediated this relationship ($p < .05$). Although SB was significantly related to HA ($p < .001$), Sex was not related to SB ($p = .15$), thus this variable was not a significant mediator. Table 6 shows the full results.

In the second analysis, both GEB and SB emerged as significant mediators of the relationship between RWA and HA. Participants' RWA levels were related to higher GEB ($p < .001$) and more negative SB ($p < .001$). In turn, both GEB ($p < .01$) and SB ($p < .001$) predicted HA. While RWA remained a highly significant predictor of HA with the mediators included, GEB and SB accounted for a significant portion of this relationship (see Table 7).

Discussion

Results of this initial exploration were generally consistent with hypotheses. Importantly, essentialist beliefs related to gender were reliably and consistently predictive of heterosexist attitudes, even after controlling for several influential covariates. Moreover, while there was significant overlap between gender essentialism and endorsement of traditional gender norms, essentialist beliefs were not merely redundant with gender role norm endorsement in predicting heterosexism, but rather the two acted to facilitate and amplify one another's effects.

The relationship of heterosexism with essentialist beliefs related to sexual orientation was, as expected, fractured between the immutability and universality items and the remaining items. Treating the items as an undivided composite resulted in a marginally significant negative predictor of heterosexist attitudes, accounting for very little variance compared to the positive predictive influence of gender essentialism. However, dividing the composite in two revealed

that the sexual orientation essentialism items pertaining to discreteness, informativeness, and uniformity significantly predicted greater heterosexism at a more or less equal level as the gender essentialism composite, though both of these predictors were overshadowed by the strong negative influence of the immutability and universality items. It would appear, therefore, that while essentialist beliefs about gender may be a better predictor of attitudes toward gays than essentialist beliefs relating to sexual orientation *on the whole*, this is entirely owing to the inconsistency in the influence of different sub-domains of essentialism when they are applied to the context of sexual orientation. It may be unproductive, therefore, to think of essentialism as a unified construct when it comes to sexual orientation, and considering what was revealed in Hegarty's (2002) work, even when treating it as a multidimensional construct, there is reason to doubt the reliability of the link between immutability beliefs and attitudes toward gays and lesbians, as this relationship may be dependent on a culturally bound *perception* that immutability beliefs and tolerance go hand in hand. GEB, by contrast, *does* appear to be a unified construct, both with regard to its internal factor structure and the relationship of each of the items to heterosexism.

Consistent with my theory as outlined in the introduction, the relationship of gender essentialism to heterosexism was mediated by symbolic beliefs about gays – in particular, beliefs about whether gays challenge or contribute positively to gender-related values. That is, it appears that gender essentialist beliefs predict heterosexism in part because those who hold these beliefs *also* tend to feel that gays pose a threat to societal values involving gender, and this in turn contributes to greater negativity toward gays. These symbolic beliefs also significantly mediated the relationship of authoritarian attitudes with heterosexism, consistent with the findings of Haddock et al. (1993). Gender essentialism, meanwhile, was a significant mediator for both

authoritarian attitudes and participant sex. Considering that these are two of the most frequently cited correlates of heterosexism, these results are particularly exciting, as they help to illuminate (albeit partially) the mechanisms behind these effects.

Table 1

Examining Influence of Demographic Variables – Study One
(*N* = 220; *DV* = *Heterosexist Attitudes*)

Variable	<i>B</i>	<i>SE</i>	β
Intercept	.68	.23	
Sex	.23	.10	.12*
Race (White)	-.10	.13	-.04
Race (Black)	.52	.25	.12*
Age	.01	.004	.11*
SO	-.04	.04	-.06
Religiosity	.31	.06	.29***
PO	.27	.04	.40***
R^2			.48***

Note. * $p < .05$; *** $p < .001$. Sex code: 0 = female; 1 = male; Race codes: White (0 = non-White, 1 = White) Black (0 = non-Black; 1 = Black); SO = Sexual Orientation; PO = Political Orientation.

Table 2

Gender Essentialism, Endorsement of Traditional Gender Role Norms, and their Interaction
(*N* = 220; *DV* = *Heterosexist Attitudes*)

Variable	<i>B</i>	<i>SE</i>	β
<i>Step 1</i>			
Intercept	.47	.19	
Sex	.23	.10	.12*
Race (Black)	.63	.23	.14**
Age	.01	.004	.11*
Religiosity	.30	.06	.28***
PO	.29	.04	.43***
<i>R</i> ²			.47***
<i>Step 2</i>			
Intercept	.59	.18	
Sex	.09	.09	.05
Race (Black)	.58	.19	.13**
Age	.01	.004	.19***
Religiosity	.22	.06	.20***
PO	.18	.04	.27***
GEB	.12	.06	.11 [†]
GRN	.43	.08	.32***
GEB x GRN	.26	.07	.17***
<i>R</i> ²			.62***
ΔR^2			.15***

Note. [†]*p* < .10; **p* < .05; ***p* < .01; ****p* < .001. Sex code: 0 = female; 1 = male; Race code: 0 = non-Black; 1 = Black; PO = Political Orientation; GEB = Gender Essentialist Beliefs (mean-centered); GRN = Traditional Gender Role Norms (mean-centered).

Table 3

Gender Essentialism and Total Sexual Orientation Essentialism Composite
(*N* = 220; *DV* = *Heterosexist Attitudes*)

Variable	<i>B</i>	<i>SE</i>	β
<i>Step 1</i>			
Intercept	.47	.19	
Sex	.23	.10	.12*
Race (Black)	.63	.22	.14**
Age	.01	.004	.11*
Religiosity	.30	.06	.28***
PO	.29	.04	.43***
R^2			.47***
<i>Step 2</i>			
Intercept	.38	.30	
Sex	.20	.10	.11*
Race (Black)	.55	.22	.12*
Age	.01	.004	.10*
Religiosity	.27	.06	.25***
PO	.21	.04	.31***
GEB	.33	.07	.31***
SOE	-.17	.10	-.10 [†]
R^2			.52***
ΔR^2			.05***

Note. [†] $p < .10$; * $p < .05$; ** $p < .01$; *** $p < .001$. Sex code: 0 = female; 1 = male; Race code: 0 = non-Black; 1 = Black; PO = Political Orientation; GEB = Gender Essentialist Beliefs; SOE = Sexual Orientation Essentialism Composite (undivided).

Table 4

Gender Essentialism and Subdivided Sexual Orientation Essentialism Composites
($N = 220$; $DV = \text{Heterosexist Attitudes}$)

Variable	<i>B</i>	<i>SE</i>	β
<i>Step 1</i>			
Intercept	.47	.19	
Sex	.23	.10	.12*
Race (Black)	.63	.22	.14**
Age	.01	.004	.11*
Religiosity	.30	.06	.28***
PO	.29	.04	.43***
R^2			.47***
<i>Step 2</i>			
Intercept	1.45	.32	
Sex	.13	.09	.07
Race (Black)	.22	.20	.05
Age	.01	.004	.13**
Religiosity	.22	.06	.21***
PO	.16	.04	.25***
GEB	.17	.07	.16*
SOEPos	.15	.07	.14*
SOENeg	-.34	.06	-.29***
R^2			.60***
ΔR^2			.13***

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. Sex code: 0 = female; 1 = male; Race code: 0 = non-Black; 1 = Black; PO = Political Orientation; GEB = Gender Essentialist Beliefs; SOEPos = Sexual Orientation Essentialism items 2-4; SOENeg = Sexual Orientation Essentialism items 1 and 5.

Table 5

*Effect of Gender Essentialism Mediated by Symbolic Beliefs
(Output of Bootstrap Analysis; N = 220; DV = Heterosexist Attitudes)*

Path	Effect	<i>B</i>	<i>SE</i>	95% CI
a	GEB→SB	-.17*	.08	
b	SB→HA	-.37***	.05	
c	GEB→HA	.27***	.06	
c'	GEB→HA	.21***	.05	
ab	GEB→SB→HA	.06*	.05	.004, .15
	Sex→HA	.19*	.09	
	Race (Black)→HA	.35 [†]	.19	
	Age→HA	.01	.004	
	Religiosity→HA	.23***	.05	
	PO→HA	.14***	.04	

Note. [†] $p < .10$; * $p < .05$; *** $p < .001$. GEB = Gender Essentialist Beliefs; SB = Symbolic Beliefs (coded such that higher scores indicate more positive symbolic beliefs about gay men and lesbians); HA = Heterosexist Attitudes; Sex code: 0 = female; 1 = male; Race code: 0 = non-Black; 1 = Black; PO = Political Orientation; CI = Bias Corrected and Accelerated Confidence Interval. Adjusted R^2 for the model = .50.

Table 6

*Mediating Effect of Participant Sex by Gender Essentialism and Symbolic Beliefs
(Output of Bootstrap Analysis; N = 222; DV = Heterosexist Attitudes)*

Path	Effect	<i>B</i>	<i>SE</i>	95% CI
a ₁	Sex→GEB	.33**	.12	
a ₂	Sex→SB	-.19	.13	
b ₁	GEB→HA	.37***	.05	
b ₂	SB→HA	-.49***	.05	
c	Sex →HA	.40**	.13	
c'	Sex →HA	.19*	.09	
ab ₁	Sex →GEB→HA	.12*	.05	.04, .22
ab ₂	Sex →SB→HA	.09	.07	-.03, .23

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. Sex code: 0 = female; 1 = male; GEB = Gender Essentialist Beliefs; SB = Symbolic Beliefs (coded such that higher scores indicate more positive symbolic beliefs about gay men and lesbians); HA = Heterosexist Attitudes; CI = Bias Corrected and Accelerated Confidence Interval. Adjusted R^2 for the model = .51.

Table 7

*Mediating Effect of Right Wing Authoritarianism by Gender Essentialism and Symbolic Beliefs
(Output of Bootstrap Analysis; N = 223; DV = Heterosexist Attitudes)*

Path	Effect	<i>B</i>	<i>SE</i>	95% CI
a ₁	RWA→GEB	.72***	.06	
a ₂	RWA→SB	-.52***	.08	
b ₁	GEB→HA	.18**	.06	
b ₂	SB→HA	-.41***	.05	
c	RWA →HA	.79***	.06	
c'	RWA →HA	.44***	.07	
ab ₁	RWA →GEB→HA	.13**	.05	.05, .23
ab ₂	RWA →SB→HA	.21***	.05	.13, .32

Note. * $p < .05$; ** $p < .01$; *** $p < .001$. RWA = Right Wing Authoritarianism; GEB = Gender Essentialist Beliefs; SB = Symbolic Beliefs (coded such that higher scores indicate more positive symbolic beliefs about gay men and lesbians); HA = Heterosexist Attitudes; CI = Bias Corrected and Accelerated Confidence Interval. Adjusted R^2 for the model = .58.

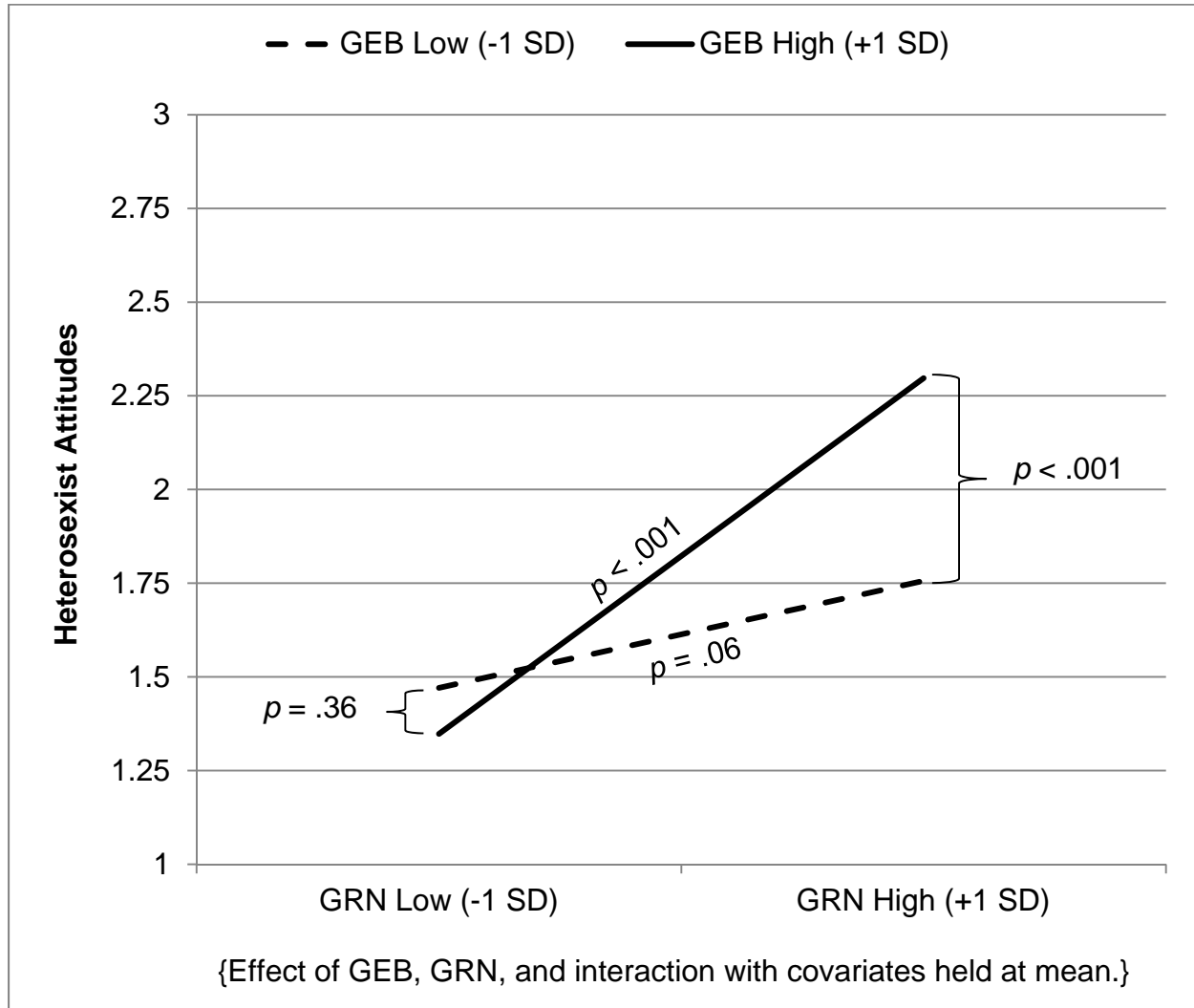


Figure 1. Interaction of Gender Essentialist Beliefs and Gender Role Norm Endorsement on Heterosexist Attitudes.

Study Two Pilot

Purpose

The purpose of this pilot study was to refine the materials that would comprise the manipulation for Study Two. There were three primary goals: 1) to minimize jargon and maximize brevity in the materials so as not to jeopardize reader attention / understanding; 2) to clearly convey the intended message of each passage – one intending to highlight and maximize the impression of fundamental differences between men and women, and one intending to challenge and minimize the impression of these differences; 3) to enhance believability of the measures by referencing actual research from the literature surrounding evolutionary mating psychology, and by crafting the figures to plausibly resemble those one might encounter in a bulletin reporting on scientific research findings. In addition to these goals guiding *modifications* to the measures, a secondary purpose of this pilot was to test the efficacy of the *finished* materials in temporarily influencing essentialist beliefs about gender, as measured by responses to the GEB items.

Method

Participants. A total of 63 participants (29 male, 34 female) were recruited for this study via the USF Psychology Department SONA participant pool. The median age was 20 years old, and participants were primarily Caucasian (58.7%) with other participants reporting Hispanic / Latino(a) (14.3%), Black / African American / Caribbean (9.5%), Asian / Pacific Islander (4.8%), Indian / South Asian (3.2%), Arab / Middle Eastern (1.6%), and Other (7.9%) ethnicities.

Materials and procedure. The essentialism manipulation was devised based on information gleaned from Brescoll and LaFrance (2004) and Morton et al. (2009), in the form of two different ‘research summaries’ related to gender differences. Consistent with Morton et al., these were not fictional accounts, but rather summaries of actually existing research either supporting or contradicting an essentialist view of gender. Both articles begin by introducing the familiar evolutionary psychology argument that men and women evolved to differ in their mating preferences. The essentialism-enhancing stimulus then presented research supporting this claim, whereas the de-essentializing stimulus instead presented research *challenging* these claims and highlighting the debate in the literature. Following the lead of Castano, Sacchi, and Gries (2003), these summaries were accompanied by a graphic that visually depicted the categories of masculinity and femininity as fundamentally overlapping with very limited distinctiveness, or as fundamentally distinct with very limited overlap.

Altogether, this manipulation tapped into most of the sub-domains of essentialism that have been identified in the literature: discreteness (highlighted by the amount of overlap depicted in the graphic), uniformity (highlighted by the spread of each curve in the graphic), informativeness (if gender differences in mating preferences are evolved, then you can predict an individual’s preferences within some margin of error just by knowing his/her gender), universality and stability (the concept of evolved differences implies that said differences should hold across cultures and across time), inherence and immutability (invoking evolution connotes an inherent cause for gender differences that should not be particularly amenable to change) and finally necessity, naturalness, and exclusivity (asserting a biologically evolved cause for gender differences necessitates a one-to-one connection between biological sex and gender). A third summary was also crafted to serve as a control. This summary was similar in length to the other

two, and discussed the claim that the process by which calorie counts are determined for nutrition labels tends to overestimate the number of calories that are actually absorbed by the body when food is consumed. This condition was included to serve as a neutral baseline for evaluating the effect of the critical stimuli on gender essentialist beliefs.

Participants completed the materials individually in private laboratory rooms. After giving consent to participate, participants first viewed the ‘Research Summary’, and were instructed to open their door once they had finished reading. The investigator then took the summary and gave the participant a questionnaire which first assessed their overall response to the essay, via three items which were selected from a more extensive list included in Morton, Haslam, Postmes, and Ryan (2006), and can be found in Appendix B. The questionnaire continued with the same gender essentialism and gender role norms items as were included in Study 1. These items were included to determine, first, if the manipulation influenced essentialist beliefs in the predicted direction, and second, to determine if this influence held independently of any unintentional influence on reported endorsement of gender role norms. The last item of the questionnaire asked participants to select the statement which most closely summarized the research synopsis they had read. This served as a manipulation check, and particularly to help determine if the materials were being properly understood as written. Finally, demographic items assessing participant sex, age, race, sexual orientation, religious fundamentalism, identification, and frequency of church attendance, as well as political orientation were included.

After participants completed the questionnaire, the researcher debriefed the participants, first gathering overall impressions regarding the essay, and whether or not participants found the summary convincing, then probing for suspicion that the research summary was not genuine, as well as any difficulty understanding the materials. If the participants indicated any suspicion,

difficulty, or other issue with the materials, the researcher solicited advice about how the summary could be improved. None of the participants indicated suspicion that the research summaries were fake, but some did report finding the summaries (as initially written) unconvincing, due to the lack of formal citations within the text. At the end of the first week, it was also apparent that the manipulation in the de-essentializing condition was not working effectively. Participants were misunderstanding the summary to *support* the idea of evolved sex differences rather than challenging them. Based on feedback obtained during debriefing sessions, the materials were modified to try to rectify this issue. The finished versions of the stimulus materials can be found in Appendix B.

Results

The result of the modifications was successful, as all of the subsequent pilot participants passed the manipulation check for both critical conditions, and ultimately the materials produced the intended effect. After excluding participants who failed the manipulation check (4, all of whom viewed earlier versions of the de-essentializing materials), participants who read the essentializing stimulus were significantly more endorsing of the GEB items ($M = 2.77$, $SD = .72$) compared to participants who read the de-essentializing stimulus ($M = 2.25$, $SD = .72$), $t(37) = 2.24$, $p = .03$. Comparatively, the difference between conditions for endorsement of the traditional gender role norm items (GRN) fell just short of significance, $t(37) = 1.92$, $p = .06$.

The strength of the difference between the critical conditions was amplified after excluding two participants (one from each condition) whose responses to the sexual orientation item on the demographics page indicated that they were not predominantly heterosexual: $M_E = 2.85$, $SD = .64$, $M_D = 2.28$, $SD = .73$, $t(35) = 2.55$, $p < .02$. For participants in the control condition, ($N = 19$ after 1 sexual orientation exclusion), GEB scores fell in between those for the

critical conditions ($M = 2.69$, $SD = .73$) but did not significantly differ from either ($ts = 1.69$ or lower, $ps = .10$ or higher). The correlation of GEB and condition (rank ordered: 1 for the de-essentializing prime, 2 for the control prime, and 3 for the essentializing prime) was significant ($r = .33$, $p < .02$) and remained marginally significant after controlling for responses to the GRN items ($r_p = .25$, $p = .06$). The bivariate correlation between GRN and condition was also significant ($r = .27$, $p = .05$), but became non-significant after controlling for the influence of GEB ($r_p = .17$, $p = .22$). Thus, it seems that both stimuli influenced salience of essentialist beliefs (albeit slightly), and in the predicted directions. Based on these results, I felt confident proceeding to the main study, using the revised materials (excepting the control stimulus) to manipulate the salience of gender essentialism in my sample.

Study Two

Purpose and Hypotheses

The purpose of the second study was to lend support to a causal inference about the relationship between gender essentialism and attitudes toward gay men and lesbians, by manipulating the salience of essentialist ideas about gender and examining the resulting effect on heterosexual attitudes. While essentialist beliefs related to gender are pervasive, this is also an area which has been apparently amenable to manipulation in previous research (Brescoll & LaFrance, 2004; Morton, Postmes, Haslam, & Hornsey, 2009). Based on this prior research, and my own results from Study One confirming that gender essentialism and heterosexism were positively correlated, I predicted that participants exposed to the de-essentializing stimulus would report more positive attitudes toward gay men and lesbians than participants exposed to the essentializing stimulus (Hypothesis 5). I acknowledged the possibility, however, that this pattern might be qualified by the perceived persuasiveness of the manipulation, which might in turn vary based on demographic variables (e.g. participant sex).

Method

Participants. Two hundred twenty-six participants were recruited via SONA (33.2%) and MTurk (66.8%).¹¹ The sample included 110 men, 115 women, and one person who completed only the first two pages of measures, and was therefore not included in any analyses. The median age of the sample was 25, and participants identified as non-Hispanic White / Anglo or European American (66.7%), Black / African American / Caribbean (8%), Hispanic /

¹¹ The samples did not significantly differ with regard to the dependent variable, $t(182.50) = .83, p = .41$, and sample source did not moderate the relationship between condition and HA described below: $F(1, 218) = .37, p = .54$.

Latino(a) (12%), Asian / Pacific Islander (7.1%), Indian / South Asian (.4%), Arab / Middle Eastern (1.8%) and Other (4%). Just over 91% of participants identified as exclusively or predominantly heterosexual.

Materials and procedure. The finished versions of the research summaries from the pilot study were employed here. Participants (who completed the study online, at a time and place of their choosing) were randomly assigned to either read the Essentializing Stimulus (ES) or the De-essentializing Stimulus (DS). After reading their assigned summary, participants completed the same comprehension check and essay evaluation items as were used in the pilot. Once again, these materials can be found in Appendix B. The item assessing perceived bias in the summary was reverse-coded. Because the items were on differently worded scales, they were Z-transformed before averaging to form the Essay Evaluation composite (EE, $\alpha = .75$).¹²

After reading and evaluating the stimulus, participants completed the gender essentialist beliefs (GEB, $\alpha = .71$) and traditional gender role norm endorsement (GRN, $\alpha = .61$) scales, which were administered in the same manner as in Study One, together on a page labeled ‘General Beliefs about Gender’. Next, participants completed the Heterosexist Attitudes scale (HA, $\alpha = .98$). Finally, participants responded to demographic items assessing sex, age, race, sexual orientation, strength of religious affiliation, and political orientation. The religiosity items assessing identity strength, frequency of religious service attendance, and religious fundamentalism (reverse-scored) were first Z-transformed and then averaged to form the religiosity composite ($\alpha = .87$), and the political orientation items were also averaged to form their own composite (PO, $\alpha = .91$).

¹² The means reported below are from the untransformed composite, however, to facilitate interpretability. Results of the analysis were the same regardless of which composite was used.

Results

Before proceeding to test the primary hypothesis, I first compared the two conditions to ensure that there were no significant demographic differences that might skew the results. The two conditions did not significantly differ in terms of age, Religiosity, or PO (all $t_s \leq .37$, all $p_s \geq .71$), and the gender, racial, and sexual orientation compositions of the conditions were very similar (see Table 8 for full summary). I also tested whether there was a difference in participants' evaluations of the two summaries, and found that participants in the ES condition rated the summary equally as convincing, unbiased, and significant ($M = 3.40$, $SD = .86$) as did the participants in the DS condition ($M = 3.45$, $SD = .78$): $t(223) = -.45$, $p = .65$. Next I examined the demographic variables to determine which (if any) were significantly related to HA in the current study. Age, Religiosity, and PO emerged as significant predictors while sex (dummy coded), race (coded the same way as in Study One) and sexual orientation did not. Full results of this analysis can be found in Table 9.

Hypothesis 5: Participants exposed to the ES will exhibit higher HA scores than participants exposed to the DS.

A one-way ANOVA was conducted assessing the influence of research summary condition on HA. As predicted, participants in the ES condition had significantly higher HA scores ($M = 2.06$, $SD = 1.00$) than participants in the DS condition ($M = 1.70$, $SD = .91$): $F(1, 223) = 7.25$, $p < .01$, $d = .37$. The result was amplified when participants who failed the comprehension check were excluded: $M_{ES} = 2.00$, $SD = 1.00$; $M_{DS} = 1.53$, $SD = .72$; $F(1, 166) = 11.56$, $p < .001$, $d = .53$. The effect of the manipulation becomes even more apparent after controlling for the variance attributable to age, Religiosity, and PO. For the full sample, HA scores in the ES condition (with covariates held at the mean) were significantly higher ($M = 2.04$,

$SD = .69$) than scores in the DS condition ($M = 1.72, SD = .69$): $F(1, 220) = 12.54, p < .001, d = .48$. Once again, the pattern was magnified when participants who failed the comprehension check were excluded: $M_{ES} = 1.96, SD = .63; M_{DS} = 1.59, SD = .63; F(1, 163) = 13.18, p < .001, d = .57$. Figure 2 shows the means for participants in each condition, separated by whether or not they passed the comprehension check.

Discussion

The essentialism-enhancing and essentialism-challenging research summaries had the predicted effect on participants' heterosexism scores, and this effect not only held but actually became slightly stronger when several demographic variables (age, Religiosity, PO) were entered as covariates. While heterosexism levels were somewhat low overall in the current sample, the effect sizes for the difference between conditions spanned the medium range, indicating that this could be a fruitful avenue for future research into intervention strategies for heterosexism.

A substantial proportion of participants answered the comprehension check item incorrectly, which was surprising considering that all participants who viewed the final version of the stimulus materials in the pilot study passed this check. It is possible that the difference between the in-lab and online format contributed to this discrepancy, as participants taking the study online may have been less motivated or less able to give the study their full attention. Indeed, participants who answered the comprehension item incorrectly spent an average of one and a half fewer minutes taking the survey, and of the 58 participants who failed the check, over 20% completed the survey in fewer than five minutes, compared to only 10% of participants who answered the item correctly. While this occurrence did not unduly compromise the current

project (with the covariates in the model, the effect of condition was significant whether or not participants answered correctly), it may be important to bear in mind for future studies.

There was one interesting and unexpected pattern I uncovered in the course of examining potential demographic differences between my conditions. As noted above, when taking into account the whole sample, the conditions did not differ with regard to political orientation (PO) – however, once participants who failed the comprehension check were excluded, a significant difference was revealed, with participants in the essentializing condition (ES) reporting more conservative attitudes ($M = 3.53$, $SD = 1.60$) than participants in the de-essentializing condition (DS, $M = 3.08$, $SD = 1.25$): $t(165.30) = 2.07$, $p = .04$. Upon closer examination, this effect was revealed to be primarily driven by responses to the item assessing participants' political ideology with regard to social issues: $t(164.98) = 3.03$, $p < .01$. Participants in the ES condition reported significantly greater social conservatism ($M = 3.31$, $SD = 1.75$) than participants in the DS condition ($M = 2.58$, $SD = 1.38$), while effects for the other two items trended non-significantly in the same direction. This may have been merely a quirk of random assignment that coincidentally was not apparent in the full sample; alternatively, given that all participants responded to the demographic questionnaire last, and therefore after the manipulation, it may be that the manipulation somehow influenced participants' reported political attitudes, making them more endorsing of social conservatism in general when gender essentialist beliefs were made salient. Future research could resolve this ambiguity by attempting to replicate this effect. In either case, this does not impinge upon the results of the current project, because the effect of condition remained significant when controlling for PO.

Table 8

Comparison of Samples for Essentializing and De-essentializing Conditions

Variable	<i>Essentializing Condition</i>		<i>De-essentializing Condition</i>	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Age	31.58	13.15	30.90	13.97
Religiosity	-.004	.87	-.01	.89
PO	3.54	1.60	3.46	1.48
Variable	<i>N</i>	<i>%</i>	<i>N</i>	<i>%</i>
Men	59	51.8%	51	45.5%
Women	54	47.4%	61	54.5%
White	75	65.8%	75	67.0%
Black	6	5.3%	12	10.7%
Hispanic / Latino(a)	14	12.3%	13	11.6%
Asian / Pacific Islander	10	8.8%	6	5.4%
Indian / South Asian	0	0%	1	.9%
Arab / Middle Eastern	3	2.6%	1	.9%
Other	5	4.4%	4	3.6%
Primarily Heterosexual	106	93.8%	99	88.4%
Bisexual / Gay	7	6.2%	13	11.6%

Note. PO = Political Orientation; ‘Primarily Heterosexual’ includes participants who responded with 1, 2, or 3 to the sexual orientation item, ‘Bisexual / Gay’ includes participants who responded with 4 and above.

Table 9

*Examining Influence of Demographic Variables – Study Two**(N = 225; DV = Heterosexist Attitudes)*

Variable	<i>B</i>	<i>SE</i>	β
Intercept	.60	.21	
Sex	.12	.10	.06
Race (White)	-.20	.11	-.10 [†]
Race (Black)	-.21	.19	-.06
Age	.02	.004	.26***
SO	-.04	.04	-.06
Religiosity	.39	.06	.35***
PO	.24	.03	.39***
R^2			.48***

Note. [†] $p < .10$; *** $p < .001$. Sex code: 0 = female; 1 = male; Race codes: White (0 = non-White, 1 = White) Black (0 = non-Black; 1 = Black); SO = Sexual Orientation; PO = Political Orientation.

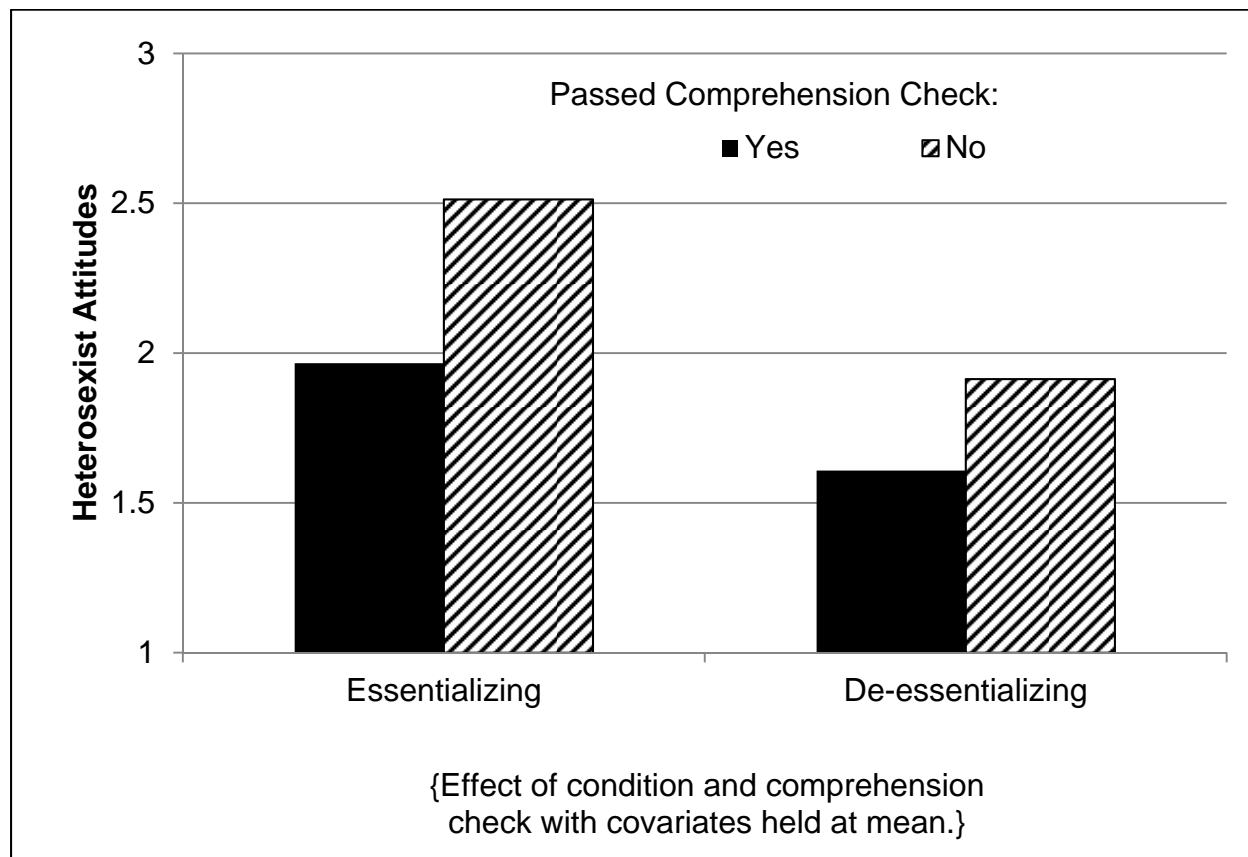


Figure 2. Effect of Research Summary Condition by Evidence of Comprehension.

General Discussion

These studies take the exploration of essentialist beliefs and their consequences for attitudes toward gays in a new direction. Rather than merely focusing on the within-domain effect of essentialist beliefs on these attitudes, I instead investigate essentialist beliefs related to a domain that is highly theoretically entwined with sexual orientation – namely, gender. The theoretical basis for the link I have suggested here was already substantially developed, and several pieces of empirical evidence provided abstract support for the purported connection. Results of the current project provide further support for the contention that part of the animus toward gay men and lesbians is driven by a desire to maintain the gender status quo, and the essentializing ideologies that support it, and a perception that gay unions undermine this goal. A recent illustration of this emerged in the months preceding the Supreme Court’s hearing of the California Proposition 8 case. In defense of his opposition toward gay marriage, Brian Brown (president of the nonprofit National Organization for Marriage) invoked the concept of essential differences between men and women: “The notion of the uniqueness of men and women is [...] a key part of our view of humanity: that there are two halves of humanity, male and female, and that we complement each other...” (Stolberg, 2013).

As the results of Study One revealed, there is a significant relationship between this way of looking at gender and negative attitudes toward gay men and lesbians – a relationship partially driven by the belief that gays threaten or undermine these gender related values. Although the ubiquity of system justification tendencies means that women as well as men are sometimes disposed to support the gender status quo, men have more to gain in this process, and thus can be

expected to endorse gender essentialism more readily. Indeed, in the current project, men did on average exhibit greater gender essentialism, and this partially mediated the sex difference in heterosexism. The relationship of authoritarianism to heterosexism was also partially mediated by essentialist gender beliefs and symbolic beliefs about gays' threat to gender values, which helps to illuminate the mechanisms behind this incredibly powerful and oft-cited predictor of heterosexist attitudes. Study Two provided further support for the proposal that gender essentialism gives rise to negative attitudes toward gays and lesbians by experimentally manipulating the salience of essentialist ideas about gender, and observing the corresponding influence on heterosexist attitudes.

A possible limitation of the current project is that attitudes toward gay men and lesbians in both of my samples tended on the whole to be fairly positive. Even amongst participants in Study 1 who endorsed gender essentialist beliefs more highly than their peers (those 38 participants scoring one standard deviation or more above the mean for gender essentialism), heterosexist attitudes were below the scale mid-point ($M = 2.85$, $SD = 1.10$), indicating either ambivalence or indifference rather than negativity per se. The same was true for my Study 2 participants who received the essentializing stimulus: mean levels of heterosexism clustered around 2, the place on the scale that indicates 'slight' disagreement with items expressing negative sentiments about gay men and lesbians / gay rights. Thus it may be more accurate to conceptualize the results of the current project in terms of those variables that predict greater positivity toward / acceptance of gay men and lesbians, rather than variables predicting more *negative* attitudes. It should be noted, however, that there was not a complete lack of representation at the more negative end of the attitude spectrum: 16.1% of the sample in Study 1

scored above the scale mid-point (these scores ranged from 3.04 to 4.68), as did 15.6% of the sample in Study 2 (scores ranging from 3.04 all the way to 5).

Exploring the Role of Implicit Inversion Theory

Returning to the mediating effect of symbolic beliefs on the relationship between gender essentialism and heterosexism, in my original theorizing, I proposed that this pattern may only emerge amongst those participants who held beliefs about gays that were consistent with implicit inversion theory (that is, believing that gay men and lesbians are more like their opposite-sex than same-sex heterosexual counterparts). Specifically, my logic was that the relationship between gender essentialism and negative symbolic beliefs about gays would be moderated by endorsement of the implicit inversion theory. When the initial mediation model was successful, I discarded this alternative hypothesis, yet I was still interested in exploring the relationship of the Implicit Inversion Theory composite (IIT) with these variables.

Unsurprisingly, IIT was positively correlated with gender essentialist beliefs ($r = .60, p < .001$) and heterosexist attitudes ($r = .52, p < .001$), and was related to more negative symbolic beliefs ($r = -.29, p < .001$). Endorsement of IIT was greater amongst men ($M_M = 2.96, SD_M = .73$; $M_F = 2.44, SD_F = .81$; $t[220] = -5.04, p < .001$) and was positively correlated with both the religiosity ($r = .21, p < .01$) and political orientation ($r = .41, p < .001$) composites. Controlling for the influence of these demographic variables, the correlations with gender essentialism ($r_p = .50, p < .001$) and heterosexism ($r_p = .37, p < .001$) were attenuated but remained highly significant; the relationship with symbolic beliefs was reduced to marginal significance ($r_p = -.13, p < .06$).

Follow-up analyses revealed a significant interaction between gender essentialism and IIT in predicting heterosexist attitudes ($B = .16, p < .01$),¹³ similar to the interaction between gender essentialism and traditional gender role norm endorsement. I also discovered that IIT could serve as an alternative mediator of the relationship between gender essentialism and heterosexism ($B_{ab} = .14, p < .05$), and that when IIT and symbolic beliefs were entered simultaneously as mediators, they more or less accounted for the whole effect of gender essentialism on heterosexism, reducing the coefficient for that path from $.27 (p < .001)$ to $.08 (p = .16)$. My initial moderated mediation hypothesis, however, was not supported. Specifically, IIT *did not* moderate the relationship between gender essentialism and negative symbolic beliefs about gays ($B = -.003, p = .96$).

Significance of Current Findings and Future Directions

Previous research has shown that manipulating domain-specific (specifically racial) essentialism can influence creativity through the domain-general mechanism of closed-mindedness (Tadmor, Chao, Hong, & Polzer, 2012) and also that manipulating essentialist patterns of thought in a domain-general way (by inducing nonfluid movement versus fluid movement) can result in greater domain-specific essentialism as well as domain-general stereotype endorsement (Slepian, Weisbuch, Pauker, Bastian, & Ambady, 2014). However, previous research has not examined the influence of essentialism across specific domains (that is, domain-specific essentialist beliefs about one group had not been studied as predictors of attitudes toward a *different* social category). Results of the current project thus contribute to the broad field of essentialism research, as well as contributing to our understanding of the roots of heterosexism. Based on the results of the current project, for instance, one can predict that if one

¹³ For each of the analyses described in this paragraph, participant sex, age, religiosity, political orientation, and identifying as Black were treated as covariates.

manipulated perceptions of gender status distributions such that the gender hierarchy was depicted as unstable, with women making gains (as Morton, Postmes, Haslam, and Hornsey did in their 2009 study), this would lead to more negative attitudes toward gay men and lesbians, and particularly amongst men, than if the gender hierarchy was depicted as stable. This is perhaps of particular relevance at present because of the media preoccupation with the decline of ‘traditional’ masculinity (Rosin, 2010; Salam, 2009).

Finally, the results of Study Two are encouraging in that they may point the way toward a potential intervention strategy to reduce anti-gay prejudice. While the somewhat abstracted type of manipulation employed in this study is unlikely to produce lasting effects, a more structured and elaborate program aimed at decreasing essentialist beliefs about gender may be successful. Future research should investigate this possibility, particularly focusing on the durability of attitude change, and what factors are necessary to facilitate acceptance of the de-essentializing message. Another possibility would be to directly challenge the symbolic beliefs (and / or the endorsement of stereotypes consistent with implicit inversion theory) that help to form the link between gender essentialism and attitudes toward gay men and lesbians. This may in fact be easier to accomplish than breaking down such a comfortable and relied-upon structure as gender dichotomization; however, the ultimate interests of society may yet be better served by taking the more difficult path, and fusing the causes of feminism and LGBT advocacy.

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Appendix A: Study One Materials

Note: For each of the scales below, items marked with an asterisk will be reverse coded.

Gender Essentialist Beliefs (GEB):

Please indicate your agreement with each of the items below on the scale provided.

1	2	3	4	5
Disagree Strongly	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Agree Strongly

- 1) Personality differences between men and women cannot be changed, because they are caused by biological factors such as genes and hormones.
- 2) Just knowing whether someone is male or female can tell you a lot about that person.
- 3) Masculinity and femininity are mutually exclusive categories, and each person either belongs to one or the other.
- 4) Under the surface, people are essentially very similar to others of their own gender.
- 5) Masculinity and femininity are concepts that have endured in basically the same form over time and across cultures.

Sexual Orientation Essentialist Beliefs (SOE):

Please indicate your agreement with each of the items below on the scale provided.

1	2	3	4	5
Disagree Strongly	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Agree Strongly

- 1) Sexual orientation is innate and cannot be changed.
- 2) If you don't know a person's sexual orientation, you can't say you really know that person.
- 3) A person is either gay or straight – there is no in between.
- 4) While they may have superficial differences, deep down gay people are a lot alike.
- 5) Homosexuality has probably always existed, in every culture.

Gender Role Norms (GRN), adapted from Kerr & Holden, 1996, and Brogan & Kutner, 1976):

Please indicate your agreement with each of the items below on the scale provided.

1	2	3	4	5
Disagree Strongly	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Agree Strongly

- 1) It bothers me more to see a woman who is pushy than a man who is pushy.
- 2) There's nothing wrong with mothers of young children working outside the home, even if they don't have to for financial reasons.*
- 3) The initiative in courtship should usually come from the man.
- 4) A husband should not feel uncomfortable if his wife earns a larger salary than he does.*
- 5) It is inappropriate for little boys to dress-up and play with dolls the way little girls do.
- 6) It should be acceptable for men to pursue jobs that have traditionally belonged to women, such as nursing.*

Symbolic Beliefs (SB), developed based on information from Haddock, Zanna, & Esses, 1993):

Some groups may be viewed as especially beneficial or especially harmful to society due to a perception of how these groups violate or promote various structures or ideals that society deems important. For the list below, please indicate the extent to which you believe gay men and lesbians (as a group) either adversely challenge or positively contribute to the achievement of each goal:

1	2	3	4	5
Challenge a great deal	Challenge somewhat	Neither Challenge nor Contribute	Contribute somewhat	Contribute a great deal

- 1) Individual autonomy
- 2) Family happiness
- 3) Economic equality
- 4) Freedom of expression
- 5) Harmony between the sexes
- 6) Religious freedom
- 7) Health and public safety
- 8) Meritocracy
- 9) Positive gender development
- 10) Access to education

Endorsement of Implicit Inversion Theory (IIT), developed based on information from Kite and Deaux, 1987):

Please indicate your agreement with each of the items below on the scale provided.

1	2	3	4	5
Disagree Strongly	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Agree Strongly

- 1) Gay men tend to have more feminine than masculine qualities.
- 2) If I see a male hair stylist or cheerleader, I would feel reasonably confident assuming that he is gay.
- 3) Gay men often have more in common with straight women than with straight men.
- 4) Lesbians have a less feminine appearance, and tend to enjoy typically masculine hobbies.
- 5) If a woman is a lesbian, it is likely that she will pursue a more masculine type of career.
- 6) Lesbians are relatively comfortable being 'just one of the guys'.

Heterosexist Attitudes (HA, assessed via the 5-Category Heterosexism scale, Hettinger & Seybert, forthcoming):

Please indicate your agreement with each of the items below on the scale provided.

1	2	3	4	5
Disagree Strongly	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Agree Strongly

- 1) I would look for a new place to live if I found out my roommate was gay.
- 2) I do not really find the thought of homosexual acts disgusting.*
- 3) If I discovered a friend was gay I would end the friendship.
- 4) It does not matter to me whether my friends are gay or straight.*
- 5) The thought of two people of the same sex being romantically involved bothers me.
- 6) Homosexuals contribute positively to society*
- 7) Gays and lesbians have it as good as they should expect to.
- 8) Gays and lesbians are getting too demanding in their push for equal rights.
- 9) Gay men and lesbians should stop complaining about the way they are treated in society, and simply get on with their lives.
- 10) I see the lesbian and gay movement as a positive thing.*
- 11) Homosexuality should be against the law.
- 12) The thought of homosexuals having the same rights as heterosexuals bothers me.
- 13) I believe that homosexuals should have the same rights as heterosexuals.*
- 14) Lesbian and gay couples should have all the same parenting rights as heterosexuals do (for example, adoption, fostering, and access to fertility services).*
- 15) Lesbian and gay male couples should be legally permitted to marry, just as heterosexual couples are.*
- 16) The idea of gay and lesbian marriages seems somewhat silly to me.
- 17) Gays and lesbians are just plain sick.
- 18) Gay men and lesbians should undergo therapy to change their sexual orientation.
- 19) All sexual orientations are natural expressions of human activity.*

- 20) No one sexual orientation is better than any other sexual orientation.*
- 21) Homosexuality endangers the institution of the family.
- 22) Homosexuals are a danger to our young people.
- 23) Homosexuals are just as moral as heterosexuals.*
- 24) The growing number of homosexuals indicates a decline in American morals.
- 25) Homosexuality poses a threat to many of our basic social institutions.

Right Wing Authoritarianism (RWA, adapted from Zakrisson, 2005):

Please indicate your agreement with each of the items below on the scale provided.

1	2	3	4	5
Disagree Strongly	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Agree Strongly

- 1) Our country needs a powerful leader, in order to destroy the radical and immoral currents prevailing in society today.
- 2) Our country needs free thinkers, who will have the courage to stand up against traditional ways, even if this upsets many people.
- 3) The “old-fashioned ways” and “old-fashioned values” still show the best way to live.
- 4) Our society would be better off if we showed tolerance and understanding for untraditional values and opinions.
- 5) It would be best if newspapers were censored so that people would not be able to get hold of destructive and disgusting material.
- 6) Our forefathers ought to be honored more for the way they have built our society, at the same time we ought to put an end to those forces destroying it.
- 7) There are many radical, immoral people trying to ruin things; society ought to stop them.
- 8) It is better to accept bad literature than to censor it.
- 9) The situation in today’s society would be improved if troublemakers were treated with reason and humanity.
- 10) If society so wants, it is the duty of every true citizen to help eliminate the evil that poisons our country from within.

Demographic Questions:

Thank you for completing the questionnaires. Please take a moment to complete the following personal information:

- 1) Sex: Male Female Other / Neither of these applies to me
- 2) Age _____
- 3) What is your racial/ethnic heritage?
 - 1) White / Anglo or European American (non-Hispanic)
 - 2) Black / African American / Caribbean
 - 3) Hispanic / Latino(a)

- 4) Asian / Pacific Islander
 5) Indian / South Asian
 6) Arab / Middle Eastern
 7) Other _____

4) Please circle the number from the scale below that best describes your sexual orientation:

1	2	3	4	5	6	7
Exclusively heterosexual (straight)						Exclusively homosexual (gay)

5) Do you have a religious preference? Yes No

6) If yes, how strongly do you identify with your religion? (If no, please select zero from the scale below.)

0	1	2	3	4	5
Identify in name only	Very weakly identified	Somewhat weakly identified	About average	Somewhat strongly identified	Very strongly identified

7) How often do you attend church or your place of worship? (If not applicable, select 'never'.)

0	1	2	3	4	5
Never	Less than once a year	About once a year	About once a month	Nearly every week	Every week

8) If your religion follows a specific scripture (e.g. Bible, Qur'an, etc.), please select the option below which most nearly captures your beliefs about that scripture. (If your religion does not follow a scripture, please select N/A.)

The scripture is:

1	2	3	4
The actual word of God, and is to be taken literally, word for word	The inspired word of God, but not everything in it should be taken literally, word for word	An ancient book of fables, legends, history, and moral precepts recorded by men	N/A

9) Which of the following best describes your political ideology in general?

1	2	3	4	5	6	7
Extremely Liberal						Extremely Conservative

10) Which of the following best describes your political ideology when it comes to *social* issues?

1	2	3	4	5	6	7
Extremely Liberal						Extremely Conservative

11) Which of the following best describes your political ideology when it comes to *economic* issues?

1	2	3	4	5	6	7
Extremely Liberal						Extremely Conservative

Appendix B: Study Two Materials

Stimulus for Control Condition (Pilot Only):

Below is a brief summary of the currently prevailing research regarding diet and nutrition. Please read the summary carefully, because you will be asked questions about it later.

Calories In, Calories Out? Why that Nutrition Label Might Not Be as Accurate as You Think.

People who meticulously track their calorie intake should be cautious: their tallies may be wrong. Recent studies show that our current system for calculating calories, which dates back more than 100 years, neglects several factors that influence the accuracy of these estimates. For the most part, the inaccuracies are small, but some discrepancies are as high as 50 percent, experts say.

High fiber foods, for instance, are not digested as well, so the number of calories we actually get from these foods is less than estimated. The degree of processing — eating a carrot that's pureed rather than whole, for example — also changes the proportion of calories we get from a food. Food processing takes some of the work out of digestion, meaning that a processed food will generally have close to the estimated number of calories, whereas whole foods will (functionally speaking) yield fewer calories than estimated. The difference is biggest (around 20% - 30%) for starchy foods, like potatoes, and is lowest (5% - 10%) for meats.

Structural differences in food also make some calories inaccessible to our bodies. For example, some of the fat in whole almonds is locked away in a structure our bodies can't digest. While standard estimates say a serving of whole almonds has about 170 calories, more recent studies find it actually yields about 130. When we digest food, we also give off energy as heat. The amount of heat we radiate depends upon the type of food. For proteins, it's about 20 to 30 percent of the food's calories — so if we eat 100 calories worth of protein, we only absorb 70-80 calories from it.

Some researchers say these inaccuracies don't make much difference. People tend to eat a variety of foods, so incorrectly estimating the calories in one particular food should have little influence on one's daily calorie intake. Also, the current system tends to result in overestimates, meaning it should only pose a problem for people seeking to gain weight. But other researchers say the goal of a revision would be to give people as much accurate information as possible to help them make informed choices about food. Such a process could result in broad changes, including new numbers for the total calories people need in a day.

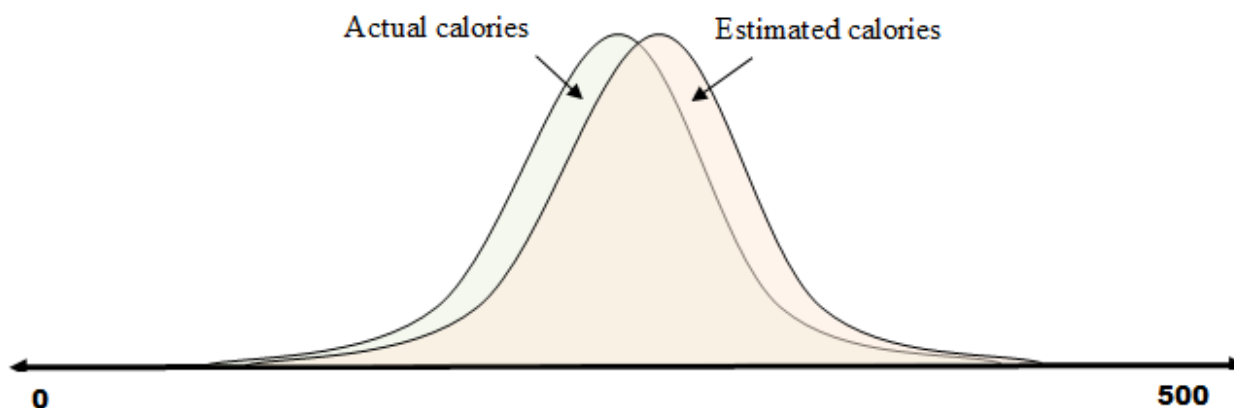


Figure 1: Frequency distribution for the number of calories (standard estimates versus actually absorbable) in the most commonly consumed foods. This graphic reflects single servings of basic foods, but does not apply to meals or complex foods where multiple nutritional elements are combined.

Final Stimulus for Essentializing Condition (ES):

Below is a brief research summary of the currently prevailing psychological theories regarding certain behavioral and attitudinal attributes of men and women. Please read the summary carefully, because you will be asked questions about it later.

Evolved Mating Differences Between Men and Women – Research Suggests Fundamental Dissimilarities

Evolutionary mating theory (an offshoot of evolutionary psychology) suggests that men and women differ fundamentally in their sexual attitudes and mating behaviors, due to the distinctive challenges men and women have faced throughout human evolution as a result of their different roles in reproduction (Buss, 1995). According to this argument, men have an evolved predisposition to seek a variety of sexual partners for short-term mating, in order to best enhance their chances of producing offspring. Women, on the other hand, must be more selective in choosing a mate, due to their greater obligatory investment in the reproductive process. Indeed, evidence from multiple studies suggests that men tend to exhibit more sexually permissive attitudes and behaviors than women do. For instance, men consistently report engaging in casual and extramarital sex with greater frequency than women do, and report having a greater number of sexual partners than women do (Brand, Markey, & Hodges, 2007). Additionally, men's attitudes toward casual sex tend to be more positive than women's. These differences have been replicated in many studies and are statistically fairly large, according to a meta-analysis by Petersen and Hyde (2010).

Similarly, evolutionary mating theory suggests that men are disposed to focus on the attractiveness of a potential mate, as a cue to fertility. Women, conversely, are disposed to focus on cues that a potential mate will have adequate material resources to invest in any potential

offspring. Evidence from multiple sources supports this proposed difference. For instance, some studies have examined the content of personal ads and dating profiles created by men and women. They found that men were more likely to offer information about their status and resources, and mention information about desired physical traits in their prospective partner. Women, on the other hand, were more likely to offer information about physical appearance, and mention status related traits as part of what they were seeking in a potential partner (see Geher & Miller, 2012, for a review). In sum, a growing body of research supports the evolutionary mating psychology perspective, and suggests that the male and female psyches may be hardwired to be fundamentally different.

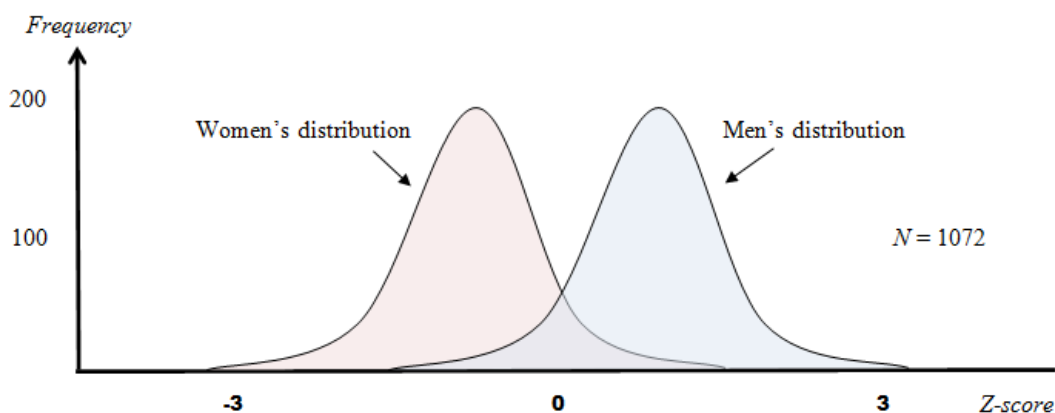


Figure: Frequency distribution of men's and women's sexual behaviors from an anonymous, nationally representative sample. Index includes number of partners, age at first sexual encounter (reverse scored), and frequency of casual and extramarital sex.

This distribution shows that between-sex variability is fairly large, even considering the substantial variation within sex.

Final Stimulus for De-essentializing Condition (ES):

Below is a brief research summary of the currently prevailing psychological theories regarding certain behavioral and attitudinal attributes of men and women. Please read the summary carefully, because you will be asked questions about it later.

Evolved Mating Differences Between Men and Women? Research Suggests More Similarities than Differences

Evolutionary mating theory (a controversial offshoot of evolutionary psychology) proposes that men and women differ fundamentally in their sexual attitudes and mating behaviors, due to the distinctive challenges men and women have faced throughout human evolution as a result of their different roles in reproduction (Buss, 1995). According to this argument, men have an evolved predisposition to seek a variety of sexual partners for short-term mating, in order to best enhance their chances of producing offspring. Women, on the other hand, must be more selective in choosing a mate, due to their greater obligatory investment in the

reproductive process. Evolutionary mating theory also suggests that men are disposed to focus on the attractiveness of a potential mate, as a cue to fertility. Women, conversely, are disposed to focus on cues that a potential mate will have adequate material resources to invest in any potential offspring. However, many researchers have questioned the validity of this theory, and now the evidence is stacking up against it.

Challengers of evolutionary mating theory point out that while men report that they particularly value attractiveness and women report that they value partners' earning potential, these reports often fail to predict actual behavior (Kurzban & Weeden, 2007), especially attraction to a live interaction partner, as opposed to photographs (Eastwick, Eagly, Finkel, & Johnson, 2011). Basic evolutionary psychology tells us that selection pressures work at the behavioral level—they shape human psychology by favoring behaviors that yield certain outcomes. If, for instance, women claim that they value partners' earning potential but do not actually select partners on this basis, then self-reports are a bad test for the predictions of evolutionary mating theory. Furthermore, studies have confirmed that men's supposed tendency to assign greater importance to partners' physical attractiveness than women do does not emerge when implicit measures are used (Eastwick et al., 2011).

Researchers also debate the need to suggest an evolved cause when a more immediate cause will suffice: that is, obedience to social norms. In highly sensitive domains like sexuality, social norms are especially likely to influence explicit responses of men and women. For instance, men will report earlier and more diverse sexual experiences than women mainly when their responses might become known to others. Conversely, in studies that motivated participants to be as accurate as possible, these sex differences in reported sexuality decreased and sometimes reversed (Alexander & Fisher, 2003). In sum, a growing body of research has challenged the proposition that the male and female psyches are hardwired to be different. Rather, men and women appear to be very similar, and the small differences that do exist are likely driven by social and cultural factors.

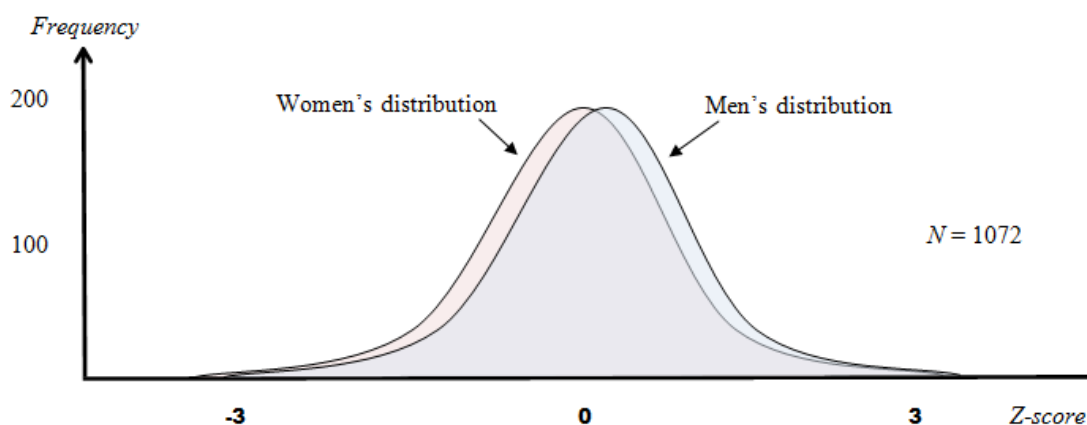


Figure: Frequency distribution of men's and women's sexual behaviors from an anonymous, nationally representative sample. Index includes number of partners, age at first sexual encounter (reverse scored), and frequency of casual and extramarital sex. This distribution shows that the between-sex variability is very slight compared to the variation within sex.

Evaluation of Research Summary (items selected from Morton, Haslam, Postmes, & Ryan, 2006):

1) How convincing were the research findings in the summary you just read?

1	2	3	4	5
Not at all convincing				Very convincing

2) How biased was the presentation of findings in the summary you just read?*

1	2	3	4	5
Not at all biased				Very biased

3) Would you agree or disagree that the research summary you just read makes a significant contribution to the understanding of human nature?¹⁴

1	2	3	4	5
Disagree Strongly	Disagree Slightly	Neither Agree nor Disagree	Agree Slightly	Agree Strongly

Comprehension Check:

Which of the following statements most closely summarizes the research synopsis you read a few minutes ago?

- Research suggests that men and women have evolved different preferences when it comes to mating, because of their different roles in the reproductive process.
- Research suggests that men and women are fairly similar in mating preferences, and that apparent variation is a result of social norms rather than innate differences.
- Research suggests that both men's and women's mating preferences have changed considerably over the last hundred years.
- Research suggests that men's mating preferences have remained relatively stable over time, while women's mating preferences have changed considerably over the last hundred years.

{For Study Two Pilot, control condition}:

Which of the following statements most closely summarizes the research synopsis you read a few minutes ago?

- Research suggests that people are consuming more calories than they did 20 years ago.
- Research suggests that people are consuming fewer calories than they did 10 years ago.

¹⁴ For the control condition in the pilot this was altered to "to the understanding of diet and nutrition".

- c. Research suggests that the methods we have used for estimating calories over the last 100 years have led to widespread underestimation of the number of calories people consume each day.
- d. Research suggests that our standard practices of estimating calories within foods have neglected important information and led to overestimation of the number of calories we actually absorb from most foods.

Gender Essentialist Beliefs (GEB, see Appendix A).

Traditional Gender Role Norm Endorsement (GRN, see Appendix A).

Heterosexist Attitudes (HA, see Appendix A).

Demographic Questions (see Appendix A).