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# Essentialist Beliefs About Homosexuality: Structure and Implications for Prejudice

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*The structure of beliefs about the nature of homosexuality, and their association with antigay attitudes, were examined in three studies (Ns = 309, 487, and 216). Contrary to previous research, three dimensions were obtained: the belief that homosexuality is biologically based, immutable, and fixed early in life; the belief that it is cross-culturally and historically universal; and the belief that it constitutes a discrete, entitative type with defining features. Study 1 supported a three-factor structure for essentialist beliefs about male homosexuality. Study 2 replicated this structure with confirmatory factor analysis, extended it to beliefs about lesbianism, showed that all three dimensions predicted antigay attitudes, and demonstrated that essentialist beliefs mediate associations between prejudice and gender, ethnicity, and religiosity. Study 3 replicated the belief structure and mediation effects in a community sample and showed that essentialist beliefs predict antigay prejudice independently of right-wing authoritarianism, social dominance orientation, and political conservatism.*

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**F**rom an early age, people organize their world into social categories. However, only over the past decade or so have social psychologists begun to explore the beliefs that adults hold about the nature of these categories. Under the rubric of “psychological essentialism” (Medin & Ortony, 1989), researchers and theorists have addressed the implications of ascribing a fixed, underlying nature, or essence, to category members. Such an essence, whose nature may be obscure to the person who ascribes it, is implicitly understood to determine the identity of category members, to render them all fundamentally alike, and to allow many inferences to be drawn about them. Essentialist beliefs represent a set of ontological assumptions that capture some social categories

better than others, that vary between people, and that appear to have important implications for attitudes. Recent work has documented essentialist thinking about a host of differences between people, including ethnicity (Gil-White, 2001), race (Hirschfeld, 1996; Verkuyten, 2003), gender (Mahalingam, 2003), mental disorder (Haslam & Ernst, 2002), and personality (Haslam, Bastian, & Bissett, 2004).

Two basic research questions in the study of essentialist beliefs are their structure and their implications for prejudice. In a seminal contribution, Rothbart and Taylor (1992) theorized that essentialist thinking involves an inappropriate understanding of social categories as “natural kinds” so that groups that are in fact socially and historically constructed are misrepresented as akin to biological species. Rothbart and Taylor proposed that natural kind thinking has two components, namely, inalterability and inductive potential. When a social category is essentialized, its members are understood to have an immutable status that affords a wealth of inferences about them. Comparable dimensions were obtained in research by Haslam, Rothschild, and Ernst (2000), who demonstrated that social categories are differentiated along two factors. The first, natural kind factor combined beliefs in the immutability, biological basis, discreteness, historical invariance, and defining features of a category and was best exemplified by gender, racial, and ethnic categories. The second factor combined beliefs in a category’s inductive potential and in the existence of deeply rooted similarities among its

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members. This factor corresponds to the concepts of "entitativity" (Hamilton & Sherman, 1996; McGarty, Haslam, Hutchinson, & Grace, 1995) or reification and was best exemplified by gay men, AIDS patients, Jews, and political groups. Identical natural kind and entitativity factors emerged in a study of individual differences in beliefs about women, African Americans, and gay men (Haslam, Rothschild, & Ernst, 2002), and evidence for the distinction also was obtained in an experimental study of beliefs about mental disorders (Haslam & Ernst, 2002). Thus, Rothbart and Taylor's (1992) theoretically derived two-dimensional model of essentialist beliefs has received consistent empirical support.

The implications of essentialist beliefs for prejudice also have received theoretical scrutiny. Allport (1954) first proposed that a belief in essence is a fundamental component of prejudice, and in a similar vein, Rothbart and Taylor (1992) maintained that essentialist thinking accentuates group differences. The malign implications of essentialist beliefs have been further emphasized by Leyens et al. (2000), who proposed that essentialized outgroups are often "infra-humanized," and by Yzerbyt, Rocher, and Schadron (1997), who argued that essentialist beliefs legitimate and naturalize unequal social arrangements. On this view, essentialist beliefs freeze existing social arrangements and defend and protect dominant social groups.

Empirical research has partially borne out this negative view of essentialist beliefs. Haslam et al. (2000) found that more stigmatized categories were judged to be more entitative and entitativity beliefs are associated with racist attitudes, and Bastian and Haslam (in press) found that people who essentialize individual differences are especially apt to endorse social stereotypes. Studies of specific components of essentialist beliefs indicate that belief in the biological basis of gender and race is associated with greater endorsement of gender and racial stereotypes (Martin & Parker, 1995), and belief in the immutability of human characteristics is similarly associated with higher levels of stereotype endorsement (e.g., Levy & Dweck, 1999; Levy, Stroessner, & Dweck, 1998) and less helping of disadvantaged groups (e.g., Karafantis & Levy, 2004). This evidence is somewhat mixed, however. Haslam et al. (2002) showed that some essentialist beliefs, particularly the belief that homosexuality is biologically based and immutable, were associated with pro-gay attitudes. Similarly, Verkuyten (2003) demonstrated that essentialist discourse can sometimes have progressive implications, enabling minority groups to affirm an enduring cultural identity, promote multiculturalism, and resist assimilation.

One domain where the role of essentialist beliefs is especially controversial but relatively neglected by social

psychologists is sexual orientation. Within scholarly debates, essentialist and social constructionist positions on this issue exist in stark and heated opposition (De Cecco & Elia, 1993; Stein, 1990). Constructionists argue that sexual orientations are socially constituted identities rather than naturally occurring categories and that sexuality is subject to wide cultural and historical variations. Essentialists hold that sexual orientations are objectively occurring categories that are grounded in biology, difficult to change, and likely to appear, with limited cultural shaping, wherever and whenever people have lived.

Much of the debate surrounding essentialist views of sexual orientation has focused on intellectual positions rather than laypeople's beliefs. However, several studies have investigated beliefs about the nature of sexual orientations and their association with antigay prejudice, although usually with little or no reference to the concept of essentialism. Although essentialist positions have usually been the focus of theoretical critique, researchers have found that beliefs in the uncontrollability (i.e., immutability) and biological basis of homosexuality are associated with more positive attitudes toward gay men and lesbians (e.g., Herek & Capitanio, 1995; Whitley, 1990). More recent research by Hegarty and Pratto (2001) examined essentialist beliefs in a more comprehensive fashion and found two dimensions underlying beliefs about sexual orientation that had opposite implications for antigay attitudes. Believing sexual orientations to be immutable (i.e., fixed early in life, difficult to change, and biologically based) was associated with greater tolerance, but believing them to be "fundamental" (i.e., deeply different and binary) was associated with greater prejudice. Hegarty (2002) replicated these immutability and fundamentality factors and their distinct associations with attitudes in two new samples.

Research by Haslam et al. (2002) concurred with Hegarty and colleagues in obtaining a two-dimensional structure of essentialist beliefs that had complex but powerful associations with antigay attitudes. Participants' beliefs about male homosexuality varied along natural kind and entitativity factors, and the entitativity factor was associated with greater prejudice. However, natural kind beliefs had mixed associations with attitudes: Beliefs in the biological basis and immutability of homosexuality were associated with tolerance but beliefs in its discreteness were associated with prejudice.

Although these findings agree with those of Hegarty and Pratto (2001) in some respects, they differ in others, not least in their respective belief structures. The immutability and natural kind factors share an emphasis on fixity and biological determinism, and the fundamentality and entitativity factors share a focus on underlying similarities and informativeness. However, Haslam et al.'s

(2000, 2002) natural kind factor extends beyond immutability to include a belief in the discreteness of sexual orientations, which would fall within Hegarty and Pratto's fundamentality factor. In addition, the natural kind factor includes a belief in the historical invariance of sexual orientations that is not encompassed by Hegarty and Pratto's factors. Just as important, the respective factor pairs differ in their attitudinal implications, with Haslam et al.'s natural kind factor containing beliefs with conflicting associations with prejudice in a way that Hegarty and Pratto's factors do not.

In view of the lack of research on essentialist beliefs about sexual orientation and the discrepancies between existing studies, it is important to clarify the structure and attitudinal implications of these beliefs. Current research offers encouraging support for the links between essentialist beliefs and antigay prejudice, for the mixed direction of these links, and for a two-dimensional model of these beliefs. However, studies have examined different sets of essentialist beliefs, used samples whose magnitude is marginal for their multivariate analyses (all  $N$ s < 120), and failed to examine whether links between beliefs and attitudes are independent of, or reducible to, established predictors of antigay attitudes such as authoritarianism (Whitley & Lee, 2000). The three studies reported here, therefore, aimed to place our understanding of the structure and implications of essentialist thinking about homosexuality on a firmer footing. We sought to develop and test a model of essentialist beliefs about homosexuality and to illuminate the complex relationships these beliefs appear to have with antigay attitudes.

#### STUDY 1

In the first study, we aimed to clarify the structure of essentialist beliefs about homosexuality using a much larger sample than previously so as to afford greater confidence in the multivariate analysis. In addition, we used an improved set of items that borrowed from earlier work by both Haslam et al. (2000, 2002) and Hegarty and Pratto (2001). For simplicity, we addressed only beliefs about male homosexuality, leaving an extension to lesbianism for Study 2. Study 1 was exploratory, given the discrepant belief structures obtained in previous research. Thus, we sought to develop a preliminary model of the latent structure of essentialist beliefs to be replicated, tested in a confirmatory fashion, and extended in Study 2.

#### Method

##### PARTICIPANTS

Participants were 309 undergraduates at a large, northeastern university who received course credit for

completing a series of questionnaires. They included 164 women and 145 men; their mean age was 19.3 ( $SD = 3.7$ ); and they were ethnically diverse, comprising 102 Caucasians, 80 Asian Americans, 46 African Americans, 28 Latinos, and 50 "others" (3 participants provided no information).

##### MATERIALS

All participants completed a short self-report measure of beliefs about the nature of male homosexuality in addition to several unrelated questionnaires. This seven-item measure was adapted from items in the Essentialist Beliefs Scale (EBS; Haslam et al., 2000, 2002) but also included two items adapted from those developed by Hegarty and Pratto (2001). These two items covered the biological basis and early fixity of homosexuality, the former more clearly expressed than its equivalent in the EBS and the latter not represented in that scale. An additional item was written to capture beliefs in the cross-cultural universality of homosexuality, another belief omitted by both the EBS and Hegarty and Pratto's scales but that is an important component of essentialist thinking in the domain of sexual orientation. The seven items, all of which were rated on a scale from 1 (*very strongly agree*) to 6 (*very strongly disagree*), are listed below:

*Biological basis.* "Male homosexuality is caused by biological factors such as genes and hormones."

*Immutability.* "A homosexual man can become heterosexual." (reverse scored)

*Fixity.* "Whether or not a man is homosexual or heterosexual is pretty much set early on in childhood."

*Discreteness.* "Male homosexuality is a category with clear and sharp boundaries: men are either homosexual or they are not."

*Defining features.* "Male homosexuals have a necessary or defining characteristic, without which they would not be homosexual."

*Historical invariance.* "Male homosexuality has probably existed throughout human history."

*Universality.* "Male homosexuality probably only exists in certain cultures." (reverse scored)

##### PROCEDURE

Participants in large groups in a classroom setting completed a battery of questionnaires during an hour-long session under the supervision of several research assistants. Along with measures contributed by other investigators and unrelated to our investigation, this battery included the measure described above.

**TABLE 1: Correlations Among Essentialist Belief Items, Study 1**

Item	1	2	3	4	5	6	7
1. Biological basis	100						
2. Immutability	27**	100					
3. Fixity	39**	30**	100				
4. Historical invariance	-05	01	20**	100			
5. Universality	-04	02	07	31**	100		
6. Discreteness	19**	19**	07	-16**	-03	100	
7. Defining features	09	14*	09	10	03	27**	100

NOTE: The decimal has been omitted.

\* $p < .05$ . \*\* $p < .01$ .

### Results

Correlations among the seven beliefs items are presented in Table 1. Most correlations are small to moderate in magnitude, indicating that essentialist beliefs about the nature of male homosexuality are coherent but loosely organized. A principal components analysis of the items yielded a three-factor solution according to both the scree test and the Kaiser criterion, which accounted for a substantial 62.1% of the variance. Item loadings for the varimax-rotated factors are presented in Table 2. Three items load strongly on the first factor, with highest loadings for beliefs that male homosexuality is biologically based, immutable, and fixed early in life. The second factor represents beliefs that male homosexuality is historically and cross-culturally invariant, the former of which loaded on the natural kind factor in previous studies, and is best considered a dimension of universality. The third factor contains loadings of discreteness and defining features and resembles Hegarty and Pratto's fundamentality factor, representing homosexuality as crisply binary and deeply rooted.

Exploratory analyses were carried out to examine demographic correlates of the essentialist belief dimensions, assessed by the respective factor scores. Gender differences were only apparent on the discreteness factor, with men holding more essentialist beliefs than women,  $t(307) = 3.58$ ,  $p < .001$ . By implication, the heterosexual majority of men may be particularly apt to perceive male sexual orientation as a categorical matter, thus disavowing any homosexual inclinations (Eliason, 1995). Significant ethnic differences were evident only on the immutability component,  $F(5, 303) = 4.18$ ,  $p < .001$ , with White participants tending to score high and African American participants tending to score low.

### Discussion

Study 1's primary finding is that essentialist beliefs about male homosexuality can be represented by three distinct dimensions. By implication, these beliefs are more differentiated than previous work has suggested. Hegarty and Pratto (2001) supported a two-dimensional

**TABLE 2: Loadings From Principal Components Analysis of Essentialist Beliefs Items, Study 1**

Item	Factor 1	Factor 2	Factor 3
Biological basis	.77	-.14	.07
Immutability	.64	.00	.23
Fixity	.79	.24	-.06
Historical invariance	.07	.83	-.07
Universality	-.02	.74	.06
Discreteness	.17	-.23	.76
Defining features	.03	.21	.81
% variance	26.1	20.2	15.8

NOTE: The decimal has been omitted.

structure, and their immutability and fundamentality dimensions, replicated in two further samples (Hegarty, 2002), bear close resemblances to the present study's immutability and discreteness factors. However, their study contained no equivalent of the present study's universality factor. Haslam et al.'s (2002) natural kind and entitativity dimensions correspond less well to the present study's factor solution, with their discreteness and historical invariance items failing to load with immutability and biological basis on a broad natural kind factor as they had in previous work. Thus, Study 1 clarifies the structure of essentialist beliefs by independently replicating previously obtained immutability and discreteness (or fundamentality) factors and by finding an additional factor concerning universality.

The universality of sexual variation over time and across cultures has been a major focus of controversy in historical and anthropological scholarship on homosexuality (e.g., Boswell, 1980; Herdt, 1981) and in the essentialism versus constructionism debates, and it is interesting that a corresponding belief dimension emerged in the present study. It is particularly interesting that this dimension was distinct from beliefs that homosexuality is fixed and biologically based, beliefs that might be expected to promote universalist assumptions and one of which (historical invariance) loaded on an immutability based natural kind factor in previous research (Haslam et al., 2000, 2002). However, the present study's evidence for a distinct universality factor is

arguably stronger than this previous research for two reasons. First, its sample is substantially larger than those from which previous two-factor structures were derived (i.e., 309 vs. 116; Hegarty & Pratto, 2001; 97 and 72; Hegarty, 2002; and 81; Haslam et al., 2002). Second, it alone asked participants about cross-cultural universality in addition to historical invariance, thereby potentially allowing the universality factor to be revealed.

## STUDY 2

Study 1 provides preliminary support for the claim that essentialist beliefs about homosexuality have three distinct components. Although it is based on a relatively large sample and an arguably improved item set, this evidence also is limited. First, it is based exclusively on beliefs about male homosexuality. Second, it is based on exploratory analyses rather than a direct test of a three-factor hypothesis. Third, Study 1 fails to show that the three factors have implications for attitudes or help to account for other prejudice-related phenomena. Study 2 was designed to overcome these limitations. It assessed essentialist beliefs about gay men and lesbians, tested the proposed factor structure using confirmatory factor analysis, examined associations between the essentialist belief factors and antigay attitudes, and tested whether these factors accounted for established associations between demographic characteristics and attitudes. Antigay attitudes tend to be relatively strong among men, certain ethnic minority groups, and religious individuals (e.g., Herek, 1988; Herek & Capitano, 1995; Kite & Whitley, 1996), and the importance of essentialist beliefs for antigay attitudes would be underscored if these effects were mediated by particular beliefs.

Three broad hypotheses were tested in Study 2. First, we predicted that the three-factor structure obtained in Study 1 would fit beliefs about gay men and lesbians well in confirmatory factor analyses and better than models containing one or two factors. Second, we predicted that the three factors would all be associated with attitudes toward gay men and lesbians, and in particular, that the "new" universality factor would predict attitudes independently of the more well-established immutability and discreteness factors. In view of past research (Haslam et al., 2002; Hegarty & Pratto, 2001), we predicted that immutability and discreteness beliefs would have negative and positive associations with antigay attitudes, respectively. Finally, we predicted that the essentialist beliefs factors would partially mediate gender, ethnic, and religious differences in antigay attitudes; that is, we hypothesized that these differences would be attenuated when demographic differences in essentialist beliefs were statistically controlled.

## Method

### PARTICIPANTS

Participants were 487 undergraduates at a large, northeastern university who received course credit for completing a questionnaire. They included 291 women and 177 men (19 did not indicate their gender); their mean age was 19.7 ( $SD = 3.6$ ); and they were ethnically diverse, comprising 214 Caucasians, 110 Asian Americans, 65 African Americans, 33 Latinos, 12 East Indians, and 38 "others" (15 participants provided no information).

### MATERIALS

Participants completed a questionnaire containing measures of essentialist beliefs, antigay attitudes, and demographic information. The same seven essentialist belief items employed in Study 1 were used in Study 2, but separate versions were written to refer to lesbians and gay men. The Attitudes to Lesbians and Gay Men scale (ATLG; Herek, 1988) assesses antigay attitudes, with 10-item subscales for attitudes toward lesbians (ATL) and attitudes toward gay men (ATG). All items are scored on a 9-point Likert scale ( $-4 = \textit{very strongly disagree}$ ,  $4 = \textit{very strongly agree}$ ) and load on a single "condemnation-tolerance" factor. Reliabilities of both subscales, scored so that higher scores represent more negative attitudes, were excellent ( $\alpha = .93$  and  $.91$  for ATG and ATL, respectively). The demographic component of the questionnaire contained single items assessing gender, age, sexual orientation, ethnicity, religious affiliation, and religiosity ( $0 = \textit{not at all}$ ,  $10 = \textit{extremely}$ ). The essentialist beliefs items or the ATLG were randomly assigned first position in the questionnaire, with the demographic information always being solicited last.

### PROCEDURE

Participants in small to large groups in a classroom setting completed a battery of questionnaires during an hour-long or 30-min session, under the supervision of several research assistants. Along with measures contributed by other investigators and unrelated to our investigation, this battery included the measures described above.

### Results

To test the three-dimensional structure of essentialist beliefs obtained in Study 1, the essentialist beliefs items were subjected to confirmatory factor analyses (CFAs). The seven items for male homosexuality and for lesbianism were analyzed separately, with the appropriate intercorrelation matrix (see Table 3) analyzed using the generalized least squares option in the RAMONA program. Three different factor models were tested for each item set. In Model 1, representing the possibility that all of the items reflect a single dimension of essentialist

**TABLE 3: Correlations Among Essentialist Belief Items, Study 2**

	1	2	3	4	5	6	7
1. Biological basis	100	25**	44**	18**	03	-07	09
2. Immutability	30**	100	37**	14**	13**	09*	02
3. Fixity	44**	40**	100	21**	10*	05	08
4. Historical invariance	19**	06	19**	100	33**	-11*	-09
5. Universality	04	13**	06	34**	100	-15**	-19**
6. Discreteness	-11*	08	08	-13**	-14**	100	16**
7. Defining features	06	09	09*	-10*	-16**	28**	100

NOTE: Male homosexuality is below the diagonal, whereas lesbianism is above the diagonal. The decimal has been omitted.  
 \* $p < .05$ . \*\* $p < .01$ .

beliefs, all seven items loaded on one factor. In Model 2, representing the possibility that two factors resembling those obtained previously fit the data, discreteness and defining features loaded on one factor akin to fundamentality and all others, including historical invariance and cross-cultural universality, loaded on a second factor akin to immutability. In Model 3, representing the structure implied by Study 1, items assessing immutability, fixity, and biological basis loaded on one factor, discreteness and defining features on another, and historical invariance and universality on a third. In Models 2 and 3, the factors were allowed to correlate.

A summary of the findings of the CFAs is presented in Table 4. For both male homosexuality and lesbianism, the one-factor model yields a very poor fit to the data, as assessed by the three fit indices. In addition, three of the seven items failed to load significantly on the factor in each case. The two-factor model produces an appreciable improvement in fit for beliefs about male homosexuality but not for lesbianism, but levels of fit are still weak and two items failed to load significantly on their assigned factor. The three-factor model, however, represents a very substantial improvement in fit over the two-factor model, indicating that the proposed universality factor is a necessary addition to the immutability and discreteness (or fundamentality) factors. Although Model 3 narrowly fails the chi-square test of perfect fit for both item sets,  $\chi^2_{(11)} = 24.47, p < .05$ , and  $\chi^2_{(11)} = 21.12, p < .05$ , a test that is rarely passed when samples are large, its levels of the expected cross-validation index (CVI) statistic resemble those of the saturated model (i.e., .115), and its levels of root mean square error of approximation (RMSEA) fall on or under the conventional threshold of close fit (i.e., .05). The factors were weakly but significantly correlated for both beliefs about male homosexuality and lesbianism: discreteness and immutability correlated .10 and .12, discreteness and universality correlated -.20 and -.28, and immutability and universality correlated .20 and .23. The CFAs therefore provide strong support for the hypothesized three-factor model of essentialist beliefs.

**TABLE 4: Summary of Fit Statistics for Confirmatory Factor Analyses, Study 2**

	$\chi^2/df$	CVI	RMSEA
Male homosexuality			
Model 1	10.04	.347	.136
Model 2	7.85	.272	.119
Model 3	2.22	.120	.050
Lesbianism			
Model 1	7.36	.270	.114
Model 2	7.04	.250	.112
Model 3	1.92	.113	.043

NOTE: CVI = cross-validation index; RMSEA = root mean square error of approximation.

In view of this support for the three-factor model, the relationships between the factors and antigay attitudes were examined. The factors were operationalized as sums of the respective items (three for immutability, two for discreteness and universality), and these sums were correlated with the ATG or ATL subscales. All three factors were associated with attitudes. As predicted, immutability beliefs were negatively correlated with prejudice toward gay men and lesbians (both  $r_s = -.29$ ), as were universality beliefs ( $r_s = -.27$  and  $-.32$ , respectively). Also consistent with prediction, discreteness beliefs were positively associated with antigay attitudes ( $r_s = .37$  and  $.29$ , respectively; all  $p_s < .001$ ). Thus, essentialist beliefs about homosexuality have mixed implications for prejudice, depending on their specific content. Of importance, universality beliefs have an independent association with prejudice, alongside the better-established associations of immutability and discreteness (fundamentality). The overall associations between beliefs and attitudes were strong ( $R_s = .51$  and  $.46$  for male homosexuality and lesbianism) and would be substantially stronger if the beliefs were assessed with the greater reliability that longer scales provide. For example, when the correlations of immutability and universality beliefs with ATG are disattenuated for scale unreliability, they inflate from  $-.29$  to  $-.37$  and from  $-.27$  to  $-.40$ , respectively.

Given the success of the essentialist belief factors in predicting levels of explicit antigay attitudes, we investi-

gated whether these beliefs might mediate the associations between attitudes and gender, ethnicity, and religiosity. With respect to gender, male participants ( $M = -1.9$ ) revealed significantly greater prejudice than female participants ( $M = -12.7$ ) toward gay men,  $t(466) = 5.83$ ,  $p < .001$ , but not toward lesbians ( $M_s = -10.9$  and  $-13.6$ ),  $t(466) = 1.61$ , *ns*. To test directly whether each belief factor significantly mediated the effect of gender on attitudes toward gay men, we conducted a series of Sobel tests, following Baron and Kenny's (1986) recommendations. These tests revealed that the discreteness factor mediated the effect ( $z = 4.32$ ,  $p < .0001$ ), but the immutability and universality factors did not ( $z_s = 0.03$  and  $0.22$ ,  $p_s > .05$ ). Male participants believed male homosexuality to be more discrete than did female participants,  $t(466) = 5.08$ ,  $p < .001$ , and this difference partially accounted for the gender difference in attitudes. One interpretation of this mediation effect is that heterosexual men who hold antigay attitudes tend to believe gay men to be categorically distinct from themselves (Haslam, 1997).

To investigate differences in antigay attitudes as a function of ethnicity, we restricted our sample to members of the five most prevalent ethnic groups (Whites, African Americans, Latinos, Asians, and East Indians; combined  $N = 434$ ). Significant ethnic differences were apparent in attitudes toward gay men,  $F(4, 429) = 7.56$ ,  $p < .001$ , and lesbians,  $F(4, 429) = 8.55$ ,  $p < .001$ . In both cases, White participants ( $M = -13.1$  and  $-16.6$ ) revealed the lowest levels of antigay attitudes and African American participants ( $M = 0.2$  and  $-3.4$ ) revealed the highest. To test for mediation, we collapsed the ethnicity variable into a White/non-White dichotomous variable and ran Sobel tests as before. Ethnic differences in attitudes toward gay men were significantly mediated by immutability ( $z = 4.00$ ,  $p < .0001$ ) and universality beliefs ( $z = 2.33$ ,  $p < .05$ ) but not discreteness beliefs ( $z = 0.02$ ,  $p > .05$ ). The same pattern of results held for attitudes toward lesbians: immutability ( $z = 3.91$ ,  $p < .0001$ ), universality ( $z = 2.79$ ,  $p < .01$ ), but not discreteness ( $z = 0.35$ ,  $p > .05$ ) were significant mediators. Ethnic differences in antigay attitudes are therefore partially explained by the tendency for White participants to believe homosexuality to be less mutable and more universal than members of minority groups.

Finally, we examined whether essentialist beliefs might partially mediate differences in antigay attitudes as a function of religiosity. As assessed by the religiosity item, more religious participants tended to avow higher levels of prejudice toward gay men,  $r = .30$ ,  $p < .001$ , and toward lesbians,  $r = .36$ ,  $p < .001$ . Sobel tests indicated that these effects were mediated by the belief factors, as expected. With regard to attitudes toward gay men, immutability ( $z = 2.59$ ,  $p < .01$ ) and universality beliefs ( $z = 2.26$ ,  $p < .05$ ), but not discreteness beliefs ( $z = 1.77$ ,  $p > .05$ ), were significant mediators, whereas for attitudes

toward lesbians, all three factors mediated the religiosity effect (immutability  $z = 2.36$ ,  $p < .05$ ), universality ( $z = 2.52$ ,  $p < .05$ ), discreteness ( $z = 2.32$ ,  $p < .05$ ). Thus, the greater antigay prejudice of more religious individuals is partially explained by their greater tendency to believe that homosexuality is mutable, culturally specific, and in the case of lesbianism, categorically different from heterosexuality. These findings were not meaningfully altered when the analysis was restricted to participants who avowed some ( $> 0 = none at all$ ) religious affiliation or to participants with a Christian affiliation.<sup>1</sup>

### Discussion

The findings of Study 2 strongly support the three-dimensional structure of essentialist beliefs about homosexuality that had been proposed on the basis of Study 1's exploratory analysis. In a confirmatory factor analysis, the three dimensions yielded a close fit to the data for beliefs about male as well as female homosexuality. This fit was substantially better than the fit of simpler models that implied a single dimension of essentialist beliefs or two dimensions corresponding to the immutability and fundamentality factors obtained in previous research. The confirmatory factor analyses indicate that essentialist beliefs involving the historical and cross-cultural universality of homosexuality are distinct from beliefs that homosexuality is an immutable and biologically based phenomenon, and also from beliefs that it constitutes a discrete type of person. Such universality beliefs should therefore be studied and theorized in their own right rather than assimilated to the broader concept of natural kind beliefs proposed in previous research (Haslam et al., 2002).

Study 2 also indicated that essentialist beliefs about homosexuality are not mere ontological abstractions but have strong associations with antigay attitudes. Collectively, the three dimensions of essentialist beliefs accounted for approximately 25% of the variance in these attitudes, a figure that falls below the one obtained in previous research (43%; Haslam et al., 2002) but is likely to be substantially underestimated given the unreliably brief scales used to measure the dimensions. The belief dimensions predicted attitudes toward gay men and lesbians about equally well, and of importance, the new universality dimension predicted attitudes independently of immutability and discreteness beliefs, whose predictive effects had been demonstrated in previous studies (Hegarty, 2002; Hegarty & Pratto, 2001). Essentialist beliefs therefore appear to be powerful predictors of attitudes toward homosexuality, although their links to attitudes have only begun to receive attention from researchers.

The capacity of the essentialist belief dimensions to illuminate antigay attitudes also was supported by Study

2's demonstration that they partially accounted for several demographic correlates of prejudice. Gender, ethnic, and religiosity based differences in attitudes were reduced by roughly half when correlated differences in beliefs were statistically controlled. The extent of this mediation is probably also underestimated given the unreliable measurement of essentialist beliefs. Nevertheless, a substantial fraction of these effects remains unexplained by the beliefs, and any complete explanation of them would need to refer to ideological or affective factors that are specific to particular sectors of the population.

Of interest, different dimensions of essentialist belief appear to mediate different demographic effects. Differences in prejudice between ethnic groups and as a function of religiosity were primarily mediated by differences in immutability- and universality-related beliefs. Groups that expressed stronger antigay attitudes tended to see homosexuality as potentially alterable, not biologically based, and culturally specific, as did more religious individuals, and these beliefs largely accounted for their attitudes. In contrast, gender differences in attitudes toward gay men were only mediated by beliefs in the discreteness of male homosexuality. One tentative interpretation of this pattern of findings is that beliefs about the universality and malleability of homosexuality involve culture (i.e., religious and other values and norms that vary with ethnicity) in a way that discreteness beliefs do not. Gender is orthogonal to culture in the sample, and gender differences are confined to beliefs that are intimately tied to gender (i.e., the nature of the same-sex/other-sex divide in erotic preference).

### STUDY 3

Study 2 provides strong preliminary evidence that essentialist beliefs about homosexuality are associated with antigay attitudes, but it has several important limitations regarding sampling, measurement, and conceptualization. First, similar to Study 1, it relied exclusively on a college student sample and it is unclear whether its findings would generalize to the wider community. Second, its seven-item measure of essentialist beliefs was relatively short for the assessment of three distinct belief factors, and in some cases, the item content could be challenged. Some items refer to homosexuality in a way that is ambiguous as to whether homosexual behavior or status (i.e., identity) is implied, and in the interests of establishing the generality of our findings, items should assess beliefs about sexual orientation broadly rather than homosexual orientation in particular. Third, Study 2 did not examine whether the relationships between essentialist beliefs and antigay attitudes are independent of well-established predictors of antigay prejudice. A substantial literature, reviewed by Whitley and Lee (2000),

demonstrates that variables such as right-wing authoritarianism (RWA: Altemeyer, 1988), social dominance orientation (SDO: Pratto, Sidanius, Stallworth, & Malle, 1994), and political conservatism reliably predict antigay attitudes, and it is important to determine whether the prediction afforded by essentialist beliefs is redundant with these variables. If they do not have associations with antigay attitudes that are independent of these individual difference variables, then essentialist beliefs may have only a modest role to play in the psychology of antigay prejudice. Some evidence (Haslam et al., 2002) indicates that essentialist beliefs are associated with antigay attitudes independently of RWA, but it remains preliminary.

In an attempt to overcome these limitations, we conducted Study 3 in a community sample, employing an expanded, refined, and generalized assessment of essentialist beliefs alongside measures of RWA, SDO, and conservatism. New essentialist belief items were written to extend the coverage of beliefs (e.g., an item assessing entitativity) and previously used items were rewritten to make it clearer that they referred to sexual statuses and to sexual orientations in a more general way than in Studies 1 and 2. We aimed to replicate the three-factor structure obtained in the earlier studies, to replicate the role of the factors in mediating associations between demographic variables and antigay attitudes, and to test whether essentialist beliefs predict attitudes independently of RWA, SDO, and conservatism.

### Method

#### PARTICIPANTS

Participants ( $N = 230$ ) were recruited from a large metropolitan region in the northeastern United States. The sample included 134 women and 96 men, ranging in age from 18 to 83 ( $M = 33.9$ ,  $SD = 12.8$ ), and was ethnically diverse (68.3% Caucasians, 14.3% Asian Americans, 6.1% African Americans, 6.1% Latinos, 3.2% East Indians, 4.8% "other"). Educational attainment was elementary school for 0.4%, high school diploma or equivalent for 20.4%, 2-year college degree for 14.3%, 4-year college degree for 33.9%, and graduate degrees for 30.9%. Participants reported employment in technical, sales, or administrative support positions (58.7%); managerial or professional positions (17.0%); service positions (4.3%); and other positions (7.8%). An additional 7.8% did not report an occupation and 4.3% were unemployed.

#### MEASURES

*Essentialist beliefs scale.* Participants completed an expanded version of the essentialist beliefs measure described in Study 1. The seven items employed in Studies 1 and 2 were retained, each with alterations, and eight



additional items were newly written or drawn from Hegarty and Pratto (2001). Items were added or modified so that they consistently referred to homosexuality as a social status rather than a form of behavior (i.e., by replacing “homosexuality” with “homosexuals”) and referred as much as possible to “sexual orientation” in general or to both homosexual and heterosexuals rather than to homosexuals alone (except where this would not be coherent). Five items expected to load on each belief factor were included (see the appendix).

Items 1 through 5 refer to proposed discreteness factor items. Items 1 and 2 are adapted from Study 1, with the former altered to refer to sexual orientations rather than homosexuals. Items 3 and 4, referring to bisexuality and to fundamental differences between heterosexuals and homosexuals, are drawn directly or with adaptations from Hegarty and Pratto’s (2001) fundamentality factor items. Item 5, regarding the informativeness of sexual orientation, is an adapted entitativity factor item from Haslam et al. (2000, 2002).

Items 6 through 10 refer to proposed immutability factor items. Items 6, 7, and 8 are rewritten versions of items used in Study 1. Items 6 and 8 are reworded to refer to sexual orientation in general rather than to homosexuality, and Item 7 on fixity returns to Hegarty and Pratto’s (2001) original non-gender-specific wording. Item 9 is a new item that addresses the innateness of sexual orientations, and Item 10 is drawn directly from Hegarty and Pratto’s immutability factor, referring to the modifiability of sexual orientation by professionals.

Items 11 through 15 refer to the proposed universality factor. Items 11 and 12 are minimally adapted from Study 1. Item 13, referring to universal self-definition as homosexual (vs. universal occurrence of homosexuality in Item 11), was drawn directly from Hegarty and Pratto (2001). Items 14 and 15 were new, referring to two additional senses of universality: the (in)consistent prevalence of homosexuality across cultures and the (un)changing prevalence of homosexuality in recent history. Reference to “homosexuals” was retained in these items because a generic reference to sexual orientations was judged to be confusing or incoherent.

*Social dominance orientation.* SDO was measured using Pratto et al.’s (1994) measure. Participants rated the 16 items on a 7-point scale ( $-3 = \text{very negative}$  to  $3 = \text{very positive}$ ), and their responses were summed such that a high score indicated greater agreement with SDO (Cronbach’s  $\alpha = .91$ ).

*Right-wing authoritarianism.* Participants rated the 28-item RWA scale (Altemeyer, 1988) on a 9-point scale ( $-4 = \text{very strongly disagree}$ ,  $4 = \text{very strongly agree}$ ). Their responses were summed such that a high score indicated greater authoritarianism (Cronbach’s  $\alpha = .94$ ).

*Political conservatism.* Using a measure from Pratto et al. (1994), participants rated their political views toward each of the three issues (foreign policy, economic, social) on a 7-point scale (1 = very liberal, 2 = liberal, 3 = slightly liberal, 4 = middle of the road, 5 = slightly conservative, 6 = conservative, 7 = very conservative). Their responses were summed such that a high score indicated greater conservatism (Cronbach’s  $\alpha = .86$ ).

*Attitudes to Lesbians and Gay Men scale (ATLG).* Participants completed the ATLG measure (Herek, 1988) described in Study 2 (Cronbach’s  $\alpha = .93$  [ATG] and  $.92$  [ATL]).

The demographic component of the questionnaire contained single items assessing gender, age, sexual orientation, race/ethnicity, first language, religious affiliation, religiosity (0 = *not at all* to 10 = *extremely*), educational attainment, and occupation.

#### PROCEDURE

Participants were recruited from public libraries and community centers and were offered candy bars as a gesture of appreciation for their participation. Experimenters (1 male, 1 female) approached individuals who appeared at least 18 years old and asked if they would be willing to complete an anonymous, brief survey on various social issues. Participants then received a survey containing the measures in one of four randomly assigned orders. After inserting their completed survey into a drop box, participants were debriefed and thanked for their participation.

#### Results

Twelve participants with extensive missing data, and 2 whose written comments on the questionnaire indicated that they did not take it seriously, were excluded from further analysis, yielding a final sample of 216. An additional 28 participants who overlooked the three-item conservatism scale are included in all analyses except where noted.

As a first step in the analysis, the 15 essentialist belief items were submitted to a principal components analysis. The scree test supported a three-factor solution, which accounted for 49.1% of the variance in the intercorrelation matrix. Factor loadings, after Oblimin rotation, are presented in Table 5, which indicates that the factors are substantially comparable to those obtained in Studies 1 and 2. (When the analysis was repeated with only the new versions of the seven original items, the loading pattern was identical to Studies 1 and 2.) Factor 1 contains high loadings of the discreteness and defining features items that defined the discreteness factor in the earlier studies as well as the two “fundamentality” items (bisexuality and fundamental difference) from Hegarty and Pratto (2001) and the

**TABLE 5: Loadings From Principal Components Analysis of Essentialist Beliefs Items, Study 3**

Item	Factor 1	Factor 2	Factor 3
5 Informativeness	.81	.09	.29
10 Professional change	-.75	.16	-.08
4 Bisexuality	.65	-.06	-.04
1 Discreteness	.62	.19	-.21
11 Universality-occurrence	-.56	-.12	.27
3 Fundamental difference	.51	-.28	-.03
15 Historical prevalence	-.49	.22	.03
2 Defining features	.48	.17	-.14
9 Innateness	.04	.82	.01
7 Fixity	.14	.76	.15
6 Biological basis	.00	.69	.09
8 Immutability	-.28	.63	-.17
14 Universality-prevalence	.00	.58	.08
12 Historical invariance	-.04	.12	.75
13 Universality-definition	-.08	.10	.70

NOTE: The decimal has been omitted.

informativeness item. Thus, all five of the items expected to load together on this factor did so. In addition, however, two items expected to load with other universality items (universality-occurrence and historical prevalence) and one item (professional change) expected to load with the immutability items also loaded negatively on Factor 1. Thus, the belief that sexual orientations are discrete and fundamental is accompanied by beliefs that homosexuality is culturally specific, historically increasing, and professionally modifiable. Factor 2 contains high loadings for the biological basis, fixity, and immutability items that cohered in the earlier studies, as well as for the new innateness item that was expected to load with them. However, it also contains one of the proposed universality items, namely, the belief that homosexuality is equally prevalent across cultures. Items loading high on Factor 3 refer to the historical and cultural universality of homosexuality, as in our earlier studies. As noted above, several universality-related items did not load on the factor, indicating that its meaning may be relatively subtle.

A central research question of Study 3 is whether essentialist beliefs predict antigay attitudes independently of other established individual difference measures. Intercorrelations among the measures, with the three essentialist belief factors represented by factor scores, are presented in Table 6. Table 6 indicates that all of the individual difference scales are positively associated with prejudice toward gay men and lesbians, with RWA having the strongest association, consistent with past work (Whitley & Lee, 2000). All of the essentialist belief factors also are associated with prejudice, with associations in the same directions as in Study 2: People with antigay attitudes tend to see homosexuality as discrete, mutable, and not universal. Associations between

the individual difference scales and the essentialist belief factors are small to moderate, implying that their predictive contributions to antigay attitudes may overlap.

To examine which of the variables make independent predictive contributions to antigay attitudes, simultaneous multiple regressions were conducted for the ATG and ATL scales using all participants who completed the conservatism scale ( $n = 188$ ). Results of the analyses are summarized in Table 7. The six predictors collectively accounted for almost two thirds of the variance in antigay attitudes. The only significant predictors were RWA and two of the essentialist belief factors, with discreteness beliefs making a slightly larger predictive contribution than RWA. (Findings were unchanged when the analyses were repeated on the full sample of 216, with conservatism removed as a predictor.) The univariate associations of SDO and conservatism with attitudes ( $r_s \sim .4$ ) disappeared when the other predictors were statistically controlled, and Sobel tests indicated that the essentialist belief factors mediated these associations. The SDO-attitude association was mediated only by discreteness beliefs (ATG:  $z = 6.90, p < .0001$ ; ATL:  $z = 7.10, p < .0001$ ), whereas the conservatism-attitude association was mediated by discreteness (ATG:  $z = 4.25, p < .0001$ ; ATL:  $z = 4.30, p < .0001$ ) and immutability (ATG:  $z = 2.12, p < .05$ ; ATL:  $z = 2.10, p < .05$ ). By implication, people high in SDO tend to have more antigay attitudes in part because they tend to believe that homosexuality is discrete or fundamental, and conservatives tend to have stronger antigay prejudice because they believe that homosexuality is discrete, fundamental, and mutable.

In a final set of analyses, we examined whether essentialist beliefs mediate the demographic correlates of antigay attitudes. Consistent with Study 2, Sobel tests indicated that sex differences in attitudes (stronger prejudice among male than female participants,  $M_s = -5.4$  vs.  $-17.1$ ) toward gay men,  $t(214) = 3.88, p < .001$ , and lesbians ( $M_s = -11.1$  vs.  $-18.1$ ),  $t(214) = 2.44, p < .05$ , were mediated by discreteness beliefs (ATG:  $z = 2.31, p < .05$ ; ATL:  $z = 2.32, p < .05$ ), but in this community sample, they also were mediated by immutability beliefs (ATG:  $z = 2.31, p < .05$ ; ATL:  $z = 2.32, p < .05$ ). Also consistent with Study 2, ethnic differences in attitudes (stronger prejudice among non-White than White participants toward gay men,  $M_s = -3.4$  vs.  $-16.7$ ),  $t(214) = 4.29, p < .001$ , and lesbians ( $M_s = -5.8$  vs.  $-19.7$ ),  $t(214) = 4.79, p < .001$ , were mediated by immutability beliefs (ATG:  $z = 3.04, p < .005$ ; ATL:  $z = 2.95, p < .005$ ), but also by discreteness beliefs (ATG:  $z = 4.65, p < .0001$ ; ATL:  $z = 4.68, p < .0001$ ). Similarly, the association between religiosity and attitudes (ATG:  $r = .37, p < .001$ ; ATL:  $r = .39, p < .001$ ) was again mediated by immutability beliefs (ATG:  $z = 2.64, p < .01$ ;

**TABLE 6: Correlations Among Scales, Study 3**

	1	2	3	4	5	6	7	8
1. ATG	100							
2. ATL	.91***	100						
3. Discreteness	.67***	.69***	100					
4. Immutability	-.39***	-.37***	-.12	100				
5. Universality	-.19**	-.18**	-.21**	.12	100			
6. RWA	.67***	.70***	.53***	-.29***	-.33***	100		
7. SDO	.42***	.39***	.49***	-.07	-.12	.39***	100	
8. Conservatism	.42***	.41***	.31***	-.15*	-.14	.53***	.36***	100

NOTE: ATG = attitudes toward gay men; ATL = attitudes toward lesbians; RWA = right-wing authoritarianism; SDO = social dominance orientation. The decimal has been omitted.

\* $p < .05$ . \*\* $p < .01$ . \*\*\* $p < .001$ .

**TABLE 7: Standardized Beta Weights of Predictors of Antigay Attitudes, Study 3**

Predictor	Attitudes	
	Gay Men	Lesbians
Essentialist belief factor		
Discreteness	.43***	.45***
Immutability	-.25***	-.22***
Universality	.08	.06
RWA	.34***	.40***
SDO	.05	.02
Conservatism	.07	.02
Adj $R^2$	.63	.65

NOTE: RWA = right-wing authoritarianism; SDO = social dominance orientation.

\*\*\* $p < .001$ .

ATL:  $z = 2.59, p < .01$ ) but also by discreteness beliefs (ATG:  $z = 3.99, p < .0001$ ; ATL:  $z = 4.01, p < .0001$ ).<sup>2</sup>

*Discussion*

The findings of Study 3 on the structure of essentialist beliefs largely accord with those obtained in Studies 1 and 2, despite the addition of several new items and the rewriting of others to make them refer generally to sexual orientation rather than specifically to homosexuality. An immutability factor, combining beliefs in the biological basis and fixedness of sexual orientations, was again obtained, although an item referring to change via medical or psychological intervention loaded on another factor. Similarly, the discreteness factor obtained previously was again found, attracting additional expected loadings from items assessing the perceived fundamentality and informativeness of sexual orientation. The latter loadings indicate that the factor captures the perceived meaningfulness or entitativity of sexual orientations. A third factor comparable to those found in Studies 1 and 2, containing items referring to the cultural and historical universality of homosexuality, also was obtained, although it was relatively weak and some new ideas assessing different forms of universality loaded else-

where. A distinct universality factor therefore appears to be detectable in a community sample, although it may be less robust than among college students.

In addition to the general support for the previously obtained belief structure, Study 3 again showed that these factors partially account for the associations between demographic variables and antigay attitudes. However, whereas different factors mediated these associations in Study 2 (discreteness for gender, immutability, and universality for ethnicity and religiosity), in Study 3, discreteness and immutability mediated all three associations, with universality mediating none. In part, this pattern of findings reflects the greater role of the discreteness factor in Study 3 compared to Study 2, perhaps due to its more reliable measurement (eight high-loading items vs. two items) or its expanded content, which includes entitativity-related items. The finding also reflects the reduced role of the universality factor in Study 3, further suggesting that the factor is less robust in the community sample. Nevertheless, the critical point to be made is that Study 3 strongly supports Study 2's finding that essentialist beliefs help to account for important demographic correlates of antigay prejudice.

The most striking finding of Study 3 is that the essentialist beliefs make a strong contribution to the prediction of antigay attitudes that is independent of the contributions of established individual difference measures. Two of the belief factors predicted attitudes in opposite directions, consistent with Study 2, and the stronger of these had an effect that was at least comparable in magnitude to the effect of RWA, the preeminent predictor of antigay prejudice in previous research (Whitley & Lee, 2000). Two other established predictors, SDO and conservatism, made no independent predictive contribution when the essentialist beliefs and RWA were statistically controlled, and the belief factors partially mediated their associations with antigay attitudes. As preliminary work implied (Haslam et al., 2002), essentialist beliefs may be important predictors of

antigay prejudice that are not reducible to individual difference variables, whose effects they may partially explain.

#### GENERAL DISCUSSION

Our findings raise some general issues in the study of beliefs about sexual orientation and psychological essentialism. One notable issue is the mixed attitudinal implications of essentialist beliefs for prejudice. Within the social psychological literature, essentialist beliefs have commonly been presented as sources or correlates of prejudice, from Allport's (1954) observations on the prejudiced personality to Rothbart and Taylor's (1992) discussions of the malign effects of essentialist beliefs and Yzerbyt et al.'s (1997) argument for their role in justifying inequality. Our research suggests that this negative assessment of essentialist beliefs is only partially warranted. In relation to antigay attitudes, at least, only beliefs in the discreteness, fundamentality, and informativeness of sexual orientation were associated with prejudice. In contrast, beliefs in the immutability, biological basis, and historical and cross-cultural universality were associated with tolerance. These latter associations indicate that essentializing difference may not be invariably destructive.

The recognition of psychological essentialism's complicated relationship to attitudes is growing in recent empirical work. In a study of discourse about ethnicity in the Netherlands, Verkuyten (2003) demonstrated that both essentialist and antiessentialist beliefs about ethnic identity can have a progressive charge in certain contexts. Similarly, Haslam et al. (2002) found that relationships between essentialist beliefs and prejudice varied considerably across racial, gender, and sexual orientation categories. Finally, in a study of beliefs about personality characteristics, Haslam et al. (2004) showed that highly essentialized characteristics were judged to be particularly desirable. In different contexts, categories, or domains, essentialist beliefs may have positive, negative, or ambivalent implications. It may be that there are few consistent patterns of association between particular essentialist beliefs and attitudes and, hence, that any unqualified critique of essentialist thinking about social categories is untenable.

Immutability-related beliefs represent a case in point. In Studies 2 and 3, these beliefs were associated with low levels of prejudice, replicating previous research (Hegarty & Pratto, 2001). However, immutability and biological determinist beliefs are controversial and problematic bases for challenging antigay attitudes and policies (Halley, 1994) and can equally be used to medicalize homosexuality and to promote eugenic ideas. Consistent with this view, Hegarty (2002) indicated that immutability beliefs do not have a straightfor-

ward association with tolerance but are only linked among people who believe that such an association exists. Moreover, the immutability-tolerance association found in the United States did not hold in a British sample.

Outside the domain of sexual orientation, the complicated links between immutability-related beliefs and attitudes are at least equally evident. In attributional research on stigma (Weiner, Perry, & Magnusson, 1988), for example, people tend to attribute conditions such as cancer to stable (immutable) and uncontrollable causes more than conditions such as drug addiction, and this attributional pattern produces greater helping and social tolerance. There are exceptions, however, such as when people attribute conditions such as Vietnam War syndrome to unstable, uncontrollable causes, a pattern that also supports helping and tolerance. This latter pattern is supported by research on lay theories about human attributes, which has shown that when people believe basic personality characteristics are malleable they are more socially tolerant and engage in greater helping of disadvantaged groups (Karafantis & Levy, 2004; Levy et al., 1998). Similarly, attributing deviant behavior to uncontrollable causes such as genes is sometimes linked to tolerance, but biological explanations also have been shown to promote greater endorsement of gender and racial stereotypes (Martin & Parker, 1995), to gender and racial prejudice (Keller, 2005), and to more stigmatizing attitudes toward people with mental disorders (Read & Harré, 2001). The relationship between immutability beliefs and attitudes is therefore likely to vary by context.

Our findings suggest that the structure of essentialist beliefs also may be somewhat contingent. Previous research has supported two-dimensional models of essentialist beliefs for perceived differences between social categories (Haslam et al., 2000) and for beliefs about specific categories (Haslam et al., 2002). In both studies, beliefs about the historical invariance and discreteness of social categories cohered in a natural kind factor with beliefs in the immutability and biological basis of the categories. Our three-dimensional structure complicates and challenges this model, not merely adding a third dimension but also redistributing over several dimensions several beliefs that previously cohered. Beliefs in the discreteness and historical invariance of homosexuality not only failed to covary with immutability and biological basis beliefs but also failed to covary with one another. A broad natural kind factor therefore does not appear to do justice to beliefs about homosexuality, which requires a more differentiated belief structure.

Further evidence for the structural variability of essentialist beliefs has been obtained by Haslam et al.

(2004). In exploratory and confirmatory factor analytic studies, essentialist beliefs about personality characteristics formed a single factor. By implication, the collection of specific beliefs that reflect essentialist social understandings can be organized in a variety of ways depending on domain and context. In some contexts, the beliefs may form several distinct constellations, which may be correlated (e.g., Hegarty, 2002, Study 1; Hegarty & Pratto, 2001) or uncorrelated (Haslam et al., 2000, 2002; Hegarty, 2002, Study 2), and in other contexts a simpler structure may emerge. Recent research therefore supports Gelman's (2003) theoretical claim that the organization of essentialist beliefs is domain- and context-specific.

Another interesting issue to arise from the present research is the possibility that essentialist beliefs may serve a defensive function. Several theorists have argued that essentialist beliefs may function to justify inequality and privileged social positions (Mahalingam, 2003; Yzerbyt et al., 1997), but the possibility that they might serve to defend against undesired social statuses has not been raised. Our finding that male participants had much stronger prejudice toward gay men than female participants, that they also believed male homosexuality to be more discrete, and that this belief mediated the gender difference in prejudice implies that heterosexual men may view gay men as categorically different to distinguish themselves sharply from a despised identity (cf. Adams, Wright, & Lohr, 1996). Although speculative, this account proposes that some essentialist beliefs serve a "boundary reinforcement" function, sharpening a distinction so as to safeguard the person's identity. Rather than merely being abstract ontological assumptions, essentialist beliefs may sometimes reflect ego-defensive responses to perceived threats. Indeed, ascribing a categorically distinct ontological status to the devalued other may be a particularly reassuring way to ensure that one does not have the "wrong" essence.

Research on essentialist beliefs about sexual orientation is at an early stage of development, and much remains to be done. Future work should seek to replicate the three-dimensional structure obtained here and our finding that the belief factors predict antigay attitudes independent of established individual difference measures. Researchers might seek to clarify the pathways along which essentialist beliefs about homosexuality mediate the links between these more distal, generalized individual difference predictors and attitudes. The proposed defensive function of essentialist beliefs about homosexuality might be tested in a more direct manner using experimental methods. Researchers also might examine the finer-grained cognitive and affective processes that mediate the associations between rather abstract essentialist beliefs and emotion-laden attitudes.

A side benefit of such work may be to identify affective processes underlying antigay attitudes that are not mediated by essentialist beliefs.

In conclusion, we would argue that research and theory on psychological essentialism offers a valuable vantage point on prejudice research. This perspective yields a more complex view of the implications of essentialist beliefs than some theorists have imagined and also shows promise in accounting for prejudice-related phenomena. Where antigay attitudes are concerned, essentialist beliefs have an unexpectedly involved structure that powerfully predicts prejudice, independent of widely studied individual difference scales. Future research should aspire to clarify this structure and the pathways along which essentialist beliefs contribute to antigay attitudes and other forms of prejudice.

#### APPENDIX

1. Sexual orientations are categories with clear and sharp boundaries: People are either homosexual or heterosexual.<sup>a</sup>
2. Homosexual people have a necessary or defining characteristic, without which they would not be homosexual.<sup>a</sup>
3. Heterosexual and homosexual people are not fundamentally different. (reversed)
4. Bisexual people are fooling themselves and should make up their minds.
5. Knowing that someone is homosexual or heterosexual tells you a lot about them.
6. Sexual orientation is caused by biological factors.<sup>a</sup>
7. Whether a person is homosexual or heterosexual is pretty much set early on in childhood.<sup>a</sup>
8. People cannot change their sexual orientation. (reversed)<sup>a</sup>
9. Homosexuality and heterosexuality are innate, genetically based tendencies.
10. Doctors and psychologists can help people change their sexual orientation. (reversed)
11. Homosexuals probably only exist in certain cultures. (reversed)<sup>a</sup>
12. Homosexuals have probably existed throughout human history.<sup>a</sup>
13. In all cultures there are people who consider themselves homosexual.
14. The proportion of the population that is homosexual is roughly the same all over the world.
15. It is only in the last century that homosexuals have appeared in large numbers. (reversed)

a. Item adapted from Studies 1 and 2.

#### NOTES

1. At the suggestion of a reviewer we examined alternative mediation models, in which demographic differences in essentialist beliefs about homosexuality might be mediated by demographic differences in attitudes, rather than the reverse. Gender differences were obtained for attitudes toward gay men and for discreteness beliefs only, so we examined the attitudes toward gay men (ATG) scale's potential medi-

ating role in the latter association. The ATG significantly mediated gender differences in discreteness beliefs ( $z = 4.89, p < .001$ ). The ATG also mediated ethnic differences in immutability and universality beliefs about gay men ( $z = 3.46, p < .001; z = 3.64, p < .001$ ), and the attitudes toward lesbians (ATL) mediated these beliefs about lesbians ( $z = 3.67, p < .001; z = 4.03, p < .001$ ). Finally, the ATG mediated associations between religiosity and universality beliefs about gay men ( $z = 4.34, p < .001; z = 4.05, p < .001$ ), and the ATL mediated comparable associations with discreteness, immutability, and universality beliefs about lesbians ( $z = 5.07, p < .001; z = 4.72, p < .001; z = 5.25, p < .001$ ). Thus, differences in antigay attitudes associated with demographic variables may partially account for demographic differences in beliefs about homosexuality rather than simply being consequences of these belief differences. We thank the reviewer for this suggestion.

2. As in Study 2, we examined the possible mediating role of antigay attitudes in mediating demographic differences in essentialist beliefs. Attitudes toward gay men and lesbians significantly mediated gender differences in immutability beliefs (ATG:  $z = 3.47, p < .001$ ; ATL:  $z = 2.32, p < .05$ ) and universality beliefs (ATG:  $z = 3.45, p < .001$ ; ATL:  $z = 2.32, p < .05$ ). They also mediated ethnic differences in discreteness (ATG:  $z = 4.10, p < .001$ ; ATL:  $z = 4.58, p < .001$ ) and immutability beliefs (ATG:  $z = 3.25, p < .005$ ; ATL:  $z = 3.46, p < .001$ ). Antigay attitudes also mediated religiosity-related differences in discreteness (ATG:  $z = 5.44, p < .001$ ; ATL:  $z = 5.41, p < .001$ ) and immutability beliefs (ATG:  $z = 3.93, p < .001$ ; ATL:  $z = 4.05, p < .001$ ). Comparable "reverse mediation" analyses were conducted for social dominance orientation (SDO) and conservatism. Antigay attitudes mediated associations between SDO and discreteness beliefs (ATG:  $z = 5.98, p < .001$ ; ATL:  $z = 5.69, p < .001$ ). They also mediated associations between conservatism and discreteness (ATG:  $z = 5.63, p < .001$ ; ATL:  $z = 5.58, p < .001$ ) and immutability beliefs (ATG:  $z = 4.38, p < .001$ ; ATL:  $z = 3.56, p < .001$ ). As in Study 2, therefore, demographic and personality-related differences in antigay attitudes may partially explain associated differences in essentialist beliefs.

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