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Do You Believe in Atheists? Distrust Is Central to Anti-Atheist Prejudice

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Recent polls indicate that atheists are among the least liked people in areas with religious majorities (i.e., in most of the world). The sociofunctional approach to prejudice, combined with a cultural evolutionary theory of religion's effects on cooperation, suggest that anti-atheist prejudice is particularly motivated by distrust. Consistent with this theoretical framework, a broad sample of American adults revealed that distrust characterized anti-atheist prejudice but not anti-gay prejudice (Study 1). In subsequent studies, distrust of atheists generalized even to participants from more liberal, secular populations. A description of a criminally untrustworthy individual was seen as comparably representative of atheists and rapists but not representative of Christians, Muslims, Jewish people, feminists, or homosexuals (Studies 2–4). In addition, results were consistent with the hypothesis that the relationship between belief in God and atheist distrust was fully mediated by the belief that people behave better if they feel that God is watching them (Study 4). In implicit measures, participants strongly associated atheists with distrust, and belief in God was more strongly associated with implicit distrust of atheists than with implicit dislike of atheists (Study 5). Finally, atheists were systematically socially excluded only in high-trust domains; belief in God, but not authoritarianism, predicted this discriminatory decision-making against atheists in high trust domains (Study 6). These 6 studies are the first to systematically explore the social psychological underpinnings of anti-atheist prejudice, and converge to indicate the centrality of distrust in this phenomenon.

Keywords: Prejudice, trust, religious beliefs, atheism

> The fool says in his heart, "There is no God." They are corrupt, their deeds are vile; there is no one who does good.—Psalm 14:1 (New International Version)[1]

Religion has long been seen as a precondition for moral living, leading to the marginalization and persecution of individuals denigrated as atheists (Jacoby, 2004). In his *Letter Concerning Toleration*, Locke explained, "Those are not at all to be tolerated who deny the Being of a God. Promises, Covenants, and Oaths, which are the Bonds of Humane Society, can have no hold upon an Atheist." (Locke, 1983/1689, p. 51). These sentiments have prevailed throughout history and still resonate today throughout most of the world. In a contemporary poll, only 45% of American respondents said that they would vote for a qualified atheist presidential candidate: the lowest percentage of several hypothetical minority candidates and the only who could not garner a majority vote (Jones, 2007). In contrast, overwhelming majorities expressed willingness to vote for African American, Jewish, and female candidates. Similarly, Americans rated atheists as the group that least agrees with their vision of America and the group that they would most disapprove of their children marrying (Edgell, Gerteis, & Hartmann, 2006). This antipathy is striking, because atheists are not a coherent, visible, or powerful social group (Dawkins, 2006).

Nonetheless, atheists are quite numerous. According to the most comprehensive estimate to date, there are more than half a billion atheists in the world (defined as people who do not believe in God; Zuckerman, 2007), meaning that anti-atheist prejudice has the potential to affect a substantial number of people. Although prejudice has been a central topic of social psychology for decades, most of this research has been along racial, ethnic, and gender lines. Despite its prevalence and peculiarity, little is known about the social psychology of anti-atheist prejudice. The present article offers the first known systematic exploration of the social psychological processes underlying anti-atheist prejudice and contributes to the scientific understanding of both the psychology of prejudices and the cultural evolutionary landscape of religion.

In this article, we investigate anti-atheist prejudice in light of two recent theoretical perspectives. First, we adopt the *sociofunctional approach* to prejudice (e.g., Cottrell & Neuberg, 2005; Schaller & Neuberg, 2008; see also Kurzban & Leary, 2001), which recognizes that different prejudices arise from the function-

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[1] Footnote from the New International Version of the Bible: "The Hebrew words rendered *fool* in Psalms denote one who is morally deficient."

ally distinct threats that different groups of people are perceived to pose. According to this perspective researchers need to first understand the specific functional threat posed by a group to understand prejudice against that group. Second, we use a cultural evolutionary approach to *religious prosociality* (e.g., Johnson & Krueger, 2004; Norenzayan & Shariff, 2008; Roes & Raymond, 2003), which recognizes that throughout history, religions have been potent sources of social cohesion, coordination, and cooperation in human societies. This perspective informs our hypotheses regarding the vital question of *why* atheists are seen as threatening. Combined, these perspectives suggest that distrust is central to anti-atheist prejudice (see also Beit-Hallahmi, 2010). Next, we elaborate on each perspective, and then derive specific testable hypotheses regarding the psychology of anti-atheist prejudice.

A Sociofunctional Account of "Prejudice"

Historically, prejudice has been characterized and studied as a generalized feeling of unpleasantness and dislike toward outgroups and outgroup members, which has led to important discoveries and interventions (see Brewer & Brown, 1998, for a review). In the past decade, however, researchers have increasingly emphasized the multidimensional nature of prejudice (e.g., Cuddy, Fiske, & Glick, 2007, 2008; Fiske, Cuddy, & Glick, 2007; Fiske, Cuddy, Glick, & Xu, 2002). Recently, the sociofunctional perspective (Cottrell & Neuberg, 2005; Schaller & Neuberg, 2008; Schaller, Park, & Faulkner, 2003) has extended this trend in emphasizing that a one-size-fits-all approach to prejudice obscures the richly textured reactions that actually characterize specific prejudices. Different outgroups are clearly distinct from each other and are perceived to threaten other groups and individuals in distinct ways. Categorically different threats demand categorically different responses and elicit categorically different reactions. For example, a reaction that is appropriate for dealing with a threat to physical safety—say, experiencing fear and fighting back—may be useless or even damaging if an individual is facing a threat to one's health presented by people who are carrying contagious pathogens, or who undermine the bonds of reciprocal exchange.

Growing evidence supports the sociofunctional perspective. Cottrell and Neuberg (2005) found, for instance, that White American undergraduates viewed African Americans as threatening to physical safety and property and reacted with prominent fear. On the other hand, participants viewed gay men as threatening to health and values and reacted with disgust. However, general measures of prejudice masked this nuanced profile of prejudice against different outgroups. This perspective sheds light on the functional origins and consequences of various prejudices (e.g., Ackerman et al., 2006; Faulkner, Schaller, Park, & Duncan, 2004; Park, Schaller, & Crandall, 2007; Tapias, Glaser, Keltner, Vasquez, & Wickens, 2007).

Aside from these important empirical contributions, the sociofunctional perspective suggests a revised approach to conducting research on the causes and consequences of prejudice against any given outgroup. To understand a given form of prejudice, researchers must first understand the threat that the target of prejudice is seen to pose. Only then can they formulate precise hypotheses about the possible reactions that characterize any specific prejudice. This process provides a powerful conceptual framework for uncovering the bases of different prejudices.

According to the sociofunctional perspective, the puzzle of anti-atheist prejudice can be resolved when it is viewed in terms of the specific functional threats that atheists are seen to pose. However, to understand this perceived threat, it is necessary to first consider the possible social and psychological functions served by religious beliefs.

Religious Prosociality

Evolutionary scientists have long been puzzled by the problem of large-scale cooperation. By definition, a cooperative group produces benefits to a group but requires the costly investment from numerous individuals. However, it is possible for some individuals to collect the benefits provided by the group without actually contributing their own time or effort. These selfish freeriders can outcompete other members within their group by extracting benefits from the group without paying any associated costs. Within a group, defection is advantageous to the individual, even as it becomes profoundly costly to the overall performance and stability of the group (e.g., Sober & Wilson, 1998). Understanding potential solutions to the problem of defection has therefore been a central aim of much evolutionary theorizing (e.g., Fehr & Fischbacher, 2003; N. S. Henrich & Henrich, 2007). Widely applied theories, such as inclusive fitness (Hamilton, 1964) and reciprocal altruism (Trivers, 1971), can help explain cooperation in families and dyads, respectively. But as groups grow in size, social interactions become increasingly anonymous, where genetic relatedness diminishes and both repeated interaction with the same individuals and social monitoring of selfish behavior is hard to sustain. Therefore, neither inclusive fitness nor reciprocal altruism can completely explain the degree of large-scale cooperation observed among humans worldwide (J. Henrich, 2004; J. Henrich et al., 2005).

One potential solution to the problem of freeriders stems from punishment. If freeriding incurs a reliably hefty punitive cost, potential freeriders may restrain their selfish urges (e.g., J. Henrich, 2006; J. Henrich et al., 2006). However, monitoring and punishing freeriders is itself costly, which merely creates opportunities for people to freeride on their punishment. Moreover, institutionalized forms of punishment, such as the police and courts—which do promote prosocial tendencies and create trust—are largely recent historical phenomena and are not cross-culturally widespread even today.

A number of researchers have argued that religious beliefs may have been one of several mechanisms allowing people to cooperate in large groups by in effect outsourcing social monitoring and punishment to supernatural agents not bound to the costs of monitoring and punishment. The supernatural agents endemic to the world's most "successful" (i.e., widespread) religions across the world are often described as able to monitor, reward, and—importantly—punish human behavior (Atran & Norenzayan, 2004). Therefore, beliefs about punishing supernatural agents might have the same psychological and behavioral effects as actual human punishers (e.g., Gervais & Norenzayan, in press; Johnson & Bering, 2006; Johnson & Kruger, 2004; Norenzayan & Shariff, 2008; Shariff & Norenzayan, 2011). Just as people behave prosocially when they feel they are being watched by other humans (e.g., Bateson, Nettle, & Roberts, 2006), they behave prosocially when reminded of watchful supernatural agents (e.g., Bering,

McLeod, & Shackelford, 2005; Shariff & Norenzayan, 2007). The intimate connection between supernatural monitors and cooperation is evident in both cross-cultural research and more focused laboratory experiments. If belief in morally concerned supernatural watchers promotes cooperation in large groups, then belief in such gods should be a positive predictor of group size and cooperation across cultures. Indeed, Roes and Raymond (2002) found that, across 186 societies, belief in omniscient, all-powerful, morally concerned gods who are described as policing behavior was associated with larger groups (see Johnson, 2005, for similar results). In addition, J. Henrich et al. (2010) found that across 14 societies, people from cultures that believe in the omniscient, moralizing gods of the major world faiths (e.g., Islam, Christianity) are more generous in anonymous economic games.

These cross-cultural patterns are further bolstered by social psychological experiments that reveal that reminders of supernatural agents and religious concepts increase volunteerism (Pichon, Boccato, & Saroglou, 2007), honesty (Bering et al., 2005; Randolph-Seng & Nielsen, 2007), and anonymous generosity (Shariff & Norenzayan, 2007). One interpretation of these findings is that the reminders of supernatural agents make people feel like they are being watched, leading to increased prosocial behavior, much as cues of being watched by other humans increase prosocial behavior (e.g., Bateson et al., 2006; Haley & Fessler, 2005). Consistent with this, God primes also affect a variety of other dependent variables sensitive to cues of social surveillance (Gervais & Norenzayan, in press). By piggybacking on already established psychological processes that make people acutely sensitive to reputational information and concerns about social surveillance, beliefs in moralizing gods may have been instrumental in the cultural success of human social groups. As successful groups spread, they carried their beliefs in moralizing gods with them, viewing them as supernatural guarantors of prosocial behavior among people. As a result, most people in most large, cooperative societies in human history have believed in watchful moralizing gods.

(Dis)trust and Anti-Atheist Prejudice

Although cooperative social life provides vital benefits to individuals, the potential existence of freeriders who receive benefits but do not reciprocate leaves people vulnerable to manipulation. As a result, trustworthiness is the most valued trait in other people (Cottrell, Neuberg, & Li, 2007). However, a complex social world allows only partial inferences to be made about the trustworthiness of others (e.g., Simpson, 2007), and individuals may come to use a variety of heuristic cues when evaluating trustworthiness.

Religious individuals may use the religious beliefs of others as just such cues: Religiosity may be viewed as a proxy for trustworthiness, particularly by religious believers (Norenzayan & Shariff, 2008). Consistent with this, in one experiment with the anonymous "trust game," participants, particularly those who were religious, transferred more money to more religious partners (Tan & Vogel, 2008). Indeed, people may even preferentially trust members of *other* faiths, to the extent that the other individuals are seen as fearful of their own deities' displeasure. Sosis (2005) argued that religious signals of trustworthiness can be coopted by members of other religious groups and notes, for example, that Mormons are viewed as particularly trustworthy nannies by non-Mormon New Yorkers (Frank, 1988), and Sikhs are viewed by non-Sikhs as trustworthy economic partners (Paxson, 2004). In at least some situations, observers use commitment to even rival gods as signals of trustworthiness.

Matters are different for atheists, however. If belief in moralizing gods is used as a signal of trustworthiness, it follows that those who explicitly deny the existence of gods are not merely expressing private disbelief; they are also sending the wrong signal. A key consequence of religious prosociality, therefore, is distrust of atheists. A widespread view in religious societies that belief in gods guarantees morality would cause equally widespread distrust of atheists. Indeed, nearly half of Americans believe that morality is impossible without belief in God (Pew Research Center, 2002). This view may be especially pronounced among the most highly religious individuals in a society, who most strongly adhere to the view that religion underpins morality (e.g., Edgell et al., 2006). This leads to the prediction that anti-atheist prejudice should be characterized by specific distrust of atheists (see Beit-Hallahmi, 2010, and Bulbulia, 2004, for similar arguments), rather than by general dislike of atheists or other specific appraisals. Moreover, this tendency should be systematically related to the degree to which individuals espouse belief in God.

In sum, according to the sociofunctional perspective, to understand prejudice against a given group, it is necessary to understand the threats that the group is perceived to pose. Independent theory and evidence indicates that under specific conditions, religious thinking promotes intragroup cooperation and trust and that people use cues of religiosity as a signal for trustworthiness. Combined, these two perspectives suggest that distrust is central to anti-atheist prejudice, an insight that leads to a specific set of hypotheses regarding the nature of anti-atheist prejudice.

Present Research and Hypotheses

If religiosity is used as a signal of trustworthiness, atheists should be seen as less trustworthy than their "God-fearing" counterparts, particularly by individuals who strongly believe in God. Therefore,

> *Hypothesis 1:* Stereotypes of atheists should center on themes of distrust. This should be more true for atheists than for other comparable outgroups disliked by religious groups but not seen to pose a specific trust-based threat (e.g., homosexuals).

> *Hypothesis 2:* Anti-atheist prejudice should be most evident in measures of distrust, rather than in more general measures of dislike or other specific (non-trust-based) appraisals.

> *Hypothesis 3:* Belief in God should, in turn, more strongly predict distrust of atheists than generalized dislike of atheists. This relationship should be specifically mediated by a belief that people behave better when they believe they are under supernatural surveillance.

> *Hypothesis 4:* Prejudice against atheists should be context-specific, especially evident when the need for trust—rather than other dimensions such as likeability or pleasantness—is particularly potent.

From these core hypotheses, we derived a number of specific empirical tests. First, we compared anti-atheist prejudice and anti-gay prejudice in a large sample of American adults, predicting that anti-atheist prejudice, but not anti-gay prejudice, would be characterized by distrust (Study 1). After establishing the centrality of distrust to anti-atheist prejudice in a predominantly religious population, we examined whether atheist distrust generalized to more liberal locales by utilizing Canadian university samples in five subsequent studies. Second, we exploited the well-known conjunction fallacy (Tversky & Kahnemann, 1983) to indirectly measure distrust of various groups, predicting that a description of a criminally untrustworthy individual would be seen as more representative of atheists than of a number of other outgroups (Studies 2–4) and that this effect would be specific to descriptions of untrustworthy people, rather than merely unpleasant people (Study 3). Third, we tested whether the relationship between belief in God and anti-atheist prejudice is mediated by a belief that people behave better when they feel that they are being watched by God (Study 4). Fourth, we investigated implicit attitudes toward atheists and hypothesized both that atheists would be implicitly associated with distrust and that belief in God would be more strongly associated with implicit distrust of atheists than with implicit dislike of atheists (Study 5). Finally, we hypothesized that discriminatory behavior against atheists would be pronounced in contexts requiring high trust but attenuated or eliminated in contexts in which the need for trust is reduced (Study 6). We consistently predicted that measures of atheist distrust would be associated with individual differences in belief in God. In addition, we performed a number of analyses to clearly distinguish our theoretical model from alternative approaches to prejudice.

Study 1

Overview

We designed Study 1 to replicate and extend previous sociological investigations of anti-atheist prejudice (e.g., Edgell et al., 2006) by testing whether distrust characterizes anti-atheist prejudice in a large national sample of American adults. We accomplished this by comparing peoples' attitudes toward both atheists and gay men.

A comparison of anti-atheist prejudice and prejudice based on sexual orientation allows us to both test our hypotheses and also to contrast our theoretical model with a more general approach to prejudice and distrust, because both atheists and homosexuals are often described as threatening to majority religious values and morality. People tend to view their ingroups in moral terms (e.g., Leach, Ellemers, & Baretto, 2007), and the moral threats to religious ingroups posed by both atheists and homosexuals may engender distrust of both groups, particularly among individuals from those religious backgrounds threatened by atheism or homosexuality. Consistent with this view, atheists and homosexuals routinely score at the bottom on large-scale cultural acceptance polls in America and have for decades (Edgell et al., 2006). Like atheists, homosexuals are frequently targeted and excluded by strong religious believers and religious organizations. This is typified by the Boy Scouts of America, who explicitly deny membership to both atheists and gay men. Although a general ingroup morality account of prejudice may predict distrust of both atheists and homosexuals, our theoretical model predicts different psychological underpinnings for anti-atheist and anti-gay prejudice, consistent with the different threats that both groups are perceived to pose. We argue that distrust characterizes anti-atheist prejudice, whereas attitudes toward gay men in particular are more characterized by disgust (e.g., Cottrell & Neuberg, 2007; Inbar, Pizarro, Knobe, & Bloom, 2009). In sum, Study 1 examined reactions to both atheists and gay men among American adults using a general measure of prejudice, as well as measures of specific distrust and disgust. The focal test in Study 1 was thus a 2 (Target: Atheists vs. Gay Men) $\times$ 2 (Trait: Distrust vs. Disgust) within-subject manipulation. We hypothesized that distrust would be central to anti-atheist prejudice but that disgust would be central to anti-gay prejudice. As an additional test of our hypotheses, we then examined whether distrust might be a particularly powerful mediator of the relationship between religious belief and negative attitudes toward atheists.

Finally, we performed one additional key analysis to examine how religiously unaffiliated individuals view atheists. Unlike a general framework based on perceived threats to ingroup morality, our theoretical framework submits that the motivations for prejudice against atheists are not limited solely to the mentality of ingroup chauvinism and outgroup derogation. Given the specific hypotheses about *why* atheists would be distrusted, our model clearly predicts that even religiously unaffiliated individuals (i.e., people who do not have a religiously motivated ingroup to moralize) should distrust atheists and that distrust of atheists in this group should be positively related to the degree to which participants feel that God is important in their lives.

Method

We drew a broad and diverse national sample of 351 American participants (Age range = 18–82 years, M = 43.9; 59% female) from a paid subject pool administered by a United States-based survey company (www.zoomerang.com). Reported religious affiliations included Christian (67%), Jewish (1%), Atheist[2] (3%), Agnostic (4%), "None" (17%), and "Other" (9%). On a binary Yes/No question assessing belief in God, 14% (n = 49) indicated that they did not believe in God.

First, participants rated atheists, gay men, and people in general from 0 to 100 on a standard "feeling thermometer" to provide a general measure of prejudice. This measure was primarily collected to replicate previous research indicating that atheists are less accepted than even homosexuals on broad, general measures of prejudice in the United States (e.g., Edgell et al., 2006). Next, participants completed both a "distrust thermometer" and a "disgust thermometer" for the same three groups (atheists, gay men, and people in general). For the "distrust thermometer" participants rated how trustworthy they found people from each group from 0

[2] In much intergroup conflict research, attitudes toward a given outgroup are typically measured only among people who are not members of that outgroup. We chose, instead, to adopt a broader approach and include all available participants (including atheists) in all analyses. This allowed us to draw upon a more religiously heterogenous sample and to more meaningfully explore questions of how belief in God moderates distrust of atheists. We note that, if anything, this may have led to conservative estimates of anti-atheist prejudice.

to 100. We then reversed this score (i.e., subtracted the provided value from 100) to obtain a measure of distrust. Then we created a measure of both Atheist Distrust and Gay Distrust by subtracting each individual's rating of distrust for people in general from his or her ratings of atheist distrust and gay distrust, respectively. For the "disgust thermometer" participants rated how disgusting they found each group, and we then subtracted each participant's rating of disgust for people in general from his or her ratings of atheist disgust and gay disgust, respectively, to create measures of both Atheist Disgust and Gay Disgust. Finally, participants completed demographic information, including two face-valid measures of belief in God; participants rated (from 1 to 10) the importance of God in their life and indicated whether they believe in God given a simple binary (Yes/No) choice. The former item mirrors an item commonly used in large-scale international polling.

Results and Discussion

First we tested whether atheists, gay men, and people in general were rated differently on a general measure of prejudice, consistent with previous research. As predicted, a repeated-measures analysis of variance (ANOVA) revealed the three groups were rated differently, $F(2, 700) = 92.6$, $p < .001$, $\eta^2_G = .09$ (see Figure 1a).[3] Replicating previous research (e.g., Edgell et al., 2006), atheists were rated less favorably than were either gay men or people in general, $F(1, 350) = 21.20$, $p < .001$, $\eta^2_G = .01$, and, $F(1, 350) = 173.68$, $p < .001$, $\eta^2_G = .14$, respectively.

We also made the more specific prediction that people would show distinct attitude profiles for both atheists and gay men, with atheists being rated higher on distrust but lower on disgust than gay men. To test this hypothesis, we conducted a 2 (Target: Atheist vs. Gay) × 2 (Trait: Distrust vs. Disgust) repeated-measures ANOVA. As predicted, this analysis revealed a significant Target × Trait interaction, $F(1, 350) = 44.81$, $p < .001$, $\eta^2_G = .01$ (see Figure 1b), but no significant main effects (both ps $\geq .55$). We decomposed this interaction by performing planned pairwise comparisons within each trait level. As hypothesized, participants rated atheists significantly higher than gay men on Distrust, $F(1, 350) = 23.86$, $p < .001$, $\eta^2_G = .01$. Atheists were rated lower than gay men on Disgust, $F(1, 350) = 8.14$, $p = .005$, $\eta^2_G = .005$. Distrust characterized anti-atheist prejudice, whereas disgust characterized anti-gay prejudice.

These data also allowed for an alternative approach for testing the hypothesis that distrust is central to anti-atheist prejudice. Religiosity has previously been linked to negative attitudes toward both atheists and gay men, but we expected that distrust and disgust might differentially mediate these relationships. Multiple mediation testing (Preacher & Hayes, 2008) allows researchers to test models with more than one mediator simultaneously (thus limiting the well-known inferential challenges posed by sequentially performing multiple analyses) and provides a contrast test of whether the indirect effects of two mediators significantly differ in magnitude.

We tested whether distrust and disgust might differentially mediate prejudice against atheists and gay men using two separate multiple mediation models, one each for anti-atheist and anti-gay prejudice, respectively. We found that ratings of the "importance of God in your life" predicted both atheist distrust and atheist disgust ($b = 2.12$, $p < .001$, and $b = 2.37$, $p < .001$, respectively),

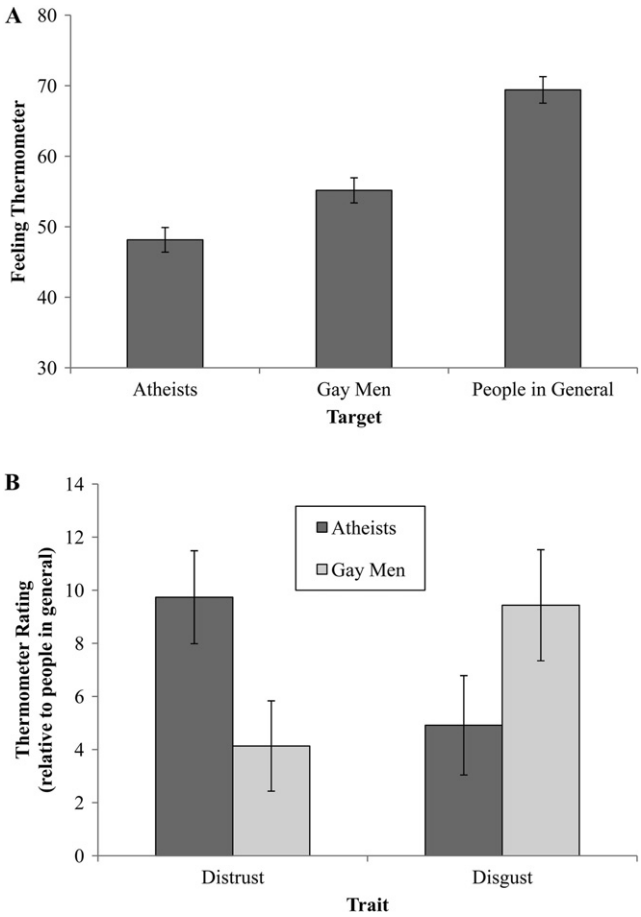

Figure 1. Attitudes toward both atheists and gay men in a national sample of American adults (Study 1). A. Atheists are viewed less warmly than either homosexuals or people in general. B. Atheists are more distrusted, although viewed with less disgust, than homosexuals. Error bars reflect 95% within-subject confidence intervals (Cousineau, 2005).

distrust, and to a lesser extent, disgust also both predicted "feeling thermometer" scores for atheists in this model ($b = -.65$, $p < .001$, and $b = -.19$, $p < .001$). Although data were consistent with the hypothesis that both distrust and disgust significantly mediated the effect of religious belief on "feeling thermometer" scores for atheists (Sobel $z = 5.04$, $p < .001$, and Sobel $z = 3.24$, $p = .001$, respectively; 95% CI of the indirect effect[4] for Distrust = –1.93 to –0.88, for Disgust = –0.88 to –0.15), the contrast test revealed that distrust, as predicted, emerged as a significantly stronger mediator than disgust (Sobel $z = 3.13$, $p = .002$, 95% CI of the indirect contrast effect = .20 to 1.61). The second model (focusing on anti-gay prejudice) revealed that data were consistent with the

[3] Following the recommendation of Bakeman (2005), we report generalized eta squared (η^2_G; Olejnik & Algina, 2003) for all ANOVA effect size estimates because it facilitates comparisons between repeated-measures and between-subjects effects.

[4] All 95% confidence intervals of the indirect effect reported in this article are percentile confidence intervals obtained by bootstrapping (5,000 resamples).

hypothesis that both distrust and disgust mediated the effect of religious belief on "feeling thermometer" scores for gay men (Sobel $z = 2.49$, $p = .01$, and Sobel $z = 3.72$, $p < .001$, respectively; 95% CI of the indirect effect for Distrust = –1.10 to –0.17, for Disgust = –1.15 to –0.36); in contrast to the pattern found for atheists, distrust was not a significantly stronger mediator than disgust (Sobel $z = –.39$, $p = .70$; 95% CI of the indirect contrast effect = –0.63 to 0.42). We note that these proposed mediation frameworks included variables that were measured in a temporal order that differed from that tested in the mediation analyses. However, all variables were measured in a single experimental session, within minutes of each other. Temporal order of measurement is both unnecessary for data to be consistent with mediation and insufficient to establish mediation; as with any correlational analysis, alternative causal structures are possible and causation can only be established via experimentation (e.g., Fielder, Schott, & Meiser, in press; Gelfand, Mensinger, & Tenhave, 2009; Shrout & Bolger, 2002). Nonetheless, data were consistent with the hypothesis that distrust is a particularly potent mediator of the relationship between belief in God and anti-atheist prejudice.

Finally, we examined atheist distrust among the religiously unaffiliated. To do so, we isolated a subset of 58 participants who listed their religious affiliation as "None." Although there were appreciable individual differences in the degree to which this group rated God as important in their lives ($M = 4.34$, $SD = 3.32$), this subsample consisted of individuals who do not actively participate in any religious group activities (88% indicated attending religious services less than once per year) and do not identify with any religious group. In other words, the "Nones" are a group of people who vary in belief in God but, although they may constitute a sort of nonreligious ingroup, do not constitute an ingroup defined by a religious worldview directly threatened by atheism. A one-sample t test revealed that, even among this subsample, atheist distrust was significantly higher than zero, $M = 5.91$, $SD = 20.44$, $t(57) = 2.20$, $p = .03$, Cohen's $d = 0.58$. Moreover, atheist distrust was significantly positively associated with the degree to which these participants rated God as important in their lives ($r = .26$, $p = .046$). Although both of these findings are consistent with the present theoretical framework, they are more difficult to reconcile with an intergroup prejudice framework uniquely derived from perceived threats to ingroup morality, which would not have led to the predictions that anti-atheist prejudice exists among religiously unaffiliated individuals, particularly those who rate God as important in their lives.[5]

In sum, these data provide converging support for our hypotheses in a broad sample of American adults. Replicating previous work, atheists are less liked than gay men, and disgust is central to anti-gay prejudice. More important, however, distrust was more characteristic of anti-atheist prejudice than of anti-gay prejudice. Data were consistent with the interpretation that distrust was a particularly potent mediator of the relationship between religious beliefs and negative attitudes toward atheists. In addition, distrust of atheists was even present among religiously unaffiliated individuals. Given that trust is so central to social life (e.g., Cottrell et al., 2007), acute distrust of atheists may explain why atheists consistently rank below homosexuals on large-scale polls of cultural inclusion.

Study 2

Overview

Study 1 revealed that, in a broad sample of Americans, distrust was central to anti-atheist prejudice. The remaining studies complemented this finding by utilizing student samples from the University of British Columbia (UBC), a university located in the Canadian Pacific Northwest, which is itself among the least religious regions in North America. More demographic details about the population from which these students were drawn are available in the Appendix. Although anti-atheist prejudice is rampant in the largely religious United States, conceptually replicating these effects in largely secular, liberal locale provides a more stringent test of our hypotheses.

Study 2 compared atheists with a number of different groups of people to provide a measure of where distrust of atheists stands, relative to distrust of other groups. The theoretical model we have articulated predicts that distrust is central to prejudice against atheists. This framework raises an intriguing possibility. Individuals may trust people from a variety of outgroups—including, perhaps, people from other religions—more than they would trust an atheist. After all, somebody of a different (even competing) religion would still believe in some form of supernatural surveillance. Consistent with this prediction, the predominantly Christian samples in the aforementioned polls tend to prefer Muslims, Mormons, and Jews to atheists; despite this evidence, distrust of atheists has not been directly compared with distrust of other religious groups in psychological studies. Study 2 therefore tested whether distrust of atheists is more pronounced than distrust of a number of other groups of people, including Muslims, a prominent and often vilified religious outgroup in North America (Cimino, 2005).

Because overt, explicit measures of prejudice often diverge from more subtle or implicit measures of prejudice (e.g., Devine, 1989; McConnell & Leibold, 2001; Wittenbrink, Judd, & Park, 1997), Study 2 used an indirect measure of prejudice. When dealing with sensitive topics like prejudice, where norms of tolerance make self-presentation a genuine concern (Banse, Seise, &Zerbes, 2001), it is important to measure prejudice using diverse methodologies. Study 1 demonstrated explicit distrust of atheists, but it is possible that, instead of being representative of personal feelings, participants' explicit responses may have instead reflected cultural norms determining which groups are fair game for criticism and which should be insulated. The varied permissibility of such criticism is itself an interesting indicator of prejudice, but it does not specifically map on to the questions of distrust at the heart of this project.

As a result, in Study 2, we adapted a classic conjunction fallacy paradigm (e.g., Tversky & Kahnemann, 1983) to create an indirect measure of distrust for various groups of people. In the most

[5] In an additional analysis, we examined whether atheists distrust other atheists. We isolated a subsample of 49 individuals from the total sample who indicated that they do not believe in God (based on the binary Yes/No belief question). Atheists Distrust within this subsample did not significantly differ from zero, $t(48) = –0.08$, $p = .94$, indicating that whereas religious people strongly distrust atheists, atheists neither trust nor distrust atheists, relative to people in general.

well-known version of this task, participants are given a description of Linda, an outspoken and politically active single woman. When deciding whether it is more probable that Linda is a bank teller, or that Linda is a bank teller *and* a feminist, most participants incorrectly choose the latter option—that is, they commit the conjunction fallacy—because they heuristically judge that the description sounds representative of a feminist, even though logic dictates this option is necessarily less probable. People only commit the conjunction fallacy when the target's description (single, outspoken, and liberal) is deemed representative of the target's potential group membership (feminist).

We capitalized on this classic finding by presenting participants with a description of an untrustworthy individual and evaluating whether they committed the conjunction fallacy across a number of different target groups. In this study, we constructed a description of a person who commits a variety of selfish and illegal acts when he feels he can get away with it—an archetypal freerider. Across subjects, we manipulated the target groups to which the man might belong by asking participants whether they thought it more probable that the man was a teacher or a teacher *and* (a) a Christian, (b) a Muslim, (c) a rapist, and (d) an atheist. In this way, we evaluated the degree to which people find an untrustworthy description to be representative of atheists, relative to a majority religious ingroup (Christians), a religious outgroup (Muslims), and an unambiguously distrusted group (rapists). The latter two conditions provided especially important contrasts. If distrust is extended indiscriminately to religious outgroups, or to groups who are perceived to hold views antithetical to an ingroup's perceived basis for morality, then both atheist targets and Muslim targets should elicit more conjunction errors, relative to Christian targets. On the other hand, our framework predicts that atheists should elicit more conjunction errors than even Muslims. In addition, religious prosociality is far from the only source for distrust of outgroups, and some people (such as rapists) are probably distrusted because they have a proven track record of betraying trust. The inclusion of a rapist target allowed us to evaluate whether distrust derived from religious prosociality was as severe as distrust based on direct knowledge of somebody's malicious history. We hypothesized that participants would *only* tend to commit the conjunction fallacy for the groups who have either a known history of demonstrably untrustworthy behavior (rapists) or a dubious reputation derived from a failure to send religious signals of trustworthiness (atheists).

Method

One hundred five UBC undergraduates (age range = 18–25 years, $M = 19.95$; 71% female) participated for extra credit.

Participants read the following description of an untrustworthy man who is willing to behave selfishly (and criminally) when other people will not find out:

> Richard is 31 years old. On his way to work one day, he accidentally backed his car into a parked van. Because pedestrians were watching, he got out of his car. He pretended to write down his insurance information. He then tucked the blank note into the van's window before getting back into his car and driving away.
>
> Later the same day, Richard found a wallet on the sidewalk. Nobody was looking, so he took all of the money out of the wallet. He then threw the wallet in a trash can.

Next, participants chose whether they thought it more probable that Richard was either (a) a teacher or (b) a teacher and XXXX. We manipulated XXXX between subjects. XXXX was either "a Christian" ($n = 26$), "a Muslim" ($n = 26$), "a rapist" ($n = 26$), or "an atheist (someone who does not believe in God)" ($n = 27$). The only difference in descriptions across targets was that the Muslim target was called "a man" rather than "Richard."

Results and Discussion

We hypothesized that participants would be more likely to commit the conjunction fallacy when given a description of an untrustworthy target when the target could be either an atheist or a rapist than when the target could be a Christian or a Muslim. Consistent with this hypothesis, the proportion of conjunction errors differed significantly across the four targets, $\chi^2(3, N = 105) = 17.32$, $p < .001$ (see Figure 2). To clarify this effect, we performed three separate binary logistic regressions comparing the atheist target and the Christian, Muslim, or rapist target, respectively. As hypothesized, participants were significantly more likely to commit the conjunction error for an atheist target than for either a Christian target or a Muslim target, odds ratio = 22.29 (95% CI = 3.82, 427.10), $b = 3.10$, $p = .004$ and odds ratio = 5.11 (95% CI = 1.48, 21.13), $b = 1.63$, $p = .01$, respectively. The atheist target did not significantly differ from the rapist target, odds ratio = 1.27 (95% CI = 0.43, 3.79), $b = .24$, $p = .67$.

In sum, participants frequently committed the conjunction fallacy when given a description of an untrustworthy person and a target who could be an atheist or a rapist but not for targets who could be a Christian or a Muslim (full pattern of results: Christian[a], Muslim[a], Rapist[b], Atheist[b], with the proportion of errors for each group significantly differing among groups not sharing a common

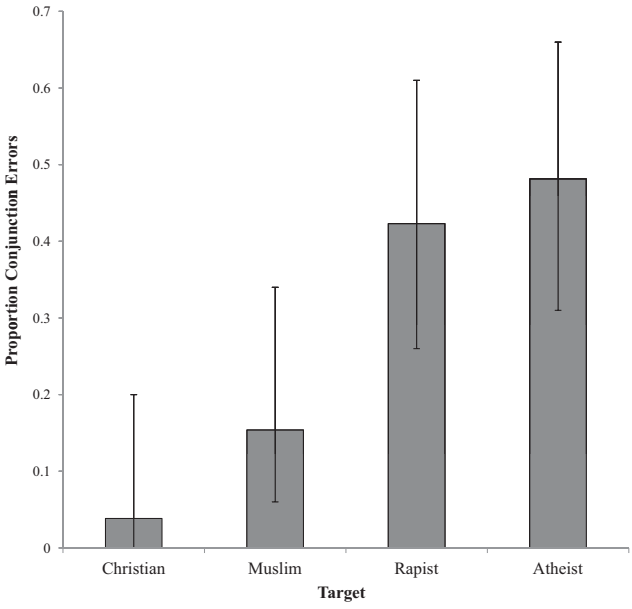

Figure 2. Proportion of participants who committed the conjunction fallacy when given a description of a criminally untrustworthy individual who could be (a) a Christian, (b) a Muslim, (c) a rapist, or (d) an atheist (Study 2). Error bars reflect 95% confidence intervals.

superscript). In terms of classic work on the representativeness heuristic, this implies that a description of an untrustworthy person is not viewed as representative of religious individuals, be they Christian or Muslim. On the other hand, this description—of an individual who commits insurance fraud and steals money when the chances of detection are minimal—was only seen as representative of atheists and rapists, and people did not significantly differentiate atheists from rapists.

Study 3

Overview

Study 2 demonstrated that people view untrustworthiness as representative of atheists and rapists but not of Christians or Muslims. Study 3 continued this line of inquiry, also incorporating the major theme of Study 1 by comparing peoples' attitudes toward atheists and homosexuals. In addition, Study 3 made two important changes to the conjunction fallacy paradigm.

First, in Study 2, Richard was described as untrustworthy, but he nonetheless also came off as unpleasant. Trust and pleasantness were confounded, and our theoretical framework predicts that distrust, rather than mere perceived unpleasantness, underlies anti-atheist prejudice. Thus, in Study 3, we included two different descriptions that were matched for unpleasantness but differed in untrustworthiness. Second, Study 2 did not test one of our key hypotheses. As in Study 1, distrust of atheists should be exaggerated among participants who strongly believe in God, but we did not collect religiosity data in Study 2. Thus, in Study 3, we collected information about how strongly people believe in God to see if this predicts the likelihood of committing the conjunction error.

We hypothesized that participants would be more likely to commit the conjunction error when given a description of an untrustworthy (but not merely unpleasant) individual and when given a potential atheist target (but not a potentially gay target). Furthermore, we hypothesized individuals who strongly believe in God would be more likely to view untrustworthiness as representative of atheists.

Method

One hundred seventeen UBC undergraduates (age range = 18–44 years, M = 19.56; 76% female) participated for extra credit.

Study 2 used a 2 (Description: Distrust vs. Unpleasant) × 2 (Target: Atheist vs. Homosexual) factorial design. In the Distrust Description conditions, participants read the same description of Richard as that used in Study 2. In the Unpleasant Description conditions, participants read the following description:

> Richard is 31 years old. He has a rare inherited medical condition. This leads him to have dry, flaky skin and produce excess mucus. His skin often flakes off at embarrassing times, and he almost always has a dripping nose and phlegm in his throat.
>
> On his way to work one day, Richard was scratching his itchy shoulder. Some of the dry skin that flaked off caused him to sneeze, and some snot ended up on his tie. He failed to notice that the phlegm got on his tie. He wore this dirty tie through an entire work day.

Although it could be argued that in this description Richard is not merely unpleasant but also disgusting (perhaps promoting to anti-gay prejudice), sexual disgust (such as many reactions to gay men) and pathogen-avoidance disgust (such as aversion to this phlegm-soaked, flaky-skinned protagonist) are theoretically and empirically dissociable (Tybur, Lieberman, & Griskevicious, 2009). Thus, we focused only on ratings of untrustworthiness and general unpleasantness, lest participants conflate these two categories of disgust.

An independent sample of student participants drawn from the same population (N = 35) rated how unpleasant and how untrustworthy they found the character in each description, yielding a significant Description by Trait (unpleasant vs. untrustworthy) interaction, $F(1, 34) = 35.28$, $p < .001$, repeated-measures ANOVA. Participants rated the Distrust Description character as significantly more untrustworthy than the Unpleasant Description character, paired $t(34) = 8.73$, $p < .001$, but not significantly more unpleasant, paired $t(34) = 0.29$, $p = .77$. The two descriptions elicited differences on perceived untrustworthiness but not perceived unpleasantness.

Next, participants chose whether they thought it more probable that Richard was either (a) a teacher or (b) a teacher and XXXX. We manipulated XXXX between subjects. XXXX was either "an atheist (someone who does not believe in God)" or "a homosexual." The participants were therefore randomly assigned to either a Distrust Description atheist target (n = 28), a Distrust Description homosexual target (n = 30), an Unpleasant Description atheist target (n = 30), or an Unpleasant Description homosexual target (n = 30). Finally, participants completed a face-valid single item measure of belief in God. Participants were asked to rate their own belief in God from 0–100.

Results and Discussion

First, we used a binary logistic regression model with factors Description (coded Unpleasant = 0, Distrust = 1), Target (coded homosexual = 0, atheist = 1), and their interaction term predicting the likelihood of committing the conjunction fallacy. As hypothesized, there was a significant Description × Target interaction (b = 4.06, p = .01, see Figure 3). To decompose this interaction, we performed separate logistic regression analyses examining the effect of Target within each Description condition.

In the Distrust Description condition, participants were significantly more likely to commit the conjunction fallacy when given an atheist target than when given a homosexual target (b = 3.37, p = .002). In fact, when given the Distrust Description, participants were 29 times more susceptible to the conjunction fallacy for an atheist target than for a homosexual target (95% CI of the odds ratio = 5.07, 552.53). In the Unpleasant Description condition, conjunction errors were rare for both the atheist target (3.4%) and for the homosexual target (6.7%); the likelihood of committing an error did not significantly differ by target (b = –.69, p = .58). Participants only tended to commit the conjunction fallacy when an untrustworthy description was paired with an atheist target.

Furthermore, belief in God predicted the likelihood of conjunction errors in the Distrust Atheist condition. A separate logistic regression analysis was conducted with belief in God (standardized) predicting the likelihood of committing the conjunction error, given the Distrust Description and the atheist target. An increase of

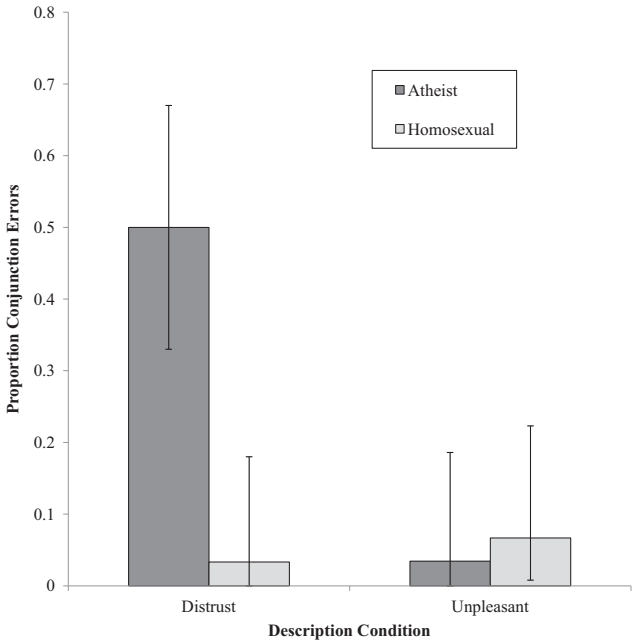

Figure 3. Proportion of participants who committed the conjunction fallacy when given either a Distrust or Unpleasant description and either a potential Atheist or Homosexual target (Study 3). Error bars reflect 95% confidence intervals.

one standard deviation in belief in God increased the likelihood of committing the conjunction fallacy by a factor of 2.49 (95% CI of the odds ratio = 1.09, 6.66; $b = .91$, $p = .04$). A similar analysis revealed that belief in God did not predict the likelihood of errors in any other conditions; this is unsurprising given the near-floor level of conjunction errors.

In sum, Study 3 demonstrated that the effects of Study 2—that people view an untrustworthy description as representative of atheists—were indeed driven by distrust, rather than mere unpleasantness. In addition, Study 2 demonstrated that this effect did not generalize to homosexual targets. Combined with Study 2, this indicates that atheists—but not Muslims, Christians, or homosexuals—are seen as particularly untrustworthy. This effect is, in turn, predicted by belief in God, supporting our major predictions.

Study 4

Overview

Study 4 replicated and extended results from Studies 2–3 and addressed a crucial alternative explanation. The present theoretical framework describes distrust of atheists as one result of religious prosociality, but other, more general, theoretical frameworks might also be able to explain the present results. In particular, the content of many stereotypes is influenced by the degree to which targets are viewed as either warm or competent (e.g., Fiske et al., 2002). The "warmth" dimension is often described as a moral dimension (e.g., Wojciszke, 1994; Wojciszke, Bazinska, & Jaworski, 1998), and it is possible that it is not religious prosociality, per se, which engenders distrust of atheists but, rather, a general process by which low-warmth (or perhaps low-warmth and high-competence) groups are distrusted. If this is the case, then untrustworthiness should be viewed as representative of any outgroup viewed similarly to atheists within a two-factor stereotype content model. On the other hand, our model predicts that untrustworthiness should be viewed as more representative of atheists than of other groups, even groups viewed as comparably competent and comparably lacking in warmth. Study 4 tested these divergent predictions to assess which theoretical model best explains anti-atheist prejudice.

Study 4 also allowed for a direct test of another key hypothesis. Our theoretical model uniquely predicts that the belief that people hold themselves to a higher moral standard when they feel that a watchful God is monitoring their behavior leads to distrust of atheists (who do not believe that God is watching them). If this is the case, then endorsement of concerns about supernatural monitoring (above and beyond mere belief in God) should predict atheist distrust. Thus, we included a measure of the degree to which participants think that people behave better if they feel watched by God. Our framework—but not theoretical frameworks silent about the special role played by religion, such as ingroup morality (e.g., Leach et al., 2007) or stereotype content (e.g., Fiske et al., 2002)—predicts that supernatural monitoring concerns should mediate the relationship between belief in God and atheist distrust.

Method

One hundred twenty-six UBC undergraduates (age range = 18–45 years, $M = 20.74$; 81% female) participated for extra credit.

A primary goal of Study 4 was to compare the degree to which untrustworthiness is viewed as representative of atheists, relative to groups rated similarly in terms of warmth and competence. To select target groups with which to compare atheists, we performed a pilot study in which participants drawn from the same population ($N = 31$) rated atheists, poor people, housewives, elderly people, feminists, Jewish people, homosexuals, Christians, and rich people on the dimensions of warmth and competence. The adjectives used to assess both warmth and competence in this pilot study were identical to those previously used by Fiske et al. (2002, Study 2; Warmth: friendly, good-natured, sincere, trustworthy, warm, well-intentioned; Competence: capable, competent, confident, efficient, intelligent, skillful). Atheists were rated as higher in competence than warmth, $t(30) = 2.43$, $p = .02$. In this regard, atheists ($M_w = 3.16$, $M_c = 3.42$) were viewed similarly as feminists ($M_w = 2.95$, $M_c = 3.38$); Jewish people ($M_w = 3.11$, $M_c = 3.51$); and, to a lesser extent, homosexuals ($M_w = 3.33$, $M_c = 3.20$). We decided to use atheists, feminists, and Jewish people as targets in Study 3, because in the pilot study, separate repeated-measures ANOVAs revealed that these three groups did not significantly differ on either warmth or competence, $F(2, 60) = 1.42$, $p = .25$, and $F(2, 60) = 0.60$, $p = .55$, respectively. Study 4 thus compared distrust of three groups that were statistically indistinguishable in terms of warmth and competence.

Study 4 used the same description of an untrustworthy individual used in Studies 2–3, except that the target was female ("Sarah"), both because this made for a more believable feminist option and to test whether the anti-atheist effects seen in Studies 2–3 generalize to female targets. After reading the description,

participants chose whether they thought it more probable that Sarah was either (a) a teacher or (b) a teacher and XXXX. We manipulated XXXX between subjects, as either "a Jewish person" ($n = 42$), "a feminist" ($n = 38$), or "an atheist (someone who does not believe in God; $n = 46$). After a number of filler tasks, participants rated their belief in God from 0 to 100, exactly as in Study 3. Finally, participants completed a face-valid item that measured endorsement of supernatural monitoring concerns: Participants rated (from 1 to 7) their agreement with the statement "People behave better when they feel that God is monitoring their behavior."

Results and Discussion

We hypothesized that participants would be more likely to commit the conjunction fallacy when given a description of an untrustworthy target when the target could be an atheist, relative to when the target could be a Jewish person or a feminist. Consistent with this hypothesis, the proportion of conjunction errors differed significantly across the three targets, $\chi^2(2, N = 126) = 12.11$, $p = .002$ (see Figure 4). To clarify this effect, we performed three separate binary logistic regressions comparing the three targets. As hypothesized, participants were significantly more likely to commit the conjunction error for an atheist target than for either a Jewish target or a feminist target, odds ratio = 5.50 (95% CI = 2.04, 16.79), $b = 1.70$, $p = .001$, and odds ratio = 2.57 (95% CI = 1.04, 6.68), $b = .94$, $p = .045$, respectively. The Jewish target did not significantly differ from the feminist target, odds ratio = 2.14 (95% CI = .71, 6.97), $b = .76$, $p = .19$. As in other studies, we did not exclude any participants based on their membership in target groups. In pilot testing ($N = 26$), atheist and feminist participants were approximately equally frequent, and Jewish participants were much more rare. The present results thus yield a pattern that is inconsistent with simple ingroup preferences, which would predict that the Jewish target would have elicited the most conjunction errors and that atheist, and feminist targets would not elicit different response patterns. Despite the relative frequency of atheist participants in our samples, atheist targets were still the least trusted in Study 4.

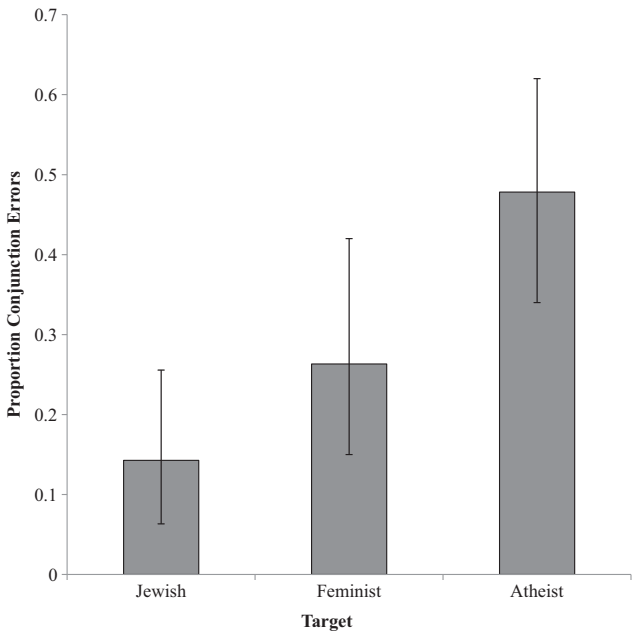

Figure 4. Proportion of participants who committed the conjunction fallacy when given a description of a criminally untrustworthy individual who could be (a) Jewish, (b) a feminist, or (c) an atheist (Study 4). Error bars reflect 95% confidence intervals.

As in Study 3, we tested whether belief in God predicted atheist distrust. We conducted a separate logistic regression analysis with belief in God (standardized) predicting the likelihood of committing the conjunction error, given the atheist target. An increase of one standard deviation in belief in God increased the likelihood of committing the conjunction fallacy by a factor of 1.98 (95% CI of the odds ratio = 1.06, 4.01; $b = .69$, $p = .04$). Belief in God did not predict conjunction errors for either feminist or Jewish targets ($p = .82$ and .50, respectively).

Finally, we tested whether data were consistent with the hypothesis that the relationship between belief in God and atheist distrust was mediated by supernatural monitoring concerns. As expected, belief in God predicted stronger endorsement of the prosocial effects of believed supernatural monitoring ($\beta = .48$, $p < .001$). In a model with belief in God and supernatural monitoring concerns predicting conjunction errors for the atheist target, an increase of one standard deviation in supernatural monitoring concerns (controlling for belief in God) increased the likelihood of committing the conjunction fallacy by a factor of 2.50 (95% CI of the odds ratio = 1.22, 6.07, $p = .02$), but belief in God no longer significantly predicted conjunction errors ($p = .40$). Bootstrapping analysis revealed that data were consistent with supernatural monitoring concerns fully and significantly mediating the relationship between belief in God and conjunction errors (95% CI of the indirect effect = .07, 1.84). As in Study 1, however, we acknowledge that meditational analyses using only measured variables cannot establish causal relationships (e.g., Shrout & Bolger, 2002).

Study 4 tested whether two-factor (warmth/morality vs. competence) models of stereotyping can explain distrust of atheists by comparing atheists to feminists and Jewish people, two groups that were found to be indistinguishable from atheists within the stereotype content model (e.g., Fiske et al., 2002). Consistent with our theoretical framework, untrustworthiness was viewed as more representative of atheists than of either feminists or Jewish people. As in Studies 1 and 3, belief in God was associated with greater atheist distrust. Furthermore, as directly predicted by our theoretical framework, data were consistent with the hypothesis that supernatural monitoring concerns mediate the relationship between belief in God and atheist distrust.

Study 5

Study 1 demonstrated considerable distrust of atheists on explicit ratings. Studies 2–4 demonstrated that these effects can also be obtained using indirect measures of distrust; nonetheless, it would be beneficial to see if these effects also generalize to implicit measures. We examined whether convergent effects emerged when using a widely researched implicit measure of prejudice: the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). Study 5 used implicit measures of both distrust of atheists and dislike of atheists.

If anti-atheist prejudice is characterized by distrust, rather than generalized dislike, then there ought to be a significant implicit association between atheists and distrust. Moreover, belief in God should be more strongly related to measures of atheist distrust than to measures of atheist dislike. Therefore, Study 5 tested these predictions using an IAT paradigm.

Method

Thirty-nine UBC undergraduates (62% female, *M* age = 20.3 years) participated for extra credit.

Participants completed questionnaires assessing demographics and belief in God. We measured belief in God with a single face-valid item: Participants rated their agreement with the statement "I believe in God or other deity(ies)" on a 5-point Likert-type scale. Following procedures from Park and Schaller (2005), we used two versions of the IAT (Greenwald et al., 1998) to investigate associations with different concepts; one measured implicit distrust of atheists, and one measured implicit dislike of atheists.

Participants were given two sheets of paper with pictures of "Julie," who is religious and "Vanessa," who is an atheist. Participants were asked to first complete a brief religiosity questionnaire from the perspective of each target, and subsequently to write an imagined religious debate between Julie and Vanessa. These steps were merely taken to familiarize participants with both targets and their respective (non)religious identities. Julie and Vanessa were easily distinguishable, matched for attractiveness, and counterbalanced between subjects. Finally, participants completed the two IATs in counterbalanced order. One measured implicit general dislike of atheists (including positive words such as "friend" and "kind" and negative words such as "hostile" and "hate"), and one measured implicit distrust of atheists (including trust words such as "honest" and "dependable" and distrust words such as "lying" and "dishonest"). Independent pre-ratings revealed that the "dislike IAT" words were significantly more related to the pleasant–unpleasant dimension than were the "distrust IAT" words, $t(63) = 7.59$, $p < .001$. The "distrust IAT" words were in turn significantly more related to the trust–distrust dimension than were the "dislike IAT" words, $t(63) = 11.72$, $p < .001$. Thus, any associations found between belief in God and implicit distrust are not the result of the "distrust IAT" merely containing words that are more extreme representations of the pleasant–unpleasant dimension. Rather, the "distrust IAT" words were more directly related to the concept of distrust.

Results and Discussion

One-sample *t* tests revealed substantial and significant implicit associations between atheists and both distrust, $t(38) = 5.66$, $p < .001$, Cohen's $d = 1.84$, and dislike, $t(38) = 2.67$, $p = .01$, Cohen's $d = 0.87$. Participants tended to exhibit more distrust than dislike, although this difference did not attain conventional statistical significance, $t(38) = 1.60$, $p = .12$, Cohen's $d = 0.52$.

More important, we predicted a stronger association between belief in God and implicit atheist distrust than between belief in God and implicit atheist dislike. Belief in God was significantly related to implicit atheist distrust ($r = .60$), $p < .001$, but not to implicit dislike ($r = .19$, $p = .24$). These correlations were significantly different, $t(36) = 3.03$, $p = .004$.

As hypothesized, there was a strong implicit association of atheists with distrust, and belief in God was more strongly associated with specific implicit distrust of atheists than with implicit dislike of atheists. However, all of the studies to this point measured stereotyping and prejudice against atheists and did not address whether distrust of atheists translates to discriminatory decision making in explicit situations. We addressed this issue in Study 6.

Study 6

Overview

The first five studies demonstrated that distrust is a particularly strong factor in anti-atheist prejudice, suggesting that anti-atheist prejudice may be exaggerated when trust is especially important. We investigated this possibility using a job selection survey in which participants chose candidates for two jobs varying in the degree to which they require trustworthy candidates using only limited demographic information, which included whether the candidate was religious or was an atheist. We compared hiring decisions for two jobs that were matched on required pleasantness, but differed on required trustworthiness, offering a stringently controlled investigation of the impact of trust, independent of pleasantness.

We hypothesized that participants would preferentially hire a religious candidate over an atheist candidate for the high-trust job but not for the low-trust job. In addition, we hypothesized that this preference would be associated with belief in God for the high-trust job but not for the low-trust job. Finally, we performed an additional analysis to rule out authoritarianism, known to be associated with both religion and prejudice, as an alternative explanation for this relationship.

Method

Forty UBC undergraduates participated for five dollars. Participants were recruited from an introductory psychology class. Although age and gender data were not collected in this study, the participants were drawn from the same population as other student samples in this article.

First, participants completed measures of belief in God and authoritarianism. Belief in God was assessed with a single item, as in Study 4, but on a 7-point Likert-type scale. Authoritarianism was assessed with the 30-item Right Wing Authoritarianism scale ($\alpha = .94$; Altemeyer, 1988). Next, participants chose between a religious candidate and an atheist candidate for two jobs varying on the degree of trust required. Both candidates were female. Participants received information about the age, ethnicity, religious affiliation, nationality, highest degree completed, and the granting university of this degree for each job candidate. Most notably, the two candidates were either identified as religious or an atheist. All other information was counterbalanced across subjects. They selected which of the two candidates they would hire as either a daycare worker or a waitress. An independent sample of 35 raters rated how important both trustworthiness and pleasantness are for both daycare workers and waitresses. There was a significant target by trait interaction, $F(1, 34) = 14.04$, $p = .001$ (repeated-measures ANOVA), indicating that participants viewed

trustworthiness as significantly more important for daycare workers than for waitresses, paired $t(34) = 5.28$, $p < .001$, but that pleasantness was not more important for daycare workers than for waitresses, paired $t(34) = 0.407$, $p = .67$.

Results and Discussion

We hypothesized that participants would hire a religious candidate, rather than an atheist candidate, for jobs that require especially trustworthy candidates. As predicted, participants significantly preferred the religious candidate to the atheist candidate for a high-trust job (as a daycare worker), $\chi^2(1, N = 40) = 4.90$, $p = .03$; conversely, participants marginally preferred the atheist candidate to the religious candidate for a low-trust job (as a waitress), $\chi^2(1, N = 40) = 2.88$, $p = .06$ (see Figure 5).

In addition, we predicted that belief in God would be negatively associated with the odds of hiring an atheist for a high-trust job but would be unrelated to hiring decisions for a low-trust job. A binary logistic regression with belief in God (standardized) predicting hiring choices revealed that participants who strongly believe in God were significantly less likely to hire an atheist for the high-trust job, odds ratio = .65 (95% CI = 0.45, 0.92), $b = .43$, $p = .02$. A similar analysis revealed no significant association between belief in God and the likelihood of hiring an atheist for the low-trust job, odds ratio = 1.04 (95% CI = 0.77, 1.40), $b = -.04$, $p = .82$. As hypothesized, belief in God predicted a reluctance to hire atheists for jobs requiring trustworthy candidates.

Across these studies, belief in God was consistently associated with anti-atheist prejudice. However, authoritarianism—a known antecedent of prejudice against minorities and of the defense of traditional cultural values (e.g., Altemeyer, 1988; Laythe, Finkel, & Kirkpatrick, 2001)—is associated with religious belief both in this study, $r(38) = .56$, $p < .001$, and in previous literature (e.g., Altemeyer & Hunsberger, 1992; Rowatt & Franklin, 2004). Might authoritarianism, not belief in God, underlie discrimination against atheists? To address this possibility, we used a binary logistic regression model with belief in God and authoritarianism (both standardized) predicting the likelihood of hiring an atheist for a high-trust (daycare) job. In this model, belief in God still marginally predicted the likelihood of hiring an atheist, odds ratio = .68 (95% CI = 0.45, 1.03), $b = .38$, $p = .07$, but once belief in God was controlled for, authoritarianism was not a significant independent predictor, odds ratio = 1.00 (95% CI = 0.98, 1.02), $b = .01$, $p = .64$. Belief in God, not authoritarianism, predicted discrimination against atheists in high trust domains.

If distrust is central to anti-atheist prejudice, then anti-atheist prejudice should be exaggerated in contexts requiring trust. As hypothesized, participants discriminated against an atheist candidate when hiring for a job that required a particularly trustworthy individual. This discrimination was, in turn, predicted by belief in God. In addition, although authoritarianism explains many features of prejudice in general, it did not explain distrust of atheists.

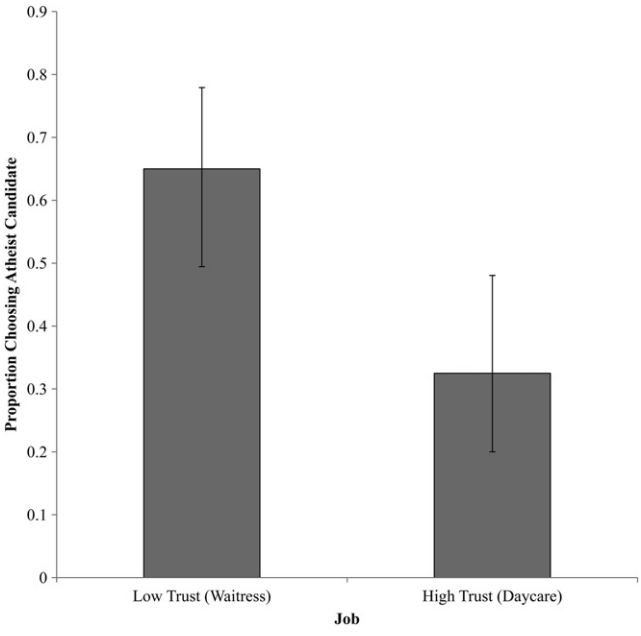

Figure 5. Proportion of participants selecting an atheist candidate for High-Trust and Low-Trust jobs (Study 6). Error bars reflect 95% confidence intervals.

General Discussion

To our knowledge, these studies present the first systematic investigation of the social psychological factors underlying anti-atheist prejudice. Six studies explored the role of distrust in anti-atheist prejudice, consistently finding it to be a central factor. Using a broad sample of American adults, Study 1 demonstrated that anti-atheist prejudice and anti-gay prejudice, although both characteristic of highly religious groups, have markedly different profiles, with distrust being more central to anti-atheist prejudice than to anti-gay prejudice. Furthermore, distrust appeared to be an especially powerful mediator of the relationship between religious beliefs and negative attitudes toward atheists. Studies 2–4 adapted a conjunction fallacy paradigm to indirectly measure distrust of atheists and other groups of people. Consistent with our theoretical model, participants found a description of an untrustworthy person to be more representative of atheists than of Christians, Muslims, gay men, feminists, or Jewish people. Only people with a proven track record of untrustworthy conduct—rapists—were distrusted to a comparable degree as atheists. This effect was specific to distrust, rather than to general unpleasantness (Study 3). In addition, distrust of atheists was not merely a product of the perceived competence or (lack of) warmth of atheists (Study 4). Distrust effects generalized to implicit measures, as Study 5 demonstrated a strong association between atheists and distrust and showed that belief in God was more strongly associated with implicit distrust of atheists than with implicit dislike of atheists. Finally, Study 6 demonstrated that distrust of atheists translates into discriminatory decision making: Anti-atheist prejudice was context specific, occurring exclusively in domains requiring a high level of trust.

Supporting another key prediction derived from our framework, belief in God proved to be a potent predictor of atheist distrust (Studies 1, 3–6). Importantly, this relationship was fully mediated by the belief that people behave better if they feel that God monitors their behavior (Study 4). Overall, these studies present consistent converging evidence of distrust-based prejudice against atheists. Given the dearth of research on the psychological foundations of anti-atheist prejudice, we use the present findings to

explore in some detail implications, limitations, and future research directions.

Generalizability

Although we only collected data in North America, our theoretical framework and the present data allow us to make detailed predictions about systematic variability in atheist distrust around the world. We conducted most of these studies within the atypically secular settings of a university, in one of the most secular cities in North America, yet still found robust anti-atheist prejudice. Given that anti-atheist prejudice was strongest among our most strongly religious participants across all studies, distrust of atheists is likely even more pronounced in more typically religious areas. Because the samples from the latter five studies are less religious than most populations around the world (e.g., Norris & Inglehart, 2004), and we still found acute distrust of atheists, we expect that distrust of atheists would be even more pronounced in most countries and among the majority of people on earth. Indeed, Study 1 found consistent and strong distrust-based prejudice against atheists in a broad sample of American adults.

On the other hand, based on the present findings, we predict that people living in largely nonreligious countries (e.g., Denmark; Zuckerman, 2008)—much like nonreligious participants in our studies—would exhibit greatly attenuated anti-atheist prejudice, or possibly none at all. Available evidence supports these predictions: explicit anti-atheist prejudice among religious individuals is most pronounced in strongly religious countries, an association that holds up across more than 50 countries, even after including important individual-level and country-level relevant control measures (Gervais, 2011). Finally, it is possible that there could be important cultural variability in the degree to which religiosity predicts anti-atheist distrust. For example, religious groups that place less emphasis on religious belief than on practice, such as Jewish people (Cohen, Siegel, & Rozin, 2003), may tolerate atheists to a greater degree.

How well might these findings generalize to other contexts and situations? Although our religious participants did not want to hire atheists as daycare workers, they did not discriminate against atheists when making choices about who to hire as a waitress. This is somewhat surprising, because polls indicate widespread anti-atheist prejudice. However, these polls use "trust-biased" prejudice indicators, such as questions about who people would support as the leader of their country or the marriage partner for their child. In these high-trust situations, atheists are the least favored group. Although it remains an open question, we suspect that atheists would be similarly excluded by religious individuals from a whole host of other high-trust positions that do not explicitly relate to religion, including (but by no means limited to) bankers, CEOs, teachers, and judges. If large-scale polls of cultural inclusion used items that focused more on dislike than distrust; however, we suspect that atheists might not rank so low.

The context-sensitivity of anti-atheist prejudice provokes additional hypotheses. For example, there might be situations in which atheists are preferred: Religiosity is negatively associated with values of both hedonism and stimulation (Saroglou, Delpierre, & Dernelle, 2004), and atheists might be preferred in situations that incentivize these values. In Study 6, the participants marginally preferred the atheist as a waitress, and the target's atheism may have actually been a benefit. Perhaps the atheist targets were viewed as uninhibited and fun. Furthermore, the context-sensitivity of anti-atheist prejudice might help explain the finding that people report increased religious belief when they perceive the mating market as particularly competitive (Li, Cohen, Weeden, & Kenrick, 2010). Trust is of paramount importance in romantic relationships, and a competitive mating market might lead people to present themselves as less atheistic to appear more trustworthy.

Theoretical Alternatives?

In their pioneering sociological investigation, Edgell et al. (2006) documented anti-atheist prejudice in America and argued that it is not driven simply by generalized dislike of outgroups. They presented two sets of sociological evidence for this claim: (a) Only modest correlations exist between people's negative ratings of atheists and negative ratings of other marginalized groups, and (b) there remains a sizeable and potentially growing gap between explicit acceptance of atheists (which remains low) and explicit acceptance of other marginalized groups (e.g., Blacks, Jews, homosexuals), which has increased over the last several decades. They argue that, instead, prejudice against atheists is driven by exclusion of atheists based on symbolic group membership and threat (see Edgell et al., 2006, for a more thorough discussion of this sociological perspective, as applied to atheists). Atheists are an ultimate "other" and are therefore shunned.

Our theoretical model is largely consistent with the view that anti-atheist prejudice is not driven by general dislike of outgroups, and many of our results offer further evidence for this conclusion. However, we view alternative psychological processes as basic to anti-atheist prejudice, and our model (but not a model based on symbolic group identity and threat) specifies supernatural monitoring concerns as a crucial mediator of the relationship between belief in God and anti-atheist prejudice (see Study 4). Furthermore, models of general intergroup conflict or symbolic threat cannot straightforwardly explain the present findings that untrustworthiness is seen as more representative of atheists than of a wide variety of other outgroups (Studies 2–4), that belief in God is a better predictor of distrust than dislike (Study 5) or that belief in God is also a better predictor of anti-atheist discrimination than authoritarianism, which is associated with but distinct from religiosity (Study 6). Finally, ingroup favoritism and exclusion based on symbolic group membership and threat cannot easily account for the nuanced, domain-specific findings of Study 6. If anti-atheist prejudice is merely a product of general intergroup processes, then it is difficult to see why anti-atheist prejudice was so context-sensitive: According to a general intergroup process framework, atheists should be excluded across domains. Instead, Study 6 demonstrated that atheists were marginally preferred in a low-trust domain. Although general intergroup process theories do not clearly predict the present data, a sociofunctional perspective that incorporates religious prosociality can (and indeed did) lead to the predictions clearly supported by the present studies. This further underscores the need for researchers to be sensitive to the different ways prejudice may manifest toward different marginalized groups, leading to distinct patterns of stigmatization (e.g., Cottrell & Neuberg, 2005; Kurzban & Leary, 2001).

Of course, the sociofunctional perspective is not the only theoretical framework that depicts prejudice as multidimensional. Most

notably, the behaviors from intergroup affect and stereotypes framework (e.g., Cuddy et al., 2007, 2008; Fiske et al., 2007) and the stereotype content model (Fiske et al., 2002) both present prejudice as bidimensional: People and groups are viewed as differing in both warmth and competence. And although these frameworks have been successfully applied to a variety of different prejudices, they do not easily explain several of the present findings because they do not clearly delineate between trust and pleasantness, which would likely be classified together under the umbrella of warmth in a bidimensional framework (see Leach et al., 2007, for a similar point on the distinction between warmth and trustworthiness or morality). Trust and pleasantness, however, were both conceptually and empirically distinguishable in the present studies. Pooling these two traits together would obscure the rich pattern of results reported across the present six studies. Most significantly, however, Study 4 included a direct test of whether the stereotype content model adequately explains distrust of atheists. Even though atheists were rated comparably to feminists and Jewish people in terms of both warmth and competence, untrustworthiness was seen as significantly more representative of atheists than of either of these outgroups.

Finally, it is worth considering whether atheists are distrusted because they are seen as a threat to ingroup morality. People tend to view their ingroups in moralistic terms (Leach et al., 2007). This may lead to distrust of outgroups to the extent that outgroups are perceived to threaten the basis of this ingroup morality. For participants with a prominent religious ingroup identification (e.g., Christians), atheists might be distrusted because they threaten the moral basis of the ingroup. Consistent with this possibility, distrust of atheists in the present studies was consistently related to religiosity. However, such a general approach does not obviously predict that atheists should be more distrusted than other groups often viewed as opposed to traditional Christian morality, such as, in some circles, Muslims and gay men. Perhaps atheists' denial of God is seen as more directly antithetical to religious ingroup values than the beliefs and lifestyles of Muslims and gay men, leading to more distrust of atheists. Although we acknowledge this possibility, we note two key findings predicted by our theoretical framework but not a framework based on threats to ingroup morality. First, even religious "Nones" distrust atheists, and greater belief in God among these nonaffiliated individuals still predicts greater distrust of atheists, thus dissociating belief in God from identification with a religious ingroup (Study 1). Second, data were consistent with the hypothesis that the relationship between belief in God and atheist distrust was fully mediated by concerns about supernatural monitoring (Study 4)—concerns that are basic to our theoretical framework but wholly absent from other approaches to prejudice that do not explicitly consider the role of religious prosociality in some intergroup relations.

In sum, the theoretical framework articulated in the present article was consistently supported. The stereotype content model (e.g., Fiske et al., 2002) has led to a number of important discoveries and does an admirable job at describing the broad landscape of stereotyping. At the same time, Leach et al. (2007) rightly point out that "warmth" actually includes elements of both morality and sociability and that perceived ingroup morality is an important phenomenon in its own right. Theoretical frameworks based on symbolic group membership and threat, stereotype content, or perceived ingroup morality may all explain many broad features of anti-atheist prejudice. Nonetheless, the theoretical framework articulated in the present article allowed us to pose and support a number of much more *specific* hypotheses not obviously predicted by these more general models.

Complementary Processes: The Role of Cultural Norms

Our hypotheses were informed by a cultural evolutionary approach to religious prosociality, whereby people who believe in morally concerned deities are seen as more trustworthy because they operate under the constrains of supposed supernatural punishment that curbs selfish behavior. However, this is not the only process that could lead to distrust of atheists, and religiously transmitted and enforced prosocial norms may also contribute to distrust of atheists. Norms are increasingly important to the understanding of morality and cultural transmission in a broader cognitive science framework (e.g., Sripada & Stich, 2005). Religious similarity is, among other things, a potent cue that another individual shares ones' norms and beliefs and, thus, can be trusted (J. Henrich et al., 2010; N. S. Henrich, & Henrich, 2007). Under this framework, ethnic outgroups, homosexuals, and atheists may not differ in the extent to which they are viewed as holding outgroup norms. Rather, they differ in the particular norms to which they are perceived to adhere, and perceptions of atheist norms might lead religious individuals to distrust atheists.

The perceived norms of atheists might simply be more threatening to religious individuals than those of other groups. This is likely because, although religious people might infer that ethnic outgroup members or homosexuals hold norms that differ from their own, atheists might be seen as holding norms that are directly antithetical to their own. Alternatively, atheists may be distrusted because people are unsure what exactly atheists believe. A Christian, for example, might be able to infer some of a Muslim's norms, but an atheist might be viewed as a wildcard; religious people might distrust atheists not only for the norms they are perceived to follow but also for their perceived lack of norms.

This possibility directly complements our theoretical model, because even if atheists are believed to share one's norms, one might nonetheless be doubtful of the atheist's commitment to uphold those norms. The perceived threat of supernatural punishment (or, at the very least, belief in supernatural monitoring) may ensure that a believer adheres to prosocial norms, but this motivation does not apply to an atheist. This norm-based account of atheist distrust complements the framework elaborated in the present article, and future research should aim to explore both fear of supernatural punishment and perceived prosocial norms as contributors to religious prosociality and prejudice against atheists. Such comparisons, although unfortunately beyond the scope of the present article, would further illuminate anti-atheist prejudice and the role of trust in a variety of prejudices and would allow for direct tests of the contributions of both perceived shared norms and fear of supernatural punishment in anti-atheist prejudice, as well as other prejudices.

Can Atheists Be Trusted?

It could be argued that distrust of atheists may be less the result of prejudice and more the result of rational expectations, given the

connection between religiosity and prosocial behavior. This logic, we argue, is faulty on at least three counts. First, distrust effects in our studies far exceeded any evidence of actual atheist untrustworthiness (e.g., morally equating atheists with rapists has no empirical foundation). Second, situational effects of religion may better predict prosocial behavior than do trait-level religious beliefs (Norenzayan & Shariff, 2008). In studies where religious primes increase prosocial tendencies and honesty, typically the effect of self-reported religiosity is null, at least in modern Western societies. Finally, there are multiple motivations for prosocial behavior; although religious belief appears to be one such source of prosociality under some contexts, it is far from the only source available, and it is exceedingly likely that most atheists act morally, albeit for nonreligious reasons (e.g., Beit-Hallahmi, 2010).

Although the connection between religion and prosocial behavior does not rationalize distrust of atheists, it does raise interesting questions about life in largely nonreligious societies. Religion appears to be a "social glue" in the world, yet the least religious countries are actually among the most cooperative and peaceful on the planet (e.g., Zuckerman, 2008). To resolve this apparent paradox, it is important to recognize that religious prosociality is primarily a theoretical framework for explaining the types of beliefs that can act as motivators of human cooperation *in the absence* of large-scale institutions for promoting prosociality. In this view, religion may have once been—and may still be, in many places—one of the only games in town in terms of bringing people together into large cooperative social groups.

This is no longer the case in large parts of the world, and societal-level existential security (as guaranteed by many modern social institutions) is a persistent predictor of *reduced* religious belief (Norris & Inglehart, 2004). This is perhaps most evident in Scandinavia, where religious belief is largely a historical curiosity, and the state provides most vital services (Zuckerman, 2008). Laboratory investigations converge with this notion, as priming secular justice concepts (e.g., civic, jury) is as effective as reminders of a watchful God for promoting prosocial behavior (Shariff & Norenzayan, 2007), and both governments and gods appear to serve largely interchangeable psychological functions (e.g., Kay, Shepherd, Blatz, Chua, & Galinsky, 2010). Watchful institutions may replace watchful gods as guarantors of cooperation, but institutions can only be created by initially cooperative groups. Given that religious prosociality, but not secular institutions, directly implies distrust of atheists, the aforementioned finding that anti-atheist prejudice is exaggerated in strongly religious countries (Gervais, 2011) becomes clearer, as these countries also tend to rely the most on religion to guarantee cooperation. Freed from this constraint, people from countries that depend primarily on secular institutions do not tend to distrust atheists.

Conclusion

These studies are an initial investigation into anti-atheist prejudice, a common and understudied type of prejudice. Atheists are among the least liked groups of people in many parts of the world, and the present studies help to explain why. The present six studies converged on the conclusion that distrust is at the core of this particularly powerful, peculiar, and prevalent form of prejudice. Although religions continue to exert great influence on most human lives, the numbers of nonreligious people have continually grown, leading to a great degree of cultural polarization. In recent years, the topic of atheism has broken into public consciousness, leading to boisterous debate in popular culture and overshadowing the tremendous potential that the scientific study of atheism—and reactions to atheism—may hold for scientific understanding of the diversity of prejudice and the psychological, cultural, and evolutionary underpinnings of religion.

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(*Appendix follows*)

Appendix

Population Demographics

Studies 2–6 relied upon the Psychology Human Subject Pool at the University of British Columbia in Vancouver, British Columbia, Canada. Participants in this subject pool participate for course credit in psychology classes. A prescreening questionnaire is administered to the participants to obtain general demographic information. The following demographic data (based on $N = 1{,}153$ responses) summarize the population from which our samples were drawn.

In terms of religious backgrounds, this is a very diverse group of students. In descending order of frequency, our participants report religious affiliations as Christian (34%), None (16%), Nonreligious (12%), Agnostic (11%), Atheist (9%), Other (7%), Buddhist (7%), Muslim (3%), and Jewish (1%).

This is also an ethnically heterogenous population from which to sample: East Asian (49%), Caucasian/White (30%), Other/mixed (7%), South Asian (6%), Southeast Asian (4%), Middle Eastern (2%), Hispanic/Latino (1%), and African (<1%).

Finally, our participants in Studies 2–6 are, as a whole, not strongly religious. In both the prescreening questionnaire and in Study 1 (utilizing a broad national sample of Americans), participants were asked to rate their agreement (on a 1–7 Likert-type scale) with the statement "I believe in God." Subject pool respondents averaged a score of 4.06 ($SD = 2.19$), just above the midpoint of the scale. Only 22% rated their belief in God as a 7, and 19% rated their belief in God as 1. In contrast, participants in the American sample averaged a score of 5.51 ($SD = 2.07$), and more than half (51%) of participants rated their belief in God as a 7. Only 4% rated their belief in God as a 1.

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