Abstract

Recent polls indicate that atheists are among the least liked people in areas with religious majorities (i.e., in most of the world). An evolutionary approach to prejudice, combined with a cultural evolutionary model 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 antigay prejudice (Chapter 2). Furthermore, 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 gays (Chapter 3). Results were consistent with the hypothesis that the relationship between belief in God and atheist distrust was mediated by the belief that people behave better if they feel that God is watching them (Chapter 3). In sum, atheists have long been distrusted, in part because they do not believe that a watchful, judging god monitors their behavior. However, in many parts of the world, secular institutions such as police, judges, and courts are also potent sources of social monitoring that encourage prosocial behavior. Reminders of such secular authority could therefore reduce believers’ distrust of atheists. Participants who watched a video about police effectiveness or were subtly primed with secular authority concepts expressed less distrust of atheists than did participants who watched a control video or were not primed, respectively (Chapter 4). Furthermore, political intolerance of atheists is reduced in countries with effective secular rule of law (Chapter 5). These studies are among the first to systematically explore the social psychological underpinnings of anti-atheist prejudice, and converge to indicate the centrality of distrust in this phenomenon.
Preface

Versions of many of the chapters in this dissertation have been published in four sources:


Specifically, Chapters 1 and 6 include material from sources 1-3. Chapters 1, 2, 3, and 6 include material from source 3. Chapters 4-6 include material from source 2. Chapter 5 includes data collected and presented in source 4. In all of these sources, I designed the studies, collected the data, and analyzed the data. In all chapters, I was also the primary author in charge of writing and revising manuscripts. Study designs were approved by UBC’s behavioral research ethics board (H07-01374, H07-01466).
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Dedication

For Mina, Drew, and the members of PWC. But mostly for Mina. I hope my research lets you ride a pony someday.
1 Introduction

The fool\(^1\) 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, NIV

His eyes are on the ways of men; He sees their every step.

Job 34:21, NIV

BIG BROTHER IS WATCHING YOU

George Orwell, 1984

Over the past few decades, much ink has been spilled regarding the potential relationships between religion, intolerance and conflict. However, religion’s precise role in intolerance and intergroup conflict remains a poorly researched scientific topic. This oversight is remarkable given that the vast majority of the world is religious (Norris & Inglehart, 2004), and hardly a day goes by without religious conflict shaping events and making international headlines (The Washington Post, May 11, 2011).

To a large degree, researchers interested in religion, intolerance, and conflict have focused on conflicts between different religious groups. That is, much thinking and research is devoted to conflicts between different stripes of theists with differing cultural histories, religious

\(^1\) Footnote from the New International Version of the Bible: “The Hebrew words rendered fool in Psalms denote one who is morally deficient.”
traditions, and devotional practices. Though of course very important, this focus has sometimes obscured a potentially even more fundamental divide: that between those who are believers and those who do not endorse any brand of theism. There are currently more than half of a billion nonbelievers on earth (Zuckerman, 2007), and recent research highlights a number of different cognitive and cultural factors that influence people’s degrees of religious commitment (e.g., Gervais & Norenzayan, 2012a; Gervais, Willard, Norenzayan, & Henrich, 2011; Norenzayan, Gervais, & Trzesniewski, in press). In this dissertation, I report new research on the psychological bases of anti-atheist prejudice. This research is long overdue. Antagonism towards atheism is widespread, found worldwide and throughout history (e.g., Jacoby, 2004). Although we live in a world where most people are religious, the number of atheists worldwide is not trivial. Actual estimates of the prevalence of atheists worldwide are difficult to obtain, but using a straightforward definition of atheists as individuals who do not believe in a god or gods, the numbers exceed half a billion (Zuckerman, 2007); this number suggests that if atheists were considered a “religious” group, they would be the fourth largest one in the world, trailing only Christians, Muslims, and Hindus. Despite the considerable number of atheists in the world, antagonism towards atheists is as yet a poorly understood social psychological phenomenon. Moreover, greater understanding of anti-atheist prejudice has the potential to illuminate the evolutionary and cultural origins of religious belief itself, as well as provide fresh insights into the psychological bases of prejudice and intergroup conflict.

If there is one important insight in our understanding of religion’s role in human social behavior, it is that it makes little sense to ask questions such as “Does religion breed intolerance?” A more sensible question is to ask which aspects of religion tend to be associated with which outcomes, whether prosocial or anti-social. What specific aspects of religion induce
ingroup cooperation (Sosis & Alcorta, 2003; Norenzayan & Shariff, 2008) conflict with outgroups (Ginges, Hansen, & Norenzayan, 2009), and under what specific socio-cultural contexts? This insight—that sharper focus on the constituent parts of what is broadly termed “religion” is of central importance to an analysis of the root causes of anti-atheist prejudice as well.

This introductory chapter proceeds in six sections. (1) I highlight some examples of what I mean by “anti-atheist prejudice” and discuss why it poses somewhat of a psychological puzzle. This puzzle is resolved, I argue, by combining (2) an evolutionary perspective on the psychological origins of prejudice and conflict, and (3) an emerging synthetic approach that describes the evolutionary and cultural forces that led to both cross cultural recurrence and variability in religious beliefs. Finally, I bring these two lines of thought together to derive coherent account of (4) the social psychological foundations of anti-atheist prejudice, and (5) the potential factors that might moderate anti-atheist prejudice. Finally, (6) I integrate insights from across these sections, and highlight a number of specific, testable hypotheses addressed in subsequent chapters.

1.1 Anti-Atheist Prejudice

Today, Article 6, Section 8 of North Carolina’s state constitution reads “The following persons shall be disqualified for office: First, any person who shall deny the being of Almighty God.” Only after disqualifying atheists from office does the constitution dismiss other riffraff, such as those convicted of treason, felony, corruption, malpractice in office, or those who have previously been impeached from office. Although this antiquated piece of law is clearly in conflict with the US Constitution’s prohibition against religious tests for political candidates, it is
still on the books. And, as recently as 2009, some North Carolina citizens attempted to wield the law against a recently elected city councilor who happened to admit that he does not believe in God (Schrader, 2009). This example, far being an isolated example of negative attitudes towards atheists, may be representative of attitudes that are much more widespread.

The Gallup organization routinely uses hypothetical voting polls to gauge the degree to which different groups of people are tolerated and accepted in American society. And, in general, Americans are tolerant of diverse political candidates (or at least they report that they would be tolerant). For instance, the 2008 Presidential election presented perhaps the most diverse group of legitimate candidates in history, and a February 2007 Gallup poll (Jones, 2007) indicated that most people reported a willingness to vote for candidates who are Catholic (95%), African American (94%), Jewish (92%), female (88%), Hispanic (87%), Mormon (72%), twice divorced but currently married (67%), elderly (57%), or homosexual (55%). Of the provided list of hypothetical candidates, only an atheist candidate (45%) could not garner a majority vote. Interestingly, although tolerance for most outgroups (as measured in similar polls) has increased steadily throughout the last five decades, this has been much less true of tolerance for atheists (e.g., Edgell, Gerteis, & Hartmann, 2006). To illustrate, although Gallup respondents were more than twice as likely to say they would vote for a gay candidate in 1999 than in 1978, this same timespan saw only about an 8% increase in political tolerance for atheists.

Exclusion of atheists is not solely limited to the political domain. Edgell and colleagues (2006) surveyed Americans’ views on two other issues: whose vision of America you disagree with, and who you would disapprove of your children marrying. Approximately 40% of respondents indicated that atheists do not agree with their vision of America, markedly more than Muslims (26%), gays (23%), Jewish people (7%) or African Americans (5%). Atheists fared
no better as potential marriage partners, with about 48% of respondents indicating that they would disapprove of an atheist joining the family. Once again, Muslims (34%) and African Americans (27%) were more tolerated than were atheists. An atheist’s potential problems don’t even end with courtship, however, as there is a notable lack of faith in atheists’ abilities to raise responsible children. A 2002 Pew poll revealed that more than 60% of Americans feel children who receive a religious upbringing are more likely to be moral adults, and nearly half those surveyed also responded that, as an adult, belief in God is a necessary prerequisite for moral behaviour. Edgell and colleagues (2006, p. 211) concluded that “atheists are less likely to be accepted, publicly and privately, than any others from a long list of ethnic, religious, and other minority groups.”

It is important to highlight three important facts about anti-atheist prejudice. First, it is widespread in America, but is not unique to it. International surveys show that wherever there are religious majorities (that is, most of the world) there are high levels of anti-atheist prejudice (Gervais, 2011). Second, despite the worldwide prevalence of this prejudice, international surveys also show that there is considerable variability in the prevalence of this prejudice across nations (e.g., Gervais, 2011). For example, there is virtually no rejection of atheists in Scandinavian societies such as Denmark and Sweden (Zuckerman, 2008). A rigorous account of the causes of anti-atheist prejudice must also explain this cultural variability. Third, anti-atheist prejudice is not just a contemporary phenomenon. It has deep historical roots, even in democracies that have inherited ideals of the Enlightenment (see, e.g., Jacoby, 2004). Take, for example, John Locke, who in his *Letter Concerning Toleration* (1983/1689, p. 51) argued that “…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.”
Why should atheists be the targets of such deep antipathy? After all, atheists are individually inconspicuous and collectively inconsequential. They are not a visible, coherent, or powerful group of people. There is no such thing as identifiable atheist attire, cuisine, or music. From the perspective of much psychological research on prejudice, atheists should be ignored, rather than despised. Indeed, one standard way to define prejudice is treating an individual differently based on perceived group attributes (e.g., “Jon’s African American, I’ll bet he’d like to play on our basketball team”). However, in the case of atheists, it is unclear if there are any aggregate group-level traits that observers apply to individual nonbelievers. As British comedian Ricky Gervais (2010) puts it, “Saying atheism is a belief system is like saying not going skiing is a hobby.”

Throughout the rest of this chapter, I will suggest that traditional social psychological approaches to prejudice, despite making significant advances (e.g., Brewer & Brown, 1998), fall short of explaining persistent negative perceptions of atheists. To understand this particular brand of prejudice, one must appreciate two insights that have emerged in recent years. First, anti-atheist prejudice makes little sense if one views prejudice as a simple unidimensional construct (e.g., “liking” some people and “disliking” others), rather than a suite of nuanced reactions to specific perceived threats coming from different outgroups. Second, anti-atheist prejudice makes little sense without first considering the social, cultural, and evolutionary functions of religious beliefs.

1.2 The Diversity of Prejudices

Classically, researchers have viewed prejudice as a simple unidimensional construct. In this view, we tend to “like” people who are similar to us in some way, and we tend to “dislike”
dissimilar others. This approach has yielded a number of impressive insights (see, e.g., Brewer & Brown, 1998 for a review), and still influences modern prejudice research. For example, many of the tools that researchers use to measure prejudice simply gauge the degree to which people feel generally positively towards outgroups, or associate outgroup members with positively valenced words (e.g., Greenwald, McGhee, & Schwarz, 1998). And some of these important insights have led to effective policy interventions that are broadly applicable, such as the idea that equal-status contact between groups can have powerful effects on promoting positive feelings, trust, and cooperation (e.g., Pettigrew & Tropp, 2006).

Over the past decade, however, the multidimensional nature of prejudice has become more apparent. One prominent approach partitions prejudice into two separate dimensions: perceived warmth (e.g., friendliness, pleasantness) and perceived competence (e.g., intelligence, capability) (e.g., Cuddy, Fiske, & Glick, 2007; Fiske, Cuddy, Glick, & Xu, 2002). This perspective helps highlight the textured reactions that characterize some prejudices. For example, people tend to pity individuals seen as high in warmth but low in competence—such as individuals with mental disabilities—but envy people seen as high in competence but low in warmth—such as rich folks (Cuddy, et al., 2007). At the same time, however, this perspective has significant trouble distinguishing many seemingly distinct different types of prejudice. For example, prejudice against Muslims, blacks, Hispanics, and gays seem quite distinct, yet these groups are rated as comparably warm and competent (Fiske, et al., 2002, Study 2). Perhaps more than two dimensions are necessary to explain diverse prejudices.

Recognizing this, a number of evolutionarily-inspired researchers (e.g., Cottrell & Neuberg, 2005; Kurzban & Leary, 2001; Schaller & Neuberg, 2008) have argued that specific forms of prejudice manifest from different central adaptive challenges that humans face.
According to this evolutionary perspective, different types of people may be perceived as threats to different functional goals such as finding reliable exchange partners, avoiding pathogens, and avoiding threats to physical safety. The threats themselves are functionally distinct, with different optimal solutions, leading attitudes towards different potentially threatening people to be characterized by separate and distinct reactions.

In concrete terms, this means that, rather than trying to explain “prejudice” broadly, a more nuanced approach would focus on the specific threats that a given group is perceived to pose, as well as the specific reactions people have to such a threat. Growing evidence supports this approach. Cottrell & Neuberg (2007) 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).

Above and beyond any given empirical contribution, the evolutionary approach suggests a novel and powerful approach for understanding any specific form of prejudice. First, researchers may identify any potential functional threats that a given outgroup might be perceived to pose. Second, researchers can then identify potential adaptive reactions to a perceived threat. This framework thus has tremendous potential for solving the puzzle of anti-atheist prejudice, providing that a specific perceived threat can be identified. What functional threat might atheists be seen to pose, simply because atheists lack belief in gods? This question
might be answered by exploring the possible social, evolutionary, and cultural functions of supernatural agent beliefs.

1.3 Religious Prosociality: In Belief in God We Trust

What is the threat that interactions with disbelievers are perceived to pose? One possible solution to this puzzle stems from the partly religious origins of large-scale cooperation in human societies. And this requires that a brief digression to consider why large-scale cooperation is an evolutionary puzzle.

Individual members of most species limit their cooperation to a few close members of kith or kin. In contrast, humans readily form large groups, cooperate with a large number of people, and do so even in largely anonymous contexts. From an evolutionary framework, this large-scale cooperation is initially somewhat puzzling because cooperative groups rely on costly investments by individual members. However, a freerider could join the group and accrue the benefits of group living without actually investing any of his or her own effort. In a cooperative group, therefore, defection (non-cooperation) is always advantageous to individual freeriders, but harmful to the functioning of the group as a whole (e.g., Sober & Wilson, 1998). Hence, large scale cooperation has long been recognized as a central adaptive challenge in human evolution, and researchers have produced a number of potential solutions to this dilemma (e.g., Fehr &

2 Trust comes in many flavors. For example, “trust” may refer either to the degree to which an observer infers that others are moral and cooperative (“I trust Jon not to kick or steal my dog”), or to the degree to which an observer infers that others are accurate sources of information in given domains (“I trust Jane’s advice on which dog breed is the most long-lived”). In this dissertation, I focus on issues of moral and cooperative trust, rather than on informational trust.
Fischbacher, 2003; Henrich & Henrich, 2007). For example, kin selection (Hamilton, 1964) and reciprocal altruism (Trivers, 1971) provide solutions to cooperation among genetically related individuals and individuals who repeatedly interact, respectively. However, mechanisms like kin selection and reciprocal altruism have difficulty explaining large scale, largely anonymous human cooperation under conditions in which cooperation is actually and routinely observed among humans (e.g., Henrich, 2004; Henrich, et al., 2005).

An alternative mechanism for eliminating freeriders stems from punishment. If potential people perceive a plausible risk that they might be caught and punished for antisocial behavior, potential freeriders may curtail their selfishness (Henrich, 2006; Henrich, et al., 2006). This solves one problem, but creates another. After all, who does the punishing? As with first-order cooperation, punishing freeriders is costly. All members of a group benefit from the presence of individuals willing to punish freeriders, but individual punishers will be outcompeted by those who freeride on their punishment duties. This argument can be repeated ad infinitum.

Some types of supernatural agent beliefs might be able to cut through this infinite regress. Across cultures, gods are seen as intentional social agents with whom people can interact (e.g., Waytz et al, 2010; Norenzayan & Gervais, in press). However, there is considerable variability in the described abilities of different gods. Among the world’s most culturally successful religions, the gods are described as possessing the ability to monitor human behavior, and have moral interest in rewarding normative behaviors and punishing transgressions (e.g., Norenzayan & Shariff, 2008). Thus, if people actually treat their gods as strategic agents who might punish freeriding, then beliefs in moralizing gods could promote large scale cooperation without requiring individually costly punishment (e.g., Johnson & Bering, 2006; Johnson & Kruger, 2004; Norenzayan & Shariff, 2008; Shariff & Norenzayan, 2011). Although there are important
debates regarding the precise mechanisms involved (for a recent review and critical discussion, see Schloss & Murray, 2011; see also Norenzayan & Shariff, 2008; Norenzayan, Shariff, & Gervais, 2010), there is largely agreement that beliefs in moralizing gods could have played an important role in the emergence of large-scale human cooperation.

To see how beliefs in these potent “supernatural watchers” could have played a central role in promoting nice behavior in anonymous contexts, it is important to appreciate how powerful social monitoring incentives are. Economic game studies have shown that people are more prosocial when the situation is not anonymous, and when repeated future interactions are expected—that is, when people expect to be monitored (Fehr & Gaechter 2002). Moreover, even subtle cues of being watched, such as incidental exposure to schematic drawings of human eyes, increase prosocial behavior in anonymous economic games (Haley & Fessler 2005) and decrease cheating in naturalistic settings (Bateson, Nettle, & Roberts 2006). Crucially, people need not actually be watched. Merely feeling like one is being watched is sufficient to inhibit selfish behavior. Conversely, prosocial behavior is reduced by cues signaling anonymity (Hoffman, McCabe, Shachat, & Smith, 1994)—even subtle cues, such as ambient darkness or wearing dark glasses (Zhong, Bohns, & Gino, 2010).

If perceptions of human watchers encourage nice behavior, it is no surprise that deeply-held beliefs regarding omniscient, morally concerned supernatural watchers do as well. Critically, these gods have the powerful advantage that cooperative interactions are believed to be under monitoring even when no humans are watching and the situation is objectively anonymous. Moreover, actual punishment is not necessary to elicit good behavior; the mere implied presence of supernatural monitors and the threat of punishment (rather than actual
punishment) is sufficient to deter individuals from following their selfish urges and help address the problem of anonymity that plagues large groups.

There is both cross-cultural evidence and laboratory research to support these ideas. First, across 186 separate cultures, larger cooperative groups (e.g., state level societies in contrast to small-scale foraging groups) are more likely to endorse belief in morally-concerned gods who can police behavior (Roes & Raymond, 2002), lending support to the idea that belief in these gods culturally spread because it helped to solve the problem of large-scale cooperation. Second, a variety of experimental and cross-cultural evidence indicates that belief in monitoring gods encourages greater cooperation with strangers. For example, Henrich and colleagues (2010) found that believers in the omniscient, moralizing gods of world religions (e.g., Islam, Christianity) are more generous in anonymous economic games. In the lab, subtle experimental 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). Although there are potential alternative explanations for these findings (for a critical review, see Norenzayan & Shariff, 2008), there is growing evidence consistent with the idea that belief in gods who are omniscient, powerful, and morally involved encourage prosocial behavior in anonymous contexts. Furthermore, recent evidence confirms that beliefs in watchful, punishing supernatural agents affect people in largely similar ways as does being observed by other humans. Specifically, when people feel watched or judged, they experience public self-awareness (e.g., Duval & Wicklund, 1972) and are more prone to socially desirable responding (e.g., Sproull, Subramani, Kiesler, Walker, & Waters, 1996), and Gervais and Norenzayan (2012b) found that subtle reminders of God cause these exact same effects in believers.
To summarize, beliefs about monitoring, policing gods cause the same suite of cooperative effects caused by being watched by other humans. Because cooperativeness stabilizes only when cooperators seek likeminded cooperators (e.g., Henrich & Henrich, 2007), people are quite discriminating about their social partners. In other words, cooperators are quite selective about who they trust. Taking this a step further, sincere expression of belief in gods could be taken as a signal of another’s cooperative intentions. The connection between belief in gods and intragroup cooperation may therefore suggest the potential threat that atheists are perceived to pose.

1.4 Freethinkers Seen as Freeriders

To succeed in the social world, individuals must figure out who can be trusted and who should be treated with suspicion. Indeed, trustworthiness is the single most valued trait in others (Cottrell, Neuberg, & Li, 2007). However, trustworthiness cannot generally be observed directly; instead it must be indirectly inferred from other cues (Simpson, 2007). According to the logic of religious prosociality just presented, belief in watchful gods might serve as one such cue for believers. To the extent that an actor feels watched, an observer may infer that the actor will be on his or her best behavior and can therefore be trusted. That is, believers may view others’ belief in God as a potent signal that others may be trusted to comply with prosocial norms.

Recent behavioral economic evidence supports this possibility. In the behavioral-economic Trust Game (Berg, Joyce, Dickhaut, & McCabe, 1995) one participant (the Giver) is given a sum of money and offered the option to transfer any of this money to another participant (the Receiver). Any money that the Giver transfers is multiplied by the researcher, and the Receiver then decides how much money to keep for herself, and how much to give back to the Giver (sans multiplication). So, for example, a Giver might receive $10 and transfer all $10 to
the Receiver. The initial $10 would be tripled, leaving the Receiver to choose how to allocate $30 between herself and the Giver. If the Giver trusts the Receiver to split the money fairly, then he should transfer the full amount, allowing both members to benefit. However, this leaves the Giver susceptible to getting ripped off by a selfish Receiver who keeps the full $30. Thus, the amount transferred by the Giver is a direct financial estimate of the amount of trust he has in the Receiver. Tan and Vogel (2008) used a version of this trust game to evaluate the relationship between religiosity and perceived trustworthiness. They found that strongly religious Givers transferred significantly more money to strongly religious Receivers, indicating that, consistent with the present theoretical framework, religious people tend to use the religious beliefs of others as a heuristic cue of trustworthiness.

Indeed, the logic of religious prosociality might make it possible to use the beliefs of even members of other religions as cues of trustworthiness. A Jewish person, for example, might not share a Hindu’s faith in the existence of Vishnu or Shiva, but can nonetheless infer that the Hindu’s beliefs about supernatural monitoring might constrain his or her selfish behaviour. Consistent with this line of thought, there is at least anecdotal evidence 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 apparently use commitment to even rival gods as signals of trustworthiness.

Where does this analysis leave atheists? 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 an evolutionary approach to prejudice and stereotyping, 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. In other words, atheists are distrusted because they do not believe that a watchful God is monitoring their behavior. However, gods are not the ones watching…

1.5 Watchful Gods and Governments

The connection between religious prosociality and distrust of atheists raises 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).

Religious prosociality is far from the only source of prosociality in the world, and secular authorities have joined (and perhaps supplanted) watchful gods as guarantors of cooperation in many places, with interesting psychological consequences. In the lab, priming secular concepts (e.g., civic, jury) is as effective as reminders of a watchful God for promoting prosocial behavior (Shariff & Norenzayan, 2007). The interchangeable psychological functions of gods and governments are illustrated by recent work showing that both can give people a sense of psychological control in the world (e.g., Kay, et al., 2008; Kay, Moscovich, & Laurin, 2010; Kay, Shepherd, Blatz, Chua, & Galinsky, 2010). Similarly, secular and sacred authority may also serve interchangeable functions in encouraging prosocial behavior, albeit with different implications for distrust of atheists.

The fluid dynamic between God and government raises an intriguing and non-obvious possibility for reducing anti-atheist prejudice: the view that atheists are untrustworthy because they do not believe that their behavior is monitored by a divine power may erode to the extent that people are aware of effective monitoring by other “higher” (though not supernatural) powers. If true, then reminders of secular authorities that enforce prosocial behaviour should
reduce distrust of atheists. Furthermore, this effect should be specific to atheist distrust, and not a feature of other prejudices more generally.

1.6 Present Studies 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. Furthermore, this distrust of atheists should be moderated by the degree to which people are aware of secular authorities that—like religious beliefs—can serve as potent sources of social surveillance and cooperative conduct. Therefore,

1. Attitudes towards 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., gays).

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 (e.g., disgust, rudeness).

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

4. Prejudice against atheists should be reduced in situations in which other, secular, sources of social surveillance are prominent. Thus the presence of (or reminders of) effective secular authority should reduce distrust of atheists, but not other forms of prejudice.
The unifying logic of all of these hypotheses is that to effectively navigate a complex social landscape, people need to figure out when others can be trusted. One powerful mechanism for evaluating trustworthiness stems from peoples’ hypersensitivity to cues that others are watching—an observer may trust another agent in situations in which the observer can infer that the agent feels watched. However, it matters little whether the agent feels watched by supernatural or secular sources of monitoring, leading to acute distrust of atheists that might be ameliorated if people are made aware of effective secular authority.

Throughout the remainder of this dissertation, I present nine empirical investigations of anti-atheist prejudice, focusing on these core hypotheses. Chapters 2-3 present studies exploring the degree to which distrust is central to anti-atheist prejudice. Chapters 4-5 explore the relationship between secular authority and distrust of atheists. Throughout all studies, I also test a number of alternative explanations, and Chapter 6 includes a detailed discussion of the degree to which more general theoretical approaches might explain the phenomenon of anti-atheist prejudice.
2 Characterizing Prejudice Against Atheists and Gays

2.1 Overview

Chapter 2 sought 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. In addition, this study compares anti-atheist prejudice with antigay prejudice in order to test whether the two derive from distinct types of negative appraisals.

A comparison of anti-atheist prejudice and prejudice based on sexual orientation allows a contrast between the present theoretical model and 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 gays may engender distrust of both groups, particularly among individuals from those religious backgrounds threatened by atheism or homosexuality. Consistent with this view, atheists and gays routinely score at the bottom on large-scale cultural acceptance polls in America, and have for decades (Edgell, et al., 2006). Like atheists, hays 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 gays, my theoretical model predicts different psychological underpinnings for anti-atheist and antigay prejudice, consistent with the different threats that both groups are perceived to pose. I argue that distrust characterizes anti-atheist prejudice, whereas attitudes towards gay men in particular are
more characterized by disgust (e.g., Cottrell & Neuberg, 2007; Inbar, Pizarro, Knobe, & Bloom, 2009). In sum, Chapter 2 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 Chapter 2 was thus a 2 (Target: Atheists vs. Gay Men) by 2 (Trait: Distrust vs. Disgust) within-subject manipulation. I hypothesized that distrust would be central to anti-atheist prejudice, but that disgust would be central to antigay prejudice. As an additional test, I then examined whether distrust might be a particularly powerful mediator of the relationship between religious belief and negative attitudes towards atheists.

Finally, I performed one additional key analysis to examine how religiously unaffiliated individuals view atheists. Unlike a general framework based on perceived threats to ingroup morality, my 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, this model clearly predicts that even religiously unaffiliated individuals (that is, people who do not have a religiously-motivated ingroup to moralize) should distrust atheists, and also 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.

2.2 Method

I drew a broad and diverse national sample of 351 American participants (Age: 18-82, M = 43.9; 59% female) from a paid subject pool administered by a US-based survey company (www.zoomerang.com). This study included a religiously heterogeneous sample: Christian
(67%), Jewish (1%), Atheist (3%)\(^3\), 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 0-100 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 gays 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 0-100. I then reversed this score (i.e., subtracted the provided value from 100) to obtain a measure of distrust. Then, I created measures 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

\(^3\) In much intergroup conflict research, attitudes towards a given outgroup are typically measured only among people who are not members of that outgroup. I chose, instead, to adopt a broader approach and include all available participants (including atheists) in all analyses for Chapters 2-6. This allowed me to draw upon religiously heterogenous samples, and to more meaningfully explore questions of how belief in God moderates distrust of atheists. I note that, if anything, this may have led to conservative estimates of anti-atheist prejudice.
information, including two face-valid measures of belief in God; participants rated (from 1-10) the importance of God in their life, and also indicated whether or not they believe in God given a simple binary (Yes/No) choice. The former item mirrors an item commonly used in large-scale international polling.

### 2.3 Results and Discussion

First, I 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 ANOVA revealed the three groups were rated differently, $F(2, 700) = 92.6, p < .001$, $\eta^2_G = .09^4$, see Figure 2.1. 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.

I 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, I conducted a 2 (Target: Atheist vs. Gay) by 2 (Trait: Distrust vs. Disgust) repeated measures ANOVA. As predicted, this analysis revealed a significant Target by Trait interaction, $F(1, 350) = 44.81, p < .001, \eta^2_G = .01$, see Figure 2.2, but no significant main effects (both $ps \geq .55$). I 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

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4 Following the recommendation of Bakeman (2005), I report generalized eta squared ($\eta^2_G$; Olejnik & Algina, 2003) for all ANOVA effect size estimates because it facilitates comparisons between repeated-measures and between-subjects effects.
were rated lower than gay men on Disgust, $F(1, 350) = 8.14, p = .005, \eta^2 = .005$. 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 towards both atheists and gay men, but 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 also provides a contrast test of whether the indirect effects of two mediators significantly differ in magnitude.

I 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. I 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; 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$^5$: Distrust = -1.93 to -.88, Disgust = -.88 to -.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 =

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$^5$ All 95% confidence intervals of the indirect effect reported in this dissertation are percentile confidence intervals obtained by bootstrapping (5000 resamples).
.20 to 1.61. The second model (focusing on anti-gay prejudice) revealed that data were consistent with the 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: Distrust = -1.10 to -.17, Disgust = -1.15 to -.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 = -.63 to .42. 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 also 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, I examined atheist distrust among the religiously unaffiliated. To do so, I isolated a subset of 58 participants who listed their religious affiliation as “None.” Although there were appreciable individual differences in the degree to which these individuals 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 $d = .58$. 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$^6$.

In sum, these data provide converging support for my 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 importantly, 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 towards 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 gay on large-scale polls of cultural inclusion.

$^6$ In an additional analysis, I examined whether atheists distrust other atheists by isolating 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, $t(48) = -.08, p = .94$, indicating that whereas religious people strongly distrust atheists, atheists neither trust nor distrust atheists, relative to people in general.
Figure 2.1  Atheists are viewed less warmly than either gay men or people in general.

Error bars reflect 95% within-subject confidence intervals (Cousineau, 2005).

Figure 2.2  Atheists are more distrusted, though viewed with less disgust, than gay men.

Error bars reflect 95% within-subject confidence intervals (Cousineau, 2005).
3 Indirectly Measuring Distrust of Different Groups

3.1 General Overview

Chapter 2 revealed that, in a broad sample of Americans, distrust was central to anti-atheist prejudice. Three studies presented in Chapter 3 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 Appendix A. 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.

Chapter 3 compares atheists to 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 articulated in the Introduction 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 to distrust of other religious groups in psychological studies. Chapter 3 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). The inclusion
of a Muslim target also addresses one alternative explanation stemming from perceived social norms regarding the expression of negative attitudes against various outgroups. Crandall and colleagues (2002) found almost perfect correlations between explicit measures of prejudice and the perceived social acceptability of harboring negative attitudes against various groups. In a pilot test, participants ($N = 65$) rated both atheists ($M = 1.47$ out of 3, $SD = .69$) and Muslims ($M = 1.48$, $SD = .67$) as similarly socially acceptable targets for negative attitudes. To the extent that the perceived permissibility of prejudice drives effects in the present study, atheists and Muslims should be equally distrusted.

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), Chapter 3 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. Chapter 2 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.

As a result, in Chapter 3, I 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 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 intuitively 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). By independently varying the content of the description and the target’s potential group membership, it is possible to indirectly measure the degree to which participants feel that a given description is representative of a given target. Across the studies presented in Chapter 3, I capitalized on this 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. Throughout, I considered whether the effects were specific to atheists, or whether effects generalized across different outgroups. In addition, I considered whether the effects were attributable to distrust specifically, or to more general negative reactions. Finally, Study 3.5 presents a direct test of the role of supernatural monitoring concerns in distrust of atheists. Chapter three thus includes four different studies testing different alternative explanations.

3.2 Distrust Representativeness

3.2.1 Overview. In Study 3.2, I 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, I manipulated the target groups to which this person might belong by asking participants whether they thought it more probable that the man was a teacher, or a teacher and 1) a Christian, 2) a Muslim, 3) a rapist, and 4) an atheist. In this way, I 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, my 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 a test of whether distrust derived from religious prosociality was as severe as distrust based on direct knowledge of somebody’s malicious history. I 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).

3.2.2 Method. One hundred five UBC undergraduates (Age 18-25, \( M = 19.95; 71\% \) 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 1) a teacher, or 2) a teacher and XXXX. I 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.”

3.2.3 Results. I 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 3.1. To clarify this effect, I 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% C.I.: 3.82, 427.10), \( b = 3.10, p = .004 \) and odds ratio = 5.11 (95% C.I.: 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% C.I.: .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 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. Furthermore, both the indirect nature of the dependent variable, and also the fact that atheists and Muslims yielded dissimilar results despite being rated as comparably permissible targets for negative attitudes, suggest that the present results are not merely the result of participants viewing atheists as a socially acceptable target of prejudice.
Figure 3.1  Proportion of participants who committed the conjunction fallacy when given a description of a criminally untrustworthy individual who could be 1) a Christian, 2) a Muslim, 3) a rapist, or 4) an atheist. Error bars reflect 95% confidence intervals.
3.3 Distrust Representativeness vs. Unpleasant Representativeness

3.3.1 Overview. Study 3.2 demonstrated that people view untrustworthiness as representative of atheists and rapists, but not of Christians or Muslims. Study 3.3 continues this line of inquiry, and also incorporated the major theme of Chapter 2 by comparing peoples’ attitudes towards atheists and gays. In addition, Study 3.3 incorporates two important changes to the conjunction fallacy paradigm.

    First, in Study 3.2, Richard was described as untrustworthy, but he nonetheless also came off as unpleasant. Trust and pleasantness were confounded, and my theoretical framework predicts that distrust, rather than mere perceived unpleasantness, underlies anti-atheist prejudice. Thus in Study 3.3, I included two different descriptions that were matched for unpleasantness, but differed in untrustworthiness. Second, Study 3.2 did not test one key hypothesis. As in Chapter 2, distrust of atheists should be exaggerated among participants who strongly believe in God, but I did not collect religiosity data in Study 3.2. Thus in Study 3.3, I collected information about how strongly people believe in God to evaluate whether this predicts the likelihood of committing the conjunction error.

    I 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, I hypothesized individuals who strongly believe in God would be more likely to view untrustworthiness as representative of atheists.

3.3.2 Method One hundred seventeen UBC undergraduates (Age 18-44, $M=19.56$; 76% Female) participated for extra credit. Study 3.3 used a 2 (Description: Distrust vs.
Unpleasant) by 2 (Target: Atheist vs. Homosexual) factorial design. In the Distrust Description conditions, participants read the same description of Richard as that used in Study 3.2. 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.”

While 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 I 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 \( t(34) = .29, p = .77 \). 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 1) a teacher, or 2) a teacher and XXXX. I 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 gay target (\( N = 30 \)), an Unpleasant Description atheist target (\( N = 30 \)), or an Unpleasant Description gay 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

First, I 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 by Target interaction, \( b = 4.06, p = .01 \), see Figure 3.2. To decompose this interaction, I 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 gay 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 gay 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 gay 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 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.
Figure 3.2  Proportion of participants who committed the conjunction fallacy when given either an untrustworthy or unpleasant description, and either a potential atheist or gay target. Error bars reflect 95% confidence intervals.
3.4 Distrust Representativeness vs. Rude Representativeness

3.4.1 Overview. Study 3.3 contrasted two descriptions of people rated as unpleasant. One description was of an untrustworthy individual and the other description was of a person with an unpleasant medical condition. Although both descriptions were rated as unpleasant, it is possible that the different contents of the descriptions did not yield comparably potent inferences regarding the protagonist of the description. Gidron, Koehler, and Tversky (1993) found that different traits differ in scope: the degree to which people can infer their stable, long-term presence based on limited exposure to behavioral examples. For example, people need to see a large number of behavioral manifestations of honesty (a high scope trait) before they infer that a person is generally honest, but they need witness relatively few behavioral manifestations of cruelty (a low scope trait) before inferring that a person is cruel. Low scope traits might be particularly likely to yield conjunction errors in conjunction fallacy paradigm employed in the present studies. If trait scope explains the effects of Study 3.3, then comparable results should emerge for both a description of an untrustworthy individual and for a negatively-valenced description of an individual exemplifying a trait that is similar in scope to untrustworthiness. Gidron and colleagues (1993) evaluated 60 different traits on both scope and desirability, finding “dishonesty” to be among the lowest in both. However, “rude” was seen as comparably low in both scope and desirability. To evaluate trait scope as a potential alternative explanation, Study 3.4 again utilized the conjunction fallacy paradigm, but contrasted a description of an untrustworthy person with a description of a rude person. An explanation focused on perceived trait scope and desirability would predict that a description of a rude individual and a description of an untrustworthy individual would yield comparable rates of conjunction errors with a potential atheist target. On the other hand, the present theoretical framework highlights distrust
as central to anti-atheist prejudice. I hypothesized that participants would be more likely to commit the conjunction error when given a description of an untrustworthy (but not rude) individual, and when given a potential atheist target. Furthermore, I hypothesized individuals who strongly believe in God would be more likely to view untrustworthiness as representative of atheists.

3.4.2 Method. Ninety four American adults (Age 18-62, $M=31.11$; 52% Female) were recruited from Amazon’s Mechanical Turk, a commonly used online data-collection service. Participants hailed from 26 different states. Reported religious affiliations included: Christian (39%), Jewish (1%), Atheist (30%), Agnostic (19%), “None” (4%), and “Other” (5%).

Study 3.4 used a two group design. In the Distrust Description condition, participants read the same untrustworthy description used in previous studies, except Richard was called Sarah in order to assess whether the effects generalized across target gender. In the Rude Description condition, participants read the following description:

“Sarah is 31 years old. One day, she was talking to a busdriver while getting on a bus to ride to work. She paid the correct amount to the driver, but her tone of voice was quite rude. Later the same day, she was again short-tempered, only this time with a coworker. In general, her coworkers find Sarah to be a trustworthy, hard-working person who at times can be quite rude.”

It is worth noting that this description provides, if anything, more evidence of Sarah’s rudeness than the Distrust Description provides evidence of her untrustworthiness. In addition, evidence of both rudeness and untrustworthiness yield ready inferences about underlying traits (Gidron, et al., 1993). In a pilot test, participants drawn from the same population rated the
degree to which the protagonist from either the Distrust Description \((N = 19)\) or the Rude
Description \((N = 22)\) was both pleasant and trustworthy. A mixed factorial ANOVA revealed a
significant Target (Distrust vs. Rude, between subjects) by Trait (Pleasant vs. Trustworthy,
within subjects) interaction, \(F (1, 39) = 39.17, p < .001\). Participants rated the Distrust character
as less trustworthy than the Rude character, but not significantly less pleasant, \(t (33.89) = 8.11, p
< .001\), and \(t (39) = .98, p = .33\). In other words, any differences in conjunction errors produced
by each description cannot be explained by overall differences in the negative valence of each
description.

Next, participants chose whether they thought it more probable that Linda was either 1) a
teacher, or 2) a teacher and an atheist (someone who does not believe in God). The participants
were therefore randomly assigned to either a Distrust Description atheist target \((N= 48)\) or a
Rude Description atheist target \((N= 46)\). Finally, participants completed a face-valid single item
measure of belief in God in which they rated their own belief in God from 0-100.

3.4.3 Results. First, I used a binary logistic regression model to test whether the two
descriptions yielded similar numbers of conjunction errors. Participants were 3.73 times as likely
to commit the conjunction fallacy when given a description of an untrustworthy individual than
when given a description of a rude individual, 95% CI of the odds ratio: 1.30, 12.44, \(b = 1.32, p
= .02\), see Figure 3.3. As hypothesized, participants found a description of an untrustworthy
individual, but not of a rude individual, to be representative of atheists.

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 one standard deviation in belief in God increased the likelihood of committing the conjunction fallacy by a factor of 2.70, 95% CI of the odds ratio: 1.35, 6.19; $b = .99$, $p = .009$. A similar analysis revealed that belief in God did not significantly predict the likelihood of errors in the rude description condition, 95% CI of the odds ratio: .83, 6.00, $b = .73$, $p = .12$. 
Figure 3.3  Proportion of participants who committed the conjunction fallacy when given either an untrustworthy or rude description and a potential atheist target. Error bars reflect 95% confidence intervals.
3.5 Considering the Stereotype Content Model as an Alternative Explanation

3.5.1 Overview. 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, my 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 3.5 tests these divergent predictions to assess which theoretical model best explains anti-atheist prejudice.

Study 3.5 also presents a direct test of another key hypothesis. My 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 real, let alone 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 I included a measure of the degree to which participants think that people behave better if they feel watched by God. My 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.

3.5.2 Method. One hundred twenty six UBC undergraduates (Age 18-45, $M= 20.74$; 81% Female) participated for extra credit.

A primary goal of Study 3.5 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, I performed a pilot study in which participants drawn from the same population ($N= 31$) rated atheists, poor people, housewives, elderly people, feminists, Jewish people, gays, 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 and colleagues (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, gays ($M_w= 3.33, M_c = 3.20$). I decided to use atheists, feminists, and Jewish people as targets in Chapter 6 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 $F(2, 60) = .60, p = .55$, respectively. Study 3.5 thus compared distrust of three groups that were statistically indistinguishable in terms of warmth and competence.
Study 3.5 used the same description of an untrustworthy individual used in previous chapters, except that (as in Study 3.4) the target was female (“Sarah”), as this made for a more believable feminist option. After reading the description, participants chose whether they thought it more probable that Sarah was either 1) a teacher, or 2) a teacher and XXXX. I 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 0-100. Finally, participants completed a face-valid item that measured endorsement of supernatural monitoring concerns: participants rated (from 1-7) their agreement with the statement “People behave better when they feel that God is monitoring their behavior.”

3.5.3 Results. I 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 3.4. To clarify this effect, I 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% C.I.: 2.04, 16.79), \(b = 1.70, p = .001\) and odds ratio = 2.57 (95% C.I.: 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% C.I.: .71, 6.97), \(b = .76, p = .19\). As in other studies, I 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 these samples, atheist targets were still the least trusted.

Next, I tested whether belief in God predicted atheist distrust. I 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, I 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% confidence interval of the indirect effect: .07, 1.84, see Figure 3.5. As in
Chapter 2, however, I acknowledge that mediational analyses using only measured variables
cannot establish causal relationships (e.g., Shrout & Bolger, 2002).
Figure 3.4  Proportion of participants who committed the conjunction fallacy when given a description of a criminally untrustworthy individual who could be 1) Jewish, 2) a feminist, or 3) an atheist. Error bars reflect 95% confidence intervals.

Figure 3.5  Supernatural monitoring concerns mediated the relationship between belief in God and distrust of atheists.
3.6 Summary

Chapter 3 presented four different studies testing whether distrust of atheists is evident using an indirect measure of distrust. This measure relies on insights from classic work on the representativeness heuristic (e.g., Tversky & Kahnemann, 1983), and tested the degree to which a description of an untrustworthy individual is seen as representative of atheists, relative to other groups. This description—of an individual who commits insurance fraud and theft—was intuitively judged as more representative of atheists than of Christians, Muslims, Jewish people, gays, or feminists. The only group that did not significantly differ from atheists on this task was rapists. Furthermore, this effect was driven specifically by distrust, rather than by general unpleasantness (Study 3.3) or trait scope and desirability (Study 3.4). Across studies, distrust of atheists was consistently predicted by individual differences in belief in God. Furthermore, as directly predicted by my theoretical framework, data were consistent with the hypothesis that supernatural monitoring concerns mediated the relationship between belief in God and atheist distrust.

Chapters 2 and 3 explored the psychological bases of anti-atheist prejudice, and consistently supported three of the four central hypotheses laid out in Chapter 1. First, distrust was more evident in participants’ attitudes towards atheists than in their attitudes towards a wide variety of other outgroups not seen as posing specifically trust-related threats. Second, anti-atheist prejudice was most evident in measures of distrust, rather than in other measures of general dislike or other specific appraisals. Third, belief in God was a consistent predictor of distrust of atheists. As directly predicted by my theoretical framework, data were consistent with the hypothesis that supernatural monitoring concerns mediated the relationship between belief in God and atheist distrust. These chapters suggest that distrust is central to anti-atheist prejudice.
4 From Gods to Governments

4.1 General Overview

Chapter 4 turns from exploring the psychological bases of anti-atheist prejudice to instead consider factors that might reduce distrust of atheists. Specifically, the remaining chapters use insights regarding the role of religious prosociality in distrust of atheists to test hypotheses about whether secular (rather than supernatural) sources of cooperation might mitigate distrust of atheists. Chapter 4 tested whether secular authority might reduce distrust of atheists. In three experiments, I tested whether people’s distrust of atheists was reduced when they were reminded of secular authority, either by watching a video about police effectiveness (Study 4.2) or by being implicitly primed with concepts of secular authority (Studies 4.3 and 4.4). In addition, I explored whether any reduction in distrust was specific to distrust of atheists and not generalized to other forms of prejudice. To this end, I tested three theoretically driven alternative explanations. I tested whether reminders of secular authority, in addition to reducing distrust of atheists, also made participants feel generally more warmly toward out-groups (Study 4.2), reduced other specific appraisals triggered by the specific functional threats that different out-groups are perceived to pose (Study 4.3), or reduced general distrust of out-groups (Study 4.4). Participant demographics from are available in Table 1.1. In previous chapters, I did not exclude atheists from participating, both in order to obtain a more representative sample of my populations, and also to more meaningfully test whether belief in God moderates distrust of atheists. In Chapter 4, to rule out in-group bias as an obvious alternative explanation, I excluded atheists from the samples in all studies but assessed whether any effects were moderated by participants’ religious affiliation.
Table 4.1  Participant Demographics

<table>
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<th>Study 4.2</th>
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<tr>
<td>% Mixed/Other</td>
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</table>
4.2 Distrust of Atheists vs. General Prejudice

4.2.1 Overview. Study 4.2 tested whether watching a video that primed effective secular authority reduced distrust of atheists. In addition, much current prejudice reduction research (e.g., Turner, Hewstone, & Voci, 2007) demonstrates that various interventions reduce prejudice in general, as measured by feelings of warmth towards various outgroups. Therefore, Study 4.2 also included one such measure of general prejudice to test the alternative hypothesis that secular authority reduces general prejudice against outgroups, rather than specific distrust of atheists.

4.2.2 Method. Sixty-five undergraduates (demographics in Table 4.1) participated for extra credit. To eliminate possible ingroup biases, I excluded self-identified atheists. Two participants (one in each condition) were excluded from further analyses for failure to follow instructions while watching the videos. Participants viewed one of two videos that served as a priming task. Then, in an ostensibly separate task, participants completed measures of both distrust of atheists and general prejudice. No participants indicated suspicion regarding the connection between these tasks on a standard “funnel debriefing” following the dependent variables.

As a priming task, participants viewed one of two videos. Participants watched a movie that detailed either a traveler’s impression of visiting Vancouver for the first time (Control: http://www2.psych.ubc.ca/~will/MovieC.html; N= 32), or the Vancouver police chief’s year-end report, which detailed the many successes of the Vancouver Police Department in 2010 (Police: http://www2.psych.ubc.ca/~will/MovieG.html; N= 31). It should be noted that I conducted this study in the spring of 2011, a couple of months before the Vancouver Stanley Cup-Losing Riots
occurred. Thus the general perception of Vancouver police was of a force capable of maintaining order among the usually peaceable populace of Vancouver, rather than of a force incapable of restoring order among drunkenly disappointed hockey fans and other assorted miscreants.7

To measure distrust of atheists, I used what is to my knowledge the only previously validated distrust-of-atheists scale available in the literature (Gervais, 2011). This scale consists of seven items (α = .81) that closely tap distrust of atheists (e.g., “In times of crisis, I am more inclined to trust people who are religious”; “I would be uncomfortable with an atheist teaching my child”). Participants responded to each item using a scale from 0 (strongly disagree) to 6 (strongly agree). Scores for all items were averaged for each participant.

To measure general prejudice, I used a composite measure relying on three separate “feeling thermometers.” Participants rated how warmly they felt (from 0-100) towards three targets: homosexuals, Muslims, and Jewish people. Responses across targets were averaged (α = .85). For ease of comparison, I linearly re-scaled this average score (multiplied by .06) and reverse scored the resulting variable. Thus, both the atheist distrust measure and the general prejudice measure had minimum prejudice values of 0, maximum prejudice values of 6, and midpoint values of 3. This linear transformation strategy yields statistical inferences identical to

7 As a manipulation check, participants rated their agreement with two statements (r = .48, p < .001): “The Vancouver government can effectively enforce and police its laws,” “Vancouver’s government cannot protect its citizens from each other” (reversed). As expected, the police effectiveness video significantly increased participants’ confidence in the government, t(61) = 2.05, p < .05.
those yielded by standardizing variables, but it leaves the two variables scaled in a similar metric, facilitating graphical comparison.

4.2.3 Results. Individual differences in religious identity (comparing agnostics and “nones” with all other religious individuals) did not moderate any reported effects, so I collapsed across religious identity for all analyses. A 2 (Condition: Control vs. Police, between subjects) by 2 (Target: Atheist vs. General, within subject) mixed factorial ANOVA revealed a significant Condition by Target interaction, $F(1, 61) = 5.01$, $p = .03$, $\eta^2 G = .08$, which I decomposed using planned $t$-tests. Relative to viewing the control video, viewing the police effectiveness video significantly reduced distrust of atheists, but did not significantly affect general prejudice, $t(61) = 2.85$, $p = .006$, Cohen’s $d = .73$ and $t(61) = .02$, $p = .99$, Cohen’s $d = .005$, respectively. See Figure 4.1. As hypothesized, thinking about an effective local secular authority reduced distrust of atheists, but did not affect prejudice in general.
Figure 4.1  Distrust of atheists and general prejudice as a function of priming condition.

Scores on the distrust-of-atheists and general-prejudice scales ranged from 0 to 6. Error bars indicate 95% confidence intervals.
4.3 Distrust of Atheists vs. Disgust-Based Antigay Prejudice

4.3.1 Overview. Study 4.2 demonstrated a causal relationship between awareness of effective secular authority and reduced distrust of atheists (but not increased feelings of warmth toward out-groups in general). In Study 4.3, I sought to replicate these findings and to extend them in two primary ways.

First, although participants did not report awareness of any connection between the videos and the dependent measures in Study 4.2, it might nonetheless be argued that the results were influenced by experimental demand. Therefore, in Study 4.3, I utilized a classic, and more subtle, method for implicitly priming concepts (Srull & Wyer, 1979). Though supraliminal, this priming technique typically influences subsequent judgments without participants’ awareness of such an influence (e.g., Bargh, Chen, & Burrows, 1996).

Second, Study 4.2 demonstrated that reminders of secular authority did not make people feel generally more warmly toward out-groups. However, different prejudices are characterized by different reactions to the distinct functional threats that different groups are perceived to pose. For example, White heterosexual participants tend to view Black men with fear, but gay men with disgust (e.g., Cottrell & Neuberg, 2005; Kurzban & Leary, 2001). Thus, although secular authority did not reduce general prejudice in Chapter 8, it may nonetheless inhibit the specific functionally relevant reactions that characterize individual prejudices. Therefore, in Study 4.3, I compared distrust of atheists with disgust-based antigay prejudice. Antigay prejudice serves as an ideal contrast to distrust of atheists: Both forms of prejudice involve out-groups whose members have concealable identities and are viewed as threats in some religious traditions, but the two forms of prejudice nonetheless have different psychological characteristics (e.g., disgust vs. distrust; see Gervais, Shariff & Norenzayan, 2011, as well as previous chapters).
My theoretical model predicts that awareness of secular authority should reduce distrust of atheists, but not disgust-based antigay prejudice. Moreover, in Study 4.2, I compared scores on a validated multiple-item measure of distrust of atheists with a (potentially less sensitive) composite score for responses on single-item feeling thermometers. To address this potential problem in Study 4.3, I used a validated multiple-item measure of disgust-based antigay prejudice. In sum, in Study 4.3, I tested the hypothesis that implicitly priming secular-authority concepts would reduce distrust of atheists, but not disgust-based reactions toward gays.

4.3.2 Method. Fifty-one undergraduates (for demographic information, see Table 4.1) participated in return for extra course credit. To eliminate possible in-group biases, I again excluded self-identified atheists.

Participants first completed an implicit-priming procedure described to them as a “verbal-fluency task.” In an ostensibly separate task, they then completed measures of distrust of atheists and antigay prejudice. The primes were presented as unrelated to the subsequent questionnaire; in a standard funnel-debriefing interview after all measures had been completed, no participants indicated suspicion or conscious awareness of either a connection between the priming task and subsequent questionnaires or an influence of the primes on their responses.

I primed secular authority with a scrambled-sentence paradigm (Srull & Wyer, 1979). Both the secular-authority primes and the control primes were identical to those used by Shariff and Norenzayan (2007), who found that the secular-authority primes increased generosity in an anonymous economic game. Participants unscrambled 10 sets of five words each by eliminating a single word from each set and rearranging the others to create a grammatical sentence. In the secular-authority condition (N= 25), 5 of the rearranged sentences contained words referring to
secular-authority concepts (“civic,” “contract,” “jury,” “court,” and “police”). In the control condition (N= 26), the words were unrelated to government and did not have a coherent theme.

To measure attitudes towards atheists and gays, I used the same distrust-of-atheists scale used in Study 4.2 (α = .75) as well as a validated six-item scale to measure disgust-based antigay prejudice (α = .91; Herek & Capitanio, 1995) Items included “I think male homosexuals are disgusting” and “Sex between two women is just plain wrong.” Participants responded to each item using a scale from 0 (strongly disagree) to 6 (strongly agree). Scores for all items were averaged for each participant.

4.3.3 Results. Individual differences in religious affiliation (agnostic or no religious affiliation vs. all other affiliations) did not moderate any of the effects reported here, so I collapsed across this religious-affiliation variable for all analyses. A 2 (condition: control vs. secular authority; between subjects) × 2 (target group: atheists vs. gays; within subjects) mixed factorial ANOVA revealed the hypothesized Condition × Target Group interaction, F(1, 49) = 4.26, p = .04, η² = .03. As hypothesized, priming secular-authority concepts reduced distrust of atheists, t(33.58) = 2.67, p = .01, Cohen's d = 0.77, but did not affect antigay prejudice, t(49) = 0.15, p = .88, Cohen's d = 0.04, see Figure 4.2. Subtly priming secular authority concepts reduced distrust of atheists, but did not affect disgust-based antigay prejudice.
Figure 4.2  Distrust of atheists and disgust-based antigay prejudice as a function of priming condition. Scores on the distrust-of-atheists and antigay-prejudice scales ranged from 0 to 6. Error bars indicate 95% confidence intervals.
4.4 Distrust of Atheists vs. Distrust of Gays

4.4.1 Overview. Thus far, Chapter 4 suggests that reminders of secular authority reduce distrust of atheists but not general prejudice against out-groups or specific functionally relevant reactions to out-groups. Although I tested viable alternative hypotheses derived from the literature on prejudice in both experiments, I did not test the alternative explanation that reminders of secular authority reduce distrust of out-groups in general. Thus, in Study 4.4, I tested whether secular authority reduces distrust of both atheists and gays. In addition, to test the generalizability of the results across different populations, I utilized a broad sample of American adults with higher overall levels of Christian identification.

4.4.2 Method. A sample of 65 American adults (for demographic information, see Table 4.1) was recruited using Amazon’s Mechanical Turk, a commonly used online data-collection service. Participants hailed from 31 states. To eliminate possible in-group biases, I again excluded self-identified atheists.

The priming procedure was administered exactly as it was in Study 4.3. Participants were randomly assigned to either the control condition (N= 32) or the secular-authority condition (N= 33) and completed the priming task before rating—in an ostensibly separate task—distrust of atheists and gays. In a standard funnel-debriefing interview after all measures had been completed, no participants indicated suspicion or conscious awareness of either a connection between the priming task and subsequent questionnaires or an influence of the primes on their responses.

To create compatible multiple-item measures of distrust of atheists and gays, respectively, I lightly altered the items from the measure of distrust of atheists used elsewhere in Chapter 4 to refer to differences in sexual orientation, rather than belief in God. I dropped two
items from the initial scale because they were difficult to alter in this manner. As a result, each
distrust scale included five items (distrust of atheists: $\alpha = .87$; distrust of gays: $\alpha = .86$). Items on
the distrust-of-atheists scale included “In times of crisis, I am more inclined to trust people who
are religious” and “I would be uncomfortable with an atheist teaching my child”; comparable
items on the distrust-of-gays scale were “In times of crisis, I am more inclined to trust people
who are heterosexual” and “I would be uncomfortable with a homosexual teaching my child.”
Responses were made using scales from 0 (strongly disagree) to 6 (strongly agree). For each
distrust scale, scores for all items were averaged.

4.4.3 Results. Individual differences in religious affiliation (agnostic or no religious
affiliation vs. all other affiliations) did not moderate any of the effects reported here, so I
collapsed across this religious-affiliation variable for all analyses. A 2 (condition: control vs.
secular authority; between subjects) \(\times\) 2 (target group: atheists vs. gays; within subjects) mixed
factorial ANOVA revealed the predicted Condition \(\times\) Target Group interaction, \(F(1, 62) = 4.09,\)
\(p = .047, \eta^2_G = .02\). As hypothesized, priming secular-authority concepts reduced distrust of
atheists, \(t(62) = 2.66, p = .01\), Cohen's \(d = 0.67\), but did not affect distrust of gays, \(t(63) = 0.66, p\)
\(= .51\), Cohen's \(d = 0.17\), see Figure 4.3. These results suggest that priming secular authority
concepts does not generally reduce distrust of outgroups. Rather, secular authority primes
specifically reduce distrust of atheists.
Figure 4.3  Distrust of atheists and distrust of gays as a function of priming condition.

Scores on the distrust-of-atheists and distrust-of-gays scales ranged from 0 to 6. Error bars reflect 95% confidence intervals.
4.5 Summary

Religion can play a prominent role in encouraging cooperation among individuals, and many people use religious belief as one cue that others can be trusted, leading to acute distrust of atheists. However, there are multiple factors that encourage cooperative behavior, and reminders of other such sources—including secular authority—might wash out religion as a signal of trustworthiness, leading to reduced distrust of atheists. Chapter 4 included three experiments that tested the final key hypothesis proposed in Chapter 1: that distrust of atheists should be reduced to the extent that people are aware of secular authorities that—like some religious beliefs—are capable of enforcing cooperation among individuals. Consistent with this hypothesis, secular authority—primed either overtly or implicitly—reduced distrust of atheists. This effect was specific to distrust of atheists, as secular authority primes did not affect other forms of prejudice, operationalized according to various other approaches to studying prejudice. Study 4.2 demonstrated that secular authority reduced distrust of atheists, but did not affect a composite measure of general prejudice against gays, Jewish people, and Muslims. Study 4.3 demonstrated that secular authority reduced distrust of atheists, but did not affect disgust-based antigay prejudice. Finally, Study 4.4 demonstrated that secular authority reduced distrust of atheists, but did not affect distrust of gays. These findings match precisely the predictions derived from the theoretical model outlined in Chapter 1. Chapter 5 complements Chapter 4, turning from laboratory tests of the effects of secular authority on distrust of atheists to test the relationship between secular authority and distrust of atheists in a large, cross-national analysis of intolerance of atheists worldwide.
5  Secular Rule of Law and Political Intolerance of Atheists

5.1  Overview

Chapter 4 demonstrated experimentally that exposure to secular authorities that promote cooperation among individuals also reduces distrust of atheists. Chapter 5 extends these findings by exploring their real-world ramifications by testing whether atheists are more tolerated by believers in countries with effectively established secular rule of law. If cultural exposure to reliable secular authority reduces distrust of atheists, then religious believers from countries with a firmly established secular rule of law should be, all else equal, more tolerant of atheists than are believers from countries comparatively lacking effective secular institutions enforcing prosocial interactions. In other words, effective secular rule of law should inversely predict believers’ intolerance of atheists worldwide. Chapter 5 focuses on a dependent measure that assessed intolerance of atheists in politics, one important domain of distrust and cultural acceptance that has been widely assessed in sociological research across societies.

In addition, Chapter 5 presents complementary analyses that attempt to address a number of alternative explanations for any relationship between secular rule of law and political intolerance of atheists. First, rule of law’s effect on intolerance of atheists may be caused by high levels of human development enjoyed by countries with strong rule of law. This is plausible because human development is a powerful predictor of a variety of social attitudes, including societal trust and lower levels of intolerance towards marginalized groups. In addition, human development has been linked with decreased levels of religiosity (e.g., Norris & Inglehart, 2004), and both human development and country-level religiosity inversely predict intolerance of atheists in previous research (Gervais, 2011). Thus I included measures of both human
development and country-level religiosity as co-variables. Second, it is also possible that current patterns in secular rule of law and intolerance of atheists are explained by deeper ecological factors that affect the development of cultures over time. For example, historical pathogen prevalence is known to be related to a variety of contemporary cultural and individual factors that may be related to intolerance of atheists (e.g., individualism/collectivism: Fincher, Thornhill, Murray, & Schaller, 2008; personality: Schaller & Murray, 2008; conformity: Murray, Trudeau, & Schaller, 2011). Thus I included a measure of historical pathogen prevalence (Murray & Schaller, 2010). Third, it is possible that the path from strong rule of law to reduced intolerance of atheists is not specific to atheists, but it is a byproduct of rule of law fostering trust towards people in general. Thus, I included a measure of general trust for other people to test whether this mediates any effects of rule of law on intolerance of atheists. Fourth, perhaps exclusion of atheists, who, in the minds of believers, are potential freeriders, contributes to the establishment of a stronger rule of law, rather than rule of law contributing to reduced intolerance of atheists. Thus, I included a measure of historical (rather than contemporary) rule of law, based on data obtained several years prior to those data used to compile an index of political intolerance of atheists.

Chapter 5 proceeds with a series of cross-national analyses exploring the relationship between country-level secular authority and country-level political intolerance of atheists. First, I tested whether historical rule of law predicts reduced contemporary political intolerance of atheists. Second, I included covariates measuring country-level human development, religiosity, general trust of others, and historical pathogen prevalence to test whether these variables substantially account for any effects of rule of law on political intolerance of atheists. Human development, Third, I tested whether the effects of rule of law on intolerance of atheists are
moderated by country-level religious belief. Fourth, I tested whether the effects of rule of law on intolerance of atheists are mediated by general trust of others.

5.2 Method

Chapter 5 utilized a variety of archival data sources to compute country-level indices of political intolerance of atheists, secular rule of law, general trust of others, religiosity, human development, and historical pathogen prevalence. A table summarizing all variables across countries is available in Appendix B.

5.2.1 Political Intolerance of Atheists. To compute a country-level measure of political intolerance of atheists, I first selected participants from Waves 4 and 5 (years 2000-2007) of the World Values Survey who indicated that they believe in God (total $N = 48446$ individuals). Using these participants, I calculated mean country-level agreement with the statement “People who do not believe in God are unfit for public office” as a measure of political intolerance of atheists, yielding political intolerance of atheists scores for a total of 35 countries. This item, and others like it, is widely used by sociologists to assess social exclusion of various outgroups, including distrust of atheists worldwide (Zuckerman, 2008). In a separate pilot study with American participants ($N = 51$), I found that endorsement of this political intolerance item correlated significantly with another measure assessing atheist distrust ($r = .39, p = .005$), providing additional validity evidence.

5.2.2 Secular Rule of Law. I computed a country-level measure of secular rule of law using the World Bank’s Rule of Law index, which assesses the degree to which secular authorities create and enforce laws that help guarantee individual coordination and cooperation across countries (http://www.info.worldbank.org/governance/wgi/pdf/rl.pdf). I used data from 1996, the
earliest year in which this index was published. It should be noted that the rule of law measure is based on data from at least four years earlier than the data used to calculate political intolerance of atheists, introducing some temporal precedence and therefore aiding inferences regarding the possible causal direction of effects between secular rule of law and political intolerance of atheists. That said, I acknowledge that a deeper historical data source would provide a greater degree of temporal precedence and strengthen such causal inferences.

5.2.3 General Distrust. To measure general distrust, I isolated the same subset of believers used to calculate political intolerance of atheists, only calculated the country-level percentage of people who disagreed when asked whether most people can be trusted. Political intolerance of atheists and general distrust were not significantly correlated across nations, $r (N=35)= .17, p=.34$.

5.2.4 Additional Covariates. I also included country-level variables measuring human development and religiosity, both of which have previously been linked to international differences in atheist distrust (Gervais, 2011). I calculated mean Human Development Index scores (a combined measure of health, wealth, and education: http://hdr.undp.org/en/statistics/) for the years 2000-2007. In addition, I calculated mean religiosity levels (% of people who believe in God) from the World Values Survey (Waves 4-5).

5.3 Results and Discussion

5.3.1 Basic Model. I first investigated the relationship between secular rule of law and political intolerance of atheists. In a single predictor regression model, rule of law accounted for 33% (adjusted $R^2$) of the country-by-country variability in political intolerance of atheists, $\beta= -$
.59, p < .001, see Figure 5.1. Political intolerance of atheists was reduced in countries with firmly established secular rule of law.

### 5.3.2 Including Additional Covariates

I investigated whether the observed relationship between secular rule of law and political intolerance of atheists is attributable to other sociodemographic and ecological factors. In a regression model, rule of law, religiosity, human development, and historical pathogen prevalence accounted for 49% (adjusted $R^2$) of the global variability in political intolerance of atheists. Once again, however, rule of law emerged as a significant predictor of reduced intolerance, $\beta = -.36$, $p = .01$, see Table 11.1.

### 5.3.3 Testing Moderation

It is possible that the effect of rule of law on political intolerance of atheists depends on overall levels of religiosity in different countries. I performed an additional analysis to test whether the effects of rule of law on intolerance of atheists were moderated by country-level religiosity. Rule of law, religiosity, and their interaction term accounted for 44% (adjusted $R^2$) of the global variability in political intolerance of atheists. Although both rule of law and religiosity significantly predicted intolerance, $\beta = -.46$, $p = .002$ and $\beta = .38$, $p = .009$, respectively, there was no significant interaction between the two, $\beta = .03$, $p = .83$.

### 5.3.4 Testing Mediation

It is possible that the effect of rule of law on political intolerance of atheists is mediated by general distrust of others. I performed an additional analysis to test this possibility. Bootstrapping analysis revealed no significant indirect effect of rule of law on intolerance through general distrust, 95% confidence interval of the indirect effect: -.11, .19. The effect of rule of law on political intolerance of atheists was not significantly mediated by general distrust of others.
5.3.5 **Summary.** Chapter 5 investigated the global relationship between secular rule of law and attitudes towards atheists. As hypothesized, historical rule of law predicted reduced political intolerance of atheists across 35 countries. This relationship held up even after controlling for a number of additional relevant covariates. In addition, the inverse relationship between secular rule of law and political intolerance of atheists was neither moderated by country-level religiosity nor mediated by general trust.

Although the findings were broadly consistent with the present theoretical framework—which predicts that prejudice against atheists should be attenuated in contexts in which secular authority plays a prominent role in guaranteeing cooperation among individuals—it is worth noting that the secular rule of law measure did not actually measure the presence of secular monitors, and perceived monitoring was a potent mediator of the relationship between belief in God and distrust of atheists (Chapter 3). Future research should explore the degree to which factors such as the visible presence of effective secular monitors influence attitudes towards atheists.

Chapter 5 relied solely on correlational analyses, and thus causation remains a somewhat murky issue. However, chapter 5 included a number of additional covariates and analyses that attempted to address alternative explanations. For example, previous research indicates that country-level religiosity and human development are associated with greater tolerance for atheists (Gervais, 2011), yet the inverse relationship between secular rule of law and political intolerance of atheists remained significant when controlling for these variables. Furthermore, a small degree of temporal precedence is present in Chapter 5 (with secular rule of law being measured several years prior to political intolerance of atheists), lending some support to a proposed causal relationship between secular rule of law and tolerance of atheists. The studies
presented in Chapter 4, however, present clear causal evidence that secular authority can reduce
distrust of atheists, and Chapter 5 presents one possible real-world domain in which this effect
might be observed. Chapters 4 and 5 combine to demonstrate that secular authority can reduce
distrust of atheists, and may foster greater political tolerance of atheists worldwide.

Table 5.1  Summary of Full Regression Model, Including All Additional Covariates

<table>
<thead>
<tr>
<th></th>
<th>$\beta$</th>
<th>$t$</th>
<th>$p$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rule of Law</td>
<td>-.39</td>
<td>2.14</td>
<td>.04</td>
</tr>
<tr>
<td>Religiosity</td>
<td>.44</td>
<td>3.32</td>
<td>.003</td>
</tr>
<tr>
<td>Human Development</td>
<td>-.20</td>
<td>1.53</td>
<td>.14</td>
</tr>
<tr>
<td>Pathogen Prevalence</td>
<td>.24</td>
<td>1.51</td>
<td>.14</td>
</tr>
<tr>
<td>General Distrust</td>
<td>-.28</td>
<td>1.80</td>
<td>.08</td>
</tr>
</tbody>
</table>
Figure 5.1 Secular Rule of Law Predicts Reduced Political Intolerance of Atheists Across 35 Countries. Select Countries Labeled.
6 Concluding Remarks

6.1 Summary of Primary Findings

To my knowledge, these studies present the first systematic investigation of the social psychological factors underlying anti-atheist prejudice. I used an evolutionary approach to prejudice and stereotyping, in conjunction with a cultural evolutionary approach to understanding the potential prosocial benefits of religious belief, to derive a number of specific hypotheses about both the psychological foundations of anti-atheist prejudice and also ways in which anti-atheist prejudice might be reduced. These two frameworks yield the hypothesis that anti-atheist prejudice primarily manifests as distrust of atheists, rather than as other forms of negative appraisals. In addition, this framework predicts that distrust of atheists might be reduced to the extent that people are made aware of secular sources of monitoring and cooperation.

Chapters 2 and 3 explored the role of distrust in anti-atheist prejudice, consistently finding it to be a central factor. Using a broad sample of American adults, Chapter 2 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 towards atheists. Chapter 3 adapted a conjunction fallacy paradigm to indirectly measure distrust of atheists and other groups of people. Consistent with my 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 or rudeness. In addition, distrust of
atheists was not merely a product of the perceived competence or (lack of) warmth of atheists. Supporting another key prediction, belief in God proved to be a consistently potent predictor of atheist distrust. Importantly, this relationship was fully mediated by the belief that people behave better if they feel that God monitors their behavior. Overall, Chapters 2 and presented consistent and converging evidence of distrust-based prejudice against atheists.

Chapters 2 and 3 demonstrated that anti-atheist prejudice primarily stems from distrust. Participants (particularly participants who strongly believe in God) tended to believe that atheists—who do not believe that a watchful God is monitoring their behavior—lack an external incentive to maintain moral conduct. Chapters 4 and 5 investigated whether awareness of secular authority might reduce distrust of atheists. Chapter 4 demonstrated that subtle reminders of effective secular authority—secular institutions that monitor and help secure cooperation among individuals—reduce religious believers’ distrust of atheists. In addition, I tested and found no support for three theoretically plausible alternative explanations for these findings. First, it is possible that reminders of secular authority make people feel generally more warmly toward out-groups, in which case reduced distrust of atheists would be merely one indication that secular authority reduces prejudice in general. To the contrary, reminders of secular authority did not reduce prejudice in general. Second, the expression of prejudice toward different out-groups differs according to the perceived functional threat that they pose (e.g., Cottrell & Neuberg, 2005; Kurzban & Leary, 2001), and reminders of secular authority might inhibit functionally relevant reactions to different out-groups (e.g., such reminders might reduce both distrust of atheists and disgust toward gays). To the contrary, reminders of secular authority did not reduce disgust-based antigay prejudice. Finally, it is possible that reminders of secular authority do not reduce prejudice reactions—whether defined broadly (e.g., warmth toward various out-groups).
or narrowly (e.g., specific disgust-based antigay prejudice)—but instead increase the degree to which all out-groups are perceived as trustworthy. To the contrary, reminders of secular authority did not reduce distrust of gay people. Thus, although the pattern of results supported my theoretical predictions, I found no empirical support for three different alternative explanations silent about either the functional bases of different prejudices or the cooperative functions served by religious beliefs and secular authority.

Across Chapter 4, effects were not moderated by individual religious affiliation, and the effects were robust across both ethnically and religiously diverse samples of Canadian students and a broad sample of American adults with a much wider age range and high levels of Christian identification. Alternative explanations (e.g., different experimental priming procedures, other forms of prejudice) were considered and received no empirical support. Complementing these experimental findings, Chapter 5 explored global patterns in political intolerance of atheists, one key ramification of distrust of atheists. Across 35 countries, effective secular rule of law predicted reduced intolerance of atheists, even after controlling for a number of relevant country-level covariates. This effect was not moderated by country-level religiosity, indicating some generalizability across different religious contexts. In addition, the effect was not reducible to secular rule of law merely promoting general trust of other people. Both watchful gods and watchful governments can keep people honest, but watchful governments can do so without engendering distrust of atheists. Given the dearth of research on the psychological foundations of anti-atheist prejudice, I use the present findings to explore in some detail implications, alternatives, and future research directions.
6.2 Distrust is Central to Anti-Atheist Prejudice

6.2.1 Generalizability. Although I primarily collected data in North America (with the exception of Chapter 5), my theoretical framework and the present data allow for detailed predictions about systematic variability in atheist distrust around the world. I 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 the most strongly religious participants across all studies, distrust of atheists is likely even more pronounced in more typically religious areas. Because the samples from most experimental chapters are less religious than most populations around the world (e.g., Norris & Inglehart, 2004) and I still found acute distrust of atheists, I expect that distrust of atheists would be even more pronounced in most countries, and among the majority of people on earth. Indeed, Chapter 5 found that political intolerance of atheists was even more pronounced in most countries than it is in North America.

On the other hand, based on the present findings, I predict that people living in largely nonreligious countries (e.g., Denmark; Zuckerman, 2008)—much like nonreligious participants across 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; see also Chapter 5). 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? Given that anti-atheist prejudice primarily stems from distrust, a number of possibilities present themselves regarding the situationally specific ways that anti-atheist prejudice might manifest itself outside the lab. In addition, this might help explain why anti-atheist prejudice might go largely unnoticed.

If anti-atheist prejudice is so prevalent, why are there few publicized incidences of extreme reactions or violence against atheists the way we see, for example, towards gays? According to poll data, atheists are less accepted than gays, yet examples of violent real-world expressions of anti-atheist prejudice are less apparent than examples of homophobia. The distrust-based origins of anti-atheist prejudice may explain why anti-atheist prejudice does not generally manifest with violence. The threats that many groups are perceived to pose trigger specific emotional responses. For example, antigay prejudice is triggered by disgust, and anti-black prejudice is triggered both by fear and anger (e.g., Cottrell & Neuberg, 2005). Emotions such as fear, anger, and disgust might be especially likely to provoke violent conflict between groups. Concerns about trustworthiness, on the other hand, may manifest themselves through social exclusion, particularly in domains where trust is seen to be of utmost importance.

In one study (Gervais, et al., 2011, Study 6), my colleagues and I tested whether exclusion of atheists varied along with the degree to which a given situation incentivized trustworthiness. To do so, we asked participants to play the role of somebody working on a hiring committee for various jobs. We presented them with résumés and pictures from two potential applicants. The applicants were matched for a variety of different attributes, including age, gender,
attractiveness, and educational background. However, we manipulated each applicant’s religious identity. One applicant was always described as religious and the other applicant was always described as an atheist.

After reviewing the dossiers of our fictional job applicants, participants indicated which of the two applicants they would hire for a number of different jobs. For our crucial comparison, we had two jobs that were previously matched on the degree to which an ideal candidate would be pleasant, but differed on the degree to which an ideal applicant would need to be trustworthy. As hypothesized, this difference strongly affected our participants’ hiring preferences. Most participants were willing to hire our fictional atheist candidate for a low-trust job, but few would hire her for a high-trust job. As in the studies reported in the present dissertation, this exclusion of atheists from high-trust positions was predicted by participants’ belief in God. Although this study only tested hypothetical hiring preferences for two jobs, I suspect that exclusion of atheists would be apparent across a variety of jobs requiring trustworthy individuals, including teachers, bankers, and priests (though in this latter case, the exclusion is not complete. See Dennett & LaScola, 2010, for a look at the case of closet atheists in the clergy).

Situationally-specific distrust of atheists might have intriguing implications for peoples’ situationally strategic self-presentations. In general, people like to make favorable impressions on others, and this can, at times, lead them to present themselves in an unrealistically favorable light. In some situations, a given individual might want to emphasize his fun-loving nature; in other situations, the same individual might emphasize his bookish intelligence. This suggests the hypothesis that situations that especially require trustworthiness might lead people to over-exaggerate their degree of religious commitment in order to avoid appearing like an
untrustworthy atheist. Although this hypothesis has not been directly tested, there is some indirect evidence that is consistent with it.

Li, Cohen, Weeden, & Kenrick (2010) investigated how changing perceptions of one’s romantic rivals might affect religious beliefs. In the experimental conditions, participants viewed a lot of pictures of attractive individuals of their own gender, leading the participants to think that the current mating pool was highly competitive. Interestingly, participants who were thus primed to think of a highly competitive mating market subsequently described themselves as more strongly religious than did participants viewing a less competitive pool of competitors.

One interpretation of these results is that somehow perceiving a competitive mating market actually makes people more religious. However, a second (and perhaps more parsimonious) interpretation is that, when faced with a pool of romantic rivals who excel in terms of physical attractiveness, individuals may (consciously or not) inflate the degree to which they describe themselves as attractive in other ways. Because trust is of vital importance in romantic relationships, participants may have exaggerated their religious faith to assure others of their trustworthiness.

In sum, it is likely that anti-atheist prejudice presents in highly context-sensitive ways in the real world. Rather than leading to violent conflict, I suggest instead that atheists might simply be excluded from high trust domains. Although there is relatively little research directly exploring this hypothesis, available evidence is consistent with the possibility that distrust of atheists results in exclusion, rather than violent conflict.

6.2.2 Theoretical Alternatives. In their pioneering sociological investigation, Edgell and colleagues (2006) document anti-atheist prejudice in America, and argue that it is not driven simply by generalized dislike of outgroups. They present two sets of sociological evidence for
this claim: 1) only modest correlations exist between people’s negative ratings of atheists and negative ratings of other marginalized groups and 2) 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, gays), 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 therefore shunned.

My theoretical model is largely consistent with the view that anti-atheist prejudice is not driven by general dislike of outgroups, and many of the present chapters offer further evidence supporting this conclusion. However, I view alternative psychological processes as basic to anti-atheist prejudice, and my 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 Chapter 3). 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. Although general intergroup process theories do not clearly predict the present data, an evolutionary 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 towards different marginalized groups, leading to distinct patterns of stigmatization (e.g., Cottrell & Neuberg, 2005; Kurzban & Leary, 2001).
Of course, an evolutionary 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, Chapter 3 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 I acknowledge this
possibility, I note two key findings predicted by my 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 non-affiliated individuals still predicts greater distrust of atheists, thus
dissociating belief in God from identification with a religious ingroup (Chapter 2). 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 (Chapter 3)—concerns
that are basic to my 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 paper 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 and colleagues (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 dissertation allowed me to pose and support a number of much more specific hypotheses
not obviously predicted by these more general models.
6.2.3 Complementary Processes: The Role of Cultural Norms. My 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 one’s norms and beliefs, and thus can be trusted (Henrich, et al., 2010; Henrich, & Henrich, 2007). Under this framework, ethnic outgroups, gays, 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 my 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 this dissertation 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, though unfortunately beyond the scope of the present dissertation, would further illuminate anti-atheist prejudice, the role of trust in a variety of prejudices, and 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.

6.2.4 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 behaviour. This logic is faulty on at least three counts. First, distrust effects in the present 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 behaviour; 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). Chapters 4-5 illustrate how secular authority can serve to encourage prosocial behavior, without also promoting distrust of atheists.
6.3 Gods and Governments

6.3.1 The Diversity of Prejudices. Although prejudice was long viewed as a simple, unidimensional construct (e.g., “like” vs. “dislike” of different groups), researchers have increasingly emphasized the multidimensionality of prejudice (e.g., Fiske, Cuddy, Glick, & Xu, 2002) and the fact that different out-groups trigger distinct prejudices (e.g., Cottrell & Neuberg, 2005; Kurzban & Leary, 2001). It is important to understand the specific threats that different groups are perceived to pose, as well as the nuanced reactions that characterize different prejudices (Cottrell & Neuberg, 2005), rather than treating all forms of prejudice identically. One important but currently understudied implication of this latter perspective is that different prejudices might be differentially affected by particular social contexts and experimental manipulations, depending on the specific threats that the target groups are perceived to pose.

Some prejudice-reduction interventions, such as intergroup contact, alleviate prejudice against a wide variety of out-groups (Pettigrew & Tropp, 2006). Nonetheless, many prejudice-reduction interventions might work only for prejudice toward specific out-groups. In Chapter 4, awareness of secular institutions reduced distrust of atheists but had no measurable effect on attitudes toward Jewish people, Muslims, or gays. A prejudice-reduction intervention that reduces distrust-based prejudice toward one out-group might be wholly useless or even counterproductive for addressing prejudice against groups viewed with fear or disgust (e.g., Gervais, 2011). It is therefore important for researchers and policymakers alike to consider the specific functional threats different groups are perceived to pose and to tailor specific prejudice-reduction interventions accordingly.

6.3.2 The Psychological Functions of Gods and Governments. Chapters 4 and 5 join previous findings demonstrating that gods and governments can serve similar psychological and
social functions. Among other things, both gods and governments help relieve peoples’ existential concerns. One example of a result of this influence is that awareness of their own mortality makes people reluctant to desecrate symbols of both their gods and their governments (Greenberg, Porteus, Simon, Pyszczynski, & Solomon, 1995). Furthermore, both gods and governments give people a sense of control in an unpredictable world (e.g., Kay, et al., 2008).

My findings demonstrate an additional, distinct function served by both gods and governments that goes beyond these useful palliative existential functions: gods and governments function as social monitors to encourage cooperation among individuals. Belief in watchful, moralizing gods may have served a vital function in the cultural evolution of large, cooperative groups (e.g., Norenzayan & Gervais, in press; Norenzayan & Shariff, 2008; Roes & Raymond, 2003). Although religious prosociality may have served as an initial mechanism for bootstrapping large-scale cooperation in some cultures, cooperative groups may create a variety of secular institutions that also promote cooperation. As reliance on these secular institutions waxes in many societies, the influence of religion wanes (e.g., Norris & Inglehart, 2004). As a result, places that tend to have more effective governments also have greatly reduced levels of religious belief (e.g., Scandinavia; Zuckerman, 2008).

Consistent with the present theoretical framework and results, cross-cultural data indicate that religious believers from countries with strong secular institutions that effectively guarantee cooperation are more accepting of atheists than are religious believers from otherwise similar countries that lack effective secular authority (Norenzayan & Gervais, 2012; Chapter 5). As human misery is alleviated and existential security is established, not only does religious belief decline (Gray & Wegner, 2010; Norris & Inglehart, 2004), but so does distrust of atheists among
believers, provided that reliable secular institutions offering alternatives to religious prosociality emerge.

Chapter 4 and 5 demonstrate that reminders of secular authority increase the perceived trustworthiness of atheists. The results from my theoretical analysis imply that this effect should be moderated by the degree to which people actually find their government socially effective and therefore worthy of trust. Had the present experiments been conducted in a country where people have little trust in their government (e.g., Nicaragua or Nigeria), reminders of an inept government might instead have increased distrust of atheists, a hypothesis that I leave for future research.

Both watchful gods and watchful governments can encourage prosocial behavior. Observations that religious prosociality leads to distrust of atheists (Gervais et al., 2011), and that there is a compensatory relationship between religious prosociality and prosociality derived from secular institutions (e.g., Norris & Inglehart, 2004) provoke the hypothesis—supported by the present experiments—that secular authority decreases distrust of atheists. The research reported here bolsters and integrates existing literatures exploring the implications of the different psychological profiles of distinct prejudices, as well as those drawing parallels between the psychological functions of gods and governments.

6.4 Coda

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 nine studies converged on the conclusion that distrust is at the core of this particularly powerful, prevalent, and psychologically peculiar prejudice. While 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 A: Population Demographics

Many chapters relied upon the Psychology Human Subject Pool at the University of British Columbia in Vancouver, BC, Canada. Participants in this subject pool participate for course credit in psychology classes. A prescreening questionnaire is administered to the participants in order to obtain general demographic information. The following demographic data (based on N= 1153 participants) summarize the population from which such samples were drawn.

In terms of religious backgrounds, this is a very diverse group of students. In descending order of frequency, 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, subject pool participants are, as a whole, not strongly religious. In both the prescreening questionnaire and in Chapter 2 (utilizing a broad national sample of Americans), participants were asked to rate their agreement (on a 1-7 Likert 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.
## Appendix B: Countries Included in Chapter 5

<table>
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<th>Country</th>
<th>Political Intol.</th>
<th>Rule of Law</th>
<th>General Distrust</th>
<th>Human Dev.</th>
<th>Religiosity</th>
<th>Pathogens</th>
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