Believers' estimates of God's beliefs are more egocentric than estimates of other people's beliefs

Nicholas Epley[a,1], Benjamin A. Converse[a], Alexa Delbosc[b], George A. Monteleone[c], and John T. Cacioppo[c]

[a]Booth School of Business, 5807 South Woodlawn Avenue, University of Chicago, Chicago, IL, 60637; [b]Institute of Transport Studies, Monash University, Melbourne 3800, Australia; and [c]Department of Psychology, 5848 South University Avenue, University of Chicago, Chicago, IL 60637

Edited by Edward E. Smith, Columbia University, New York, NY, and approved October 21, 2009 (received for review July 27, 2009)

People often reason egocentrically about others' beliefs, using their own beliefs as an inductive guide. Correlational, experimental, and neuroimaging evidence suggests that people may be even more egocentric when reasoning about a religious agent's beliefs (e.g., God). In both nationally representative and more local samples, people's own beliefs on important social and ethical issues were consistently correlated more strongly with estimates of God's beliefs than with estimates of other people's beliefs (Studies 1–4). Manipulating people's beliefs similarly influenced estimates of God's beliefs but did not as consistently influence estimates of other people's beliefs (Studies 5 and 6). A final neuroimaging study demonstrated a clear convergence in neural activity when reasoning about one's own beliefs and God's beliefs, but clear divergences when reasoning about another person's beliefs (Study 7). In particular, reasoning about God's beliefs activated areas associated with self-referential thinking more so than did reasoning about another person's beliefs. Believers commonly use inferences about God's beliefs as a moral compass, but that compass appears especially dependent on one's own existing beliefs.

decision making | judgment | religion | social cognition | social neuroscience

Religion appears to serve as a moral compass for the vast majority of people around the world. It informs whether same-sex marriage is love or sin, whether war is an act of security or of terror, and whether abortion rights represent personal liberty or permission to murder. Many religions are centered on a god (or gods) that has beliefs and intentions, with adherents encouraged to follow "God's will" on everything from martyrdom to career planning to voting. Within these religious systems, how do people know what their god wills?

When people try to infer other people's attitudes and beliefs, they often do so egocentrically by using their own beliefs as an inductive guide (1). This research examines the extent to which people might also reason egocentrically about God's beliefs. We predicted that people would be consistently more egocentric when reasoning about God's beliefs than when reasoning about other people's beliefs. Intuiting God's beliefs on important issues may not produce an independent guide, but may instead serve as an echo chamber that reverberates one's own beliefs.

The Jewish and Christian traditions state explicitly that God created man in his own image, but believers and nonbelievers alike have long argued that people seem to create God in their own image as well (2–5). Xenophanes (sixth century B.C.E.), for instance, coined the term anthropomorphsim when noting the similarity between religious believers and representations of their gods, with Greek gods being fair skinned and African gods being dark skinned (6). Voltaire reports a Pope as saying, "If God made us in His own image, we have certainly returned the favor" (7). And Bob Dylan (8) sang of the ease with which groups come to believe that God is "on our side." Egocentric representations of God are frequently discussed in public discourse, but are rarely the topic of scientific inquiry. This research examines the strength of such egocentric representations by measuring the extent to which people's own beliefs guide their predictions about God's beliefs. This research does not in any way, however, deny the possibility that the inverse process of reflection (using God's presumed beliefs as a guide to one's own) may operate in contexts where people's own beliefs are uncertain or unknown.

Although religious agents are attributed many unique properties, people nevertheless conceive of them in surprisingly humanlike ways (4, 9, 10). Inferences about a religious agent's beliefs may therefore be guided by the same two sources of information used to reason about other people's beliefs (11–15). The first source is one's own beliefs. Conservatives, for instance, tend to assume that the average person is more conservative than do liberals (16–18). Inferences about other people's beliefs are often based at least partly on one's own beliefs (1, 14). The second source is semantic or episodic knowledge about the target. This knowledge may come from group-based stereotypes (e.g., Texans are conservative; Californians are liberal), from observations of behavior, or from third-person reports. It is easy to guess that Barack Obama has relatively liberal beliefs, for instance, because he is a Democrat, because he expresses liberal beliefs, and because his colleagues say he is liberal.

Religious believers can use both sources of information when reasoning about a religious agent. People can readily recall or construct their own beliefs on an issue and can also consult texts (e.g., the Koran, Torah, or Bible) or presumed experts (e.g., an Imam or Priest) that report on God's beliefs. Like inferences about people, inferences about God's beliefs are therefore likely to reflect a mixture of egocentric and nonegocentric information.

Unlike inferences about people, however, inferences about God's beliefs cannot rely as readily on information directly from the judgment target. One can quiz neighbors on their beliefs, read editorials about celebrities' positions, or observe public opinion polls. Religious agents do not lend themselves to public opinion polling. Even within Christianity, for example, groups differ quite dramatically in their interpretation of God's attitudes toward such topics as same-sex marriage, the death penalty, and abortion. The inherent ambiguity of God's beliefs on major issues and the extent to which religious texts may be open to interpretation and subjective evaluation, suggests not only strong egocentric biases when reasoning about God, but also that people may be consistently more egocentric when reasoning about God's beliefs than when reasoning about other people's beliefs. When the beliefs of a positively evaluated target are relatively ambiguous, a person may construct them by relying on his or her own beliefs (19). Indeed, it may seem particularly

Author contributions: N.E., B.A.C., and J.T.C. designed research; B.A.C. and A.D. performed research; B.A.C., A.D., G.A.M., and J.T.C. analyzed data; and N.E. and B.A.C. wrote the paper.

The authors declare no conflict of interest.

This article is a PNAS Direct Submission.

Freely available online through the PNAS open access option.

[1]To whom correspondence should be addressed. E-mail: epley@chicagobooth.edu.

This article contains supporting information online at www.pnas.org/cgi/content/full/0908374106/DCSupplemental.

Table 1. Egocentric correlations with God and other targets from Studies 1–4

Study	Issue	*N*	Egocentric correlations (r self, ___)				
			God	—	Gates	Bush	
1	Abortion	54	0.59		−0.02	−0.14	
			God	Amer.	Couric	Bush	Bonds
2	Same-sex marriage	37	0.72	0.41	−0.24	−0.19	−0.40
			God	Amer.	Gates	Bush	
3	Abortion	22	0.63	−0.34	0.23	−0.20	
	Affirmative action	20	0.23	0.06	0.15	−0.19	
	Death penalty	19	0.35	−0.37	0.29	0.23	
	Iraq war	15	0.65	0.28	0.47	−0.23	
	Marijuana legalization	20	0.23	−0.01	−0.02	−0.17	
	Same-sex marriage	20	0.68	−0.50	0.32	−0.50	
	Overall	116	0.46	−0.17	0.23	−0.18	
			God	Amer.			
4	Believers	922					
	Abortion		0.59	0.47			
	Same-sex marriage		0.73	0.43			
	Nonbelievers	77					
	Abortion		0.40	0.46			
	Same-sex marriage		0.44	0.34			

Amer., the Average American; Gates, Bill Gates; Bush, George W. Bush; Couric, Katie Couric; Bonds, Barry Bonds.

logical to use egocentric information when reasoning about God, because religious agents are generally presumed to hold true beliefs, and people generally presume that their own beliefs are true as well (20).

We tested this basic hypothesis that people would be especially egocentric when reasoning about God's beliefs using correlational, experimental, and neuroimaging methods. We investigate important social and moral beliefs on which believers are likely to consider God's beliefs more consistently, rather than more minor and idiosyncratic beliefs. Although our theoretical predictions apply to any religious or supernatural agent presumed to have beliefs (4), our experimental participants are drawn primarily from the United States and therefore cannot represent the entire corpus of world religions. The vast majority of participants from these samples also report believing in God. We exclude nonbelievers from analyses, except where we have a sufficiently large sample for independent analysis (Study 4), primarily because our hypotheses are relevant only to believers. Including the relatively small number of nonbelievers in the other studies, however, does not meaningfully alter any conclusions suggested by the following analyses.

Studies 1–4

Description. We conducted four surveys in which participants reported their own belief about an issue, and then estimated God's belief along with a variety of other human targets' beliefs. For more detailed materials and methods see *SI Text*. Within and across surveys (see Table 1), we selected human targets that varied on a number of dimensions known to influence the degree of egocentrism, such as likeability and ambiguity of beliefs. These targets include liked individuals with relatively unknown beliefs (e.g., Bill Gates), a generalized other (average American), disliked individuals with unknown beliefs (Barry Bonds), and an individual with well-known beliefs (George W. Bush). We expected that egocentric correlations would diminish from the first of these groups to the last, but that all would show weaker evidence of egocentrism than estimates of God's beliefs. Of course, significant correlations between people's own beliefs and God's presumed beliefs could reflect both egocentric projection onto God and the opposite (using God's beliefs as a guide to one's own). We reduced the impact of this reverse causality in Studies 1–3 by asking participants to report their own beliefs first and then randomly ordering the remaining targets. We demonstrate causality conclusively using experimental methods in Studies 5 and 6.

Results. In Study 1, Boston rail-commuters indicated their own, God's, Bush's, and Gates' attitudes about abortion by rating agreement with six statements about the abortion debate. We formed a composite attitude-about-abortion score for every target. Using these composites, we computed an "egocentric correlation" between participants' own attitudes and their estimates of each other target. As predicted, the egocentric correlation with God was larger than every other egocentric correlation, Zs > 3.8, Ps < 0.01. In Study 2, undergraduates responded to a similarly structured set of items about same-sex marriage. The egocentric correlation with God's beliefs was again larger than with every other target, Zs > 2.3, Ps < 0.05. Study 3 extended the first two studies by examining undergraduates' beliefs about multiple sociopolitical issues (see Table 1). Standardizing and collapsing across issues, the egocentric correlation with God's beliefs was again larger than with every other target, Zs > 2.2, Ps < 0.05.

Study 4 questioned adults from a nationally representative (United States) database of online respondents. Participants indicated their own, God's, and the average American's attitudes about abortion and same-sex marriage. The order of targets was counterbalanced, but did not significantly alter the strength of the egocentric correlations. For each issue, the egocentric correlation among religious believers ($n = 922$) was higher for God than for the average American, Zs > 4.0, Ps < 0.01. For nonbelievers ($n = 77$), the egocentric correlation with God's beliefs was significantly lower on both issues than for believers, both Fisher's Zs > 2.0, Ps < 0.05, and did not differ on either issue from the egocentric correlation with the average American, Zs < 1. It is difficult to interpret these results for nonbelievers,

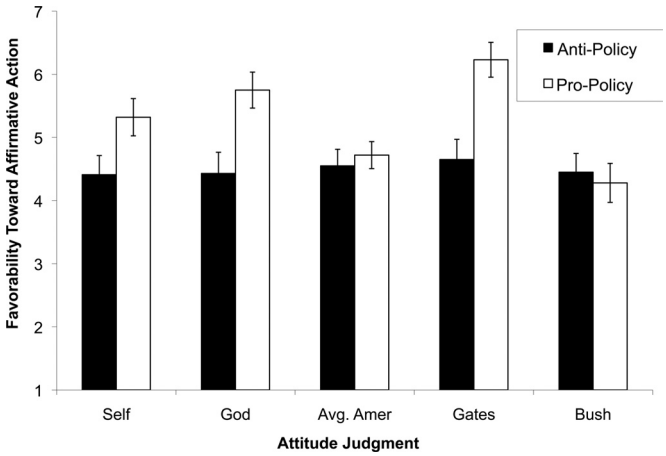

Fig. 1. Average attitude judgments for self and other targets by argument condition (Study 5). Error bars represent standard error of the mean.

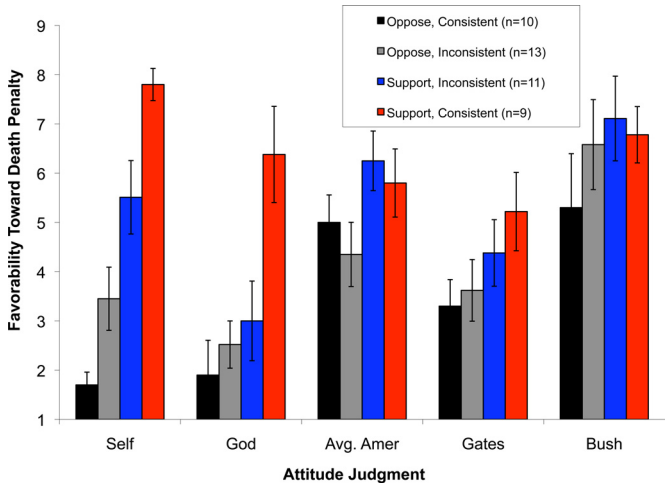

Fig. 2. Average attitude judgments for self, God, and other targets as a function of preexisting belief (oppose or support death penalty) and delivered speech (consistent or inconsistent with preexisting belief; Study 6). Error bars represent standard error of the mean.

but the relatively weaker egocentric correlations at least demonstrate that egocentric biases are not an invariant product of inferring God's beliefs (see *SI Text*, Fig. S1, and Table S1 for supplemental analyses by frequency of consulting God).

Study 5

Description. If believers are especially egocentric when making inferences about God's beliefs, then manipulating believers' own attitudes should similarly manipulate predictions of God's attitudes but should have less consistent impact on predictions of other people's attitudes. We investigated this in Study 5 by influencing participants' own attitudes about affirmative action through exposure to persuasive arguments. In a pro-policy condition, participants read one strong argument supporting affirmative action and one weak argument opposing it. In an anti-policy condition, participants read one weak argument supporting affirmative action and one strong argument opposing it (see *SI Text*). Participants then rated the strength of each argument they received. Finally, participants reported their attitude about affirmative action and did the same for God, the average American, Gates, and Bush.

Results

Manipulation Check. Participants in the pro-policy condition indicated that the argument in favor of affirmative action was stronger ($M = 3.25$, $SD = 1.25$) than the argument against affirmative action ($M = 2.03$, $SD = 1.19$), paired-t (64) = 5.40, $P < 0.001$. Participants in the anti-policy condition indicated that the argument against affirmative action was stronger ($M = 3.82$, $SD = 1.12$) than the argument in favor of affirmative action ($M = 1.33$, $SD = 0.75$), paired-t (54) = 16.03, $P < 0.001$. As intended, the balance of arguments in the pro-policy condition favored affirmative action whereas the balance of arguments in the anti-policy condition opposed it.

Main Analyses. As predicted, the arguments manipulation had different effects across the targets, $F_{(4, 472)} = 4.55$, $P < 0.001$ (Fig. 1). People in the pro-policy condition supported affirmative action more than did those in the anti-policy condition, t (119) = 2.15, $P < 0.05$, and also estimated that God supported it more, t (119) = 3.03, $P < 0.01$. As in the preceding experiments, the egocentric correlation was stronger for God's attitudes ($r = 0.67$) than for any of the other targets ($r_{\text{Gates}} = 0.42$, $r_{\text{American}} = 0.41$, $r_{\text{Bush}} = 0.07$), Zs > 3.1, Ps < 0.01. Although the egocentric correlation was significantly weaker for Gates than for God, estimates of Gates' attitudes, a relatively liked target with unknown beliefs, were also significantly influenced by the arguments condition, t (118) = 3.75, $P < 0.001$. Estimates of the average American's and Bush's beliefs were not significantly influenced, ts < 1.

Study 6

Description. Study 6 sought convergent evidence by using a different experimental manipulation that relied on internally generated arguments rather than on externally provided ones. In particular, participants were asked to write and deliver a speech either consistent or inconsistent with their own preexisting beliefs in front of a video camera. Under these circumstances, people tend to shift their attitudes in a direction consistent with the speech they deliver (21, 22). Participants first reported (in a dichotomous choice task) whether they generally supported or opposed the death penalty, among other issues. Approximately 30 min later, a new experimenter told participants that videotapes were needed for another study of people evaluating speeches about the death penalty. Participants were then asked, depending on random assignment, if they would be willing to deliver a speech in favor of or opposed to the death penalty. This meant delivering a speech consistent with preexisting attitudes for some participants and inconsistent with preexisting attitudes for the other participants. All but five participants (two in the consistent condition, three in the inconsistent condition) agreed to the experimenter's request. After delivering the speech, participants reported their own attitude about the death penalty, and then did the same for God, Gates, Bush, and the average American.

Results. As predicted, participants' own postspeech attitudes were a function of their preexisting beliefs and their speech (Fig. 2). Delivering an attitude-inconsistent speech made participants' own attitudes more moderate than delivering an attitude-consistent speech, $F_{(1, 39)} = 12.05$, $P = 0.001$. The interaction between participants' preexisting beliefs and their speech condition differed across the other targets, $F_{(3, 117)} = 2.62$, $P = 0.054$. In particular, the significant interaction pattern observed on participants' own attitudes was replicated only in estimates of God's attitudes, $F_{(1, 39)} = 7.44$, $P < 0.01$, and did not approach significance for any other target, Fs < 1. Manipulating people's own attitudes produced consistently similar shifts in estimates of

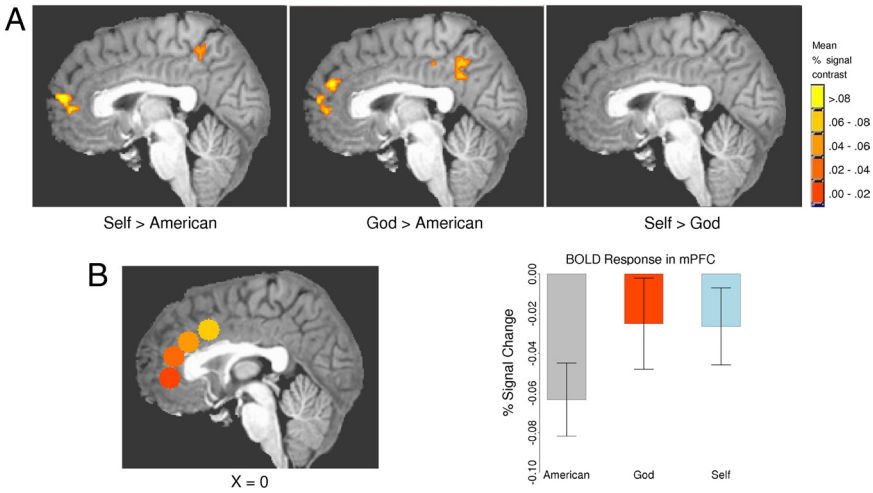

Fig. 3. Comparisons of neural activation when reasoning about self, God, and the "average American." (*A*) Depicts a representative slice (x = 0) for the voxelwise *t* tests of self vs. American, God vs. American, and self vs. God contrasts. (*B*) Depicts the regions of interest (radius = 8 mm) spanning portions of mPFC previously identified to differentiate self-other processing.

God's attitudes, but not consistent shifts in estimates of other people's attitudes.

Study 7

Description. Our final research approach used fMRI to measure similarity in neural activity when reasoning about one's own versus God's beliefs, compared to when reasoning about another person's beliefs, namely a specific (participant-generated) individual representing the average American. Thinking about one's own mental states in contrast to thinking about another person's mental states is associated with heightened activation in the medial prefrontal cortex (mPFC), precuneus, temporoparietal junction, and temporal poles (23), and the egocentric projection of one's own mental states onto others' is associated with heightened activation of the inferior regions of the mPFC (24). If people are indeed more egocentric when reasoning about God's attitudes than when reasoning about other people's attitudes, then neural activity in these regions should be more similar between self and God than between self and average American.

During fMRI scanning, 17 participants were presented with six 90-s blocks (two self, two God, two average American blocks) of 10 attitude items (e.g., legal euthanasia), each for 9 s. A pilot experiment of 18 participants using these items replicated the basic result from the preceding studies: egocentric correlations across the 20 items were calculated for each participant. Across participants, the egocentric correlation in this pilot experiment was larger for God's attitudes ($M_{Fisher's\ z} = 0.47$) than for the Average American's attitudes ($M_{Fisher's\ z} = 0.06$), paired-t (17) = 3.24, $P < 0.01$ (see *SI Text* and Fig. S2 for procedural details).

Participants in the scanner reported their own attitude on each item during the self blocks, the average American's attitude during the average American blocks, and God's attitude during the God blocks. These blocks were separated by a fixation period of 90 s. Participants saw one of four orders of stimulus presentation, made by crossing two randomized block orders with two randomized issue orders.

Results. Voxelwise comparisons indicated that the God-American contrast and self-American contrast produced similar patterns of activation in the mPFC, medial precuneus, bilateral tempororparietal junction, right medial temporal gyrus, and left insula regions (voxelwise Ps < 0.005, corrected; Fig. 3*A*), whereas the self-God contrast produced no significant differences in these regions. We next designated four equal-volume regions of interest that covered the area within the mPFC previously associated with self and other processing (Fig. 3*B*) (23). A 3 (condition: Self, God, average American) × 4 (mPFC region: inferior, middle inferior, middle superior, superior) repeated measures analysis of variance revealed a significant main effect for condition, $F_{(2, 32)} = 3.80$, $P = 0.033$. As illustrated in Fig. 3*B*, activity in the mPFC was lower when participants thought about the average American's attitudes than when they thought about their own attitude or God's attitudes (Ps < 0.05), whereas activity in the mPFC did not differ between the self and God conditions. The mPFC region × condition interaction was nonsignificant, $F < 1$ (see *SI Text*, Figs. S3–S5, and Tables S2 and S3 for details about acquisition and supplemental analyses).

These results expand considerably on the behavioral results observed in Studies 1–6 by demonstrating a relative similarity in the neural substrates involved in thinking about one's own beliefs and God's beliefs compared to when thinking about another person's beliefs. Combined with Studies 1–6, there is not only a stronger relationship between reports of one's own beliefs and God's beliefs compared to another person's beliefs, but an increased similarity in the underlying mechanism used to generate one's own beliefs and God's beliefs as well. Inferences about God's beliefs appear to egocentrically biased, these data suggest, because the process used to generate inferences about God's beliefs is relatively similar to the process used to generate one's own beliefs.

Discussion

Correlational, experimental, and neuroimaging methodologies all suggest that religious believers are particularly likely to use their own beliefs as a guide when reasoning about God's beliefs compared to when reasoning about other people's beliefs. People's estimates of God's beliefs were more strongly correlated with their own beliefs than were their estimates of a broad range of other people's beliefs (Studies 1–4). Manipulating people's own beliefs similarly affected their estimates of God's beliefs more than it affected estimates of other people's beliefs (Studies 5 and 6), demonstrating that estimates of God's beliefs are causally influenced at least in part by one's own beliefs. Finally, neuroimaging evidence demonstrated that reasoning about God's beliefs tends to activate the same regions that are active when reasoning about one's own beliefs (indeed, statistically indistinguishable in the whole-brain analysis),

whereas reasoning about the average American's beliefs activates relatively distinct regions associated with reasoning about other people.

We believe these findings provide important insights into the origins and variability of religious beliefs and have interesting implications for their impact on everyday judgment, decision-making, and behavior. First, these data join a growing body of literature demonstrating that religious beliefs are guided by the same basic or natural mechanisms that guide social cognition more generally (4, 10, 25, 26). Religious beliefs need not be explained by any unique psychological mechanisms, but instead are likely to be the natural outcome of existing mechanisms that enable people to reason about other social agents more generally. Insights into the basic mechanisms that guide social cognition are therefore likely to be of considerable value for understanding religious experience and belief.

Second, these data provide insight into the sources of people's own religious beliefs. Although people obviously acquire religious beliefs from a variety of external sources, from parents to broader cultural influences, these data suggest that the self may serve as an important source of religious beliefs as well. Not only are believers likely to acquire the beliefs and theology of others around them, but may also seek out believers and theologies that share their own personal beliefs. If people seek out religious communities that match their own personal views on major social, moral, or political issues, then the information coming from religious sources is likely to further validate and strengthen their own personal convictions and values. Religious belief has generally been treated as a process of socialization whereby people's personal beliefs about God come to reflect what they learn from those around them, but these data suggest that the inverse causal process may be important as well: people's personal beliefs may guide their own religious beliefs and the religious communities they seek to be part of.

Finally, these data have interesting implications for the impact of religious thought on judgment and decision-making. People may use religious agents as a moral compass, forming impressions and making decisions based on what they presume God as the ultimate moral authority would believe or want. The central feature of a compass, however, is that it points north no matter what direction a person is facing. This research suggests that, unlike an actual compass, inferences about God's beliefs may instead point people further in whatever direction they are already facing.

Methods

All of the attitude items used in the following studies are presented in the *SI Text*.

Study 1. Sixty-three people (36 women, 27 men; age 18 to 73 years, 3 unspecified, *Mdn* = 21.5 years) approached by an experimenter in Boston's South Station agreed to complete a survey on opinions about abortion. Participants first reported the extent to which they agreed with six statements about abortion, and were then asked to respond to each of the same six items as they thought God (as the participant understood God), President George W. Bush, and Bill Gates would respond. The order of these targets was counterbalanced across participants. Finally, participants answered five questions that measured their belief in God (27) and reported their religious affiliation. Nine participants with composite belief-in-God scores equal to zero were excluded from analyses.

Study 2. Forty University of Chicago undergraduates (23 women, 17 men; age 18 to 27 years, *Mdn* = 20 years) completed a survey in the laboratory in exchange for $3. The procedure was identical to Study 1, except that participants reported beliefs about same-sex marriage, and estimated beliefs for God, President George W. Bush, the average American, and Katie Couric. Three participants with composite belief-in-God scores equal to zero were excluded from analyses.

Study 3. One hundred thirty-six University of Chicago students (71 women, 62 men, 3 did not specify sex; age 18–44 years, *Mdn* = 20 years) completed a survey in the laboratory in exchange for $3. The procedure was similar to Studies 1 and 2, except that participants were randomly assigned to answer six items measuring attitudes about one of six different issues: abortion (n = 22 believers, 2 nonbelievers), affirmative action (n = 20 believers, 4 nonbelievers), death penalty (n = 19 believers, 5 nonbelievers), Iraq War (n = 15 believers, 6 nonbelievers), legalization of marijuana (n = 20 believers, 1 nonbeliever), and same-sex marriage (n = 20 believers, 2 nonbelievers). The samples included in parentheses represent the number of religious believers in each issue condition, followed by those participants with composite belief-in-God scores equal to 0 (or who did not answer the belief-in-God questions, n = 2). Participants first reported their own attitude, and then reported (in counterbalanced order across participants) how they believed God (as they understood God), Bill Gates, the average American, and George W. Bush would respond to each of the items.

Study 4. This survey was administered online to a nationally representative sample of adults as part of the Time-Sharing Experiments for the Social Sciences (TESS) project, and 1,019 participants (513 women, 506 men; age 18–92 years, *Mdn* = 47 years) fielded the survey. Nineteen participants failed to answer all of the attitude items, and were therefore removed from the analyses, leaving 1,000 participants in the final sample (922 Believers, 77 nonbelievers, and 1 nonresponse). Participants were asked to report their own, God's, and the average American's attitudes on abortion and then same-sex marriage in one of four randomly assigned orders: Self-God-American, self-American-God, God-self-American, or God-American-self. When reporting participants' own attitudes, each participant was asked to indicate his or her ''personal opinion about abortion'' on a seven-point attitude scale ranging from 1 (completely pro-choice) to 7 (completely pro-life), and then his or her ''personal opinion about same-sex marriage'' on a seven-point scale ranging from 1 (completely oppose same-sex marriage) to 7 (completely support same-sex marriage). Participants then did likewise for God and the average American. Finally, participants responded to two items about their belief in God. The first asked, ''Do you believe in God? Please answer in whatever way you understand God. [Yes/No].'' The second asked, ''To what extent do you consult God through prayer or meditation when making decisions?'' Possible responses were: At least once a day; around once a week; around once a month; a couple of times a year; less than once a year; and never or not applicable.

Study 5. One hundred forty-five people (62 men, 82 women, 1 nonresponse; age 19–77 years, *Mdn* = 52 years) completed an online study in which they were exposed to arguments in favor of and opposed to affirmative action. In the pro-policy condition, participants read one paragraph of strong arguments in favor of affirmative action and one paragraph of weak arguments opposed to affirmative action. In the anti-policy condition, participants read one paragraph of strong arguments opposed to affirmative action and one paragraph of weak arguments opposed to affirmative action (the actual arguments are presented in *SI Text*). Each participant then reported his or her own stance on affirmative action on a 9-point scale ranging from 1 (completely oppose) to 9 (completely support), and then did the same for God, the average American, Bill Gates, and George W. Bush (in a randomly determined order). Immediately preceding the question about God's attitude, participants were asked to indicate if they believed in God [Yes/No]. Those who responded ''yes'' to this question (n = 121) then answered questions about God's beliefs, whereas those who responded ''no'' (n = 24) were skipped ahead to the next target (and subsequently excluded from analyses).

Study 6. Fifty-nine Chicago residents (24 men, 35 women; age 18–62 years, 4 did not indicate age, *Mdn* = 21 years) participated in exchange for $12. On arrival to the laboratory, participants were asked to report whether they were in favor of or opposed to the death penalty and whether or not they believed in God, embedded within a large packet of unrelated questionnaires. The 48 people who reported believing in God served as the participants for this experiment. After approximately 30 min of completing unrelated experiments on the computer, participants were escorted to a new room and introduced to a second experimenter. Participants learned that the experimenter was planning to run some persuasion experiments and needed videotapes of persuasive arguments to do so. The experimenter then explained that she had enough videos of people arguing for one side of the death penalty issue (depending on condition), but needed more arguing for the other side. She then asked if the participant would be willing to make a video. Participants were then asked to either make a video consistent or inconsistent with the attitudes expressed at the beginning of the experiment. Agreeing to

the experimenter's request put participants into one of the four cells of a 2 (preexisting attitude: support vs. oppose) × 2 (speech: consistent vs. inconsistent) quasi-experimental design. Those who agreed (all but five) were then asked to prepare a 2–3 min persuasive speech to deliver in front of a video camera. After ≈10 min of preparation, participants delivered their speeches. When finished, participants indicated their ''own attitude about the death penalty'' on a 9-point scale ranging from 1 (completely oppose) to 9 (completely support), and then did the same (in a randomized order) for God, Bill Gates, George Bush, and the average American.

Study 7. Eighteen healthy, right-handed volunteers (8 men, 10 women; age 18 to 45 years, *Mdn* = 21 years) participated in exchange for $40. Of these, 17 reported believing in God in a prescreening survey and are included in the analyses.

After a brief training period to familiarize participants with the experimental procedure, participants were presented during fMRI scanning with six 90-s blocks of attitude items (two each for self, God, and average American; see *SI Text*). Each block consisted of 10 attitude items presented on the viewing screen for 9 s each, with each block separated by a 90-s fixation period. During each ''self'' block, participants were presented for 9 s with a slide reading ''My position on [attitude item]'' for each of the items, and reported their attitude for each item during this period by pressing one of five response buttons on a handheld device ranging from ''completely opposed'' to ''completely support.'' This response procedure was identical for the ''average American'' and ''God'' blocks, except that the attitude items were presented on slides reading ''[name]'s position on [attitude item]'' and ''God's position on [attitude item],'' respectively. Blocks of attitude items were separated by a fixation slide presented for 84 s, followed for 6 s by the name of the target they would be evaluating in the next block (self, God, or [average American name]). Participants saw one of four versions of stimulus presentation made by crossing two orders of block presentation (randomly selected, on the condition that the same judgment target was not repeated consecutively) with two orders of trial presentation (randomly selected). See *SI Text* for additional procedural details and analyses for Study 7 and the pretest to this study.

ACKNOWLEDGMENTS. We thank Thomas Gilovich, Benoit Monin, and Daniel Wegner for comments on an earlier version of this manuscript, Ye Li for website access, and Mina Kang and Jasmine Kwong for help conducting the experiments, the National Science Foundation for supporting TESS, Diana Mutz and Arthur Lupia for leading our study using TESS [Study 4 data collected by Time-Sharing Experiments for the Social Sciences (TESS), National Science Foundation Grant no. 0094964 to Diana C. Mutz and Arthur Lupia, Principal Investigators.]. This work was supported by the Booth School of Business, the National Science Foundation Grant no. SES-0241544, and the Templeton Foundation.

1. Nickerson RS (1999) How we know—and sometimes misjudge—what others know: Imputing one's own knowledge to others. *Psychol Bull* 125:737–759.
2. Feuerbach L (2004, orig 1873) *The Essence of Religion* (Prometheus, Amherst, NY).
3. Freud S (1930) *Civilization and Its Discontents* (Norton, New York, NY).
4. Guthrie SE (1993) *Faces in the Clouds: A New Theory of Religion* (Oxford Univ Press, New York, NY).
5. Hume D (1956, orig 1757) *The Natural History of Religion* (Stanford Univ Press, Stanford, CA).
6. Lesher JH (1992) *Xenophanes of Colophon: Fragments* (University Toronto Press, Toronto, Canada).
7. Moffit JF (2003) *Picturing Extraterrestrials: Alien Images in Modern Culture* (Prometheus, Amherst, NY), p 116.
8. Dylan B (1964) on *The Times They Are A-Changin'* (Record, Columbia, New York, NY).
9. Barrett JL, Keil FC (1996) Conceptualizing a non-natural entity: Anthropomorphism in God concepts. *Cognit Psychol* 31:219–247.
10. Epley N, Waytz A, Cacioppo JT (2007) On seeing human: A three-factor theory of anthropomorphism. *Psychol Rev* 114:864–886.
11. Ames DR (2004) Inside the mind reader's toolkit: Projection and stereotyping in mental state inference. *J Pers Soc Psychol* 87:340–353.
12. Ames DR (2004) Strategies for social inference: A similarity contingency model of projection and stereotyping in attribute prevalence estimates. *J Pers Soc Psychol* 87:573–585.
13. Clement RW, Krueger J (2002) Social categorization moderates social projection. *J Experim Soc Psychol* 38:219–231.
14. Epley N, Keysar B, Van Boven L, Gilovich T (2004) Perspective taking as egocentric anchoring and adjustment. *J Pers Soc Psychol* 87:327–339.
15. Krueger JI (2007) From social projection to social behavior. *Eur Rev Soc Psychol* 18:1–35.
16. Travers RMW (1941) A study in judging the opinions of groups. *Archives of Psychology*, ed Woodworth RS (Columbia University, New York, NY), No. 266, pp 1–73.
17. Krueger J, Clement RW (1994) The truly false consensus effect: An ineradicable and egocentric bias in social perception. *J Pers Soc Psychol* 67:596–610.
18. Ross L, Greene D, House P (1977) The ''false consensus effect'': An egocentric bias in social perception and attribution processes. *J Exp Soc Psychol* 13:279–301.
19. Dawes RM, Mulford M (1996) The false consensus effect and overconfidence: Flaws in judgment, or flaws in how we study judgment? *Organiz Behav Hum Decision Processes* 65:201–211.
20. Ross L, Ward A (1996) Naïve realism: Implications for social conflict and misunderstanding. *Values and Knowledge*, eds Brown T, Reed E, Turiel E (Lawrence Erlbaum, Hillsdale, NJ), pp 103–135.
21. Cooper J, Fazio RH (1984) A new look at dissonance theory. *Advances in Experimental Social Psychology*, ed Berkowitz L (Academic, Orlando, FL), Vol 17, pp 229–266.
22. Zanna MP, Cooper J (1974) Dissonance and the pill: An attribution approach to studying the arousal properties of dissonance. *J Pers Soc Psychol* 29:703–709.
23. Buckner RL, Carroll DC (2007) Self-projection and the brain. *Trends Cogn Sci* 11:49–57.
24. Mitchell JP, Banaji MR, Macrae CN (2005) The link between social cognition and self-referential thought in the medial prefrontal cortex. *J Cognit Neurosci* 17:1306–1315.
25. Boyer P (2001) *Religion Explained: The Evolutionary Origins of Religious Thought* (Basic Books, New York, NY).
26. Barrett JL (2000) Exploring the natural foundations of religion. *Trends Cogn Sci* 4:29–34.
27. Preston J, Epley N (2005) Explanations versus applications: The explanatory power of valuable beliefs. *Psychol Sci* 16:826–832.