

# Theories of God: Explanatory Coherence in a Non-Scientific Domain

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## Abstract

Public representations of God range from the highly anthropomorphic to the highly abstract, and the present study explored whether differences in the interpretation of those representations are correlated with differences in one's religious beliefs and religious practices more generally. American adults of varying ages and religious backgrounds completed a questionnaire that probed their beliefs about a wide range of religious matters, including prayer, ritual, worship, sin, cosmogenesis, anthropogenesis, angels, Satan, Heaven, and Hell. Participants were divided into two groups based on their propensity to anthropomorphize God in a property-attribution task, and their responses were analyzed for internal consistency. Overall, the two groups exhibited explanatorily coherent, yet qualitatively different, patterns of beliefs and practices – patterns interpreted contrastively as a “humanistic theology” and an “existential theology.” These findings suggest that individuals' religious beliefs are organized in a theory-like manner despite their lack of direct perceptual support.

**Keywords:** Intuitive theories; religious cognition; conceptual representation; cultural transmission; explanation

## Introduction

Belief in the existence of a divine being is prevalent both within and across cultures (Brown, 1991). This belief is particularly prevalent in the US, where the percent of individuals who report holding such a belief has hovered around 95% for the last six decades (Gallup, 2003). Theistic beliefs are of potential interest to cognitive developmentalists, as they present a challenge to standard, constructivist models of knowledge acquisition (e.g., Piaget, 1954; Gopnik & Meltzoff, 1997). Such models construe knowledge as a product of direct observation and exploration of the physical world, yet “knowledge” of God is rarely (if ever) acquired in this manner. Rather, individuals must learn about God from the art, literature, and discourse of their culture. How individuals make sense of such public representations is the topic of investigation in the present study.

The task of interpreting public representations of God is by no means trivial, for these representations range from the highly anthropomorphic (e.g., “heavenly father,” “divine ruler,” “intelligent designer”) to the highly abstract (e.g., “first cause,” “unmoved mover,” “universal spirit”). As a group, they paint a picture of God that is neither consistent nor coherent. For instance, God is commonly said to listen to prayers, yet an omniscient being would already know the content of those prayers. Likewise, God is commonly said to have created man in his image, yet an omnipresent being presumably has no “image.”

One way to resolve the tension between anthropomorphic and nonanthropomorphic representations of God is to treat the anthropomorphic representations as metaphors and the nonanthropomorphic representations as literal descriptions. Barrett & Keil (1996) investigated this possibility by comparing participants' self-professed beliefs about God to the kinds of beliefs revealed in a story-recall task. Although all participants claimed that God is omniscient and omnipresent when asked directly, many participants drew anthropomorphic inferences on the story-recall task that contradicted such claims. For instance, participants frequently mistook the statement “God was pleased by seeing the girl put the bird in its nest” for the statement “God was aware of the girl's deed and was pleased by it” in even though the former, but not the latter, implies that God must perceive an event in order to be aware of its occurrence. Likewise, participants frequently mistook the statement “When the woman awoke, God had already left” for the statement “When she woke, she saw no one” even though the former, but not the latter, implies that God occupies a discrete location in space.

These findings suggest that anthropomorphic descriptions of God do, in fact, influence the way individuals reason about God's actions and abilities, particularly in a narrative context. Still, not all the participants in Barrett and Keil's study anthropomorphized God to the same extent. Indeed, participants' accuracy in differentiating anthropomorphic descriptions of God from nonanthropomorphic descriptions ranged from 27% to 91%. Consistent with this finding, several other studies have documented significant differences in the anthropomorphization of God (e.g., Bassett & Williams, 2003; Shtulman, 2008; Trimeche, Vinsonneau, & Mullet, 2006), yet it is unclear how to interpret those differences in light of the commonly held view that what people say they believe about God is not necessarily true of what they actually believe (Boyer, 2003; Slone, 2004). One interpretation is that they are artifactual, reflecting nothing more than variation in participants' understanding of, or engagement with, the task at hand. Another (more interesting) interpretation is that they are symptomatic of variation in how to make sense of God's public representations as a whole, with anthropomorphic responses reflecting a fundamentally different interpretation of religious claims than nonanthropomorphic responses.

One reason to suspect the latter – i.e., that different God concepts are correlated with different patterns of religious belief – is that correlations of this nature have been documented in many other domains of knowledge. For instance, different concepts of matter are correlated with different beliefs about mass, weight, and density (Smith, Snir, &

Grosslight, 1992); different concepts of force are correlated with different beliefs about acceleration, momentum, and inertia (McCloskey, 1983); and different concepts of evolution are correlated with different beliefs about adaptation, speciation, and extinction (Shtulman, 2006). These correlations have been interpreted as evidence that our knowledge of natural kinds is organized in self-consistent, causal-explanatory networks (Carey, 1985; Keil, 1989; Murphy & Medin, 1985). Whether or not our knowledge of “supernatural kinds” is organized in a similar manner is an open question.

Previous research on religious cognition has not specifically looked for correspondences between God concepts and overall theologies. Instead, this research has focused either on explicating the content of God concepts apart from their associated beliefs (Bassett & Williams, 2003; Trimeche, Vinsonneau, & Mullet, 2006) or on comparing children’s God concepts to those of adults (Barrett, Richert, & Driesenga, 2001; Gimenez-Dasi, Guerrero, & Harris, 2005). In contrast, the present study sought to determine whether variation in adults’ God concepts tracks variation in their religious beliefs and religious practices more generally. Such a finding would imply not only that resolving the ambiguity inherent in God’s public representations has different consequences for different individuals but also that religious beliefs, like scientific beliefs, are organized in a theory-like manner.

## Method

### Participants

Thirty-two American adults, ranging in age from 18 to 46, were recruited from the study pool of a large, urban university and were compensated for their participation either monetarily or with course credit in an introductory psychology class. Participation was restricted to individuals who believed in the existence of God, though participants varied widely in their particular religious affiliations: 34% self-identified as Protestant, 16% Catholic, 9% Unitarian, 6% Jewish, 6% Buddhist, 3% Muslim, and 25% claimed not to be affiliated with any particular religion.

### Procedure

Each participant completed a six-part questionnaire that probed their beliefs about (1) God’s appearance and occupation, (2) God’s relationship to nature, (3) God’s relationship to humankind, (4) supernatural beings associated with God (angels and Satan), (5) supernatural locations associated with God (Heaven and Hell), and (6) prayer, ritual, and worship. The particular questions on each topic are presented in combination with participants’ responses in the Results section. Questions for which participants’ responses exhibited little to no variation were omitted from these analyses for the sake of brevity.

Participants’ religious beliefs were analyzed in relation to their God concepts as measured by a property-attribution task. In this task, participants were asked to decide whether

God could or could not be attributed twelve human properties: “dreams,” “sees,” “talks,” “thinks,” “eats,” “grows,” “sleeps,” “sneezes,” “gets cold,” “gets wet,” “sits,” and “stretches.” The first four properties were intended to exemplify human psychological properties, the middle four human biological properties, and the last four human physical properties. The properties were arranged in alphabetical order, and the task itself was sandwiched between questions about God’s occupation and questions about God’s existence in the first part of the questionnaire.

Participants’ responses to the open-ended questions were coded using the schema presented in Table 1. All responses were coded by two independent judges. Overall agreement between judges was 90%, and all disagreements were resolved through discussion.

## Results

### Beliefs about God

The first part of the questionnaire probed participants’ beliefs about God’s appearance and occupation. It also probed participants’ beliefs about God’s anthropomorphic properties, as assessed by the aforementioned property-attribution task. Replicating previous research (Shtulman, 2008), participants attributed more psychological properties to God ( $M = 2.8$ ,  $SD = 1.1$ ) than biological properties ( $M = 0.7$ ,  $SD = 1.3$ ) or physical properties ( $M = 0.7$ ,  $SD = 1.1$ ), and they varied widely in the total number of properties attributed (range = 0 to 12).

For the purposes of data analysis, participants were split into two groups: those who attributed zero to three human properties to God ( $n = 16$ ) and those who attributed four to twelve human properties to God ( $n = 16$ ). The first group were labeled “weak anthropomorphizers” and the second “strong anthropomorphizers.” Note that the labels “strong” and “weak” denote relative, not absolute, amounts of anthropomorphism, for even the strong anthropomorphizers typically attributed fewer than half of the 12 properties to God. Still, 96% of the strong anthropomorphizers attributed at least one biological or physical property to God, whereas only 6% of the weak anthropomorphizers did. Thus, strong anthropomorphizers differed from weak anthropomorphizers not only in the *number* of properties attributed to God but also in the *type* of properties attributed.

Participants answered an additional five questions about God’s nature and existence. In response to the question “What does God look like?,” 56% of participants claimed that God has a definite physical appearance (e.g., “looks like a human being”), and 44% claimed that God’s appearance is either unknown or unknowable (e.g., “in our limitation as humans we cannot conceive of what God looks like”). In response to the question “What does God do?,” 69% claimed that God intervenes in human affairs (e.g., “he guides, chastises, advises, sacrifices, reminds and loves”), and 31% claimed that God’s occupation is either unknown or unknowable (e.g., “God is omnipresent, so he does not ‘do’ anything in the conventional sense”). In response to the

Table 1: The percentage of weak anthropomorphizers (WA) and strong anthropomorphizers (SA) who professed each of the following beliefs and practices, and the strength of association ( $\phi$ ) between being a strong anthropomorphazer and professing each belief/practice ( $df = 1$  for all statistical comparisons).

Topic	Professed belief/practice	WA	SA	$\phi$
God	God has a physical appearance.	19	94	.76**
	God intervenes in human affairs.	50	88	.41*
	God answers prayers.	38	75	.38*
	God's existence is discernible from experience.	25	63	.38*
	God's existence is 100% certain.	13	63	.52**
Cosmogogenesis	God created the universe as is.	25	63	.39*
	God created the universe via the Big Bang.	38	25	-.14
	God did not create the universe.	38	6	-.39*
Anthropogenesis	God created human beings as is.	6	56	.54**
	God created human beings via evolution.	50	13	-.41*
	God did not create human beings.	44	31	-.13
Problem of evil	God is not omnipotent and/or omnibenevolent.	50	25	-.26
	Suffering is part of the human condition.	31	0	-.43**
	God uses suffering to teach or to punish.	19	69	.50*
Problem of sin	God is not omniscient and/or judgmental.	69	25	-.44*
	God gave humans the freedom to disobey him.	25	69	.44*
Angels	Angels exist.	50	81	.33
	Angels have biological or physical properties.	6	56	.54**
	Angels have a physical appearance.	25	69	.44*
	Angels act as God's helpers.	19	56	.39*
Satan	Satan exists.	44	69	.25
	Satan has biological or physical properties.	13	63	.52**
	Satan has a physical appearance.	19	63	.45*
	Satan acts as God's enemy.	13	50	.41*
Heaven	Heaven exists.	50	81	.33
	Heaven occupies a discrete location in space.	13	38	.29
	Heaven has a physical appearance.	19	56	.39*
	Human activities continue in Heaven.	25	69	.44*
Hell	Hell exists.	38	81	.45*
	Hell occupies a discrete location in space.	13	38	.29
	Hell has a physical appearance.	19	56	.44*
	Human activities continue in Hell.	19	69	.50**
Prayer	Prays at least occasionally.	63	69	.07
	Prays once or more per day.	13	44	.35*
Worship	Attends religious services at least occasionally.	56	88	.35*
	Attends religious services once or more per week.	19	44	.27
	Belongs to an organized religion.	75	75	.00
	Belongs to a denomination of Christianity.	38	63	.25
Education	Acquired beliefs from a religious authority.	25	63	.38*
	Acquired beliefs from family.	38	31	-.07
	Acquired beliefs from scholarship, reflection.	38	6	-.38*

question “Does God answer prayers?,” 56% claimed that he does, and 44% claimed that he does not. In response to the question “How do you know that God exists?,” 44% provided an “experiential” justification (e.g., “I can feel him in my soul”), 41% provided an “intellectual” justification (e.g., “acknowledging a higher power feels like a good way to order the universe”), and 16% simply appealed to faith. Finally, in response to the question “How confident are you, on a scale from 1 (not confident) to 7 (100% confident), that God exists?,” participants provided an average confidence

rating of 5.2 ( $SD = 2.0$ ), and a modal confidence rating of 7. Displayed in Table 1 are the percentage of weak and strong anthropomorphizers who provided the five most common responses summarized above. Accompanying these percentages are a measure of the association between being a strong anthropomorphazer and providing each of response. As can be seen from this table, strong anthropomorphizers were significantly more likely than weak anthropomorphizers to claim that God (a) has a physical appearance, (b) intervenes in human affairs, and (c) answers

prayers. Moreover, strong anthropomorphizers were significantly more likely than weak anthropomorphizers to claim that they have experienced God's presence in their lives and are 100% certain that God exists. Participants' propensity to anthropomorphize God was thus correlated with their propensity to view God as a palpable (and pertinent) influence on everyday human affairs.

### **Beliefs about God's Relationship to Nature**

The second part of the questionnaire probed participants' beliefs about God's role in the origin of the universe (cosmogogenesis) and the origin of human beings (anthropogenesis). Participants' beliefs about cosmogogenesis were elicited with the questions (1) "Do you believe that God created the universe?," (2) "Do you believe that the universe was created in the Big Bang?," and (3) "If you answered 'yes' to both questions, how do you resolve the apparent inconsistency between these two ideas?" Participants' beliefs about anthropogenesis were elicited with the questions (1) "Do you believe that God created human beings?," (2) "Do you believe that human beings evolved from other organisms?," and (3) "If you answered 'yes' to both questions, how do you resolve the apparent inconsistency between these two ideas?"

On the topic of cosmogogenesis, 44% of participants claimed that the universe was created by God alone, 25% by the Big Bang alone, and 31% by both God and the Big Bang. Those who claimed that the universe was created by both God and the Big Bang justified their claim by appealing to some kind of dual process (e.g., "God set in motion the forces that created the Big Bang"). On the topic of anthropogenesis, 31% of participants claimed that human beings were created by God alone, 38% by evolution alone, and 31% by both God and evolution via some kind of dual process (e.g., "God created the organisms that ultimately evolved into humans").

The percentages of weak and strong anthropomorphizers who provided each of the above responses are displayed in Table 1. Strong anthropomorphizers were significantly more likely than weak anthropomorphizers to endorse a creationist explanation for both phenomena. Weak anthropomorphizers, on the other hand, were significantly more likely than strong anthropomorphizers to adopt a naturalistic explanation for cosmogogenesis and a quasi-naturalistic explanation for anthropogenesis. Collapsing across "God only" explanations and "dual-process" explanations, strong anthropomorphizers were no more likely than weak anthropomorphizers to claim that God played at least *some* role in each process, indicating that the aforementioned differences are more nuanced than the difference between wholly accepting or wholly rejecting divine causation.

### **Beliefs about God's Relationship to Humankind**

The third part of the questionnaire probed participants' beliefs about God's role in human suffering and human sin. These beliefs were elicited by asking participants to reason

about two theological problems, traditionally known as the "problem of evil" and the "problem of sin" (see Plantinga, 1977). Reasoning about the first problem was elicited with the questions (1) "Do you believe that God is all powerful?," (2) "Do you believe that God is all good?," and (3) "If you answered 'yes' to both, why do you think God allows (or fails to prevent) human suffering?" Reasoning about the second problem was elicited with the questions (1) "Do you believe that God is all knowing?," (2) "Do you believe that God holds human beings responsible for their actions?," and (3) "If you answered 'yes' to both, why do you think God holds human beings responsible for actions he knows they will make?"

With regard to the problem of evil, 38% of participants denied that God is either omnipotent or omnibenevolent, 44% claimed that God is both omnipotent and omnibenevolent but that God uses suffering to teach or to punish (e.g., "God gave man free will and man chose to sin and suffering is a result of this sin"), 16% claimed that God is both omnipotent and omnibenevolent but that suffering is simply part of the human condition (e.g., "suffering, in various degrees, is part of the natural course of life"), and 3% plead ignorance. With regard to the problem of sin, 47% of participants denied that God is omniscient, judgmental, or both, 47% claimed that God is both omniscient and judgmental but that he also gave human beings the freedom to disobey him (e.g., "God gave man free will and hopes they will make the right choice, but sometimes they don't"), and 6% plead ignorance.

The percentages of weak and strong anthropomorphizers who provided each of the above responses are displayed in Table 1. Strong anthropomorphizers were significantly more likely than weak anthropomorphizers to claim that God uses suffering to teach or punish, and weak anthropomorphizers were significantly more likely than strong anthropomorphizers to claim that suffering is part of the human condition. Moreover, strong anthropomorphizers were significantly more likely than weak anthropomorphizers to claim that God gave humans the freedom to disobey him, and weak anthropomorphizers were significantly more likely than strong anthropomorphizers to deny that God is omniscient, judgmental, or both. In short, weak anthropomorphizers tended to treat suffering and sin as secular phenomena, not particularly linked to God, and strong anthropomorphizers tended to interpret sin as the defiance of divine law and suffering as the consequence of divine justice – beliefs reminiscent of those previously characterized as "belief in a just world" (Lerner, 1980).

### **Beliefs about Angels and Satan**

The fourth part of the questionnaire probed participants' beliefs about two supernatural beings commonly associated with God: angels and Satan. Participants were first asked a series of property-attribution questions identical to those described earlier for God, and their responses were analyzed for the presence of biological and physical attributions. They were then asked whether they believed in the existence

of each being, and, if so, what they thought those beings looked like and how they thought those beings were related to God. Responses to the first question were coded for evidence that angels and Satan were believed to possess a physical appearance (e.g., “most angels have wings and are bright,” “Satan looks like a ball of fire”), and responses to the second were coded for evidence that angels and Satan were believed to maintain a social relationship with God (e.g., “angels are God’s servants,” “Satan is God’s enemy”) rather than some type of existential relationship (e.g., “God is angels and angels are God,” “Satan is a part of God because God is everything”).

These responses are summarized in Table 1 as a function of participant group. Overall, strong anthropomorphizers were not significantly more likely than weak anthropomorphizers to believe in the existence of either angels or Satan, but they *were* significantly more likely to claim that these beings (a) possess the biological and physical properties of a human, (b) have a physical appearance, and (c) maintain a social relationship with God. In short, participants’ propensity to anthropomorphize God was correlated with their propensity to anthropomorphize other members of their religious cosmology.

### **Beliefs about Heaven and Hell**

The fifth part of the questionnaire probed participants’ beliefs about two supernatural places associated with God: Heaven and Hell. Participants were asked whether they believed in the existence of each place, and, if so, where they thought those places were located, what they thought those places looked like, and what they thought the occupants of those places did. Responses to the first question were coded for evidence that Heaven and Hell were believed to occupy a discrete location in space (e.g., “Heaven is in the sky,” “Hell is below the earth’s crust”); responses to the second were coded for evidence that Heaven and Hell were believed to possess a physical appearance (e.g., “Heaven looks like a garden,” “Hell looks like a prison”); and responses to the third were coded for evidence that the occupants of Heaven and Hell continue to engage in human activities (e.g., “singing, talking, dancing,” “weeping and gnashing of teeth”).

These responses are summarized in Table 1. Consistent with the belief that God possesses discrete physical properties, strong anthropomorphizers were significantly more likely than weak anthropomorphizers to claim that Heaven and Hell occupy discrete locations in space and that the occupants of Heaven and Hell engage in human activities. Strong anthropomorphizers were also more likely than weak anthropomorphizers to believe in the very existence of Heaven and Hell. In short, participants’ propensity to anthropomorphize God was correlated with their propensity to accept, and to “spatialize,” both places.

### **Religious Practices**

The last part of the questionnaire contained questions about participants’ religious practices and religious upbringing.

Most participants (66%) claimed to engage in prayer at least occasionally, with 28% claiming to engage in prayer weekly. Likewise, most participants (72%) claimed to attend religious services at least occasionally, with 31% claiming to attend religious services weekly. In terms of affiliation, 50% claimed to belong to a Christian religion, 25% claimed to belong to a non-Christian religion, and 25% claimed to belong to no religious whatsoever. Finally, in response to the question “From whom did you acquire your current religious beliefs?,” 44% claimed to have acquired their beliefs from a religious authority (e.g., a priest, a rabbi, “the church”), 34% claimed to have acquired their beliefs from their family, and 22% claimed to have acquired their beliefs from independent scholarship or personal reflection.

The percentage of weak and strong anthropomorphizers who claimed to engage in each of the aforementioned practices is displayed at the bottom of Table 1. Overall, strong anthropomorphizers were significantly more likely than weak anthropomorphizers to pray once or more per week, to attend religious services (at all), and to have acquired their beliefs from a religious authority. Weak anthropomorphizers, on the other hand, were significantly more likely to have acquired their beliefs from independent scholarship or personal reflection. The finding that participants’ propensity to anthropomorphize God was correlated with their propensity to subscribe to the teachings of a religious authority is particularly interesting in light of the popular assumption that an anthropomorphic concept of God is not a “theologically correct” concept of God (e.g., Barrett & Keil, 1996; Boyer, 2003). Apparently, many strong anthropomorphizers would disagree.

### **Discussion**

The present study explored the relationship between individuals’ endorsement of an anthropomorphic God concept and their various beliefs and practices related to God. Overall, it was found that participants’ propensity to anthropomorphize God was correlated with their propensity to (a) view God as a palpable and pertinent influence on human affairs, (b) adopt a creationist stance toward the origin of the universe and the origin of human beings, (c) adopt a “just world” view of human suffering and human sin, (d) anthropomorphize angels and Satan; (e) spatialize Heaven and Hell, and (f) engage in traditional religious activities, like prayer and worship.

Underlying these correlations were two qualitatively different, yet internally consistent, patterns of belief. One pattern, exhibited by strong anthropomorphizers, appeared to be structured around participants’ understanding of human existence and human affairs. On this pattern, God is conceptualized as a divine ruler, angels are conceptualized as God’s political allies, Satan is conceptualized as God’s political opponent, Heaven and Hell are conceptualized as God’s political territory, cosmogenesis and anthropogenesis are conceptualized as God’s greatest achievements, and sin and suffering are conceptualized as God’s primary spheres of influence. The other pattern of belief, exhibited by weak

anthropomorphizers, appeared to be structured around more abstract, and more limited, metaphysical commitments. On this pattern, God is conceptualized as an immaterial entity (rather than a physical object), angels and Satan are conceptualized as aspects of God (rather than independent agents), Heaven and Hell are conceptualized as states of being (rather than spatial locations), cosmogenesis and anthropogenesis are conceptualized as acts of nature (rather than acts of God), and sin and suffering are conceptualized as part of human nature (rather than part of a divine plan). Whereas the first pattern might best be described as a “humanistic theology,” the second might best be described as an “existential theology.”

The fact that these patterns of belief were associated with different religious practices suggests that different God concepts have different behavioral implications in addition to different cognitive implications. Presumably, the reason strong anthropomorphizers are more likely than weak anthropomorphizers to engage in prayer and worship is that only an anthropomorphic God would attend to, or care about, such activities. Of course, these correlations may be interpreted in the opposite manner – i.e., that individuals who engage in religious activities are more likely to hold a concept of God that is consistent with those activities. Tied to this concern is the broader concern that individual differences in God concepts may be due more to differences in religious education than to differences in the inferential relationship between one’s God concept and one’s God-related beliefs and practices.

There are at least three reasons to doubt that individuals inherent, rather than create, their personal theologies in the course of religious education. First, complete theologies are likely difficult to communicate given that God concepts are only one of many religious concepts open to multiple interpretations, as evidenced by participants’ divergent interpretations of angels, Satan, Heaven, Hell, prayer, sin, and suffering. Second, the theologies documented in the present study were not specific to any one religion (see the section on religious affiliation in Table 1), implying that they are not the byproduct of a particular religious education (e.g., a Protestant education). Third, participants were unlikely to have pondered each and every issue broached by the questionnaire prior to participation, yet their responses to these questions were internally consistent nonetheless.

That said, future research could explore the development of personal theologies more directly. For instance, one could investigate the theologies of young children and chart how these theologies change over time, particularly their explanatory coherence and inferential scope. Alternatively, one could compare the theologies of different members of the same cultural unit, like the same church or the same family, to assess the dimensions along which personal theologies are most likely (and least likely) to differ. Such research would not only increase our understanding of religious cognition but would also increase our understanding of the interaction between culture and cognition more generally.

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