

## ANTHROPOMORPHISM OR PREPAREDNESS? EXPLORING CHILDREN'S GOD CONCEPTS

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*Historically, the development of God concepts in human cognition has been explained anthropomorphically. In other words, for children especially, God is a big, super-human who lives in the sky. Recent empirical research on the development of these concepts may suggest an alternative hypothesis. In this paper, we review this research and outline the "preparedness hypothesis," which suggests that children may be cognitively equipped to understand some properties of God in a non-anthropomorphic way.*

**F**or scholars of religion and religious practitioners alike, the facility with which young children acquire and use concepts of God is obvious. Much as in reasoning about other people, children from religious families readily generate inferences, explanations, and predictions about God's behavior in novel and sometimes personal circumstances. But where does this religious fluency come from?

For over 100 years in the scientific study of religion and especially in the psychology of religion, one recurrent account for both the origins of religion and the ease with which people of all ages acquire god concepts is anthropomorphism. That is, god concepts amount to taking a representation of humanness and projecting it onto "God" or the gods of any given religion. By implication, children conceptualize God in the same way that they conceptualize humans. Thus, the real problem for the developmental psychologist is to explain how children conceptualize humans. The quest to understand how it is that children understand humans has uncovered tremendous insights over the past thirty years, particularly because of breakthroughs from the fields of cognitive development and the cognitive sciences. But rather than filling in the details of the anthropomorphism hypothesis, recent research on how children make sense of humans has questioned the assumption that children *first* form thorough human concepts and *then* use these to conceptualize God (and other beings).

In contrast to the anthropomorphism hypothesis, we argue that early-developing conceptual structures in children used to reason about God are *not* specifically for representing humans, and, in fact, actually facilitate the acquisition and use of many features of God concepts of the Abrahamic monotheisms. For the present discussion, we term the alternative hypothesis the "preparedness hypothesis." Specifically, after amplifying the preparedness hypothesis and anthropomorphism hypothesis in turn, we review recent research with children concerning how they understand the creative power of humans versus God, the mental abilities of humans versus God, and the mortality of humans versus God. In all three categories, data to date challenge the anthropomorphism hypothesis and support the pre-

paredness hypothesis. We conclude with some brief remarks about implications of the preparedness hypothesis for religious education.

## **THE PREPAREDNESS HYPOTHESIS**

Our contention is that children may easily form representations of God because the relevant underlying conceptual structures used for representing God have two favorable properties. First, rather than being solely dedicated to informing understandings of humans, the cognitive device responsible for processing God concepts is a general intentional agent device, quite capable of representing human agents as well as any other intentional agent, from God to ghosts to gorillas. That is, the relevant representational device is flexible with regards to many properties that theologians teach God has but humans do not have. Therefore, at least for children, many supernatural properties do not impose undue conceptual burdens.

A second feature of children's cognitive equipment responsible for God concepts is that by default it assumes that many superhuman properties are the norm. For example, when something has been identified as an intentional agent, a three-year-old's default assumption is that the agent has the superhuman property of infallible beliefs (at least under certain parameters discussed below). Concepts of God are easily accommodated because they play upon many of these default assumptions rather than violate them.

This preparedness hypothesis is clearer when contrasted with a more conventional hypothesis concerning how children think about and understand God, the anthropomorphism hypothesis.

## **THE ANTHROPOMORPHISM HYPOTHESIS**

Since the beginning of the twentieth century, psychologists studying how gods are represented through development have periodically reformulated god concepts in the leading theories of the time: e.g., Freudian, Piagetian, and object-relations theories. Despite changes in theoretical perspective, all schools of thought have either implicitly or explicitly affirmed one central observation—from their inception, God (at least in the Judeo-Christian world) is fundamentally understood anthropomorphically, and through development, God becomes less and less anthropomorphic. God begins as a big person living in the sky and then becomes (for many Abrahamic theists) an all-present, formless, unchanging, non-temporal, all-knowing, and all-powerful being. Crude, physical anthropomorphism thus gives way to God as an abstract being with unusual properties.

Piaget, arguably the most influential figure in cognitive development, explained early concepts of God as inextricably connected to children's understanding of their parents. The relating of concepts of God to concepts of parents was not new. But, rather than framing this relationship in terms of the psychological need to project a protecting yet vengeful father figure (Freud 1961 [1927]), Piaget emphasized children's cognitive representations and understandings of their parents and the origins of the world (Piaget 1929). For Freud, God is a surrogate father needed to diffuse anxiety. For Piaget, God is a parent who fulfills intellectual needs to account for the structure of the world. Both understood children's concepts of God to be based upon anthropomorphism of a "crudely physical kind" (Goldman 1964).

Piaget's discussion of God concepts drew from two primary observations. First, Piaget noted that many children seven years old or younger seemed to believe that the natural

world has been created by human beings. He termed this phenomenon “child artificialism” (Piaget 1929). Children he interviewed reported that lakes, clouds, rocks, and other natural things were both younger than humanity and created by humans. Second, Piaget believed that children younger than about seven endow their parents and other adults with the properties of omniscience and omnipotence. As evidence, Piaget cited the “crisis” children reportedly face when they find that some things are outside of their parents’ control or knowledge. Until children outgrow this stage and begin to appreciate human fallibility, God is just another human: “He is just a man like anyone else, who lives in the clouds or the sky, but who, with this exception, is no different from the rest” (381). After children understand that humans do not, in fact, possess God-like properties, God is left as the only member of the pantheon. God is thus a residual of childhood naivete supported by theological instruction. “The child begins by attributing the distinctive qualities of the divinity—especially omniscience and almightiness—to his parents and thence to men in general. Then, as he discovers the limits of human capacity, he transfers to God, of whom he learns in his religious instruction, the qualities which he learns to deny to men” (268).

Piaget’s acknowledgement of children’s early attributions of divine qualities may appear somewhat like our “preparedness hypothesis” in that it suggests an early ease with conceptualizing God’s special powers. However, the fundamental difference in the theories is that even when children make this transfer of properties, Piaget insists that the child’s concept is still anthropomorphic. God may be omnipotent and omniscient, but God still is imagined as a man who lives in the sky, with human physical properties. Under Piaget’s theory of cognitive development, children simply do not have the faculties to deal with a more abstract concept of God until they pass out of the stage of concrete operations, sometime in early adolescence (Gorsuch 1988; Piaget 1929). Consequently, concepts of God begin as crude anthropomorphisms, but by adulthood, they become abstract.

Several theoretical works have incorporated Piagetian thinking into the exploration of developing God concepts (e.g., Elkind 1970; Goldman 1964, 1965). Likewise, many empirical studies have produced evidence of the concrete-to-abstract shift, using interviews with children and young adults (Pealting 1974; Tamminen 1991); asking children to draw pictures of God (e.g., Pitts 1976); and asking children to write letters to God (e.g., Heller 1986). However, some of these tasks may bias children toward anthropomorphism (Petrovich 1997). Repeatedly, the Piagetian notion that “the term God for a young child is likely to mean big person” (Paloutzian 1996) echoes throughout the literature.

The various developmental accounts all attempt to capture the same pattern—children seem to talk about and depict God and gods primarily as human-like, while adults often espouse fairly abstract, sophisticated ideas about gods. The standard anthropomorphic-to-abstract shift captures this pattern nicely. Nevertheless, as with a number of Piaget’s conclusions, illuminating this pattern with more contemporary theoretical and empirical work from cognitive science reveals potential problems with the standard interpretation.

To begin, little attempt has been made to equate the tasks for relative pragmatic difficulties across ages, or to insure that comparable measures are being used at various ages. Perhaps the measures are simply more computationally difficult for children than for adults, but both have similar god concepts. While some cross-sectional studies have used the same interview method for children through adults (e.g., Tamminen 1991), much of the best evidence for physical anthropomorphism comes from asking children to write letters to God, draw pictures of God, and tell stories about God (Heller 1986).

These responses then have been compared to adult responses to inventories, questionnaires, and other forms of self-reported beliefs. Most, if not all, of the measures used for children are especially vulnerable to introducing bias and are not comparable to the typical measures used for adult god concepts. Would asking adults to draw pictures of God also yield anthropomorphic responses? Perhaps these differences in the measures used with children and adults have unfairly maintained the notion of an anthropomorphic-to-abstract shift. More age appropriate, and less biasing tests of children's God concepts are emerging in the field of cognitive development in which God concepts are directly compared to human concepts along the same dimensions. Below we review some recent research on children's concepts of God that call into question the crude anthropomorphism hypothesis by using protocols pragmatically simpler and less subject to anthropomorphic bias than much past research.

### **EVIDENCE FOR THE PREPAREDNESS HYPOTHESIS**

Despite the long history of research on children's understanding of God, contemporary, post-Piagetian research on children's representation of God's divine, non-human attributes remains scarce. However, despite the paucity of work in the area, enough studies have emerged to cast doubt on the anthropomorphism hypothesis as applied to three of God's attributes: God's power as applied to creativity, God's knowledge and mental attributes, and God's immortality. We examine each of these attributes in turn.

#### ***On God's Creative Power***

As sketched above, Piaget's version of the anthropomorphism hypothesis was largely inspired by his discovery of "childhood artificialism," the notion that the natural world was created by people. If people can create natural things such as animals, lakes, and rocks, then God doing so places God's power on par with humanity's and not something special. However, newer investigations have questioned the prevalence of artificialism and suggest that very young children can appreciate God as distinct from humans in creative capability.

For example, Petrovich (1999, Experiment 1) presented 30 British preschool-children (mean age 4.4 years) with pairs of photographs of various objects such as animals (e.g., a dog), plants (e.g., daffodils), other natural kinds (e.g., snow, leaves), toy animals and plants, and common artifacts (e.g., chair, books). The experimenter asked the children whether either of the two photographs was "something that can be made by people or something that people can't make" (p. 10). Only when the pair contained an artificial imitation of a natural kind (e.g., a toy cow) did children seem to be confused. When a clear natural kind (such as leaves) was contrasted with an artifact (such as a bus), children were remarkably accurate (exceeding 90%) at indicating whether the objects could or could not be made by people. Based on these and other data Petrovich concluded that when considering origins, preschoolers clearly discriminate between the natural world and the artificial.

In another set of studies, Petrovich (1997) connected children's understanding of origins more closely to their concepts of God. British preschoolers ( $N = 135$ , mean age 4.3 years) answered questions regarding the first origins of either "plant life," "animal life," the sky, or the earth, sky, and large rocks (depending upon condition). Children were given three forced-choice options: by people, by God, or nobody knows/unknown power. Under these conditions, preschoolers were nearly seven times more likely to answer that God was the source of the natural world than people. Taken with the finding that children clearly dis-

missed the possibility that natural kinds are made by people, these results seem to suggest that preschoolers may indeed understand God as possessing importantly different creative power than people.

Petrovich's studies undermine the strength of childhood artificialism and provide strong evidence that four-year-old children are *capable* of representing God as having non-anthropomorphic power, and the early age at which children have this capability suggests a degree of preparedness. After all, Piaget's fundamental observation that young children are biased to overestimate the power of adults has not been challenged, suggesting a default tendency to represent intentional agents—gods or people—as being super-powerful. What has been challenged is that this super-power bias is a distinctively and indiscriminately human attribute that gets extended to other agents. It now appears that preschool children can successfully “turn off” the bias when considering the role of humans in origins of the natural world.

Though not directly addressing children's God concepts, another set of studies deserving brief mention support the notion that children may have strong dispositions to understand the world as created, but not created by humans. Evans (2001) examined origin explanations from 5- to 7-year-old and 8- to 10-year-old American children from either fundamentalist Christian communities or non-fundamentalist communities. When asking children to rate their agreement with various origin accounts, she found that regardless of whether parents taught evolution-based origins to their children, children vastly favored creationist accounts of origins for animals and other natural kinds over either evolutionist, artificialist, or emergentist accounts, suggesting a bias to accept the natural world as created by a non-human super being.

### ***On God's Mind***

Over the past fifteen years, one of the most productive areas of cognitive developmental psychology has been the sub-field often referred to as “theory of mind.” This domain of conceptual development concerns how children come to predict and explain human action in terms of mental states such as percepts, beliefs, and desires. When is it that children understand that people act in ways to satisfy their desires, but that desires are regulated through beliefs about the world, and beliefs are formed through percepts? How do children come to this understanding? One of the latest turns in the theory of mind sub-field has been a growing interest in how children come to understand non-human minds including those of animals and gods. Some of this research bears directly on the question of whether children mentally represent God through anthropomorphism or they have a more general concept of mind that is biased to successfully represent God's mind as it is understood by the Abrahamic monotheisms.

A well-documented and broadly accepted conclusion from work on theory of mind is that most two- and three-year-olds have difficulty understanding beliefs as potentially differing from person to person and potentially false. By age five, most children understand that people may have false beliefs; they may believe something that simply is not true. To illustrate, an experimenter presents a young three-year-old with an ordinary cardboard cracker box complete with pictures of crackers on the outside. Assuming the three-year-old is familiar with crackers and cracker boxes, if the child is asked the contents of the box, he will answer that crackers are inside the box. The experimenter then shows the child that the box actually contains rocks and then re-closes the box. After showing there are rocks in the

box but not crackers, the experimenter asks the child to suppose his mother enters the room and sees the closed cracker box for the first time, what would she think is inside the box? Most three-year-olds answer “rocks” to this question, indicating they do not appreciate that their mother would be fooled by the appearance of the box into forming a false belief (Wellman, Cross, and Watson, 2001). Typically by age five, children successfully understand that their mother may have a false belief regarding the contents of the box and assume that there are crackers in the box. Using tasks such as the one described (a version of the surprising-contents false-belief task) and a number of others, developmental psychologists have shown that children seem to progress from assuming that all beliefs map directly onto what the child understands to be reality to understanding that beliefs are representations of what might be the case. In other words, they begin with a default assumption that beliefs are infallible and learn that beliefs can be wrong.

How does this developmental story apply to children’s understanding of God? If the anthropomorphism hypothesis is correct, it raises the interesting possibility that children begin by assuming that God’s beliefs are infallible just like their mother’s, and shift to claiming God’s beliefs to be fallible just like their mother’s. Continuing along this line, children will be compelled to develop from a “theologically accurate” understanding of God’s beliefs to an “inaccurate” one. We have tested this hypothesis using the cracker box task described above.

We presented 52 3- to 6-year-old American Protestant children with the rock-containing cracker box (Barrett, Richert, and Driesenga, 2001, Experiments 1 and 2). As in previous theory of mind research, most three- and four-year-olds answered “rocks,” indicating they did not yet understand that Mom could entertain incorrect beliefs. Nearly all five- and six-year-olds answered “crackers,” knowing that Mom would be fooled by the appearance of the box. To illustrate, only 18% of three-year-olds said their mothers would think crackers were in the box compared to 87% of six-year-olds. Thus, there was a strong correlation between age and answering “crackers,”  $r = .63$ . However, when asked what God would think was in the box, children at all ages were equally likely to answer “rocks,” appreciating God would not be fooled by the appearance of the box. None of the three-year-olds and only one of nine six-year-olds said God would think there were crackers in the box, yielding no age-related correlation,  $r = .09$ . Thus, when reasoning about beliefs, a clear divergence in developmental patterns emerged between children’s reports of Mom’s beliefs and God’s beliefs. In reporting Mom’s beliefs, children developed from attributing belief that there were rocks in the box to the false belief that there were crackers in the box. But when reporting God’s beliefs, children consistently (correctly) reported that God would believe there were rocks in the box. Contrary to the anthropomorphism hypothesis, children are not compelled to anthropomorphize along this dimension, nor must they move from “theologically accurate” to “theologically inaccurate.”

Another aspect of understanding minds that has been thoroughly investigated is the nature of perception. Research has revealed a developmental progression quite similar to understanding false beliefs. Three-year-olds often have difficulty understanding that just because they see something a certain way, not anyone or everyone else sees it the same way. Consequently, they might mistakenly assume that the book page that appears right-side-up to them also appears right-side-up to their mothers, for whom it is actually upside-down. By age five, children’s ability to appreciate another’s visual perspective approximates that of adults (Flavell, 1988). Such a developmental course invites another examination of God concepts along the same dimension.

In one experiment (Barrett, et al., 2001, Experiment 3), children ages three to eight looked through the slit in the top of a darkened shoe box and were asked, "What do you see inside the box?" After the children agreed that they could see nothing, the experimenter shined the flashlight through a small hole revealing a block inside to the child. The experimenter then turned off the light and allowed the child to look again. At this point, the experimenter told the child that kitty cats have special eyes and can see in the dark. Then, in random order, the child was asked about what a human puppet, a kitty, a monkey, and God saw in the darkened box. While 77% of three-year-olds reported that the human puppet could see the block in the darkened box, only 36% of five-year-olds did so. In contrast, participants treated God and the cat as importantly different from either the human puppet or the monkey. Of the three-year-olds, 92% answered that God would see the block and 77% said the cat would see the block. Similarly, 82% of the five-year-olds said God would see the block, whereas 91% said the cat would. No correlation between age and God-answers was detected,  $r = .08$ . Inferential tests likewise detected no significant differences between the cat and God at any age. Once again, when using concepts to generate inferences, children embraced decidedly different properties for God as compared with humans. Thus, children's agent concepts again appear flexible enough to accommodate non-human properties.

A second perspective-taking study supported these results (Richert & Barrett, 2002). Thirty-nine American children (ages three to seven) predicted the visual, auditory, and olfactory perspectives not only of humans, but also animals with special senses, and God. For the visual task, children saw a white piece of paper with a small yellow smiley face in the center that was approximately 1 centimeter in diameter and could only be seen when close to the paper. The auditory task involved a standard tape recorder/player and a tape of various children's songs playing very softly. The olfactory task used a 35mm film container with a small slit cut in the lid and peanut butter inside. Initially, in each condition, children reported they could not perceive the stimulus. Then, children were asked to move closely enough to each stimulus to either see, hear, or smell it, and to return to their original position. All children first reported their own perspective and then predicted the perspectives of a special agent (an eagle with special eyes, a fox with special ears, or a dog with a special nose), a monkey, a human puppet, and God in a random order. Results revealed that preschoolers may differentiate between various agents when predicting various perspectives. Analysis was conducted by combining the responses from the various conditions and dividing children into a young, intermediate, and old group. Across the groups, percentage of children responding above chance that the human (54%, 69%, 15%, respectively) and monkey (62%, 62%, 15%, respectively) puppets would perceive the stimulus decreased with age. The pattern was different for responses about God (69%, 77%, 92%, respectively) and the special agents (85%, 92%, 100%, respectively), which increased with age. More specifically, as with the cracker box task and the darkened box task, as soon as children began to demonstrate understanding of a particular dimension of human minds, they likewise showed discrimination regarding to which minds that dimension applies. They did not exhibit the wholesale anthropomorphism predicted by the anthropomorphism hypothesis.

In a similar line of research testing children's understanding of the role of background knowledge, the same pattern of differentiating types of agents emerged (Barrett, Newman, & Richert, in press). Fifty-one children (ages three through seven) from Christian schools were interviewed on three tasks all concerned with the general question: Do children consider the role of visual access and background knowledge in predicting what their mom, a

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dog, and God would know about a display? All three tasks used the same basic form. First, the experimenter presented children with a display that could not be fully understood initially and asked whether the children's mothers, a dog, or God would be able to understand the display. Second, the experimenter provided the relevant information for understanding the display to the children but not to the other agents. Finally, the experimenter asked the children again if their mothers, a dog, or God would be able to understand the display under the same initial conditions.

In the *doodle* task (Chandler and Helm, 1984), children were presented with a partially occluded picture. Each child was asked if she, her mom, a dog, or God would know what the entire drawing was. The entire picture was revealed and then partially occluded as before, and then the questions were repeated. In the *secret code* task, the experimenter showed children three unfamiliar symbols and told them that each stood for something. The experimenter asked whether or not the child and/or each of the three agents would know what one of the symbols meant. The questions were asked again after each symbol was explained. In the *secret game* task, the experimenter began playing a novel game. After children said they did not know what the experimenter was doing, the experimenter asked whether each of the three agents would know what the experimenter was doing. Then the experimenter explained the activity to be a secret game invented by the experimenter and repeated the questions.

Children's performance on these tasks answers a number of questions relevant to the anthropomorphism and preparedness hypotheses. First, children seemed unable to understand the importance of background knowledge for people to interpret visual displays until age five. After being given full knowledge of the displays, three- and four-year-olds (but not the older children) significantly changed their responses regarding Mom's understanding of the displays, apparently confusing their own knowledge with their Moms'. Before understanding the displays themselves, 40% of three-year-olds and 20% of four-year-olds reported that their mother would understand the displays. Once they understood the displays themselves, an irrelevant fact in estimating their mothers' understanding, 67% of three-year-olds and 58% of four-year-olds believed their mother would understand the displays. Apparently, these younger children were unable to disambiguate their own knowledge from that of their mothers, suggesting an incomplete recognition of the role of background knowledge in forming beliefs. In contrast, only children age five and older reported above chance that Mom would not understand the displays both before and after they themselves understood the displays.

Given this developmental pattern when reasoning about background knowledge for a person, the anthropomorphism hypothesis would predict that a similar pattern would hold for reasoning about the dog and God. However, this was not the case. Children began to show signs of discriminating among the various agents even before understanding the mental dimension in question. Whereas three- and four-year-olds inappropriately revised their estimates of their mothers' understanding of the displays after learning about them themselves, they did not uniformly mis-extend their own knowledge to the other agents. Three-year-olds but not four-year-olds significantly revised their estimates of the dog's understanding of the displays after learning about themselves, and neither group significantly revised their estimate of God's knowledge. In fact, by age four, while children still showed evidence of inappropriately extending their own knowledge states to their mothers, children showed no evidence at all of changing their estimations of the dog's or God's understandings of the



displays. Before and after being told about the displays, four-year-olds reported the dog would understand the display 20% of the time, and God would understand the display 83% of the time. Clearly, even before “passing” the task when reasoning about their mothers, children already reasoned about God and the dog differently.

One final result of the background knowledge tasks merits mention. Before understanding the displays themselves, three-year-olds were significantly more likely to believe God would understand the displays than would the dog (60% versus 23%), and four-year-olds regarded God as significantly more likely to understand the displays than either their mother or the dog (83% versus 20% in both cases). Not only did children reason differently about God than their mother (i.e., they did not strictly anthropomorphize), they also accurately estimated that God would know *more* than their mother, even before they showed robust understanding of what is required to know something.

To summarize, when looking at various aspects of children’s understanding of minds including beliefs, knowledge, and perception across several modalities, a recurring pattern emerges. Children show evidence that they understand different minds as having different abilities even before they master these mental dimensions when reasoning about people. That is, before they correctly understand human minds, they are already differentially reasoning about different sorts of minds. More important for the present discussion, young children also appear to be more “theologically accurate” in reasoning about God’s mind than human minds. The bias seems to be toward overestimation of what information minds have access. This overestimation strategy leads to failure when reasoning about people and animals but success when reasoning about God.

### ***On God’s Immortality***

Unlike children’s understanding of minds, children’s understanding of mortality has received relatively little attention. This is particularly true regarding children’s conception of God’s mortality. One complicating factor in examining children’s understanding of God’s mortality/immortality in the traditionally Christian world is the salience of the incarnation. After all, Christianity holds that God was born and did die in the person of Jesus of Nazareth, and this story is reiterated annually at Christmastime. So, the theological claim that God is immortal could be especially difficult for children. Nevertheless, at least one recent study has explored children’s understanding of God’s immortality and yielded results consonant with the other findings presented.

Gimenez, Guerrero, and Harris (forthcoming) asked Spanish three- through five-year-olds questions regarding the mortality of a friend versus God. The questions included the following four:

1. “Right now there aren’t any dinosaurs in the world. But a long time ago there were lots of dinosaurs in the world, like this (show picture). Now what about \_\_\_\_\_.? When there were dinosaurs in the world, did \_\_\_\_\_ exist?”
2. “Right now —you’re a little boy/girl but a long time ago you were a little baby right? How about \_\_\_\_\_? Was s/he a little baby a long time ago?”
3. “What’s going to happen to \_\_\_\_\_ next year and the year after that? Will he get older and older or will he stay just the same?”
4. “What will happen to —\_\_\_\_\_ a long, long time from now? Will \_\_\_\_\_ die or will s/he go on living for ever and ever?”

Once again, the anthropomorphism hypothesis would predict that for all three age groups, children should answer comparably for God and for a friend. Once again, this was not the

case. Not unlike in the false belief task, three-year-olds did not distinguish between a friend and God. Children clearly attributed mortality to neither being. But by age five, children uniformly and accurately attributed mortality to a friend but not to God. Children showed no age-related change in attributing mortality to God; and four- and five-year-olds attributed mortality to their friends significantly more often than to God. Thus, the anthropomorphism hypothesis failed.

But was there evidence for the preparedness hypothesis? The results are not clear. As noted above, the Incarnation complicates measuring the understanding of immortality, especially using items such as question #2. It is not at all unreasonable for a Christian child or a child in a Christianized culture to answer that a long time ago God was a baby. That is what they are taught every December. Placing this concern aside, the data are still suggestive. Three-year-olds showed no evidence of entering the task with a default assumption that God and people are mortal, rather immortality appears to be just as natural an assumption. The mean mortality score for three-year-olds' friends was just at 50% chance levels, 2.0 (out of 4), compared with 1.6 for God. In a cultural context without a salient nativity story, three-year-olds could significantly reject mortality for God, suggesting further research in this area. Perhaps in a predominantly Muslim or Jewish nation, for instance, the salience of an incarnational God would reduce ambiguity in questioning children about God's birth and death.

Though the body of research is still thin concerning children's understanding of God's immortality versus the mortality of people, available data are consistent with the other research presented above. Preschool-aged children need not anthropomorphize God with regard to mortality and indeed seem biased to overextend immortality. That is, children may have an early bias to represent intentional agents as immortal.

## CONCLUSIONS

Once we consider cognitive developmental research using pragmatically simple methodologies, little support for the anthropomorphism hypothesis remains. Rather than God being attributed human traits until age seven or eight, even preschool-aged children appear fit to reason about many divine properties as importantly different from human properties. Children may understand that God and not people can create natural things, that God and not people have infallible beliefs, that God and not people have infallible percepts, that people and not God have limited knowledge for interpreting visual displays, and that people and not God are mortal. Across all of these attributes children show the capability of discriminating to which intentional beings they apply, even before mastering their application to humans. This early discrimination suggests there is nothing decidedly human about these attributes.

Even more interesting is the general finding that on many properties, young children seem equipped with default assumptions that better match theological descriptions of God than adult conceptions of people. Three-year-olds assume beliefs and percepts are infallible. They assume greater access to background knowledge than humans actually have. They assume beings such as humans and gods have greater power to create than humans actually have. They (at least) fail to attribute mortality to intentional beings such as people and God. These default assumptions or biases lead young children to reason quite poorly about other people, but much less poorly, and indeed quite accurately (according to some theories) on some dimensions, about God. That initial defaults are closely tuned to God's

attributes suggests a sort of preparedness for acquiring God concepts as taught in the Abrahamic monotheisms. In this regard, Piaget was quite correct: young children may treat adults and God similarly in having super-human properties.

Some important qualifications are in order. What we are suggesting is a certain conceptual bias that makes acquiring God concepts particularly natural but not necessarily inevitable. Much as someone could possess tremendous natural ability in music without proper exposure to music, these abilities might never be actualized. Likewise, relevant cultural inputs are undoubtedly necessary to acquire any particular god concept. Children will still need to be exposed to ideas about God or the divine beings of any particular tradition, their attributes, their “personalities,” their domains of concern, and so forth. The claim here is that children may require very little direct training or tuition to acquire fairly rich theological concepts.

Further, not all divine attributes are equally accommodated by the conceptual biases of children. For example, it is unlikely that non-temporality and omnipresence are readily acquired at all, even though they are often included in theological descriptions of God. Such properties are conceptually burdensome and enjoy no preparedness. What the preparedness hypothesis suggests is that along some dimensions, when presented with concepts of super-human beings, children will find those that resemble the Christian, Jewish, and Muslim God easily acquired because many of the divine attributes do not too greatly challenge intuitive assumptions. As Boyer (1994, 2001) has argued, concepts that violate a large number of intuitive conceptual assumptions are unlikely to be acquired and transmitted successfully. Part of the successful transmission of God concepts is the (surprisingly) intuitive character on a number of dimensions.

Our advancing the preparedness hypothesis does not preclude the fact that God concepts in children and adults look strikingly anthropomorphic (Guthrie 1993). Indeed, especially when adults are generating non-reflective, real-time inferences about God they may unwittingly use a concept of God that includes anthropomorphic properties they reflectively reject (Barrett 1998, 1999; Barrett and Keil 1996; Barrett and VanOrman, 1996). However, we contend that these anthropomorphic properties that sometimes emerge implicitly are drawn upon when the relevant properties of God are either unavailable or not salient, in much the same way as people will occasionally treat computers or animals in strikingly anthropomorphic ways. Put differently, children begin reasoning about God, people, animals, ghosts, and other intentional beings using a flexible and general intentional agent concept that includes many default values that more closely approximate some theological notions of God than mature understandings of humans. In the event that children are not taught particular divine attributes, or if those attributes are not salient because of contextual factors or little previous use, then more salient intentional agent concepts such as the human concept are drawn upon to complete inferential gaps. Our claim is not that God concepts will never look anthropomorphic, but that they need not be constructed wholly out of a concept of humans.

Certainly the preparedness hypothesis requires additional research to clearly draw its parameters and increase our confidence in its general validity. But if true, the preparedness hypothesis would have a number of implications for educating children about God. Foremost, contrary to common, Piagetian-derived assumptions, it should be possible to teach children about many seemingly sophisticated aspects of theology at a very early age. Particularly, preschoolers seem capable of reasoning about God as an immortal, infallible,

super-powerful being. However, to defend against God concepts becoming more anthropomorphic due to human properties gaining relatively more conceptual availability or salience, children and adults would need frequently to use these concepts to make predictions, create explanations, and generate inferences. Additionally, it could prove that, as in learning music or some motor skills, there exists something of a sensitive period for learning about God. That is, teaching children about divine attributes at a young age could have more robust consequences with less investment than at a later stage in development.

One might also be tempted to draw theological or atheological implications from the preparedness hypothesis, but as such an exercise exceeds that which the data reveals, it must be undertaken with great care. A possible interpretation is that the very reason that God concepts are so common and widespread has more to do with some kind of natural disposition for acquiring them than any basis in fact. Another, more disdainful version of this interpretation is that as Freud and others have suggested (Freud, 1961 [1927]), the God of the three great monotheisms is nothing more than a residue of childish thought. Such interpretations may not be inconsistent with the present data but are in no way mandated by them. Just as easily it could be answered that by identifying children's dispositions toward understanding God, we are uncovering God-given revelatory mechanisms: wouldn't God design people with early-emerging biases to conceptualize God? These issues we leave for the theologian.

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