Does God Make it Real? Children's Belief in Religious Stories from the Judeo-Christian Tradition

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Abstract

Four- to 6-year-old children heard religious or non-religious stories and were questioned about their belief in the reality status of the story characters and events. Children had low to moderate levels of belief in the story characters and events. Children in the religious story condition had higher levels of belief in the reality of the story characters and events than did children in the non-religious condition; this relationship strengthened with age. Children who used God as an explanation for the events showed higher levels of belief in the factuality of those events. Story familiarity and family religiosity also affected children's responses. We conclude that God's involvement in a story influences children's belief in the reality of the characters and events in that story.

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A fundamental developmental accomplishment is the ability to distinguish reality from non-reality (Flavell, Flavell & Green, 1987; Samuels & Taylor, 1994; Sharon & Woolley, 2004; Woolley, 1997). During the preschool years, children begin to make various sorts of distinctions between entities and events that are real and those that are not real (Woolley & Wellman, 1990). For example, by the age of 3, children can fairly consistently distinguish between physical entities and mental entities such as thoughts and dreams (Wellman & Estes, 1986). Children at this age can also tell the difference between pretend and real actions and objects (Flavell, Flavell & Green, 1987; Woolley & Wellman, 1990), yet they sometimes experience confusion about specific characteristics of imaginary entities or temptation about their reality (e.g., Harris, Brown, Marriott, Whittall and Harmer, 1991; Johnson & Harris, 1994). With regard to distinguishing real versus fantastical events, Samuels and Taylor (1994) found that 5-year-olds, but not 3-year-olds, were able to distinguish fantastical storybook pictures from realistic pictures. Children also report belief in fantastical figures such as the Tooth Fairy and Santa Claus well into the early elementary school years (Blair, Mckee and Jernigan, 1980; Prentice & Gordon, 1986; Principe & Smith, 2008). Overall these results reveal a substantial amount of development in children's ability to distinguish between 'real' and 'not real' in reference to everyday actions, events, objects and entities.

One prominent aspect of children's cognitive development that is ripe for exploration of reality status beliefs, yet has been relatively neglected, is the domain of children's religious cognition. To what extent do children judge religious events, beings, and canon as real? Do these reality status judgments follow the same developmental trajectory as non-religious reality status judgments? The current research uses the characters and events in stories from a religious text to investigate this question.

A small number of studies have investigated children's beliefs about religious stories in the Judeo-Christian tradition. Goldman (1964) addressed children's literal belief in the Bible by questioning children about Bible stories, and reported that 80% of children up to the age of 12 possessed full-literal or near-literal beliefs in Bible stories. Similarly, Bucher (1991) interviewed participants (ages 7 to 50) about the reality and meaning of two parables from the Bible. The youngest children, up to about age 11, in this study held literal views of the parables (e.g., the events actually happened) whereas many adults held what he terms analogical views (e.g., the stories are fictitious but representative of religious beliefs). A recent ABC news poll (Morris, 2004) reports that 6 out of 10 adults in the United States hold literal views of familiar Bible stories.

Religious stories, whether or not they are from an official religious text, often include a mixture of realistic and scientifically impossible content. A common theme involves a regular person who is selected by a supernatural deity and given extraordinary abilities to perform miraculous works. In the Bible, for example, Moses parts the Red Sea by waving his staff over the water. For the most part, these stories are conveyed as historical by adults who have earned children's trust (Harris, 2007; Harris, Pasquini, Duke, Asscher & Pons, 2006). According to Harris and colleagues, as with other domains such as history and science, children must rely on other peoples' testimony to form beliefs about religious entities and events. Thus, children utilize this testimony as a cue when learning about scientifically impossible events and people with extraordinary powers. It is possible that, with this mixture of cues and content, children experience particular difficulty when making reality status judgments for religious events or entities because, possibly, the rules children have acquired for making this distinction do not seem to apply in a religious context. Thus, children may adjust their personal boundaries between reality and non-reality as they are faced with religiously oriented reality status decisions.

Some research addresses this idea of boundary shifting by examining children's use of information from both scientifically and religiously oriented informants as a cue, in this case, to change their already held beliefs. In one study, Chandler and Lalonde (1994) examined 9- to 13-year-old's knowledge of conservation by giving them information that challenged their acquired conservation beliefs. This information was presented by a psychologist, a magician or a priest. Children's conservation beliefs were assessed a second time approximately one week later. Chandler and Lalonde (1994) found that children whose conservation beliefs were challenged by a priest or a psychologist were less likely to have recovered their original beliefs than children who received this challenge from a magician. This indicates that both science and religion can serve as cues to children to reconsider their beliefs. Thus, a child might learn that when an otherwise impossible event is explained by science or religion, it becomes a possible, or real, event.

More recently, Woolley and Cox (2007) investigated the influence of religious cues on belief by comparing children's beliefs about religious stories to beliefs about realistic and fantastical stories. Three-, 4- and 5-year-olds were read religious, realistic or fantastical storybooks and were asked about their belief in the story characters and events. In deciding whether or not story events really happened, children of all ages differentiated realistic from fantastical stories. However it was not until age 5 that children consistently differentiated

religious from fantastical stories in terms of the reality status of the characters and events. Between the ages of 4 and 5, children increasingly claimed that the events in the religious stories really happened. But this was not the case for fantastical stories, even though both religious and fantastical stories contained a scientifically impossible, event. What cues children, as they get older, to adjust their reality/non-reality boundary and judge these stories differently?

One limitation of Woolley and Cox (2007) is that it is difficult to compare the religious with the fantastical stories, due to differences in story content. For example, one of the fantastical stories consisted of a little boy making "moon soup." The soup was made in an umbrella with ingredients including an emperor's robe, teacups, a peachy sunset, 5 kinds of purple and plenty of music. The boy then put on his wings and flew to the moon to eat the soup. In contrast, the religious stories lacked these sorts of fantastical cues, and instead contained many real-world references. Consider the Bible story of *Jonah and the Whale*. In it, a man disobeyed God by getting on a boat and traveling away from the city to which God instructed him to go. There was a big storm and the man was thrown off the boat and swallowed by a large fish. When the man finally decided to obey God, the fish spit him out on land, and he then traveled to his destination. There is an important difference between these two types of story: The fantastical stories consistently provided children with fantastical cues, but the religious stories, barring the scientific impossibility of the focal event, were fairly realistic. Is it this overall level of fantastical content, or context, that serves as a reality status cue and guides children's judgments? Or could it be that certain religious cues help children make their reality status judgments? The present research examines the possibility that children use religious cues to determine the reality status of a story. Specifically, God's involvement in a story might signal a child to adjust the boundaries of his or her real/not-real distinction; it might indicate that an otherwise not-real event is real.

In addition to God's involvement in religious stories, two other factors are proposed to influence reality status judgment: (1) level of familiarity with the stories and (2) level of family religiosity. Children in Woolley and Cox (2007) might have judged the religious stories as real because they were more familiar with them than with the other stories. Unlike other stories, religious stories may be told in several places, (e.g., home, school, church), by several people (e.g., parents, teachers, ministers) and in several different formats (e.g. sitting and listening, using a felt story board, creating an art project, singing songs). Quite simply, a high level of familiarity with a story might bias children to conceive of it as more real than stories with which children are less familiar. Woolley and Cox (2007) did not manipulate story familiarity but did find evidence for the influence of family religiosity on belief. They found that children from families with high levels of reported religiosity had higher levels of belief in the factuality of religious stories than did children from families with lower levels. In the present study we considered some aspect(s) of family religiosity that might contribute to higher levels of belief. Children from highly religious families might judge religious stories as real for a variety of reasons -- because they are more familiar, because of parent communication about religious belief, or because of specific teachings about the stories (Harris, Pasquini, Duke, Asscher & Pons, 2006).

Method

Participants

Forty-four 4-year-olds (*M* = 4;4; range = 3;11 - 4;11), 44 five-year-olds (*M* = 5:5; range = 5;0 – 5;11), and 43 6-year-olds (*M* = 6;3, range = 6;0 – 7;0) participated. Each age group included approximately equal numbers of males and females. Eight 6-year-olds (*M* = 6;5, 4 males and 4 females) recognized the non-religious stories as the original Bible stories; these

children were replaced with new participants. Participants were primarily Caucasian (77%) but represented a variety of ethnic backgrounds, including 4% Asian American, 11% Hispanic American and 3% African American (5% unknown or more than one race). Participants' religious background was primarily Christian (92%) with representation from a wide range of denominations; the remaining 8% was comprised of Jewish, Unitarian, and Hindu faiths. Children were recruited from the participant database of the Children's Research Laboratory at a large southwestern university. Each child was seen individually for one 30-minute session and received a small toy for participating.

Materials

Materials included 8 children's stories with events and characters based on Old Testament Bible stories (see Appendix A). Old Testament stories were chosen given the predominantly Judeo-Christian background of the population of research participants. The first group of 4 stories (labeled religious stories) was Bible stories involving God and characters from the Bible (e.g., Jonah does not do what God asks of him, and so is thrown into the ocean and swallowed by a whale). The second group of 4 stories (labeled non-religious stories) imitated the first group with regard to plot and characterizations, but references to religious characters and locations were either removed or changed (e.g., Jonah, renamed James, does not do something he was supposed to do, and so also is thrown into the ocean and swallowed by a whale). The text for the non-religious stories was created exactly from the text of the religious stories with differences only in proper names and references to God. Identical colored line drawings accompanied both sets of stories.

To select 2 familiar and 2 unfamiliar stories, 9 Old Testament Bible stories were chosen based on similarities in content and structure. Of these 9 stories, 4 were chosen based on adult ratings of familiarity. Thirty-six adults from a range of religious backgrounds (including religious educators and parents of preschool age children) rated each of the 9 stories on a scale of 1 (very familiar) to 6 (very unfamiliar). Educators and parents rated familiarity for their students and children, respectively. Adults rated familiarity for themselves. Familiar stories included *Moses Parts the Red Sea* ($M = 2.88$) and *Jonah and the Whale* ($M = 2.47$). Unfamiliar stories included *The Widow's Flour and Oil* ($M = 5.31$) and *The Budding of Aaron's Staff* ($M = 5.38$). All books used the same format and illustrations. A non-religious story example, *Matthew and the Green Sea*, appears in Appendix A with religious text additions in parentheses.

Procedure

Children were randomly assigned to the religious or non-religious condition and heard 4 stories in random order. In the religious condition, children heard 2 familiar and 2 unfamiliar stories from the Old Testament. In the non-religious condition, children heard 4 stories matched in content, plot and characterization to the stories in the religious condition.

Test questions—After introducing each story, children were asked a series of questions to determine their familiarity with it. Children were asked to indicate if they had heard the story before, and, if so, to indicate whether they had heard it "just once or twice" or "a whole lot of times." After children heard the story, they were asked about their beliefs concerning the reality status of the main character and event in the story. There were two primary questions, both of which addressed the factuality or historical nature of the story: (1) the character factuality question, "Is (the character) a real person or is he just in the story?" and (2) the event factuality question. For the second question, children were first reminded of the focal event and then asked whether the event really happened. For example, children were reminded that "Aaron's staff grew flowers and leaves" and asked, "Did that happen in real life or did it happen just in the story?" If children responded that the event

just happened in the story, they were asked whether the event could possibly ever happen in real life (the event possibility question): "What about in real life, could (the event happen), or is that just in a story?" All questions were a forced choice format with two response options alternated within each participant. The order of character and event questions was counterbalanced across stories. Reality status questions were scored as 0 (a negative or 'just in the story' response) or 1 (an affirmative or 'in real life') response.

Explanations of focal events—After hearing all four stories and answering the associated reality status questions, participants were reminded of each focal event (*e.g.*, "Remember, in that story the flour and oil appeared in the jar") and asked, "How do you think that happened?" Responses were coded into one of four categories: (1) *Uninformative*, which included no answer, don't know or otherwise illogical/uncodable responses, (2) *Religious*, which included mostly "God" responses (*e.g.*, "God made him do it"), (3) *Natural* responses, which referenced physical or biological aspects of the situation (*e.g.*, "he put seeds in it"), or (4) *Magic* responses (*e.g.*, "a magic cane"). Two independent judges coded 55% of the explanations, which resulted in 90% agreement (Cohen's kappa = .86). Disagreements were resolved through discussion.

Belief in general principles underlying story events—At the end of the session, children were presented with a set of general principle questions in a game format. These questions served as a measure of each child's understanding of the physical or biological processes underlying each event. The questions were fashioned to mimic the focal events in the stories. For example, in *The Budding of Aaron's Staff*, the specific miraculous event is the spontaneous growth of flowers and leaves from Aaron's staff. The general event, then, is the spontaneous growth of a plant from an inanimate object. Thus, a question matched to this story is, "Can a flower grow out of this puppet?" Realistic general principle questions (*e.g.*, Can these pumpkin seeds grow into pumpkins?) were added to create a balanced set of 'yes/no' answer choices. Four questions, two focal event and two realistic, were created for each story to remove any response bias due to the type of question asked, making a total of 16 possible questions. Children were randomly assigned 8 (2 per story, 1 realistic question and 1 matched to the focal event) out of these 16 possible questions in random order. Experimenters used props (e.g., a puppet, for the example above) to engage and involve the children. All questions are in Appendix B.

Familiarity—To assess parents' ratings of their child's familiarity with the individual Bible stories, parents were given a story familiarity questionnaire on which they rated their child's familiarity with each Bible story on a scale of 0 (not familiar), 1 (a little familiar) or 2 (very familiar). This also served as a check on the accuracy of the familiarity manipulation.

Family religiosity—To assess children's religious background, parents were given a religiosity questionnaire regarding general family religious affiliation and related activities (Woolley & Cox, 2007). This questionnaire also assessed parental beliefs about the reality of religious stories and levels of parent-child communication about them. The questionnaire appears in Appendix C.

Results

Belief in Story Characters and Events

Answers to reality status questions were summed to create a belief score for each child ranging from 0 (no belief) to 4 (high belief). Analyses were first conducted excluding participants from non Judeo-Christian traditions. Results did not differ from those that included these participants, thus the following analyses include all participants. Overall, as

shown in Figures 1, 2, and 3, children held low to moderate levels of belief in the reality status of the story characters and events. Figure 1 displays children's claims regarding the existence of the characters in the stories (factuality question). A 3 (Age: 4-, 5-, 6-year-old) X 2 (Condition: religious, nonreligious) ANOVA revealed that children in the religious condition ($M = 1.77$, $SE = .18$) were more likely to claim that the characters existed than were children in the nonreligious condition ($M = 1.00$, $SE = .18$), $F (1,129) = 9.13$, $p < .01$, $\eta_p^2 = .07$. This effect was qualified, however, by a nearly significant Age X Condition interaction, $F (2,129) = 2.86$, $p < .06$, $\eta_p^2 = .04$, with the condition effect significant only in the 6-year-old group, $F (1, 42) = 13.11$, $p < .001$, $\eta_p^2 = .24$.

Inspection of Figure 2 reveals a similar pattern, with children in the religious condition exhibiting higher levels of belief in the factuality of the events. This impression was confirmed by statistical analysis. Children in the religious condition ($M = 1.39$, $SE = .16$) were more likely to claim that the event really happened than were children in the non-religious condition ($M = .64$, $SE = .17$), $F (1, 128) = 10.46$, $p < .01$, $\eta_p^2 = .08$. This effect was qualified by a significant Age X Condition interaction, $F (2, 128) = 5.73$, $p < .01$, $\eta_p^2 = .09$, with the condition effect only significant in the 6-year-olds, $F (1, 42) = 19.90$, $p < .001$, $\eta_p^2 = .33$. Figure 3 shows that condition also affected the event possibility claims. A 3 (Age) X 2 (Condition) between subjects ANOVA revealed a main effect of condition, $F (1,129) = 5.77$, $p < .02$, $\eta_p^2 = .04$. Children in the religious story condition ($M = 1.08$, $SD = .14$) judged the events as possible more than did children in the non-religious story condition ($M = .65$, $SD = .12$).

To assess the extent to which children were consistent across the four stories we tallied the number of children who claimed that the events or characters were real at least once, combining results from all three questions to increase power. Chi-square goodness of fit tests were conducted to assess whether patterns of response were significantly different from random responding. As shown in Table 1, most children in the non-religious condition judged the characters or events as real two or fewer times. Four-year-olds' responses differed significantly from chance responding, $X^2 (4) = 11.63$, $p < .02$; responses of 5- and 6-year-olds followed a similar trend, although non-significantly ($p = .09$). In the religious condition, as would be expected based on the group data, only responses of the 6-year-olds different significantly from chance responding, $X^2 (4) = 13.00$, $p < .011$.

Influence of Story Familiarity on Belief

Our next analyses addressed the potential role played by children's familiarity with the stories. Before exploring effects of story familiarity, it was necessary to test the success of the familiarity manipulation. On a scale of 0 (not familiar) to 2 (very familiar), parents rated the stories about Jonah and Moses ($M = .81$, $SD =.59$) as more familiar than the stories about Aaron and Elijah ($M = .14$, $SD = .30$), $t (126) = 13.76$, $p < .001$. Children in the religious condition rated the familiar stories (*Jonah and the Whale*, and *Moses and the Red Sea*) as more familiar ($M = 1.24$, $SD = 1.18$) than the two unfamiliar stories (*Aaron's Staff*, and *Elijah and the Flour and Oil*) ($M = .26$, $SD = .71$), $t (65) = 6.67$, $p < .001$. Children in the non-religious condition did not judge stories corresponding to the familiar religious stories (*e.g., James and the Whale*) differently from stories corresponding to the unfamiliar religious stories (*e.g., Andrew's Cane*) in terms of their familiarity. This indicates that children did not recognize the non-religious stories as versions of their religious counterparts.

Because the familiar/unfamiliar difference only existed in the Religious condition, analyses were limited to the children in this condition. Children's answers were summed for the 2 familiar and the 2 unfamiliar stories, creating belief scores from 0 (no belief) to 2 (high belief) for each. With regard to the characters, inspection of Figure 4 indicates that children

were more likely to claim that the familiar characters really existed ($M = 1.01$, $SE = .11$) than that the unfamiliar characters did ($M = .78$, $SE = .11$). A 3(Age) X 2 (Familiarity) ANOVA confirmed this pattern, F (1.62) = 5.83, $p < .02$, $\eta_p^2 = .09$.

Figure 5 indicates that older children appeared to be more likely to claim that the familiar events really happened than that the unfamiliar events did. A 3 (Age) X 2 (Familiarity) ANOVA confirmed this impression (familiar $M = .79$, $SE = .10$ vs. unfamiliar $M = .60$, $SE = .11$), F (1,62) = 7.18, $p < .01$, $\eta_p^2 = .10$. This finding was qualified by a significant age x familiarity interaction, F (2,62) = 7.43, $p < .001$, $\eta_p^2 = .19$. As shown in Figure 6, this difference was strongest in the 6-year-old group, F (1, 21) = 14.54, $p < .001$, $\eta_p^2 = .41$. There were no effects of familiarity for the possibility question regarding the events ("Could (the event) happen?").

There is one potential concern with the earlier-reported finding that children in the religious condition more often claimed that characters and events were real. Because, by design, the religious references remained in the religious stories but not in the non-religious stories, the familiar religious stories should have been more familiar than the corresponding non-religious stories. Indeed, a 3 (Age) X 2 (Condition) ANOVA confirmed that children in the Religious condition ($M = 1.24$, $SE = .12$) judged the familiar stories as more familiar than did children in the Non-Religious condition ($M = .37$, $SE = .12$, F (1,131 = 25.21, $p < .001$, $\eta_p^2 = .17$). (There was no effect of condition on familiarity for the unfamiliar religious stories ($M = .26$, $SE = .09$) and their non-religious counterparts ($M = .30$, $SE = .09$)). Thus, it is possible that the overall condition effect may have been driven by familiarity rather than by the presence of religious references. A stronger claim could be made regarding effects of condition if the effect were found in the unfamiliar stories alone, where familiarity did not differ by condition. Here, each story contained a scientifically impossible event, the only difference being the presence of religious references in the religious condition.

To test this, 3 (Age) X 2 (Condition) ANCOVAs, with familiarity entered as a covariate, were conducted on children's responses to the test questions for the unfamiliar stories only. Although children's explicit familiarity judgments for these stories did not differ by condition, it is conceivable that familiarity may still have exerted an effect on the responses to the test questions. By entering familiarity as a covariate, we were able to test whether the condition effects held when controlling for any potential impact of familiarity. The first analysis revealed effects of condition for the factuality of the character, with children in the religious condition more likely to claim that the character really existed ($M = .76$, $SD = .90$) than children in the non-religious condition ($M = .49$, $SD = .73$), F (1, 130) = 4.00, $p < .05$, $\eta_p^2 = .03$. Children in the religious condition were also more likely to claim that the events really happened ($M = .60$, $SD = .84$) than were children in the non-religious condition ($M = .31$, $SD = .64$), F (1,130) = 5.82, $p < .02$, $\eta_p^2 = .05$. Finally, children in the religious condition were also more likely to claim that the event could happen ($M = .55$, $SD = .69$) than were children in the non-religious condition ($M = .30$, $SD = .55$), F (1, 130) = 5.59, $p < .02$, $\eta_p^2 = .04$. Thus it does appear that the presence of religious references increases children's reality status claims independent of familiarity.

Effects of Family Religiosity on Belief

Family religiosity was proposed to influence children's belief in religious stories. A religiosity questionnaire investigated each family's general level of religious activity and belief. Specific questions also examined the child's level of formal religious education and the parent's beliefs regarding the characters and events in religious stories.

Seven questions from the parent religiosity questionnaire (Questions 1, 3, 5, 8, 10, 16, 18, see Appendix C) were summed to create a participant's family religiosity score. Scores

ranged from 0 (no religious involvement) to 11 (high religious involvement), with a mean of 6.26 (SD = 2.99). Based on a median split, we divided children into high (n = 70, M = 8.59, SE = .20) and low (n = 62, M = 3.63, SE = .21) family religiosity groups. For children in the religious condition, a 3 (Age) X 2 (Family religiosity: high, low) ANOVA on the character factuality question revealed a main effect of family religiosity, F (1, 64) = 4.36, p < .05, η_p^2 = .07. Children with high religiosity scores had higher levels of belief in the factuality of the characters (M = 2.10, SE = .25) than children with low family religiosity scores (M = 1.23, SE = .33). Similarly, a 3 (Age) X 2 (Family religiosity) ANOVA on the event factuality question revealed a significant main effect of family religiosity, F (1, 64) = 4.42, p < .05, η_p^2 = .07. Children with high family religiosity scores more often claimed that religious story events happened in real life (M = 1.67, SE = .24) than did children with low family religiosity scores (M = 0.86, SE = .32). No significant differences were found for the event possibility question. As expected, 3 (Age) X 2 (Family religiosity) ANOVAs on responses in the non-religious condition revealed no effects of family religiosity. This finding is also further evidence that children did not recognize the non-religious stories as versions of the religious stories.

It was also important to investigate whether family religiosity interacted with story familiarity, as it was conceivable that family religiosity might affect reality status claims for familiar stories more than for unfamiliar ones. We conducted three 3 (Age) X 2 (Familiarity) X 2 (Family religiosity) ANOVAs on children's responses in the Religious condition. These analyses revealed no interactions between familiarity and family religiosity for either event question. However there was a 3-way interaction between age, familiarity and family religiosity for the character factuality question, F (2,59) = 3.15, p = .05, η_p^2 = .10. In the 6-year-old group, children with high family religiosity scores were more likely to judge the familiar characters as having existed in real life (M = 1.6, SE = .23) than the unfamiliar characters (M = 1.00, SE = .25), F (1, 20) = 5.04, p < .05, η_p^2 = .20, whereas children with low family religiosity scores did not judge these characters differently.

The family religiosity questionnaire assessed various different components of religiosity. Thus we conducted further analyses on two specific components that we reasoned might affect belief. The first analysis investigated the influence of parent belief and communication about the reality of religious stories on children's beliefs. Two questions on the parent questionnaire assessed parents' interpretations of and communication about the primary religious text read by that family, which, in most cases, was the Bible. Parents were asked to indicate whether they viewed the events and characters in the religious text as having existed in reality (Question # 7). Of 131 responses to this question, 98 (75%) responded affirmatively. One-hundred-five (81%) of the 129 responses to the communication question (Question # 15) were that parents either did or would communicate this belief to their child. No effects of beliefs or communication patterns were found on children's responses to any of the test questions, neither for overall responses nor for the religious condition familiar stories alone.

The second analysis addressed effects of religious education. Children were grouped according to level of formal religious education, with the "high" group (n = 73, mean age = 5; 6) defined by attending (or having attended) a religious class at a school or place of worship more than once per week (including summer Bible camp), and the "low" group (n = 56, mean age = 5;5) defined as either attending one or fewer religious educational activities per week. Parents of the "high" group reported multiple activities, including Sunday school, religious preschool, Bible study, and Vacation Bible School. Parents of the "low" group who reported anything reported that their child attended Church or other religious education on Sundays. This measure was correlated with overall family religiosity score, r (139) = .57, p < .001. Two univariate ANOVAs revealed significant effects of religious education on

children's beliefs about the real existence of the story characters, $F(1,29) = 6.28$, $p < .02$, $\eta_p^2 = .05$, and their beliefs about the reality of the events, $F(1, 128) = 6.09$, $p < .02$. $\eta_p^2 = .05$. Children with more religious education held stronger beliefs about the existence of the characters ($M = 1.68$, $SE = .18$ for high and $M = 1.02$, $SE = .20$ for low) as well as about the reality of the events ($M = 1.29$, $SE = .16$ for high and $M = .68$, $SE = .19$ for low). There were no effects of religious education on the event possibility question responses.

As discussed above, it may be that familiarity is the mechanism driving this effect, at least with respect to the story characters. Supporting this conjecture, a univariate ANOVA on familiarity ratings indicated that children from highly religious families were significantly more familiar with the familiar religious characters ($M = 1.57$, $SE = .18$) than were children from less religious families ($M = .71$, $SE = .23$), $F(1, 65) = 8.92$, $p < .005$, $\eta_p^2 = .13$. To explore this statistically, we conducted two univariate ANCOVAs, with story familiarity as a covariate, on children's responses to both the character and event factuality questions. These analyses revealed that, with the variance due to familiarity removed from the equation, religious education no longer exerted a significant effect on children's responses. Thus familiarity with the stories, presumably gained through religious educational experiences, appears to play a critical role in children's judgments about the reality status of both the characters and the events in the stories.

Children's Explanations of Focal Events

Of the 528 explanations provided, 355 were coded into one of the three main categories of explanation (67%). The remainder were coded as uninformative. Because of the large number of uninformative responses, we first conducted a 3 (age) X 2 (condition) ANOVA to explore their origin. The analysis revealed a significant effect of age, $F(2, 131) = 18.07$, $p < .001$, $\eta_p^2 = .22$. Post-hoc analyses ($p < .01$) indicated that 4-year-olds ($M = 2.20$, $SD = 1.36$) were significantly more likely to supply uninformative responses than were 5-year-olds ($M = 1.02$, $SD = 1.02$) or 6-year-olds ($M = .73$, $SD = 1.25$). The primary focus of our analyses however was on whether children explained the events differently in the two conditions. Table 2 shows the mean number of codable explanations of each type (Religious, Natural, Magical; maximum = 4) that children of each age gave in each condition. Inspection of the table shows that children in the religious condition gave more religious explanations than did children in the non-religious condition, whereas children in the non-religious condition gave more natural and more magical explanations than did children in the religious condition.

To assess the significance of these patterns, three separate 3 (Age) X 2 (condition) ANOVAs were conducted on the three types of explanations. The first analysis revealed that religious explanations were indeed produced significantly more in the religious condition ($M = 1.80$, $SE = .14$) than in the non-religious condition ($M = .29$, $SE = .14$), $F(1, 131) = 59.02$, $p < .001$, $\eta_p^2 = .32$. There was also a main effect of age, $F(2, 131) = 5.33$, $p < .01$, $\eta_p^2 = .08$. Post-hoc tests revealed that both 5-year-olds ($M = 1.30$, $SE = .17$) and 6-year-olds ($M = 1.25$, $SE = .17$) gave significantly more Religious explanations than did 4-year-olds ($M = .59$, $SE = .17$; $p < .05$).

The second ANOVA indicated that natural explanations were produced more in the non-religious condition ($M = 1.73$, $SD = 1.20$) than in the religious condition ($M = .91$, $SD = .97$). There was also a main effect of age on offering natural explanations, $F(2, 131) = 5.35$, $p < .01$, $\eta_p^2 = .08$, with 6-year-olds ($M = 1.70$, $SD = 1.42$) offering significantly more natural explanations than 4-year-olds ($M = .98$, $SD = .95$; $p < .01$) Finally, the third analysis indicated that, although rare, magical explanations were more common in the non-religious ($M = .53$, $SE = .09$) than in the religious condition ($M = .11$, $SE = .09$), $F(1,131) = 10.28$, $p < .01$, $\eta_p^2 = .08$.

To examine relations between explanations and reality status beliefs, Pearson correlations were conducted on the number of explanations of each type children offered and the number of events that they claimed really happened. These analyses revealed that children who offered more religious explanations also claimed that more of the events really happened, r (136) = .35, $p < .001$. Children who offered more natural explanations claimed that fewer of the events really happened, r (136) = -.17, $p < .05$. The number of magic explanations offered was not related to belief in the events. Not surprisingly, children from highly religious families offered more religious explanations ($M = 1.36$, $SE = .16$) than did children from less religious families ($M = .69$, $SE = .18$), F (1, 131) = 7.84, $p < .01$, $\eta_p^2 = .06$. However, the relations between explanations and reality status judgments were also strong when we controlled for family religiosity, r_p (126) = .31, $p < .001$ for religious explanations, and r_p (126) = -14, $p = .06$ for natural explanations.

Belief in General Principles Underlying Story Events

At the end of each session we assessed children's understanding of the physical principles that were violated in each story. *T*-tests of children's belief against chance revealed that children understood all four general story events to be scientifically impossible ($M = 91\%$ correct, $SD = .17$), all $ps < .001$. Thus, children were not making reality status judgments about story events based on a belief that, for example, plants could grow out of inanimate objects. Beliefs were such that children knew these events to be impossible. Thus, we can be certain that any belief in the comparable story events is not due to misconceptions about the physical principles underlying the events.

Discussion

Our research examined the proposal that children use God's involvement in a story as a cue to the reality status of an event in a story and to the reality status of the focal character involved in that event. Specifically, we predicted that children would use this cue to adjust the boundaries of their real/not real distinction and believe in an otherwise unbelievable situation, as portrayed in a story. Results revealed low to moderate levels of belief in the real existence of characters and in both the factuality and possibility of events in the stories. As children got older, they were more likely to use God's involvement as a tool for making reality status decisions. That is, when God was referenced in a story, children accepted as real events that they normally would discount as impossible. Children higher in family religiosity were more likely to make such adjustments.

The overall low levels of belief in the reality status of characters and events in the stories are surprising from a traditional perspective, but fit with other recently emerging findings on children's reality status judgments. Traditional perspectives portray children as credulous, and as a result, fairly confused about the reality status of a wide range of entities and events (Piaget, 1929). However recent research paints a picture of the young child as a savvy consumer, one who can use various cues, such as evidence (Tullos & Woolley, 2009) and context (Woolley & VanReet, 2006), to make informed decisions about the reality status of novel entities. Similarly, rather than being credulous about the content of storybooks, children seem to be cautious and selective in accepting their relevance to the real world. In Woolley and Cox (2007)'s Study 1, for example, even 3-year-olds were skeptical of the reality status of storybook content, judging only 37% of the time that the characters were real and only 18% of the time that the events in the books could happen. With age, children remained skeptical of the fantastical books, but accepted more realistic and religious stories as real. This trend may reflect a more general phenomenon common to various forms of media. For example, Wright, Huston, Reitz and Piemyat (1994) document an early period in children's understanding of television in which they assume all televised content is fictional. With age, children come to differentiate fictional programs from news and other reality

oriented genres. Similarly here, it appears that, with age, children become more rather than less credulous about a particular type of story – religious parables.

The primary goal of the present study was to examine some of the factors that might affect this developmental trend. Woolley and Cox (2007) proposed that religious reference, familiarity with the stories, and religious background might all have contributed to the increase they found in belief in religious stories. We explored these three factors; the effects of each will be discussed in turn.

The use of religious cues in making reality status judgments appears to develop significantly between the ages of 4 and 6. It was not until age 6 that significant differences emerged between children who heard stories with religious references and those who did not. This finding helps explain the increase with age in beliefs in religious stories found by Woolley and Cox (2007). More generally, it fits with a new body of research aimed at understanding how children make reality-status decisions. For example, research by Tullos and Woolley (2009) shows that children's ability to use physical evidence to infer the real existence of a novel entity develops between the ages of 4 and 6. Children's use of testimony to make reality status decisions also seems to develop significantly between 4 and 6 years of age (Tullos, Woolley, & Ikpeme, 2009). In each of these cases, older children appear to be learning to use their beliefs or understanding about how the world works to make a difficult ontological judgment. Clearly, the extent and nature of the child's world knowledge (e.g., beliefs about God, understanding of the limits of different sorts of evidence) will affect his or her individual developmental trajectory in each of these domains, but there does seem to be general development between 4 and 6 years of age in recognizing and using these sources of information.

Although older children in our study used God's involvement in the story to shift their reality/non-reality boundaries, we can only speculate on how this process works. One suggestion is that reference to God, along with other religious references, creates a context or setting within which events and characters are viewed. This context can thus confer reality status. In all four of the religious stories God was mentioned on the first page. It is possible that this set up an immediate context, which affected the older children's decisions. It is also possible that the most important factor was the specific involvement of God in the event, which occurred a few pages later. Regarding the effects of context on reality status decision, Woolley and Van Reet (2006) conclude from their research that localized context cues play a more important role in reality status decisions about novel entities than do more generalized ones. Whether this is also true regarding religious stories could be explored in future research.

Our research also indicates that, among children in the religious condition, familiarity with the stories was related to affirmations of reality status. There are two potential ways familiarity could have an effect on reality status. One is simply that familiarity automatically confers reality status. However this seems unlikely. Children often form emotional attachments to their favorite storybooks (e.g., Alexander, Miller, & Hengst, 2008). These books are extremely familiar to children, with children often requesting them multiple times a day, and using them to inspire their pretend play. Although it has not been tested, there are no reports of reality/non-reality confusions emerging around the characters and events in those books. It may be that the Bible stories with which children reported greater familiarity had been read to children by their parents at home, by their Sunday school teacher, and at summer camp. Thus two possible mechanisms can be put forth to explain how familiarity works – one a more domain general explanation and one a specifically religious one. The first possibility is that hearing a story in multiple contexts, perhaps read by multiple people, in multiple places and formats, confers reality status. Alternatively, however, there may be

something special and unique about hearing a story at church. As discussed above, context may play an important role in these judgments, and church certainly could create a reality-oriented context. Religious entities and events are discussed in ordinary conversation and also sometimes with zeal by authority figures such as church clergy. The church environment also offers religious instruction in an education manner similar to that of school. Multiple types of testimony in addition to the educational format of religious classes may facilitate the granting of real status to religious entities and events.

Our data show that children from more highly religious families judged the religious stories as real more often than did children from less religious families. Children with higher family religiosity were also more likely to explain events by referring to God. These findings may not seem surprising from a psychological perspective, yet, empirically, there are only a few documented effects of family religiosity on children's religious cognition (Goodman, Quas, Bottoms, Qin, Shaver, Orcutt & Shapiro, 1997; Granqvist, Ljungdahl, & Dickie, 2007; Wenger, 2001). More importantly, family religiosity is a multi-faceted construct and so we also attempted to address what aspects of family religiosity might be most central. We investigated two components: (1) parent beliefs and communication about literalness, and (2) the child's level of religious education.

Parent beliefs and communication had no effect on children's beliefs. The lack of an effect of parent belief and communication highlights the nuances involved both in children's learning from testimony and in studying it (Harris & Koenig, 2006). With religious stories, and with most forms of testimony about similar domains, it is likely that parents and children rarely engage in explicit discussions about reality status. Research by Woolley and Ma (2008) indicates that, even in books with highly fantastical content, parents rarely explicitly addressed the reality status of characters or events in the books and children rarely asked. This appears to be the case regardless of the parents' beliefs about the reality status of the focal entities in the books. With respect to religious communication, research by Boyatzis and Janicki (2003) illustrates the indirect and bi-directional nature of parent-child communication. In a study of Christian families, these researchers found that parents did not appear to make strong efforts to convey their religious convictions to their children. They argue that this results, at least in part, from parents wanting their children to think deeply about these issues on their own and to be free to express their own thoughts. Boyatzis and Janicki also report that typical communication between parents and children about religious topics was not unidirectional but reciprocal in nature, with children and parents both initiating religious conversation.

Our findings indicate that the involvement of the child in religious educational activities had a significant effect on their beliefs about religious stories. Evans (2001) finds a similar pattern in her studies of creationist beliefs. The beliefs of her youngest (5- to 7-year-old) participants were not directly related to the consistency of their parents' beliefs, yet they were influenced by the type of school they attended (Fundamentalist or non-Fundamentalist). There are (at least) two possible explanations for how religious education affected beliefs in our study. One is that children with a high level of religious education were more familiar with the stories, and that familiarity increased belief. Our data indicate that this appears to be the case. It may also be that the children with more religious education had stronger beliefs in God, and thus the involvement of God in these stories had a stronger effect on their reality status judgments. That children from more highly religious families were not more likely to believe in the characters and events in the nonreligious stories has important implications for the question of childhood credulity. It suggests that credulity in children is domain-specific, and does not reflect a more general mode of information processing.

To resolve some of these questions, it would be important to assess children's knowledge and beliefs about God independently of their judgments about religious stories. Research by Barrett and colleagues (e.g., Barrett, Richert, & Driesenga, 2001) indicates that children understand that God has different perceptual abilities than humans -- that he is "all-seeing" and also "all-knowing." It is very likely, although it has not been tested, that children conceive of God as "all-powerful" as well. It is not clear whether this is something that is explicitly taught to children, which then enables children to confer reality status upon the events in the Bible stories like the ones in this study, or whether, from hearing and believing in the Bible stories children come to the conclusion that God is omnipotent. It is also possible, though, that children's concepts of God and beliefs in religious stories are not distinct but intricately entwined, influencing one another as children learn about God and religious events. This would be an important question for further research.

The results of this study also shed light on the development of children's understanding of possibility more generally. Focusing on the two unfamiliar stories, both of these stories contained events that children would normally judge as impossible. Our general belief questionnaire confirmed that children in our studies do not think that plants can grow from inanimate objects nor that empty containers can spontaneously fill themselves. Yet when those events occurred in stories in which God was involved children were more likely to say they were possible than when the events occurred in non-religious stories. Shtulman and Carey (2007) suggest that children's understanding of possibility is driven by their ability to imagine ways that events could occur. For example, children in their studies claimed that improbable events, such as a person drinking onion juice, were impossible, presumably because they could not imagine someone drinking onion juice. Our studies suggest another potential mechanism -- the involvement of God in an event -- that can facilitate judgments of possibility.

This brings up the more general question of the nature of mechanisms that can affect shifting of the reality/non-reality boundary. Research on children's beliefs in magic, and also their beliefs in fantastical beings, indicates that children will shift this boundary where magic is involved. For example, various studies (Johnson & Harris, 1994; Browne & Woolley, 2004; Rosengren, Kalish, Hickling, & Gelman, 1994) have shown that children will say that certain normally impossible events could be possible with magic, or if done by a magician. With regard to fantasy figures, children often use magic to explain how they accomplish seemingly impossible feats (Clark, 1995). In the present study, children who explained an event by reference to God were more likely to claim that the event really happened. Even if children do not spontaneously come up with such an explanation, simply providing them with any explanation that they consider reasonable may be all that is needed to result in boundary shifting. Alternatively, given children's understanding of the special abilities of God, the shifting of boundaries in a religious context may be more purposeful. Future research should aim to test the limits of these mechanisms and also to identify additional ones.

Although this study provides numerous insights into children's beliefs about religious stories, many questions remain. First, in the present study, the involvement of God in the story made it more likely that children would claim that an event was factual and possible. It would be interesting to see if, on the basis of God's involvement, children shift their reality status judgments regarding scientifically impossible events in stories with more contemporary issues. Related to this issue, although our interpretation is that children shift their reality/non-reality boundary as a result of God's involvement in an event, it is also possible that they simply remove the boundary. Future research could explore whether, with God's involvement, children believe anything is possible, or if there are constraints on

possibility. Finally, these questions should be extended to children outside the Judeo-Christian religion to address the generalizability of our findings.

Acknowledgments

Appendix A

Non-religious Story Example (Religious Story Text in Parentheses)

Matthew and the Green Sea (Moses and the Red Sea)

Matthew was helping the people of Ison, the Isonites, out of the town to get away from the mean king. But the king of Ison was mad. He sent his army to chase after them and bring them back to Ison to work for him. (Moses was helping God's people, the Israelites, out of Egypt to get away from the mean Egyptians. But the king of Egypt was mad. He sent his army to chase after them and bring them back to Egypt to work for him.)

The Isonites were resting at the Green Sea when they saw the king's army chasing after them. They were scared and didn't know what to do. (The Israelites were resting at the Red Sea when they saw the Egyptian army chasing after them. They were scared and didn't know what to do.)

The Isonites called to Matthew for help, and Matthew stretched his hands over the sea to part the water. When Matthew did this, the water moved away so the Isonites could cross the sea without getting wet. All the water moved when Matthew stretched out his hands. (The Israelites called to God for help, and God told Moses to stretch his hands over the sea to part the water. When Moses did this, the water moved away so the Israelites could cross the sea without getting wet. All the water moved when Moses stretched out his hands.)

The king's army chased after them into the parted sea. Matthew stretched out his hands again so the sea would go back together. The water covered the whole army and swept them into the sea. (The Egyptians chased after them into the parted sea. God told Moses to stretch out his hands again so the sea would go back together. Moses, did this, and the water covered all of the Egyptians and swept them into the sea.)

The king's army could not chase after them any more. The Isonites were safe, and they continued to follow Matthew to their new home. (The Egyptians could not chase after them any more. The Israelites were safe, and they continued to follow God to their new home.)

Appendix B

General Principle Questions

Property: Control of water from a distance (Moses)

Impossible

1. Could I move all of the water to one side of the cup by holding my hand over it?

> **2.** Could I make the water in this cup rise to the top of the cup by pointing my finger at it?

Possible

> **1.** Could I fill up this cup with water?
>
> **2.** Could I put my finger into this cup of water?

Property: Being living inside another being (Jonah)

Impossible

> **1.** Could a rabbit live inside a horse's tummy for a few days and then come back out alive?
>
> **2.** Could a cat live in an elephant's tummy for a few days and then come back out alive?

Possible

> **1.** Could a dog live inside a doghouse?
>
> **2.** Could a mouse live inside a mouse hole?

Property: Life from inanimate object (Aaron)

Impossible

> **1.** Could a big flower grow out of this puppet?
>
> **2.** Could a tree grow out of this paintbrush?

Possible

> **1.** Could these flowers seeds grow into flowers if I put them in some dirt?
>
> **2.** Could these pumpkin seeds grow into pumpkins if I put them in some dirt?

Property: Spontaneous filling of container (Elijah)

Impossible

> **1.** Could more crackers appear all by themselves to fill up the box?
>
> **2.** Could more markers appear in the box all by themselves?

Possible

> **1.** Could I put these paperclips into this box so it is full of paperclips?
>
> **2.** Could I pour this juice into the cup so it is full of juice?

Appendix C

Family Religiosity Questionnaire

Note to parents

Children in this study will be read 4 storybooks. Half of the children will hear religious stories and half will hear non-religious stories. We would like to know whether religious background affects how children perceive the stories. To help us assess that, we ask that you provide us with some information about your religious affiliation and related activities and beliefs.

1. Do you have a religious affiliation?   *Yes*   *No*

2. If so, what is your religious affiliation? _____

3. (If *yes* to #1) How would you classify your level of involvement with your religion?

     Very active   *Moderately active*   *Inactive*

4. (If *yes* to #1) If you are active, what sort of religious activities do you engage in?

At home: _____   At your place of worship:_____

5. Do you read or study a religious text or book?   *Yes*   *No*

    (e.g., Torah, Bible, Qur'an)

6. If so, which text or book do you read? _____

7. What do you believe about the content of this religious text?   **or**

    What do you believe about religious texts in general if you are not specifically

    affiliated with one?

    (*More than one may apply. Please check all that apply*)

    _____ events/characters existed in real life a long time ago

    _____ events/characters are symbolic of the teachings/principles of religion

    _____ events/characters could exist in real life today (in modern times)

    _____ events/characters did not ever exist in real life

    _____ events/characters are not symbolic of the teachings/principles of religion

    _____ events/characters could not exist today (in modern times)

8. Do you talk with your child about religion?   *Yes*   *No*

9. If so, what do you talk about?

10. If so, how often do you and your child talk about religion?

    Frequently   *Sometimes*   *Infrequently*

    (more than 5 times /week)   *(1-5 times /week)*   *(less than once /week)*

11. Do you talk to your child about stories from a religious text?   *Yes*   *No*

12. If so, do you initiate the conversation or does your child initiate it?

    Myself only   *Child only*   *Both*

13. If applicable, how often **do you** initiate conversation about stories from a religious text?

    Frequently   *Sometimes*   *Infrequently*

    (more than 5 times /week)   *(1-5 times /week)*   *(less than once /week)*

14. If applicable, how often **does your child** initiate conversation about stories from a religious

text?

    Frequently   *Sometimes*   *Infrequently*

    (more than 5 times /week)   *(1-5 times /week)*   *(less than once /week)*

15. How do you (or how *would* you, if the subject came up) explain the reality of religious

stories to your child?   (please check all that apply)

    _____ events/characters existed in real life a long time ago

    _____ events/characters are symbolic of the teachings/principles of my religion

    _____ events/characters could exist in real life today (in modern times)

_____ events/characters did not ever exist in real life

_____ events/characters are not symbolic of the teachings/principles of my religion

_____ events/characters could not exist today (in modern times)

16. How strongly do you encourage your child's involvement in religious activities?

Very strongly   *Moderately*   *Not at all*

17. Please list any religious activities in which your child participates.

At home: _____ At your place of worship: _____

18. How often would you say your child engages in the sorts of activities you listed above?

Frequently   *Sometimes*   *Infrequently*

(more than 5 times /week)   *(1-5 times /week)*   *(less than once /week)*

19. Does your child attend a religious school/preschool during the weekdays?

Yes   *No*

20. Does your child hear religious stories?   *Yes*   *No*

_____ at home   _____ at school   _____ at your place of worship

(please check all that apply)

If so, how often? (e.g. once at home and twice at school = 3 times per week)

Frequently   *Sometimes*   *Infrequently*

*(more than 5 times /week)*   *(1-5 times /week)*   *(less than once /week)*

If so, which stories does your child hear most frequently? _____

References

Alexander KJ, Miller PJ, Hengst JA. Young children's emotional attachments to stories. Social Development. 2001; 10:374–398.

Barrett JL, Richert RA, Driesenga A. God's beliefs versus mother's: The development of non-human agent concepts. Child Development. 2001; 72:50–65. [PubMed: 11280489]

Blair JR, McKee JS, Jernigan LF. Children's belief in Santa Claus, Easter Bunny and Tooth Fairy. Psychological Reports. 1980; 46:691–694.

Boyatzis CJ, Janicki DL. Parent-child communication about religion: Survey and diary data on unilateral transmission and bi-directional reciprocity styles. Review of Religious Research. 2003; 44:252–270.

Browne C, Woolley J. Preschoolers' magical explanations for violations of physical, social, and mental laws. Journal of Cognition and Development. 2004; 5:239–260.

Bucher AA. Understanding parables: A developmental analysis. New Directions for Child Development. 1991; 52:101–105.

Chandler MJ, Lalonde CE. Surprising, magical and miraculous turns of events: Children's reactions to violations of their early theories of mind and matter. British Journal of Developmental Psychology. 1994; 12:83–95.

Clark, CD. Flights of Fancy, Leaps of Faith: Children's Myths in Contemporary America. University of Chicago Press; Chicago: 1995.

Evans EM. Cognitive and contextual factors in the emergence of diverse belief systems: Creation versus evolution. Cognitive Psychology. 2001; 42:217–266. [PubMed: 11305883]

Flavell JH, Flavell ER, Green FL. Young children's knowledge about the apparent-real and pretend-real distinctions. Developmental Psychology. 1987; 23:816–822.

Goldman, RJ. Religious thinking from childhood to Adolescence. Routledge & Kegan Paul Limited; London, UK: 1964.

Goodman GS, Quas JA, Bottoms B, Qin J, Shaver PR, Orcutt H, Shapiro C. Children's religious knowledge: Implications for understanding satanic ritual abuse allegations. Child Abuse & Neglect. 1997; 21:1111–1130. [PubMed: 9422831]

Granqvist P, Ljungdahl C, Dickie J. God is nowhere, God is now here: Attachment activation, security of attachment, and God's perceived closeness among 5 – 7-year-old children from religious and non-religious homes. Attachment & Human Development. 2001; 9:55–71. [PubMed: 17364482]

Harris PL. Trust. Developmental Science. 2007; 10:135–138. [PubMed: 17181711]

Harris PJ, Brown E, Marriott C, Whittall S, Harmer S. Monsters, ghosts and witches: Testing the limits of the fantasy-reality distinction in young children. British Journal of Developmental Psychology. 1991; 9:105–123.

Harris PL, Koenig M. Trust in testimony: How children learn about science and religion. Child Development. 2006; 77:505–524. [PubMed: 16686784]

Harris PL, Pasquini ES, Duke S, Asscher JJ, Pons F. Germs and angels: The role of testimony in young children's ontology. Developmental Science. 2006; 9:76–96. [PubMed: 16445398]

Johnson C, Harris PL. Magic: Special but not excluded. British Journal of Developmental Psychology. 1994; 12:35–51.

Morris, D. Belief and blame: Six in 10 take Bible stories literally, but most don't blame Jews for Jesus' death.. ABCNEWS/*Primetime* poll.. 2004.

Piaget, JP. The child's conception of the world. Routledge & Kegan Paul; London: 1929.

Prentice N, Gordon D. Santa Claus & the Tooth Fairy for the Jewish child and parent. Journal of Genetic Psychology. 1986; 148(2):139–151.

Principe GF, Smith E. Seeing things unseen: Fantasy beliefs and false reports. Journal of Cognition and Development. 2008; 9(1):89–111.

Rosengren K, Kalish C, Hickling A, Gelman S. Exploring the relation between preschool children's magical beliefs and causal thinking. British Journal of Developmental Psychology. 1994; 12:69–82.

Samuels A, Taylor M. Children's ability to distinguish fantasy events from real-life events. British Journal of Developmental Psychology. 1994; 12:417–427.

Sharon T, Woolley JD. Do monsters dream? Young children's understanding of the fantasy/reality distinction. British Journal of Developmental Psychology. 2004; 22:293–310.

Shtulman A, Carey S. Improbable or impossible: How children reason about the possibility of extraordinary events. Child Development. 2007; 78(3):1015–1032. [PubMed: 17517019]

Tullos, A.; Woolley, JD.; Ikpeme, I. Children's use of testimony to determine reality status. University of Texas; 2009. Unpublished paper

Tullos A, Woolley JD. The development of children's ability to use evidence to infer reality status. Child Development. 2009; 80:101–114. [PubMed: 19236395]

Wenger JL. Children's theories of God: Explanations for difficult-to-explain phenomena. The Journal of Genetic Psychology. 2001; 16:41–55. [PubMed: 11338439]

Wellman HM, Estes D. Early understanding of mental entities: A reexamination of childhood realism. Child Development. 1986; 57:910–923. [PubMed: 3757609]

Woolley JD, Cox V. Development of beliefs about storybook reality. Developmental Science. 2007; 10(5):681–693. [PubMed: 17683351]

Woolley, JD.; Ma, L. Parent and child discussion of reality status during storybook reading. University of Texas; 2009. Unpublished paper

Woolley JD, Van Reet J. Effects of context on judgments concerning the reality status of novel entities. Child Development. 2006; 77:1778–1793. [PubMed: 17107460]

Woolley JD, Wellman HM. Young children's understanding of realities, non-realities, and appearances. Child Development. 1990; 61:946–961. [PubMed: 2209198]

Wright JC, Huston AL, Reitz AL, Piemyat S. Young children's perceptions of television reality: Determinants and developmental differences. Developmental Psychology. 1994; 30:229–239.
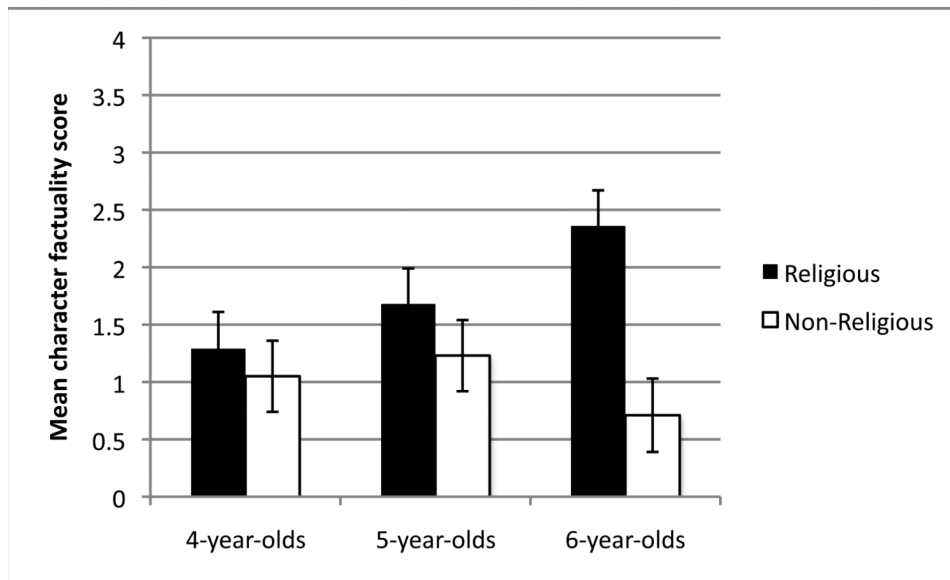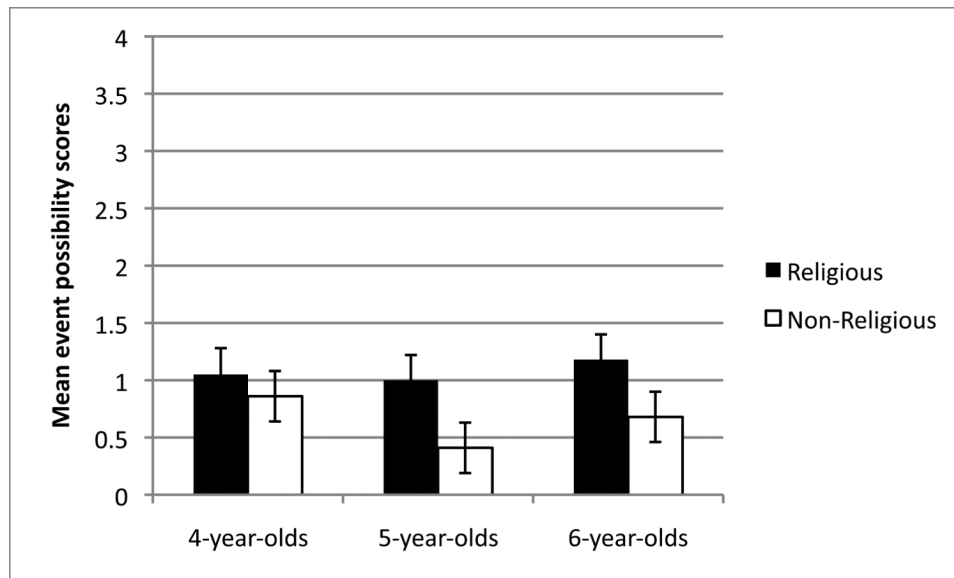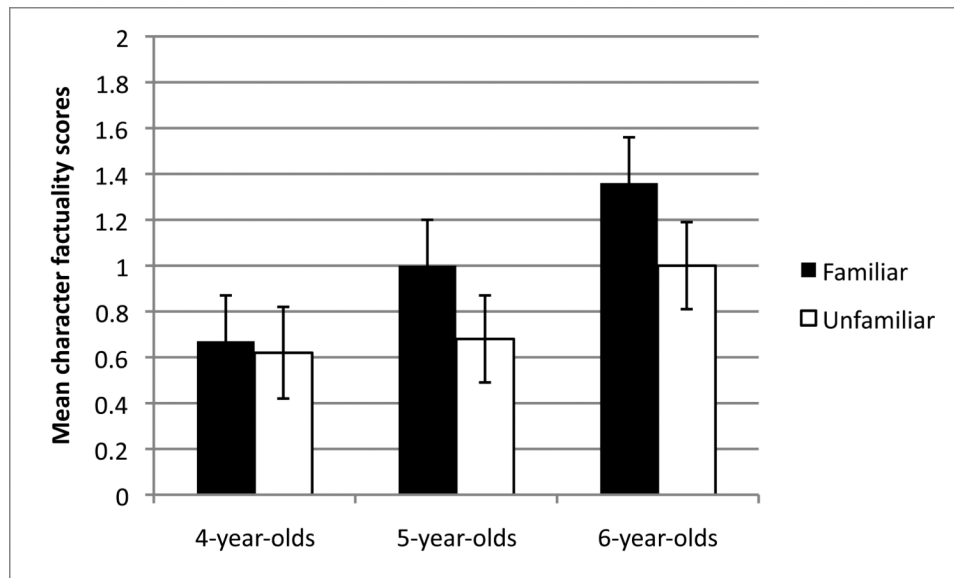
Figure 1.
Mean number claims character really existed by age and condition (Character Factuality question).
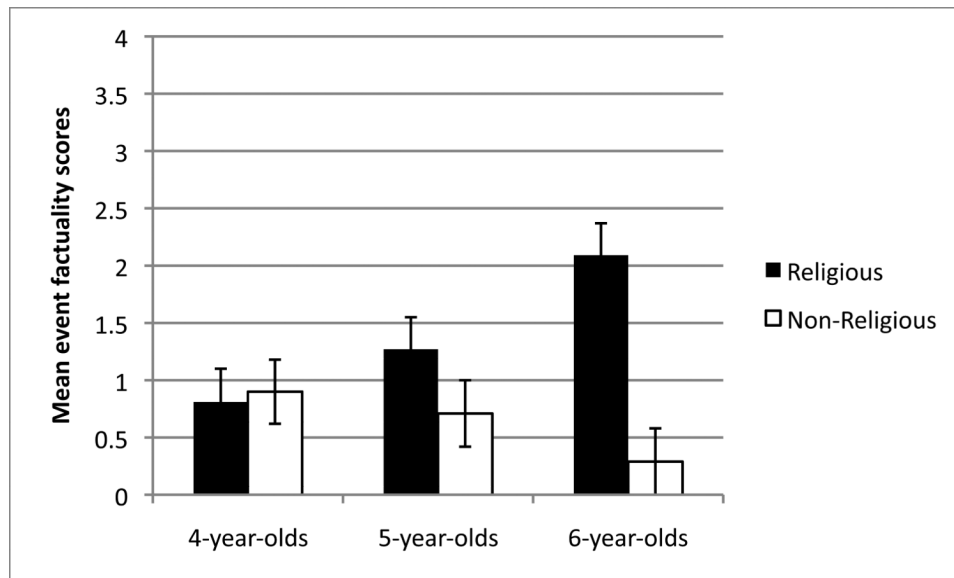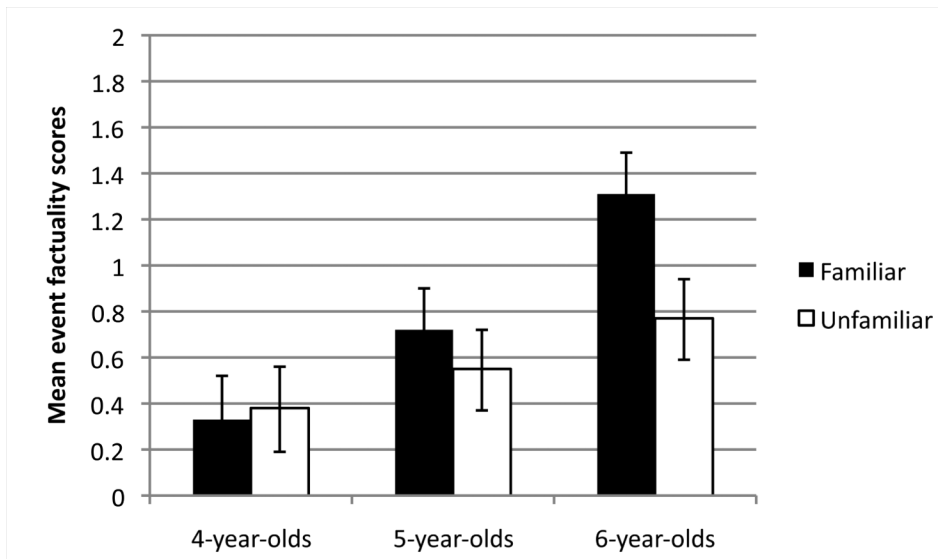
Figure 2.
Mean number claims event really happened by age and condition (Event Factuality question).

Figure 3.
Mean number claims event could happen by age and condition (Event Possibility question).

Figure 4.
Mean number claims character existed by age and familiarity (Religious condition).

Figure 5.
Mean number claims event really happened by age and familiarity (Religious condition).

Table 1

Number of children who claimed that events or characters were real in 0, 1, 2, 3, or 4 stories by condition and age

	Number of children who affirmed reality status in				
	0 stories	1 story	2 stories	3 stories	4 stories
Non-religious					
4-year-olds	7	1	9	1	4[a]
5-year-olds	5	9	3	1	4[c]
6-year-olds	8	7	3	3	1[c]
Religious					
4-year-olds	6	3	5	3	5
5-year-olds	5	3	5	2	7
6-year-olds	2	4	3	2	11[b]

Note:

[a] indicates X^2 goodness-of-fit test significant at $p < .02$

[b] indicates significance at $p < .011$

[c] indicates $p < .09$.

Table 2

Mean number of religious, natural, and magic explanations (SD in parentheses) as a function of age and condition (R = Religious Condition, NR = Non-religious Condition)

	4-year-olds		5-year-olds		6-year-olds	
	R	**NR**	**R**	**NR**	**R**	**NR**
Religious	1.00(.50)	.18(1.35)	1.95(1.43)	.64(1.22)	2.45(1.44)	.05(.21)
Natural	.68(.84)	1.27(.99)	1.00(.87)	1.55(.96)	1.05(1.17)	2.36(1.36)
Magical	.14(.64)	.32(.89)	.18(.50)	.64(1.00)	.00(.00)	.64(1.00)