THE ABILITY TO DISTINGUISH RITUAL ACTIONS IN CHILDREN[1]

REBEKAH A. RICHERT

Research on children's religious understanding has recently focused on outlining how and when children develop a variety of religious concepts, however there is a noticeable lack of research into children's understanding of religious rituals. We present three studies exploring children's developing understanding of religious rituals. In Experiment 1, children ages 5 to 11 were told stories about novel actions that were done for functional reasons or ritual reasons. Older children were more flexible than younger children about the functional actions, and all children remained generally inflexible about the ritual actions, claiming that it would be somewhat bad to change how rituals are done. In Experiment 2, children ages 6 to 11 were asked about the flexibility of a familiar ritual (i.e., baptism) and a familiar functional nction (i.e., bath). In this case, children of all ages were far more flexible about the functional actions than the ritual actions. In Experiment 3, children ages 4 to 12 were asked about the efficacy of a baptism if the pastor performing the baptism performed the wrong nctions. The older children were more likely than younger children to claim that the baptism could still work even if the pastor made mistakes.

Research on children's religious understanding has recently focused on the development of a variety of religious concepts, including how and when children distinguish between wishing and prayer (Woolley 2000), creation and evolution (Evans 2001; Kelemen 2004), and humans and God (Barrett, Richert & Driesenga 2001; Richert & Barrett in press). However, there is little, if any, research addressing children's understanding of religious rituals. In this paper, we present three studies exploring children's developing understanding of religious rituals. The

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experiments explore both children's understanding of the actions involved in rituals, as well as their intuitions about the importance of those actions for the ritual to be effective.

Humphrey and Laidlaw (1994) identified two characteristic features of rituals. The first feature is that rituals are *non-intentional*. They argue that "ritualized action is non-intentional, in the sense that while people performing ritual acts do have intentions (thus the actions are not unintentional), the *identity* of a ritualized act does not depend, as is the case with normal action, on the agent's intention in acting" (84). For example, consider the Christian practice of baptism, which will be an example used throughout this paper. The reason pastors or priests perform the baptism is certainly because they intend to perform a baptism. However, the reason a baptism is done the way that it is done (e.g., pouring water three times) is not because these particular pastors and priests decided that three was a magic number, but because church leaders centuries ago decided that this was how baptism was to be done. These church ancestors in turn based their model of baptism on Jesus' baptism by John the Baptist, in which case the reason baptism looks the way it does is because God ordained it to be so, not because of any particular intention on the part of the person performing the baptism or the person being baptized.

A second characteristic feature of rituals follows naturally. Ritual actions are *inflexible*. Humphrey and Laidlaw (1994) claim that ritualized action is "stipulated," in that the form of ritualized actions does not depend on the ritual actor's understanding of the intentions underlying the actions, but in prescribed rules for ritual performance. In other words, the person performing the ritual does not have to understand the reason for the ritual actions being what they are in order for the ritual to be performed "correctly." Similarily, Bloch (2004) emphasizes the role that deference plays in defining rituals. He defines rituals as "acts, whether speech acts or of another kind, which do not completely originate in the intentionality of the producer at the time of their performance." He claims that ritual actions are essentially the conscious "repetition" of others, whom one has seen or heard perform the ritual before. All rituals thus involve what Bloch calls "quotation." Bloch claims that ritual participants abandon the examination of the truth of the "quoted statement" and trust the "speaker." Thus, people can hold something to be true, or continue to perform a ritual, without actually understanding it. This sense of the inflexibility of ritual actions is also evident in Boyer's (2001) analysis of ritual actions. He has noted that in the case of rituals, there are five specific rules that tend to govern

ritual performance, three of which are that: 1) participants are given a specific part to act, 2) each of the actions must be performed in a special manner, and 3) the ordering of actions is crucial.

In sum, one of the key characteristics of religious rituals is that they are *inflexible*. This is in contrast to everyday functional actions, where the form of the action is secondary to whether the action achieves the stated goal. Take for example a person who wants a pen that is on the other side of the table. That person will likely reach across the table and grasp the pen. However bizarre it may seem, the actor who wants the pen could just as easily tip the table forward so that the pen rolls toward her or get up and walk around the table to retrieve the pen. In either case, an observer would conclude that the action took the form that it did to achieve the goal of obtaining the pen. In the case of functional actions, it is the *function* of the action that is key to defining that action to observers, and the *form* that the action takes is secondary to achieving that outcome. By contrast, in rituals the *form* and *function* are inseparable. Boyer (2001) notes that a ritual actor could not perform a ritual seriously without the assumption that these prescribed series of actions will have the intended result, and at the same time acknowledge that an observer likely could not predict the intended result based on the form of the actions themselves. In other words, the form of the ritual action is essential in producing the desired outcome, and therefore a ritual actor is not free to vary the actions indiscriminately or in an unconsidered way.

Other discussions of rituals focus not on what defines ritual actions *per se*, but on peoples' intuitions about what is key for the success or failure of a ritual. Lawson and McCauley (1990; McCauley & Lawson 2002) suggest that intuitions about rituals draw on ordinary cognitive structures devoted to social causal cognition. According to McCauley and Lawson's (2002; Lawson & McCauley 1990) *ritual form hypothesis*, the creation and reproduction of rituals of varying kinds can be explained by natural cognitive processing. They claim that due to our intuitive and ubiquitous practice of intention attribution, we naturally differentiate all actions (including rituals) into four segments: the agent who performs the action, the patient on whom the action is performed, the instruments used in the action, and the form of the actions themselves. Take for example the case of infant baptism practiced in many Christian communities. In this case, the agent of the ritual is the cleric performing the baptism, the patient is the infant being baptized, the instrument is the water used for the baptism, and the actions involve pouring water or drawing crosses on the infant.

Lawson and McCauley (1990) argue that actions become rituals with the additional attribution of some kind of special property to one or more segments of that action (e.g., the pastor was ordained by God, the water is holy in some way). They argue what is most important in defining a ritual is that the ritual actor is "qualified" and the intention of the ritual actor is "right." In support of this hypothesis, Barrett (2002) found that adult participants claimed that ritual actions had to be performed correctly only in the case where a "dumb god" did not automatically know the intentions of the ritual actor. In the case of "smart gods," however, who knew the intentions of the ritual actors, adult participants claimed that the ritual would still "work" even if the ritual actions were slightly altered.

We conducted a series of experiments to explore whether young children are sensitive to the relative inflexibility of ritual actions and whether they believe that a ritual can still be effective if those actions are altered. Infants as young as 9 to 12 months old appear to expect that even dots will take the shortest path to a goal, rather than repeat a previous path once an obstacle is removed (e.g., Gergeley, Nádasdy, Csibra & Bíró 1995), demonstrating an early understanding that functional actions are free to vary in form in order to achieve a particular goal. However, young children demonstrate ritualistic behaviors, even toward everyday functional actions, early on in development. As early as 2 years of age, many children begin to demand that behaviors be performed in a particular fashion, for example concocting elaborate bedtime routines and exhibiting strong preferences for how certain foods are presented (Gesell, Ames & Ilg 1974). Often the incorrect performance of these routines results in tantrums (Evans et al. 1997). It has been suggested that these kind of rigid behaviors begin to decrease around age 6 (Evans et al. 1997).

Given these tendencies in young children, we hypothesize that children are in fact sensitive to the inflexible nature of rituals early on in development, and that this sensitivity persists in regards to rituals even as children become increasingly flexible regarding functional actions. However, research has found that adults will allow that poorly-performed ritual actions can still be effective as long as the agent to whom the ritual is directed is aware of the ritual actor's intention (Barrett 2002). Thus, while we expect children to be generally inflexible about the ritual actions when focusing the actions themselves, we hypothesize that there will be an increase in flexibility about those actions when asking children to focus on the success or failure of the ritual.

These hypotheses are explored over the course of three experiments. The first experiment tests whether children differentiate an action done

for a functional reason from an action done for a "ritual" reason. The second experiment compares children's intuitions about the inflexibility of actions in a familiar ritual (i.e., baptism) with the relative flexibility of actions done with a functional purpose (i.e., hair washing). The third experiment explores children's intuitions about the efficacy of rituals by testing whether children believe that a baptism can be effective if the pastor makes mistakes while performing the baptism.

1. *Experiment 1*

Experiment One explores when children are sensitive to the different purposes underlying ritual actions and functional actions. The methodology for this experiment came from literature on children's concepts of what makes certain behaviors right and proper, and other behaviors wrong and improper. Wainryb and Ford (1998) report on an experiment where five to seven year-old children were more accepting of doing something "wrong" if the action was performed because of misinformation rather than because of a "bad" intention. For example, they agreed that it is okay for a teacher to give girls more snacks than boys if the teacher thought that girls need more food than boys, but not if the teacher thought it was okay to be nicer to girls than boys. This paradigm, in which children are given the purpose for an action and asked to reason about whether the action was good or bad, was employed for this experiment. Children were told stories about other children who were at church. The vignette protagonists were in a dilemma trying to decide whether to perform an action that they perform every week at church. Half of the time, children learned that the action had a functional purpose; and half of the time, children learned that there was no known purpose for the action. This latter group of actions reflects ritual actions in three key ways. First, the actions are performed frequently. Second, they are performed in a special place, namely at a church. Third, and most important for this experiment, in so far as the purpose for the actions is unknown, they can be considered "stipulated" (Humphrey & Laidlaw 1994) or the result of "deference" (Bloch 2004). We expect that older children will be more likely to allow that the actions given a functional purpose are free to vary, whereas children of all ages will claim that actions with an unknown purpose will not be free to vary.

Participants

Thirty-one children from two Protestant churches (one Methodist, one Presbyterian) in Northern Ireland were recruited in three age groups: young (n = 10, M = 5;7, range = 3;9 to 6;7, three boys, seven girls); middle (n = 10, M = 8;3, range = 7;3 to 9;3, three boys, seven girls); and old (n = 11, M = 10;8, range = 9;5 to 11;10, four boys, seven girls). All children were Caucasian and were from middle class families.

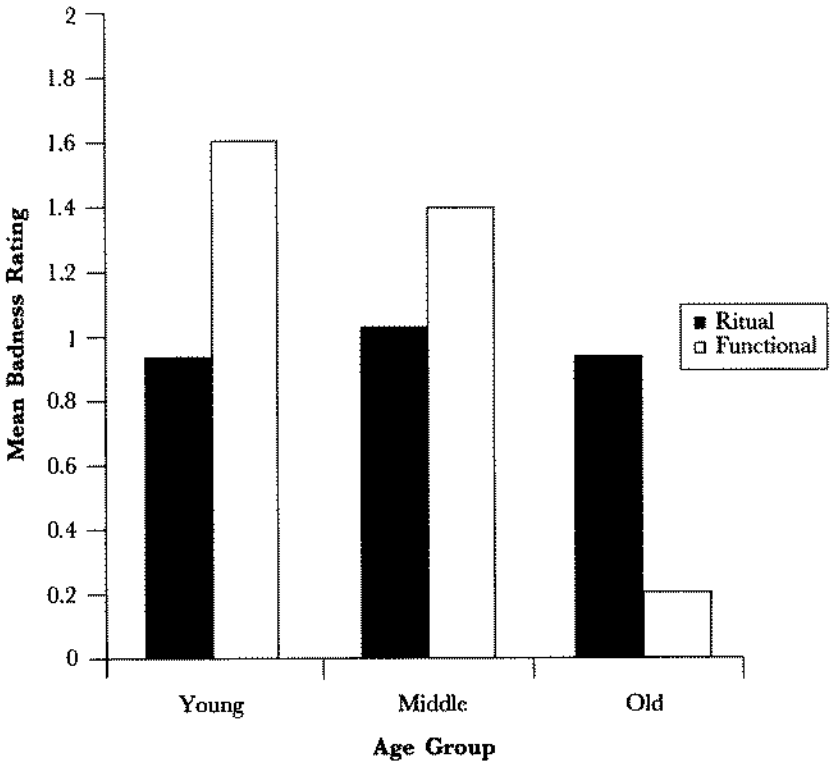
Procedure

Children whose parents had given written consent for them to be interviewed were individually asked if they would like to hear some stories and answer some questions. If participants said "yes," they were told that the interviewer was going to tell them some stories about things that people sometimes do at church. Participants were told that at the end of the stories they would be asked to indicate whether they thought these things were good or bad. Participants were then trained to use three frowning faces to indicate the level of badness (not bad at all, a little bad, very bad). Participants were told two stories. In one story, a character performed an action for which there was no reason provided (the ritual action). In the other story, a character performed an action for which there was a functional purpose given (the functional action). See Appendix A for the stories. After each story, control questions assessed participants' memory for the story, and then children were asked to rate how bad it was not to perform either the ritual or functional actions. The stories were counterbalanced across participants for action type (sing and turn) and motivation (ritual and functional).

Results & Discussion

Participants' badness ratings were coded as 0 for "not at all bad," 1 for "a little bad," and 2 for "very bad." The mean badness ratings for the different age groups are portrayed in Figure 1. A 3 × 2 Multivariate Analysis of Variance was conducted with Age Group (young versus middle versus old) as the between-subjects variable and Story Type (functional versus ritual) as the within-subjects variable. There was a main effect for Age Group (F[2, 28] = 8.57, $p < .001$). The youngest (M = 1.35, SE = .15) and middle (M = 1.20, SE = .15) children were more likely to say that it was "very bad" or "a little bad" to change the actions than the older children (M = .55, SE = .14).

Figure 1. Mean badness ratings for participants in Experiment 1.



There was no main effect for Story Type, however there was a significant Story Type × Age Group interaction, $F(2, 28) = 7.25$, $p < .01$. Follow-up t-tests comparing responses to the functional story type questions to responses to the ritual story type questions revealed that there was only a significant difference in whether the older children said it would be worse to vary the ritual action ($M = .91$, $SE = .22$) than the functional action ($M = .19$, $SE = .15$; $t[10] = 3.73$, $p < .01$). Children in the middle and younger groups did not respond significantly differently for the two story types, claiming that it was generally bad to vary either action.

In sum, there was a developmental change in ratings of behavior, but only for the actions with functional purposes. Older children claimed that it was all right to alter the form of an action, as long as the original function was fulfilled, whereas younger children claimed that the

functional actions should not be altered. In contrast, essentially all participants claimed that it was "a little bad" to vary the form of ritual actions. This finding offers some support for the hypothesis. Children's understanding of whether a religious ritual could be altered remained stable, and fairly conservative; whereas their understanding of whether you could alter a functional action changed from not allowing them to vary in form to allowing them to vary in form.

There were a few limitations in this experiment, however. Children were asked about unfamiliar rituals in unfamiliar churches. We may expect that they would respond differently about rituals with which they have had experience. A related limitation is that this experiment only indirectly tested children's intuitions about rituals. They were essentially asked to generalize from their own experience of rituals in church to these novel ritual actions. This required that they saw the similarities and connections between their past experience of rituals and the actions being performed in the stories.

Despite these limitations, children responded according to the predicted pattern, by becoming flexible in their judgements about functional actions and remaining generally inflexible in their judgements about ritual actions. We may expect that this pattern would be even more evident by removing some of the limitations. To correct for these limitations, a follow-up experiment was conducted in which children were interviewed about a familiar ritual (i.e., baptism) and a familiar, as well as similar, functional interaction (i.e., bath).

2. *Experiment 2*

Experiment Two explores the question of when children are sensitive to the inflexibility of familiar ritual actions. As was stated above, an important defining feature of rituals that separates them from other types of behaviors is that the reason a ritual action takes a specific form is not because the actor wants it to be that way, but because that is the way that is prescribed in the past and in rules and traditions (Humphrey & Laidlaw 1994). This results in the sense that there is no obvious connection between the form of the action and the intended cause (Boyer 2001). Thus, in order for the ritual to achieve the result intended by the gods or ancestors or church fathers, it must be performed according to the prescribed rules. To explore this question, children were told two stories: one of a familiar ritual interaction and one of a functional interaction. In one story, a child was being baptized; and in

another story, a child was having her/his hair washed. Throughout the stories, children were asked whether the actions had to be performed in a specific way or whether they could be altered. Based on the findings of Experiment 1, we expected that the younger children would initially respond that functional interactions and ritual interactions are equally inflexible and that older children would differentiate between the two, claiming that ritual actions are inflexible and functional actions are flexible.

Participants

Thirty-seven children from two age groups were recruited from a Lutheran church in southeastern Michigan (6-7 years: $n = 17$, $M = 6;8$, range = 5;6 to 8;0, seven girls, ten boys; and 10-11 years: $n = 20$, $M = 10;5$, range = 9;8 to 11;4, nine girls, eleven boys). The large majority of the children were Caucasian, however three were half Asian. All children were from upper-middle class families.

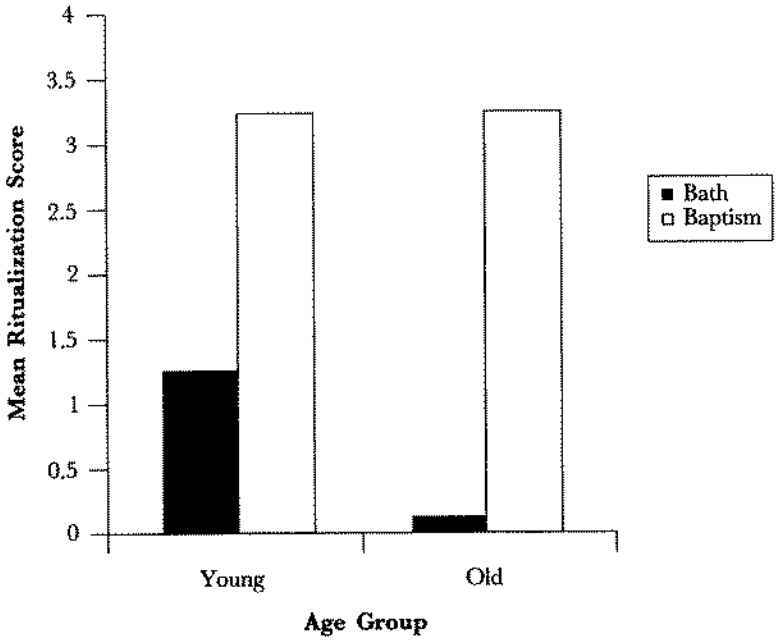
Procedure

Children were told two vignettes and asked a series of questions as the vignettes progressed. In one vignette, a toddler was being baptized at church. In the other vignette, the toddler was having her hair washed at home. Throughout the course of each vignette, the interviewer stopped four times and asked the child if the action had to be done that way. For the baptism vignette, children were asked whether the baptism had to be done at church, whether the water had to come out of a special bowl, whether the pastor could say just any words, and whether the pastor had to draw a cross instead of a circle. For the bath vignette, children were asked whether the bath had to happen in a tub, whether the water had to come from a tap, whether the mom had to be saying anything in particular, and whether the mom had to scrub in a certain way. Which vignette was told first was counterbalanced across participants.

Results & Discussion

Each question was scored for whether the child gave a ritualistic response. If the child said that either the baptism or bath had to be done in the specified way, this response received a score of "1." The scores for each question type within each vignette were tallied, resulting in a pos-

Figure 2. Mean ritualization scores by age group and vignette for Experiment 2.



sible high ritualization score of 4 for each vignette. The mean ritualization scores for each age group within each vignette are displayed in Figure 2.

A 2X2 ANOVA was conducted on the ritualization scores, with Age Group (young vs. old) as the between subjects variable and Vignette (baptism vs. bath) as the within subjects variable. When participants were asked if the pastor or mother could perform the action a different way, there was a main effect of age, $F(1,35) = 5.18$, $p < .05$. On average, the younger participants ($M = 2.21$, $SE = .16$) were more ritualistic than the older participants ($M = 1.68$, $SE = .15$). There was also a significant main effect for Vignette, $F(1,35) = 371.47$, $p < .001$; as well as a significant Age Group x Vignette interaction, $F(1,35) = 16.30$, $p < .001$. As is evident in Figure 2, participants offered significantly more ritualization responses for the baptism stories than the bath stores, and this was especially true of the older children. As predicted, the younger children were slightly more inflexible even about the functional

actions; however they were still less inflexible than they were about the baptism actions.

In sum, as predicted, the younger children demonstrated some inflexibility even about the bath interactions. The younger children were more ritualistic than the older children when considering the functional actions, reflecting a general tendency to ritualize the behaviors themselves (Evans et al. 1997). However, many of the younger children acknowledged that changing the form of the bath actions would be all right. In contrast, children were sensitive to the inflexible nature of ritual actions at quite a young age, and this sensitivity persisted later in development. Children of all ages were generally inflexible in response to questions about whether the actions for the baptism could be varied.

Experiments One and Two focused on children making moral judgments about the ritual actions. However, even if children say that it is not okay to vary the ritual actions, they may still think that the ritual would be effective if the actions were varied. In fact, Barrett (2002) found that adults tended to claim that a ritual participant's intention to perform the ritual was more important than performing the correct ritual actions, provided the "god" was aware of the ritual performer's intentions. Experiment Three explored whether children believe that a ritual can still "work" if the actions are varied.

3. *Experiment 3*

Experiment Three explores whether children believe that a child is "really baptized" if the pastor makes mistakes while performing the baptism. Barrett (2002) found that adult participants claimed that ritual actions had to be performed correctly only in the case where a "dumb god" did not automatically know the intentions of the ritual actor. In the case of "smart gods," however, who knew the intentions of the ritual actors, adult participants claimed that the ritual would still "work" even if the ritual actions were slightly altered. In the case of Christian baptism, the relevant God is omniscient, and would thus be considered a "smart god" who would know the intentions of the ritual performers. Thus, despite children's claims that it is not okay to vary parts of a baptism, they may argue that a baptism can still be effective even if the pastor makes mistakes.

Participants

Participants in this study were twenty-eight children, twelve girls and sixteen boys, recruited from an Evangelical Lutheran church in the greater Boston area (M = 7.90, SD = 1.92). Children were recruited from three age groups. The *younger* group (n = 9, M = 5;10, SD = .73, five girls, four boys) ranged from 4 years, 9 months to 6 years, 9 months. The *middle* group (n = 9, M = 7;6, SD = .75, two girls, seven boys) ranged from 6 years, 10 months to 8 years, 9 months. The *older* group (n = 10, M =10;0, SD = .95, five girls, five boys) ranged in age from 9 years to 12 years, 1 month. All children were from middle class homes, and the majority of the children were Caucasian. Three of the children were half Asian.

None of the children had gone through Confirmation courses yet, which are the courses that teach formal church doctrine. However, all of the children had been exposed to the church's teaching on baptism through their Godly Play lessons (Berryman 2003) in Sunday morning classes. In this lesson, a teacher walks through the steps of a baptism by "baptizing" a doll. The roles of all three aspects of the trinity (Father, Son, Holy Spirit) are emphasized throughout the lesson. In the story, the teacher pours water from a pitcher into a bowl, and then pours water on the baby's head three times while saying, "I baptize you in the name of the Father, and of the Son, and of the Holy Spirit." After this, the teacher draws a cross on the baby's forehead with oil, and lights a candle in the name of the baby. Children are not told explicitly what each step of the baptism is for, but they are encouraged to wonder about the baptism and what they are seeing.

Procedure

Children were interviewed in a quiet room of the church or their homes. In the first part of the interview, children were told a story about a baby who was baptized and asked a series of questions about the efficacy of the baptism. In the story, the pastor made a number of mistakes while performing the baptism. He forgot to put water in the bowl, so he had to use rose petals instead; he forgot the words to use, so he said, "Abra kadabra" instead; and he forgot to draw a cross and drew a circle instead.

As in Experiment Two, throughout the course of the story, the experimenter stopped to ask questions. In this case, two questions were asked at three points throughout the story, for a total of six questions. Children

were asked an *efficacy question* about whether the baptism did or didn't work and a *results question* about whether the baby was really baptized.

Following the story, children were asked a series of questions about the meaning and purpose of baptism in general, as well as the meaning and purpose of specific ritualized actions that accompany baptism. In terms of the general questions, children were asked four questions:

1. What is baptism? Children's responses to this question were coded for whether the attributed purpose was *membership* (e.g., "To show that you are a member of the church and the people of God), *salvation* (e.g., "To be born again and have your sins forgiven."), *don't know*, or *other.*

2. What does it mean for baptism to work? Children's responses to this question were coded for whether the child emphasized that the baptism had been *performed correctly* (e.g., "You remember what you have to do."), that it was *effective* (e.g., "The baby enters the family of God."), some *other* response, or that they *didn't know.*

3. How is a baby different after he/she is baptized? Children's responses to this question were again coded for *membership*, *salvation*, and *don't know* responses. In addition, responses were coded for a *physical change* (e.g., "She is wet.").

4. Why are people baptized? Children's responses to this question were coded for *membership* and *don't know* responses, as well. In addition, responses could have been coded as indicating *tradition* (e.g., "If you believe in God, it's a tradition.") or *parents* (e.g., "Because their parents want them to be.").

In addition to these three questions, children were asked questions about three specific actions: (1) Why does the pastor use water in baptism?, (2) Why does the pastor say, "I baptize you in the name of the Father, and of the Son, and of the Holy Spirit?", and (3) Why does the pastor draw a cross on the baby's forehead? These responses were coded for whether they fell into one of five categories:

> *Don't know*: Children responded that they did not know why, and offered no possible suggestions.
>
> *Functional*: The response indicated that the action served some sort of immediate, physical, functional purpose (e.g., "We use water because there is nothing else to use").
>
> *Efficacy*: The response indicated that the action affected a cause in some way (e.g., "The water washes out your sins").
>
> *Symbolic*: The response indicated some sort of symbolic purpose to the action (e.g., "It symbolizes being clean").

Tradition: Children responded that the reason it was done that way was because of tradition (e.g., "Because Jesus was washed in the Jordan River, so to be baptized we should do what he does").

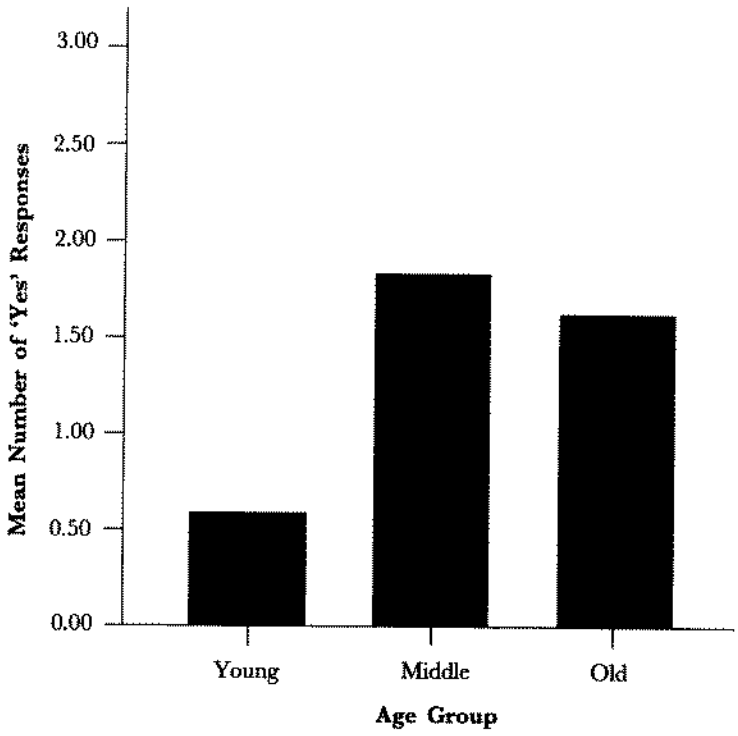
Results & Discussion

Before exploring children's responses to the story questions, we first examined children's responses to the open question about what it means for baptism to "work." While only three of the children said they did not know what it meant for a baptism to work, children were quite varied in their responses to this question. Seven of the children said that it meant that the baptism had been performed correctly; fourteen said that it meant the baptism was effective; and an additional four children gave uncodable responses. In addition, a partial correlation revealed that children's responses to the two questions were highly correlated, even after controlling for age, r (25) = .93, p = .000. Given the various interpretations of the word "work," these analyses will focus on children's responses to the *results* questions about whether the baby was still really baptized. Participants' responses to these questions were tallied for each vignette type. A graph displaying the mean number of times children in the three age groups claimed the baby was still really baptized can be found in Figure 3.

To explore children's responses to the questions about the story, a one-way ANOVA was conducted comparing children's responses across age groups. There was a main effect of age, $F(2, 27) = 3.24$, $p = .05$, indicating that the older ($M = 1.60$, $SE = .40$) and middle children ($M = 1.78$, $SE = .32$) were more likely to say that the baby was baptized than the young children ($M = .56$, $SE = .34$). Least Significant Difference *post-hoc* tests confirmed that the youngest children responded significantly differently from the middle and oldest children ($p < .05$ in both cases), who did not respond significantly differently from each other. Thus, the middle and older children were more likely than the younger children to say that the baby was still really baptized even in the case where the pastor performed the wrong actions.

In terms of the open-ended interview, it should first be noted that no age group differences were found in the responses to the open questions, therefore analyses were conducted by treating age as a continuous variable. In response to the general definition question, 32% ($n = 9$) of the children said that they didn't know what baptism was, and another 18% ($n = 5$) of the children gave uncodable responses. These responses were combined for analysis. Of those responses that were

Figure 3. Mean number of 'yes' responses by age group for Experiment 3.



codable, 36% (n = 10) of children indicated baptism was about membership, and 14% (n = 4) of children indicated baptism was about salvation. A Univariate Analysis of Variance (ANOVA) was conducted comparing the mean ages of children who gave responses that fell into each of the categories. There was a significant effect, F (2, 27) = 3.21, p = .05. Least Significant Difference *post-hoc* tests revealed that children who gave uncodable responses (M = 7;3, SD = 1.79) were significantly younger than children who gave salvation responses (M = 9;10, SD = 2.21; $p < .05$), and tended toward being significantly younger than children who gave membership responses (M = 8;0, SD = 1.62; p = .09). Thus, younger children were fairly unclear about the purpose of baptism, and the older children tended to focus on "membership" or "salvation" as the purpose of the baptism.

In response to the question about how babies are different after they are baptized, over half of the children gave a membership response (54%, n = 15) or a salvation response (18%, n = 5). The remaining

children either said they did not know (14%, $n = 4$), there was a physical change (11%, $n = 3$), or there was no change at all (4%, $n = 1$). There were no significant age differences in children's responses to this question. When asked why people get baptized, the most popular response again was that it had to do with desiring membership in the group (36%, $n = 10$). Other than that, children either claimed that they did not know (29%, $n = 8$), that the parents make them do it (18%, $n = 5$), that it is because of tradition (14%, $n = 4$), or that the people want to be blessed ($n = 1$). There were again no significant differences in age for the responses.

The next three questions assessed what purpose children attributed to the ritual actions themselves. For the question about water, seven children (25%) said they did not know why pastors use water for baptism. The other children were pretty evenly spread between whether they attributed symbolic (21%, $n = 6$) or traditional (32%, $n = 9$) purposes for the water. Only a few children claimed functional (11%, $n = 3$) or efficacious (11%, $n = 3$) purposes. Responses for questions about the exact wording were significantly different from responses about the water (χ^2 [4, $N = 28$] = 61.74, $p < .001$). Children were most likely to attribute an efficacious purpose to the words (54%, $n = 15$). The second most common response was a "don't know" response (32%, $n = 9$), and a minority of children gave functional (11%, $n = 3$) or symbolic (4%, $n = 1$) purposes to the words. The responses for questions about why pastors use a cross fell into significantly different categories from the water responses as well (χ^2 [4, $N = 28$] = 53.64, $p < .001$). In the case of the cross responses, a large majority of children claimed the purpose of the cross was symbolic (61%, $n = 17$); and the other group of children, except for one child who did not know the purpose, said that the cross was efficacious (36%, $n = 10$). The distribution of the cross and wording responses were also significantly different from each other (χ^2 [4, $N = 28$] = 526.78, $p < .001$). In summary, children were unclear about the purpose of water, claimed that the words effect a particular cause, and claimed that the cross is mainly symbolic.

To check for age differences in responding, the number of each type of response that each child provided was tallied. ANOVAs revealed that there were significant mean age differences for the number of efficacy responses (F [3,27] = 3.08, $p < .05$), and there was a trend toward significance in the symbolic responses (F [3,27] = 2.45, $p = .08$). Children who provided more efficacy responses tended to be younger, and children who provided more symbolic responses tended to be older. In other words, the older children tended to view the ritual actions as

symbolic, whereas the younger children tended to view them as causing a change to occur. While tentative, these findings may help to explain the age differences in children's responses to the story questions. It would make sense for the younger children, who more often indicated an efficacy purpose to ritual actions, to argue that actions must be performed a certain way for the ritual to work. In the case of the older children, however, they tended to view baptism more as a symbolic event, thus they may have viewed the performance of the actions as less directly related to the desired outcome.

Another possibility is that the youngest children simply do not understand the purpose of the baptism. Recall that in response to the general definition questions, the younger children tended to provide responses that were either uncodable or simply indicated the child did not know what baptism was. Perhaps, once children were more confident of the purpose of the ritual actions, they would allow for the pastor to be freer to vary the procedure. To check for whether children were more likely to claim that the baby was still really baptized if they understood the purpose of the ritual actions, three separate Chi-square analyses were conducted comparing whether children gave an answer to the open questions about the specific purpose of the three actions to whether they said that the child was still really baptized if those actions were changed. None of these Chi-squares were significant, indicating that children's responses about whether the baby was still really baptized were unrelated to whether they knew (or thought they knew) the purpose of the actions.

In summary, older children were more likely than younger children to claim that a baptism would still be effective if the pastor made mistakes. This could be explained by the fact that more of the younger children viewed the ritual actions as efficacious, and more of the older children viewed the ritual actions as symbolic. However, this finding is also consistent with suggestions that when people think about the efficacy of rituals, they focus on the intentions underlying the actions more than the actions themselves (McCauley & Lawson 2002; Barrett 2002).

4. *General Discussion*

Three experiments tested whether young children are sensitive to the inflexibility of ritual actions and children's intuitions about the role those actions play in producing the desired outcome. In Experiment One, children were told stories about novel actions that were done for

functional reasons or "ritual" reasons. There was an age difference in that the older children were more flexible than the younger children about the functional actions, and all children remained generally inflexible about the "ritual" actions. In Experiment Two, children were asked about a familiar ritual, baptism, and a familiar functional action, a bath. In this case, children of all ages were far more inflexible about the ritual actions than the functional actions, claming that it was not okay to vary the actions in a baptism, but that it was okay to vary the actions in a bath sequence. In Experiment Three, children were asked about whether a baptism would still work if the pastor made mistakes while performing the baptism. The older children were more likely than the younger children to claim that the baptism could still work even if the pastor made mistakes.

In Experiments One and Two, children at all ages demonstrated a general sensitivity to the inflexible nature of ritual actions, in contrast to the general flexibility that they attributed to functional actions. Even the youngest children claimed that it was not all right to change the ritual actions. These findings suggest that that distinguishing ritual actions from functional actions may not be that cognitively demanding for children, and offers further support for hypotheses claiming that human cognition, even that of young children, is naturally equipped to "receive" religious concepts (e.g., Barrett 2000; Barrett & Richert 2003; Boyer 1994, 2001).

This is not to argue that formal instruction plays no role in the shaping and development of religious concepts. Researchers studying religious concepts have noted that even though certain aspects of religious concepts may be "cognitively optimal," there are many aspects to religious concepts that are quite complex (e.g., Barrett 2004; Whitehouse 2004). For example, similar to Kelemen's (2004) suggestion that children are intuitive theists and religious instruction fills in the "who," these default assumptions underlying religious rituals may create a natural gap for formal education to fill in the "why" aspect of religious rituals. In regards to religious rituals specifically, Whitehouse (2004) has argued that the repetitive nature of certain kinds of rituals causes them to be encoded into implicit memory, resulting in very little cognitive energy being required to observe or perform them. With this reduction in the amount of cognitive energy required to perform the rituals, ritual participants can devote more energy to learning the often complicated doctrine surrounding those rituals. In the experiments reported here, the children had not yet undergone formal training in official church doctrine, which likely influences children's understanding of rituals. Thus,

future research should explore more explicitly the role that religious instruction plays in shaping children's expectations about religious rituals.

In Experiment Three, the older children were more likely to say that a child was still really baptized even if the pastor made mistakes. This finding mirrors that found by Barrett (2002), when adults claimed that ritual actions could vary as long as the "god" to whom the ritual was directed knew the intentions of the ritual performer, and offers further support for McCauley and Lawson's (2002) hypothesis that ritual interpretation activates social cognitive intuitions. An important consideration is that this response pattern was only true for the middle and older children, and not the younger children. One possibility is that the younger children did not have a fully developed theory of mind, in which case, they would rely more on the actions to communicate intentions. Other research has found that children assume that a person's actions, rather than the person's intentions, define what a person is pretending or drawing until 7 or 8 years of age (Richert & Lillard 2002). Perhaps until that age, children have similar assumptions about rituals, causing them to rely on their intuitions about the inflexible nature of rituals until they switch over to assuming that the actions are less important than the intentions. Thus, future research should explore more explicitly children's understanding of the role that intentions play in ritual performance, as well as what drives the change from focusing on actions to focusing on intentions.

Another possible explanation is that children's beliefs about the purpose of the actions may have influenced their decisions about whether the baptism would still be effective. Recall that the older children were more likely to claim that specific ritual actions were symbolic, while the younger children tend to claim that the ritual actions actually effected changes. Future research should compare children from different but similar religious communities on the same tasks, as different religious communities have different doctrines about religious rituals. For example, the children from Experiment Three were recruited from a Lutheran church, where baptism is considered a sacrament resulting in a supernatural change in the ritual participant (i.e., forgiveness of sins for the child). However, in the Reformed Christian traditions, baptism is considered to be more of a symbol (i.e., of one's membership in God's family). We might expect children raised in the Reformed Christian tradition to be even more likely to claim that a poorly-performed baptism could still be effective because those children would

be taught that the baptismal actions are not expected to effect a supernatural change.

Future research should also explore whether children outside a particular religious community (or even outside of religious communities in general) have the same intuitions about the inflexibility of ritual actions as children raised within a particular religious community. In the case of the experiments reported here, all of the children interviewed about baptism were raised in a community where they were exposed to actual baptisms. Whether children who have never been exposed to a baptism would have similar intuitions about the inflexibility of the actions remains an open question. Furthermore, the research reported above addresses only one ritual in one tradition, and should be explored regarding other rituals in other traditions. Children are exposed to a variety of different kinds of rituals with varying degrees of accompanying instruction. By exploring the developing expectations across different religions and cultures, we will develop a better picture of what cognitive mechanisms are underlying children's processing of religious rituals.

Despite these limitations, the experiments reported here offer preliminary insight into the development of children's thoughts on rituals. Even young children demonstrated sensitivity to the inflexible nature of ritual actions, claiming that the way actions are performed is a key element of religious rituals. Similar to adults in previous experiments, however, older children claimed that the efficacy of a ritual is not solely dependent on the correct performance of the ritual actions.

Department of Psychology
University of California, Riverside
900 University Avenue
Riverside, CA 92521

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Appendix A

Action—Sing: Mary goes to a church where everyone stands on one leg when they sing. For as long as she can remember, people stand on one leg when they sing. Mary asked her parents why, and they said (*ritual*: they don't know why people stand on one leg when they sing. For as long as they can remember, that's just how it's been done. Mary wants to swing her arms when she sings, instead; *functional*: they think

that people sing better when they stand on one leg than when they are swinging their arms. Mary has been told that she sings better when she swings her arms.)

Control Questions:
What do people do in Mary's church when they sing? Does Mary know why people stand on one leg when they sing? Does Mary want to stand on one leg when she sings?

Test Questions:
How bad is it if Mary doesn't stand on one leg when she sings?

Action—Turn: Susie goes to a church where people turn in a circle three times before they sit down. For as long as she can remember, people turn in a circle three times before they sit down. Susie asked her parents why, and they said (*functional:* that turning in circles helps people concentrate. Susie knows that she concentrates better when she jumps up and down before she sits down; *ritual:* they said they don't know why people turn in a circle three times before they sit down. Susie wants to jump up and down before she sits down instead).

Control Questions:
What do people do in Susie's church before they sit down? Does Susie know why people turn in circles before they sit down? Does Susie concentrate better when she turns in circles before she sits down?

Test Questions:
How bad is it if Susie doesn't turn in a circle three times before she sits down?