Young Children’s Conceptualization of Pretense: Action or Mental Representational State?

Angeline S. Lillard

Stanford University and University of San Francisco

Lillard, Angeline S. Young Children’s Conceptualization of Pretense: Action or Mental Representational State? Child Development, 1993, 64, 372–386. A growing body of research indicates that children do not understand mental representation until around age 4. However, children engage in pretend play by age 2, and pretending seems to require understanding mental representation. This apparent contradiction has been reconciled by the claim that in pretense there is precocious understanding of mental representation. 4 studies tested this claim by presenting children with protagonists who were not mentally representing something (i.e., an animal), either because they did not know about the animal or simply because they were not thinking about being the animal. However, the protagonists were acting in ways that could be consistent with pretending to be that animal. Children were then asked whether the protagonists were pretending to be that animal, and children tended to answer in the affirmative. The results suggest that 4-year-olds do not understand that pretending requires mental representation. Children appear to misconstrue pretense as its common external manifestations, such as actions, until at least the sixth year.

A central issue in current research on children’s understanding of the mind is that of when children come to see the mind as representational (e.g., Astington, Harris, & Olson, 1988; Flavell, Green, & Flavell, 1990; Perner, 1991; Wellman, 1990). Although most believe that children do not understand that the mind is representational until around 4 years of age, there has been much speculation that pretense is an exception to the rule, and that children manifest an early understanding of mental representation, or of "cognition," in pretense (e.g., Flavell, 1988; Flavell, Flavell, & Green, 1987; Flavell et al., 1990; Fergusson, 1989; Fergusson & Gopnik, 1988; Frith, 1989; Leslie, 1987, 1988, 1991; Siegler, 1991). Because pretense has often been thought and even shown to scaffold children to higher levels of skill than they achieve outside of pretend contexts (Bretherton, 1991; Dias & Harris, 1988, 1990; Dunn, 1988, 1991; Peskin, 1991; Rubin, Fein, & Vandenberg, 1983; Vygotsky, 1978; Wimmer & Perner, 1990), the position that children have an early understanding of mental representation in pretense seems tenable. An alternative possibility, however, is that children initially understand pretense as acting out some nonreal situation but not as mentally representing that which is being acted out (Harris, 1991; Harris & Kavanaugh, in press; Lillard, 1993, in this issue; Lillard & Flavell, 1992; Perner, 1991; Wellman, in press).

Pretense certainly involves mental rep-
representation. In pretending that a block is a horse, for example, one employs one's own mental representation of a horse and applies that representation to the block. For example, one mentally represents one end of the block as the horse's head, and the other end as the horse's tail. The horse representation is projected onto the block. Mental representation is a defining feature of pretense; in the absence of such mental representations, pretense does not occur. Note that these pretense mental representations need not be correct; one might think that horses have one leg, and one therefore would project a one-legged horse representation onto the block when pretending it was a horse. Nonetheless, one does have a mental representation that one uses when pretending. The fact that pretending is based on mental representations has two implications. First, one must have some idea of what something is or does in order to pretend about it. If one knew absolutely nothing about horses, and did not even know that they existed, one could not pretend to be one; to pretend, one needs some sort of mental representation to project onto reality. A second implication of the role of mental representation in pretense is that when one is pretending to be something, one is thinking about being that something. For example, if one is pretending to be a horse, then one is thinking about how to enact or "be" a horse. In sum, two upshots of the fact that pretense relies on mental representation are that the pretender must in some sense know what the pretense object is and must be thinking about being it.

On the other hand, action, although frequently involved in pretense, is not one of its defining features. For example, a child who is pretending a block is a horse may not be acting on the block at any given moment. The block-horse might be resting in its stall, for example, and yet still be represented by the child as a horse. Action is a "characteristic" feature of pretense, in Keil's (1989) sense.

In sum, pretense can occur in the absence of pretense actions, but not in the absence of pretense mental representations. Mental representation is a defining feature of pretense, and action is a characteristic one.

It is difficult to understand how children could engage in pretense without understanding it as entailing mental representation. Such a failure, it seems, would result in children being sorely confused by pretense (Leslie, 1987). Hence, Ferguson (1989) wrote, "The child's pretense behavior is interpretable as rational action only by attributing to her the capacity to form representations of her own and others' representations" (p. 54), and Siegler (1991) stated that pretend play provides children with an opportunity to reflect on their mental representations (see also Moses & Chandler, in press). Leslie, whose work has been very influential in current thinking about pretense, takes the view that "When the child acquires the ability to pretend herself she simultaneously acquires the ability to understand pretense in others" (Leslie, 1988, p. 29). Because mental representation is an essential feature of pretense, to claim the child "understands pretense" is tantamount to claiming that the child understands mental representation in the pretense sphere. Because children begin to pretend at about 18 months of age, Leslie appears to credit children with a very early understanding of mental representation as it is manifest in pretense (for further discussion, see Lillard, 1993, in this issue).

The present research is designed to test whether children do in fact have an advanced understanding of mental representation as part of their conceptualization of pretense, or whether they have a simpler, nonrepresentational conceptualization of pretense as action. As previously noted, pretense is based on mental representation: When one pretends a block is a horse, one does so by invoking one's horse representation and applying it to the block. The first three experiments test for this understanding indirectly, by presenting children with protagonists whose knowledge base is limited and who therefore cannot have an adequate mental representation of some object or animal. For example, children were told that a troll doll was missing some knowledge about rabbits—either that they exist (global knowledge, Experiments 1 and 2), or that they hop (local knowledge, Experiment 3). The protagonist was then made to hop, and children were asked if he was pretending to be a rabbit. Experiment 4 tested more directly for children's understanding that mental representation undergirds pretense: Children were told that a protagonist was not thinking about being a rabbit, although she was hopping like one, and, again, children were asked if she was pretending to be a rabbit.

Four- and 5-year-olds were chosen as subjects for these studies, to circumvent a
concern that younger children might fail the Experiment 1–3 tasks due to not understanding what it means to not know what something is. Four-year-olds do seem to understand something about the basis for and implications of knowledge (e.g., Astington & Gopnik, 1991; Flavell, 1978, 1988; Ferguson & Gopnik, 1988; Harris, Johnson, & Harris, 1988; Perner, 1991; Pillow, 1989; Pratt & Bryant, 1990). In addition, pilot work performed in our laboratory indicates that 4-year-olds understand the implications of knowledge for potential actions, such as being able to name an item (see also Harris et al., 1988).

The first three studies also presented children with a false belief task. The purpose of this was to ensure that the children were normal for their age with regard to a benchmark “theory of mind” test.

Experiment 1

Method

Subjects

The subjects were 32 children from a university preschool. The sample included 16 4-year-olds (7 girls, 9 boys; mean age 4-3, range 4-0 to 4-6) and 16 5-year-olds (9 girls, 7 boys; mean age 5-3, range 5-1 to 5-6). Most of the children were of upper middle or middle class backgrounds and were white; several other races were also represented. All the children were proficient speakers of English for their age, although for some English was a second language.

Materials

Materials for the pretend tasks consisted of two small human-like dolls, a troll doll, a plain box (15 × 10 × 6 cm), and a 17-cm pencil. For the false belief task, a Bandaid box was used, and a Hereford cow was placed inside.

Procedure

Children were first given a series of four pretend tasks, two of which concerned the doll pretending an object was something else (object-identity pretense), and two of which concerned the doll pretending to be an animal (self-identity pretense). Although there was no strong theoretical rationale for supposing one type of task would be easier than the other, both types were included for exploratory purposes. Following the four pretend tasks, children were given a standard false belief task.

Introduction.—Children were shown the troll doll and were told, “This is Moe. He’s a troll, and he’s from the land of the trolls.” Moe was then put away, and one of the dolls was brought out. Children were told, for example, “This is George. He’s a little boy.” The four pretend tasks were given in two blocks, one block of self-identity tasks (bird and kangaroo) and the other of object-identity pretense tasks (castle and train). An example of a self-identity task follows. A script for the Experiment 1 tasks is provided in the Appendix.

Self-identity pretend task.—The experimenter held the boy doll up and said, “George knows what a bird is. He’s pretending he’s a bird.” George was made to move around with his feet on the ground and his arms outstretched. Then George was put away and Moe was brought out. Children were told, “Moe doesn’t know what a bird is. He’s never seen a bird, and he hasn’t heard of one either. He’s running around like this.” Moe was made to move around in the same manner as George had. While Moe was running around, children were asked, “Moe doesn’t know what a bird is, does he?” After they responded, they were asked, “Is he pretending he’s a bird?”

False belief task.—Following the first four pretend tasks, children were shown a Bandaid box and were asked, "Do you know what’s in here?" After they responded "Bandaid," the experimenter said, "Let’s look," and opened the box, which contained a cow. She showed the cow to the child, exclaiming, "Hey—there’s a cow in here! Imagine that, a bandaid box with a cow inside!" Then the box was closed and children were asked, "If a child in their class came in here right now and saw this box, all closed up like this, what would she [or he] think was inside here?"

Design

The two self-identity and the two object-identity tasks were blocked, and both the order of blocks and the order of tasks within blocks were counterbalanced across children. This resulted in four possible orders; four children in each age group received each order, and of these four, two received a girl doll first, and two received a boy doll first.

Results and Discussion

Pretend Tasks

Children tended to respond in the same way to all four pretense questions: of 32 children, 18 always said Moe was pretending and seven children never did. These distri-
butions suggest that children were not responding haphazardly (if they were, one would expect to find only four children with all-or-none response patterns). If a passing criterion is set at three correctly answered pretend tasks, only three of 16 4-year-olds passed the pretend tasks (19%) and only six of 16 5-year-olds did (38%) (see Table 1). In contrast, 11 4-year-olds (69%) and all 16 5-year-olds passed the false belief task. In all, 8 4-year-olds passed the false belief task but failed the pretend tasks, and no 4-year-olds showed the reverse pattern (p < .01, binomial distribution). At the very least, this indicates that the children who failed the pretend tasks were not generally delayed in developing mentalistic understanding. The results might also suggest that children understand mental representation as it is entailed in understanding false beliefs even earlier than they understand mental representation in pretense.

Scores did not appear to differ by type of identity (self vs. other): 38% of children were correct on the bird (self-identity) and train (other-identity) items, 34% were correct on the castle item (other-identity), and 22% were correct on the kangaroo item (self-identity).

Experiment 2

Experiment 2 was designed to reinforce and extend the results of Experiment 1. First, it addressed the possibility that the Experiment 1 procedure may have invited children to make a logical (although incorrect) inference (George was hopping; he was pretending; Moe was hopping; therefore he was pretending) and thereby get the wrong answer (see Brown & Kane, 1988). Although it is wrong to base an inference about pretending on movement instead of on mental state, in Experiment 1, the pressure to make this inference might have been very strong, and therefore the test may not have been sensitive to children's understanding. In Experiment 2, the grounds for the inference were removed entirely by eliminating the initial doll, so only the troll was presented. Second, to control for the possibility that children have a general yes bias, a control question that required a negative response was asked in this experiment. A final change was to use only self-identity tasks in this study, because type of identity had appeared to have had no effect in Experiment 1.

Method

Subjects

The subjects were an additional 16 4-year-olds (8 girls, 8 boys; mean age 4-4, range 3-11 to 4-10) and 16 5-year-olds (5 girls, 11 boys; mean age 5-2, range 5-0 to 5-5) from the same university preschool as in Experiment 1.

Materials

The materials were two troll dolls and a Bandaid box with a Superball inside.

Procedure

Children were given a series of four self-identity pretend tasks, followed by two exploratory questions, and then a false belief task. Children were shown the first troll and told, for example, “This is Luna, and she’s from the land of the trolls.” Then one of four trials was presented, for example, “Luna doesn’t know what a rabbit is—she’s never seen a rabbit before—but she’s hopping up

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<td><strong>PRETEND TASKS</strong></td>
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<tr>
<td>Fail</td>
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<tr>
<td>Pass</td>
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<tr>
<td>Total</td>
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<tr>
<td>5-year-olds (n = 16):</td>
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<tr>
<td>Fail</td>
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<tr>
<td>Pass</td>
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<tr>
<td>Total</td>
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*Note.—In this and all subsequent experiments, a child who did not pass at least three pretend tasks was scored as having failed the tasks.*
and down like a rabbit. Rabbits hop like that.” These premises countered the possibility that children would answer the pretense question using an association strategy: Luna’s mental state was negatively associated with rabbits, whereas her behavior was positively associated with them. To ensure that children had correctly heard the premises, they were asked two control questions: “Does she know what a rabbit is?” and “Is she hopping like a rabbit?” When children answered one of these questions incorrectly (15 times out of 256 such questions), the premises were repeated and the questions were reasked. The order of the control questions was counterbalanced within and between children. Then children were asked a third question: “Would you say she’s pretending to be a rabbit, or she’s not pretending to be a rabbit?” The order of the two choices was counterbalanced within and between children.

Following the last pretend task, as exploratory measures, children were asked either “Why do you say that?” or “Why do you think she’s pretending to be a rabbit?” Then they were asked, “If you asked her, if you said, ‘Hey, Luna! What are you doing?’ what would she say?” Finally, they were given a false belief task that was slightly modified from the task used in the first two experiments, in that (a) a ball replaced the cow, and (b) it was specified that the friend would be seeing the Bandaid box for the first time (some reports show that more precise wording makes false belief tasks easier for children—see Lewis & Osborne, 1990; Siegal & Beattie, 1991). If children failed to respond within 4 sec or gave a nonsense response, a forced-choice was given. The order of the two choices was alternated.

RESULTS AND DISCUSSION

Performance in this study was similar to that obtained in Experiment 1. Performance tended to be all-or-none: of 32 children, 23 were incorrect on all four items, and six were correct on all four, suggesting that children were not responding randomly. Performance on the pretend tasks remained poor: only two 4-year-olds (13%) passed at least three tasks, and only four 5-year-olds (25%) did so (see Table 2, Part A). In contrast, 11 4-year-olds (68%) and 14 5-year-olds (87%) passed the false belief task. (Note that the altered wording of the task did not appear to affect performance relative to that seen in Experiment 1.) Twenty children passed the false

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<td><strong>FALSE BELIEF TASK</strong></td>
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<td><strong>PRETEND TASKS</strong></td>
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<tr>
<td>4-year-olds (n = 16):</td>
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<tr>
<td>Fail</td>
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<tr>
<td>Pass</td>
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<tr>
<td>Total</td>
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<tr>
<td>5-year-olds (n = 16):</td>
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<tr>
<td>Fail</td>
</tr>
<tr>
<td>Pass</td>
</tr>
<tr>
<td>Total</td>
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<td><strong>TOTAL CORRECT</strong></td>
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<td>CHILD’S EXPLANATION</td>
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<tr>
<td>Reflects on troll’s knowledge state</td>
</tr>
<tr>
<td>Literal explanation (“He’s hopping”)</td>
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**NOTE:** No child gave an explanation that fit into both categories.
belief task but failed at least three of the pretend tasks, whereas only one child showed the reverse pattern \((p < .001, \text{ binomial distribution})\).

Table 2, Part B shows the explanations some children provided for their answers. Five of the six children who passed the pretend tasks gave a sensible explanation for that answer: he was not pretending he was a rabbit because he did not know what a rabbit was. However, this same explanation was also provided by four children who did not pass the pretend tasks, raising the possibility that some children may have drawn randomly on the information provided in the stories in coming up with explanations. On the other hand, 14 of the 26 children who answered incorrectly gave an explanation that fit with the incorrect choice and indicated an externalistic understanding of pretending (e.g., “Because he’s hopping like a rabbit,” “Because he looks like one,” or “Because he’s acting like one”). Not a single child who answered correctly gave such an explanation. This is consistent with the interpretation that children who fail such tasks do so because they think of pretending first and foremost as its external manifestations, such as action. Results from the final exploratory question are deemed not sufficiently interesting to report.

**Experiment 3**

Experiments 1 and 2 tested children’s understanding of how global or semantic ignorance about something affects one’s ability to pretend about it. It is conceivable that children have difficulty attributing this sort of global ignorance to others; even though the doll was from the Land of the Trolls, they may have thought she knew something about rabbits, like that they hop. Experiment 3 specified exactly what the troll did not know, and thereby tested children’s understanding of the implications of local or episodic ignorance for pretense. Experiment 3 used a method very similar to that used in Experiment 2, but children were explicitly told that the troll did not know that an animal performed the action that the troll was performing, or indeed anything about the animal at all.

**Method**

**Subjects**

The subjects were an additional 32 children drawn from preschools and families in the San Francisco Bay area. The sample included 16 4-year-olds (9 girls, 7 boys; mean age 4-5, range 3-11 to 4-10) and 16 5-year-olds (9 girls, 7 boys; mean age 5-2, range 5-0 to 5-10); other sample characteristics were roughly similar to those of the Experiment 1 sample. Two additional children were omitted from the study because they failed to answer the control questions correctly.

**Materials**

The materials were two trolls and a Bandaid box with a cow inside.

**Procedure**

The procedure was very similar to that used in Experiment 2. The most notable change was to rephrase the premises as follows: “Moe’s hopping around, kind of like a rabbit hops. Moe doesn’t know that rabbits hop like that; he doesn’t know anything about rabbits. But he is hopping like a rabbit.” Following this, children were asked essentially the same control, test, and probe questions as in Experiment 2, except the knowledge control question was revised to reflect the “local” premises: “Does he know that rabbits hop?”

**Results and Discussion**

Children tended to be always correct or always incorrect in this study: of 32 children, 14 always said the troll was pretending, and eight always said he was not pretending. Four-year-olds did somewhat (but not significantly) better in this experiment than they had in Experiment 2, with 37% (6 of the 16) passing at least three pretend tasks (see Table 3, Part A). Five-year-olds showed a significantly higher level of performance over that of Experiment 2, with 68% (11 of the 16) passing at least three pretend tasks, \(X^2(1, n = 16) = 6.22, p < .01\). It seems likely that the altered premises were responsible for this difference; 5-year-olds might be beginning to grasp an understanding of the fact that in order to pretend to be a rabbit by hopping, one would have to know that rabbits hop. However, the 5-year-olds’ level of performance was not significantly higher than that of the 4-year-olds on the pretend tasks, and so the possibility of a developmental advance occurring between these ages is speculative. Thirteen 4-year-olds (81%) and 12 5-year-olds (75%) passed the false belief task. As in the previous studies, significantly more children \((n = 10)\) failed the pretend tasks but passed the false belief task than showed the reverse pattern \((n = 2; p < .05, \text{ binomial distribution})\). At the very least, this result indicates that this sample of children was not simply slow to acquire
TABLE 3
A: EXPERIMENT 3: PERCENTAGES (and N’s) OF CHILDREN PASSING FALSE BELIEF AND PRETEND TASKS

<table>
<thead>
<tr>
<th>Pretend Tasks</th>
<th>False</th>
<th>Pass</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>4-year-olds (n = 16):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fail.................</td>
<td>13 (2)</td>
<td>50 (8)</td>
<td>63 (10)</td>
</tr>
<tr>
<td>Pass..................</td>
<td>6 (1)</td>
<td>31 (5)</td>
<td>37 (6)</td>
</tr>
<tr>
<td>Total................</td>
<td>19 (3)</td>
<td>81 (13)</td>
<td></td>
</tr>
<tr>
<td>5-year-olds (n = 16):</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fail.................</td>
<td>19 (3)</td>
<td>13 (2)</td>
<td>32 (5)</td>
</tr>
<tr>
<td>Pass..................</td>
<td>6 (1)</td>
<td>62 (10)</td>
<td>68 (11)</td>
</tr>
<tr>
<td>Total................</td>
<td>25 (4)</td>
<td>75 (12)</td>
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</tbody>
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B: EXPERIMENT 3: NUMBER OF CHILDREN OFFERING EXPLANATION BY TOTAL CORRECT ON PRETEND TASKS

<table>
<thead>
<tr>
<th>Child’s Explanation</th>
<th>Total Correct</th>
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<tbody>
<tr>
<td></td>
<td>0–2</td>
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<tr>
<td>Reflects on troll’s knowledge state</td>
<td>0</td>
</tr>
<tr>
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<td>8</td>
</tr>
</tbody>
</table>

Note.—No child gave an explanation that fit into both categories.

theory-of-mind-related knowledge. It may also indicate that children understand mental representation in the domain of belief even earlier than they understand it in the domain of pretense.

Table 3, Part B shows how some children explained their answers. All five children who explained their answers by reflecting on the troll’s knowledge state were correct on at least three of the pretend trials. Eight of the children who failed the pretend tasks explained that they claimed he was pretending because he was hopping, lending further support to the hypothesis that young children conceptualize pretense as action.

Taken together, these experiments strongly suggest that young children do not understand that knowledge, and by extrapolation mental representation, necessarily undergird pretense. However, assessing children’s understanding of knowledge for pretense is an indirect means of testing whether they understand that pretending entails mentally representing what is being pretended. Experiment 4 is a more direct test of this understanding.

Experiment 4

Experiment 4 presented children with photographs of other children, who were variously described as thinking (or not thinking) about being a rabbit, and hopping (or not hopping) like a rabbit hops. For each, children were asked whether the child was pretending to be a rabbit. Because we stated that the protagonist was not thinking about being the pretend animal, this is a direct test of children’s understanding that a certain mental representation (of the self being a given animal) is a necessary part of pretense.

Method

Subjects

The subjects were 24 4-year-olds from the same university preschool as in Experiment 1. Children ranged in age from 4-1 to 5-0, with a mean age of 4-7. The sample included 20 girls and four boys (this skewed gender representation reflected the distribution of 4-year-old girls and boys in the main classrooms sampled). Nine additional children (four girls and five boys) were omitted from the study because they failed a control task.
Materials

The materials were 14 photographs (approximately 4 x 4 cm) of children’s faces and a puppet.

Procedure

Children were introduced to Wolfie, a dog puppet, and were told that Wolfie did not know much about pretending. They were then told that the experimenter would show them some pictures of children, and tell them about the children, and that they were to tell Wolfie if the children were pretending or not. Following this preamble, two training trials were presented. For one such trial, the child in the photo was described as both thinking about being a lion, and growling like a lion; the experimenter then said, “So we would say that she is pretending to be a lion, ok?” For the other training trial, a child was described as not thinking about being a monkey and not swinging like a monkey, and therefore as not pretending to be a monkey.

Following training, four sets of trials were presented. The actions concerned with each set were (respectively): hopping like a rabbit, swimming like a fish, growling like a lion, and swinging like a monkey. The first two sets each involved four trials, with all possible combinations of thinking about being/not and acting like/not. Two trials were therefore controls of the type used in training, in which the child was described as both thinking about being and hopping like a rabbit or not thinking about being and not hopping like a rabbit. A third trial was a test trial, in which the child was described as hopping like a rabbit, but not thinking about being a rabbit. The fourth trial was ambiguous with regard to pretense: the child was thinking about being a rabbit, but was not hopping like one. For each trial, the children were asked, “Is she [or he] pretending to be a rabbit?” The second set consisted of the same four trials (but concerning the fish), whereas the third and fourth set involved only two trials each: a test and an ambiguous trial. In sum, therefore, there were four control trials (two negative and two positive), four test trials (in which the action was being performed but the mental representation was absent), and four ambiguous trials (in which the child had the appropriate mental representation but was not performing a specified action typically associated with the pretense in question).

When children hesitated before answering on any trial, the experimenter repeated the premises, always taking care not to emphasize the mental state information differently than the action information. Following each of the first two sets of trials, Wolfie was made to say, “This is so fun! I am really learning about pretend!”

Design

Although the four sets of items were presented in the same order to all children, the 12 items within the sets were presented in four different orders. Six children received each order. Of the six children receiving each order, three always heard the mental state information first, and three always heard the action information first. For the training trials, half the children heard the positive premises first and half heard the negative premises first.

Results and Discussion

All 24 children in the final sample passed all four control trials; an additional nine children failed one of these trials, and testing was stopped soon after the failure. The presumed reason for this large number of failures is that the procedure was highly verbal and required a high level of concentration. It is notable that even among a sample that could sustain this level of concentration, pass the control tasks, and respond very consistently to the other tasks, performance was still poor.

Children were consistent in their responses to a given type of task: 19 of the 24 children responded in the same way to all four test tasks; the remaining five responded in the same way to three of four test tasks. Of the 24 4-year-olds, 15 (or 63%) claimed on at least three of four trials that the protagonist was pretending to be an X when her action was consistent with that pretense but her mental state was not; only nine (or 38%) made the opposite claim, that she was not pretending in such circumstances (see Table 4). It is noteworthy that even though this sample was highly selected, performance did not differ from the level seen in Experiment 3: in both experiments, just under 40% of 4-year-olds passed the focal tasks. Indeed, across all four experiments, the level of performance of the 4-year-olds was not statistically different.

Because all these children passed the control trials, they were not simply biased to answer yes to any question concerning pretense. In fact, 10 children who claimed the protagonist was pretending on test trials also claimed she was not pretending on the am-
biguous trials; in other words, they claimed the protagonist was pretending whenever and only when an action was described, regardless of her mental state. Only two children, on the other hand, relied solely on mental state information, and claimed that the protagonist was pretending whenever and only when her mental state was compatible with pretense, regardless of her action.

**General Discussion**

Pretending requires mentally representing that which is being pretended. A person with a mature understanding of pretense takes this into account, and realizes, for example, that someone who is pretending a banana is a telephone is mentally representing that telephone. The present experiments set out to determine if young children evidence an appreciation of the role of mental representation in pretense, and the results suggest they do not. When presented with simple vignettes about a protagonist who, for example, was hopping around, but either knew nothing about kangaroos, did not know that kangaroos hop, or simply was not thinking about being a kangaroo, 4-year-olds tended to claim that she was nonetheless pretending to be a kangaroo. These findings imply that children’s earliest understanding of pretense is as acting-as-if, supporting suggestions put forth by Harris (1991), Perner (1991), and Wellman (in press). Young children do not appear to appreciate the fact that mental representations are at the root of pretense. This result is surprising for several reasons. First, it is surprising because it seems reasonable to assume that children’s understanding of pretense does entail understanding mental representation. Second, it is surprising because pretense seems to be an area of early proficiency. And finally, it is surprising because it has been thought, even by those who believe that children under 4 years of age do not understand representation, that once representation is understood in the domain of belief it should be understood across the board (see Zaitchik, 1990). That it may be understood in the domain of belief even earlier than in the domain of pretense has been unanticipated.

These results contrast strongly with Leslie’s (1987, 1988, 1991) account of how children understand pretense. Briefly, he claims that children as young as 2 years of age understand pretense as a mental state, and that pretending oneself is but a special case of understanding pretense in others. Because the mental state of pretense is based on mental representation, Leslie strongly implies that children understand mental representation in pretense (see Lil-lard, 1993, in this issue, for other reasons why Leslie appears to be making this argument). The present results show that even 4-year-olds do not understand pretense in this way. Although they freely acknowledge that the protagonist does not know that rabbits hop (in Experiment 3), they think that, nonetheless, by his hopping behavior, the protagonist is pretending to be a rabbit. Although children clearly can pretend themselves by 4 years of age, these studies reveal a severe limitation in children’s understanding of pretense.

One might argue that these results are pertinent only to children’s definition of the word *pretend*, and that children do understand that when people are pretending, they are mentally representing. The advance that appears to occur during (Experiment 3) or following the sixth year would then be seen as the result of learning that the word *pretend* refers to a mental representational state. Developmental psychologists have often employed children’s language as a measure of their conceptual understanding (e.g.,

<table>
<thead>
<tr>
<th>Condition</th>
<th>Child’s Judgment</th>
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<tr>
<td>Action</td>
<td>Mental State</td>
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Broughton, 1978; Harris, 1985; Harter & Whitesell, 1989; Johnson & Wellman, 1982; Piaget, 1929, 1932, 1962; but see Limber, 1973; Urmson, 1963). In support, some investigators have presented evidence that the acquisition of words does reflect concept acquisition (Huttenlocher & Smiley, 1990; Melzoff & Gopnik, 1989). There is, however, a fundamental problem with using words as indications of concepts. As Clark (1983) has noted, "Meanings—that is, word, phrase, and sentence meanings—and concepts are as different as apples and oranges. Although they are often discussed as if they were equivalents, the distinctions between them are crucial—not only in talking about development but also in considering the relation between language and thought" (p. 787).

It is important to note that no study (to this author's knowledge) has demonstrated a case in which a preschool child knows a word for a given concept that is important in the child's life, and clearly has grasped the concept, but systematically produces the word only in reference to some other concept for several years. One study that claims to have done so is Wimmer, Gruher, and Perner's (1984) investigation of children's concept of lying. However, there are more parsimonious explanations for their results (Lillard, 1991).

Keil (1989, chap. 7) has given much consideration to the relation between how familiar words are used (or defined) and underlying concepts, and has concluded that shifts in children's word use must be based on shifts in their conceptual understanding. Note that the present studies show a "characteristic-to-defining shift" (Keil, 1989) with regard to pretend: Younger children seem to judge pretend according to a characteristic feature (action), and older children are beginning to respect a defining feature (mentally representing). Keil makes several points regarding what underlies such shifts; relevant to the current studies is his argument that when the shift to defining features occurs, a certain amount of conceptual change is necessarily entailed (1989, p. 151). Four-year-olds, and presumably younger children as well, appear to have a concept of pretend that includes action but does not yet include mental representation. At the very least, it appears that around age 5 (or perhaps even later) children adjust the concept underlying their lexical entry for the word pretend such that the concept underlying it comes to include mental representa-

tion. In this sense, the present studies certainly bear on conceptual change and not simply on word definition. Furthermore, it seems quite improbable that children have some other, correct concept of pretend for which they have no word, given that they use the word pretend to denote what appears to be this same process. It seems much more likely that the present studies index a true advance in children's understanding of what is entailed when people pretend.

A further issue to consider is what these studies imply about children's understanding of mental representation. The question of when children come to understand mental representation has recently been central to research on children's theory of mind. There are four approaches to the issue of when children understand mental representation. One is that even understanding false beliefs does not entail understanding representation (Harris, 1991). Harris (1991) proposes instead that 4-year-olds pass false belief tasks by using simulation: they imagine themselves having the protagonist's mental stance toward an imagined counterfactual situation. In Harris's terminology, they thereby alter two "default settings"; that of their own mental state, and that of the state of the world. However, many theorists believe that passing false belief tasks does require understanding mental representation (Astington & Gopnik, 1991; Flavell et al., 1990; Forguson & Gopnik, 1988; Perner, 1991; Wellman, 1990; Wimmer & Perner, 1983; Zaitchik, 1990), in part because performance on several tasks that seem to have in common mainly a dependence on representational understanding (visual perspective-taking, appearance-reality, and false belief tasks) is intercorrelated (Astington & Gopnik, 1988; see also Flavell, 1988). Given that the main feature that the three types of task appear to have in common is mental representation, it makes sense that coming to understand mental representation is what allows children to pass the tasks. The fact that children pass all these tasks at about the same time seems to contradict Harris's simulation account, because although one can see how the simulation model allows for understanding visual perspective-taking and false belief at the same time (because both involve altering two default settings), it does not explain why children understand appearance-reality tasks concurrently. In fact, on a simulation account, understanding appearance-reality tasks should precede understanding the other tasks, since it requires
changing only one default setting. The child needs only to alter her own mental stance to consider the object’s appearance; the reality setting does not need to be changed. For both these reasons, it seems more likely that children pass false belief tasks by understanding mental representation rather than by a process of simulation.

This leads to the second approach to the issue of when children understand mental representation. In this view, the understanding is reached around age 4, when children pass false belief tasks (Aston, 1991; Flavell, 1988; Perner, 1988). The present studies are against this across-the-board view because they indicate that there is at least one domain in which the understanding is delayed.

A third view is that mental representational understanding exists prior to age 4 (Baron-Cohen, 1991), particularly with regard to true beliefs (Wellman, 1990). Children’s failure on both the present tasks and on false belief tasks belies this claim.

The fourth view is that there are two tiers to understanding mental representation. At the first tier, children understand nonserious representations, as in pretense and at the second tier, they also understand serious mental representations, like false beliefs (Flavell, 1988; Flavell et al., 1990; Fuson & Gopnik, 1988). The present findings certainly contradict this claim, as children appear to understand mental representation in pretense even later than in belief.

However, a certain aspect of this fourth view is supported by these studies: there might be a decalage in understanding mental representation, such that children understand it with regard to some mental states before others. Children might learn gradually about mental representation, first in domains that they really could not understand without it, like false belief. When children first learn about pretense, they do not yet understand mental representation, and therefore they understand it nonrepresentationally, as acting-as-if. Because when others pretend for them and with them they usually act out their pretense, this understanding is perfectly useful and does not cause any dis-equilibrium. Around age 4, children begin to understand mental representation. However, because they have a useful understanding of pretense as acting-as-if, they do not revise their concept of pretense to include mental representation for a year or more.

A pertinent question to raise here is what might motivate children’s understanding of pretense to change from an activity-based understanding to a mental representational one. Fisher, Gleitman, and Gleitman (1991) recently put forth the hypothesis that semantic advances may be led by syntactic insights (see also Landau & Gleitman, 1985). They present evidence of some parallels between structural and semantic properties of verbs, and posit that syntax may sometimes bootstrap children’s semantics. Most verbs pertaining to cognition and perception, for example, are used in “sentence complement frames”:

“He ______ that ______” Extrapolating from their hypothesis, one might say that during the fourth and fifth years children learn that mental verbs have a certain syntax, and, because pretend shares this syntax, children eventually come to view it as a mental verb rather than as an action verb. This insight would cause them to revise their concept of pretense to include mental representation.

The extent to which children understand that there is anything mental involved in pretense is open to question. They might have some understanding that it involves more than just action, while still not understanding that it involves mental representation. One likely early acquisition is that a certain emotional tone (silliness) frequently accompanies pretense. That pretense is intentional (in the sense of done on purpose) and is the province of animate beings are other possibly early acquisitions.

However, there is a body of research showing that children might know even more than this about the mental process of pretending. Several studies (Harris, Brown, Marriott, Whittall, & Harmer, 1991; Harris & Kavanagh, in press; Taylor, personal communication, July, 1992; Wellman & Estes, 1986; Woolley & Wellman, in press) have shown that upon request children apparently can imagine or pretend that a given entity is in a given place, and they can then talk about the products of those pretense or imagined representations. These studies are different from the present ones in two important ways. First, most require that the child engage in a process of pretending or imagining, and then discuss the existence of the products of their own minds; they do not ask the child to reason about others’ pretenses. The present studies imply that children have little grasp of what is going on in others’ minds as they pretend. Although empirical evidence speaking to the issue is needed, it seems likely that children also fail
to understand what is going on in their own minds when they themselves are pretending, since they do not generally appear to understand their own mental states precociously (e.g., Wimmer & Perner, 1991). They might be able to talk about the products of their own mental processes, but still have a very impoverished understanding of the processes themselves.

Second, the studies differ in that in most of the above-mentioned studies real-world contents were absent (e.g., children were imagining contents in empty boxes) rather than being both present and different from the child’s mental contents. As noted in Lillard and Flavell (1992), children might have special difficulty when real-world contents and mental contents do not correspond. In the present studies, the real-world content of an action (hopping like a rabbit) contrasts with the mental state content of not thinking about being a rabbit. What these studies suggest is that children’s problem in understanding mental states is especially a problem with the relation between mental states and the world (Lillard & Flavell, 1992; Wellman, in press; Wolley & Wellman, in press). In this particular case, children fail to appreciate how mental contents necessarily drive pretense behaviors. In general, when something in the world—like action in the present studies, or, in false belief studies, the way things are—contradicts mental contents, or in any sense gives a different message than the mental contents, children appear to go with the external information (see also Lillard & Flavell, 1992; Mitchell & Lacohee, 1991; Russell, Mauthner, Sharpe, & Tidswell, 1991). Simply put, actions and other perceptually available phenomena speak louder than mental representations for children. Although children gradually reorder these priorities, it appears that pretense is one of the later domains in which they reorder them. As stated, a likely reason for this delay would be that during early childhood pretense is so frequently accompanied by action that children, not yet understanding mental representation, equate pretense with pretense actions. However, this is not to say that children generally equate mental activities with behaviors. They appear to categorize the two types of processes separately (Lillard & Flavell, 1980), and yet they have difficulty understanding the connections between mental and real-world contents. The mental is supplanted by the perceptible. One might speculate that there are evolutionary pressures toward giving perceptually available information priority over less certain, often inferred mental information, at least until such a time as one becomes adept at making inferences of the kind required.

To summarize, pretense has been shown to be an area of early skill, perhaps because pretense scenarios invite children to free their own mental representations from their usual referents. But the question of what children can do when they themselves are pretending is a slightly different one from what they understand pretending to be (see Leslie, 1987, 1988). The present studies suggest that children do not understand that mental representation lies at the root of pretense until they are at least 5 years of age. This indicates that a decalage often supposed to exist in children’s understanding of mental representation does not exist. Children do not understand mental representation in pretense several years before they understand it with regard to other mental states. Rather, the present studies suggest that young children initially conceptualize pretense as its commonly associated external features such as action, and do not come to appreciate its mental representational underpinnings until at least the sixth year.

Appendix

Tasks Used in Experiment 1

1. (Kangaroo)
George knows what a kangaroo is. He’s pretending he’s a kangaroo. [Make hop around.] Moe doesn’t know what a kangaroo is. He’s never seen a kangaroo, and he hasn’t heard of one either. He’s hopping up and down like this. [Make Moe move around in the same manner as George had moved previously.] He doesn’t know what a kangaroo is, does he? Is he pretending he’s a kangaroo?

2. (Bird)
George knows what a bird is. He’s pretending he’s a bird. [Make George run around with arms out.] (Rest of script is as above.)

3. (Train)
George knows what a train is. He’s pretending that’s a train. [Make pencil move back and forth on table, with George straddling.] (Rest of script as above.)

4. (Castle)
George knows what a castle is. He’s pretending that’s a castle. [Make George walk around on top of box, facing outward.] (Rest of script as above.) (Samples of tasks for Experiments 2–4 are in text.)

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