Wanting to Be It: Children's Understanding of Intentions Underlying Pretense

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How children understand the mental state of pretense has recently become an active area of inquiry, with some research suggesting that young children do not understand that pretending is based on mentally representing some alternate state of affairs. Because intention is thought to be understood earlier than mental representation generally, these experiments tested whether children understand pretense intentions at an earlier age than they understand pretense mental representations. Children were told about a character's intentions and conflicting actions, and were asked about the character's pretense. Across 5 experiments, children did not demonstrate appreciation that intention is crucial to pretense. Various methodological factors that might have compromised the results were examined, but to no effect.

INTRODUCTION

Understanding minds is important to social competence (Frith, Happe, & Siddons, 1994; Leekam, 1993). A particularly crucial insight about people's minds is that they represent the world, and can do so in a variety of ways (Flavell, 1988; Ferguson & Gopnik, 1988). One might think there is cereal in the cupboard, while someone else knows it is chock full of counterfeit money. Furthermore, one's behaviors are based on one's beliefs, or mental representations of a situation, rather than on the actual situation. The cereal representor would carry a bowl and spoon to the cupboard, whereas the counterfeit money representor would be more likely to bring a large bag. Surprisingly, young children appear not to understand this representational feature of minds until they are about 4 years of age (Wimmer & Perner, 1983). Younger children respond to experimental tasks assessing such understandings as though there were only one way to view the world: the way they know to be true.

However, pretending seems contrary to that assessment of children's understanding of minds. Children begin to pretend around 18 months of age. When one pretends, one mentally represents a situation one way, when one knows full well it is actually a different way. One represents a dish of sand as an apple pie, although one knows full well it is actually sand. Further, when children begin to pretend themselves, they also appear to understand pretend in others. They understand that their mother is "just pretending" the sand is apple pie, and it seems that they might even realize that she is mentally representing pie and projecting that onto the sand. Some have therefore claimed that pretending is a special case in which children have early access to a representational understanding of minds (Flavell, 1988; Ferguson & Gopnik, 1988; Leslie, 1994; Moses & Chandler, 1992; Siegler, 1991; Taylor & Carlson, 1997).

Some recent evidence, however, suggests a different view of what pretend is about to children. In this view, although children certainly do mentally represent reality in alternative ways during pretend, they do not do so self-consciously. Rather, they think of pretending primarily as acting-as-if, without appreciating the necessity of mental content (Harris, 1991; Perner, 1991). Evidence for this comes from at least four different paradigms. First, when presented with a protagonist who cannot mentally represent something, say a rabbit (because he does not know what a rabbit is), or is not thinking about being a rabbit), but who is behaving like a rabbit, 4-year-olds claim the protagonist is pretending to be a rabbit (Aronson & Golomb, 1997; Joseph, 1998, in this issue; Lillard, 1993; Mitchell, Gaskin, & Neal, 1997; Rosen, Schwebel, & Singer, 1997; Ruther & O'Reilly, 1995). Second, when presented with a character who is obviously pretending, and asked if the character is thinking about anything, and is using her brain, 4-year-olds tend to say "no" (Lillard & Sobel, 1997). Third, when asked if one could pretend just with one's body, without using one's mind at all, 4-year-olds tend to claim one could (Lillard, 1996). Finally, when presented with objects that are costumed or made to move like other objects, 4-year-olds claim the objects are themselves pretending, even though they deny thinking to those same objects (Lillard, Zelano, & Seja, 1997). In sum, young children fail to
acknowledge the mind’s involvement in pretense, and focus instead on its external manifestations, like pretense action.

One pertinent issue is whether there are some mental (to adults) aspects of pretense that children might understand earlier than those aspects that have been examined. One candidate aspect is intention. Pretenders are always trying or intending to render the pretense scenario. Pretending must be done on purpose or else it is not pretending (Lillard, 1994). Desires or intentions generally appear to be understood earlier than beliefs, both in natural language (Bartsch & Wellman, 1995; Bretherton & Beeghly, 1982) and in experimental contexts (Gopnik & Slaughter, 1991; Lillard & Flavell, 1992, Moses, 1993; Repacholi & Gopnik, 1997; Wellman & Woolley, 1990). Wellman (1990) has suggested that this is because desires and intentions might be understood without resort to minds, for example, as a tendency to attempt to get a desired object. Gopnik (1993) has argued that desires and intentions can be understood earlier because they involve the opposite “direction of fit” (Searle, 1983) from beliefs. Desires and intentions result in actions, which then alter the world. In contrast, for belief, elements of the world affect the mind. Mind-to-world effects might be easier for children to conceptualize than world-to-mind ones. For all these reasons, pretense intentions might be understood earlier than pretense mental representations.

There are two levels at which one might understand intention (Searle, 1983). One might understand it as a prior intention: a plan formed in the mind prior to enacting the pretense. If children understand pretense intentions at this level, they should understand that when one is going to pretend, one plans how one is going to do it. At the second level, one might understand intention as being part of the action, as intention-in-action. If children grasp this in pretense, then they know that while one is pretending, one is conveying the pretense situation on purpose, rather than accidentally. In other words, they know that intending is part of pretending. While one is carrying out a pretend act, one wants to and tries to engage in pretense. The present experiments focus on this aspect of pretense, testing whether children understand that intention to behave like something else is necessary to pretending to be it.

STUDY 1

The first experiment used the basic method of Lillard (1993), but replaced information about the protagonist’s mental representation (as revealed by thought or knowledge information in those studies) with information about his intention. Hence, rather than tell children that the protagonist did not know what an x was, children were told that the protagonist was not trying to be like an x.

Method

Participants. Participants were 16 4- (M = 4.6; range = 4.2 to 4.10) and 16 5-year-olds (M = 5.3; range = 5.0 to 5.6) recruited from preschools in an urban area. In this and the subsequent experiments, there were approximately equal numbers of boys and girls in each group, a range of ethnic backgrounds roughly resembling that of the United States was represented, and the participants were from mostly middle- to upper-middle-income homes.

Procedure. Children were brought individually into a game room. Once comfortable, they were told, “The way we play this game is I have some dolls, and I’m going to tell you about the dolls, and show them to you, and I’m going to ask you whether or not they’re pretending. Are you ready?” Next they were shown one of four trolls, each about 6 cm tall and with different colored hair, and for each were told a story such as the following: “This is Suzy. Suzy is wiggling around. She’s not trying to be like a worm—she’s just wiggling. But she looks just like a worm—worms wiggle like that.” They were then asked two control questions, “Do worms wiggle like that?” and “Is Suzy trying to be like a worm?” followed by the test question, “Is she pretending she’s a worm?” To reduce the possibility of biasing children’s answers with vocal inflection, the test question was always asked in as neutral a manner as possible.

If a control question was answered incorrectly, the experimenter corrected the child and said, “Let me tell you again,” retelling the entire story. On the two occasions when a child protested against the premises, by claiming, for example, that the doll was not wiggling like a worm, the child was asked to show the experimenter how worms wiggle, and the story was retold using the action preferred by the child.

A total of four such stories were told. The other three concerned digging like a dog, running like a deer, and hopping like a rabbit. These were told in a fixed order, and the order in which the mental state and action information, and the two control questions, were issued was counterbalanced within and across participants.

Results and Discussion

Children were given a point for each task on which they correctly claimed the troll was not pretending,
resulting in scores ranging from 0 to 4. Children's performance across the four tasks was relatively systematic, with seven 4-year-olds and six 5-year-olds claiming on every trial that the troll was pretending, and four 4-year-olds and seven 5-year-olds claiming on every trial that the troll was not pretending. A chi-square goodness-of-fit test indicates that this pattern is significantly different from what would be obtained were children responding haphazardly, \( \chi^2 (31, N = 32) = 99.5, p < .001 \).

Four-year-olds correctly claimed on 40% of trials that the troll was not pretending, for a mean score of 1.6 of 4. Five-year-olds made that claim on 53% of the trials, for a mean score of 2.1 of 4 (see Figure 1). A t test was conducted to see if these response levels were significantly different, and they were not. Taking all the children together, then, performance was about 46% correct. This level of performance is similar to that obtained in Lillard (1993). In that study, the premises regarding the focal character's mental state related to thinking and knowing rather than to intention, and children of these ages averaged about 36% correct over four similar experiments. These results suggest there might be a slightly privileged understanding of the intention component of pretense, relative to the mental representational component. A within-subjects comparison across mental states was needed to more carefully investigate this.

STUDY 2

To determine how children were doing on the intention task relative to the mental representation version, a within-subjects comparison was conducted with three conditions, each involving intention, thought, and knowledge premises. If children do understand intentions underlying pretense earlier than they understand mental representations, one would expect better performance when given intention rather than thought and knowledge premises. This was also the first direct comparison of thought and knowledge versions of the Moe test. It was expected that thought might be easier, because it is more direct. To understand that one cannot pretend to be something because one does not know what it is, one has to make an added inference that knowing is required for mentally representing. Thinking, in contrast, directly specifies mental content (see Lillard, 1993). A second issue addressed here is that in Experiment 1, children might not have a solid understanding of "trying." Because they clearly use and understand desire and preference terms by 4 years of age (Bartsch & Wellman, 1995), we added the terms "want" and "like" to assist children's understanding in the intention condition.

Method

Participants. Participants were 24 children ranging in age from 3.2 to 5.2, with a mean age of 4.5. One additional child was excluded because he persistently denied that the actions bore a likeness to those of the proposed animal. Children were recruited from a university preschool.

Procedure. Children were brought individually to the game room. Once comfortable, they were told, "The way we play this game is I'm going to show you some dolls and tell you about them, and then I want you to tell me some things about them." The first of three dolls was brought out, and children were told two stories about that doll. As one example, a boy doll, Chris, was always presented with the intention stories, as follows: "This is Chris. He's a little boy. Right now, Chris is digging." At this point the doll was made to dig with one arm. "Chris doesn't want to be like a dog. He doesn't like dogs. He's not trying to dig like a dog. But right now he is digging just like a dog—dogs dig just like that." The control questions were, "Do dogs dig like that?" and "Does Chris want to be like a dog?" and the test question was, "Right now, is Chris pretending he's a dog?" Although the Chris stories always concerned intention, the content (dogs dig) was rotated across story types to preclude confounding.

Following the story, participants were sometimes asked to explain their answers with the query, "Why do you say that?" or "Why do you think he's pretending?" This was done in a child-dependent fashion, so children who seemed uncomfortable with the question, squirmed, and said nothing or "I don't know" were not asked again, whereas children who elaborated and appeared to enjoy answering the question were asked on subsequent trials. Children's
level of comfort in answering the question did not appear to depend on their answers, and most children appeared very confident of their answers both to the initial questions and the follow-ups.

The story types were blocked, so the second intention story was told immediately following the first. It used the exact same wording but substituted contents, for example “rabbits hop.” Following it, either two thought or knowledge stories were told with different dolls. The script for the thought stories was, “This is Jean. She’s a little girl. Right now, Jean’s running. Jean isn’t thinking that she’s running like a deer. But right now she is running just like a deer—deer run just like that,” followed by the relevant control and test questions. The knowledge story was, “This is Moe, and he’s a troll from the land of the trolls. Right now, Moe’s wiggling. Moe doesn’t know what a worm is. He’s never heard of a worm. He doesn’t even know that worms wiggle. But right now he is wiggling just like a worm—worms wiggie just like that.” Moe the troll always appeared in the knowledge stories, because it might be unclear whether a child who did not know such mundane facts as that worms wiggie. The six contents that were rotated across the story types were rabbits hop, pigs roll, dogs dig, deer run, worms wiggie, and monkeys climb.

The three story types were presented in all six possible orders, with four participants receiving each order. Of these four participants, two heard mental state information first and two heard action information first in the stories. The control questions were always posed in the order opposite to that of the premise information for a given story.

Results and Discussion

Children were given a point for each task on which they denied a character was pretending. Children’s responses were very consistent within story type. Of the 72 story type pairs, children’s responses to the two stories were the same for 67 of them. In addition, most children responded in the same way across the three types of stories, so 12 of the 24 children always claimed the character was pretending, and five claimed he never was (accounting for 51 of the pairs of stories). A chi-square goodness-of-fit test indicated they were not responding haphazardly, \(\chi^2(23, N = 24) = 146, p < .001\).

A two-way repeated-measures analysis of variance was conducted, with mental state (know, think, want) as the within factor and first mental state presented (know first, think first, want first) as the between factor. The first mental state factor was included to test whether there could be carryover effects from the first mental state about which one heard. This analysis yielded no significant differences. Performance on the intention items (40% correct, or a mean of .79 of 2; see Figure 2) was not significantly better than performance on the know (29%, or a mean of .58 of 2) or think items (42%, or a mean of .83 of 2). Individual participant patterns reflected the overall means. For want, 14 children failed both items, whereas nine passed both; for think, 13 failed both and nine passed both; and for know, 16 failed both and six passed both. The fact that performance was so similar across all three story types suggests that children do not have a privileged understanding of intention in pretense, relative to mental representation.

Children’s responses to the follow-up questions were also of interest. Sixteen of the 24 children were polled (seven who were more often incorrect, two who scored 3–3, and seven who were more often correct), and yielded a total of 60 replies (because not every child was asked for every instance). Of those 60 replies, 55 referred to the protagonists’ mental state, appearance, or action; the remaining five referred to the child’s own mental state or were indiscernible (“Because I know,” or just “Because”). For the other 55 responses, when a child claimed that the doll was pretending, they always justified the answer by resort to action or appearance: “Because he was hopping one,” or “Because he looks like a dog” \((n = 13)\). When answering correctly that he was not pretending \((n = 32)\), children tended to justify it by resort to mental state (“Because he didn’t know that they hop,” or “Because she doesn’t have pigs in her mind,” \(n = 24\)). The other eight correct answers referred to the action or appearance. For two of these, a child claimed the doll was not pretending because she was “just wiggling.” The other six, given by a single child, referred to a physical property that pre-

![Figure 2](image-url)
vented pretense. For example, he claimed that the
doll could not be pretending to be a pig because "pigs
don't have hands." One would assume that under
some circumstances this child would admit that peo-
ple can pretend to be pigs despite their hands. It ap-
ppears that he knew the correct answer to the test
question, but simply lacked the means to justify it
explicitly, and was perhaps in a transitional phase.
Such responses point to the possible value of doing
microgenetic analyses of this development (Kuhn,
1995; Siegler & Crowley, 1991). The vast majority
of children's justifications clearly were appropriate to
the answers they gave on the test question, consistent
with Lillard (1993) and Mitchell et al. (1997).

This experiment suggests that children do not
have a privileged understanding of the intention
component of pretense. According to 4-year-olds,
even if someone clearly does not intend to portray a
certain pretend entity, if they are portraying it, they
must be pretending to be it. Likewise, even if some-
one cannot mentally represent the pretend entity, if
they are behaving like it, then they are pretending to
be it.

STUDY 3

In the foregoing experiments, children appear not to
understand that pretending requires intention. How-
ever, others have found higher levels of performance
in even younger children on tests claimed to tap chi-
ldren's understanding that pretense involves mental
content. Certain methodological variations might be
at root, and investigating such features might suggest
how development proceeds in this domain. The next
three experiments test a series of variations to see if
they might result in better performance.

In one recent study, children were shown charac-
ters who were described according to their action, for
example, as hopping (Gerow & Taylor, 1997). A frog
was pictured in a thought bubble, and a bunny was
also present on the page, but neither of these was
mentioned. Children were simply asked, "Which ani-
mal is [he] pretending to be, the frog or the bunny?"
Three-year-olds performed at chance levels, but 4-
year-olds were 70% correct. So in this case, the child
had two choices for an answer, and 4-year-olds were
likely to choose the one that corresponded to the
character's thoughts.

Three factors are considered that might lead to this
better performance. First, having the mental contents
more available, by use of a thought bubble, might
assist children. Second, perhaps having a forced-
choice rather than a yes or no question is helpful.
Third, and related to the forced-choice aspect, per-
haps having mental contents given in the positive (by
what the character is thinking rather than what he is
not thinking) assists children. Other experiments that
support these factors possibly facilitating children's
performance, such as Custer (1996), Hickling, Well-
man, and Gottfried (1997), and Joseph (1998, in this
issue), are considered in the General Discussion. Ex-
periments 3 through 5 systematically test these alter-
natives.

It should be mentioned, however, that against
these factors as facilitators, it is possible that children
performed fairly well in Gerow and Taylor's study
for reasons that do not relate to understanding pre-
tense. As a control, Gerow and Taylor (1997) also
asked their 4-year-olds, "Which animal do you like
best?" and on 62% of trials they chose the thought
bubble animals (Gerow, personal communication,
March, 1997). It is possible the thought bubble was
simply marking that animal in a way that made it
more salient to children who do not understand the
pretense-thought relation. That possibility, coupled
with an additional group of children that really do
understand that pretense content is best predicted by
one's thoughts, could explain their results.

To test the three factors of interest, in Experiment
3, a pictureboard was used showing Moe the troll (ac-
tually named Skylonda in this experiment, for vari-
ety) and two "bubbles" (really boxes, resembling
thought bubbles). Children were told that one bubble
referred to Skylonda's mind, and the other referred
to her actions. Both the action and the thought bubble
were connected to the illustration of the troll, and
both were encircled, an effort to make sure the bub-
bles were equally salient. Mental state premises were
given in the positive, and children were in effect
given two choices about what Skylonda was pre-
tending to be. (For a summary of these factors, and
those used in the other experiments, see Table 1.)

Method

Participants. Participants were 16 4- (M = 4.6;
range = 4.0 to 4.11) and 16 5-year-olds (M = 5.3;
range = 5.0 to 5.8) recruited from university
preschools.

Materials. Materials were two 6 cm trolls, one with
yellow and one with pink hair; eight 8 cm square
cards picturing one animal apiece; and a box top
(called a pictureboard), approximately 45 × 30 cm.
Inside the box top was a line drawing of the troll with
hair and eyes colored in, and two enclosures, a
"thought bubble" and an "action bubble." A dotted
line from the troll's head pointed to the thought bub-
ble, and one from the troll's body pointed to the ac-
Table 1  Summary of the Five Experiments

<table>
<thead>
<tr>
<th>Exp.</th>
<th>Method</th>
<th>% Correct</th>
<th>Significant Features</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>4 Years</td>
<td>5–6 Years</td>
</tr>
<tr>
<td>1</td>
<td>Moe</td>
<td>40</td>
<td>53</td>
</tr>
<tr>
<td>2</td>
<td>Moe</td>
<td>40</td>
<td>...</td>
</tr>
<tr>
<td>3</td>
<td>Pictureboard</td>
<td>57</td>
<td>58</td>
</tr>
<tr>
<td>4</td>
<td>Pictureboard</td>
<td>23</td>
<td>33</td>
</tr>
<tr>
<td>5</td>
<td>Pictureboard</td>
<td>25</td>
<td>...</td>
</tr>
</tbody>
</table>

Figure 3  The pictureboard

Each bubble contained a holder (a small box with one side removed) just larger than the pictures, into which the pictures could be placed (see Figure 3). The holders enabled the thought bubble and action bubble contents to be easily changed. Several recent studies show that children of this age can correctly interpret thought bubbles as indicative of characters’ thoughts (Wellman, Hollander, & Schult, 1996) and intentions (Abbott, Lee, & Flavell, 1997).

Procedure. Children were brought individually into the game room. Once comfortable, they were told, “This is Skylonda, and she’s a troll from the Land of the Trolls. I’m going to tell you some things about Skylonda, and ask you some questions. Are you ready?” When the child assented, the experimenter pointed to the pictureboard and said, “Here I have a pictureboard for Skylonda, which shows what Skylonda is thinking about and what Skylonda is acting like. This pictureboard has spaces for two cards. One card, we can put here, to show what Skylonda
Table 2  Experiment 3 Items

<table>
<thead>
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<th></th>
<th>Intended</th>
<th>Actual</th>
<th>Behavior</th>
</tr>
</thead>
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<tr>
<td>Congruent</td>
<td>bat</td>
<td>bird</td>
<td>fly</td>
</tr>
<tr>
<td></td>
<td>frog</td>
<td>rabbit</td>
<td>hop</td>
</tr>
<tr>
<td></td>
<td>deer</td>
<td>zebra</td>
<td>run</td>
</tr>
<tr>
<td>Noncongruent</td>
<td>snail</td>
<td>dog</td>
<td>dig</td>
</tr>
<tr>
<td></td>
<td>mouse</td>
<td>pig</td>
<td>roll</td>
</tr>
<tr>
<td></td>
<td>horse</td>
<td>snake</td>
<td>wiggle</td>
</tr>
</tbody>
</table>

is thinking about and trying to be like.” The experimenter pointed to the top holder. “And the other card we can put here,” pointing to the lower holder, “to show what Skylonda is actually being like.” She placed a card in each holder and asked, “Now what is Skylonda trying to be like? And what is Skylonda actually being like?” When children responded incorrectly, she said, “Actually, she’s ______. See this one shows what she is actually being like and this one shows what she is trying to be like.”

There were two types of test trials: congruent and noncongruent. Each child received three of each type. For congruent trials, Skylonda’s intended animal would typically behave in a manner similar to how Skylonda was actually behaving. For example, both birds and bats fly, and in one trial Skylonda was described as trying to be like a bat but actually being like a bird. For noncongruent trials, the intention did not match the outcome. In one such trial Skylonda was trying to be like a horse, but she was actually wiggling like a snake.

The script went as follows: “Skylonda says, ‘I’m trying to be like a horse.’ Let’s watch her. She’s actually being like a snake. Snakes wiggle like that. But Skylonda is trying to be like a horse.” At this point the action was stopped and the cards were placed in the holders as the experimenter said, “So she is actually being like a snake, but she is trying to be like a horse.” Then she asked the two control questions, “What did Skylonda say she was trying to be like?” and “What was she actually being like?”

If the child’s response to a control question was incorrect, the child was told, “Actually, Skylonda is” and the response was corrected. Then the child was retold the premises and what each slot represents, and was asked the control question again until it was answered correctly. Once the premises were clear to the child, the test question was asked: “What was Skylonda pretending to be?” Children who seemed comfortable at the end of the procedure were asked to explain their final answer. The order of the premises and the control questions was systematically varied, within and across participants, to cancel out possible order effects. The congruent/noncongruent types were blocked, and half the children heard congruent items first. The items are shown in Table 2.

Results and Discussion

Children were scored 1 for each correct answer, resulting in scores of 0 to 6 for each child. Fifteen of the 32 children were correct on either zero or six items, and a chi-square goodness-of-fit test confirmed that the obtained pattern would not be achieved were children responding haphazardly, χ²(31, N = 32) = 156, p < .001.

The overall mean rate of passing was 58%, or 3.5 of six items. Figure 4 presents the data. A repeated-measures analysis of variance was conducted using item type (congruent, noncongruent) as the within factor and age group (4, 5) as the between factor. No significant differences were found for either factor. The level of performance is slightly higher than that obtained using the methods of Experiments 1 and 2, in which the overall rate of passing was 46% and 40%, respectively, on intention items. Whether this slight improvement is due to random sample variation or the methodological changes (mental state information in the positive, two choices being provided, and the use of thought bubbles) requires further study.

The higher level of performance in this experiment might suggest that the pictureboard method enhances children’s performance, although such a slight difference could also be due to random sample variation. Systematic variations on the three methodological variations under consideration (pictureboard, forced choice, positive mental state) are examined in the next two experiments.

STUDY 4

The purpose of Experiment 4 was to check whether the slightly better performance achieved in Experi-
ment 3 was more likely due to some specific variation in method or to random sample differences. One possible methodological reason for the better performance is the use of the pictureboard to aid memory, and it was retained for this experiment. Second, in Experiment 3, the positive option in the thought bubble (specifying what he was trying to be like, instead of what he was not trying to be like) might have assisted children. To test this, children were given a negative representation for half of the trials, as in the first two experiments. Third, perhaps being asked “What is he pretending?” (an implicit forced choice) is easier to answer than “Is he pretending to be an x?” To check this, the test question was changed to a yes-or-no question concerning the action bubble content.

Three age groups were tested to investigate more fully the developmental course, and think and try premises were each used for half of the participants at each age level.

Method

Participants. Participants were 24 4-year-olds ($M = 4.7$, range = 3.9 to 4.11), 24 6-year-olds ($M = 6.8$, range = 5.8 to 7.2), and 24 8-year-olds ($M = 8.11$, range = 8.4 to 9.5). They were recruited from a university preschool and a neighboring elementary school drawing on the same population.

Materials. Materials were the same two trolls, the same pictureboard, 12 8 cm cards depicting various animals, and photocopies of those same cards with the animal crossed out.

Procedure. The basic procedure and preamble were similar to those used in the prior experiment, except that following the initial warm-up, the experimenter introduced the negative cards. She said, “Sometimes the cards have an X through them, to show that Skyonda is not trying to be like something. See this card? This X means that Skyonda is not trying to be like a lion.” The experimenter placed the card in the top holder and asked, “So, is Skyonda trying to be like a lion?” When children responded incorrectly, the X was pointed out, they were corrected, and they were asked again until they responded correctly. The think condition had the same introduction, except phrases regarding trying were replaced by phrases regarding thinking.

Half the participants were in the think and half were in the try condition. Within each condition, half the trials were positively stated and half were negatively stated, and these were blocked, with half the participants in each condition receiving the negative block first. All six test trials used noncongruent ac-

Results and Discussion

A chi-square goodness-of-fit test indicated that children were not responding randomly, $\chi^2(71, N = 72) = 472, p < .001$. The results are shown in Figure 5. A $3 \times 2 \times 2$ repeated-measures analysis used age group (4, 6, 8) and verb (think, try) as between factors, and item type (positive, negative) as the within factor. This revealed a significant main effect for age group only, $F(2, 66) = 9.97, p < .001$. The mean number of correct responses, out of 3, was .69 (23%), 1.0 (33%), and 2.1 (70%) for 4-, 6-, and 8-year-olds, respectively. Post hoc Scheffe’s analyses showed significant differences between the 8-year-olds and both of the other two groups: from 6-year-olds, the mean difference was .36, $p < .01$; and from 4-year-olds, the mean difference was .47, $p < .001$.
Phrasing what the character is trying to do in the positive (“She’s trying to be like a snail”), instead of in the negative (“She’s not trying to be like a dog”), appeared to have no effect. For the positive items, the mean score was 1.3 of 3, or 43% correct, whereas for the negative items, it was 1.2 of 3, or 41% correct. Furthermore, as in Experiment 2, children performed at about the same level on try as they had on think, again suggesting that there is no advantage for intention over thought information in this context.

These results reiterate suggestions that for some children, pretending is “out there” in the world, not in the head of the pretender. There were no differences between premises stated in positive and negative conditions, and no overall facilitating effect of a pictureboard. One other methodological variation that might have enhanced performance in Experiment 3, and that was omitted from Experiment 4, was the use of a forced-choice rather than a yes-or-no question about the troll’s pretense. Experiment 5 investigated whether this change makes a crucial difference.

STUDY 5

Experiment 3 and other work suggested that perhaps presenting children with a forced choice between two positive options reveals earlier understanding of the mental aspects of pretense than does a yes-no question about a single option. This experiment probes that possibility. In addition, it examines whether children would actually endorse that the troll was pretending to be both what she was acting like and what she was trying to be like.

Method

Participants. Twenty children ($M = 4.11; range = 4.0$ to $5.7$) were recruited from university preschools.

Method. The method was essentially the same as in the prior experiment, except all participants were questioned only on “try,” and all heard the test question for three items in a forced-choice format and for three items in a yes-or-no format. Items in each question format were blocked, and half of the participants heard each block first, to allow for investigation of possible order effects. A follow-up question (“Was he also pretending to be a _____”) was asked for the sixth and last item, and then the cards for the first item were replaced. Children were reminded of its premises, and were asked the same follow-up question regarding it, for a total of two follow-up questions concerning whether one could pretend to be two things at once.

Results and Discussion

As in the prior experiments, children’s response patterns were different from what one would obtain were they responding haphazardly, $\chi^2(19, N = 20) = 91, p < .001$. The mean score on the pretense items was 1.5 of 6, or 25% correct (see Figure 6). A repeated-measures analysis of variance was conducted using type heard first (forced choice first or yes/no first) as the between factor and type score (forced choice or yes/no) as the within factor. This revealed no significant effects for either factor. Hence it appears that having two alternatives to choose from in deciding what someone is pretending did not in itself significantly improve children’s performance.

The follow-up probes were revealing. Nine of the 20 children answered incorrectly to both follow-up probes (by claiming that the troll was pretending at the very same time to be the second animal). Interestingly, their mean score was .33 of 6 for the pretense items. In contrast, 11 children were correct on one or both follow-up probes, and their mean score was 2.4 of 6. A $t$ test indicated that this was a significant difference, $t(18) = 2.3, p < .05$. The children who believed that one could pretend to be more than one thing at once were also children who believed that intention or mental state was not an important factor in determining what one was pretending to be. It is as if the choice of what is being pretended is in the eye of the beholder, not the mind of the pretender, for some children. Four-year-olds are generally able to acknowledge multiple perspectives on a single reality (e.g., Astington, Harris, & Olson, 1988), so it was not inconceivable to them that a single pretense act could have multiple interpretations.

This suggests that the slightly better performance seen in Experiment 3 is due to random sample variation. Despite our intuitions about random sampling, as Tversky and Kahneman (1993) discussed, small samples are often not representative of the popula-

![Figure 6](image)

Figure 6  Experiment 5: percent correct
tion, and therefore replication with new samples is extremely important in experiments using small $n$s. Given that careful examination of the methodological factors that might have contributed to real differences in performance failed to achieve such effects, the slightly improved performance of Experiment 3 appears most likely to be due to chance selection of a less representative sample.

**GENERAL DISCUSSION**

This set of experiments had two main purposes. The first was to examine whether children have a privileged understanding of the intention-in-action component of pretense as opposed to the mental representation component. The results suggest that they do not. In experiments testing both concepts within subject (Experiment 2) and within experiment (Experiment 4), and judging from results with similar methods across experiments (e.g., comparing Experiment 1 on trying with Lillard [1993] on knowledge and thinking), no such precocity is seen. Instead, children seem about as ignorant of the fact that pretenders must intend or be trying to convey a pretense as they are that pretenders must be mentally representing the pretense object. This clearly contrasts with the situation for intention versus representational states generally. In natural language (Bartsch & Wellman, 1995; Bretherton & Beeghly, 1982) and experimental tests (Gopnik & Slaughter, 1991; Lillard & Flavell, 1992; Wellman & Woolley, 1990), children understand desire and intention earlier than beliefs.

Development of understanding minds in pretending apparently proceeds along a different path than that by which children understand minds in general. In general, children understand desire and intention before thought and knowledge. In the case of pretense, all mental understanding may come in at once. At 8 years of age, children in Experiment 4 here, and in Lillard (1996), performed at 70%-85% correct. But before age 6, most children appear not to consider pretending to be a mental phenomenon. Although Abbott et al. (1997) have provided strongly suggestive findings that even 3-year-olds, and certainly 4-year-olds, understand intention-in-action, these studies give no evidence that they apply this understanding to pretend.

A second contribution of this work is its exploration of the effects of contrasting methods in studies of children’s understanding of pretense. Gerow and Taylor (1997) presented children with a character with a thought bubble containing one animal (a rabbit). The character was standing next to another animal that typically performs the same sort of action as the thought-bubble animal (a frog). Children were told the character was hopping, and were asked what she was pretending to be, and they did quite well. Earlier it was suggested that this better performance might be explained by (1) the pictureboard assisting memory for the mental state information, (2) the offering of two positive alternatives, or (3) the use of a forced-choice question, variations that have been used in other studies as well (discussed later). In the present set of experiments, none of these variations had a significant effect on performance. A fourth, unexplored alternative is that, in Gerow and Taylor’s (1996) study, the bubble around the thought information highlighted it for some children, and led them to choose that response. That, combined with a percentage of children actually understanding that pretense stems from mental content, might explain their result.

Another possibly crucial difference in methods is that Gerow and Taylor did not provide children with contrary information about the character’s action (“He’s mentally $x$ but in action he’s $y$”). Providing contrary information makes for a more stringent test, analogous to testing children’s understanding of mental representation by using false beliefs rather than true ones (Bennett, 1978; Dennett, 1978; Harman, 1978). The action associated with pretense is like reality in the false belief paradigm, and if it matches the thought content, the child needs only to make a positive association to arrive at a correct answer. There is no competing alternative. (See Aronson & Colomb [1997] for studies illustrating this problem.)

Three other sets of studies also deserve discussion here. Each has been taken to suggest that young children have an earlier understanding of the mental components of pretense, and each uses a method of giving children two positive alternatives from which to select. Hickling et al. (1997) described someone as pretending there was milk in a cup. The character left the room, and the child and experimenter poured out the pretend milk, and replaced it with pretend orange juice. The character returned, and children were asked what he thought was in the cup, milk or orange juice. Three-year-olds were 78% correct in claiming that he thought there was milk. This is essentially a false belief study with pretend contents, replicating Fritz (1991), and there are several possible reasons why children might perform better on such a task than on a false belief task involving real content. For example, as Fritz (1991) argued, pretend contents are less salient than real ones. The child does not have to disregard reality to report it (Russell, Mauthner, Sharpe, & Tidswell, 1991). Hence this study does not
necessarily test whether children see pretense as involving mental representation. It might only show that young children can attribute divergent thoughts when no salient reality interferes (see also Bruell & Woolley, in press), which we know they can do by age 3 in false belief scenarios (Fritz, 1991). In contrast, in the present experiments, the reality of action and the mental state contents were equally salient; the issue at hand was which the child considered to be most relevant to pretense.

In a second study, Custer (1996) showed children a line drawing of a boy fishing. Children were told, "He is pretending there's a fish in there," although they could see that the fishing line actually held a boot. Children were asked to point to which one of two thought-bubble pictures showed what was in the character's head: one depicting the actual situation (the boy holding a boot on his line), or one depicting the imaginary situation (the boy holding a real fish on his line). Three-year-olds pointed to the fish, not the boot picture, for the pretense situation on 80% of trials. Custer (1996) took this to suggest that young children do understand that pretense involves mental representations. However, to answer correctly on such tasks children would only have to know what one normally does with a fishing pole (catch fish!), or even only know that pretense is different from reality. One cannot be certain that children were demonstrating appreciation of its mental underpinnings.

The third experiment, Joseph (1998, in this issue, Experiment 1), presented 3-year-olds with two dolls, one of whom was described as pretending to sneeze, and the other of whom was described as really sneezing. Children were asked to indicate which one was trying to sneeze. Even these very young children performed above chance. However, one might pass such a task by knowing that sneezing is unintentional, or one might pass by knowing that pretending involves trying, and this experiment does not clarify which. Although Smith (1978) showed that 5-year-olds know sneezing is not intentional, 4-year-olds did not fare as well. However, neither did 4-year-olds attribute intention to voluntary acts in that study, suggesting that Smith's method caused them difficulty. We simply do not know whether 4-year-olds know that sneezing is involuntary. So although Joseph's (1998, in this issue) results are intriguing, we cannot tell if children do well in this paradigm because they know sneezing is unintentional or because they know pretending is intentional (or at least is more intentional than sneezing). Another concern for this experiment should be pointed out. Whereas normally less than 50% of 3-year-olds would be expected to pass a standard false belief task, in this sample 88% passed one. Including benchmark tasks is useful because it indicates if one is dealing with a normal sample.

All that said, there is a single methodological factor that might make sense of all these divergent results, and this concerns the direction of effects probed. Lillard (1993) and several of the experiments presented here gave children mental state and action information, and asked children to make a decision about whether pretending was occurring. In the three studies just described, children were given the fact that pretense was occurring, and were asked to provide the character's thought content. This feature might be pivotal. Although most 4-year-olds do not know that pretending crucially depends on mental processes (Joseph, 1998, in this issue, Experiment 2; Lillard, 1993, 1996; Lillard & Sobel, 1997; Mitchell et al., 1997; Perner, personal communication, August 1994; Rosen et al., 1997; Rutter & O’Reilly, 1995), if given that someone is pretending, and asked what they are thinking, 4-year-olds can make a pretty good guess as to their thought content (Bruell & Woolley, in press; Custer, 1996; Hickling et al., 1997; Joseph, 1998, in this issue). Young children might consider thought to be an unnecessary but at least occasional by-product of pretense, sort of like a gas that pretending might give off. Fitting with this interpretation, in a recent study by Lillard et al. (1997), young children attributed pretending to several entities to which they did not attribute thinking (e.g., a toy truck covered with a horse outfit). If children thought pretending crucially depended on thinking, they would not make such claims. This also fits with the idea that children might be more capable of explaining behaviors resulting from false beliefs than of predicting what behavior would result from a false belief (Bartsch & Wellman, 1989; but see Moses & Flavell, 1990).

At this point, we might summarize children's understanding as follows. First, they know by 3 years of age that pretense is not real (Custer, 1996; Harris & Kavanaugh, 1993). Second, they initially think that the most important element of pretense is external manifestations, like action, so in determining whether and what someone is pretending, they look first to what the person is acting like or otherwise externally manifesting. If they are behaving like something else, then they must be pretending to be it (Lillard, 1993; Lillard et al., 1997; present experiments). However, if given that a person is pretending, and the external manifestation heuristic makes no unique prediction (as in Gerow & Taylor, 1997), perhaps they can use internal aspects of the person as an indicator. Further, if given pretense information and asked to specify what someone is
thinking, they can make a pretty good guess (Custer, 1996; Hickling et al., 1997; Joseph, 1998, in this issue). Thought or intention appear to be possible components of pretense for young children, but not necessary ones. However, as has come up repeatedly in this line of work, there are children who appear to understand pretending’s mental aspects early. Future work might examine how else those children differ, for example, whether they pretend more as well. Other means to an understanding of mind, such as cultural contributions (Lillard, 1997, 1998), should also be considered.

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