Pretending and imagination in animals and children

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Just through the looking glass: children’s understanding of pretense

“When I use a word,” Humpty Dumpty said in a rather scornful tone, “it means just what I choose it to mean—neither more nor less.”

“The question is,” said Alice, “whether you can make words mean so many different things.”

“The question is,” said Humpty Dumpty, “which is to be master—that’s all.”

(Carroll, 1871/1946, p. 238)

Alice’s world through the looking glass, though actually a world of dream, is in some respects like the world of pretend. Just as Humpty-Dumpty can be master of words, making them mean what he wants them to mean, in pretend play children designate what various objects and activities denote. Pretending is a special frame that organizes the activities within it. What goes on in the frame has its own reality, stipulated as the players choose, such that a behavior acted while pretending may have alternative significance while not pretending (Bateson, 1955/1972). This impressive ability to deal in framed worlds is fundamental to pretend (Fein, 1981; Bretherton, 1984). Framing also appears fundamental to other human activities, such as reflecting on dreams and understanding others’ minds. Like pretend, another’s mental world is framed by that person’s perspective. When children learn to pretend, they learn to deal with worlds that are framed differently from the real world. In the looking glass world, nursery rhyme characters come to life, words mean anything you want, and memory can work both backwards and forwards.

The pretend world is not entirely unconstrained. In some ways it reflects the world children are actually in. For example, in both the looking glass and the real world, there is a temporal relationship between
a pin prick and a scream – it simply happens backwards in the world through the looking glass. Likewise, in the world through the looking glass and in real-world chess alike, there are queens and kings, and queens move every which way directly and quickly while kings do not do much of anything. But some things are changed from the real world to the looking glass one. For example, looking glass chess pieces can talk, and one has jam every other day (which means never, since each day is itself and not “an other” day). As Kavanagh (PIAC6) and his colleagues have shown, children can manage such stipulated worlds quite well, at least by 2 years 6 months of age. Even before preschool, children seem to appreciate that pretense is different from reality, and has its own frame.

Yet, at this early age children seem not to understand the framed world of the mind, at least as regards belief. Instead, children under about 5 years of age seem to think beliefs and reality must coincide, as though beliefs were not framed [Flavell & Miller, 1998]. One pertinent question is whether children understand the framed world of the mind as regards pretense. To clarify, pretense is itself a framed world, and children appear to understand this when they pretend. But the framed world of pretense emanates from minds, making pretense framed in a second sense. Do young children understand that pretenders think their pretend thoughts, or do they simply know that they act out pretend activities? Some have credited children with appreciating the second sense in which pretense is framed, or that pretense is generated by the pretender’s thoughts (e.g., Woolley, PIAC8).

If a child pretends a chess queen is a real queen, the child does more than see herself in some alternative universe in which the chess piece’s identity has become a “real queen.” She also sees herself as mentally representing the chess piece as a real queen, as having “real queen” in her mind, and applying it to the chess piece. Certainly this projection of a real queen representation is what children are doing when they engage in such a pretense. But a body of experimental evidence suggests that most preschool children are not aware that pretense worlds are mental. I begin by discussing what pretending entails, then discuss research on how children conceptualize pretense.

**Defining pretense**

Pretend play has several defining and one characteristic component (Lillard, 1993a; 1998a). First, there must be a pretender, a person or at least an animate being of active mind. Second, there is a reality that is
pretended about. Since reality is omnipresent, this feature is not hard to come by, but what is pretended is generally different from reality. I cannot pretend to be my very self at this very moment in time and space (Austin, 1958/1979; Leslie, 1987; Lillard, 1993a). Third, pretense is guided by a mental representation, an ideation of the alternative state of affairs. A fourth defining characteristic is that the mental representation must be projected onto reality. If one is simply imagining a real queen, without projecting it onto the chess piece, then one is not pretending the chess piece is a real queen. Pretense is an act of projective imagining. The fifth defining feature of pretense is awareness (Anscombe, 1981; Leslie, 1987). A pretender must be aware of the actual situation and the nonactual, represented one, or else one is mistaken, not pretending. Perhaps one sees a small white object in the corner of the room, and one believes it is a chess piece, when in fact it is a stone. In this case one is projecting a chess piece representation onto a stone. This is a case of false belief, not pretend, because one is not aware of the reality. Sixth, one must project the representation intentionally; to do so without such intention is not pretense (Austin, 1958/1979; Searle, 1975). In contrast, when a psychotherapy patient (Charles) projects his mother (Elizabeth) onto the therapist (Eliza), he may be aware he is doing so yet not be doing so intentionally. We would not call that act pretend (Lillard, 1993a).

Finally, there is an important characteristic yet optional feature of pretense that children may often prioritize over its defining mental components. This is the feature of external manifestation, like action or costume. One might well make a doll wave at throngs of admirers if one was pretending it were a queen. This action is characteristic of queens. However, one need not move the doll at all, and still be pretending it is a queen. The doll might simply sit on an imaginary throne. As long as to the pretender's mind the doll is a queen, then, regardless of action, for that moment in time, that person is pretending the doll is a queen. In pretending there is potential for and sometimes even expectation of action, although it is not necessary (but see Nichols & Stich, 2000).

In sum, pretense involves a pretender, a reality, and a mental representation; awareness of the divergence between what is represented and reality; and intentionally projecting the representation onto reality. External manifestations like action or costume are frequent accompaniments to pretend, but they are not necessary to it. Over the past 10 years my colleagues and I have conducted a systematic program of research to examine when children understand some of these features of pretense.
Pretense as the domain of animates

One set of experiments has concerned when children understand that only animates pretend (an aspect of the first defining feature). Children know at least by age 3 years that animates (people and possibly animals) think and that inanimates (like chairs and rocks) do not (Gelman, Spelke & Meck, 1983; Dolgin & Behrend, 1984). To examine when children understand this constraint for pretense, we showed 3- and 4-year-old children pictures of various inanimate entities and people, the prototypical animate (Carey, 1985; Lillard et al., 2000). We focused on people and not other animals for the animate category, since whether animals pretend is controversial. For each person or inanimate entity we asked whether it could pretend, think, breathe, move, or get wet. The findings were clear: although children were somewhat confused with vehicles, for the most part even 3-year-olds understood that inanimates do not pretend, and people do, when the stimuli were static pictures of those entities.

To check on how solid this understanding was, in further experiments we presented actual objects, rather than pictures, and had the objects act or be made to look like other objects, thereby creating “suggestive instances.” For example a bottle was presented with a horse costume on, and a top was shown spinning like a ballerina. Children’s understanding was robust even to this challenge. However, when this challenge was coupled with a second one, even 4-year-olds’ performance plummeted. When the experimenter noted that the bottle looked like a horse, or that the top looked like a ballerina, even 4-year-olds often claimed that the object was itself pretending. So although ordinary objects that manifest other ones are not readily construed as pretending, once given verbal description of the alternative identities that the objects manifested, children readily conferred pretense on inanimate objects. Importantly, we also asked if the entities could think, and children performed well in all conditions. Thus children conferred pretending to entities to which they denied thinking, suggesting they at least believe that thought is not essential to pretending. To conclude, even 3-year-olds demonstrate a fairly good understanding of the fact that inanimates do not pretend, although their knowledge is easily disrupted when both the inanimate and an adult suggest that the object is like something else.

Pretense as involving minds

Beyond knowing that inanimates do not pretend is the knowledge that when an animate does pretend, his or her mind and brain are involved.
Pretending involves more than an animate body; it also involves an animate mind. To examine this, in one experiment I simply asked children whether one needs a brain to pretend (Lillard, 1996). This drew on Johnson & Wellman’s (1982) finding that preschoolers know brains are necessary for cognitive acts like thinking, but believe brains are unnecessary for bodily actions like hopping or brushing teeth. I asked children whether one needs a brain to pretend, and only about 40% of children under 6 years of age said yes, although the vast majority of children realized that thinking, remembering, and imagining all require a brain. Later experiments in this line asked children to put various activities in one of two boxes. One box was for activities they could do just with their bodies, without using their minds at all, and the second one was for activities they could do just with their minds, without using their bodies at all. About 60% of 4-year-olds opted to put most of all pretense items (such as “pretend you are a kangaroo”) in the body box. Importantly, thinking (“think about your birthday party”) almost always went in the mind box, and physical events (“get wet in the rain”) almost always went in the body box. In some experiments a third box for activities that needed a mind and a body was added, but this made no difference to children’s choices for pretend, which still was usually destined for the body only box (Lillard, 1996; Sobel & Lillard, 2001b). So for younger children, pretending was more often categorized with physical activities in requiring only a body, than with cognitive states, that children of these ages know require a mind and brain. Despite its being fairly well restricted to animates, pretending was not seen as requiring a mind by many children until 6 (65%) or 8 (85%) years of age.

**Understanding pretense intentions**

Another aspect of pretending that children might understand early is the sixth defining feature – that pretenders intend to convey their pretense acts. Children appear to understand some aspects of intentions and desires, like their independence from reality, earlier than they understand those same aspects of belief (Bretherton & Beeghly, 1982; Wellman & Woolley, 1990; Lillard & Flavell, 1992; Bartsch & Wellman, 1995). To examine when children understand that pretenders must be trying to convey the pretense entity they enact, we presented a doll hopping, and we told the child that the doll was hopping like a rabbit, but that she was not trying to hop like a rabbit. Children confirmed this information in their answers to two control questions (“Is she hopping like a rabbit? Is
she trying to hop like a rabbit?”) and then answered the test question (“Is she pretending to be a rabbit?”). Under these circumstances, again only about 40% of 4-year-olds revealed understanding that lack of intention to be like something precludes pretending to be it. The other 60% claimed she was pretending, usually on all four of their four trials (Lillard, 1998b).

Other experiments examined whether children would do better on this task when given a forced choice, rather than a yes–no question. A picture board was used, portraying a cartoon of a troll doll, connected by dotted lines to two bubbles. Four-year-olds were taught that one bubble represented mental states, showing what the troll was trying to be like, and that a second bubble represented action, showing what the troll was actually being like. In test trials, children were told, for example, that the troll (who was actually flying about) was trying to be like a bat but was actually being like a bird, while bat and bird pictures were placed in the appropriate bubbles. Even under such facilitative conditions, most 4-year-olds usually claimed that the doll was pretending to be what she was actually being like, not what she was trying to be like (Lillard, 1998b). Although for pretense, intention is more important than what one is actually looking like, under these test conditions most 4-year-olds privilege appearance.

Some results challenge these findings. Joseph (1998) suggests that when actualization is not at odds with intention, children may appreciate that pretense involves trying. In his work, children were presented with a doll who was really sneezing, and another doll who was just pretending to sneeze, and were asked which one was trying to sneeze. Despite 4-year-olds’ poor understanding of the fact that sneezing is unintentional (Smith, 1978; Lillard & Joffre, 1999), they tended to choose correctly the pretend-sneezer and not the real-sneezer as the one who was trying to sneeze. Suspecting this might be due to children linking positive events (“trying and succeeding” with “pretending”), we replicated Joseph’s procedure with positive unintentional behaviors, like laughing at a clown and slurping up a milkshake. This made no difference: children still asserted that the pretender was the one who was trying (Lillard & Joffre, 1999). This finding might suggest some inkling of understanding that pretense involves trying, when one’s behaviors are consistent with one’s intentions (unlike my troll’s). However, children’s replies to follow-up questions cast some doubt on this conclusion. When asked why children had responded that the pretend-sneezer was trying to sneeze, children gave responses like, “Because he was not really sneezing,” rather than
answers confirming that pretending involves trying. In everyday life, young children often use “trying” to suggest lack of true accomplishment, as in, “I’m trying to zip my coat.” The pretend sneezer was not accomplishing actual sneezes; perhaps this is why children so consistently chose the pretend sneezer as trying. Future work should clarify children’s understanding of trying, then reconsider children’s understanding of how trying is related to pretense.

The understanding of “want” by 3- and 4-year-olds seems to conform more fully to adult usage (Bartsch & Wellman, 1995) than does “trying.” A recent study by Ganea (P. A. Ganea, A. S. Lillard & E. Turkheimer, 2001; unpub. data) suggests some early understanding of desire’s relationship to pretense. When shown a person who declared that she wanted to be like an elephant, but then proceeded to act more like a different animal, 4-year-olds still often claimed that she was pretending to be an elephant (which was what she said she wanted to be). In this case children treated personal and positive desire statements as being more relevant to pretense than action. In contrast, when the experimenter described someone’s intention (“He’s trying to be like a bird.”) in Lillard (1998b), 4-year-olds privileged action in determining what the person was pretending to be.

Pretense as relying on thought

The third and fourth defining features of pretense concern mental representation — one mentally represents the pretense situation, and one projects that representation onto reality. Pretending a banana is a telephone involves (intentionally and knowingly) thinking of the banana as a telephone. To examine when children understand the mental representational features of pretense, we showed children dolls who could not mentally represent a certain situation, but who were behaving as one would if one were pretending it. For example, Lillard (1993b, Exp. 3) presented children with Moe, a troll from the faraway Land of the Trolls, who had never heard of a kangaroo, and did not even know that they hopped, but who was nonetheless hopping like one. Since Moe knew nothing about kangaroos, he could not mentally represent himself as one. Over four trials as well as several variations on this experiment, about 65% of 4- and 5-year-olds have consistently claimed that the character was in fact pretending to be a kangaroo (see Lillard, 2001a for more details).

To act like something without trying to be like it, or without thinking about it, may seem odd. Aronson & Golomb (1999) maintained that
children probably can imagine no reason why Moe would resemble a kangaroo other than because he was pretending to be one. They further claimed that children must revise the premises in such situations, so that they believe Moe is trying to be like and is thinking about the entity. Against this, most children correctly answer control questions affirming that he is not trying to be or thinking about being the entity. Second, this very circumstance actually does happen in natural circumstances. Children are sometimes told, for example, that they (or their siblings) are acting like babies or pigs when they were not intentionally acting like or even thinking about them, hence are not pretending to be them. Nonetheless, we conducted an experiment in which we gave children an alternative, reasonable explanation of Moe's action, to see if this would help them to deny pretense (Rickert & Lillard, 2001). For example, we explained that the pavement was very hot, and that Moe was hopping so as not to burn his feet. We then mentioned that his hopping resembled that of a rabbit, and that he had never even heard of a rabbit and did not even know that rabbits hop. Although most 4-year-olds remembered in follow-up questions why Moe had been hopping, they still claimed that he was pretending to be a rabbit. These data suggest that a failure to conceive of other reasons why Moe is hopping is not responsible for their errors.

Another possibility is that it is difficult for children to reconcile the conflicting action with the mental state information in the Moe task. Perhaps a noncontradictory paradigm like that used by Joseph would enable better performance. To this end, in another experiment (Lillard & Joffre, 1999), 4-year-olds were shown two dolls and were told, "One of these girls is pretending to be a horse and one isn't." One doll was made to trot while the experimenter said, "She has a toy horse." The second one was made to trot and the experimenter said, "She's thinking about a horse." Answers to control questions indicated that children were clear about which doll was which. Children were then asked which doll was pretending to be a horse, with a reminder that only one was doing so. Granted either of the dolls could be pretending to be a horse in this situation, but if one is sensitive to the mental representational component of pretense, the best answer is the one who is thinking about a horse while trotting. Having a horse doesn't have much to do with whether one is pretending to be one in any given instance, but thinking about one certainly does. Four-year-olds choose the correct doll on just 45% of these trials, suggesting that even in Joseph-like circumstances in which no contradictory action was present, children were not sensitive to the cognitive (as
opposed to the intentional, in Joseph’s work) underpinnings of pretense.

An alternative possibility is that the direction of reasoning requested of children in the Moe experiments and the one just mentioned is hard for children. These experiments told children about mental contents, then asked children to reason about pretense. Joseph (1998), and some others who have obtained better levels of performance on tasks designed to assess this understanding (Custer, 1996; Hickling, Wellman & Gottfried, 1997; Gerow, Taylor & Moses, 1999; Davis, Woolley & Bruell, 2001), told children that someone was pretending, and asked children to reason about the person’s mental content. To test whether this latter direction of reasoning is easier, in another condition in the experiment just described, children were shown two dolls and were told, “One of these girls knows what a frog is and one doesn’t.” One doll was made to hop, and the experimenter said, “She’s pretending she’s a frog.” Then the second doll was made to hop, and the experimenter said, “She looks like a frog.” Children were reminded that only one of the two dolls knew what a frog was, and were asked which one knew. The direction of reasoning is thus from pretense to knowledge state. In this case, the pretender must have been the one who knew, since only one knew, and pretending requires knowing. But 4-year-olds chose the pretending doll as knowing on just 40% of trials, suggesting that a direction of reasoning explanation does not resolve why some other tasks have proven easier for children.

Self before other
At this point, it appears that young children may appreciate that a pretender is more likely to be trying than is someone engaged in the same behavior for other, unintended reasons, and that by 4 years of age they have some appreciation of the intention component of pretense relative to reflex-type acts. Supporting this, Mitchell (2000) had children engage in various actions, like reaching across a table to pick something up, and commented that they had looked like something else, say a cat, when they did it. For other children, a confederate experimenter was engaged in the same behavior, with the same descriptive comment following. Interestingly, when asked if these were cases of pretending to be a cat, about 60% of 4-year-olds claimed it was for the confederate (consistent with Lillard, 1993b), but only about 40% did so for the self. Hence, unlike the case for false belief (Wellman, Cross & Watson, 2001), understanding pretense may be advanced for the self. One possible reason for this could be that one’s own intentions are experienced. Although children do not
recognize that Moe's not trying is relevant to his not pretending, perhaps this recognition is achieved somewhat earlier for the self.

**Is it just the word?**

One might question whether children's problem in some experiments is only with the word “pretend” (Woolley, 1995a; P. Mitchell, 1996). Perhaps children simply mismapped the word pretend to the characteristic component of the activity, while neglecting the defining one (Lillard, 1993a), but they are well aware, when watching people pretend, that minds and even mental representations are involved. To test this, David Sobel and I presented 4-year-olds with videos of people engaged in various actions, and sometimes described those actions with the word “pretend” and sometimes did not. If the word were throwing children's judgments off, by leading them to focus on the action component of the behavior, we reasoned that children would correctly infer mental involvement when the word pretend was not used. Children were asked, of each video, if it should go in a mind or a body box as described earlier. The word made no difference; 4-year-olds usually chose the body box regardless of condition (Sobel & Lillard, 2001b). Perhaps as soon as children realize that pretending involves the mind, they enlarge their definition of the word pretend to suit that new meaning. Interestingly, 4-year-olds consistently perform significantly better in both the Moe and the mind/body box paradigms when the pretended-about entity is a fantasy character (like the Lion King) (Lillard & Sobel, 1999; Sobel & Lillard, 2001a). This also suggests that the word pretend is not the main source of the problem. Furthermore, attempts to train children to pass the pretense understanding tasks (by discussing the fact that pretenders in videotapes are thinking about their pretense) have failed, also suggesting the issue is not merely definitional (Lillard & Joffre, 1999).

**Contradictory studies**

Other studies have been taken to suggest that children appreciate pretense not just as involving intention (as in Joseph, 1998) but also as involving thoughts (e.g., Woolley, 1998). My own reading of these studies, discussed at length elsewhere (Lillard, 2001a), is that several tasks could be passed by resort to lower level knowledge, like simply knowing that pretense is not real (Flavell, Flavell & Green, 1987; Perner, Baker & Hutton, 1994; Custer, 1996). As discussed in my introduction, children appear to appreciate early in their pretense careers that pretend is framed,
separate from the real world. Other studies do appear to reveal early appreciation of the fact that pretense is subjective, and possibly also that pretense content is importantly linked to thought content (Hickling et al., 1997; Brull & Woolley, 1998; Woolley, PIAC8). However, the methods used to elicit this understanding from young children—thought bubbles and imaginary content—do not characterize the everyday pretending of 3-year-olds. (Consistent imaginary object play emerges somewhat later; Overton & Jackson, 1973; Ungerer et al., 1981; but see Baudonnière et al., PIAC5.) Therefore this evidence does not challenge the assertion that very young children do not appreciate that pretense is fundamentally mental. Although they appear to appreciate that pretense situations are framed, most young children do not generally appreciate that those frames emanate from minds.

**Links to understanding nonpretending minds**

The evidence just reviewed suggests that preschoolers usually realize that certain types of entities (inanimates) cannot pretend, but this understanding is easily shaken by adult suggestion. Most young children do not realize that pretending entities are using their minds, or that pretending requires a mental representation of the pretend scenario. Regarding intention, 4-year-olds seem to understand that pretending involves trying when the pretense is consistent with an action. But when an alternative behavior, which the character’s behavior is said to resemble, is presented, and intention information is stated by the experimenter not the actor, then intention information is ignored. Two other defining features—difference from reality and awareness—have yet to be systematically studied. Some research suggests that children are very likely to understand the first of these (Harris & Kavanaugh, 1993), and less likely to understand the latter (Peskin & Olson, 1997). Children’s understanding of pretense’s defining features hence appears to be very limited before elementary school.

Despite this, pretending does appear to be linked with children’s social cognition. Children who pretend more, or earlier, pass social cognition assessments earlier (Astinigton & Jenkins, 1995; Youngblade & Dunn, 1995; Taylor & Carlson, 1997; Schwebel, Rosen & Singer, 1999; Lillard, 2001b). Such correlations might be explained in three ways: understanding minds facilitates pretending; pretending facilitates understanding minds; or some third variable like interest in people facilitates both
(Lillard, 1998a). Further work is needed to indicate which is the best model (see Smith, PICA9).

Assume for the moment that the middle path is the right one – that pretending facilitates social understanding. Many have expected that this is the case, and that it is so because in pretense children gain practice reflecting on their own mental representations. Children then learn to consider mental representations outside pretense as well (Flavell, 1988; Ferguson & Gopnik, 1988; Taylor & Carlson, 1997). The data presented here suggest that this is not an avenue by which pretending might facilitate social understanding. Instead, facilitation may occur because of the kinds of events that children enact in their looking glass worlds. The correlational studies just mentioned generally do not link all types of pretending to understanding minds; indeed several studies found no correlation with solitary pretense measures. The most reliably correlated measures are those that tap social pretense: role play; assigning identities to objects verbally; and having an imaginary companion (thereby adopting the companions’ mental stances towards the world). I speculate that this practice at considering others’ mental worlds, when pretending to be or pretending with other characters, leads to understanding minds. It would thus be the process of simulating other mental beings (Harris et al., 1991) that would lead to understanding minds. Of course, it might instead be the case that only those who understand minds well can engage in the intense negotiation of social pretense (de Lormier et al., 1995; Howe, Petrakos & Rinaldi, 1998), or that a third factor underlies both skills.

Conclusion

In pretense children create an alternative world that in some respects reflects their real world. Pretense is like the world of Alice in the looking glass – much remains the same, but some crucial parameters are changed. Perhaps mirror self-recognition and pretense co-emerge (Baudonnierre et al., PICA5) because in both cases, children must understand that there can be a world apart that is related to but is not the same as the world they are in (Mitchell, 1994a). Mirrors reflect a world that is much like the one that one is in, but handedness, visibility, and dimensionality change. Children understand pretending as a world through the looking glass, different but related to the world they are in. Given that children engage in so much pretense with such a limited understanding of its mental components, perhaps the possibility that animals may pretend is not far-fetched.
Elsewhere I have suggested that the pretend world for children is similar to Twin Earth for philosophers (Lillard, 2001a) – a place that is in many respects just like the real world, but in which some parameters are changed. Despite not understanding its mental origins, within this pretense world, children reason at more sophisticated levels than they reason outside of pretense (Kuczaj, 1981; Dias & Harris, 1990; Markovits et al., 1996), and may thereby come to better understandings of the real world, just as philosophers do (Pessin & Goldberg, 1996). These improved understandings may involve social cognition only to the extent that children explore social cognitive issues in their pretend play.

Endnote

1. This sort of effect is apparently not specific to pretense, but happens under a variety of circumstances when children are asked to consider alternative situations (Harris, 2000; Smith PIAC).

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