

## ARTICLE WITH PEER COMMENTARIES AND RESPONSE

# Children's understanding of the pretence–reality distinction: a review of current theory and evidence

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### Abstract

*This paper provides an update on the current status of theory and evidence relating to children's understanding of the pretence–reality distinction. The paper starts by highlighting the striking paradox between children's early competence in pretence and their experiences of pretence–reality confusions as late as middle childhood. This is followed by a detailed review of various theories that have been offered to explain this phenomenon. Specifically, theories attributing the paradoxical findings to methodological differences between studies are reviewed and dismissed before considering the transmigration and availability hypotheses (Harris, Brown, Marriott, Whittall & Harmer, 1991; Johnson & Harris, 1994), the role of context and the child's emotional involvement in the pretence, and the pretence continuation account (Golomb & Galasso, 1995). It is argued that none of these theories alone can explain pretence–reality confusions and that these are best explained in terms of the combined influences of cognitive availability, empirical evidence of reality, context, affect and individual differences. Further research is necessary to fully explore the nature, cause and developmental trajectory of individual differences in this domain.*

### Introduction

In a recent review, Woolley (1997) examined the extent to which young children differ from older children and adults in their understanding of the fantasy–reality distinction. One of the primary strengths of Woolley's paper is that she drew from a range of literatures, including children's and adults' propensity to believe in fantasy figures (e.g. Santa and ghosts) and magical thinking (e.g. wishing and superstitions). Woolley's overall conclusion was that in certain situations, some children and some adults engage in fantastical thinking and any differences between them 'reflect continuous rather than discontinuous development' (p. 1009).

The present paper, however, takes as its starting point the idea that the fantasy–reality distinction is a broad heading incorporating many distinctions (Taylor, 1997). During the course of her review, Woolley (1997) touched on the literature regarding children's understanding of the pretence–reality distinction and concluded that although very young children readily distinguish pretend objects from real ones, they sometimes believe that what they have merely pretended is real. However, since the publication of Woolley's paper, further research has been

conducted and there is now more experimental evidence relating to the circumstances in which pretence may become confused with reality and the likely reasons for such confusions. The aim of this paper is therefore to focus on this particular facet of the fantasy–reality distinction, providing a thorough review of current theory and evidence regarding children's understanding of the pretence–reality distinction. This paper will present an account of the factors that disrupt children's understanding and thereby offer a new framework to explain pretence–reality confusions.

### Children's understanding of the pretence–reality distinction

Lillard (1994) argues that there are three ways in which the pretence–reality boundary might not be fully developed in young children. First, children may have no conception of such a boundary, equating pretence with reality. Such an extreme lack of understanding would have far-reaching implications for children's development, perhaps resulting in representational abuse, or conceptual confusion about the properties and functions

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of objects used in pretence (Leslie, 1987). For example, a child might mistakenly attempt to eat a wooden block they have pretended is a cookie, believing it really is a cookie (Woolley, 1995a; Woolley & Wellman, 1990). Second, children might operate in terms of a diffuse boundary whereby features from pretence frequently seep into reality and features from reality frequently seep into pretence. Finally, the pretence–reality boundary might be quite firmly in place but children might nevertheless experience confusion about the status of particular elements of pretence and reality. The following discussion begins with the evidence suggesting that children have a clear understanding of the pretence–reality distinction. It will then move on to the contrasting evidence that pretence–reality confusions occur in some circumstances and for some children, thus supporting Lillard’s view that the pretence–reality boundary is in place but that certain elements of the pretence sometimes seep into reality.

Wellman and Estes (1986) argued that there are three basic criteria that can be used to differentiate mental entities such as thoughts, dreams, memories and importantly, pretence, from real entities:

1. behavioural-sensory evidence – whether or not the entity can be seen and touched, and occupies its own physical space;
2. public existence – whether other people similarly experience the entity; and
3. consistent existence – whether the entity still exists once an individual ceases to mentally represent it.

Wellman and Estes asked children about a character who had, for example, a real cookie, and a second character who was thinking about, remembering or pretending about a cookie. The results showed that even 3-year-old children realized that the real entity but not the mental entity could be acted upon by the protagonist, acted upon by other people and acted upon in the future. Moreover, it is not the case that children only conceive of mental entities in negative terms: they *cannot* be touched and other people *cannot* see them. Estes, Wellman and Woolley (1989) note that 3-year-old children also appreciate the positive features of mental entities. They realized, for example, that they could stretch an imagined balloon just by thinking about it, but that mental effort alone would not achieve a similar transformation of a real object.

Wellman and Estes’ (1986) findings are highly replicable. In a series of follow-up studies, Estes, Wellman and Woolley (1989) demonstrated that even when real entities very misleadingly share behavioural-sensory properties with mental entities, 3-year-old children still discuss them as real, physical entities. For example, the children’s performance was unaffected by the fact that shadows

and smoke are difficult to touch and do not exist consistently. In addition, Harris, Brown, Marriott, Whittall and Harmer (1991 – Experiments 1 and 2) found that 4- to 6-year-old children’s performance was not influenced by the use of supernatural entities (e.g. imagining a witch) or fear arousing supernatural entities (e.g. imagining being chased by a witch). Kinoshita (1994) also replicated Wellman and Estes’ findings when asking 5- to 6-year-old children about the properties of pretended about and dreamed about entities.

However, in a study investigating Indian children’s ability to differentiate real and mental entities corresponding to concrete items, toys and celestial items (e.g. stars), Wahi and Johri (1994) failed to replicate Wellman and Estes’ (1986) findings. Instead, they found that children under 5 years old were unreliable in their judgments. The precise mechanism causing these differing results is not obvious. However, Wahi and Johri speculate that there may be underlying cultural differences influencing children’s performance with respect to the celestial items, where most errors occurred. A non-replication, which cannot be attributed to cultural differences, arises out of a study by Taylor, Cartwright and Carlson (1993) in which they observed lower performance levels in their 3-year-old children compared to those in Wellman and Estes’ studies. Overall, despite these non-replications, the findings lend themselves to the conclusion that children and adults have remarkably similar tendencies for categorizing the world into mental and real phenomena on the basis of similar beliefs about the characteristics that differentiate these categories.

Studies investigating children’s understanding of object substitution pretence have also obtained highly consistent results. Children as young as 3 years old reliably state what an object really is and what it has been pretended to be (e.g. Flavell, Flavell & Green, 1987; Harris, Kavanaugh & Meredith, 1994; Lillard & Flavell, 1992; Woolley, 1995a; Woolley & Wellman, 1990). For instance, in Flavell, Flavell and Green’s study, children correctly stated that although the experimenter was pretending that a sponge was a truck, it was really a sponge. In addition, 3-year-old children can recall the real and pretend identities of items they have used in several different pretence sequences (Amsel, Bobadilla, Coch & Remy, 1996; Gopnik & Slaughter, 1991). Furthermore, children can identify the mental representations associated with pretence: when told that a character was pretending he had caught a fish when he had not, children correctly stated that the character would nevertheless be mentally representing a fish (Custer, 1996; see also Hickling, Wellman & Gottfried, 1997). Taken together, these studies strongly suggest that 3-year-old children are proficient at distinguishing pretence from reality.

Nevertheless, DiLalla and Watson (1988) investigated the possibility that there is a developmental progression in children's understanding of the pretence–reality boundary. After analysing children's ability to incorporate interruptions in their pretend play (e.g. the experimenter leaving the room) into that play, DiLalla and Watson concluded that children of 3 years old and under have no understanding of the pretence–reality boundary. They equate pretence and reality and so were unable to return to the pretence after it had been disrupted. Children of 3 years old had developed a 'fuzzy boundary' between pretence and reality – they realized that these realms exist separately but were inefficient at controlling the boundary between them and therefore did not stop the pretence or acknowledge interruptions to it. Four-year-old children behaved in terms of a 'rigid boundary' between pretence and reality. In dealing with interruptions to their pretence such children temporarily discontinued the pretence, subsequently re-entering pretend mode. Finally, 5-year-old children had a fully developed 'integrated boundary' between pretence and reality – interruptions were efficiently incorporated into the pretence from within pretend mode.

However, as DiLalla and Watson (1988) concede, their claims were based entirely on children's ability to incorporate interruptions into their pretend play. This may not necessarily provide a full picture of children's level of understanding – perhaps they did not, rather than could not, incorporate the interruptions into their pretence. Moreover, rather than indicating an immature understanding of the pretence–reality boundary, the behaviours that DiLalla and Watson interpret as demonstrating 'no boundary' may instead indicate the child's loss of interest or attention following the disruption. Golomb and Kuersten (1996) further criticize the specific details of the interruptions. First, the experimenter's unexplained departure from the room would be highly disruptive of any ongoing activity, not just pretence. Second, interruptions based on changing the symbolic meaning of a prop and the experimenter's pretend role perhaps tell us more about children's responses to unexpected pretend transformations than about their understanding of the pretence–reality boundary. Golomb and Kuersten addressed these issues in a study of reality-based intrusions into pretence. For example, the experimenter stepped into a pretend river and bit into a pretend cookie. Overall, the results failed to support DiLalla and Watson's developmental sequence. The majority of children, regardless of age, temporarily stopped pretending to deal with the interruption and then re-started the pretend play, displaying what DiLalla and Watson labelled a 'rigid boundary' between pretence and reality. In concluding, Golomb and Kuersten argued that children's

ability to distinguish pretence from reality was robust, even at 3 years of age.

Taken together, these findings suggest that young children understand the boundary between pretence and reality in that 'by 3 years of age children appear to have a good grasp of the fact that the pretend world is separate and different from the real world' (Lillard, 1994, p. 221). However, the evidence highlighting children's competence at distinguishing pretend from real entities contradicts evidence suggesting that children are not always confident of the reality status of objectively imaginary entities and events.

Observations of children's pretend play have generated numerous descriptions of children becoming uncertain about the reality status of what they have pretended. For example, Garvey (1991, p. 140) cites two children pretending about ghosts who commented 'and by the way, we're only pretending'. Garvey and Berndt (1977, p. 4) quote the following dialogue between two 5-year-old children:

Pretend there's a monster coming, okay  
 No, let's don't pretend that  
 Okay, why?  
 Cause it's too scary, that's why

A further example relates to a 3-year-old boy who began crying after becoming frightened of the monster that he was pretending to be (DiLalla & Watson, 1988). Similarly, Harris *et al.* (1991) describe two pre-school children pretending there was a monster behind a door – while one child went to open the door, the other retreated nervously. These examples suggest that despite their early competence at distinguishing pretend and real entities, children sometimes confuse pretence with reality. However, even if we are cautious in interpreting these anecdotal accounts, there is a growing body of evidence showing children in controlled experimental conditions behaving in ways that indicate pretence–reality confusion.

Woolley and Wellman (1993) found that some 3-year-old children mistakenly believed that, for example, a character pretending there was a bear in a box, would subsequently find a real bear (Experiment 1). In their second experiment, Woolley and Wellman asked the children themselves to pretend that an object was inside a box. When asked whether the object was real or pretend, a substantial proportion of the children claimed it was real, thereby confusing pretence with reality. However, these children were very young and their understanding may be rather volatile. Nevertheless, even if this evidence was dismissed, the same criticism could not be levelled at the following studies considering older children.

Harris *et al.* (1991) conducted a series of experiments investigating 4- to 6-year-old children's behaviour towards empty boxes after they had pretended about the contents.

In Experiment 3, children were asked to pretend that one box contained a friendly puppy that wanted to lick their finger and that a second contained a scary monster that wanted to bite their finger. The children were asked, hypothetically, which box they would put their finger in. The alternative of using a stick rather than their finger was offered and the children were asked whether the creatures were real or pretend, before their actual behaviour was observed. The children tended to approach the puppy box before the monster box and were reticent to use their finger when approaching the monster box, preferring to use the stick. This selectivity suggested to Harris *et al.* that the children had become uncertain about the distinction between pretence and reality because,

if children assume that such imaginary creatures have no genuine existence, then they should behave indifferently toward the two boxes. If, on the other hand, children wonder . . . whether what they have imagined is actually present inside each box, then this should be reflected in selective behaviour toward the 'monster' box as compared with the 'puppy' box. (Harris *et al.*, 1991, p. 113)

However, there are several problems with this interpretation. As Harris *et al.* (1991) concede, because the children had not previously opened the boxes, they quite simply had no way of knowing whether the boxes were empty or already contained certain entities before the pretence. It is therefore not surprising that the children responded cautiously towards the monster box, particularly given that the hypothetical task rather leadingly asked them to choose between 'the one with the monster in or the one with the puppy in' (Harris *et al.*, 1991, p. 113). In addition, the children's hypothetical decision was which box to put their finger in. This may have confounded two separate issues – which box the child wanted to approach first, and which they would put their finger inside. A final problem considered by Harris *et al.* is the possibility that the children interpreted the task as a pretending game in which they should behave as though a puppy and a monster were in the boxes. The children may not have realized that the experimenter wanted them to respond in terms of the real contents of the boxes rather than the pretend stipulations. Harris *et al.* rejected this explanation on the basis of some children's spontaneous comments about the whereabouts of the monster when they found the box to be empty. Furthermore, the task instructions implied that the boxes were not empty, and the children had no way of knowing that the boxes were empty and therefore that the task only involved pretence (Bouchier & Davis, 2000a).

A study by Bouchier and Davis (2000a, Experiment 1) attempted to resolve these problems. The children checked that the boxes were empty before pretending

about their contents. An additional problem with the Harris *et al.* (1991) design was that it was not clear whether the children were seeking the puppy (positive entity), avoiding the monster (negative entity) or doing both. By using a three box design involving positive, neutral and negative entities, Bouchier and Davis were able to offer further information as to the motivations underlying children's responses. Therefore the children were asked to pretend that the boxes contained a monster (as Harris *et al.*), a cup (neutral) and a Christmas present (positive). Any leading task instructions were eliminated and rather than asking the children to put their finger or a stick inside the boxes (as Harris *et al.*) Bouchier and Davis asked the children to nominate the orders in which they would open and throw away the boxes. The children were subsequently asked to carry out these behaviours.

The results obtained by Bouchier and Davis (2000a) were comparable to those obtained by Harris *et al.* (1991) – the children responded selectively rather than indifferently towards the boxes. Furthermore, most children appeared to be motivated to seek the positive entity and avoid the negative one: a significant number of children opened the positive box first and the negative box last, and discarded the negative box first and the positive box last (the neutral entity was repeatedly selected second). However, Bouchier and Davis identified a second group of children who appeared to be differently motivated. These children did not avoid the negative entity. Instead, they opened the positive box first and then the negative box before the neutral box. Intriguingly, a comparable group of children did not emerge in Bouchier and Davis' second experiment.

In Experiment 2, the possibility for children to become uncertain about the pretence–reality status of the box contents was minimized by the use of transparent, rather than opaque, boxes – the children could always see that the boxes were empty and the entities were not real. In these circumstances very few children opened the negative box second and instead there was a significant increase in the number of children producing the modal pattern whereby the positive entity was approached and the negative entity avoided. In their third experiment, Bouchier and Davis (2000a) placed children's motivation to seek the positive entity and avoid the negative entity in direct conflict. The children pretended that one box contained a Christmas present and that a second box contained a monster, before being asked to choose between opening both boxes (thus approaching both entities) or discarding both boxes (thus avoiding both entities). A quarter of the children (23%) elected to discard both boxes. However, when Bouchier (1998, Experiment 4a) conducted the same experiment

using transparent boxes, remarkably few children (3%) discarded both boxes. It seems that the decision to discard the boxes may be motivated by pretence–reality confusion. Where the potential for this confusion is minimized by the use of transparent boxes, this response is virtually eliminated.

Overall, Bouchier and Davis' (2000a) findings support Harris *et al.*'s claims that children respond selectively rather than indifferently towards empty boxes containing pretend entities. However, Bouchier and Davis note that their results suggest individual differences between children: while some children respond systematically as a result of pretence–reality confusion, others do so in the absence of any uncertainty about the pretence–reality status of the box contents. The latter group of children instead respond in terms of the pretend stipulations offered by the experimental instructions, continuing to play the pretending game.

Woolley and Phelps (1994) assessed situational influences on children's understanding of the pretence–reality distinction. Children were presented with four boxes – one contained a real item (e.g. a pair of socks), the child imagined an equivalent item was in the second box, the third was the neutral (empty) box and the fourth was left unopened. A second experimenter entered the room and asked, for example, 'Are there any socks in any of those boxes that I could have?' (p. 57). Virtually all of the 3- to 4-year-old children gave the experimenter the box containing the real item. Very few children offered the box containing the imagined item, although about a third later claimed it contained a real item.

In Experiment 2, Woolley and Phelps (1994) removed the box containing the real item from the array. This ruled out the possibility that children did not give the experimenter the imagined item box due to some reluctance to offer more than one box, or due to the contrast with the real item. About a third of the 3-year-old children and 15% of the 4-year-old children gave the experimenter the imagined entity when she asked for a corresponding item. Furthermore, nearly half of the 3-year-old children and 13% of the 4-year-old children reported that the imagined item was real. Woolley and Phelps argued that the changed results across their experiments resulted from the real counterpart of the imagined entity facilitating children's judgments about the pretence–reality distinction in Experiment 1. They further argued that the decreased number of children showing pretence–reality confusion in their studies relative to Harris *et al.* (1991) was a result of situational factors. In the earlier studies there were no practical consequences involved in the task. In contrast, in Woolley and Phelps' study a practical response was requested and therefore a response in terms of the pretence or

pretence–reality confusion would have real consequences for another person.

However, as with the studies by Harris *et al.* (1991), Bouchier (1998) and Bouchier and Davis (2000a), it is possible that the children responded in terms of the pretend stipulations rather than in terms of their beliefs about the real contents of the boxes. That is, the difference between Woolley and Phelps' (1994) experiments might not result from the real item facilitating children's understanding of the pretend status of the imagined item. Instead, the presence of the real item might influence children's interpretation of the task such that they realize they are being asked to respond in terms of the real contents of the boxes rather than in terms of the pretend stipulations. Without a real object, perhaps this is less clear and children offer the imagined object because this is what they think they are supposed to do: they are asked to choose between the boxes and the pretend stipulations perhaps provide the only salient cue they can base their decision on.

There are several reasons why this explanation is unconvincing. First, in Woolley and Phelps' (1994) experiments, an adult who was absent when the pretend stipulations were stated made the request for an item. Why should children assume that an adult who knows nothing of the pretence might ask them to respond in terms of what has been pretended? Surely children would assume they were being asked about the real, rather than the pretend contents of the boxes. Second, in Harris *et al.*'s (1991) experiment some children spontaneously commented on the whereabouts of the pretend entities when they found the boxes to be empty. Perhaps they did so because they had genuinely expected to find the entities in the boxes. Third, on asking the children to explain their behaviour, Bouchier and Davis (2000a, Experiment 3) found that many children spoke in terms of their uncertainty about the pretence–reality status of the entities or their conviction that the entities were real. Finally, Bouchier and Davis observed different patterns of behaviour when children were asked to pretend about transparent boxes (Experiment 2) compared to when they were asked to pretend about opaque boxes (Experiment 1; see also Bouchier, 1998). Why should this simple manipulation of box type influence children's interpretation of the experimenter's intentions? Overall, it seems unlikely that children's responses can be explained in terms of their inaccurate interpretation of the experimenter's requests. It seems more likely that for at least some children, these behaviours reflect genuine pretence–reality confusion. Nevertheless, researchers have taken this criticism of their work very seriously and have therefore devised alternative methods for assessing children's understanding of the pretence–reality distinction.

A second experimental technique for investigating children's understanding of the pretence–reality distinction has been to observe children's spontaneous behaviour towards imagined entities when alone. This overcomes the problem of children's sensitivity to situational factors – no response, practical or otherwise, is actually requested. However, the technique was originally developed as a reaction to the criticism that children's prompted behaviours in pretending tasks might reflect their response to the pretence stipulations, irrespective of their beliefs about the reality status of the pretence. When the experimenter has left the room, children should have no reason to continue any pretending game.

In Harris *et al.* (1991, Experiment 4) children were asked to check that two boxes were empty before pretending there was either a friendly rabbit or a scary monster inside one of them. In both conditions the second (neutral) box was not populated with an imaginary creature. The experimenter checked the child's memory for the nature and location of the pretend entity, asked if it was real or pretend, and then made an excuse to leave the room. About half of the children approached the boxes while alone. Importantly, they often only opened the box they had pretended about and when they did open the neutral box, this tended to be after the pretend one. When asked to explain their behaviour, about half of the children admitted wondering whether the imagined entity was in the box. Harris *et al.* interpreted these results as suggesting pretence–reality confusion, rejecting the idea that children might have looked inside the boxes out of idle curiosity. The pretend box was opened sooner and more frequently than the neutral box and the children had already seen that the boxes were empty.

Johnson and Harris (1994, Experiment 3) obtained similar findings when they asked 3-, 5- and 7-year-old children to imagine there was either a fairy or an ice-cream inside one box. The children were not asked to pretend about a second box. Again, the data were suggestive of pretence–reality confusion among some children: within each age group approximately half of the children looked inside the boxes when left alone. When asked about their beliefs in a post-task interview, a substantial number of children reported having wondered whether the imagined objects were real. This credulity was strongly associated with the children's behaviour – nearly three-quarters of those children who opened the boxes in the experimenter's absence later admitted wondering about their contents.

Taken together, the findings obtained by Harris *et al.* (1991) and Johnson and Harris (1994) offer convincing evidence that some, but certainly not all, children confuse pretence and reality. However, Golomb and Galasso (1995) question this interpretation of the findings, and

suggest several alternative explanations for children's behaviour. First, it might be a continuation of the pretence theme that was not concluded before the experimenter's departure. Second, a lack of alternative play activities might lead children to explore the boxes out of boredom. Third, children may be suspicious about the motives of the unfamiliar experimenter. In an attempt to test between these possibilities and the possibility that the children were uncertain about the pretence–reality distinction, Golomb and Galasso conducted a replication of Harris *et al.* (Experiment 4). However, the experimenter in Golomb and Galasso's study did not leave the room, but instead observed children's behaviour after moving to a corner of the room, no longer interacting with the child. The children were allocated to one of two experimental conditions. In the 'non-terminated pretence, no toys' condition (as Harris *et al.*) the pretence was not explicitly concluded and no alternative activities were provided. In the 'terminated pretence, toys provided' condition, the pretence was explicitly concluded and alternative activities provided – a box of toys was placed conspicuously in the room. Half of the children in each condition pretended about a rabbit while the remainder pretended about a monster.

In contrast to Harris *et al.* (1991) and Johnson and Harris (1994), very few children touched or opened either of the boxes following the pretence. Golomb and Galasso (1995) argued that this finding resulted from the familiarity of the experimenter, the ending of the pretence and the availability of toys. However, these factors were confounded, making the results difficult to interpret. Golomb and Galasso also argued that they found no difference in the results according to whether or not the pretence was explicitly terminated because children interpreted the experimenter's retreat to the corner of the room as an end to the pretence even when this was not accompanied by a verbal statement. Yet there is no obvious rationale for believing that the experimenter moving to the corner of a room is a clearer signal of the end of the pretence than the experimenter leaving the room. Instead it seems more likely that the experimenter's continued presence in the room had a constraining effect on the children's behaviour (Woolley, 1997) – perhaps they were reticent to explore the boxes due to concern about being naughty in the presence of an adult observer (Bouchier & Davis, 2000b).

Bouchier and Davis (2000b, Experiment 1) tested the role of the adult's presence. After the prompted tasks used by Bouchier and Davis (2000a), the pretence was explicitly terminated and the children left alone. Alternative activities were provided. Thus in this experiment the pretence was explicitly ended and alternative activities were provided (as Golomb & Galasso, 1995) but the experimenter also left the room (as Harris *et al.*, 1991;

Johnson & Harris, 1994). The number of children who opened the boxes in the experimenter's absence was comparable to that observed by Harris *et al.* and Johnson and Harris. Over a third of the children opened one or more of the boxes despite the explicit termination of the pretence and the availability of alternative activities. The findings suggested that the low levels of box opening observed by Golomb and Galasso resulted from the experimenter's continued presence.

An intriguing finding obtained by Bouchier and Davis (2000b) relates to the children's selectivity when opening the boxes when alone. Previous experiments (Golomb & Galasso, 1995; Harris *et al.*, 1991, Experiment 4; Johnson & Harris, 1994, Experiment 3) compared children's behaviour towards a box they had pretended about with one they had not. In these circumstances children are most likely to open the box about which they have pretended. In Bouchier and Davis' experiment, children pretended about three boxes such that they contained a positive, neutral and a negative entity. Here, the children tended either to open the box they had pretended contained a positive entity, or to open all three boxes, starting with the positive one. This selectivity suggested to Bouchier and Davis that those children investigating the boxes during the experimenter's absence had confused pretence with reality, and were motivated to seek the positive entity, perhaps avoiding the negative entity as in previous experiments (Bouchier & Davis, 2000a; Harris *et al.*, 1991). The children's failure to open the neutral and negative boxes attracts several competing explanations. It could be that children only experience pretence–reality confusion in relation to the positive entity. Alternatively, children may experience pretence–reality confusion in relation to all three entities but the behavioural indicators differ. Specifically, the neutral entity may be neglected through disinterest, while the negative entity is actively avoided. Nevertheless, the findings suggest both pretence–reality confusion and the importance of the affect evoked by the pretence in determining children's behaviour. However, Bouchier and Davis went on in their second experiment to test the possibility that there may be a baseline number of children who investigate the boxes when left alone, regardless of any pretence.

In Experiment 2 (Bouchier & Davis, 2000b), the children were left alone twice. The first occasion occurred immediately after the children had checked the boxes were empty, before the experimenter mentioned any pretence or possible box contents (pre-task). The second occasion that the children were left alone came after the pretence tasks had been completed and the pretence explicitly concluded (post-task – as Experiment 1). The results obtained were striking but difficult to interpret.

In contrast to Experiment 1 and previous studies (Harris *et al.*, 1991; Johnson & Harris, 1994) very few children opened the boxes during the post-task period. However, almost half of the children opened the boxes during the pre-task period despite the fact that they had only just looked in the boxes and seen that they were empty and despite the fact that no pretence or other box contents had been mentioned. In fact, the number of children opening the boxes in the pre-task period was comparable to the numbers of children doing so in the post-task periods of Experiment 1 (Bouchier & Davis), Harris *et al.* (Experiment 4) and Johnson and Harris (Experiment 3). These data seem to suggest that box opening in the experimenter's absence is not related to the pretence or pretence–reality confusion and that it is instead related to some other factor such as curiosity. However, closer examination of the data led Bouchier and Davis to dismiss this interpretation, instead emphasizing that the children seemed to be differently motivated when they opened the boxes following the pretence, compared to when they opened them beforehand.

During the post-task period (Experiment 1) the children's behaviour was systematically related to the pretence: children tended to either open only the positive box or the positive box first of the three. In contrast, during the pre-task period the majority of children opened all three boxes. Bouchier and Davis (2000b) argue that this dissimilarity reflects a difference in the underlying motivation. Moreover, in Experiment 1 post-task box opening behaviour was systematically related to the children's behaviour on the prompted box opening and discarding tasks. That is, there was an association between approaching the positive entity and avoiding the negative one, and opening the boxes when the experimenter left the room. No such association was observed between the pretence task behaviours and pre-task box opening. This offers further evidence that box opening behaviour has a different meaning and motivation when observed post-task compared to pre-task. When concluding, Bouchier and Davis argued that box opening behaviour when the experimenter's absence follows the pretence is indicative of pretence–reality confusion.

Overall, it seems that although pre-school children are competent at distinguishing pretend from real entities, even school age children sometimes confuse pretence with reality. The discussion will now move on to an evaluation of explanations for these paradoxical findings.

### Explanations of pretence–reality confusions

Explanations for the paradoxical findings discussed above are divisible into two categories. First, those that

deny any paradox and treat the contradictory findings as relating to methodological differences between studies. Second, those that accept the paradox and seek to explain childhood pretence–reality confusions.

### *Dependent measures*

Several researchers have argued that children's successes and failures at maintaining the pretence–reality distinction might reflect systematic variability in the types of dependent measures deployed (e.g. Harris *et al.*, 1991; Woolley, 1997; Woolley and Phelps, 1994). Typically, studies highlighting children's competence have taken verbal measures of children's understanding. For example, Wellman and Estes (1986; see also Estes, Wellman & Woolley, 1989; Harris *et al.*, 1991; Kinoshita, 1994) asked children to verbalize the differing characteristics of mental and real entities. Likewise, studies demonstrating children's ability to differentiate the real and pretend identities of objects used in pretence have used verbal tasks (e.g. Amsel *et al.*, 1996; Flavell *et al.*, 1987; Harris *et al.*, 1994; Lillard & Flavell, 1992; Woolley, 1995a; Woolley & Wellman, 1990; see also Custer, 1996). In contrast, studies suggesting pretence–reality confusion have typically used behavioural measures (e.g. Burchier & Davis, 2000a, 2000b; Harris *et al.*, 1991; Johnson & Harris, 1994; Woolley & Phelps, 1994) and anecdotal descriptions often report children's fearful behaviours.

Taking these findings together, it seems that the extent to which children are found to maintain the pretence–reality distinction may be sensitive to the particular dependent measures used. Subbotsky (1993) argues that this may be because children's true understanding in this domain is at first revealed in their verbalizations, only later emerging behaviourally. This suggestion is intriguing and somewhat counterintuitive. Elsewhere in developmental psychology, studies have found behavioural evidence of early competence before the corresponding competence can be found using verbal measures. For example, Clements and Perner (1994) found that although only 45% of 3- to 4-year-old children provided a correct verbal response to a false belief task, significantly more looked towards the appropriate location. Here, evidence of children's early understanding of the mind can be inferred from their behaviour long before it can be observed using a verbal measure. Why should understanding of the pretence–reality distinction be different?

One possibility offered by Woolley (1997) is that the underlying competence is available behaviourally and verbally, but unlike verbal measures, behavioural measures might assess, or be influenced by other intervening factors such as children's emotional reactions to their pretence. This perhaps suggests that behaviours appar-

ently reflecting pretence–reality confusion are misleading or have been misinterpreted. Alternative interpretations of children's apparent pretence–reality confusion will be considered in a later section of this paper (see pretence continuation account). However, here the possibility that variations in the dependent measures deployed can explain the paradoxical findings reviewed above will be dismissed based on the available evidence.

Closer examination of the data suggests that variations in dependent measures cannot account for all the findings. As Harris *et al.* (1991) explain, although the children in their studies initially verbally labelled the imagined entities as pretend, during subsequent post-task interviews many reported having wondered whether they might be inside the boxes (see also Burchier, 1998; Burchier & Davis, 2000a; Johnson & Harris, 1994; Woolley & Phelps, 1994). However, Woolley (1997) argues that children's responses to post-task interviews might not reflect genuine pretence–reality confusion. Instead children may struggle to explain their behaviour and, feeling compelled to offer an explanation, opt for one relating to the pretence. Nevertheless, Woolley (1995a) and Woolley and Wellman (1993) obtained evidence of pretence–reality confusion on verbal tasks that were independent of the children's behaviour. For example, Woolley and Wellman asked children to pretend there was an object inside a box. A number of children later claimed the object was real. On the other hand, Golomb and Kuersten (1996) obtained behavioural evidence that children could maintain the pretence–reality distinction even when the experimenter incorporated reality based intrusions into the pretence (see also Woolley & Phelps).

In sum, while differences in dependent measures may appear to be a good candidate for explaining children's pretence–reality confusions, this explanation should be dismissed. Not all of the evidence relating to children's successes and failures at maintaining the distinction between pretence and reality falls neatly into a simple dichotomy between verbal and behavioural dependent measures.

### *Type of imaginary entity*

A further possibility is that children are more confident of the pretence–reality distinction in relation to everyday items than in relation to supernatural entities such as monsters or fairies (Woolley, 1995b, 1997; Woolley & Phelps, 1994). It seems that much of the evidence reflecting children's pretence–reality understanding has been obtained when everyday entities were involved. For example, Wellman and Estes (1986) asked children to discuss the characteristics of mental entities relating to



everyday objects such as cookies (see also Estes *et al.*, 1989; Harris *et al.*, 1991; Kinoshita, 1994). Likewise, children readily differentiate the pretend and real identities of everyday objects such as a sponge that had been used as a truck (Flavell *et al.*, 1987; see also Amsel *et al.*, 1996; Custer, 1996; Harris *et al.*, 1994; Woolley, 1995a; Woolley & Wellman, 1990). Furthermore, many findings relating to pretence–reality confusions have involved supernatural entities. For example, anecdotal reports typically refer to children’s fears of imaginary creatures such as monsters and ghosts. Experimentally, Bouchier and Davis (2000a) and Harris *et al.* (1991) observed pretence–reality confusion in relation to monsters while Johnson and Harris (1994) did so in relation to fairies.

However, this explanation was directly assessed and rejected by Harris *et al.* (1991) who demonstrated that children were equally competent at describing the characteristics of imagined supernatural entities and imagined everyday items. Furthermore, there is evidence that children experience pretence–reality confusion in relation to a range of everyday entities including animals (Bouchier & Davis, 2000b; Harris *et al.*, 1991; Woolley & Wellman, 1993), toys, cups (Bouchier & Davis, 2000a), ice-cream (Johnson & Harris, 1994) and socks (Woolley & Phelps, 1994, Experiment 2).

An additional possibility is that children are more able to distinguish pretence from reality in relation to inanimate items, than animate ones. There is some evidence indicating this may be true. Evidence demonstrating children’s competence has often been obtained in relation to inanimate objects such as food and clothes (e.g. Amsel *et al.*, 1996; Custer, 1996; Estes *et al.*, 1989; Flavell *et al.*, 1987; Harris *et al.*, 1991; Harris *et al.*, 1994; Kinoshita, 1994; Wellman & Estes, 1986; Woolley, 1995a). In contrast, pretence–reality confusions often involve animate entities such as imagined monsters (Bouchier & Davis, 2000a; Harris *et al.*, 1991), animals (Bouchier & Davis, 2000b; Harris *et al.*, 1991; Woolley & Wellman, 1993) and fairies (Johnson & Harris, 1994).

Nevertheless, this explanation can also be dismissed with some certainty. Wellman and Estes (1986) did not report an effect of item type in their experiment including animate and inanimate entities (see also Harris *et al.*, 1991). Moreover, researchers have observed pretence–reality confusions in relation to numerous inanimate objects including a cup, toys (Bouchier & Davis, 2000a), a pencil (Woolley & Wellman, 1993), ice-cream (Johnson & Harris, 1994) and a pair of socks (Woolley & Phelps, 1994, Experiment 2). The animacy of the imagined entity does not have a consistent influence on children’s judgments about the pretence–reality distinction.

In summary, this section has reviewed a number of methodological explanations for children’s apparent

pretence–reality confusions. In light of the research evidence, these explanations have been dismissed. It seems that the paradoxical findings discussed earlier cannot simply be attributed to methodological differences between studies.

#### *Pretence–reality confusion as context specific*

Woolley and Phelps (1994; see also Woolley, 1997) noted that pretence–reality confusions are most frequently observed in situations where there are no real-life consequences associated with thinking that what has been pretended is real (e.g. Bouchier & Davis, 2000a, 2000b; Harris *et al.*, 1991; Johnson & Harris, 1994). In contrast, pretence–reality confusion becomes less likely when it would have real-life implications for another person (Woolley & Phelps, 1994).

Although context effects are consistent with many of the research findings, this explanation lacks predictive power. For example, in studies by Amsel *et al.* (1996), Flavell *et al.* (1987), Harris *et al.* (1991), Kinoshita (1994) and Wellman and Estes (1986) there were no obvious consequences of confusing pretence with reality, yet children did not do so. Moreover, Bouchier and Davis (2000a) observed fewer instances of pretence–reality confusion when they asked children to pretend about transparent rather than opaque boxes (see also Bouchier, 1998). In the absence of any change in consequences of pretence–reality confusion there is, nevertheless, a change in its prevalence: the consequences of pretence–reality confusion do not seem to be the only influential factor.

A further problem is that this account does not explain why not all children experience pretence–reality confusion. Researchers in fact tend to argue that their data suggest individual differences between children such that within a single context one-third to half confuse pretence with reality (credulous children) and the remaining (sceptical) children do not (Bouchier & Davis, 2000a, 2000b; Harris *et al.*, 1991; Johnson & Harris, 1994). It seems that individual differences are influential over and above contextual factors. However, while it might be true that pretence–reality confusions only occur for some children in some situations, this is not in itself an adequate explanation – the causal mechanism needs specification.

#### *The transmigration hypothesis*

Harris *et al.* (1991) offered the transmigration hypothesis as a possible explanation for pretence–reality confusions. They argued that young children might be uncertain of the causal relationship between the mind and reality, not fully understanding the rules that control the

transmigration, or transformation of entities from the imagination into reality.

However, there are several reasons why this hypothesis cannot be accepted. First, pretence–reality confusions are not as prolific as this hypothesis predicts. It is not the case that every time children pretend, their failure to fully understand the mind–reality relationship leads them to confuse pretence with reality. Second, the transmigration hypothesis does not fit with observed contextual influences on pretence–reality confusion. There is no reason to expect children’s understanding of the causal relationship between the mind and reality to be influenced by whether there are real-life consequences of pretence–reality confusion (Woolley & Phelps, 1994) or by whether opaque or transparent boxes are used (Bouchier, 1998; Bouchier & Davis, 2000a). Third, two experiments have directly tested the transmigration hypothesis. Johnson and Harris (1994) and Bouchier (Experiment 5) asked children whether pretending could ever lead to an imagined object being real. The vast majority denied this possibility, referring to the impossibility of such mental (imaginative) or magical feats, or to direct empirical evidence – they had never seen it happen. These data suggest that young children are not uncertain of the generative powers of the imagination or of the rules governing transformations from pretence into reality.

Nevertheless, it may currently be premature to reject the transmigration hypothesis. The clearest evidence against this hypothesis comes from studies by Bouchier (1998) and Johnson and Harris (1994), both of which relied on post-task interviews. This raises the issue of whether children have sufficient insight into their own thinking to know why they do or do not confuse pretence with reality. Put simply, children may not have an explicit understanding of the rules governing the boundary between pretence and reality. This argument fits Bouchier’s data: children tended not to discuss the causal relationship between the mind and reality or the rules governing the transmigration of entities from pretence into reality. Instead, they responded in concrete terms, discussing what they had or had not seen. Overall, while the balance of evidence seems to contradict the transmigration hypothesis, further research will be required before this explanation of pretence–reality confusions can be confidently dismissed.

#### *Emotional involvement in the pretence*

Several authors (Bretherton, 1989; Bretherton & Beeghly, 1989; Garvey, 1991; Samuels & Taylor, 1994; Woolley & Phelps, 1994) have noted the possibility that the emotion evoked by pretence might cause pretence–reality confusion. For example, it has been argued that,

in the heightened excitement of good fantasy play, children may suddenly feel uneasy and in need of reassurance about matters that in a cooler moment they would probably judge as ‘just make-believe’ or ‘not real’. (Garvey, 1991, p. 140)

The impact of emotion could result from children’s inability to reassure themselves with the knowledge that its source is only pretend (Woolley, 1997). Alternatively, it may result from children assuming that because the emotion feels real (Bretherton, 1989; Bretherton & Beeghly, 1989; Fein, 1989; Lillard, 1994; Marjanovic-Shane, 1989) it must have a real source (Taylor, 1990).

The data suggest that emotion plays a role in many pretence–reality confusions. Anecdotes often involve children’s fear of imaginary entities (e.g. DiLalla & Watson, 1988). Pretence–reality confusions have been observed experimentally in relation to scary monsters (Bouchier & Davis, 2000a; Harris *et al.*, 1991), desired Christmas presents (Bouchier & Davis, 2000a) and liked and disliked animals (Bouchier & Davis, 2000b). In contrast, children’s pretence–reality competence is often observed in relation to neutral entities, unlikely to evoke a marked emotional response. For example, Wellman and Estes’ (1986) study involved neutral entities such as cookies (see also Amsel *et al.*, 1996; Custer, 1996; Estes *et al.*, 1989; Flavell *et al.*, 1987; Golomb & Kuersten, 1996; Gopnik & Slaughter, 1991; Lillard & Flavell, 1992).

However, there is also evidence of pretence–reality confusion in the absence of any obvious emotional content to the pretence. For example, Woolley and Phelps (1994) observed some uncertainty about the reality status of an imagined pair of socks, Woolley and Wellman (1993) did so in relation to a bear, and Garvey and Berndt (1977) did so in relation to a telephone. Moreover, emotion does not always result in pretence–reality confusion. For example, Harris *et al.* (1991) noted children’s competence in differentiating real and pretend entities even when they admitted to being frightened by the pretence. Similarly, Bouchier and Davis (2000a; see also Bouchier, 1998) report low rates of pretence–reality confusion in relation to frightening and desirable entities that children had pretended were inside transparent boxes.

The experience of emotion seems to be neither necessary nor sufficient to predict pretence–reality confusion. Nevertheless, as will be discussed later, the influence of emotion becomes critical when in combination with other factors.

#### *The pretence continuation account*

Several authors have suggested that emotion does not cause pretence–reality confusions and that instead children’s behaviour simply provides evidence of their

emotional involvement in their pretence (e.g. Lillard, 1994; Mitchell, 1996; Taylor, 1997; Taylor, Cartwright & Carlson, 1993; Wellman, 1990; Woolley, 1995b, 1997). According to this view, the contrast between children's competence at distinguishing pretence from reality and the behaviours suggesting pretence–reality confusion is not paradoxical. Children do not experience pretence–reality confusion: behaviour towards pretend entities has been misinterpreted.

Golomb and Galasso (1995; see also Fein, 1989) expand upon this view and argue that children monitor their emotion, or affect, and behave in ways that ensure their pretence is enjoyable, while also ensuring that the level of affect does not become too great. Thus in Golomb and Galasso's studies,

children modified or transformed the pretence theme if it became too emotionally intense . . . they modified the pretence theme to diminish their fear and remain engaged in the game . . . children tended to modify the theme to enhance their pleasure. (p. 808)

Specifically, children hid behind the experimenter's skirt, claimed a monster had no teeth and a genie would grant them three wishes, all as a continuation of the pretence theme. Golomb and Galasso caution against the misinterpretation of these behaviours as pretence–reality confusion: they are testimony to children's skill at managing their emotional reactions when pretending.

Golomb and Galasso's (1995) claims have some explanatory power. In fact, the pretence continuation account reflects the primary criticism of research in this domain – perhaps children respond to experimental instructions to choose between boxes they have pretended about on the basis of the pretence stipulations. For example, in Harris *et al.* (1991) children may have used their finger to approach the puppy box and the stick for the monster box as a continuation of the pretence theme. Likewise, in Bouchier and Davis' (2000a) experiments perhaps children opened the positive box first and discarded it last to increase positive affect, discarding the negative box first and opening it last to reduce negative affect. In other words, children's behaviour may be motivated by the emotional content of the pretence stipulations, and not their beliefs about the real contents of the boxes. Further evidence in support of the pretence continuation account comes from Bouchier and Davis' second experiment in which children pretended about transparent boxes. In these conditions the children could always see that the boxes were empty and the contents only pretend, therefore there should be no pretence–reality confusion. Here, children's systematic responses surely reflect their continuation of the pretence theme in ways motivated by the emotional content of the pretence. Indeed, this is precisely what Bouchier and Davis argue:

the behaviour of some children, in some circumstances, can be explained in terms of pretence continuation. However, the pretence continuation account cannot explain several other aspects of the available data.

First, children's verbal comments are more suggestive of pretence–reality confusion than pretence continuation. For example, in Harris *et al.* (1991) some children spontaneously commented on the whereabouts of the monster on finding that box empty. Had children simply been continuing the pretence theme they would not have expected to find a monster in the box and would not have been surprised to find nothing inside. When asked to justify their behaviour, children's responses are even more consistent with pretence–reality confusion rather than pretence continuation. For example, in Johnson and Harris' (1994) experiment, after approaching a box containing an imagined entity, many children reported wondering whether the entity was real. Likewise, Bouchier and Davis (2000a) found that many children justified their behaviour in terms of their doubts about the reality status of the box contents or their belief that the imagined entities were real. These data are not easily interpreted within a pretence continuation framework, although the possibility that children's comments emerge as a continuation of the pretence theme cannot be entirely ruled out.

Second, some aspects of children's behaviours are not easily interpreted as pretence continuation. Bouchier and Davis (2000a; see also Bouchier, 1998) obtained different findings when children pretended about transparent rather than opaque boxes. This difference suggests that some children experience pretence–reality confusion in relation to the pretend contents of opaque boxes. When transparent boxes are used they are reassured by seeing that the boxes are empty and no longer experience such confusion, hence their different behaviour. If all children simply continued the pretence there should be no effect of whether or not the outcome of the pretence can be seen. However, there may be some other factor that influences children's behaviour towards transparent compared to opaque boxes. Specifically, perhaps it is easier to pretend about the contents of opaque boxes: children do not have to set aside what they know to be inside the box to pretend about its contents. In contrast, with transparent boxes children are continually confronted with the true contents and, rather than facilitating judgments about the pretence–reality distinction, this may make the pretence difficult to sustain. This possibility is rejected for two main reasons. First, 3-year-old children's ability to pretend one object is another is unaffected by the physical properties of the objects involved. For example, children will readily pretend that a saucepan is a telephone despite the physical and

functional dissimilarity of the two objects (Elder & Pederson, 1978; see also Corrigan, 1987; Fein, 1975). Given this evidence, it seems unlikely that the physical properties of the boxes used by Bouchier and Davis would influence children's ability to pretend about their contents. Second, if transparent boxes make it more difficult for children to sustain their pretence, rates of unsystematic behaviour should be higher when transparent rather than opaque boxes are used. This was not the case. The number of children who responded systematically towards the boxes remained the same, the differences were in the nature of these responses. Therefore, the possibility that opaque boxes facilitate the continuation of the pretence is dismissed in favour of the argument that transparent boxes facilitate children's understanding of the pretence–reality distinction.

An additional limitation of Golomb and Galasso's (1995) pretence continuation account is the underlying assumption that children are motivated to reduce negative affect and increase positive affect. This assumption is reasonable. Frijda (1988) argues the same principle in relation to emotions with real causes, claiming that positive affect is associated with approach and negative affect with avoidance. The difficulty arises when this principle is applied to emotions evoked by pretence. Harris *et al.* (1991) observed that some children approached the monster box. Similarly, Bouchier and Davis (2000a) found that some children approached the negative pretend entity earlier than necessary – they approached it second rather than last of the three boxes they had pretended about. Moreover, in another experiment Bouchier and Davis found that the majority of children elected to open both the positive and negative boxes rather than reducing negative affect by throwing them away. It seems that the negative affect elicited by pretence is not always aversive. This is unsurprising. Many children enjoy pretending to be scary monsters, and many adolescents and adults enjoy the negative affect associated with horror films (e.g. Allerton, 1995; Johnston, 1995; Murry & Dacin, 1996; Sparks, 1986; Tamborini, Stiff & Heidel, 1990). Perhaps the issue is one of degree, combined with individual differences. Specifically, it could be that for some children negative affect is not aversive but pleasant or desirable. It seems reasonable to assume that such children might enjoy frightening pretend themes until a certain threshold of arousal is reached, when avoidance strategies are invoked to reduce negative affect. The problem for researchers is to find ways of measuring affect and explaining why some individuals might have a higher tolerance for the negative affect evoked by pretence than others.

Overall, the pretence continuation account cannot fully explain the findings relating to children's understanding

of the pretence–reality distinction. Although some children may behave in terms of the affect evoked by their pretence, this is certainly not the case for all children. Some children experience pretence–reality confusions and an explanation of their behaviour is required.

#### *The availability hypothesis*

The availability hypothesis (Harris *et al.*, 1991; Johnson & Harris, 1994) is based on the 'availability heuristic' proposed by Tversky and Kahneman (1973) who argued that instances from large classes of objects and events are easier to recall than those from smaller classes. Likewise, objectively likely events are easier to bring to mind than rare ones. When estimating frequencies and probabilities of objects and events, the ease with which examples of what is to be judged can be brought to mind can be deployed as a short cut or heuristic. While the availability heuristic can be an effective means of accurately making such judgments, cognitive availability is sometimes influenced by factors other than frequency or probability and this results in systematic biases in judgments made using this heuristic. For example, Tversky and Kahneman asked adults to judge whether there are more words in the English language starting with the letter R, or with this as the third letter. Objectively, there are more words with R in the third position, but words starting with R are more cognitively available. Accordingly, the respondents incorrectly judged there to be more words with R in the first than the third position.

Harris *et al.* (1991) and Johnson and Harris (1994) applied this adult cognitive process to the task of explaining childhood pretence–reality confusions, arguing that imagining something causes increased cognitive availability for what has been imagined. Consequently, the perceived likelihood of the imagined entity being real increases and in the studies by Bouchier and Davis (2000a, 2000b), Harris *et al.* (1991) and Johnson and Harris (1994) children check out the possible existence of imagined entities by investigating boxes they have pretended about. The availability hypothesis is compatible with observed individual differences. In fact, Johnson and Harris interpreted their data in terms of credulous children who confused pretence with reality as a result of the effects of increased cognitive availability, and sceptical children who did not.

Johnson and Harris (1994) also argued that activities other than pretence might cause increased cognitive availability. For example, they argued that hearing a fairy story might increase the cognitive availability of certain fantastical outcomes, making them seem more likely. Bouchier and Davis (2000b) tested the possibility that non-pretence cues might influence cognitive availability.

Some children pretended that liked, disliked and neutral animals were inside three boxes, while others simply labelled the boxes with pictures of animals. The children tended to open the positive box first and the negative box last, discarding the negative box first and the positive box last, irrespective of experimental condition. However, only children who had pretended showed the response pattern whereby they opened the positive box first, followed by the negative box, opening the neutral box last. The differential emergence of this response pattern is intriguing. Bouchier and Davis (2000a) argued that it indicates pretence–reality confusion: it appeared when opaque boxes were used, but did not occur when children were reassured of the pretence–reality distinction by the use of transparent boxes. Perhaps Bouchier and Davis' (2000b) results are further testimony to the significance of children's early approach to the negative entity, but also to the special significance of pretence as a cue to increase cognitive availability. Nevertheless, when left alone after termination of the pretence or non-pretence game, equal numbers of children from both conditions showed signs of confusion about the reality status of the box contents by opening them. Overall, these results support Johnson and Harris' claim that confusion about what is real or not can result from pretence and non-pretence based cues to increase cognitive availability.

Coupled with Woolley and Phelps' (1994) claim that pretence–reality confusions are context specific and with the idea of individual differences, the availability hypothesis provides what seems to be a convincing explanation. For example, in the studies by Bouchier and Davis (2000a, 2000b), Harris *et al.* (1991), Johnson and Harris (1994), Woolley and Phelps (1994) and Woolley and Wellman (1993) children pretend that an entity is inside a box, making that possibility cognitively available. Some children's subsequent uncertainty about the pretence status of the entity might result from the increased subjective probability of the imagined outcome. Similarly, anecdotal accounts of children's pretence–reality confusions can be interpreted in terms of the imagination making an outcome seem more likely.

However, as Bouchier and Davis (2000a, 2000b) point out, Johnson and Harris' (1994) exposition of the availability hypothesis raised some problematic issues. If a variety of activities including pretence can cause increased cognitive availability, pretence–reality confusions should be prevalent: every time a credulous child pretends they should experience increased cognitive availability and therefore pretence–reality confusion. Yet very few children confuse pretence and reality during their everyday play (Lillard, 1994). For instance, in the study by Flavell *et al.* (1987) children were shown an experimenter pretending that a sponge was a truck. The

children later confirmed their understanding of the real and pretend identities of the object. According to the availability hypothesis, children's observation of the pretence should make the idea that the sponge is a truck highly cognitively available. Consequently, the subjective probability that this is the case should increase and pretence–reality confusion should follow. Yet this did not occur (see also Estes *et al.*, 1989; Harris *et al.*, 1994; Lillard & Flavell, 1992; Wellman & Estes, 1986; Woolley, 1995a; Woolley & Wellman, 1990). Thus although the availability hypothesis seems to provide a good explanation for pretence–reality confusions, children's competence at maintaining the pretence–reality distinction is difficult to explain within this framework.

Bouchier and Davis (2000a) attempted to resolve this limitation of the availability hypothesis, arguing that there are mechanisms that constrain the effects of increased cognitive availability. Two mechanisms already discussed are individual differences and situational factors. Some children appear more susceptible to pretence–reality confusions than others and such confusions are most prevalent where there are no real-life consequences. However, an additional possibility is that empirical evidence of reality, or visual confirmation of the outcome of the pretence (Woolley, 1995b, 1997) can contribute by reassuring children of the pretend status of what they have imagined.

Bouchier and Davis (2000a) directly tested this claim by asking children to pretend about the contents of transparent boxes. In these circumstances, children are continually confronted with visual evidence that the boxes are empty. The results showed subtle but important differences in children's behaviour in this experiment compared to an identical one in which opaque boxes were used that suggested a decrease in the prevalence of pretence–reality confusion. In addition, Bouchier (1998) demonstrated the influence of empirical evidence on children's beliefs by asking them to explain how they knew their pretence had not led to an object becoming real. The children's replies often referred to empirical evidence – they had previously seen the boxes were empty and they had not seen the entity enter the box. Likewise, the children denied that pretence could ever lead to an entity becoming real on the basis of empirical evidence – they had never seen it happen.

The idea that empirical evidence of reality constrains increased cognitive availability allows a clear explanation of the rarity of pretence–reality confusions and generates some specific predictions about the circumstances in which such confusions are likely. Whenever visual confirmation of the outcome of the pretence is readily available, pretence–reality confusions should be, and indeed are, rare. For example, during object substitution

pretence children can see that the banana they are pretending is a telephone is really a banana. Accordingly, there is considerable evidence demonstrating children's competence at differentiating the pretend and real identities of items used in object substitution pretence (e.g. Flavell *et al.*, 1987; Harris *et al.*, 1994; Lillard & Flavell, 1992; Woolley & Wellman, 1990). Similarly, the finding that children do not become uncertain about the existence of their imaginary friends (Taylor *et al.*, 1993) is consistent with the idea that they are reassured of the status of the friend by their inability to see him or her. Likewise, in imaginary object pretence the child can see, for example, that the tea that has been poured does not really exist. Thus it seems children's competence in maintaining the pretence–reality distinction is interpretable in terms of the influence of empirical evidence of reality on their beliefs. In contrast, pretence–reality confusions seem most likely when there is a lack of empirical evidence of reality. This is of course entirely the case when children pretend about the contents of opaque boxes and when they imagine certain entities in the dark. Under these conditions pretence–reality confusions are more prevalent.

However, some reports of pretence–reality confusions describe circumstances in which the child had empirical evidence of reality. For example, DiLalla and Watson (1988) describe a young boy who became frightened of the monster he was pretending to be. Importantly, there is no reason to suppose that the child was denied empirical evidence of reality – he could see that the entity was pretend, not real (see also Garvey, 1991; Garvey & Berndt, 1977). Here some other factor seems to influence the child's beliefs and behaviour. This brings us very neatly to a further issue with the availability hypothesis. Although Johnson and Harris (1994) claim that availability operates for innocuous as well as frightening imaginary creatures, a full account of how the effects of availability might relate to the emotional content of the pretence was not offered (Burchier & Davis, 2000a).

Given the evidence reviewed earlier, it seems likely that affect is a significant influence on children's understanding of the pretence–reality distinction. One possibility is that affect and availability interact to cause pretence–reality confusions, or make them more likely. Many instances of pretence–reality confusion in experimental settings involve emotion evoking entities such as monsters, liked and disliked animals, fairies and Christmas presents (Burchier & Davis, 2000a, 2000b; Harris *et al.*, 1991; Johnson & Harris, 1994). Likewise, anecdotes often involve children's fears of imaginary creatures. Perhaps the effects of increased cognitive availability are less easy to discount when there is a strong emotional component, even in the light of empirical evidence of reality. For ex-

ample, fear of a monster might dominate children's thinking such that they do not consider empirical evidence and it is therefore insufficient to reassure them of reality, or such that affect interacts with cognitive availability to make the subjective probability of the entity being real increase further. Burchier and Davis (2000b) obtained evidence suggesting an interaction such as this. Under conditions of equivalent cognitive availability for positive, negative and neutral pretend entities, half of the children opened the positive box when the experimenter left the room. Although the children's failure to open the negative and neutral boxes attracts multiple interpretations, that so many children only opened the positive box suggests an interaction between affect and availability. As Burchier (1998) argues, it is possible that availability for desirable entities is exaggerated and pretence–reality confusions become more likely. This may relate to wishful thinking – children would like the outcome to occur (Woolley, 1997).

Overall, it seems that while the original form of the availability hypothesis (Harris *et al.*, 1991; Johnson & Harris, 1994) had some explanatory power, it lacked predictive power. In particular, the availability hypothesis was unable to account for children's usual competence at maintaining the pretence–reality distinction and instead predicted far more pretence–reality confusions than are observed. However, with the modifications suggested here, the availability hypothesis is probably the best explanation of pretence–reality confusions. Specifically, it is argued here that there is an interaction between affect and cognitive availability, and empirical evidence of reality is a limiting factor, constraining the impact of availability on children's thinking.

## General discussion

This paper began with the paradox between children's early competence at differentiating pretence from reality and the contrasting persistence of pretence–reality confusions into middle childhood. Several explanations for this paradox were considered. First, explanations denying the existence of a genuine paradox on methodological grounds were reviewed and dismissed. Second, explanations that consider the paradox genuine and seek to explain it were considered. Although context, individual differences, cognitive availability and affect are all important, none of these factors alone explains the observed phenomena. The possibility explored here is that an explanation integrating all of these factors provides an explanation of why pretence–reality confusions occur.

This explanation accepts that pretence–reality confusions are context specific, being most likely in contexts

where there are no consequences associated with believing that a pretend entity is real. However, within a single context, not all children will confuse pretence with reality. Taken together, these assumptions lead us to predict that within a situation where there are no real-life consequences associated with pretence–reality confusion, credulous children will confuse pretence with reality, sceptical children will not. This point does not seem contentious – individual differences are relevant in theories of almost all psychological phenomena. The important point now though is to explain the nature of these individual differences, how situational factors influence pretence–reality confusions, and why pretence–reality confusion occurs.

When children pretend, cognitive availability increases for what has been pretended. In our view this is true for all children, in all contexts, irrespective of the emotional content of the pretence. However, once cognitive availability has increased, these factors come into play. We believe empirical evidence of reality plays a fundamental role in influencing children’s beliefs about the pretence–reality distinction. Where the outcome of the pretence is visible, pretence–reality confusions are rare because the increased cognitive availability of reality prevents or counteracts the increased cognitive availability of the pretence. Nevertheless, affect can disrupt this process. We believe that where the pretence has a strong emotional element, this draws children’s attention to the pretence, away from empirical evidence of reality. Thus cognitive availability for the pretence remains high and pretence–reality confusions likely. To summarize, in circumstances where there is empirical evidence of reality, unless there is a particularly strong emotional element, pretence–reality confusions are unlikely irrespective of context and irrespective of individual differences.

However, we believe that the processes are very different where there is no empirical evidence of reality: context becomes important. We believe that the introduction of real-life consequences associated with pretence–reality confusion serves to make reality salient. Consequently, the cognitive availability of reality is elevated and cognitive availability for the pretence declines. Pretence–reality confusion becomes unlikely. Nevertheless, affect is again significant. Where the pretence has a strong emotional component this draws children’s attention to the pretence, away from reality such that the cognitive availability of the pretence remains high and context fails to influence children’s beliefs and behaviour.

In the absence of real-life consequences, individual differences become significant. This does not mean individual differences are not relevant in the preceding processes. Instead, the behavioural effects of individual

differences only become apparent when there is no empirical evidence of reality and no consequences associated with pretence–reality confusion. Sceptical children experience increased cognitive availability for the pretence. However, they do not confuse pretence with reality and instead respond in terms of the pretence stipulations. This could be because they are less susceptible to the effects of increased cognitive availability and do not experience an increase in the subjective probability of the pretence. Alternatively, sceptical children may reassure themselves that the pretence will not become real by considering the rules governing the transmigration of entities from pretence into reality. In contrast, credulous children seem less able than sceptical children to resist the effects of availability – cognitive availability results in an increase in the subjective probability of the pretence. Perhaps these children are unable to reassure themselves that the pretend entity will not transmigrate into reality. Consequently, pretence–reality confusion occurs.

Our model allows us to predict and explain the circumstances in which pretence–reality confusions are likely, by showing the importance of cognitive availability, affect, context and individual differences as a series of interrelating factors that influence children’s beliefs. Importantly, this model is consistent with the findings reviewed earlier, allowing us to explain children’s pretence–reality confusions while also predicting their competence at maintaining the pretence–reality distinction on other occasions.

For example, in Wellman and Estes’ (1986; see also Estes *et al.*, 1989; Harris *et al.*, 1991; Kinoshita, 1994) study, children were asked about the properties of imagined objects. This results in increased cognitive availability for the imagined entity. However, in these circumstances there is no confusion between pretence and reality because children can always see that the imagined entity is not real. Similar processes may also explain the rarity of pretence–reality confusions during object substitution pretence (Flavell *et al.*, 1987; Harris *et al.*, 1994; Lillard & Flavell, 1992; Woolley, 1995a; Woolley & Wellman, 1990). Likewise, when children are asked to pretend about the contents of transparent boxes (Bourchier, 1998; Bourchier & Davis, 2000a) there is little evidence of pretence–reality confusion. Again, the results are consistent with the constraining influence of empirical evidence of reality on the cognitive availability of the pretence.

Examples of pretence–reality confusion are also consistent with our model. For example, in the anecdotes cited by DiLalla and Watson (1988), Garvey (1991), Garvey and Berndt (1977) and Harris *et al.* (1991) children engage in pretence and therefore experience increased

cognitive availability for the pretence. In these cases there is empirical evidence of reality that should reassure children that the imagined entities are not real. However, the pretence has a strong emotional content. In our view, this draws children's attention away from the empirical evidence of reality, to the pretence, such that the cognitive availability of the pretence remains high and pretence–reality confusion occurs. Experimentally, many instances of pretence–reality confusion occur in circumstances where the children pretend about the contents of opaque boxes, where there are no real-life consequences and where the pretence has an emotional component (Burchier & Davis, 2000a, 2000b; Harris *et al.*, 1991; Johnson & Harris, 1994). Taken together, the affect and the lack of empirical evidence of reality leads credulous children to confuse pretence with reality.

### Directions for future research

Although we now know a great deal about the circumstances in which pretence–reality confusions are likely, we still have considerable work to do to fully understand this fascinating phenomenon. First, the nature of the individual differences involved needs to be explored. There are several possibilities to be tested. One possibility is that these individual differences relate to variations in children's susceptibility to the effects of increased cognitive availability. Alternatively, it could be that there are few individual differences in this domain, but that there are variations in children's understanding of the rules governing the transmigration of entities from pretence into reality. The transmigration hypothesis and possible individual differences in this domain should be fully investigated. Second, the cause of these individual differences needs to be established. Specifically, we need to look for factors in children's early cognitive and social experiences that co-vary with later developmental outcomes. Intelligence, personality, parental involvement in early pretence, parental labelling of the mental–real distinction, engagement in joint and solitary pretence, fantasy proneness and theory of mind all seem likely candidates. Third, the developmental trajectory of pretence–reality confusions and these individual differences require further investigation. It is possible that pretence–reality confusions become less prevalent with age through either children's increasing understanding of the rules of transmigration, or their decreasing susceptibility to the effects of increased cognitive availability. Finally, we need to look more closely at the role of affect. Our model postulates that high levels of affect lead pretence–reality confusions to become more likely. However, we do not yet have independent or objective measures of affect.

### Conclusion

The purpose of this paper was to provide an update on our current knowledge relating to children's understanding of the pretence–reality distinction. By systematically reviewing the theories and evidence currently available, we have been able to offer a new explanatory framework proposing that increased cognitive availability, context, affect and individual differences systematically interact to predict pretence–reality confusion. While further research is currently under way to test some of our specific claims, the explanation proposed here provides one possible account of the causes of childhood pretence–reality confusion.

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## COMMENTARIES

# Pretence–reality distinction: confusion and paradox

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Bourchier and Davis successfully argue that fairly old children sometimes behave as though their pretence impacts upon their apprehension of reality. They advance sound evidence and formulate valid arguments in support of the view that the phenomenon is substantive and not merely a methodological artifact. In this respect, their thesis is successful and makes an important contribution to our knowledge of childhood pretence. I would take issue, however, with some of the finer details of their argument. Specifically, the phenomenon does not deserve to be called a *confusion* between pretence and reality, and neither is it *paradoxical*. Moreover, the phenomenon is probably subsumed within a broader human trait, rather than something that is confined to childhood.

### Why ‘confusion’ is the wrong label

There is compelling evidence to suggest that confusions between pretence and reality have faded by middle childhood. From about the age of 18 months, children begin to engage in object-substitution pretence, and indeed many exhibit an impressive level of coherence in the narratives they create around pretence. However, they seldom conflate pretence with reality (Harris & Kavanaugh, 1993; Leslie, 1987). By the age of 3 years, many children show a reflective grasp of the distinction between imagination and reality. They successfully place mental entities into one category and real entities into another. They recognize what can and cannot be done with mental entities and how this differs from what can and cannot be done with real entities (Wellman, 1990). By the age of 5 years, they acquire a sophisticated understanding of what counts as pretence. For example, they understand that if a person asserts X with full knowledge that it is untrue and without intention to deceive, then it would be appropriate to say that the person is pretending (Perner, Baker & Hutton, 1994). By the age of 6 years, children begin to understand that when describing behaviour, the word *pre-*

*tend* should be reserved for occasions when the actor has the mental attitude associated with pretence. Prior to this age, children sometimes overlook mental attitude. An example is where they wrongly asserted that Moe was pretending to be a bird just because his behaviour resembled that of a bird, despite correctly acknowledging that Moe did not know what a bird was (Lillard, 1993)! In summary, children develop a sophisticated understanding of pretence by middle childhood, and the evidence suggests that they are well beyond confusing pretence with reality.

How does that square with the finding that those in middle childhood sometimes behave as if X might really be true after merely pretending X? If this phenomenon arose from confusion, then it would deserve to be called a paradox, because one corpus of evidence would suggest children had grown out of making pretence–reality confusions, while other evidence would suggest that confusions still occur. To avoid the paradox, perhaps it is more useful to think of pretence mentally contaminating (cf. Mitchell, Robinson, Isaacs & Nye, 1996; Wilson & Brekke, 1994) children’s orientation to reality. In other words, perhaps being able to avoid pretence–reality confusions is not sufficient to prevent pretend ideas intruding on what one believes of reality.

### Does ‘contamination’ and ‘confusion’ mean the same?

Bourchier and Davis seem to construe pretence–reality confusion as something that is peculiarly childish, with the implication that it will vanish after middle childhood. The connotations of ‘mental contamination’ are different, for the process seems to be active in adults also. An example from the realm of mental representation was reported in Mitchell *et al.* (1996), and will serve as a useful illustration. Adults watched a video about a protagonist, Kevin, who saw X but was subsequently told Y. Observing participants were invited to judge what Kevin believed,

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and the great majority opted for X; quite reasonably, they seemed to think that he would attach more weight to what he had seen in preference to what he was told, when the two were in conflict. Under another condition, Kevin was the recipient of exactly the same conflicting information, yet participants judged in a radically different way, with the majority effectively thinking that he would attach more weight to what he was told than to what he had seen. The only difference between conditions was that the observing participants had privileged information indicating that Y (what Kevin was told) was true! Hence, adult participants' knowledge of reality inappropriately contaminated their judgment of another person's belief. The fact that adults do not generally confuse their own mind with other people's was of no help to them in this instance.

In pretence, it seems that mental contamination could be at work also, but with the opposite direction of influence. Here, it seems that one's imagination of a fictitious world might contaminate what one thinks of the real world. There is abundant evidence of such mental contamination in various spheres of adult functioning. For example, Rozin, Millman and Nemeroff (1986) asked participants to pour water into a couple of glasses, to add sugar to each, and then to paste a label on one that read 'sugar solution' and to paste a label on the other that read 'cyanide'. Participants were then invited to have a drink. Interestingly, the participants had a distinct preference to drink from the glass marked 'sugar solution', which bears a striking resemblance to children displaying apprehension towards a box after pretending there is a monster inside. Presumably, the adults would acknowledge that merely labelling (or pretending) that a substance contains cyanide does not really make it poisonous, yet that did not prevent their apparently superstitious treatment of the glass thus labelled. The fact of the matter is that superstition coexists with a more rational outlook in many people (Subbotsky, 2000). Bouchier and Davis would be compelled to say that these arise from confusions, but that

seems too strong an interpretation. I would rather they were viewed as cross-contamination between different kinds of thoughts, some that pertain to reality and some that pertain to make-believe or mere possibility. It seems entirely reasonable and indeed parsimonious to construe the childhood phenomenon that Bouchier and Davis document as an instance of pretence contaminating children's orientation to reality.

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# Pretence–reality confusions in children and adults

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In my experience it is not at all unusual for children to persistently seek confirmation that an enacted scenario is ‘not real’, or to get genuinely frightened in a pretend game if the monster becomes ‘too scary’. So I think the authors’ basic conclusion is highly plausible. Fortunately, the authors do a good job of weaving together the different empirical studies so that one doesn’t have to rely on anecdotes and intuitions. The authors also consider multiple contributors to children’s confusion. This follows a trend in explanations of the A not B error in infancy (e.g. Smith, Thelen, Titzer & McLin, 1999), and I think is also likely. Below, however, I consider Bouchier and Davis’ contributing factors in light of adults’ tendency to confuse pretence and reality. Adult confusion provides an important check on explanations proffered for children.

It is not at all unusual for an adult to feel sad or afraid when watching a film. This is likely *not* a genuine case of pretence–reality confusion. A good film, just like a particularly believable ‘monster’ in a pretend game, can create such experiences simply because they are believable depictions of reality. It is as if one is witnessing a genuine event, and just as a genuine event would lead to sadness or fear, so can an acted scene in a film (or a pretend game). Nevertheless, there are instances when adults do confuse pretence with reality. After watching the scary movie an adult might not want to go upstairs, or open a cupboard. This is very much akin to the situation in which a child is reluctant to open a box. What leads an adult to ‘confuse’ pretence (an acted film) with reality? My hunch is that the film has simply brought frightening scenarios (e.g. axe-wielding murderers) into awareness. In ordinary circumstances the adult might just ignore such possibilities as fanciful, but a believable film and a raised level of emotion might lead to the notion that such situations are possible.

This account has much in common with that of Bouchier and Davis. Bringing ideas into awareness is akin to their availability hypothesis. Emotion also plays a role in their account. However, Bouchier and Davis at times dismiss emotion because pretence–reality confusions can occur with non-emotion eliciting stimuli (e.g. socks). One possibility they ignore is that all pretend play tends

to result in raised levels of emotion for children, either because they are more emotional, or because they enjoy and become involved in pretend games more than adults. This might allow for a more consistent role for emotion.

Thus, a raised level of emotion is one possible reason why children make pretence–reality confusions substantially more frequently than adults. A second possibility is that adults’ more sophisticated knowledge of the world tends to buffer them against most instances of pretend–reality confusion. Infants have some understanding of causal relations (Leslie & Keeble, 1987), and by 3 to 5 years of age children understand still more about causality and causal mechanisms (Bullock, 1984). Yet they remain relative novices at understanding causal laws which means they might sometimes be unsure whether a pretend scenario will materialize. Adults know that pretending an X is in a box cannot result in the X magically materializing there. When adults do display the symptoms of ‘confusion’ (e.g. fear of opening a cupboard), it is because they think there is a possibility, however remote, that something untoward could be inside. The adult’s fear is lessened to the extent that they can counteract irrational thoughts with rational ones that there is unlikely to be anything frightening in the cupboard.

Again, this account has parallels with that of Bouchier and Davis. In their discussion of individual differences they refer to ‘sceptical’ and ‘credulous’ children. On the present account sceptical equates to ‘knowledgeable’, and credulous to ‘unknowledgeable’. Children are equally knowledgeable when the boxes are transparent because they can see the pretended object is not present. In essence, I am arguing that children can reason correctly when they possess sufficient knowledge. Incorrect reasoning often stems from occasions when their knowledge is meagre. This account has much in common with information processing theorists’ view that children can pass Piaget’s balance beam task when they know that both the number of weights and distance are relevant to balancing (Siegler, 1991).

One important caveat for the knowledge hypothesis is that it may not be sufficient to simply ask a child

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whether the X could materialize in the box after pretending this, as is sometimes done. I can imagine that the child would deny magical materialization because they have been told better. Yet they might not be completely confident of their answer. The extent of any lingering doubt would determine the degree of apparent pretence–reality confusion. In sum, an account that includes (a) knowledge deficits, (b) availability or salience and (c) emotion, might go some way to explaining both child and adult cases of pretence–reality ‘confusion’.

A final possible cause not considered by Bouchier and Davis is related to children’s tendency to confuse the source of their knowledge. A test of semantic memory requires memory for some fact (e.g. remembering what  $10 \times 10$  equals). A test of source memory requires memory for the learning context (e.g. remembering the occasion in which one learned what  $10 \times 10$  equals). Children are particularly prone to source confusion when they imagine something, tending to believe that the thing imagined actually happened (Johnson, Hashtroudi & Lindsay, 1993). This component of imagining is of course intrinsic to pretence. Source confusions are thought to be overcome gradually throughout childhood and to be tied to frontal lobe and executive function development (Wheeler, Stuss & Tulving, 1997). Further, even when they pass questions about the source of an event, children’s confidence in their answer often demonstrates a shaky grasp (Ruffman, Rustin, Garnham & Parkin, 2001). Given children’s known source difficulties, and the relatively slow pace of frontal lobe development (e.g. Thatcher,

1991), it seems clear that an imagined event might lead them to subsequently believe the event actually occurred (i.e. that there really is an X in a box). Note that unlike knowledge, availability and emotion, this explanation does not seem relevant to adults’ tendency to ‘confuse’ pretence and reality. It might, nevertheless, help explain children’s errors.

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## Some confusion about pretence–reality confusions

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Bouchier and Davis argue that there is a ‘striking paradox’ between 3-year-olds’ early proficiency at distinguishing pretence from reality and the simultaneous existence of confusing pretence with reality even in school age children. However, the evidence they marshal in support of this ‘paradox’ is, in my view, problematic as it comes from paradigms that are inherently

ill-suited for an unambiguous demonstration of pretence–reality confusions. Bouchier and Davis discuss two types of evidence. The first is anecdotal and invariably involves cases where children show negative emotional reactions to the contents of their pretence as when a 5-year-old suggests to his friend that they shouldn’t pretend to be monsters because it’s too scary. Clearly,

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however, the fact that pretence evokes content-appropriate emotions that often lead to affect-regulative modification, transformation or even termination of pretence, doesn't imply a confusion of pretence with reality just as the fact that an adult viewer who gets scared of a science fiction character and leaves the movie doesn't imply that he believes in the character's existence. In clinical (Freud, 1920; Fonagy, Gergely, Jurist & Target, 2002) as well as developmental psychology (Golomb & Galasso, 1995) it has been convincingly demonstrated that affect induction and regulation are central functions of pretence. In fact, awareness of the pretence–reality distinction and transformation of pretence content have been shown to be important tools of such emotion regulatory control.

The other type of evidence considered is experimental and mostly involves variations of the 'empty-boxes-with-pretend-contents' paradigm. In these studies children are presented with (opaque or transparent) empty boxes and are invited to pretend that there are objects of different emotional quality in them. Pretend–reality confusions are then inferred from different behavioural or verbal reactions towards the boxes that are either requested or spontaneously performed. The major methodological problem here is that these reactions can always be explained either as spontaneous continuations of pretence or as being induced by non-pretend-related factors often invited by the experimental manipulations themselves. For example, the fact that numerous children spontaneously opened the boxes or when requested to do so they followed the order predicted by the emotional quality of the pretend entities, can clearly result from the natural tendency to continue the pretence scenario stipulated. Alternatively, children's box-opening behaviour may be induced by non-pretend-related factors such as the affordance of boxes (boxes are there to be opened and to find things in them) as suggested by the finding that the children often opened the boxes even when no pretence content was stipulated.

To their credit, Bouchier and Davis are aware of the viability of these alternative explanations and discuss them in some detail. However, they conclude that 'the pretence continuation account cannot explain several other aspects of the data' that they interpret as evidence for pretence–reality confusion (p. 407). However, the aspects they identify can again be explained by non-pretence-related pragmatic factors induced by the experimental interventions themselves. For example, they claim that 'children's verbal comments . . . [such as when they "spontaneously commented on the whereabouts of the monster on finding the box empty" (p. 407)] . . . are . . . suggestive of pretence–reality confusion' (p. 407). However, finding the box 'empty' may be interpreted

by the child as counterevidence (within the pretend world!) to the pretence stipulation. This then prompts the further elaboration of pretence (claiming that the object has been displaced) in order to salvage the internal coherence of the stipulated pretence scenario. Bouchier and Davis also suggest that pretence–reality confusion is implied by the fact that when children are asked to give reasons for their box-related actions, many 'justified their behaviour in terms of their doubts about the reality status of the box contents or their belief that the imagined entities were real' (p. 407). However, the conversational pragmatics of the experimenter's request for justification implies that the box-searching behaviour was not a natural or appropriate consequence of the pretence stipulation, and therefore some *other* justification is required. The child then obliges the experimenter by 'rationalizing' her behaviour in terms of the (retrospectively inferred) belief about the reality of the box's content. Anyway, there is little reason to believe that such retrospective justifications necessarily correspond to the real causal factors that generated the behaviour in the first place: we know that 3-year-olds are notoriously bad in identifying the causal source of their mental states or actions (see Perner (2000) for a review).

In sum: the different versions of the 'empty-boxes-with-pretend-contents' paradigm on which Bouchier and Davis' arguments are nearly exclusively based, seem methodologically ill-suited for establishing the claim for pretence–reality confusions. There are other paradigms, however, that would seem more appropriate for testing pretence–reality confusions, but these are, unfortunately, not considered by Bouchier and Davis. For example, one could arrange for the pretence stipulations to 'become real' and then see whether the child's reaction indicates violation of expectation or not. Let me add my own anecdote here of a 3-year-old girl who used to pretend that there was a 'Goblin Bakery' under her father's armchair. Every morning she used to crawl under the armchair to 'get some fresh hot cookies that the goblins made' for her dolls. One day her parents had a great idea: they prepared some fresh – and very real – cookies and placed them under the armchair. The little girl was so shocked to find that her pretend cookies had 'become real' that she cried all morning and would never play 'Goblin Bakery' again. This anecdote certainly speaks against any tendency to confuse pretence with reality, at least for *this* child. But there is also systematic experimental evidence (see Golomb & Kuersten, 1996) showing that such pretence violations (e.g. when a pretence participant bites into a playdough cookie) tend to result in serious dismay and protest in most children.

This is not to suggest, however, that pretence–reality confusions do not exist at all in young children: indeed

they do, but they are much less frequent than Bouchier and Davis' review seems to suggest and tend to involve pathological representational development. For example, in Fonagy *et al.* (2002) we describe the psychotherapy of a very disturbed 4-year-old who never engaged in pretend play spontaneously and often showed serious confusion of pretence with reality. Once when the boy was painting, the therapist pointed at the orange-coloured water in his glass and jokingly remarked: 'Look, it's like orange juice!' The boy looked up with fright and said: 'But you can't drink that!' 'Of course, I can', replied the therapist with a clearly marked pretend intonation and pretended to drink the 'orange juice'. The boy became even more frightened and shouted anxiously: 'Don't do that, it can't be drunk!' This boy indeed confused pretence with reality as he seemed quite unable to differentiate or to interpret the marked facial and intonational features (such as knowing looks, slightly tilted head, smiling and exaggerated intonation contour) that encode pretence. Furthermore, it is unlikely that this child's pretence–reality confusions stemmed from the combined influence of factors such as cognitive availability, evidence of reality, context and affect which are purported sources of everyday pretend–reality confusions according to Bouchier and Davis. Rather, the child's apparent 'blindness' to the communicative code of 'markedness' (Gergely & Watson, 1966, 1999) that encodes pretence and differentiates it from realistic actions seemed related to a serious deprivation of parental scaffolding that provides experience with playful pretence interactions involving marked expressions and affect-mirroring displays (Fonagy *et al.*, 2002). (It should also be noted

that this child was not autistic and during the course of therapy he eventually became able to both understand and produce pretence. For a more detailed account of the determining factors behind his arrested representational development and for more examples of pathological pretence–reality confusion, see Fonagy *et al.*, 2002.)

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# Delving into Uncle Albert's cabinet: further thoughts on the pretence–reality distinction

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Bouchier and Davis offer a systematic and focused review of children's understanding of the pretence–reality distinction. They conclude that even if young children are able to conceptualize the distinction between an

object that actually exists and an object that they have merely imagined, this conceptual ability does not mean that children never display any slippage between the two realms. Having imagined or pretended that an object

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exists, children may start to wonder if it does actually exist. They may look for the object, or express puzzlement at its disappearance, and depending on its assumed properties, they may display curiosity or fear toward it.

Bourchier and Davis also render us a service by sifting through various explanations of such slippage. They reject the superficial interpretation that children are simply continuing their pretence, secure in the clear-eyed knowledge that the object does not actually exist (Golomb & Galasso, 1995). Bourchier and Davis also show that such slippage is not restricted to a particular class of entity, be it supernatural, animate or emotionally charged. It extends to entities that are prosaic, inanimate or emotionally neutral.

The interpretation of the phenomenon that they favour builds on an earlier proposal (Harris, Brown, Marriott, Whittall & Harmer, 1991; Johnson & Harris, 1994): pretending that a given object exists ensures that the idea that it exists can readily be brought to mind. This mental availability serves to increase the subjective likelihood that the object does actually exist, which in turn guides subsequent reality-directed behaviour. Bourchier and Davis supplement the concept of mental availability in two ways. First, they propose that once an idea is made available, it is then subjected to further scrutiny or appraisal. For example, countervailing evidence that the object is patently not visible inside a transparent box will serve to undermine the likelihood that it can be found there and reduce search behaviour. Conversely, the absence of any contrary evidence means that a child may appraise the idea as more credible and therefore search for the object in question. I am happy to endorse this first proposal. Indeed, in earlier interpretations of our findings, my colleagues and I also suggested that the process of availability is moderated by subsequent appraisal processes (Johnson & Harris, 1994; Harris, 2000, chapter 8).

The second proposal made by Bourchier and Davis is that availability and affect interact. I am more cautious about endorsing this second proposal for several reasons. First, an empirical comment: a child's emotional reaction to a pretence – even his or her own pretence – is poor evidence of pretence–reality confusion. Admittedly, the boy cited by Bourchier and Davis (who began to be afraid of the monster that he was pretending to be) may have started to wonder if the monster really existed. Still, it is also possible that he simply felt frightened by the monster despite knowing full well that it was just a pretend monster. Similarly, adults who walk out of a violent or frightening film may know that the fictional events depicted in the film are not happening now and never happened in the past. That knowledge need not stop them from feeling genuine distress or fear. More

generally, it is an interesting fact about adults and children alike that they may be emotionally aroused by material that they know to be mere fiction (Harris, 2000) but such arousal is poor evidence of any slippage from the imagination to reality.

Second, even if we set these empirical concerns aside and assume – along with Bourchier and Davis – that emotion may interact with availability, it is not crystal clear what they mean by this hypothesis. At least two different interpretations suggest themselves. First, it is conceivable that emotionally charged ideas are more available than neutral ones, in the context of a congruent emotional state. More specifically, once a given emotional state, such as fear, is triggered, the existence of that emotional state might make ideas associated with fear readily available. On this hypothesis, a pretend representation (e.g. an imaginary monster) that triggered a given emotional state (e.g. fear) would thereby increase the likelihood of various fearful ideas – including the idea of a monster – being brought to mind. Evidence consistent with this line of speculation was presented several years ago by Johnson and Tversky (1983). Adults who read a depressing article about an accident subsequently rated the likelihood of other, unrelated mishaps higher than a control group. By implication, the negative mood induced by reading the article meant that the experimental subjects could readily bring to mind – and therefore judge as more likely – a heterogeneous set of mishaps.

An alternative possibility, hinted at by Bourchier and Davis, is that certain emotionally charged ideas are not subjected to rigorous reality testing. For example, something that is either desirable or threatening might be treated as a more serious possibility than something that is neutral. On this hypothesis, the emotion that is linked to a particular possibility does not necessarily alter the ease with which that possibility is brought to mind – its mental availability. Instead, it lowers the threshold for treating a possibility as plausible enough to be acted on. Future research ought to be able to disentangle these two hypotheses – always assuming that Bourchier and Davis are right that emotion does increase the likelihood of pretence–reality confusion.

Finally, I want to mention one intriguing aspect of the relationship between imagination and reality that is not discussed by Bourchier and Davis, but may be important. Beside the armchair of my Great Uncle Albert was a dark mahogany cabinet. On top of this cabinet, he kept his tobacco pouch and the Western that he was invariably reading. On my regular visits as a young child, I never saw the cabinet opened and something about the dark glow of the wood made me curious about what it contained. Seeing my curiosity, Uncle Albert told me



– no doubt with a twinkle in his eye – that there was a mouse inside. After this remark, the cabinet took on a new significance for me. It remained shut – and I did not venture to open it. Still, I would look at it, wondering about the creature inside. Even though I remembered at some level that it was Uncle Albert who had first told me about the mouse, the idea that there might be one inside the cabinet floated free of his testimony and took on a vitality and significance of its own in my imagination. My hunch is that this type of ‘source decoupling’ is common in young children and possibly in adults (Harris, in press). Once ideas are planted in our mind, we do not constantly remind ourselves that the only reason we have for entertaining them at all is that someone told us. More generally, acquaintance on the basis of testimony – as opposed to first-hand experience – is no guarantee of scepticism. After all, as Hume pointed out, we do believe in miracles.

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## RESPONSE

# The pretence–reality distinction – confusion, emotion and source monitoring

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The aim of our original article (Bouchier & Davis, this issue) was to provide a systematic review of theories and evidence pertaining to children's understanding of the pretence–reality distinction. In doing this, we hoped to demonstrate that some children occasionally confuse pretence with reality, despite their skill in pretend play and despite their otherwise sophisticated understanding of the pretend and real worlds. By reviewing the complex and sometimes paradoxical literature available, we endeavoured to offer an account of some of the factors that might contribute to children's pretence–reality confusions. In particular, we argued that increased cognitive availability, context, affect and individual differences might systematically interact. We are now very grateful to Gergely (this issue), Mitchell (this issue), Ruffman (this issue) and Harris (this issue) for suggesting some additional factors for consideration and providing some insightful and thought-provoking comments relating to our earlier proposals. The purpose of this article is to identify and respond to what we perceive to be the central themes emerging from these commentaries.

The first theme to emerge from the commentaries relates to whether or not we are correct to suggest that children ever experience pretence–reality confusion. This issue is raised, albeit rather differently, by both Gergely (this issue) and Mitchell (this issue). Of the two authors, Gergely takes the more extreme position, arguing that none of the data we reviewed provide convincing evidence of pretence–reality confusion. He focuses on three main types of data. First, Gergely argues that children's unprompted comments are indicative of their spontaneous continuation of the pretence theme. Second, he argues that children's prompted justifications for their behaviour towards pretend entities might simply constitute post-hoc interpretations generated precisely *because* the experimenter has requested such information. Finally, Gergely questions the validity of experimental tasks

in which children are asked to pretend that empty boxes contain particular entities.

We accept Gergely's (this issue) first point. Children's spontaneous remarks can be difficult to interpret confidently since it is often not obvious whether they are commenting in terms of their understanding of reality, or in terms of the pretence stipulations. However, coupled with their behaviour, we believe that children's prompted justifications offer rather more compelling evidence of pretence–reality confusion. In our original article (p. 404) we acknowledged the possibility that children's responses to post-task interviews might reflect a reaction to task demands. Nevertheless, we went on to dismiss this possibility in light of data suggesting that verbally expressed confusion could be observed in interviews in the absence of any specific behavioural response (Woolley, 1995; Woolley & Wellman, 1993). Moreover, our review incorporated several examples of studies that were not dependent on verbal measures. Specifically, children's behaviour towards empty boxes containing pretend entities is, in our view, often highly suggestive of a failure to fully differentiate pretence from reality. However, Gergely is also critical of our analysis of these data, arguing that children's behaviours can be interpreted in other ways. Children might spontaneously open boxes that they have pretended about either as a spontaneous continuation of the pretence theme (as Golomb & Galasso, 1995 argued) or because boxes 'afford' containment and therefore elicit box opening behaviour themselves. Several pages of our article were dedicated to reviewing and dismissing alternative interpretations such as these. Nevertheless, while we feel that a great deal can be learned about children's thinking and reasoning from their verbal comments and behaviour during experimental tasks, we also fully appreciate the limitations inherent in their interpretation. We are therefore fully open to Gergely's suggestion that additional

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and alternative methodologies should be usefully adopted when investigating these phenomena.

Gergely (this issue) himself makes a useful suggestion for a further method that might be used to assess children's understanding of the pretence–reality distinction. He suggests that we might arrange for a pretend stipulation to become real and then observe children's reactions. Presumably, Gergely would predict surprise from those children whose understanding of the distinction between pretence and reality is violated by this occurrence, and less notable reactions from those children who had confused pretence with reality and thus expected the pretend entity to be real.

This task is reminiscent of one used by Subbotskii (1985) in his investigations of children's understanding of magical causation. He told children a story in which Masha used a 'magic box' to make an object shown in a picture become real. Subsequently, the children were left alone with an identical box. Most of the 4- to 6-year-olds tried to use the magic box and showed signs of disappointment when it failed to generate a real object. This is despite the fact that the majority had initially denied that the magic described in the story could work. However, interpreting these data is not easy. Specifically, it is not clear whether the children were genuinely disappointed because they had expected a truly magical outcome to occur, or whether they were enacting the story within pretend mode and therefore their disappointment was also pretend. Thus children's non-verbal responses here are rather difficult to interpret, particularly given their contradictory verbal responses.

We anticipate similar interpretative problems with the method proposed by Gergely (this issue). Even if children are surprised when they find that a pretence stipulation has become real, we would not be entirely confident that this is strong evidence against pretence–reality confusion. This might stem from the way in which we conceptualize 'confusion'. Specifically, we do not equate confusion with the child having any certainty or conviction that the pretence actually *is* real. All we suggest by confusion is that the child entertains the possibility that the pretence *might* be real, and wonders whether or not this is the case. Thus in our view, a child experiencing pretence–reality confusion might nevertheless show signs of surprise if a pretend entity suddenly became real.

This brings us to the related point made by Mitchell (this issue), who also expresses concern about the idea that children confuse pretence with reality. Unlike Gergely (this issue), Mitchell does not claim that the phenomenon described in our original article can be interpreted as children continuing pretence themes. Instead, he argues that the term confusion is unduly

strong and that the data are more suggestive of pretence 'contaminating' children's beliefs about, or orientation towards, reality. This proposal is similar to Lillard's (1994) claim that the boundary between pretence and reality is in place, but certain elements from pretence sometimes seep into reality. To some extent, how these phenomena are labelled is purely a matter of semantics. The terms confusion and contamination both seem, in our view, to refer to those occasions when children become uncertain about the status of entities that they have merely pretended about. However, an alternative explanation in which confusion and contamination are differentiated also seems plausible.

One possibility is that children's thinking in this domain falls along a continuum whereby complete separation of pretence from reality falls at one extreme, outright conflation (or confusion) of pretence with reality falls at the other extreme, and contamination of reality by pretence falls somewhere in between. According to this interpretation, confusion and contamination are not, as Mitchell (this issue) suggests, contrasting ways of describing the same phenomenon, but instead reflect variability in the extent to which children are uncertain of the pretence–reality distinction. Developing this proposal further, we might argue that individual differences between children correspond to where along this continuum their interpretations of pretence and reality habitually fall. Moreover, factors such as cognitive availability, context, affect and empirical evidence of reality might influence where along this continuum a specific pretend episode is placed. Thus it is feasible that the distinction between contamination and confusion might be a useful way of conceptualizing individual and situational differences in children's understanding of the pretence–reality distinction. Clearly further research is necessary to establish whether individual differences in this domain are categorical (Bourchier & Davis, this issue; Harris, Brown, Marriott, Whittall & Harmer, 1991; Johnson & Harris, 1994), or whether they are better conceptualized as reflecting a continuum from scepticism to credulity.

The second theme to emerge from the commentaries was highlighted by both Ruffman (this issue) and Harris (this issue) – the role of affect or emotion in children's understanding of the pretence–reality distinction. Ruffman makes two points in relation to this issue. First, he argues that we are somewhat dismissive of the role of affect, citing as evidence our observation that neutral entities such as socks can be associated with pretence–reality confusion. However, in reporting these findings we were simply attempting to demonstrate that high levels of affect are neither necessary nor sufficient to elicit pretence–reality confusions. Nevertheless, we strongly believe that affect is fundamentally important when in

conjunction with other factors such as cognitive availability and context. Ruffman's second point is that all pretence evokes emotional arousal and therefore affect is present in all cases of pretence–reality confusion. We see no reason to disagree with this claim: there is no question that children enjoy pretend play and also find certain pretend entities rather frightening. However, we believe that one central issue yet to be addressed is the *precise* nature of the impact of affect on children's thinking, reasoning and behaviour in this domain. To this end, we speculated (Bourchier & Davis, this issue) that affect might systematically interact with cognitive availability to make pretence–reality confusions more likely. Harris directly addresses this suggestion.

In his commentary, Harris (this issue) reports being somewhat cautious about accepting our proposal (Bourchier & Davis, this issue) that availability and affect interact such that pretence–reality confusions are more probable where the pretence has a strong emotional element. Harris identifies two concerns. First (as is also noted by Gergely), emotional reactions to pretence do not, in themselves, provide strong evidence of pretence–reality confusion. We agree with this claim and illustrated this in our original article by demonstrating that pretence–reality confusions can occur in relation to neutral entities as well as in relation to emotionally charged ones. Moreover, we argued that emotional reactions to pretend entities could occur without any pretence–reality confusion, as a continuation of the pretence theme. Our proposal was that availability and affect might interact, to make pretence–reality confusions more likely. This brings us to Harris' second concern, that it is not entirely clear as to what we mean when we claim that availability and affect interact. We are quite happy to concede that our proposal regarding the relationship between availability and affect was necessarily speculative and that we are not entirely certain of the cognitive processes that might be involved in this interaction. We are therefore most grateful to Harris for offering two empirically testable hypotheses.

Harris' (this issue) first suggestion is that emotionally charged events may be more readily brought to mind than neutral events when one is experiencing a particular emotion. For example, frightening events may be more cognitively available when one is frightened. This hypothesis is certainly appealing since it suggests a strong continuity in the cognitive processes shown by children and adults. The issue of whether children's thinking shows continuities or discontinuities with that of adults is already high on the agenda in this domain of developmental research (e.g. Woolley, 1997). Moreover, we are currently involved in research directly investigating whether the cognitive processes associated with

the use of the availability heuristic in adults are also operative in children (Bourchier & Davis, 2001; Davis, Bourchier & Westcott, 2001). Although the results obtained so far are suggestive of some commonality in children's and adults' use of the availability heuristic, further research is necessary to directly test Harris' hypothesis regarding the nature of the relationship between affect and cognitive availability.

The second hypothesis offered by Harris (this issue) is that emotionally charged events might not be subjected to rigorous reality testing and the threshold for treating an idea as a serious possibility might therefore be lower for emotionally laden events than neutral ones. One of the strengths of this hypothesis is that it could potentially provide an answer to the question of the nature of individual and developmental differences in this domain. One possibility is that with age, the threshold for treating a possibility as plausible shifts, and perhaps even within a single age group, children differ in terms of the position of this threshold. Alternatively, perhaps with age the rigour of reality testing increases and perhaps some (sceptical) children engage in more extensive reality testing than others (credulous children). Thus from the commentaries on our original paper, four hypotheses regarding the nature of individual and developmental differences in children's propensity to experience pretence–reality confusions emerge. In relation to Mitchell's (this issue) commentary, we argued that there might be a continuum between credulous and sceptical children such that there are differences in the extent to which reality is contaminated by, or confused with pretence. Perhaps two further or alternative ways of conceptualizing these differences relate to the location of the threshold at which children seriously entertain a possibility raised by pretence, or the extent to which such possibilities are subjected to rigorous reality testing. Mitchell offers a further interpretation of these differences: children might differ in terms of their knowledge of the causal laws governing the transmigration of entities from pretence into reality. Further empirical work is required to test between these competing alternatives.

However, there is a further possible interpretation of the interaction between availability and affect that is not directly considered by Harris (this issue). Specifically, the interaction might comprise increased cognitive availability for emotionally charged events, and reduced reality testing with a lowered threshold for treating a possibility as plausible. Thus the interaction might operate as follows. First, emotionally charged events are easier to bring to mind when one is experiencing a particular emotion – they are more cognitively available. This increased cognitive availability for the imagined outcome results in an increase in its perceived probability. In other words, affect

interacts with cognitive availability to make the pretence scenario seem more likely. Second, the possibility that the pretence is real is not subjected to the rigorous reality testing that one might suppose occurs where neutral entities are involved because, as noted in our original paper, affect (and increased cognitive availability) draws the child's attention to the pretence, away from aspects of reality that might otherwise reassure them that the entity is not real. Finally, the child's threshold for entertaining an idea as a serious possibility is lowered and hence, pretence–reality confusion ensues.

The evidence currently available does not permit us to choose between the three interpretations of the affect–availability interaction that are outlined above. However, the level of speculation evoked by our original paper and by the commentaries on it, strongly suggests that a major research priority must be to establish the true nature of the role of affect in pretence–reality confusions. Addressing this issue might then lead us towards a fuller understanding of the nature of the individual and developmental differences that have been observed in children's propensity to confuse pretence with reality.

The final issue that we shall address, was raised by Ruffman (this issue) and Harris (this issue). Both authors highlight the difficulties that children sometimes have in recalling the source of ideas and memories. To illustrate, Foley, Harris and Hermann (1994) found that 3- to 5-year-old children often claimed to have really played with a toy that they had in fact only pretended to play with (see also Johnson, Hashtroudi & Lindsay, 1993; Woolley & Bruell, 1996). As Harris argues, once ideas are in our mind we do not necessarily remember their source; thus children might treat ideas from pretence and other people's testimony with as much credulity as they would treat knowledge obtained from direct experience. Clearly such source-monitoring difficulties might contribute considerably to children's understanding of the pretence–reality distinction. Being unable to recall whether one saw a monster in a box or merely pretended it seems to us to be highly likely to cause uncertainty about the pretence–reality distinction.

This is an important point relating quite clearly to our previous claim that children's tendency to confuse pretence with reality is moderated by their exposure to empirical evidence of reality. Specifically, we argued (Bourchier & Davis, this issue) that children would be less likely to experience pretence–reality confusion when they were exposed to empirical evidence of the outcome of the pretence. However, if the assumption that children are poor at remembering how they gained information is correct, then it could be that evidence gained from direct experience is attributed no greater significance than information gained from pretence or other sources. If so,

perhaps empirical evidence is less influential in children's understanding of the pretence–reality distinction than we had previously assumed. Further research directly investigating children's difficulties with source monitoring in the context of pretence–reality confusions is now necessary in order that we may establish the relationship between the development of memory, cognitive availability, affect and other alternative sources of evidence that might be used by children when making pretence–reality judgments.

In sum, three main themes emerged from the four commentaries on our original article (Bourchier & Davis, this issue). Specifically, the commentaries addressed the issue of whether the evidence genuinely indicates pretence–reality confusion, the nature of the role of affect and the role of source monitoring difficulties in children's understanding of the pretence–reality distinction. Moreover, these issues raised further questions about the nature of individual and developmental differences in children's susceptibility to pretence–reality confusion. Clearly this is a fertile ground for further research, of which much is needed if we are to truly understand the fascinating phenomenon of children's pretence–reality understanding.

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