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**Children's understanding of distinctions between
'real' and 'not-real'**

Louise Bunce

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Abstract

Children's ability to develop an accurate perception of reality, that is differentiate between what is 'real' and 'not-real', is an important issue for research (Harris, 2001). Their understanding of real/not-real distinctions is often assessed using questions containing words such as *real* and *pretend*. This is problematic because these words can be used to refer to two different perceptions of reality: existence and authenticity; for example, a question about whether Father Christmas is 'real' can be interpreted as a question about existence (i.e. whether he exists) or about authenticity (i.e. whether someone dressed-up as him is the genuine Father Christmas). The current studies explored children's use and interpretation of words such as *real* in relation to their understanding of real/not-real distinctions. In Study 1, children's everyday uses of *real* were analysed from parental diary records and this revealed that they described the authenticity of objects and both the authenticity and existence of fantasy characters. This suggested that in experimental tests children may not interpret a question about existence as intended. This hypothesis was supported in Studies 2-4 in which children justified their real/not-real judgements for everyday objects and fantasy characters by referring to aspects of authenticity and existence. In light of these findings, in Studies 5-7 children's understanding of the ontological status of fantasy characters was compared in two different paradigms: one relied on use of the terms *real* and *not-real* (a categorisation task) and the other did not (the Scenarios task, a novel paradigm in which children chose appropriate characters to fulfil certain roles). The results from these tasks revealed that children had a better understanding of the fictional nature of fantasy when the terms *real* and *not-real* were not used, suggesting that previous research has underestimated children's understanding in this domain. The discussion centres on the implications of these results for designing research tasks to assess children's understanding of distinctions between 'real' and 'not-real'.

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Introduction

“Reality (or unreality) is not a simple dichotomy or unidimensional construct. It can be defined at different levels ranging from the reasonable, if simplistic, to the abstractly metaphysical” (Wright, Huston, Reitz & Piemyat, 1994, p.299).

The experiments in this thesis stemmed from consideration of the paradoxical evidence regarding children’s understanding of distinctions between what is ‘real’ and what is ‘not-real’. There are two distinct, albeit related, areas of research in Developmental Psychology that examine the extent to which children hold a realistic conception of the world. One area investigates children’s understanding of pretend-real distinctions and the other examines children’s understanding of the distinction between what is real and what is fantasy. The paradox arises from studies showing that, by the age of 3-years, children can distinguish a mental entity, such as a thought or image, from the real physical object it represents (Wellman & Estes, 1986), but they sometimes experience confusion about the reality status of creatures that they have merely imagined (Harris, Brown, Marriot, Whitthall & Harmer, 1991). Similarly, although children realise that their imaginary companions are ‘not-real’ (Taylor, Cartwright & Carlson, 1993), they believe in the existence of supernatural beings such as monsters, ghosts, and Father Christmas (Rosengren & Hickling, 1994).

Reconciliation of these findings has been a primary concern in this research and factors that have been proposed to account for them are primarily methodological ones. These include: the difference between testing children’s understanding using verbal, as opposed to behavioural, measures; the effect of the context in which the experiment is conducted; the type of entity in question; individual differences; and the real-world

consequences, or lack thereof, of engaging in (un)realistic thinking. This thesis raises another factor that has received little empirical investigation as a possible reason for inconsistencies amongst the findings; that is, the ambiguity of the language used to discuss and question children's understanding of these distinctions. In particular words such as *real* and *pretend* are often used in task commands and/or questions but these have more than one different use.

One use of *real* and *pretend* is to discuss the notion of existence, for example when considering whether Father Christmas or angels are 'real' (i.e. whether they exist) or whether they are 'just pretend'. This is the meaning implied by questions that test children's understanding of the fantasy-reality distinction, such as asking whether witches are 'real' or 'pretend' (Morison & Gardner, 1978). Another use of *real* and *pretend* is to discuss the notion of authenticity, for example when considering whether a wallet has been made from 'real' leather or 'artificial' leather. This is the meaning implied by questions that assess children's understanding of the pretense/reality distinction, such as the one used by Harris, Kavanaugh & Meredith (1994) to test whether children understand that cotton wool, used in a pretense episode to represent milk, is 'real' milk or 'pretend' milk.

These two different uses of *real* and *pretend*, which concern the notions of authenticity and existence, are related because it is not possible to discuss whether something is an authentic version of X if X does not exist. It does not make sense, for example, to consider which Father Christmas (as portrayed in shopping centres at Christmas time) is 'the real one' if one is cognisant of the fact that Father Christmas does not exist. The authenticity of a particular Father Christmas may, however, be a significant concern for children who believe in his existence. Thus although these two

meanings are related they are also distinct and selecting one interpretation rather than the other may lead to a rather different understanding of a particular question or statement.

This thesis explored children's use and understanding of *real* and *not-real* in relation to the notions of authenticity and existence. The aim of Study 1 was to explore children's everyday uses of these words to determine whether they reflect these two notions. Studies 2-4 examined children's interpretation of the terms 'real' and 'not-real' by seeking their judgements and justifications for those judgements with regard to a variety of 'real' and 'not-real' phenomenon. These included real and toy objects such as a real and toy banana (Study 2) and real and fantasy characters such as Bob the Builder and a builder (Studies 3 and 4). These results indicated that children's interpretation of such words in the context of fantasy characters is equally likely to relate to notions of existence as well as authenticity. Therefore in Studies 5, 6 and 7 children's understanding of the nature of existence of real and cartoon characters was examined without using words such as *real* or *pretend* in the procedure. In the final chapter (Chapter 10), the implications of the findings are discussed in relation to designing suitable tasks for testing children's understanding of distinctions between 'real' and 'not-real.'

Chapter 1

Realities and Non-Realities

1.1 Introduction

Much of the story of early cognitive development concerns children's increasing competence at developing a veridical understanding of the world (Harris, 2001). One such component concerns "*finding realities amidst their many guises*" (Woolley & Wellman, 1990, p.946). Two 'guises' that have been popular topics for research are the pretend and the fantastical. The pretense-reality distinction involves a number contrasts about which children need to learn and these can be illustrated using the following examples: pretending that a banana is a telephone (Leslie, 1987); pretending to brush one's teeth by grasping an imaginary toothbrush; and pretending to be a princess by taking on the appearance of one by wearing dressing-up clothes. One of the reasons for the interest in children's understanding of pretense is because children enjoy and participate in pretend play from an early age and it grows rapidly in its frequency and complexity in the second year of life (Bretherton, 1989). Another reason is because the child misconstrues reality in pretense, not by mistake, but by intentionally and meaningfully interpreting things otherwise (Wellman & Hickling, 1993). Finally, children's understanding of pretense is of theoretical and empirical significance because, rather than being 'the staid culmination of intellectual development', it appears 'playfully and precociously' in the very beginning of childhood (Leslie, 1987).

The fantasy-reality distinction involves an awareness of the nature of existence of fantasy beings as well as the nature of the ontological divide between possibilities

afforded in the realm of fantasy and those that are possible in the real world. Children's understanding of the nature of fantasy has also been an important area of research, not least because of the prevalence of fantasy in children's lives: children are exposed to fantasy when reading story books, watching television, going to the theatre, or watching a magic show. Woolley and Van Reet (2006) point out that it is no easy task for children to learn that these events do not necessarily represent reality because effective fantasy offers a 'seamless blend' of the real and the fantastical: for example the 'Harry Potter' novels feature an 'ordinary' boy who is, in fact, a wizard. Another reason why this is an important area of research is because of the negative consequences that have attracted media attention in recent years when a child has been unable to distinguish between fantasy and reality. Woolley (1997) reports the case of a child, purportedly after watching a show in which characters joked about setting things on fire, set a trailer on fire resulting in serious injury.

In this chapter, research is reviewed that has examined children's conceptions of reality, as masked by the pretend and the fantastical. This research is broad in scope and, not surprisingly, there are inconsistencies among the findings. Some studies show that children have a sophisticated understanding of some aspects of these distinctions while others have found that some children experience uncertainty about the reality/non-reality boundaries, for example by acting as if what they have merely pretended can become real. This chapter discusses this research with the aim of establishing why these inconsistencies are present, as well as describing theoretical and methodological attempts at reconciliation. First, however, a description of the traditional classification of young children's awareness of reality will be presented.

1.2 *The traditional view of children's conception of reality*

"The child is a realist in its thought and its progress consists in ridding itself of this initial realism" (Piaget, 1929, p.166).

The traditional view of young children's conception of reality, as exemplified in the above quote, was negatively described as global and undifferentiated (Subbotsky, 1992). This stance, which has dominated developmental research for much of the last century, is rooted in the clinical observations of children amassed by Jean Piaget (1896-1980). Piaget (1929) proposed that young children are dominated by the mode of *egocentric* thought. This form of thought is characterised as a failure to recognise basic limits between self and the external world, leading to *"perpetual confusions between objective and subjective, between the real and the ostensible"* (Piaget, 1929, p.34).

Egocentric thought was interposed by Piaget between *autistic* thought and *logical* thought, echoing the distinction made by Freud (Freud, 1961). Freud argued that *autistic* thought characterises the early mental processes of infancy that are dominated by the pleasure principle, which seeks the fulfilment of biological needs (Freud, 1961). The emergence of *intelligent* thought occurs later in development. This mode is guided by the reality principle and is concerned with establishing a rational and objective view of reality. According to Piaget (1959) *intelligent* thought is conscious, meaning that it is adapted to reality and logical. *Autistic* thought on the other hand, is subconscious, not adapted to reality, and is dominated by wishful thinking. *Egocentric* thought, therefore, is characterised by a failure to differentiate fully between self and the outer world: real is simply what is desired.

Piaget devoted much attention to one early mode of egocentric thinking, symbolic, or pretend play. Piaget saw the enactment of symbolic play as the beginning of one of two processes of differentiation between realities (the other being the development of language). In symbolic play Piaget describes how one thing is symbolised by another by means of an object or of a gesture that is removed from the real situation, for example a child pushing a box and imagining it as a car is symbolically representing the car by the box (Piaget, 1962, p.112). Thus the symbol-object (the box) is not only the representative of the signified (the car) but also its substitute. Piaget viewed symbolic play as egocentric thought in its 'pure state' because the signified is "*an assimilation of reality to the ego, rather than an objective adaptation of the mind to things*" (Piaget, 1959, p.266). Thus Piaget's view of symbolic play was that it is initially used to signify reality, as also seen in his example of a child who, pretending to sleep, signifies the real act of going to sleep. Piaget, however, saw pretense as "*a tool, and a poor one at that, for the assimilation of reality*" (Piaget, 1962, p.71) and when the child can accommodate reality more effectively (at around the age of 7-8 years), symbolic play is discarded.

In the traditional Piagetian view, therefore, symbolic play was characterised as a negative activity and one that was destined to give way to more logical and rational modes of thought. As Leslie (1987) points out, however, if the function of symbolic representations were to reflect reality then pretense creates a problem because pretense can, and often does, distort reality. Thus Piaget probably underestimated pretense as a behaviour that may actually facilitate children's understanding of reality (Harris, 2000). Nonetheless, his ideas serve as an important starting point from which to explore current evidence concerning children's comprehension of pretense.

1.3 Current views on children's conception of the pretense-reality distinction

1.3.1 Children's understanding of symbolic pretense

Recent years have witnessed a growing body of research examining children's understanding of symbolic pretense. The characterisation of pretend play offered by Harris and Kavanaugh (1993) differs considerably from that of Piaget. While Harris and Kavanaugh (1993) agree with Piaget that "*real events ... are often re-enacted in a distorted form during make-believe*" (p.72), they view pretend play as an activity which is lifelong and imaginative, just like "*the imagination that we all exercise when we entertain fictional possibilities*" (Harris, 2000, p.27).

Harris and Kavanaugh (1993) conducted a series of experiments to explore children's ability to comprehend pretense actions during shared pretense. Children were presented with a pretense scenario in which the experimenter populated two empty containers with make-believe cereal or tea. Then they asked the children to feed an animal with one of the make-believe substances, and they found that even children as young as 2-years had no difficulty doing so. Similarly, when the experimenter introduced a make-believe substitution in Experiment 2 (e.g., treated wooden blocks as bananas) children appropriately extrapolated that substitution onto new props (blocks) in order to feed an animal. Harris and Kavanaugh (1993) argued that this ability for identity extrapolation is important because it provides a basis for 'discovering fictional truths' rather than just 'inventing' them. Furthermore, children showed flexibility towards such make-believe identities by, for example, directing different pretend actions (stirring tea or brushing teeth) to the same prop (a stick) depending on the make-believe identity that was conferred on it by the ongoing pretense episode (breakfast time or bedtime)

(Experiments 3 and 4). Experiment 5 included familiar transformations embedded in unexpected causal sequences, for example, children watched a naughty teddy pouring make-believe tea over a pig. Then children were asked to 'dry the pig who is all wet' and they were handed a towel. The results showed that children could produce an appropriate remedial action as well as describe what had happened with appropriate nonliteral language (Experiments 6 and 7). Thus by using an empirical method, (rather than relying on observations as did Piaget) Harris and Kavanaugh (1993) revealed that young 2-year-olds display considerable competence at understanding make-believe stipulations. This lead Harris (2000) to the conclusion that, in contrast to Piaget's suggestion, pretend play is not an early distortion of the real world but "*an initial exploration of possible worlds ... [leading to]... a lifelong mental capacity to consider alternatives to reality*" (p.28).

A recent review of the pretense-reality literature, conducted by Bouchier and Davis (2002) supports the view that children possess a sophisticated body of knowledge in the realm of pretense. They discussed studies showing that 3-year-olds understand object substitution in pretense, that is 3-year-olds can reliably state what an object really is and what it was pretended to be. Flavell, Flavell and Green (1987), for example, found that young children correctly stated that, although the experimenter was pretending a sponge was a truck, it was really a sponge. Children's memory for objects that they have used in different pretense episodes was also reviewed (e.g. Gopnik & Slaughter, 1991; Amsel, Bobadilla, Coch, & Remy, 1996). Those studies revealed that 3-year-olds were able to recall the real and pretend identities of items that they have used in pretense: Gopnik and Slaughter (1991), for example, found that 3-year-olds correctly remembered that they had used a stick as a spoon even though they had also pretended that it was a magic wand.

More recently Ma and Lillard (2006) examined the ability of 2- and 3-year olds to make the pretend-real distinction but in the absence of content cues. Children watched video clips of two actors, one of whom was really eating and the other who was pretending to eat, but in neither case was information about the content of the action available. That is, the children could not see whether there was real food present or not in both clips. In front of the viewing screen, there were two containers on a table, one underneath each of the two actors. After viewing each clip, the child was asked: "*Where are the real grapes (cheese, cake, or raisins)?*" They had to retrieve the real food by choosing one of the containers (Experiment 1) or point to the container with the real food (Experiments 2 and 3). The findings suggested that by the age of 2½ years, children start to interpret behavioural cues to pretense correctly; in the study they distinguished between real and pretend acts even when content information was not available. Even the youngest 2-year-olds, despite choosing the containers at random, showed some degree of discrimination among the pretend and real acts as judged by their spontaneous reactions: they engaged in more reaching towards the real food and showed a greater desire for eating in response to the real act than in response to viewing the pretend act.

To summarise, researchers have been interested in children's understanding of pretense because it is a frequent behaviour that appears precociously in early childhood. Contrary to the limited Piagetian view (Piaget, 1962) in which pretense was researched as a symbolic behaviour in which one object is represented with something else, pretense is now seen as an important first step towards the development of an understanding that the world can be represented differently from the way in which it is really. Recent empirical evidence has revealed that, rather than pretense being a 'poor tool for the assimilation of reality', children possess a sophisticated mastery of knowledge in this area; they can apply their causal knowledge to make-believe stipulations to infer the outcome of a

pretense act (Harris & Kavanaugh, 1993); they can recall the real and pretend identities of objects that they have used in pretense (Flavell et al., 1987; Gopnik & Slaughter, 1991) and they can identify real and pretend acts in the absence of content cues (Ma & Lillard, 2006).

1.3.2 Children's understanding of imaginary pretense

A fuller understanding of pretense, however, also involves knowledge of its imaginary and/or hypothetical nature and this can be seen in Perner's (1991) illustration of the distinction between symbolic and imaginary pretense. To describe symbolic pretense, he gives the example of a General who *pretends* that the sticks in the sandbox are his soldiers. The second example, which describes imaginary pretense, is of a lazy employee who 'acts on Monday as-if it were Sunday'. Although Piaget conceded that children sometimes use pretend play to represent hypothetical or non-existent possibilities¹ current research has explored children's comprehension of imaginary pretense more fully. The findings in this area are hard to make sense of: some studies show that children possess a sophisticated understanding of imagination and reality and others show that children experience apparent confusion (Woolley, 1997). These findings will now be described with a focus on the explanations that have been put forward to account for inconsistencies among them.

Research on children's understanding of imaginary or nonexistent pretense has primarily examined the extent to which they hold seemingly unrealistic or magical beliefs about the power of the imagination. As stipulated by Woolley and Phelps (1994), there are three sets of beliefs about the imagination to which adults subscribe and hence

¹ For example, Piaget describes how Jacqueline aged 28 months, having been told that she could not play with the water intended for washing, stood beside the tub and pretended to pour water with an empty cup (1951, p.131).

children must learn. The first is in terms of the origins of the imagination: adults understand that the imagination arises internally and wilfully from the imaginer and without necessary origins in the real world. The second set of beliefs is in relation to the nature of imagined entities: adults realise that imagined entities differ in important ways from physical entities. Finally children need to learn about the extent to which imagination differs in its level of correspondence with the real world: adults do not expect that imagination purports to represent reality truthfully.

One of the first studies to re-examine Piagetian notions of childhood realism in relation to the nature of the imagination was conducted by Wellman and Estes (1986). They investigated children's understanding of the nature of imagined entities to determine whether children realise that they differ from their correspondent real entities. Wellman and Estes (1986) proposed that three criteria are necessary to show an awareness of this aspect of the imagination, or mental-real distinction: first is behavioural-sensory evidence, i.e. knowledge of whether the entity can be seen, touched, or physically acted upon; second is public existence, i.e. whether other persons experience the entity; and the third is consistent existence, i.e. whether the entity consistently exists over time.

The experiment by Wellman and Estes (1986) was one of the first to show that young children do not hold "*the extreme ontological view that mental entities are essentially the same as their corresponding real objects*" (p.911). In Experiment 1, Wellman and Estes (1986) showed 3-5-year-olds eight pairs of mental-real contrasts, e.g. a boy thinking about a cookie versus a boy who has a cookie. For each contrast children were asked questions such as whether the cookie could be seen (behavioural-sensory evidence), and whether the cookie could be eaten tomorrow (consistent existence) and Wellman and Estes (1986) found that the majority of children were consistently correct

by not attributing real status to mental entities. Children also had to sort the entities into categories of 'real' and 'not-real' and they were 88% correct overall (Experiment 2). These results led Wellman and Estes (1986) to conclude that children's performance at distinguishing reality from mentality was 'near perfect'. They also noted that some children spontaneously used the terms *real* and *really*, thus confirming that the mental-real distinction is understood by young children when asked about it directly.

Finally, Wellman and Estes (1986) asked children about nonexistent or impossible entities. The aim was to confirm that children did not just possess a negative conception of mental terms and truly understood the mental-real distinction. For example, children were asked to judge the reality status of a dog that rolls over (real) versus a dog that flies (nonexistent), and whether one can dream about these entities. Again, children consistently correctly indicated those entities that were 'real' and those that were 'not-real' as well as correctly stating that it is possible to dream about imaginary, not-real things. Wellman and Estes (1986) concluded that 3-year-olds have already acquired an important first step towards an understanding of the imagination-reality relationship by being able to differentiate imagined entities from their real counterparts.

In another experiment Woolley and Wellman (1993) looked at children's perceptions of the origins of pretense and the imagination and imagination-reality correspondence. They found that 3-4-year-old children understood that perception is not required for imagination but that perception is necessary for knowledge. The children also realised that knowledge represents reality more truthfully than does the imagination. Despite this, Woolley and Wellman (1993) also found that about half of the 3-year-old children mistakenly believed that reality would match what had been merely imagined by a story character. For example, a story character imagined that there was a red bear

inside an empty box and children indicated that the character would find one inside if it was opened. In a second experiment, Woolley and Wellman (1993) asked the children themselves to imagine that an object such as a pencil was inside an empty box. A similar number of children to the first experiment also claimed that they would find a corresponding real object inside the box. Woolley and Wellman (1993) concluded that 3-year-olds have yet to develop an adult understanding of the nature of the correspondence between imagination and reality because they consistently responded as if imagined contents reflected the real contents of the box.

An important concern with these types of studies, however, is that children's emotions may interfere with their competence at distinguishing between imagination and reality. Woolley and Wellman (1993) rule out this possibility, however, because in Experiment 2, mundane everyday items were used which would not have evoked an emotional response. The authors do note though that, with regard to methodology, a classic concern is whether the data only reflect children's understanding of certain words or expressions. This is an important acknowledgement and one that will be explored further in Chapter 2.

To summarise, initial findings indicate that children understand important aspects about the origins of pretense and the imagination and the nature of imagined, or pretend entities. Evidence regarding their understanding of imagination- or pretense-reality correspondence, however, lends support to Woolley's (1997) suggestion that children, in comparison to adults, live in a world in which pretense and reality are more entwined. In attempts to reconcile these findings, several researchers have designed different tasks in order to explore children's beliefs about the level of correspondence between imagination pretense and reality. A popular method involves observing children's approach to boxes with which they have populated imaginary/pretend entities.

The first experiment to utilise this design was conducted by Harris et al., (1991) in which their aim was to explore children's understanding of the pretend status of imaginary entities.

Harris et al., (1991) first tested 4- and 6-year-old children's understanding of the reality and visibility of a variety of different entities including ordinary objects (e.g. a cup), imaginary ordinary objects (e.g. an imaginary cup), and supernatural imagined entities (e.g. a witch that flies). Upon being asked whether each entity could be publicly seen and was real, the majority (between 86% - 90%) of responses were correct. Next, instead of asking children to imagine entities inside their head, children had to populate two boxes, one with an imaginary puppy and the other with an imaginary monster. Children had to decide which box they would want to put their finger in and decide whether they would prefer to use a stick instead of their finger. Next the children were asked about the reality status of the contents of each box and then they actually had to explore the box of their choice. Although the children largely insisted that the imaginary monster in one box was pretend, they did not choose to approach the monster box, but when they did, they preferred to use the stick and not their finger. In Experiment 4, children's behaviour towards the boxes was observed in the experimenter's absence through a camera. This was done to rule out the possibility that demand characteristics affected children's behaviour. Upon the experimenter's return, children were questioned and their replies revealed that they were uncertain about the reality of the box contents, which was in line with their behaviour. Harris et al., (1991) concluded that "*Children systematically distinguish fantasy from reality, but are tempted to believe in the existence of what they have merely imagined*" (p.105).

Several authors have criticised the study by Harris et al., (1991) on the grounds that children's behaviour towards the boxes may have been due to factors other than their

belief in the existence of the creature that they had just imagined. Golomb and Galasso (1995) suggest that other potential factors might include children's continued engagement in the pretense, a lack of alternative play activities available, or due to suspicions of trickery on the part of the experimenter. In a replication of Harris et al., (1991) Golomb and Galasso (1995) similarly found that most children initially claimed that the monster was pretend. In contrast, the comments and behaviour of children who opened the boxes suggested that this was as a continuation or elaboration of the pretense theme and not the result of a cognitive breakdown between reality and pretense.

Despite this, Golomb and Galasso's (1995) experiment has been criticised because the presentation of toys and clear termination of the pretense theme were confounded (Bourchier & Davis, 2000a). This means that it is uncertain as to which of these two factors accounts for their findings. Another problematic aspect of Golomb and Galasso's (1995) study was that the experimenter remained in the room with the child. As showed by Subbotsky (1994), the presence or absence of an adult can have a substantial effect on children's behaviour, with the presence of an adult often inhibiting unrealistic thinking. It is also feasible that fewer children opened the boxes for fear of being naughty (Bourchier & Davis, 2000a).

Another limitation of the studies by both Harris and colleagues (1991) and Golomb and Galasso (1995) is that the entity that children were asked to imagine or pretend was in the box (a monster) is a negatively emotionally charged entity (Bourchier & Davis, 2000b). Experiments conducted by Rozin and colleagues (e.g. Rozin, Millman & Nemeroff, 1986; Rozin, Markwith & Ross, 1990) show that, even for adults, despite being fully aware of reality emotional reactions exert a strong influence over behaviour. In one experiment (Rozin, Millman & Nemeroff, 1986) adults witnessed two empty bottles being filled with tap water and then the adult had to give one a label saying

'sugar' and the other one a label saying 'cyanide'. Next, the adults were asked which bottle they would drink out of and strikingly, they preferred to drink from the bottle that they had labelled 'sugar'. Returning to the studies by Harris et al., (1991) and Golomb and Galasso (1995) it is possible that children's responses were the result of an emotional reaction to the situation rather than a conceptual confusion about reality. Golomb and Galasso (1995) even note that children's behaviour indicated real fear in the monster condition, despite clearly stating that monsters were pretend.

Leaving aside the possible influence of emotions on children's pretense-reality understanding, a factor examined by Woolley and Phelps (1994) was the effect of the situation. They hypothesised that children would show an understanding of the correspondence between imagination and reality when the situation encouraged a practical response. They utilised an extension of the box paradigm designed by Harris et al., (1991) by adding two extra boxes making a total of four. One box contained a real item, a second box contained an imagined counterpart of the real item, the third box was empty, and the fourth box remained unopened. During the test session, after one box had been populated with a real sock and another with an imaginary sock, a confederate entered the room and requested a sock in terms of a real-world need. If the child offered a box, the confederate asked whether the child was sure that there was a sock inside and whether it was a real sock or a pretend sock. Almost all children gave the confederate the box containing the real sock and most children gave accurate answers to the questions. This supported their hypothesis that the practical situation enabled children to understand that imagination cannot create reality. The 3-year-olds, however, responded affirmatively to the question about whether there was really a sock in the box in which a sock had been imagined significantly more often than the older children. Thus, younger children were somewhat more uncertain about the relation between their imagination and

physical reality than older children, but Woolley and Phelps (1994) proposed that this depends critically on the child's perception of the practical or fantastical nature of the situation.

Another possibility that has been investigated by Woolley (1997) concerns the effect of the type of entity on children's ability to think realistically. Woolley (1997) hypothesised that children may be more likely, for example, to believe that they can create a fairy or a monster with their imagination than they can create a cookie or a sock. In the experiment by Wellman and Estes (1986) in which the entity (a cookie) was an ordinary everyday object children understood that mental entities are not real. In contrast, in the experiment by Harris et al., (1991) in which some children incorrectly expressed a belief that imagination can create reality, the imagined entities were supernatural (monsters, ghosts, and witches). Bouchier and Davis (2002), however, point out that this explanation is unlikely because younger children also sometimes confuse ordinary imagined items such as a pair of socks (Woolley & Phelps, 1994).

1.3.3 Summary

Previous research has explored children's knowledge of the reality status of pretend and imaginary entities and the evidence regarding their understanding is mixed. On the one hand, Wellman and Estes (1986) have argued that children understand important differences between imagined entities and their real counterparts and Woolley and Wellman (1993) suggest that children also understand the nature of the origins of their imagination. When it comes to understanding the level of correspondence between imagination or pretense and reality, however, a rather different picture emerges. A number of studies (e.g. Harris et al., 1991; Woolley & Phelps, 1994) suggest that some

children are confused about the reality status of real and supernatural entities that they have merely imagined.

Woolley (1997) has argued that children's ability to understand the boundary between the real and the imagined may be affected by the type of entity while Woolley and Phelps (1994) proposed that the nature of the situation is important. In their view, differences in performance across studies can be explained by specific factors concerning the choice of entity and experimental context. A rather different suggestion, however, has been made by Golomb and Galasso (1995) who argued that behaviour showing apparent pretense-reality confusion has been misinterpreted: children's behaviour is merely a continuation of the pretense set up by the experimenter and not the result of a cognitive breakdown between pretense and reality. None of these suggestions, however, sufficiently explain why some studies conclude that some children understand that imagination cannot create reality and others propose that children do not understand this.

1.4 Theoretical explanations for inconsistencies in results

As outlined above, various methodological explanations have been offered to account for the range of findings emerging from studies investigating children's understanding of imaginary pretense and reality. There are, however, two enduring theoretical accounts that have been the centre of much of the debate in this area. The first account evolved from the observation that the discrepancy among the findings seems to be the direct result of the dependent measure used, i.e. between children's verbal responses and their behavioural reactions. In the experiment by Harris et al., (1991) children's initial responses to questions revealed an apparent understanding that monsters are pretend, but their later behavioural reactions suggested that they believed otherwise. The second, and

more widely accepted account, comprises two complimentary hypotheses referred to as the Availability hypothesis and the Transmigration hypothesis (Harris et al., 1991). The Availability hypothesis stipulates that imagining an outcome increases the perceived likelihood that it will occur. This explains that some children in the study by Harris et al., (1991) responded as if they believed that their imagination created a 'real' entity inside the box because the idea was mentally available. Other children, i.e. those who were able to resist the effects of availability responded correctly, i.e. that there was no monster in the box. In contrast, the Transmigration hypothesis suggests that some children may be uncertain about the rules that govern the transformation or 'transmigration' of entities between reality and pretense. This would lead credulous children to hold the belief that reality can be affected directly by the imagination but causes other children to be sceptical about mind-world relations. The availability hypothesis and transmigration hypothesis, therefore, focus on individual differences among children to account for the inconsistencies in findings.

1.4.1 The verbal/behavioural account

Returning to the first account, this proposes that the discrepancy between findings is caused by the differences between measures used, i.e. verbal and behavioural. This account originated from Subbotsky's (1985) suggestion that children's verbalisations and behaviour may reflect two distinct and inconsistent belief systems: verbalisations reflect everyday beliefs that differentiate between fantasy and reality while behaviour portrays a second set of beliefs that permits extraordinary transformations to occur. To test this idea, Subbotsky (1994) told children aged 4-6-years a story about a magic box that could transform pictures into objects when magic words were recited. Children were then asked whether this type of transformation could happen in reality and the majority of

them denied that it could. The experimenter then made an excuse and left the child alone in the room which contained a box similar to the one described in the story. Incredibly, 90% of the children attempted a transformation using the same magic words as dictated in the story. Subbotsky (1994) therefore concluded that this revealed the existence of two inconsistent belief systems as demonstrated by children's scientific verbal responses and subsequent irrational actions.

Bourchier and Davis (2002), however, argue that the verbal-behavioural explanation should be dismissed. They observed that in Harris et al., (1991) children initially labelled the imagined entities as pretend. During the post-task interview, however, some children also reported having wondered whether they might find the imagined entity inside the boxes. This suggests that the results were not a consequence of using verbal or behavioural measures because children were inconsistent in their verbal responses. In fact, Harris et al., (1991) acknowledge that it would be tempting, but wrong, to conclude that the results reflect a difference between verbal and behavioural responses.

1.4.2 The Availability hypothesis and Transmigration hypotheses

One of the explanations proposed by Harris et al., (1991) was that by imagining X, the subjective likelihood that X will happen increases, regardless of the type of imagined entity (i.e. ordinary object such as a cup or a supernatural entity such as a monster). They state that there are two possible ways in which the subjective likelihood may be increased: the Availability hypothesis or the Transmigration hypothesis. The availability hypothesis is based on the 'availability heuristic' proposed by Tversky and Kahneman (1973) who argued that instances from large classes of events are easier to recall than those from smaller classes. For example, an adult who can easily bring to mind a plane

disaster is likely to rate the likelihood of a similar disaster as higher than someone who cannot bring to mind such an event. By extension, if the idea that an imagined entity is in a box is readily available, then this should increase the subjective likelihood of it happening. Depending on the appraisal process of assessing the likelihood, imagining a monster or a puppy inside a box may tempt some children to open the boxes as they did in Harris et al's., (1991) experiment because the idea was mentally available.

The other explanation advanced by Harris et al., (1991) was the Transmigration hypothesis. This explains that children may be uncertain about the causal relations between mind and reality and the rules controlling the transformation or transmigration between the two realms. This hypothesis suggests that the children in the studies could distinguish real entities from mental entities but no paradox is involved because they simply did not understand mind-world relations sufficiently to know that an entity conceived in one world cannot migrate to the other.

Johnson and Harris (1994, Experiment 3) conducted an experiment that provides evidence concerning these explanations. Using a similar design to Harris et al., (1991) they sought to establish whether there was a link between children's behaviour when left alone and their replies in a post-test interview. They presented 4- and 6- year olds with two boxes and the children were told to check that they were empty. After establishing this, children were then asked to imagine a pretend entity (a fairy or ice-cream cone) inside one box while other box remained neutral. Then they were asked if they thought that there was really an X inside the box or whether they were just pretending. The majority of children (84%) responded accurately to this question, i.e. they realised that they were just pretending. Then the experimenter left the room for two minutes and, during this time, Johnson and Harris (1994) found that some children explored the boxes. Upon the return of the experimenter, children were questioned about

their behaviour. As a result of children's replies, they were classified as credulous or sceptical. Credulous children were more likely to open the pretend box, admitted wondering whether the entity was inside, and justified the possible presence of the entity by invoking magical causation. Sceptical children on the other hand, did not tend to open the boxes and they insisted that they were empty. Thus, similarly to Harris et al., (1991), children's initial verbal responses indicated that they understood the imaginary status of the entity but the behaviour of credulous children suggested pretense-reality uncertainty.

To explain these findings, Johnson and Harris (1994) first ruled out the Transmigration hypothesis on two grounds. The first was that children's justifications rarely implied that the imagination has generative power sufficient to transform imaginary objects into real ones; the second was that confusion about the power of the imagination was not widespread in their interview replies. Johnson and Harris (1994) provide what they judge to be a better explanation that rests on two hypotheses. The first is Subbotsky's (1985) assumption that children have two inconsistent belief systems. These allow young children to accept that extraordinary transformations might occur even if they are wary of admitting such beliefs aloud. The second is the Availability hypothesis: given that children have imagined an entity in the pretend box, this possibility is easily brought to mind and judged as more likely than it might otherwise be judged. Hence, children will be disposed to think that the imagined entity is in the pretend box and not the neutral box. Combining these two assumptions, once a possibility has been made available, it is either accepted or suppressed by the child's dominant belief system.

These assumptions do not imply that children are confused about the power of the imagination. Instead, they imply that "*the imagination provides a breeding ground for magical fantasies: these fantasies may be opposed by the child's common-sense principles, or bolstered by latent magical principles*" (Johnson & Harris, 1994, p.47). By

implication, Johnson and Harris (1994) are claiming that the results cannot be explained in terms of a simple dichotomy between children's verbal responses and their behaviour. Woolley (1997), however, argues that children's responses in post-task interviews might not reflect true imagination-reality confusion. This is because children may feel compelled to offer an explanation for their irrational behaviour and do so by relating to the pretense. She also argues for the possibility that behavioural measures capture emotional responses rather than cognitive understanding. This means that behaviours apparently representing fantasy-reality confusion have been misinterpreted as reflecting a conceptual misunderstanding when they are simply capturing an emotional reaction. Woolley (1997) remains convinced that verbal-behavioural discrepancies may still provide part of the explanation for contradictions in the results.

Furthering this debate, Bouchier and Davis (2000a) conducted an experiment designed to test the increased cognitive availability hypothesis as an explanation for children's box opening behaviour. In the study by Bouchier and Davis (2000a) two methods were used to increase cognitive availability: a pretense task and a picture task. In the pretense task children had to populate the boxes with imaginary contents and in the picture task children had to place pictures of animals inside the boxes. In each task, the child pretended about or used a picture of three different entities: one was an animal that the child would 'really like to hold'; one was an animal that they would 'really not like to hold', and one was an animal that they 'would not mind if they held'. Next children were asked which boxes they would open, hypothetically and then their behaviour was observed. Also, they were asked about which boxes they would discard hypothetically, and then their discarding behaviour was observed. Finally, the experimenter departed after making an explicit end to the pretense and children's behaviour towards the boxes was observed.

Bourchier and Davis (2000a) found that children's behaviour in the picture and pretense tasks did not differ. This suggested that box opening behaviour was not a continuation of a pretense theme as proposed by Golomb and Galasso (1995) because children also opened the boxes after placing pictures inside them. Instead, the results supported the availability hypothesis because both imagining animals inside boxes and putting pictures of animals inside boxes increased the cognitive availability of the possibility that the entities might be inside the boxes. This then led to behaviour indicative of pretense-reality confusions.

To examine why some, but not all children were susceptible to this confusion, Bourchier and Davis (2000a) drew upon the distinction made by Johnson and Harris (1994). Recall that Johnson and Harris (1994) argued that there are credulous children who are susceptible to pretense-reality confusion (resulting from the effects of availability) and sceptical children who are not. Bourchier and Davis (2000a) compared children's behaviour during the pretense and picture tasks on a within-subject basis with their behaviour in the absence of the experimenter. These results indicated that children's box opening behaviour in the absence of the experimenter was related to their response patterns in the presence of the experimenter: children who opened the boxes in the experimenter's absence approached the positive entities and avoided the negative entities. Finally, age differences in the number of children who opened the boxes when the experimenter left the room casts doubt on Johnson and Harris' distinction between credulous and sceptical children. This was because more 6-7-year-olds than 4-5-year-olds opened the boxes in the absence of the experimenter, thus it seems counter-intuitive to suggest that older children were more credulous. Instead, Bourchier and Davis (2000a) proposed that these 'credulous' children may have been suspicious of the experimenter leaving the room and examined the boxes to see whether they were about to

be tricked. Regardless of the reason, it remains that the effects of increased cognitive availability might not be the sole cause of children's behaviour.

1.4.3. Summary

To conclude debates about children's understanding of the power of the imagination have centred on explaining their sometimes apparently irrational behaviour towards imaginary entities they themselves have created. One tempting explanation is that dependent measure used is responsible: when asked directly, children tend to state that imagined entities are pretend or 'not-real' but when their behaviour is observed towards boxes populated with imagined entities, it indicates an uncertainty. Both Subbotsky (1985) and Woolley (1997) are proponents of this view, however, Harris et al., (1991) argued that children's verbal responses post-test also portrayed a belief that what they had imagined may become real. Currently, the Availability hypothesis coupled with individual differences in credulity appears to offer the best explanation (Bourchier & Davis, 2000a). This account proposes that imagining a possibility increases the perceived subjective likelihood with which it is thought to occur and that individual differences in children's level of credulity explains why some children are susceptible to availability effects and others are not. This explanation, however, does not explain the finding obtained by Bourchier and Davis (2000a) that the majority of children still opened boxes before any possible box contents had been stipulated, thus minimising the potential for experiencing increased cognitive availability. The evidence, therefore, relating to children's success and failures at maintaining the distinction between pretense and reality does not fall neatly into 'a simple dichotomy' between verbal and behavioural dependent measures and nor can the available theoretical accounts independently predict or explain children's performance across the studies (Bourchier & Davis, 2002).

1.5 Children's understanding of the fantastical

"Children know such a lot now. Soon they don't believe and every time a child says 'I don't believe in fairies', there's a fairy somewhere that falls down dead." Peter Pan, by J. M. Barrie.

Leaving aside for a moment the issues surrounding children's understanding of imaginary pretense another important guise of reality that children need to master is the fantastical. Research in this area has focused on the extent to which children understand the ontological nature of fantastical beings and fantastical events. As will be seen, similar issues that beset the research on children's understanding of imaginary pretense are also evident here. In particular, this includes the discrepancy between competencies attributed to children when different dependent measures are used.

In some studies, children are portrayed as believing in the existence of fantasy beings, as commonly assessed through their performance on categorisation tasks in which they are required to sort characters or events as 'real' or 'pretend' (see, e.g. Morison & Gardner, 1978; Samuels & Taylor, 1994). More recently, however, studies have shown that children are more adept at making the fantasy-reality distinction than previously thought. As an example, in a study by Sharon and Woolley (2004) children differentiated fantastic and real entities on the basis of the properties to which they assigned to each type of entity. As discussed previously methodological differences among studies are critical to understanding why there are differences among the findings.

1.5.1 Children's understanding of the reality status of fantasy characters

The original method used to test children's understanding of ontological status was primarily categorical. An experiment conducted by Morison and Gardner (1978) examined the extent to which the fantasy-reality distinction is available to and used by children as a means of classification. They also sought to determine what characteristics of fantasy beings highlight their fantasy or reality status and encourage classification on that basis. In the first part of the study, children at Kindergarten age (preschoolers) to Grade 6 (11-12-year-olds) were shown pictures of fantasy characters that they had to pair with one of two alternatives, e.g. they were shown the Sesame Street character 'Big Bird' and asked to pair it either with another cartoon character ('Mickey Mouse') or a non-fantasy figure from the same category (a real bird). The results showed that the number of fantasy pairings increased with age, although the non-fantasy pairings from the same category exerted a stronger attraction for all age groups except the 6th Graders. Fantasy pairings were also more likely when both fantasy figures were from popular culture than when one was from fairy tales. Furthermore, when the competing mode of response was categorical compared to functional, for example when 'witch' was presented with 'fairy' (categorical) and 'broom' (functional) children were more likely to pair 'witch-fairy' rather than 'witch-broom'. Finally, children's explanations for their classifications were sought and this showed that there was a significant increase with age in the number of 'fantasy' responses. These were also more likely when the characters were from fairy tales than when they were from popular culture, for example, children explained that: *"Both are fake characters", "They're not-real" and "Because you don't see them roaming around everyday"*.

In the second part of the study, children had simply to categorise each character as 'real' or 'pretend'. Morison and Gardner (1978) found that there was an improvement

with age in the number of characters classified correctly, but more mistakes were made by relegating fantasy characters to the realm of reality than by labelling real entities as pretend.

The focus of a similar experiment by Prawat, Anderson and Hapkiewicz (1985) was on children's verbal judgements concerning the reality of pictures of monsters. Children aged 4-, 7-, and 10-years were shown various monster pictures and they had to indicate which monsters were 'real' and 'not-real' and justify their choice. There was substantial agreement among the children that the 'most real' monster was the one with the most human looking hands, feet, and facial features. The majority of children's explanations for their classifications focused on the visible features of the monster, although some added an evaluative comment about the feature. The explanations also revealed, contrary to expectation that the younger children did not attend to the more global or affectively salient features of the monsters compared to the older children. This suggested to the authors that the younger children appeared to be as objective in their judgements as the older children.

Other studies have relied on categorical measures to examine children's differentiation of real and fantasy events. An experiment by Taylor and Howell (1973) required children to determine whether various events could 'really happen' or not, such as a rabbit baking a cake versus a mother bird feeding its young. Three-year-olds had considerable difficulty differentiating real from fantastical events but the 5-year-olds reliably discriminated the pictures of events. Samuels and Taylor (1994) found similar results when they assessed the effect of emotion on children's ability to discriminate real and fantasy events: younger children claimed that fantasy events were as likely to occur in real life as in dreams, and when a real event was negatively emotionally charged, children were more likely to assign it to the realm of fantasy.

Children's fantasy-reality classifications were also explored in a more recent study by Harris, Pasquini, Duke, Asscher and Pons (2006). First they asked children aged between 4- and 8-years-old to assess how *other* people would reply if they were asked: "*Are there really __ in the world?*" The response options were 'all yes', 'all no' or 'some yes and some no'. Children had to consider four classes of entities: real (e.g. wolves and tigers), scientific (e.g. germs and oxygen), extraordinary (e.g. angels and ghosts), and impossible (e.g. flying pigs and barking cats). The majority of children responded by indicating that everyone would think that there are really real and scientific entities in the world but not impossible entities. For the extraordinary entities, however, there was a difference between the older and younger children: only the older children recognised that people disagree about their existence whereas the 4-5-year-olds tended to select the 'all no' category, indicating that they thought there would be no disagreement among respondents.

In Experiment 3, Harris et al., (2006) explored 6-year-old children's judgements about extraordinary entities more closely. They divided this category of entities into credible beings, i.e. those whose existence is presupposed in testimony (such as God), and incredible beings, i.e. those who are rarely treated as existing in testimony (such as ghosts and mermaids). Children had to judge whether they themselves thought the entity was 'really in the world', as well as indicate their certainty rating and justify their response. They also had to judge how other people would judge the reality status of the entities and whether they themselves know what the entities look like.

Harris et al., (2006) found that, in comparison to scientific entities, children were less likely to believe that credible extraordinary beings exist, were less confident in their judgement, and less likely to judge that other people believe in their existence, while claiming to know what they look like. For incredible beings, children confidently denied

their existence, said that other people do not believe in their existence, and also claimed to know what they look like. In the justification data children explained the existence of scientific and credible beings in a similar way, offering a generalisation involving some trait, property, or habit of the entity, for example: *“Animals can have germs”*. In contrast, for incredible beings children referred to the absence of an encounter or mentioned a source of their belief when claiming that they do not exist (e.g. Mum told me). In conclusion, Harris et al., (2006) proposed that when children make ontological judgements they do so in light of the testimony they hear. They argued that children are sensitive to the pattern of discourse that surrounds different entities, realising by the age of 6 years that when the existence of something is asserted in testimony (e.g.: *“I believe in God”*) versus presupposed (*“Don’t touch that, it’s got germs on it”*) then its existence is, more likely than not, equivocal.

1.5.2 Children’s understanding of the nature of fantasy characters

Sharon and Woolley (2004) have criticised traditional categorisation tasks for providing an overly simplistic view of children’s understanding, which lends their responses *“an appearance of ontological commitment not actually felt by them”* (p.294). In their study they addressed this problem in two ways: first, they included a ‘not sure’ option in their categorisation task because they wanted children to be able to express uncertainty; the second way was inspired from research showing that a greater understanding of categories is evidenced in children when they are assessed via induction tasks (e.g. Gelman & Markman, 1987), which assess children’s ability to make appropriate inferences. Sharon and Woolley (2004) therefore compared children’s performance on a categorisation task with their performance on an induction task, designed to test their attribution of properties to real and fantasy entities. Finally, Sharon and Woolley (2004)

attempted to examine possible individual differences in children's judgements by assessing their general level of fantasy orientation (FO). This was because they considered that some children may be more inclined than others to engage with fantasy (high FO) and this could be relevant to their beliefs in fantastical beings.

In the properties attribution task children were presented with 6 coloured drawings (2 real entities = Michael Jordan and a child; 2 specific event-related entities = Santa Claus and the Easter Bunny; and 2 generic fantastical entities = a fairy and a monster). Children were questioned as to whether various physical, biological, social and mental properties applied to them. For example they were asked whether the entity can travel the whole world in one night, whether they have parents, or whether they can have a pet. In the categorisation task children were required to sort the entities into three different trays: one tray was for 'real ones', one for 'pretend ones', and one for 'ones you're not sure about or you don't know'. Children sorted the 6 entities used in the properties task as well as a clown, a knight, Superman, a magician and Robin Hood.

Sharon and Woolley (2004) found that the 4- and 5-year-olds granted more human-like properties (such as eating dinner with one's family and sleeping) to entities that they had classified as real than to entities that they had classified as pretend. In the categorisation task, however, only one third of children's classifications were correct. Children's attributions of properties, therefore, revealed a clearer differentiation between real and fantasy entities that was not demonstrated by their performance on the categorisation task. The results of the categorisation task were in line with those in previous studies but the picture was more complex. This was because the 'not sure' option was used 'extensively', accounting for 21% of the assignments. On this basis Sharon and Woolley (2004) argued that there is an important element of uncertainty in

children's fantasy-reality judgements and that this is a different type of confusion than that involved in holding a confident belief in incorrect reality status.

Finally, considering the effects of FO, children with a high FO were found to be more accurate at all ages than their peers with low FO. Sharon and Woolley (2004) propose that a possible reason for this is that children who spend more time engaging in fantasy are likely to accrue more knowledge about the possibilities and limitations of the imagination.

Another aspect of fantasy characters that children need to understand concerns the level of correspondence between the realm of fantasy and the real world. This was examined in an experiment conducted by Lee, Cameron, Doucette and Talwar (2002). They presented 3-6-year-olds with either a story or a live staged event in which a protagonist made an implausible claim about a ghost that jumped out of a book and broke a glass. One hundred percent of the 3-year-olds and 55% of the 4-year-olds accepted the claim of the protagonist, i.e. that the ghost really committed the misdeed. These results seemed to support Harris et al's., (1991) suggestion that children may be unsure of the rules that govern transformations or 'transmigrations' between fantasy and reality. In conclusion Lee et al., (2002) stated that young children's knowledge of fantasy-reality correspondence is still under consolidation, causing them to have 'wavering views' about whether a fantasy entity can enter the realm of reality.

A recent experiment by Skolnick and Bloom (2006) took a closer look at children's conceptions of the fantasy world by investigating whether children treat all fictional characters as belonging to one single world (in which case they would all be real to one other) or whether they believe in multiple fantasy worlds, as adults do. Skolnick and Bloom (2006) asked 4-6-year-olds to judge the reality status of fantasy characters (e.g. Batman) and then judge whether someone from within the same world (e.g. Robin)

and someone from a different world (e.g. SpongeBob) thought that the characters were 'real' or 'make-believe'. In response children correctly claimed that a character from one fictional world believes that characters from different fictional worlds are make-believe, although they also claimed this about characters from within the same fictional world. Children's incorrect responses on the latter question, however, may have been due to their difficulties with conceptual perspective taking, noted Skolnick and Bloom (2006). This may have led children to respond in terms of their own beliefs and not those from the perspective of the character.

In a second study children were asked about which actions are appropriate between pairs of characters to provide a more accurate assessment of their understanding of the relationships between the characters. In this study, children correctly reported that characters from different fictional worlds could not see, touch or talk to each other but that characters from the same world could. Thus children do appear to hold an adult like belief in multiple fantasy worlds in which characters from within the same fictional world are real to each other but characters from different fictional worlds are not.

1.5.3 Children's understanding of novel fantasy characters

Other research has examined children's understanding of the reality status of entities that they have never heard of or encountered before. This has the methodological advantage of being able to control for children's prior experience. Two studies conducted by Woolley and colleagues (Woolley, Boerger, & Markman, 2004; Woolley & Van Reet, 2006) explored what factors may affect children's reality judgements about novel entities. In the first study, Woolley, et al., (2004) invented a novel fantasy character called 'The Candy Witch' to explore what factors influenced 3- and 4-year-olds' belief in a novel fantasy character. The Candy Witch is a kind, friendly witch who visits children on the

night of Halloween and replaces sweets that they have collected by 'trick or treating' with a toy. One week before Halloween, the researchers visited children in school to introduce the Candy Witch by telling a story about her and making puppets of her. Some parents of the children also agreed to implement a 'visit' from the Candy Witch. After Halloween, children were asked to judge whether they thought that the Candy Witch was 'real' or 'pretend.' In addition, they were required to state how certain they were from 'really sure', 'a little bit sure', to 'not so sure'. The ratings were scored on a scale of 0-6 with 0 indicating that the child was 'really sure' that she was 'pretend' and 6 indicating that they were 'really sure' that she was 'real'. Woolley et al., (2004) also tested children's belief in two other event-related fantasy figures, Santa Claus and the Easter Bunny, as well as assessing levels of fantasy orientation. Finally, children completed the properties attribution designed by Sharon and Woolley (2004) (See Section 1.5.2). This meant that children had to decide whether or not various physical, biological, social and psychological properties were possessed by the Candy Witch.

The results showed that, regardless of whether children were visited by the Candy Witch, 66% claimed that she was 'real', 25% claimed that she was 'pretend' and 9% were uncertain. These levels of belief were comparable to those obtained for Santa Claus and the Easter Bunny. Furthermore, for the Candy Witch, many children indicated that they were certain of their answer, leading Woolley et al., (2004) to claim that many children believed 'wholeheartedly' in her existence. Children with a high level of FO and older children who were visited had a stronger belief in the Candy Witch than children with a low FO and younger children who were visited. For the properties attribution task, children were more likely to view the Candy Witch in human terms in relation to her biological, social and psychological properties but not in her physical abilities. Younger children with a low FO, however, seemed unable to conceive of a

fantasy entity with non-human like properties. In a follow up assessment one year later, the factor that was most strongly related to belief in the Candy Witch was the number of other fantasy beings in which the child currently believed.

In another study, Woolley and Van Reet (2006) examined the effect of context on children's ability to judge the reality status of a novel entity. They introduced children aged between 3- and 5-years-old to novel entities (e.g. a *surnit*, *trag*, *kimp*) in either fantastical, scientific or everyday contexts. Entities were introduced to the child by name and then the child was told something about the entity. In the fantasy context, for example, the *surnit* was presented alongside the information: "*Dragons like to catch them, dragons collect surnits*". In the scientific context they were told: "*Scientists like to try to catch them*" and in the everyday context they were told: "*Children like to try to catch them*". Overall, the results revealed that the younger children were more likely to judge the fantasy entities as 'real' than the older children but there was, as expected, an effect of context: when a novel entity was introduced in either the scientific or everyday conditions, children aged 4 years and older, but not the 3-year-olds, were more likely to judge that it was 'real' compared to when it was introduced in the fantasy context. Woolley and Van Reet (2006) concluded that children, like adults, have the capacity to evaluate critically new information and, in particular, they can consider contextual information when judging the reality status of a novel entity.

1.5.4 Summary

In summary, research into children's awareness of the fantasy-reality distinction presents a mixed picture of their understanding. Traditional categorisation studies (e.g. Morison & Gardner, 1978) showed that children tend to consign fantasy entities to the realm of reality, while more recent studies have revealed that children's categorical judgements

underestimate their level of competence. For example, children can distinguish between real and fantasy entities by their differential attribution of properties (Sharon & Woolley, 2004; Skolnick & Bloom, 2006). However, despite success in making some kinds of fantasy-reality judgments, children remain unsure of the level of correspondence between the realms of fantasy and reality (Lee et al., 2002). Differences among studies may be due, in part, to differences in the cognitive demands of different experimental procedures, notably the contrast between those that require an explicit categorisation judgement of fantasy or reality and those that measure implicit understanding via induction tasks (e.g. Sharon & Woolley, 2004). This research, therefore, reflects similar inconsistencies that were found in research on children's understanding of the imagination: children understand that real versus imaginary entities differ in their properties (Wellman & Estes, 1986) but they are uncertain about the rules governing transmigrations of imaginary entities between imagination and reality (Harris et al., 1991).

1.5.5. Conclusions

The literature presented in this chapter was discussed in an attempt to make sense of the contradictory findings relating to children's understanding of imagination-reality and fantasy-reality distinctions. Several possibilities have been presented by previous researchers but one that has been largely neglected is the wording of the questions used in experimental procedures: a common feature among all of the studies is their use of words including *real*, *really* and/or *pretend* in task commands. Children's understanding and interpretation of these words seems to be a possible factor concerning the conclusions that can be drawn from such studies, but this has received minimal research attention in this area to date.

Chapter 2

The Language of Real/Not-Real Distinctions

2.1 Language used in task commands

Children's understanding of distinctions between pretense, imagination and fantasy, i.e. distinctions between 'real' and 'not-real' has been largely assessed using procedures containing commands or questions involving the words *real*, *really*, and/or *pretend*. In this chapter, this observation will be explored as a possible reason why results from different studies are sometimes contradictory. In Section 1.3.2 it was mentioned that Woolley and Wellman (1993) noted that a 'classic concern' with the results from this type of research is whether they only reflect children's understanding of certain words or expressions rather than the concepts involved.

Consider the following examples of questions from research on children's understanding of real/not-real distinctions. In studies that have examined children's understanding of the nature of object-substitution pretense, children can be asked whether something was a 'real one' or a 'pretend one'. For example, in a pretense episode designed by Harris, Kavanaugh and Meredith (1994, Experiment 3), children were shown a scene in which cotton wool was used to represent milk and then children were asked: "*What is this [cotton wool] really?*" and whether the cotton wool was 'pretend' milk or 'real' milk. Similarly, in Flavell et al., (1987) the experimenter pretended that a sponge was a truck and the child was asked what the experimenter was pretending it was and what it was 'really and truly'. In other studies of pretense, the question is often about whether somebody is *really* doing something (doing it 'for real') or just *pretending* to do

it. For example, in Rosen, Schwebel and Singer (1997), children were shown television episodes of 'Barney and Friends' that featured pretense acts and then they were asked to decide whether the acts 'really happened' or whether the characters were 'just pretending'. Furthermore, other studies have questioned children about their own pretense behaviour by asking them what they 'pretend to be' when they engage in pretense, or whether they have 'a pretend friend' (Taylor & Carlson, 1997). Some studies also request that children pretend to do things using the directive 'Pretend to...'. (Woolley & Wellman, 1990; Taylor & Carlson, 1997).

The word 'real' is frequently used in questions that test children's understanding of the nature of real and imaginary entities. In Harris et al., (1991) children were asked whether a balloon that they were picturing inside their head was 'a real one?' Similarly, Woolley and Phelps (1994) asked children whether a sock that they had imagined inside a box was a 'real sock' or a 'pretend sock'. In follow-up questions in this type of research, the word *really* is also used. For instance, in Woolley and Phelps (1994) children were subsequently asked whether there was 'really' a sock in the box and in Harris et al., (1991) children were asked whether the item they had imagined inside a box was 'really there' or whether they were 'just pretending'. Almost identical questions were used in the studies by Golomb and Galasso (1995) and Bouchier and Davis (2000a & 2000b) who questioned children about the reality of the contents of boxes that children had populated with imaginary entities.

In categorisation studies, the word *real* is used consistently but it is contrasted with a variety of alternatives including 'not-real' (Wellman & Estes, 1986), 'pretend' (Morison & Gardner, 1978; Sharon & Woolley, 2004; Woolley et al., 2004), and 'make-believe' (Skolnick & Bloom, 2006). The word 'real' is also found in questions using the phrase 'in real life' to assess children's understanding of the nature of fantasy and real

events. In Samuels and Taylor (1994), for example, children were asked whether a giant chasing a child and a girl riding a horse could happen ‘in real life’. Children’s understanding of the ontological status of fantasy entities has also been tested using the word *really*. In Wellman and Estes (1986), for instance, children were asked whether there are ‘really dogs that fly’ or ‘really spoons that swim’ and in Harris et al., (2006) children were asked: “*Really, are there (e.g. flying pigs) in the world?*”

2.2 Ambiguity of language used in task commands

The above examples reveal that children’s knowledge of reality and its not-real guises is largely, but not exclusively, assessed through the use of questions that contain words such as ‘real’, ‘really’ and ‘pretend’. Consideration of the different meanings implied by these words reveals that they are ambiguous. In the experiment by Harris, et al., (1994), for example, in which children were asked whether the cotton wool was ‘real’ or ‘pretend’ milk, the meaning is not whether the cotton wool exists, but the extent to which it is believed to be an authentic or genuine representation of real milk. In contrast, categorisation tasks use the words ‘real’ and ‘pretend’ in a way intended to probe children’s understanding of the existence of fantasy characters (e.g. Morison & Gardner, 1978). The following example of an 8-year-old girl pondering a picture of Father Christmas further illustrates these two different uses:

“He’s not the real Santa Claus because he doesn’t really show up in front of people, but he is real because he comes at night and in Christmas time and he gives me presents.”

The first use 'real' in this statement implies that she believes that the Father Christmas in question is not 'the real one'; i.e. he is not the genuine Father Christmas but somebody trying to imitate him. This is the same meaning in the above example of cotton wool in the study by Harris et al. The second use 'real', however, clearly indicates that she believes in the existence of Father Christmas. Although these two uses are distinct, they can be seen to be related because the initial comment of the girl, in which she dismisses the picture of Father Christmas as being 'the real one', would not be necessary if she did not believe in his existence. Therefore it could be argued that consideration of authenticity presupposes knowledge of existence. It is also interesting that the girl's initial consideration of the picture was not whether Father Christmas exists, but whether or not he is likely to be the real one. This is resonant of an observation made by Harris (2007) that, in testimony, it is unusual to assert the existence of something that one believes to exist. Thus if asked to decide if something is 'real' and it is held that it exists, an alternative interpretation is likely to be made.

Turning now to the word 'really', it can also be used to express the notions of authenticity and existence. The contrast between whether someone is 'really' doing something or 'just pretending' to do so is a contrast involving authenticity. For example, one can pretend to drink from an empty cup but the action is not authentic because there is no liquid in it that can really be drunk. In contrast, questions such as: "*Really, are there __ in the world*" (used by Harris et al., 2006) and: "*Is there really a __ in the box?*" (Woolley & Phelps, 1994) concern whether or not something is believed to exist.

It seems a reasonable possibility, therefore, that children may experience some degree of uncertainty about the meaning of words such as *real*, *really* and *pretend* when they are used in task commands. While this issue has not been investigated empirically, it has already been noted as a potential problem. In a review of children and adults'

'thinking about fantasy', Woolley (1997) notes that the word 'real' is multifaceted and hence ambiguous in nature. In a response to Woolley's review, Boyer (1997) agrees that, because there are a family of distinctions, it is not clear how the opposite of 'real' should be construed. He notes that it is often assumed that children's construal of the opposite of real is similar to fiction, so when a child says that something is not or cannot be real it has the same status as stories. Boyer (1997) also proposes that notions of reality in early childhood are linked to experience rather than ontological status, so the meaning of 'real' may be largely derived from 'experienced'.

Thomas, Nye and Robinson (1994) have also noted that there are varied meanings of the word 'real' in the everyday discourse to which children are exposed. These include uses of real to mean 'not pretend', 'correct/truthful', or very intense/severe (slang). Thomas, Nye and Robinson (1994) argue that it seems most likely that "*3- and 4- year-olds do not have a clear understanding of what it {sic} meant by the term real*" (p.157). Woolley and Wellman (1990) also considered the word 'real' in terms of everyday usage. They noted how it can be used to distinguish between the natural and artificial, the original and a copy, or a perceptual experience and a dream.

While different uses of these terms have rarely been considered in relation to children's comprehension of task commands, other authors have, nonetheless, acknowledged that possible limitations of their research stem from children's misunderstanding or confusion over the meanings of these words. Harris et al., (1991) note that the meaning of the response by children in their study who claimed that a monster/puppy that they had imagined inside a box was 'real' requires clarification. They also suggested that children's responses in the post-test interview could have meant either that their feelings of fear were 'real' or that there was a 'real' pretend creature inside.

Other studies have raised similar concerns about whether children's interpretation of *real*, *really* and *pretend* is problematic. In the experiment by Harris et al., (1994, Experiment 3) they found that the younger 2-year-olds performed poorly when asked to describe a make-believe event. They were also unable to answer the question: "*What is it [pretense substance] really?*" and responded, according to the authors, within the pretense frame as if the question was 'What is it?' Harris et al., (1994) proposed that one of the possible reasons for these difficulties was because the younger two-year-olds were "*less alert to the implications of critical words such as 'real' or 'really'*" (p.28) than the older children.

Woolley et al., (2004) also note that a limitation of categorisation studies "*concerns potential difficulties inferring what children mean when they say that something or someone is real*" (p.466). They acknowledged that children may misinterpret commands to be regarding whether a particular entity depicted in a picture was 'real' or 'pretend' and they claim that this suggestion is supported by some of the spontaneous questions and comments given by children during their sorting task. Woolley et al., (2004) doubted, however, that children who assigned both real and fantasy entities to the category 'real' believed that both types of entities exist in the same sense.

More recently, Ma and Lillard (2006) acknowledged that children under the age of 3-years may not comprehend the word *pretend* accurately. They stated that children's competence at deciphering pretense may be obscured by their insufficient understanding of a question like "Who is pretending?" In their experiment, therefore, they asked children to point to the 'real' food rather than the 'pretend' food. The younger 2-year-olds, however failed this task, and Ma and Lillard (2006) subsequently argued that

perhaps this was “*due to trouble in understanding the term real as meaning not pretend*” (p.1774), rather than a failure to differentiate pretend actions from real ones.

2.2.1 Summary

Woolley and Wellman’s (1993) concern that children’s responses may only reflect children’s understanding of certain words or expressions is an important one. An overview of the research reveals that there is a strong reliance on assessing children’s understanding of realities and non-realities through questions that contain words including *real*, *really* and/or *pretend*. This is potentially problematic because the words have been used in this research in two distinct ways. One way is to question children about the authenticity of objects or actions carried out during a pretense episode and the other way is to question children about the existence of different entities. Some authors have highlighted the potential problem of this but the issue has not been examined systematically.

2.3 Examples of children’s misunderstanding of task commands

Two examples of studies in which children’s interpretation of words used in test questions has been investigated empirically will serve to demonstrate the importance of the concerns raised in this chapter. The first example is from research investigating children’s understanding of appearances and concerns the term *looks like*. The second is from the work of Karmiloff-Smith (1977) on children’s understanding of the determiner *same*.

2.3.1 “What does this look like?”

There has been a surge of interest in the last few years in establishing whether language errors are the source of failure of 3-year-olds in appearance-reality tasks. In a standard appearance-reality task children are shown a deceptive object, such as a sponge that looks like a rock, and are asked: “*What is this really?*” and “*What does this look like?*” Children below the age of about 4½-years-old tend not to succeed by saying that the object not only is a sponge but also looks like a sponge (Flavell, Flavell & Green, 1983). Initial studies suggested that despite training to clarify the meanings of these words, errors are “*probably not due solely to some semantic confusion with the expressions ‘looks like’ and ‘really and truly’*” (Taylor & Flavell, 1984, p.1719: see also Flavell et al., 1983; Flavell, Green, Wahl & Flavell, 1987; Flavell, Green & Flavell, 1990; Taylor & Hort, 1990).

More recent studies, however, have examined this issue in more detail and found that discourse knowledge and verbal knowledge seem to be central to appearance-reality errors (Deak, Ray & Brenneman, 2003; Hansen & Markman, 2005). Hansen and Markman (2005) explored the hypothesis that children’s difficulty on appearance-reality tasks stemmed from their misunderstanding of the locution ‘looks like’. They established that ‘looks like’ can refer to outward appearances (‘Peter looks like Paul’) but in fact more often refers to likely reality (‘That looks like Jim’). They propose that in appearance-reality tasks, the reality is not already part of the common ground of the conversation, which leads children to think mistakenly that the appearance question is about the likely real identity of the object and not outward appearances: thus the question ‘What does it look like?’ is interpreted as meaning ‘What do you think this is?’

Hansen and Markman (2005) analysed everyday conversations of children, as documented in the Child Language Data Exchange System (CHILDES, MacWhinney &

Snow, 1985) which contained the locution 'looks like'. They found that 12% of the utterances used 'looks like' to comment on the likely reality of an object and 15% of the utterances used 'looks like' to refer to outward appearances. This showed, therefore, that children were familiar with these two different uses of *looks like*. Hansen and Markman (2005) concluded that standard appearance-reality tasks mask children's understanding because of the discourse structure that surrounds the discussion of appearances. This experiment thus revealed that it is important to consider discourse-based explanations to account for findings in the literature and not to assume that children interpret commands as intended.

2.3.2 "Is this the same one?"

The second example of this phenomenon involves children's interpretation of the word 'same' and this was investigated by Karmiloff-Smith (1977). The word 'same' has two functions. One is to refer to 'same kind', i.e. members of the same class that are alike with respect to some or all observable attributes (e.g. Jane is wearing the same dress as Mary). The other function is to refer to 'same one', i.e. the full identity of one enduring object (e.g. Jane is wearing the same dress as yesterday). In everyday speech, sentences such as 'give me a different one' can, and commonly do mean, 'give me another one that is of the same kind'. In this case the emphasis is on different identity but same kind (Donaldson & Wales, 1970).

Karmiloff-Smith (1977) asked children to act out a series of sentences such as: "*The girl pushes an X and then the boy pushes the same X*" and "*An X pushes the girl and then the same X pushes the boy*". She found that up to the age of about 5-years, children interpreted 'the same X' to mean 'same kind' in the contexts where it actually meant 'same one'. Both the 3- and 4-year-olds acted out sentences of the type "*The boy*

pushed a cow and then the girl pushed the same cow” by touching two identical cows and they frequently refused to act if objects were not identical. Unlike the 3-year-olds, however, for the 4-year-olds, interpretations meaning ‘same one’ could be provoked in the post-test interview, albeit only after a lengthy period of deliberation. Thus, only if attributes of objects differed considerably did young children interpret ‘the same X’ to mean ‘same one’. At the age of 5-years, ‘same’ was clearly interpreted as meaning ‘same one’ although in contexts in which Xs were identical or similar, many hesitations preceded this interpretation.

2.3.3 Summary

Two examples of research into lexical comprehension reveal that an accurate interpretation of experimental questions by children cannot be presumed. In the first example children were shown to interpret the question “*What does X look like?*” as referring to likely reality when it in fact referred to outward appearance in the context of appearance-reality experiments (Hansen & Markman, 2005). In the example in Karmiloff-Smith’s (1977) study children were shown to interpret ‘same’ as meaning ‘same kind’ rather than ‘same one’. Hence, when children were asked to act out a sentence such as: “*The girl pushes an X and then the boy pushes the same X*” children under the age of 5-years did not choose the same, enduring object, but choose another one that was of the same kind.

2.4 Children’s interpretation of *real*, *really* and *pretend*

Returning now to the potential problem of children’s interpretation of *real*, *really* and *pretend*, anecdotal evidence suggests that children may be more likely to use these words

to consider authenticity than existence. The following examples of three conversations, number 1 and 3 provided in Garvey (1984) and number 2 in Preece (1987), provide interesting illustrations: the first conversation was between two 3-year-olds boys; the second was recorded during a car journey on the way to school between two 5-year-old children; and the third was between two young girls playing 'house'.

Example 1

A: *Picks up a large stuffed toy snake and turns towards the other boy, waving snake at him.*

B: Help! (*Shouts in mock fear.*) Don't!

A: It's not a real snake.

B: Well, don't. Stop. Well, stop playing snakes.

A: I'm 'tending this is a snake. (*Stops moving snake and looks at it.*) By the way, it is a snake.

B: Wait! Make believe, make believe that's my pet and he never bites me.

A: 'Tend he'll bite me. (*Turns the snake's head towards himself.*) I said, 'No' (*speaking to the snake*).

B: Snake! (*Speaking to the snake*). No! Don't bite my pal.

A: (*Moves the snake towards the back of the large wooden car.*) 'Tend it bited your licence plate. 'Tend it was just a little crack.

B: Okay. (*Watches as his partner moves the snake around.*)

Example 2

Heather: I'm gonna tell you what happened to me this morning...I'm gonna tell you what happened to me, Bron. Um, I was playin' on the monkey bars. A boy came along with a big, huge, giant spider in his hand (*laughs*).

Bronwyn: Real?

Heather: Yeah! No, it wasn't real, it was a play one, it was a coloured one, it was a big, black spider he had in his hand. And he was chasing me with it...A big, black spider (*giggles*).

Example 3

Karen: They won't let me iron real clothes. I'll pretend I'm ironing clothes.

Lisa: Yes they do.

Karen: No, they don't. They really don't. They really won't allow me.

Lisa: They allow me.

In the first example, the first use of 'real' is clearly meant to reassure the other boy that the snake is not a live, or perhaps authentic, snake but just a toy one. Similarly, in Example 2, Heather explains to Bronwyn that the spider was not a real, or perhaps authentic, one but just a toy one. And again, in Example 3, Karen is clearly referring to the fact that she is not allowed to iron real, or proper clothes, maybe owing to her parents' fear that she will burn a hole in them.

In light of the literature discussed so far, the studies in this thesis fall into two parts: in the first part, children's use and interpretation of words including 'real' is examined; in the second part children's understanding of the ontological status of fantasy characters is assessed without the use of such words. However, in light of the specific examples discussed above, the first study was conducted to shed some light on how children may interpret such terms by investigating their own uses of the terms *real*, *really* and *pretend* in their spontaneous, everyday language.

Part 1

Chapter 3

Study 1: Children's everyday uses of the words *real*, *really* and *pretend*

3.1 Introduction

As discussed in Chapter 2, the terms *real*, *really* and *pretend* have been widely used in experimental studies that test children's understanding of real/not-real distinctions. Little is known about children's everyday uses of these words, however, and this seems to be an important starting point for investigating whether children's interpretation of them can account for some of the discrepancies among the findings of those studies. The specific issue concerning Study 1 was whether children use these terms to express the notions of authenticity and existence.

Several studies have reported that children use the word 'pretend' in their spontaneous speech for a variety of purposes including to refer to imaginary or substitute objects in terms of their make-believe identity or to describe their own pretend games (Shatz, Wellman & Silber, 1983; Bretherton, O'Connell, Shore & Bates, 1984; Furrow, Moore, Davidge & Chiasson, 1992). Harris and Kavanaugh (1993) showed that 2-year-olds could describe pretend transformations during a make-believe episode, such as when a naughty teddy poured milk from an empty carton over a horse's tail resulting in the tail becoming 'wet'. They concluded that 2-year-olds possess a sophisticated mastery of language in pretend contexts, not least to set pretense in motion by stipulating a pretend state or identity. Garvey and Kramer (1989) and Lloyd and Goodwin (1995) also found that children use the term *pretend* to make suggestions in their dramatic play and one common way was by stepping outside the play framework and stating explicitly: "*Let's pretend... .*" Preschoolers, however, produced very few of these 'overt pretends' which

were more common in school-aged children. Dale and Fenson (1996), however, using the MacArthur Communicative Development Inventory reported that only 7% of 2-year-old children use the word *pretend* in their everyday speech.

Children's uses of the terms *real* and *really* were explored systematically in an experiment conducted by Woolley and Wellman (1990). Using the same methodological approach as Hansen and Markman (2005), they analysed conversations of 6 American-English speaking children aged between 1;1 and 6;11 years as recorded in CHILDES (MacWhinney & Snow, 1985). Their aim was to establish when and how children distinguish realities from non-realities in their spontaneous conversation. They found that 33% of children's utterances containing *real* and *really* encompassed a reality contrast in which the child commented on the real or not-real nature of an object or event, such as "*That's real money, but that's not; those are playing money*". Three of the children produced such uses in their second year of life and all children did so well before their fourth birthday. Utterances that did not encompass a reality contrast were primarily those in which *real* and *really* were used as intensifiers as in "*I got real big sharp teeth*" and "*...that bad hulk was really mean*" (Woolley & Wellman, 1990, p.949).

Utterances that contained a reality contrast were analysed to determine whether the contrast was 'explicit' or 'implicit'. One third of the utterances contained an explicit contrast in which the child mentioned both the reality and the non-reality, for example: "*That ain't a real skunk; it's only in the book*". The remaining two thirds of the utterances contained an implicit contrast in which the non-reality was implied but not explicitly stated, for example, a girl said to her mother "*No, put real water in*" after watching her mother pouring some imaginary water into a container (Woolley & Wellman, 1990, p.949).

Utterances containing a reality contrast were also analysed to determine the topic of the utterance. The most common topic was toys (23%), for example a girl described her doll by claiming *"She doesn't stand up real"*. Pretense was the second most common topic (20%), followed by utterances that made category/identity judgements (19%), and those that distinguished pictures from their real depicted referents (9%).

Woolley and Wellman's (1990) study was important because it showed that *"These young children's use of the terms real and really to mark such sensible contrasts reveals that children's conception of the real or genuine aspects of objects is quite multifaceted and begins to appear at a very young age"* (p.953). The main strength of their study was that it examined children's use of the terms 'real' and 'really' longitudinally. However, the results need to be viewed with caution in relation to the source of data. The duration and timing of the speech samples was sporadic and varied from child to child. Also transcripts from only six children were examined and so it is not clear how representative these findings are. Furthermore, Woolley and Wellman (1990) only focused on children's uses of these words in relation to appearance-reality, or authenticity, but they did not document existence uses.

3.1.1 Methodological issues of collecting child speech samples

There are a number of different ways in which samples of children's speech can be obtained. One common method is to search CHILDES (MacWhinney and Snow, 1984) (see <http://chilDES.psy.cmu.edu/>). CHILDES first served as a central repository for language acquisition data and evolved as a means for sharing and studying conversational interactions involving children. This is now part of a wider project called TalkBank, which generates tools to use on the internet to share multimedia on all forms of human

communication. Computerised searches of transcripts can be performed in CHILDES to determine, for example, the frequency with which children use certain words. This was the purpose for which Woolley and Wellman (1990) used CHILDES.

While there is no doubt that CHILDES has facilitated research into child language acquisition, the problem with the transcripts is that the durations and timings of the speech samples are sporadic and there is large variation in the amount of data collected from individual children. Also, the speech has been collected in various different situations, but primarily in ones that have been prearranged for the purposes of an experiment. This means that the samples may not be representative of the full range of uses that occur in ordinary, everyday situations. While this may not be an issue for some studies, it may be of concern where words that are used infrequently and in specific contexts are of interest.

Another way of obtaining child speech samples is to ask caregivers or parents to keep a diary. This involves the adult recording the child's speech as and when requested by the researcher. This could be at set time points throughout the day or only when the child produces a specific word or form of utterance. The collection of diary data has served an important role in developmental psychology, for example in research on infants' memories (Nelson & Ross, 1980) and causal thinking in everyday activities (Callanan & Oakes, 1992). Parents and caregivers are valuable informants, especially for infrequent events that are unlikely to be observed in an experimental setting. Diary records have been shown to be reliable when compared with experimental measures, especially where they are accompanied by parental interviews (Harris & Chasin, 1999). For these reasons, the method employed in the current study was to use parental interviews accompanied by diary records.

3.2 Method

Participants and data collection

Mothers and female carers were approached through mother-and-toddler groups that met in Surrey. They were predominantly from white, working class backgrounds. Mothers were asked if they would answer some questions about their child's language and, in particular, use of the words *real*, *really* and *pretend*. After a preliminary discussion, some mothers were not interviewed either if English was not their first language, their child was too young to have used all three of the target words or they had concerns about their child's language development. An additional number of mothers were recruited through personal acquaintances. In total, 169 mothers were interviewed and some chose to talk about more than one child so the total number of children for which interview data was collected was 181.

From the sample of the mothers who were interviewed 137 (81%) also agreed to complete a diary for one week. After follow-up telephone calls, 90 of them were returned. Upon returning the diary, 19 of the mothers continued to keep a record for a further three weeks, after which time they all returned the diary.

For the purposes of analysis the sample of children was divided into two age groups: a younger age group and an older age group. The younger age group consisted of 80 children aged between 2- and 3-years (34 girls and 46 boys, mean age = 3;1, range = 2;1 - 3;11) and the older age group contained 101 children aged between 4- and 7- years (53 girls and 48 boys, mean age = 5;5, range = 4;1 - 7;6).

Procedure

Interviews were carried out to obtain examples of uses of the target words and to recruit parents/caregivers to complete diary records. The parent/carer was informed that the

study was about how children use the words real, really and pretend in their everyday speech. She was then requested to describe contexts in which the child used these words and provide recent example utterances from those situations, first for the word pretend, then real, and finally really. These were recorded, together with the child's age and gender. Examples given by mothers were often very specific. Sometimes a word was used in a commonly occurring routine such as going to bed or playing a particular game. Other memorable examples occurred after the child had witnessed something/someone that was novel, perhaps on TV, in a story book, at a novel location such as Disneyland, or during an event such as Christmas. If required, mothers were prompted to provide additional information about the context of use. The same procedure was repeated with mothers who elected to talk about a second child within the specified age range.

After the interview, mothers were thanked and then asked if they would like to participate in the next stage by keeping a written record of their child's uses of the words real, really and pretend as and when they hear them during the forthcoming week. If they agreed, they were provided with an information sheet, a blank diary form, an exemplar diary form, and a consent form to read and sign, and on which to provide their telephone number. The blank diary form comprised four columns: the first column was to record the date of the utterance containing one or more of the target words; the second was for the utterance itself; the third was to provide a description of the context including who was involved; and the fourth was for an interpretation of the child's utterance if deemed necessary because the meaning was not clear. There were boxes at the top of the sheet in which to record the child's date of birth and gender.

If the diary had not been returned within three weeks, mothers were contacted by phone to determine whether they had completed it. Mothers who returned the diary

were thanked and asked if they would like to continue for one month. Those who agreed were sent additional sheets and prepaid envelopes.

3.3 Results

Coding of utterances

Utterances obtained in the interview were scored in the same manner as utterances obtained from the diaries. Following Woolley and Wellman (1990) each utterance was analysed according to use, topic, and type of reality contrast (see Table 3.1). Use was coded as one of five categories. The first category, *Authentic* was for utterances that discussed whether or not something was the real or genuine version, as opposed to a substandard, imitation, or fake. *Existence* was used to code utterances that discussed whether something really existed or was present in reality, and was not imaginary. An *Intensifier* was used to classify utterances containing really in place of the terms very or very much. The category *Command* was used to classify utterances that contained pretend being used to direct another to engage in pretense, such as “*Pretend to...*” Finally, uses that did not fall into any of these categories were classed as *Other*.

Each utterance was also classified according to one of 7 different topics: Action, Animal, Event, Fantasy, Human, Object, or Other. Utterances were also classified according to the type of reality contrast, either Implicit or Explicit. Recall from Woolley and Wellman (1990) that an implicit contrast was when an utterance in which the alternative to reality was implied but not overtly stated and an explicit contrast was when both the reality and the non-reality were stated in the utterance. Two coders independently coded, on average, 21% of the utterances for each word according to use,

Table 3.1: Example utterances at each level of analysis.

Utterance (and context information)	Use	Reality Contrast	Topic
<i>Do you want a pretend egg?</i> (Handed me a white brick while cooking me breakfast with her toy kitchen set)	Authentic	Implicit	Object
<i>Is it a real horse or a rocking horse?</i> (Going 'real' horse riding for the first time and he could not believe it was going to be a 'real' horse)	Authentic	Explicit	Animal
<i>Is there really dragons?</i> (Reading a story book together about dragons)	Existence	Implicit	Fantasy
<i>Monsters aren't real, they're just pretend</i> (Going to bed at night he reassures himself that they are not under his bed)	Existence	Explicit	Fantasy
<i>Pretend to be a rocket</i> (Playing with his Dad)	Command	~	~
<i>I sit really still</i> (Describing the way she sits for story time at nursery)	Intensifier	~	~
<i>I've had tummy ache in real life</i> (Playing a board game called 'Tummy Ache' and he told his friend this)	Other	~	~

topic, and type of reality contrast. For type of use inter-rater agreement was 88%, for topic inter-rater agreement was 95%, and for reality contrasts it was 96%.

Use and topic

The total number of utterances collected for each word from each age group is shown in Table 3.2. The total number of utterances collected was 1311 with 492 from interviews ($M = 2.9$ utterances per child, $SD = 1.1$) and 819 from diaries ($M = 6.7$, $SD = 7.8$). No uses of *real* were reported for 30 of the 2-3-year-olds (38%) but, with that exception, every other mother reported that her child used all of the target words. An overview of the data shows that 65% of the utterances were concerned with whether something was authentic or not while only 11% were concerned with existence. Intensifiers, Commands, and Other uses accounted for the remaining 24% of the utterances. The most common topics of the utterances were object (21%), fantasy (18%), and action (17%), followed by event (12%), animal (9%), human (7%), and other (2%). Instances of the authentic uses were found in all topics but the existence use only occurred within the topics of fantasy, animal, and object.

Reality contrasts

The number of implicit and explicit reality contrasts for authentic and existence uses for each of the target words is shown in Table 3.3. On average, 80% of utterances contained an implicit contrast and 20% contained an explicit contrast. For the purpose of statistical analysis the total set of utterances was treated as a corpus of independent observations following the tradition of analysis of child speech (see, e.g. Corrigan, 2004). The proportion of implicit and explicit contrasts produced by the two age groups was compared but the difference was not significant, $\chi^2(1, N = 1021) = 2.69, n.s.$

Table 3.2: Number (and percentages) of each of the words according to age group

Word and Use		2-3-year-olds (N=80)	4-7-year-olds (N=101)	Total
Real	Authentic	132 (81)	191 (63)	323 (69)
	Existence	26 (16)	87 (29)	113 (24)
	Other	5 (3)	25 (8)	30 (7)
	Total	163 (100)	303(100)	466 (100)
	Mean	2.04	3.03	2.59
Really	Authentic	62 (37)	140 (58)	202 (50)
	Existence	3 (2)	11 (5)	14 (3)
	Intensifier	90 (54)	88 (37)	178 (44)
	Other	12 (7)	1 (.04)	13 (3)
	Total	167 (100)	240 (100)	407 (100)
	Mean	2.09	2.38	2.26
Pretend	Authentic	213 (80)	115 (67)	328 (75)
	Existence	10 (4)	6 (4)	16 (4)
	Command	44 (16)	50 (29)	94 (21)
	Total	267 (100)	171 (100)	438 (100)
	Mean	3.34	1.69	2.42
Overall	<i>Total</i>	<i>597</i>	<i>714</i>	<i>1311</i>
	Mean	7.47	7.1	7.27
	SD	7.15	6.13	6.9

Table 3.3: Number (and percentages) of implicit and explicit reality contrasts produced by each age group.

	2-3-year-olds	4-7-year-olds	Total
Implicit	344 (76)	460 (81)	804 (80)
Explicit	107 (24)	110 (19)	217 (20)
Total	451 (100)	570 (100)	1021 (100)

Real

As can be seen in Table 3.2, the term *real* was used most often to discuss authenticity. Overall, authentic uses occurred more than existence and other uses and there was a significant age difference in these proportions, $\chi^2(1, N = 466) = 10.79, p < .01$; the 2-3-year-olds produced more utterances containing the authentic use (81%) than did the 4-7-year-olds (63%) while the 4-7-year-olds produced more utterances that referred to existence (29%) than did the 2-3-year-olds (16%). Other uses were also produced more often by the older children than the younger children.

Really

The most frequent use of *really* was also in relation to authenticity (see Table 3.2). There was a significant difference in the proportion of uses referring to authenticity and existence by the 2-3-year-olds and 4-7-year-olds, $\chi^2(2, N = 407) = 23.09, p < .01$. The older children produced more utterances containing the authentic use than did the younger children (58% and 37%) but both age groups produced a very low number of references to existence ($M = 4\%$). Intensifiers were very common, accounting for 44% of the total number of utterances containing *really*. It is likely that the actual percentage of

intensifiers was higher because many mothers indicated that their children produced so many uses of this kind that they could not record them all. Woolley and Wellman (1990) also found the percentage of intensifiers to be higher (66%).

Pretend

Overall, authentic uses of *pretend* were considerably more frequent than either existence uses or commands, accounting for 75% of the total (see Table 3.2). There was a significant difference in the proportion of uses by age, $\chi^2(2, N = 438) = 10.11, p < .005$; the 2-3-year-olds produced more authentic uses (80%) than the 4-7-year-olds (67%), and the 4-7-year-olds produced a greater proportion of commands (29%) than the 2-3-year-olds (16%).

Of interest was that a small number of utterances from the 2-3-year-olds within the authentic category used *pretend* as a 'disclaimer' (Lloyd & Goodwin, 1995). This was when the child sought to disclaim or excuse their previous action by referring to their intentions and behaviour as a pretense, for example, a boy who was continuing to play in his mother's car after being told not to said: "*I'm only going to pretend to drive*".

Fantasy topic

The topic of fantasy was examined individually to determine the extent to which children's uses of *real*, *really* and *pretend* referred to notions of existence and authenticity. Inspection of Table 3.4 shows that, overall, the two groups of children produced a similar number of utterances concerning the existence of fantasy characters (53%), for example: "*There aren't really pirates*" and their authenticity (47%), for example: "*He's not a real pirate.*" The proportion of authentic and existence uses within

the topic of fantasy did not differ for the two age groups for each of the three words using Chi Square.

Table 3.4: Number (and percentages) of authenticity and existence uses for each of the target words within the topic of fantasy.

Word and use		2-3-year-olds	4-7-year-olds	Total
Real	Authentic	12 (48)	44 (42)	56 (43)
	Existence	13 (52)	62 (58)	75 (57)
Really	Authentic	6 (86)	10 (60)	16 (66)
	Existence	1 (14)	7 (40)	8 (33)
Pretend	Authentic	8 (50)	6 (46)	14 (48)
	Existence	8 (50)	7 (54)	15 (52)
Total	Authentic	26 (54)	60 (44)	86 (47)
	Existence	22 (46)	76 (56)	98 (53)

3.4 Discussion

The terms *real*, *really*, and *pretend* have been used in previous research to question children's understanding of the distinctions between pretense-reality and fantasy-reality. These terms have been used in two main ways: one way questions children's understanding of the authenticity of pretense objects or actions and the other questions children's understanding of the existence of fantasy characters and events. The current

study revealed that children's everyday uses of *real*, *really*, and *pretend* do reflect the notions of authenticity and existence, thus mirroring the ways in which they have been used in previous research. The most notable finding was that both the 2-3-year-olds and the 4-7-year-olds used the words most often to consider authenticity but rarely used them to discuss existence. Within the topic of fantasy, however, the results were particularly interesting. Rather than children simply using the terms to refer to the (non)existence of fantasy characters and events, children also considered the authenticity of them, as illustrated in the following utterance: "*You're not a real pirate, you're just pretending*". Before considering the implications of these results for testing children's understanding of real/not-real distinctions, the discussion will focus on these results in light of what is already known about children's uses of these words.

In relation to *pretend*, the study reported by Dale and Fenson (1996) found that 7% of 2-year-olds used the word in their everyday speech but this was in contrast to the current study that found that all of the younger children did so. Methodological differences between the two studies may account for this discrepancy: the current study did not rely on parental recall at interview alone, but also asked parents to record specific uses of the target words. This method has high ecological validity and is particularly useful for gathering data on a form that is newly emerging in the child's lexicon and is likely to occur infrequently.

There was an interesting developmental change in the use of the word *pretend* with the older children making more use of commands to another person to engage in pretense than the younger children. This supports the findings of Garvey and Kramer (1989) and Lloyd and Goodwin (1995) who found that commands such as "*Let's pretend*" were more common in older children. This finding also corresponds to Piaget's observation that pretense becomes more orderly between the ages of 4-7 years (Piaget,

1954). Piaget argued that this arises, in part, from the need for participants to negotiate with each other to achieve a shared understanding of the play situation.

In relation to the terms *real* and *really* the current study supports Woolley and Wellman's (1990) conclusion that, by the age of three years, children comment on the authentic or genuine aspects of objects. This conclusion was extended by showing that children use the terms *real* and *really*, but also *pretend*, to comment not just on objects, but actions, events, people, and animals. Both the current study and Woolley and Wellman's (1990) study also found that the majority of utterances contained an implicit, rather than an explicit reality contrast. With regard to the pattern of utterances that contained an explicit contrast, however, the current study found that the younger children made slightly more than the older children. This decrease in explicitness shown by the older children suggests a lesser need to clarify the alternative implied in the utterance, which may reflect their increasing knowledge within these domains (Sharon & Woolley, 2004). Another similarity between the two studies was that children frequently used *really* to function as an intensifier, although in Woolley and Wellman's study, the American-English speaking children also used *real* in this way while the British-English speaking children in the current study did not.

In Woolley and Wellman's (1990) study the most common topic within the utterances was toys whereas in the present study, toys were included within the more general topic of objects. This was because children often referred to non-toy objects that they were using as toys, for example, a boy was playing with a garden hosepipe and, when his mother told him to stop playing 'shooting' with it, he commented: "*It's not a real gun, it's really a hose pipe.*" Almost certainly, this difference between the two studies stems from the samples that were collected. Much of the CHILDES data has been

collected during toy play whereas, in the present study using interviews and diary records, children's uses were sampled over a wide range of contexts.

In summary, children's utterances containing the words *real*, *really* and/or *pretend* reflected their interest in establishing what is real and what is pretend in their environment. Whether it was a younger child who described a piece of toy food as pretend or an older child who wondered whether Spiderman exists, all children made comments that revealed their interest in seeking out realities from their guises in the world around them. However, what remains of interest is the accuracy of children's observations of what they judged as 'real' or 'not-real' and the reasoning behind those decisions.

The studies presented in the proceeding three chapters were, therefore, conducted to investigate the accuracy of children's real/not-real decisions and to explore what such judgements mean by seeking children's justifications for them. The overarching aim was to shed light on children's interpretation of these terms as used in empirical investigations of their understanding of real/not-real distinctions. In Study 2, children made real/not-real judgements for pictures of objects that were selected from the diary data such as a real and toy car. In Studies 3 and 4 children made real/not-real judgements in relation to fantasy characters, such Bob the Builder, and in Study 4 children made those judgements alongside equivalent real characters, for example Bob the Builder and a real builder.

Chapter 4

Study 2: Children's real/not-real judgements and justifications about real and toy objects

4.1 Introduction

Analysis of children's spontaneous utterances involving the words *real*, *really* and *pretend* revealed that the majority of uses entailed consideration of something in terms of its authenticity while fewer uses considered things in terms of their existence. On the basis of this finding the following three studies (comprising Part 1) explored children's interpretation of the terms *real* and *not-real*. This was done by seeking children's judgements concerning the 'real' or 'not-real' status of a variety of items selected from among those that were discussed in Study 1. The most important part of this investigation, however, was to discover what factors are considered when judging something in terms of its real or not-real status by requesting children to justify such judgements. Another aim was to establish a developmental picture of children's interpretation of terms such as real and not-real so that their responses on experimental tasks can be better understood.

A large proportion of procedures used in previous research, as discussed in Chapter 1, involved children making reality status judgements for objects and characters. Among these items were real and imaginary cookies (Wellman & Estes, 1986), real and pretend socks (Phelps & Woolley, 1994), fantastical characters such as monsters, ghosts and witches (Harris et al., 1991), popular cartoon characters such as Big Bird and Mickey

Mouse (Morison & Gardner, 1978) and also fantastical events (Taylor & Howell, 1973). In these studies, although children had to judge the reality status of such items in some way, they were not asked to explain their judgements, thus it was not clear what children meant when they judged, for example that Mickey Mouse was 'real'.

In a study conducted by Prawat, Anderson & Hapkiewicz (1989) this was not the case: in their study, real/not-real judgements *and* justifications were sought from preschoolers, second graders, fifth graders, and graduate students. They were asked, in general, how they can tell if something is 'real' or 'not-real' as well as why they thought that dolls, cartoons, clouds, and dreams were 'real' or 'not-real'. These justifications were coded into three overarching categories, which are presented with a brief description and accompanied by example responses in Table 4.1.

In relation to the accuracy of children's judgements for dolls, cartoons, clouds, and dreams, Prawat et al., (1989) found that there was a significant improvement with age for all the items except clouds, which all participants judged correctly as 'real'. In relation to dolls, children were more inclined to judge them as 'not-real' while adults correctly (according to the researchers) judged them as 'real'. A similar pattern was evident for cartoons with children tending to judge them as 'not-real' and adults as 'real', although a quarter of adults chose the 'can't tell' option. Dreams elicited the greatest uncertainty regarding their reality status: the majority of preschoolers and second graders judged them as 'not-real' and half of the fifth graders also thought this but 45% also chose the 'can't tell' option and 5% judged them as 'real'. Adults, on the other hand, largely said either that dreams were 'real' or chose the 'can't tell' option.

Table 4.1: Coding categories used by Prawat et al., (1989) for the justifications given by participants following their real/not-real judgements

Category	Description	Example
1) Personal Experience	Prior experience including interactional or perceptual knowledge	I see them everyday; You can feel it.
2) Qualities and Attributes	2a) Specific qualities and attributes of animals or humans including physical features, appearances, or structures	They don't have bones and blood; Animals aren't purple.
	2b) General qualities or attributes of objects including life, movement, origins/ material substance, location, probability of event occurring, tangibility/ physical existence/ permanence, outcome/ effect associated with object or event	It's alive; 'Cause they move around; People just draw them [cartoons]; They [clouds] are up in the sky; When something is real it can happen to anybody or anything; They [cartoons] don't disintegrate, like if you take them off the T.V; It's a physical object; They [clouds] bring the rain down.
	2c) Abstract qualities of objects including verifiability (the process of establishing proof of existence), believability/ meaningfulness/ subjective ways of knowing	You see them and everyone sees them so they can't be imagining them; Something is real if it can be reproduced; You are sure of something; It has meaning.
3) Other Approaches	Re-labelling and simple restatements	They're just toys; They are just imagination; It's fake; 'Cause they're cartoons.

The next part of the analysis concerned what criteria children in each age group gave for whether things generally are 'real' or 'not-real', as well as specifically for dolls and dreams (cartoons and clouds were not discussed separately by the authors). Developmental changes in the justifications were clearly evident. Preschoolers mainly relied on prior experiences (15%) with the remainder responses being distributed fairly evenly across the different categories. This was the general case as well as being true for dolls, for which a typical response was: "*No, 'cause you play with them*". In the case of dreams, preschoolers either recognised that dreams are internal experiences or "*dodged the issue by relabelling, (e.g., "They're imagination")*" (p.368).

Second graders frequently gave justifications relating to human and animal behaviour (22%) and personal perceptual experiences (20%) to verify the reality status of an object or event. They also gave restatements (15%) (e.g. "*They're fake.*"). In relation to dolls they primarily gave criteria that fell into the animal and human functioning categories while for dreams, similarly to the preschoolers, they recognised that they were internal experiences and gave restatements. In addition, the second graders relied heavily on analysis of dream content when judging their reality status, so although they recognised that dreams are internal, the content of the dreams took precedence. Furthermore, they recognised that dream content is usually 'made-up' but they also sometimes referred to the notion that dreams can be about events that have already happened and even that they provide a window into the future.

The fifth graders, as did the second graders, relied on direct perceptual experience to explain dreams (22%) but also gave restatements (12%) to justify their judgements. However, they also resembled adults in their reliance on criteria relating to tangibility, physical existence, and permanence (26%). A similar pattern of criteria for

dolls was evident. Unlike the adult sample, however, the fifth graders seldom used the two most common justifications conjointly.

Prawat et al., (1989) concluded that direct first-hand experience was an important feature when explaining how the reality of something can be determined, although, with age, the type of first hand information that was given was qualitatively different. Preschoolers tended to offer personalised information, such as "I watch them" or "I play with them," while older children gave similar information but in the third person, such as "It can be seen" (p.369). Adults tended to search for a means to 'objectify' their subjective first-hand experience, such as "[dreams] are real, they produce real responses in you...you wake up in a cold sweat...there is proof of existence".

The results of Prawat et al's., (1989) study thus revealed some of the factors that children and adults consider when being asked to decide whether something is 'real' or 'not-real'. However, a limitation of this study is that we do not know how children respond to individual items or characters, which may be quite distinct from their general reasoning about reality. The following series of studies (Studies 2-4) employed Prawat et al's., (1989) framework to examine both the accuracy of children's real/not-real judgements and the criteria upon which they draw to qualify those judgements. This was done for variety of specific items selected on the basis that they were commonly discussed by children in their everyday speech involving the words *real*, *really* and *pretend* (see Study 1).

In the current study (Study 2), three groups of children (preschoolers, 6-7-year-olds, 9-10-year-olds) and one group of adults were asked to categorise real and toy items and real people and children dressing-up as those people, into categories of 'real' and 'not-real' and to qualify their judgement. It was expected, on the basis of Prawat et al's.,

findings, that children would, at least in part, refer to prior experience with the item. In addition, it was predicted that children's justifications would relate to the authenticity of the items, given that their existence would be arguably be presupposed because of their familiar everyday nature to the children. This age range was chosen in order to show a cross-sectional developmental progression of children's reasoning about real/not-real status and this age range also reflects that used by Prawat et al., (1989). The category labels 'real' and 'not-real' rather than 'real' and 'pretend' were employed because 'not-real' has been used in previous studies to contrast with 'real' (e.g. Wellman & Estes, 1986; Prawat et al., 1989) and because children's interpretation of 'real', not pretend, was of specific interest.

4.2 Method

Participants

One hundred and twenty children were tested and they were divided into three age groups. There were forty preschoolers (mean age = 3;11, range = 3;0-4;9), forty 6-7-year-olds (mean age = 6;10, range = 6;0-7;10), and forty 9-10-year-olds (mean age = 9;11, range = 9;1-10;10). In addition, twenty adults were tested (mean age = 36 years, range = 18-60). There were equal numbers of boys and girls in each age group. Children were recruited from nurseries and schools serving predominantly white working-class families in Surrey, UK and adults were recruited from a range of occupations within a University and were acquainted with the researcher.

Stimuli and task

The natural language data collected in Study 1 revealed that children frequently discussed real and not-real aspects of everyday objects including toy food, toy vehicles, toy animals, as well as humans, and in particular the status of people who are dressed-up. The current study used two items from each of these four categories and each item was presented with its real counterpart, for example, a toy banana was presented with a real banana, making eight pairs of items in total (see Appendix 4.1 for pictures of the stimuli). Items were divided into two sets: Set 1 consisted of a banana, a car, a cat, and a fireman; and Set 2 contained a slice of bread, a passenger train, a dog, and a doctor. In the case of the doctor and the fireman, the ‘not-real’ item was a picture of a child in dressing-up clothes. Within each set, items were presented in the order of food, vehicle, animal and dressing-up because this was in line with their developmental order of appearance in Study 1.² The presentation order of the sets was counterbalanced so that half of the children received Set 1 first followed by Set 2 and half received the reverse order.³

Procedure

Children were tested at nursery/school and adults were tested at work. The first pair of items was introduced by saying: “Here are two ___ (bananas)”. One of the items was pointed to and the child was asked: “Do you think this one is real or not-real?” and then the question was repeated for the other item. After the child had responded the pair of

² The first item (bread or banana) served as a screening item. If a child failed to give a correct real/not-real judgement for this item they were not tested further. However all children correctly identified at least one item as ‘real’ or ‘not-real’ and so no child was excluded.

³ In pilot testing children were also required to make a certainty judgement rating regarding their real/not-real classification on a 3 choice scale from ‘very sure’, ‘a little bit sure’ to ‘not sure’ (following Woolley et al., 2004). The children, however, did not make use of the full range of the scale and tended either to persevere or they did not respond. Furthermore, some children said ‘really real’ when pointing to the ‘very sure’ option or ‘not-real’ when referring to the ‘not sure’ option, thus indicating confusion over the meaning of the scales. In the final procedure, therefore, the certainty scale was not used.

items was removed. In the same way, the vehicle, animal, and dressing-up items were presented in turn. Once children had made their judgments for all four items in a set, the items were reintroduced, in turn. For each pair of items, children were reminded of their judgements and then asked for each item (in a random order): “*Why did you think this one was real/not-real?*” This procedure was repeated for items in the other set.

4.3 Results

Scoring

A toy/dressing-up item was considered correct if it was judged as ‘not-real’ and corresponding real items were considered correct if they were judged as ‘real’. Correct answers received a score of 1 and incorrect answers received a score of 0. The maximum score for each child was therefore 16 since there were two sets, each containing 4 real items and 4 not-real items.

Performance on the judgement task

Scores for the four age groups on each of the two sets of the real/not-real judgement task are shown in Table 4.2. Preliminary analysis using independent t tests revealed no effect of task order for Set 1, $t(138) = -1.07, n.s.$ (Set 1 first $M = 7.51, SD = 1.21$; Set 1 second $M = 7.70, SD = 0.80$) or Set 2, $t(138) = -1.33, n.s.$ (Set 2 first $M = 7.54, SD = 1.00$; Set 2 second $M = 7.74, SD = 0.76$) so scores within each set were collapsed. Table 4.2 indicates that the preschoolers scored lower than the other age groups in each set and a 4 (age) X 2 (set) ANOVA confirmed the main effect of age on accuracy, $F(3, 136) = 24.04, p < .001$. Post hoc testing (Games-Howell) revealed that the preschoolers scored significantly lower ($M = 13.63, SD = 2.60$) than the 6-7-year-olds, 9-10-year-olds, and

adults ($M = 15.90$, $SD = 0.52$, $ps < .001$). There was no effect on accuracy of set, $F(1, 136) = 0.22$, *n.s.*, and no interaction between age and set, $F(3, 136) = 0.27$, *n.s.*

Table 4.2: Mean scores (and standard deviations) according to age group

Age group	Set A (max. 8)	Set B (max. 8)	Total (max. 16)
3-4-year-olds $n = 40$	6.75 (1.60)	6.88 (1.34)	13.63 (2.60)
6-7-year-olds $n = 40$	8.00 (0.0)	8.00 (0.0)	16.0 (0)
9-10-year-olds $n = 40$	8.00 (0.0)	8.00 (0.0)	16.0 (0)
Adults $n = 20$	7.75 (0.55)	7.75 (0.55)	15.50 (1.10)
Total	7.61 (1.03)	7.64 (0.89)	15.25 (1.78)

Justifications according to age

The purpose of the next stage of the analysis was to reveal what factors were given to qualify the real/not-real judgements. Judgements were coded as belonging to one of eight categories (see Table 4.3), irrespective of the accuracy of the judgement. To assess coding reliability, 25% of the justifications were rated by an independent coder and inter-rater reliability was 86%.

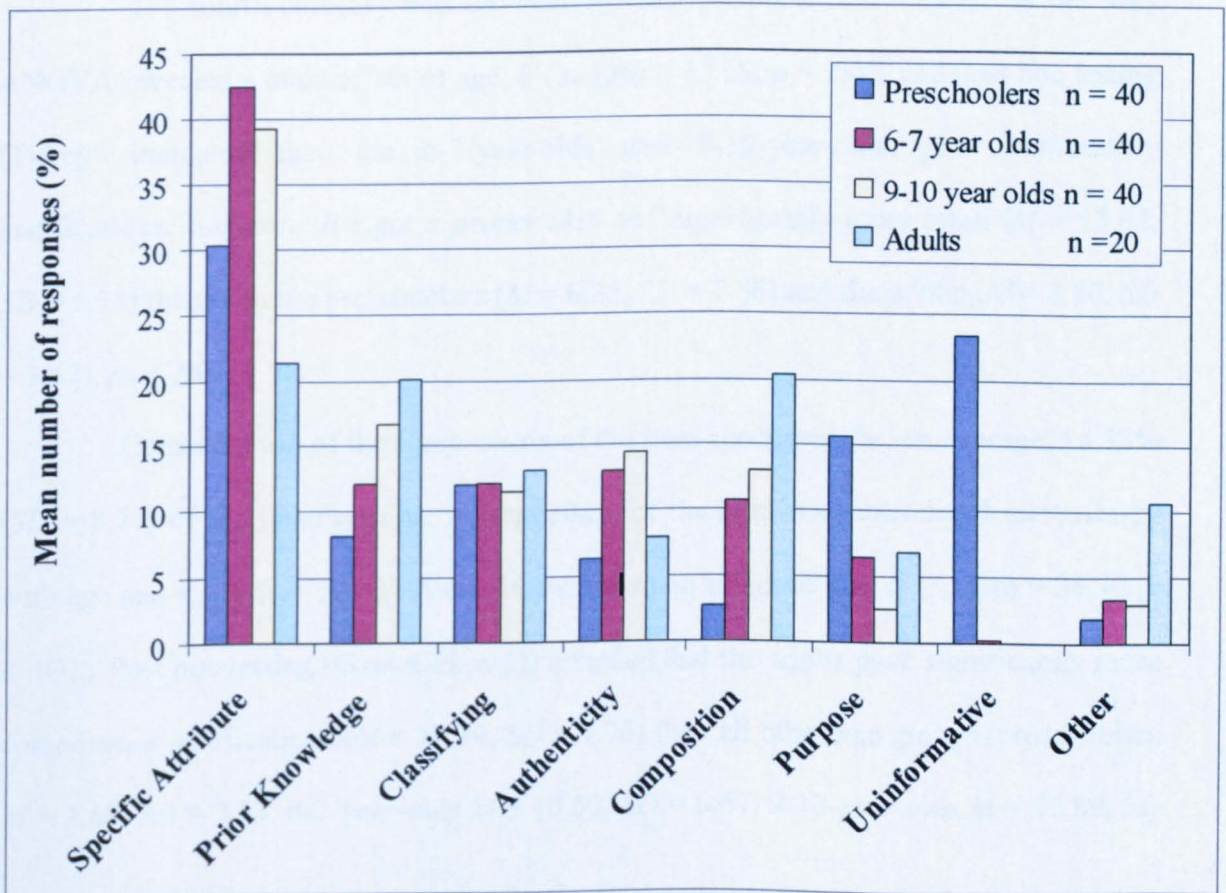
Because the number of justifications provided by each participant increased significantly as a function of age, $F(3, 136) = 45.05$, $p < .001$ (preschoolers $M = 1.31$, $SD = 1.69$, 6-7-year-olds $M = 1.68$, $SD = 1.85$, 9-10-year-olds $M = 2.05$, $SD = 1.99$, adults $M = 2.34$, $SD = 2.37$, $p < .001$) each single justification was expressed as a percentage of the total number of justifications given by that participant.

Table 4.3: Coding categories for the justifications with definitions and example responses.

Justification	Description	Example
Specific Attribute	A particular feature of the item	It's yellow; it's got a tail; he's wearing wellies.
Prior Knowledge	Personal knowledge or experience of the item	I've seen those cars before; it feels real; dogs don't have wheels; he's too little to be a fireman.
Authenticity	Reference to a real/ genuine/ authentic or unreal feature of the item	It's got proper skin; it has realistic crusts; it's got real smoke coming out; it's got pretend fur.
Classifying	Referring to a category to which the item belongs	It's a toy; he's a child; it's a puzzle; it's a pet.
Composition	What the item is made from	It's made from flour; it's plastic; it's a wooden one.
Purpose	What the item is used for or what it does	You can eat it; you play with it; it's for driving in; he listens to your tummy.
Other	This commonly included references to where the item is situated and whether it is alive	He's in the hospital; it can move on it's own; it's alive and it breathes and sleeps
Uninformative	Response is not meaningful	I don't know; 'cos it is real.

Figure 4.1 shows the mean numbers of responses produced by each age group in each of the eight categories. It can be seen that the most common justification was *specific attribute* ($M = 35.03\%$, $SD = 16.29\%$), which was when a particular aspect of the item was described. A one-way ANOVA with four levels (age: preschoolers, 6-7-year-olds, 9-10-year-olds, and adults) was conducted to compare the frequency with which this justification was given according to age. This revealed a main effect of age, $F(3, 136) = 13.69$, $p < .001$. Post hoc testing (Tukey) showed that the 6-7-year-olds and 9-10-year-olds gave this justification significantly more ($M = 40.81$, $SD = 11.42$) than the preschoolers ($M = 30.33$, $SD = 21.54$, $p < .001$) and the adults ($M = 21.32$, $SD = 7.5$, $p < .001$).

Figure 4.1: Mean number of justifications in each category according to age group



The second most common justification was *prior knowledge* ($M = 13.36\%$, $SD = 10.25$), which was when knowledge or experience of the item justified their decision, such as: “*It’s in the shape of bread*” and “*I’ve seen cats before*”. This justification occurred increasingly with age and a one-way ANOVA showed a main effect of age, $F(3, 136) = 9.51$, $p < .001$. Post hoc testing (Tukey) indicated that the 9-10-year-olds and adults ($M = 18.35$, $SD = 8.76$) provided significantly more *prior knowledge* justifications than the preschoolers ($M = 8.02$, $SD = 10.25$, $p < .001$). In addition, the adults ($M = 20.06$, $SD = 7.78$) gave this justification significantly more than the 6-7-year-olds ($M = 12.07$, $SD = 10.25$, $p < .001$).

Classifying accounted for 11.94% ($SD = 8.10$) of the justifications on average and included those such as: “*Because it’s a toy puzzle*”. This justification was not given differentially by age, $F(3, 136) = 0.17$, *n.s.*

The fourth category was *authenticity* ($M = 10.68\%$, $SD = 7.23$). A one-way ANOVA revealed a main effect of age, $F(3, 136) = 13.69$, $p < .001$, and post hoc testing (Tukey) indicated that the 6-7-year-olds and 9-10-year-olds gave *authenticity* justifications, such as: “*It’s got a proper skin on*” significantly more often ($M = 13.62$, $SD = 6.13$) than both the preschoolers ($M = 6.25$, $SD = 7.86$) and the adults ($M = 7.80$, $SD = 3.67$), $ps < .001$.

Consideration of the *composition* of the item accounted for, on average, 10.38% ($SD = 8.74$) of the justifications. *Composition* of the item was considered increasingly with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 34.70$, $p < .001$. Post hoc testing (Games-Howell) revealed that the adults gave significantly more *composition* justifications ($M = 20.34$, $SD = 4.76$) than all other age groups (preschoolers $M = 2.69$, $SD = 7.13$, 6-7-year-olds $M = 10.59$, $SD = 6.67$, 9-10-year-olds $M = 12.89$, SD

= 6.92, $ps < .001$). In addition, the 6-7-year-olds and 9-10-year-olds both produced significantly more *composition* justifications than the preschoolers ($p < .001$).

The sixth category encompassed descriptions of the *purpose* of the item ($M = 7.98\%$, $SD = 11.50$), such as: “*It’s for eating*” and “*You can drive in it*”. The preschoolers produced *purpose* justifications more than the other age groups and a one-way ANOVA confirmed that there was a significant main effect of age, $F(3, 136) = 11.12$, $p < .001$. Post hoc testing (Games-Howell) revealed that the preschoolers gave this justification significantly more often ($M = 15.59$, $SD = 16.85$) than the other age groups ($M = 5.25$, $SD = 6.34$, $p < .001$).

Uninformative responses accounted for 6.77% of the responses on average ($SD = 18.78$) and these were largely produced by the preschoolers. A one-way ANOVA revealed a main effect of age, $F(3, 136) = 21.02$, $p < .001$, and post hoc testing (Games-Howell) confirmed that the preschoolers gave significantly more *uninformative* responses ($M = 23.42$, $SD = 29.28$) than the other age groups ($M = 0.09$, $SD = 0.67$, $ps < .001$).

Finally, use of the category *other* was infrequent ($M = 3.86\%$, $SD = 5.41$), so it was not analysed statistically. However, Figure 4.1 shows that more of these justifications were produced by adults ($M = 10.67$, $SD = 6.73$) than the children ($M = 2.72$, $SD = 4.39$).

4.4 Discussion

This study was designed to explore what factors are considered when judging the ‘real’ or ‘not-real’ status of items which are encountered by children in their everyday lives and which naturally invoke consideration of their reality status, e.g. toys and people dressing up. The motivation behind this study was to examine the accuracy of children’s real/not-

real judgements for such items as well as to examine what these judgements mean by eliciting the decisions behind them. These justifications were analysed into categories according to what factors were given. Developmental differences clearly emerged with respect to the sorts of judgements provided and the discussion begins with consideration of these.

Almost one quarter of the justifications provided by the preschoolers were *uninformative* (despite judgements being correct 85% of the time). The remainder of their justifications were allocated to the category *specific attribute* because they provided an observable fact about the item (often ascertainable from the picture), such as its size or colour. Preschoolers also considered the *purpose* of the item to justify its real/not-real status (e.g. “*It’s for playing with*”) and this was the case significantly more than any other age group. The other justification that the preschoolers often gave served to *classify* the object, such as by referring to it as a toy or ‘pretend’ one. Notably, this justification was used just as often by the other age groups and, perhaps surprisingly, there was not a noticeable qualitative change either, with reference to ‘toys’ being the main form of classification.

The patterns of justification provided by the 6-7-year-olds and 9-10-year-olds overall were fairly similar to each other. Their justifications were fairly evenly distributed across all of the categories, but, similarly to the preschoolers, the most common form of justification was to describe *specific attributes* of the items.

The most notable differences among the age groups in terms of the justifications provided were between the children and the adults. Although *specific attribute* justifications were given frequently by the adults, as by the children, the adults usually gave them with other justifications based on *prior knowledge/experience* and *composition*, for example, a typical adult explanation was “*My son loves bananas and he*

had one for breakfast this morning, um, it's not made of plastic like the other one ... and ... it's yellow". The *composition* of the item was described significantly more often by the adults than the children but *authenticity* of the items was less of a concern for the adults.

The justifications provided in this study were different from those obtained by Prawat et al., (1989). The main criterion that was used by participants in their study was prior or personal experience while in the current study it was *specific attribute*. One possible reason for this could be due to the types of items for which participants were required to make judgements. In the Prawat et al., study, participants listed general criteria that would be important for determining whether something is real or not-real in addition to providing criteria for categories of items including dolls, cartoons, clouds and dreams. In contrast, the current study used a narrow range of specific items with which children are very familiar because they were common in children's everyday speech using the words *real*, *really* and *pretend*. In addition, pictures and objects were shown to the children of these items in the current study while, in the study by Prawat et al., (1989) the items were named.

These differences may have increased the frequency with which *specific attribute* justifications were produced in the current study, perhaps because pictures and objects made the appearance and properties of each item more salient in comparison to being named. It was surprising that even adults frequently gave *specific attribute* justifications because these do not seem to provide a reliable means of differentiating real items from the toy ones, at least in this study; for example explaining that the banana was real because it was yellow did not distinguish it from the toy banana which was also yellow.

There are two possible interpretations for the high frequency with which *specific attribute* justifications were given. First, the *specific attribute* may be referring to a property of the item that is irrelevant for differentiating it from its real/not-real counterpart. Alternatively, it may be referring to a relevant property but the justification is underspecified. For example, explaining that 'It's yellow' could mean 'It's the proper yellow colour of real bananas'. To differentiate between these two interpretations further questioning of children would be required.

Recall that it was also expected that children's and adults' reasoning would relate to the notion of authenticity rather than existence. This expectation was largely supported by the findings that there were no references to the ontological status of the items and there were references to the notions of *authenticity*. However, a broad range of other factors were also considered. *Authenticity* justifications were mostly given by the 6-7-year-olds and 9-10-year-olds and not the preschoolers. This was perhaps because in this category an explicit evaluative comment about a feature of the item using words such as 'real', 'pretend', or 'realistic' were required. This type of explicit comment was rarely produced by preschoolers in Study 1. This, therefore, supports the notion that *specific attribute* explanations were possible underspecified references to authenticity. Finally, the adults also reasoned about *authenticity* significantly less often than the 6-7-year-olds and 9-10-year-olds, perhaps indicating that this criterion is not the most informative way to discern a toy item from a real one: *composition* was particularly common in the adults.

Despite some differences in methodology between the current study and the study by Prawat et al., (1989) *prior knowledge/experience* justifications (e.g. "Because I've seen one before") were prominent in both. This suggests that this type of justification is a pervasive one which is used to reason about the reality of a variety of classes of items including toys. It would be interesting research to determine whether

this justification alone would be sufficient to convince another, non cognizant person of the reality status of an object, because it relies on belief in testimony of the informant.

In conclusion, in the current study children's reasoning about the real/not-real status of everyday toy objects was examined. An equally important area of their everyday experience that was neglected, however, relates to the class of entities generally referred to as 'fantasy characters'. In the data in Study 1, children discussed fantasy using the words *real*, *really* and *pretend* in about 20% of the utterances, which was one of the largest topics second to 'objects.' By focusing on the topic of fantasy in the next study (Study 3) some light will be shed on children's reasoning behind making fantasy-reality judgements. Ultimately the results will contribute towards developing a fuller account of children's interpretation of words such as *real* in experimental tasks.

Chapter 5

Study 3: Children's real/not-real judgements and justifications about fantasy characters

5.1 Introduction

In the previous study, children's real/not-real judgements and justifications for those judgements were sought for real and toy objects. A broad range of justifications were provided including *specific attribute*, describing *prior knowledge/experience*, *classifying* the item, describing the *composition* of the item, commenting on the *authenticity* of features of the item, and explaining the *purpose* or function of the item. The current study employed this framework to investigate children's justifications for their real/not-real judgements in relation to fantasy characters.

As noted in Chapter 1, a number of studies have documented children's ability to identify the real/not-real status of a variety of fantasy characters. Those studies have concluded that preschoolers are confused about the reality status of fantasy characters because of their tendency to categorise them incorrectly as 'real' (Morison & Gardner, 1978; Samuels & Taylor, 1994; Sharon & Woolley, 2004). A limitation of those studies, however, is that they have neglected to take into account children's explanations for their judgements, thus it is not clear what children mean by their classifications. As described in Chapter 2 and found in Studies 1 and 2, children may consider real/not-real status in terms of authenticity of features of an item or character or they may consider them in terms of whether or not they exist.

In the study by Prawat et al., (1989) (described in Section 4.1) children and adults had to justify why they thought that, among other items, the category of cartoon characters was 'real' or 'not-real'. This study revealed that preschoolers largely claimed that cartoon characters were 'real' while the 9-10-year-olds and adults claimed that they were 'not-real'. Unfortunately, the results for the justifications for cartoon characters were not provided separately by the authors who instead focused on justifications for 'dolls' and 'dreams'.

A limitation of Prawat et al's., (1989) study is that it appears to have low validity. This is because in their everyday talk about fantasy (Study 1) children do not often consider fantasy characters and cartoons as categories of entities but they consider specific individuals from these categories, such as the Tooth Fairy or Bob the Builder. Also, in experimental tests children are faced with specific instances of fantasy characters, not the category in general. Thus it is possible that, when asked to justify why 'cartoon characters' are 'real' or 'not-real', children consider a specific example, not the general case. Therefore, in the current study children's justifications for their real/not-real judgements for specific fantasy and cartoon characters were sought. It was expected, in light of the findings from Study 1, that children would consider factors regarding both the authenticity of the characters and their (non) existence. In the current study children may, for example, consider the authenticity of Bob the Builder, noting, for example that *"He hasn't got real skin, it's just made up of plastic"*. Alternatively they may consider the fictional status of Bob the Builder by claiming that *"There's no such person as him"*.

5.2 Method

Participants

The participants were those that had taken part in Study 2 (see Section 4.2).

Stimuli and task

The characters were chosen in light of the language data from Study 1. In that data, children commonly discussed real and not-real aspects of cartoon characters, such as Bob the Builder and fantasy characters such as 'Father Christmas' (see Appendix 5.1 for pictures of the characters). Four characters from each of these two types were selected on the basis of their frequent mention in the data in Study 1. Then the characters were divided into two sets so that each set comprised two cartoon characters and two fantasy characters: Set 1 consisted of Bob the Builder, Scooby Doo, monsters, and Father Christmas, and Set 2 comprised Winnie the Pooh, Shrek, ghosts, and fairies⁴. Within each set, characters were presented in this order in line with their chronological order of appearance in the data collected in Study 1. All characters were presented as pictures with the exception of monsters and ghosts because a suitable uniform, non-cartoon depiction of these characters was not available. Instead, they were introduced to the child by saying: "*What about monsters/ghosts?*"

Procedure

Children were tested at nursery/school and adults were tested at work. Before formal testing began children were shown each picture in a random order to check they recognised the name for each one. All children were familiar with all of the characters. The first picture was introduced with the question: "*Do you think _____ is real or not-real?*" and after they had responded it was removed. In the same way the other characters from the first set were presented in turn. Once the judgments for each of the four characters in a set were made, they were reintroduced, in turn by reminding the child

⁴ In pilot testing The Tooth Fairy was used but the preschoolers were not familiar with this character so it was replaced by the general category of 'fairies'.

of their judgement and asking them: “*Why did you think _____ was real/not-real?*” This procedure was repeated for characters in the other set. The presentation order of the sets was counterbalanced so that half of the children received Set 1 first followed by Set 2 and half received the reverse order.

5.3 Results

Scoring

A response was awarded a score of 1 if a child labelled a character as ‘not-real’ and a response of ‘real’ received a score of 0. The maximum score for each child was 8 since there were two sets, each containing 4 characters.

Performance on the judgement task

Scores for the four age groups on each of the two sets of the real/not-real judgement task are shown in Table 5.1. Preliminary analysis using independent *t* tests revealed no effect of task order for Set 1, $t(138) = 0.49, n.s.$ (Set 1 first $M = 2.97, SD = 1.14$; Set 1 second $M = 2.87, SD = 1.25$) or Set 2, $t(138) = -0.22, n.s.$ (Set 2 first $M = 3.17, SD = 1.13$; Set 2 second $M = 3.21, SD = 1.21$), so scores within each set were collapsed. Table 5.1 shows that judgements of ‘not-real’ increased with age and that scores in Set 2 tended to be higher than scores in Set 1. A 4 (age) X 2 (set) ANOVA confirmed the main effect of age on judgements, $F(3, 136) = 51.88, p < .001$, and post hoc testing (Games-Howell) revealed that scores increased significantly between the preschoolers and 6-7-year-olds, and the 6-7-year-olds and 9-10-year-olds ($ps < .001$), but not between 9-10-year-olds and adults.

Table 5.1: Mean scores (and standard deviations) according to age group

Age Group	Set 1 (max. 4)	Set 2 (max. 4)	Total (max. 8)
3-4-year-olds $n = 40$	1.6 (1.37)	2.00 (1.45)	3.60 (2.68) (45%)
6-7-year-olds $n = 40$	3.10 (0.30)	3.50 (0.64)	6.60 (0.67) (83%)
9-10-year-olds $n = 40$	3.60 (0.55)	3.75 (0.44)	7.35 (0.74) (92%)
Adults $n = 20$	3.85 (0.37)	3.85 (3.67)	7.70 (0.66) (96%)
Total	2.92 (1.19)	3.19 (1.17)	6.11 (2.24) (76%)

The effect of set was also confirmed, $F(1, 136) = 13.58, p < .001$, with scores in Set 1 being lower than scores in Set 2. As there was no interaction between age and set, $F(3, 136) = 2.12, n.s.$ analyses were conducted to assess the effect of character in each set (see Table 5.2). A repeated measures ANOVA on scores in Set 1 revealed that there was a significant effect of character (Greenhouse-Geisser), $F(1.90, 263.82) = 70.82, p < .001$, and pairwise comparisons indicated that scores for Father Christmas were significantly lower than scores for the other three characters ($ps < .001$). In other words, Father Christmas was judged as 'real' significantly more than the other characters. A repeated measures ANOVA on scores in Set 2 also revealed a significant effect of character (Greenhouse-Geisser), $F(2.15, 298.61) = 17.96, p < .001$, and pairwise comparisons indicated that scores for Fairies were significantly lower than scores for the other three characters ($ps < .001$), thus fairies were also judged as 'real' significantly more often than the other characters.

Table 5.2: Mean scores (and standard deviations) according to character

Set	Character	Mean (1= correct 0 = incorrect)
Set 1	Bob the Builder	0.86 (0.34)
	Scoobie Doo	0.82 (0.38)
	Monster	0.84 (0.37)
	Father Christmas	0.40 (0.49)
Set 2	Winnie the Pooh	0.87 (0.34)
	Shrek	0.80 (0.40)
	Ghosts	0.87 (0.34)
	Fairies	0.64 (0.48)

Justifications according to age

The purpose of the next stage of the analysis was to reveal what factors were given to qualify the real/not-real judgements. Judgements were coded as belonging to one of ten categories (see Table 5.3), irrespective of the judgement made. To assess coding reliability, 25% of the justifications were rated by an independent coder and inter-rater reliability was 82%.

Because the number of justifications increased significantly as a function of age, $F(3, 136) = 27.84, p < .001$ (preschoolers $M = 1.23, SD = 0.28$; 6-7-year-olds $M = 1.37, SD = 0.23$; 9-10-year-olds $M = 1.78, SD = 0.45$; adults $M = 1.98, SD = 0.57, p < .001$), each single justification was expressed as a percentage of the total number of justifications given by that participant.

Figure 5.1 shows the mean number of responses produced by each age group in each of the ten categories. It can be seen that the largest proportion of responses were *composition/origins* ($M = 13.44\%$, $SD = 13.01\%$), that is, consideration of how a character was made or where it came from. Production of this response steadily increased with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 72.12, p < .001$. Post hoc testing (Games-Howell) revealed that the 9-10-year-olds and adults gave significantly more *composition/origins* justifications ($M = 25.75, SD = 9.87$) than both the 6-7-year-olds ($M = 8.54, SD = 9.35$) and preschoolers ($M = 1.65, SD = 3.98$), $ps < .001$.

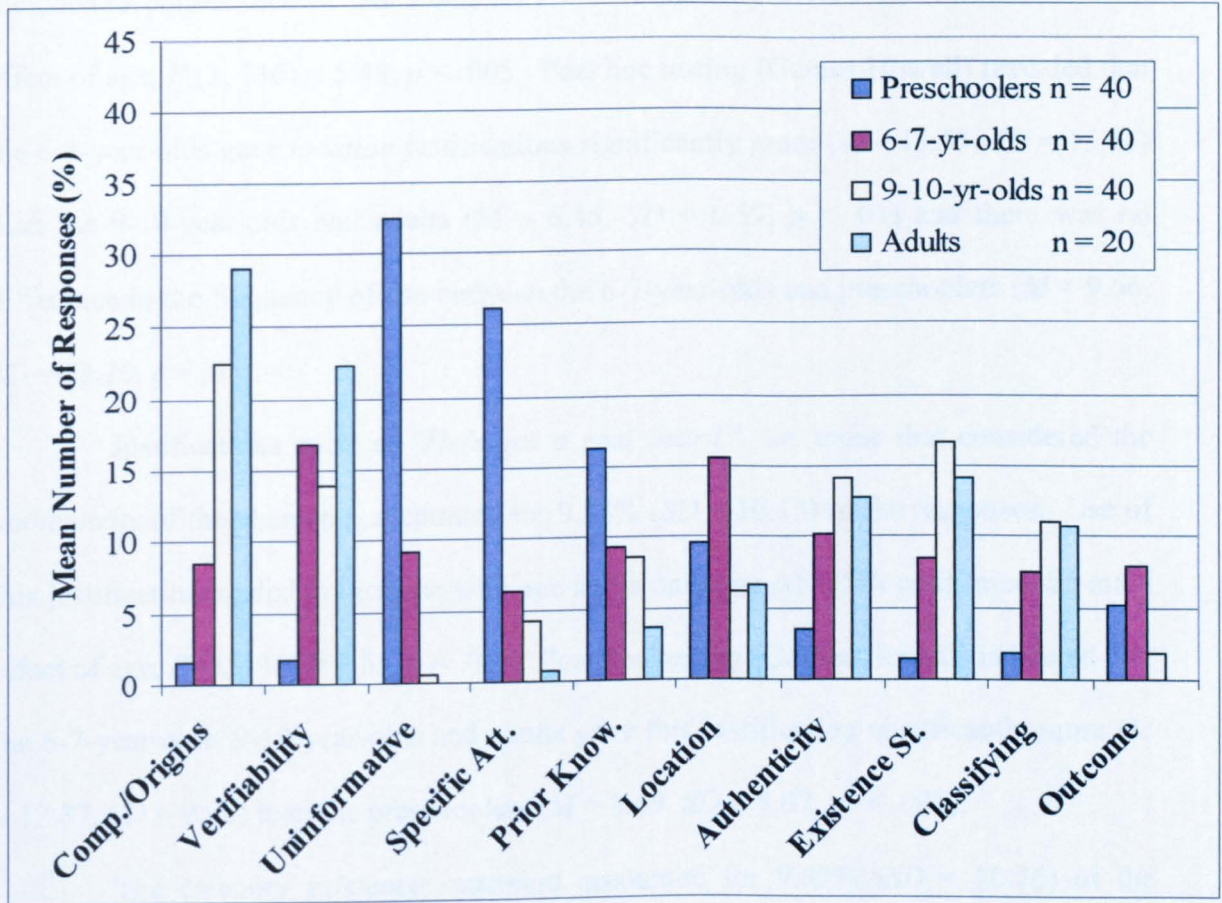
The second most common justification, including responses such as “*No-one’s ever seen them,*” was *verifiability* ($M = 12.46, SD = 11.86$). This justification was used increasingly with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 28.80, p < .001$. Post hoc testing (Games-Howell) revealed that the 9-10-year-olds and 6-7-year-olds both gave significantly more ($M = 15.43, SD = 11.97$) than the preschoolers ($M = 1.70, SD = 4.73$), $ps < .001$, and the adults gave significantly more *verifiability* justifications ($M = 22.3, SD = 5.5, p < .001$) compared to the other age groups.

The category *specific attribute* was the third most common justification ($M = 10.62, SD = 17.36$) and this was when a feature of the item was described. Use of this justification decreased with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 23.08, p < .001$. Post hoc testing (Games-Howell) revealed that the adults gave this justification significantly less ($M = 0.73, SD = 2.36$) than both the 9-10-year-olds and 6-7-year-olds ($M = 5.25, SD = 7.26$), and the preschoolers ($M = 26.24, SD = 24.61$), $ps < .001$, and the 9-10-year-olds and 6-7-year-olds gave this justification significantly less than the preschoolers ($p < .001$).

Table 5.3: Coding categories for the justifications with definitions and example responses

Justification	Description	Example
Composition/ Origin	What the character is made of or where it comes from	He's made out of playdoh; people just draw them; it's animation; someone just made it up.
Verifiability	Establishing evidence regarding the existence of the character	No one's ever seen them; you wouldn't meet him in the street.
Existence Statement	Unsupported statement of belief or unbelief in the character	There's no such thing; they don't exist; I don't believe in them.
Authenticity	Reference to a real or unreal feature of the character	He hasn't got a real face; he's got a real beard; he's not a proper bear.
Location	Places in which the character lives or is found	He's on TV; he's not on our planet; he's only in the film.
Prior Knowledge	Personal or previous knowledge or experience of the character	Cats can't talk; I've seen him at Disney; I saw Mum hiding my presents.
Specific Attribute	A particular feature of the character	He's green; he's wearing a belt; he's got a tail; they're scary.
Classifying	Referring to the character with another name	It's just a cartoon character; he's an ogre; it's a teddy bear.
Outcome	Events or outcomes caused by the character	He brings presents; they leave things for you.
Uninformative	Response was not meaningful	I don't know; 'cos it is real.

Figure 5.1: Mean number of justifications in each category according to age group



The *prior knowledge/experience* category, which included justifications such as “*He came to my school,*” accounted for 10.34% ($SD = 12.78$) of the responses. Use of this justification decreased with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 5.48, p < .001$. Post hoc testing (Games-Howell) revealed that the adults gave *prior knowledge* justifications significantly less ($M = 3.75, SD = 4.20$) than both the 6-7-year-olds and 9-10-year-olds ($M = 9.05, SD = 11.63, p < .005$) and preschoolers ($M = 16.07, SD = 14.96, p < .001$), and the 6-7-year-olds and 9-10-year-olds also gave significantly fewer than the preschoolers ($p < .01$).

The fifth most common justification was *location* ($M = 9.89$, $SD = 12.81$) and included responses such as “*He’s only on T.V.*” A one-way ANOVA confirmed the main effect of age, $F(3, 136) = 5.48$, $p < .005$. Post hoc testing (Games-Howell) revealed that the 6-7-year-olds gave *location* justifications significantly more ($M = 15.53$, $SD = 15.64$) than the 9-10-year-olds and adults ($M = 6.45$, $SD = 6.59$, $p < .01$) and there was no difference in the frequency of use between the 6-7-year-olds and preschoolers ($M = 9.66$, $SD = 15.20$, $p > .05$).

Justifications such as “*He’s got a real beard*”, i.e. those that considered the *authenticity* of the character, accounted for 9.83% ($SD = 10.15$) of the responses. Use of this justification tended to increase with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 9.65$, $p < .001$. Post hoc testing (Games-Howell) indicated that the 6-7-year-olds, 9-10-year-olds and adults gave this justification significantly more ($M = 12.37$, $SD = 9.98$) than the preschoolers ($M = 3.69$, $SD = 8.67$, $ps < .001$).

The category *existence statement* accounted for 9.62% ($SD = 10.76$) of the justifications and included responses such as “*Because there’s no such thing as them*”. This justification also tended to increase with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 21.38$, $p < .001$. Post hoc testing (Games-Howell) showed that both the 9-10-year-olds and adults ($M = 15.41$, $SD = 10.49$) gave this justification significantly more than both the preschoolers ($M = 1.40$, $SD = 5.56$, $p < .001$) and 6-7-year-olds ($M = 8.57$, $SD = 8.59$, $p < .01$). The 6-7-year-olds also gave this justification significantly more than the preschoolers ($p < .001$).

Responses such as “*It’s a cartoon*” and “*It’s an ogre*”, i.e. those that *classified* the character accounted for 7.41% ($SD = 8.9$) of the total number of justifications. This justification was used increasingly with age and a one-way ANOVA confirmed the main effect of age, $F(3, 136) = 9.81$, $p < .001$. Post hoc testing (Games-Howell) indicated that

the 6-7-year-olds, 9-10-year-olds, and adults gave this justification significantly more often ($M = 9.81$, $SD = 10.58$) than the preschoolers ($M = 1.92$, $SD = 4.15$, $ps < .005$).

Finally, justifications that considered *outcomes* or events associated with the character were infrequent ($M = 4.32$, $SD = 6.17$) and because of this they were not analysed statistically. Figure 5.1 shows that these justifications were given more often by the preschoolers and 6-7-year-olds ($M = 6.69$, $SD = 7.54$) than the 9-10-year-olds and adults ($M = 0.95$, $SD = 3.51$). The same, but more exaggerated pattern was found for *uninformative* responses, which accounted for 12.05% ($SD = 22.89$) of the justifications. That preschoolers ($M = 32.45$, $SD = 30.31$) and 6-7-year-olds ($M = 9.27$, $SD = 17.51$) gave more *uninformative* justifications than the 9-10-year-olds and adults ($M = 0.35$, $SD = 1.67$).

5.4 Discussion

This study examined children's justifications for their real/not-real judgements about fantasy characters. The justifications were analysed according to what criteria were considered and some clear developmental changes emerged. Preschoolers tended to judge fantasy characters as 'real' (55%) and the largest proportion of their justifications were *uninformative*. The remainder simply described *specific attributes* of the fantasy character (often inferred from the pictures), or described *prior experience or knowledge*. The preschoolers gave both *specific attribute* and *prior experience* justifications significantly more than the other age groups. Preschoolers also sometimes described *outcomes* associated with the fantasy characters, for example "He (Father Christmas) brings you presents" and they described the *location* in which they had previously seen some of the fantasy characters, i.e. on the television.

The 6-7-year-olds, conversely, tended to judge that the fantasy characters were 'not-real' (83%), but this was significantly less than the 9-10-year-olds and adults. The 6-7-year-olds produced fewer *uninformative* responses than the preschoolers and they gave a larger range of justifications. The most common were *verifiability* and *location*, whereby they typically described whether anyone has ever seen the fantasy character and/or commented that fantasy characters are only found on TV as opposed to being in the street. In particular, the 6-7-year-olds offered *location* justifications significantly more often than the other age groups. This seems to suggest that for children around the ages of 6-7 years, the televised nature of fantasy characters is a particularly salient feature. The remainder of the justifications provided by children from this age group were fairly well distributed across the other categories, indicating that they considered a broad range of factors to justify their real/not-real judgements.

The 9-10-year-olds judged fantasy characters as 'not-real' 90% of the time. The most common justification was *composition/origins*, and this was produced significantly more by the 9-10-year-old children than the two younger age groups. Typical responses within this category included reference to the imagined nature of fantasy characters or to their animated, computerised, or drawn nature. Similarly to the 6-7-year-olds, the 9-10-year-olds also gave *verifiability* justifications, but the 9-10-year-olds also commonly discussed the *authenticity* of fantasy characters and gave *existence statements*.

For the adults 97% of their judgements were that fantasy characters were 'not-real'. There was little difference, however, in terms of the justifications provided by the adults compared to the 9-10-year-olds: both groups considered the *composition/origins* of the characters, discussed the *authenticity* of the fantasy characters, and gave *existence statements*. Regarding *verifiability* justifications, however, the adults produced this justification significantly more often than the children. Despite this difference these

results suggest that 9-10-year-olds have a fairly adult like understanding of the factors that contribute to the real/not-real status of fantasy characters, even if they occasionally conclude from this information that a fantasy character is 'real'.

Overall, these results suggest that preschoolers tend to judge fantasy characters as 'real' and they have difficulty providing an informative reason: they typically provide an uninformative response or describe a specific attribute of the character based on appearance. Children between the ages of 6-7 years tend to judge fantasy characters as 'not-real' but about 20% judge that they are 'real'. Their justifications suggested awareness of the status of existence of the character and this tended to centre on whether the character is visible or not. Other typical considerations centred on the fact that fantasy characters tend only to be found on the TV. By the ages of 9-10 children largely judged that the fantasy characters were 'not-real' and they explained why in a similar way to the adults. Notably they provided verifiable evidence for their judgements and they understood that fantasy characters have fictitious origins, even though this occasionally followed a judgement that some characters were 'real'. Nine-ten-year-olds and adults also reasoned about the existence of fantasy characters with explicit statements including "*There's no such thing*" or "*They don't exist*".

In the introduction it was suggested that children would consider both the authenticity and existence of fantasy characters in their reasoning. From the justifications that were provided it is difficult to judge the extent to which this was the case because a wide range of other factors were also given. However, a comparison of the number of *existence statements*⁵ with *authenticity* revealed that there was no difference (9.62% vs 9.83% respectively). In terms of the developmental pattern of *existence statements* and

⁵ *Existence statements* were judged as the best indicator of 'existence' because they encompassed direct and explicit references using terms for existence.

authenticity justifications, they were both given increasingly with age. Regarding *authenticity*, the 6-7-year-olds, 9-10-year-olds, and adults produced this justification significantly more often than the preschoolers. (This reflects the results from the previous study in which preschoolers rarely gave this justification.) On the other hand, more *Existence statements* were provided by the 9-10-year-olds and adults than the 6-7-year-olds and preschoolers. One possible reason for this is because such justifications were explicit statements; also these were rarely produced by younger children in Study 1. Overall, both the notions of authenticity and existence were considered when children and adults were asked to justify their real/not-real judgements for fantasy characters, but these were just two of many other factors considered.

The justifications that were produced in this study were, again, quite different from those obtained by Prawat et al., (1989). The main criterion used in their study was direct personal knowledge while the equivalent justification in the current study (*prior knowledge/experience*) was, overall, only the fourth most common justification. In the current study, more importance was given to factors including the *composition/origins* of the character and establishing evidence regarding their existence (*verifiability*). Possible reasons for the differences between the two studies were outlined in Section 4.4 and will not be repeated here.

A potential limitation of the current study lies in a facet of the procedure which differed from that used in Study 2: recall from Section 4.3 that children were shown both the real and not-real item simultaneously, thus they were making an implicit comparative judgement. In contrast, in the current study the fantasy characters were not presented with a 'real' equivalent. This meant that children were not asked to make an implicitly comparative judgment in Study 3. It also meant that the correct judgement was always 'not-real'. This may have confused the children because they were given a choice of two

responses (real and not-real) and this could have resulted in children judging some characters as 'real' simply because they felt under pressure to choose the 'real' option some of the time. Presenting the fantasy characters unaccompanied may also have made it more difficult for children to provide a justification because they did not have another 'real' character with which to draw a comparison.

The use of fantasy characters alone may also not have been the most ecologically valid method to assess understanding because we experience fantasy characters in contexts in which real people are included (as was evident in the diary data, Study 1). Examples include television programmes such as 'Blues Clues' in which cartoon animation is presented with real adult presenters, and story collections such as the Oxford Tree Reading Scheme in which 'ordinary' school aged children including 'Biff' and 'Chip' go on fantastical adventures with the aid of a magic key. Even in shopping centres and theme parks children encounter people dressed-up as fantasy characters in real situations. With this concern in mind, in Study 4 children were presented with the fantasy characters used in the current study presented simultaneously with equivalent real characters. For example, Bob the builder was presented alongside a real builder, and Winnie the Pooh was presented alongside a real bear.

Chapter 6

Study 4: Children's real/not-real judgements and justifications of real and fantasy characters

6.1 Introduction

The study presented in this chapter was designed to explore children's understanding of the reality status of cartoon characters as well as real characters. This was done in a way directly comparable to the methodology employed in Study 2 using real and toy objects so that, instead of making real/not-real judgements and justifications in relation to fantasy characters presented individually, the fantasy characters were paired with real characters, for example Bob the Builder was presented alongside a real builder. It was expected that children's judgements that fantasy characters are 'not-real' would increase because the expected answers were 'real' (for the real characters) and 'not-real' (for the fantasy characters). In addition, it was expected that the justifications children provided would differ from Study 3 in terms both of the nature of references to existence and authenticity.

6.2 Method

Participants

Twenty preschoolers (mean age 4;1, range = 3;3-4;9) and 20 6-7-year-olds (mean age 6;11, range = 6;2-7;10) participated. There were equal numbers of boys and girls in each group. Children were recruited from nurseries and schools in Surrey, UK, serving

predominantly white and working-class families. Twenty adults were also tested and were recruited from a University in Surrey (mean age 32 years, range = 18-42).

Stimuli and task

The characters were the same as those used in the previous study, but ‘monsters’ and ‘ghosts’ were removed because there was a lack of a suitable equivalent ‘real’ character. In addition to the previous study, each fantasy character was presented alongside a picture of an appropriate real character, for example Bob the builder was presented with a real adult male builder (see Appendix 6.1 for pictures of the characters). As before, characters were presented in two sets: Set 1 comprised Bob the builder and a builder, Scooby Doo and a dog, and Father Christmas and a postman; Set 2 contained Winnie the Pooh and a bear, Shrek and a surgeon wearing green surgical scrubs, and fairies and ballerinas. Within each set, the characters were presented in these orders as was in line with the order of appearance in natural speech data collected in Study 1. The presentation order of the sets was counterbalanced so that half of the children received Set 1 first followed by Set 2 and half received the reverse order.

Procedure

Children were tested individually at nursery/school. The first pair of items was introduced by saying: “*This is Bob the Builder and this is a builder*”. One of the characters was pointed to and the child was asked: “*Do you think ____ is real or not-real?*” Then the same question was asked for the other character and, after the child had responded, both characters were removed. The other pairs of characters were presented in the same way. Once children had made their judgments for all 3 pairs in one set, the pairs of characters were reintroduced, in turn. For each character in the pair children

were reminded of their judgement and then asked: “*Why did you think _____ was real or not-real?*” This procedure was repeated for characters in the other set. The same procedure was carried out for the adults who were tested either at work or home as convenient.

6.3 Results

Scoring

One point was allocated if a fantasy character was judged as ‘not-real’ and one point was awarded if a real character was judged as ‘real’. The maximum score for each child was therefore 12 since there were 2 sets containing six fantasy characters and six real characters.

Performance on the judgement task

Scores for the three age groups on each of the two sets of the real/not-real judgement task are shown in Table 6.1. Preliminary analysis using independent *t* tests revealed no effect of task order for Set 1, $t(58) = -1.11, n.s.$ (Set 1 first $M = 4.83, SD = 1.29$; Set 1 second $M = 4.87, SD = 1.17$) or Set 2, $t(58) = 0.00, n.s.$ (Set 2 first $M = 5.20, SD = 1.56$; Set 2 second $M = 5.20, SD = 1.45$), so scores within each set were collapsed. Table 6.1 indicates that scores increased with age and a 3 (age) X 2 (set) ANOVA confirmed the main effect of age on scores, $F(2, 57) = 35.05, p < .001$. Post hoc testing (Games-Howell) revealed that there was a significant increase in scores between each of the three age groups ($ps < .005$).

Table 6.1: Mean scores (and standard deviations) according to age group

Age group	Set 1 (max. 6)	Set 2 (max. 6)	Total (max. 12)
3-4-year-olds $n = 20$	3.60 (1.27)	3.70 (1.81)	7.30 (3.05) (60%)
6-7-year-olds $n = 20$	5.25 (0.44)	5.90 (0.31)	11.15 (0.59) (93%)
Adults $n = 20$	5.70 (0.47)	6.00 (0.00)	11.70 (0.47) (97%)
Mean	4.85 (1.21)	5.20 (1.49)	10.05 (2.66) (84%)

There was also an effect of set, $F(2, 57) = 22.59, p < .001$. To examine this effect repeated measures ANOVAs were conducted for each set (see Table 6.2). These revealed that there was no effect of character in Set 2, $F(2, 57) = 1.91, n.s.$ but there was an effect of character in Set 1, $F(2, 57) = 23.58, p < .001$: pairwise comparisons indicated that scores for the Father Christmas and Postman pair were significantly lower than scores for the other 2 pairs of characters ($ps < .001$).

In addition, the interaction between age and set was significant, $F(2, 57) = 4.76, p < .01$. To investigate this interaction, separate paired t tests were performed on each age group. For the preschoolers there was no effect of set on scores, $t(19) = -0.62, n.s.$, but there were significant effects for both the 6-7-year-olds, $t(19) = -5.94, p < .001$, and adults, $t(19) = -2.85, p < .01$. Both these age groups scored significantly higher in Set 2 than Set 1.

Comparison of performance on the judgement task between the current study and Study 3

The next analysis sought to determine whether the change of context made by the addition of real characters increased the extent to which children judged fantasy characters as 'not-real'. Performance was compared for the preschoolers, 6-7-year-olds,

Table 6.2: Mean scores (and standard deviations) according to character

Set	Character	Mean (max. 2)
Set 1	Bob the Builder and a builder	1.75 (0.51)
	Scoobie Doo and a dog	1.77 (0.50)
	Father Christmas and a postman	1.33 (0.54)
Set 2	Winnie the Pooh and a bear	1.77 (0.50)
	Shrek and a Doctor	1.75 (0.54)
	Fairies and ballerinas	1.68 (0.57)

and adults by converting the scores into percentages because the maximum score in Study 3 was 8 and in the current study it was 12 (see end columns of Tables 5.1 and 6.1). There was only a significant effect of context for the 6-7-year-olds, $t(58) = -5.93$, $p < .001$, with their scores being higher in the current study ($M = 93.10\%$, $SD = 4.91$) than the previous study ($M = 82.80\%$, $SD = 8.51$). Scores for the preschoolers and adults did not differ between the two studies.

Justifications according to age

Analysis of the justifications was carried out to explore what factors were considered for the real/not-real judgements. Judgements were coded into one of 9 categories (see Table 6.3), irrespective of the judgement made. To assess coding reliability, 25% of the justifications were rated by an independent coder and inter-rater reliability was 83%.

Because the number of justifications increased significantly as a function of age, $F(2, 57) = 51.27$, $p < .001$ (preschoolers $M = 13.35$, $SD = 1.39$, 6-7-year-olds $M = 18.75$,

$SD = 3.26$, adults $M = 22.55$, $SD = 3.51$), justifications from each participant were expressed as a percentage of the total number of justifications given by that participant.

Figure 6.1 shows the mean number of times each justification was given according to age group. This figure shows that the category *specific attribute* accounted for the largest proportion of justifications ($M = 27.60\%$, $SD = 26.41$), which included comments such as “*He’s got tools on his belt*” and “*He’s smiling*”. Use of this justification decreased with age and a one-way ANOVA with three levels (preschoolers, 6-7-year-olds, adults) confirmed the main effect of age, $F(2, 57) = 10.69$, $p < .001$. Post hoc testing (Games-Howell) indicated that the adults gave this justification significantly less ($M = 9.79$, $SD = 8.50$) than the preschoolers and 6-7-year-olds ($M = 36.44$, $SD = 30.53$, $p < .001$).

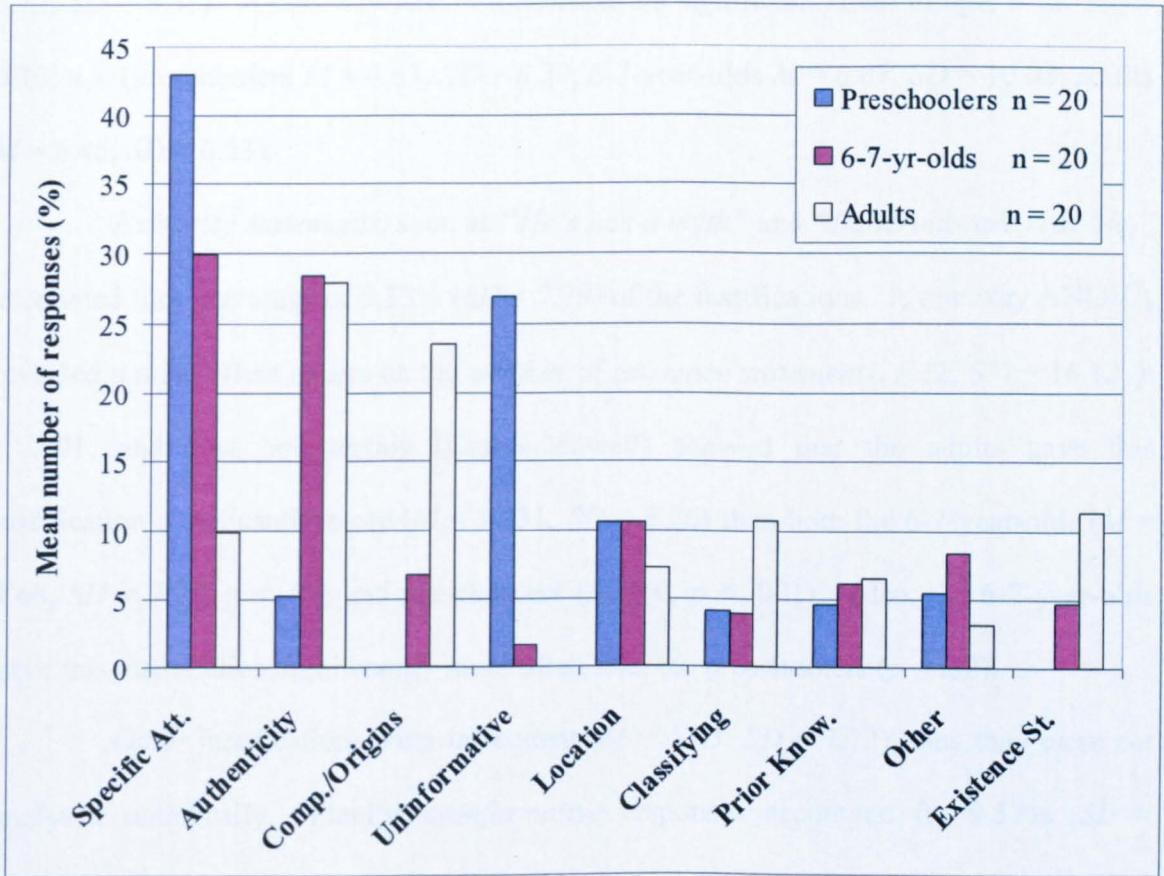
Justifications such as “*He’s a real plumber*” and “*He’s wearing proper clothes*”, i.e. those that considered the *authenticity* of the character, were the second most frequent response ($M = 20.49$, $SD = 17.11$). There was an increase in the number of *authenticity* justifications given by the 6-7-year-olds and adults in comparison to the preschoolers and a one-way ANOVA confirmed the main effect of age, $F(2, 57) = 19.12$, $p < .001$. Post hoc testing (Tukey) revealed that the 6-7-year-olds and adults gave significantly more *authenticity* justifications ($M = 8.09$, $SD = 14.29$) than the preschoolers ($M = 5.28$, $SD = 13.06$, $p < .001$).

The third most common justification was *composition/origins*, e.g. ‘*They’re just in stories*’ ($M = 10.09$, $SD = 14.37$). A one-way ANOVA confirmed the main effect of age, $F(2, 57) = 26.34$, $p < .001$, and post hoc testing (Games-Howell) indicated that the adults gave *composition/origins* justifications significantly more ($M = 23.50$, $SD = 15.82$) than the 6-7-year-olds ($M = 6.77$, $SD = 9.11$) and preschoolers ($M = 0$), $ps < .001$. The 6-7-year-olds also gave this justification significantly more than the preschoolers ($p < .01$).

Table 6.3: Coding categories for the justifications with definitions and example responses

Justification	Description	Example
Specific Attribute	A particular feature of the character	He's green; he's wearing a belt; he's got a tail; they're scary.
Authenticity	Reference to a real or unreal feature of the character	He hasn't got a real face; he's got a real beard; he's not-really a proper bear.
Composition/ Origin	What the character is made of or where it comes from	He's made out of playdoh; people just draw them; it's animated; someone just made it up.
Location	Places in which the character lives or is found	He's on TV; he's not on our planet; he's only in the film.
Classifying	Referring to a category to which the item belongs	It's just a cartoon character; he's an ogre; it's a teddy bear.
Prior Knowledge	Personal/ prior knowledge or experience of the character	Cats can't talk; I've seen him at Disney; I caught my Mum giving me the presents.
Existence Statement	Unsupported statement of belief or unbelief in the character	There's no such thing; they don't exist; I don't believe in them.
Other	Included references to establishing existence (verifiability) and events caused by the character (outcome)	No one's ever seen them; he brings us presents.
Uninformative	Response was not meaningful	I don't know; 'cos it is real.

Figure 6.1: Mean number of justifications in each category according to age group



Location was the fourth most common justification ($M = 9.48$, $SD = 12.57$) and a one way ANOVA revealed that there was no effect of age on the number of these justifications, $F(2, 57) = 0.46$, $n.s$ (preschoolers $M = 10.58$, $SD = 19.28$; 6-7-year-olds $M = 10.60$, $SD = 8.95$; adults $M = 7.27$, $SD = 5.59$).

Justifications including “*It’s a cartoon*” and “*It’s a man*”, that is they *classified* the character, accounted for an average of 6.20% ($SD = 6.52$) of the justifications. *Classifications* were provided by the adults more than by the children and a one way ANOVA confirmed the main effect of age, $F(2, 57) = 9.24$, $p < .001$. Post hoc testing (Tukey) revealed that the adults *classified* significantly more ($M = 10.72$, $SD = 6.53$) than both the preschoolers and 6-7-year-olds ($M = 3.94$, $SD = 5.38$), $ps < .001$.

The sixth most frequent justification was *prior knowledge/experience*, ($M = 5.72$, $SD = 8.31$). A one way ANOVA revealed no significant effect of age, $F(2, 57) = 0.26$, *n.s.*, (preschoolers $M = 4.63$, $SD = 8.27$; 6-7-year-olds $M = 6.07$, $SD = 10.08$; adults $M = 6.45$, $SD = 6.53$).

Existence statements, such as “*He’s just a myth*” and “*Ballerinas are real life*,” accounted for an average of 5.33% ($SD = 7.79$) of the justifications. A one way ANOVA revealed a main effect of age on the number of *existence statements*, $F(2, 57) = 16.12$, $p < .001$, and post hoc testing (Games-Howell) showed that the adults gave this justification significantly more ($M = 11.31$, $SD = 8.26$) than both the 6-7-year-olds ($M = 4.68$, $SD = 7.21$, $p < .03$) and preschoolers ($M = 0$, $p < .001$). Also, the 6-7-year-olds gave this justification significantly more often than the preschoolers ($p < .02$).

Other justifications were infrequent ($M = 5.63$, $SD = 7.22$), thus they were not analysed statistically. Finally, *uninformative* responses accounted for 9.52% ($SD = 23.39$) of the total number of justifications and these were largely produced by the preschoolers ($M = 26.89$, $SD = 34.69$).

Comparison of the justifications between the current study and Study 3

The final analysis compared differences between the current study and the previous study in relation to children’s justifications to determine whether the change of context influenced the types of factors that were considered. This was because in experimental tests of children’s understanding of fantasy, whether a character is presented alone or in a pair with a real character could have a significant impact on the meaning of their judgement.

The two most common justifications given by the preschoolers in the previous study were *specific attribute* ($M = 26.23$, $SD = 24.55$) and *uninformative* ($M = 32.39$, SD

= 30.31). While slightly more *specific attribute* justifications were given in the current study ($M = 43.05$, $SD = 33.52$), $t(58) = -1.99$, $p < .06$, the number of *uninformative* justifications remained the same ($M = 29.89$, $SD = 34.69$), $t(58) = 0.63$, *n.s.* *Prior experience* justifications were also quite common in the previous study ($M = 16.30$, $SD = 16.26$) but they were rare in the current study ($M = 4.63$, $SD = 8.27$), $t(58) = 3.69$, $p < .001$, and the number of *location* justifications, which featured in the previous study ($M = 9.61$, $SD = 15.21$) were the same as in the current study ($M = 10.58$, $SD = 19.28$), $t(58) = -0.21$, *n.s.*

The 6-7-year-olds in the previous study most often gave *verifiability* ($M = 16.98$, $SD = 13.72$) and *location* justifications ($M = 15.52$, $SD = 15.63$). In contrast, in the current study *verifiability* justifications were so rare that they were recorded as *other* ($M = 10.60$, $SD = 8.95$) while *location* justifications occurred equally as often in the current study ($M = 8.28$, $SD = 8.93$), $t(58) = 1.55$, *n.s.* In contrast, in the current study the two most prevalent justifications given by the 6-7-year-olds were *specific attributes* ($M = 29.82$, $SD = 19.46$) and *authenticity* ($M = 28.32$, $SD = 17.39$). These both occurred significantly more than compared to the previous study (*specific attributes* $M = 6.34$, $SD = 8.28$, $t(58) = -5.14$, $p < .001$; and *authenticity* $M = 10.19$, $SD = 9.95$, $t(58) = -6.57$, $p < .001$).

For the adults, the main justifications that occurred in the previous study were *composition/origins*, *verifiability*, *existence statement*, and *authenticity* while in the current study *composition/origins* and *authenticity* were most common. There was no difference in the number of *composition/origins* justifications between the previous study ($M = 28.98$, $SD = 8.92$) and the current study ($M = 23.50$, $SD = 15.82$), $t(38) = 1.35$, *n.s.*, but in the current study there were significantly more *authenticity* justifications ($M = 27.86$, $SD = 8.44$ versus the previous study $M = 12.74$, $SD = 6.46$, $t(38) = -6.36$, $p <$

.001). As was the case with the 6-7-year-olds adults provided so few *verifiability* justifications in comparison to the previous study that they were classified as *other*, but the number of *existence statements* remained the same, $t(38) = 1.18, n.s.$ (Study 3 $M = 14.13, SD = 6.87$, current study $M = 11.31, SD = 8.26$).

6.4 Discussion

The aim of this study was to determine whether children's real/not-real judgements and justifications for fantasy characters were affected by the context in which they were presented. In this study the fantasy characters were presented in context with real characters, such as Bob the Builder with a real builder, whereas in the previous study, fantasy characters were presented alone. Dealing first with the real/not-real judgements, in the current study 60% of the judgements by preschoolers were that the fantasy characters were 'not-real', an increase from 45% in the previous study. Six- and seven-year-olds also indicated that fantasy characters were 'not-real' in the current study (95% versus 83% in the previous study) while 97% of the adults' judgements in both studies were 'not-real'. These results suggest that the judgements of the 'not-real' status of fantasy characters increases when those judgements are made in a context in which both real and fantasy characters are present.

The change of context in which the fantasy characters were presented also affected the justifications that were given for the judgments and these differences were most prominent among the 6-7-year-olds and adults. Preschoolers performed similarly in both contexts, mainly by providing justifications based on *specific attributes* or failing to give any formal response. In contrast, in the previous study 6-7-year-olds justified their responses largely by *verifying* the existence of the character or by describing the *location*

in which the characters are found. In the current study *location* justifications were given by the 6-7-year-olds to the same extent but *verifiability* explanations were so rare that they were included as *other*. In the current study the most prevalent justifications for the 6-7-year-olds were to describe *specific attributes* and *authenticity*, which both occurred significantly more often than in the previous study. This suggests that some children had more difficulty providing a justification in the current study because they resorted to describing a *specific attribute* that they stated from the picture. It also suggests that the connotations of real/not-real related more strongly to notions of authenticity than existence as seen by an increase in the number of *authenticity* justifications and a decrease in *verifiability* justifications.

Adults also gave significantly more *authenticity* justifications in the current study compared to the previous study but they produced the same number of *composition/origin* justifications and *existence statements* in both studies, although *verifiability* justifications were rare in the current study. Thus the adults, similarly to the 6-7-year-olds also considered authenticity to a greater extent than existence in the current study but *composition/origins* of fantasy and real characters were important considerations regardless of the context.

The differences between the justifications produced in Studies 3 and 4, as anticipated, revealed that children's judgements concerning the real or not-real status of fantasy characters were affected by the context in which they are made. In the original context of fantasy characters presented alone the most common justifications related to how the character was made or its origins. In contrast, in the current study the addition of real characters served to increase consideration of the authenticity of both real and fantasy characters. Thus consideration of fantasy characters in a context in which there are also real characters emphasises notions authenticity over the nature of their existence.

The implications of these findings, which relate to children's understanding of terms such as *real* and *not-real*, and the meaning of their real/not-real judgements will be discussed in Chapter 10.

Part 1: Summary and Conclusions

The studies presented Part 1 arose from consideration of the evidence regarding children's understanding of distinctions between pretense-reality and fantasy-reality. Research has shown that from the age of 3-years, children can distinguish between what an object really is and what it represented during an episode of pretense (Flavell et al., 1987) and children can distinguish a mental entity, such as a thought or image, from the real physical object it represents (Wellman & Estes, 1986). However, they sometimes experience confusion about the reality status of an entity that they have merely imagined (Harris, et al., 1991), and children up to the age of 6-7-years believe in the existence of fantasy beings such as monsters, ghosts and Father Christmas (Rosengren & Hickling, 1994). Several accounts have been proposed to try and explain these contradictory findings concerning children's understanding of the distinctions between reality and non-realities.

The novel possibility that was explored in the first part of this thesis was that children may not interpret as intended words that are used to question their understanding, notably, *real*, *really* and *pretend*. These, and other related words, feature prominently in the research, for example, in Harris et al., (1991) children were asked whether an item that they had imagined inside their head was '*a real one?*' and whether an item that they had imagined inside a box was '*really there*' or whether they were '*just pretending.*' Similarly, in categorisation studies children are asked to sort real and pretend entities into groups of 'real' and 'not-real' (Wellman & Estes, 1986), 'real' and 'pretend' (Morison & Gardner, 1978; Sharon & Woolley, 2004; Woolley et al., 2004), and 'real' and 'make-believe' (Skolnick & Bloom, 2006).

The argument presented in Part 1 was that the words *real*, *really* and *pretend* are used in at least two different ways in these experimental contexts. In one context they are used to discuss the distinction between a real, authentic object and a pretend one such as a real truck versus a toy truck. In another context they are used to consider the distinction between things that exist and those that do not, for example a dog versus a dog that flies, or a cat and Mickey Mouse. Therefore the question “*Is X real?*” could be interpreted as ‘Is X a real one?’ or ‘Does X exist?’ For example, if a child is asked whether they think that a particular Father Christmas is ‘real’, this could be interpreted as “Is that Father Christmas ‘the real one?’” or as “Does Father Christmas exist?”

To explore this hypothesis Study 1 collected and analysed over 1000 utterances of children’s speech containing the words *real*, *really* and/or *pretend*. These were collected using a combination of parental interviews and diary records that were kept for a period of up to one month. The utterances were analysed according to different uses of each of the words and the topic of the utterance. The most notable finding was that children rarely used the words to discuss something in terms of its fictional status but they frequently used the words to consider whether something was authentic or not. In relation to the topic of fantasy, however, the words *real*, *really* and *pretend* were used both to consider notions of authenticity and existence.

These results suggest that when children are asked to decide whether a fantasy character is ‘real’ or ‘not-real’ they may interpret the question in two different ways. In particular, the possibility that a child will interpret a question meaning ‘Does X exist?’ as meaning ‘Is X a real one?’ seems a likely possibility. If this is the case, then it is not possible to draw firm conclusions about children’s understanding of the existence of fantasy characters from their responses to these sorts of questions without further investigation.

Consider, for example, the study by Woolley et al., (2004) in which preschoolers were asked to decide whether they thought that 'The Candy Witch', a novel fantasy character, was 'real or pretend', meaning do they believe in her existence. Two thirds of the children responded that she was 'real', which led Woolley et al., (2004) to conclude that "*many of the children did indeed believe wholeheartedly in her existence*" (p.461). Another conclusion that is equally possible is that children meant perhaps that the candy witch was a real type of witch, i.e. that she was an authentic witch, or they meant the extent to which she was a 'real' human. Therefore, in order to find out what children consider when making such judgements, Studies 2-4 sought children's justifications for a range of fantasy characters, post making real/not-real judgements about them. The aim was to explore to what extent children considered notions of authenticity and existence when making their judgements.

In Study 2, children aged between 3-years and 10-years were presented with real and toy items – items that reflected their spontaneous uses of *real*, *really* and *pretend* in Study 1. They were asked to decide whether each item, such as a real banana and a toy banana, was 'real' or 'not-real' and then justify their decision. This study revealed that even the preschoolers had a firm understanding of the real/not-real status of real and toy foods, vehicles, and animals, but they were less certain of the status of children dressed-up. In terms of justifications, a range of factors were considered by the children including describing specific attributes of the items, reliance on prior knowledge, classifying the items (for example as toys), considering the authenticity of features of the items, composition of the items, and explaining what the item does or what it is used for.

This framework was also employed in Study 3 in which children's real/not-real judgements and justifications were sought for fantasy characters. Children were increasingly less likely to claim that the fantasy characters were 'real' with age with only

45% of the judgements made by the preschoolers indicating that they were 'not-real' compared to 90% of the judgements made by the 9-10-year-olds. The most revealing part of Study 3 was the justifications that children provided for their judgements and these included how the character was made or where it came from, evidence regarding the existence of the character, prior knowledge/experience of the characters, the location in which the characters are found, the authenticity of features of the characters, belief or unbelief in the character, classifying the character (for example as cartoons), and outcomes associated with the character.

From the age of 6-7-years increasing importance was given to explaining how the character was made or its origins as well as providing evidence to verify the existence of the character. For example children explained that Bob the Builder is 'just made out of plastic' and that 'you wouldn't bump into him in the street'. Overall, the range of justifications that were provided indicated that many factors surround decisions about whether fantasy characters are 'real' or 'not-real'. Among these issues include discussion of whether the fantasy character exists, as well as whether the character is authentic, for example whether Bob the Builder is a 'real' builder or whether he has 'real' tools or just toy ones.

Study 3 was limited, however, partly because of the lack of context surrounding presentation of the characters. In real life, children experience fantasy characters not in isolation but in the context of 'real' people and places, such as in a shopping centre or in a theme park, and in children's television shows, films, and storybooks. With this in mind, in Study 4, children were presented with fantasy characters alongside equivalent real characters. For example, Father Christmas was presented with a Postman and Bob the Builder with a real builder. The results from Study 4 indicated some marked differences in the justifications given. There was an increase in justifications focused on

the authenticity of the real and fantasy characters. Bob the Builder, for example, was compared to the real builder with comments such as: “*He hasn’t got proper tools*” and “*His helmet won’t protect him because it isn’t a real one*”. Children also gave more *specific attribute* and fewer *verifiability* justifications in this study. This suggested that the existence dimension of the fantasy characters was somewhat masked in favour of justifications based on visible features of the characters and the authenticity of those features.

The results from Part 1 make a novel contribution to the literature on children’s understanding of the fantasy-reality distinction. This is because previously, children have not been asked to justify their reality judgements and so it was not clear what it meant when they judged a fantasy character as ‘real’ or ‘not-real’. This was an important issue raised by Woolley et al., (2004) who noted that children do not necessarily believe that fantasy characters and real people exist in the same sense, despite claiming that they are both ‘real’. Therefore, these four studies go some way towards revealing how children may interpret a question eliciting a real/not-real judgement, and show the factors that children and adults consider when judging whether something is ‘real’ or ‘not-real’. These studies also suggest that children’s justifications for their real/not-real judgements are an integral part of those judgements and that they should be taken into account when drawing conclusions about children’s fantasy/reality knowledge.

In light of these findings the studies presented in Part 2 examined children’s fantasy-reality knowledge in ways that did not require their interpretation of words including *real*, *really* and *pretend*. This aspect of understanding was chosen for two reasons. The first reason was that this topic has received considerable research attention in previous studies but a limitation of the results is that the findings rest heavily on children’s understanding of questions containing these words. The second reason was

that the results from the first part of this thesis indicate that children's understanding of the notion of authenticity is already developed by the age of 3 and so it would be of more interest to focus on their developing awareness of existence.

Part 2

Chapter 7

Study 5: Children's understanding of the existence of fantasy characters

7.1 Introduction

The studies in the second part of the thesis directly examined children's understanding of the fictional nature of fantasy characters. This was operationalised as the extent to which children understand that fantasy characters are restricted to inhabiting their own fantasy world and not the real-world. Previous research has shown that children have already mastered some aspects of the fantasy-reality distinction by the preschool years. Wellman and Estes (1986) interviewed children about *real* entities and 'imaginary non-existent' entities such as a dog that rolls over versus a dog that flies, and three-year-olds were accurate (over 80% correct) at labelling the entities as 'real' or 'not-real'. At the same age, children also have some understanding of the nature of characters on television. Flavell, Flavell, Green and Korfmacher (1990) found that 3-year-olds did not believe that real entities were actually present inside a television set and that 4-year-olds also understood that things on television cannot be touched, nor come out of the top of the television.

However, preschoolers have by no means mastered all aspects of the fantasy-reality distinction. They are sometimes uncertain of the reality status of fantasy figures that they have imagined (Bouldin & Pratt, 2001; Harris et al., 1991); and they have difficulty differentiating real events (e.g. a mother bird feeding its young) from fantastical events (e.g. a rabbit baking a cake) (Taylor & Howell, 1973), particularly when the emotional content is scary (Samuels & Taylor, 1994).

Categorisation tasks also reveal that preschoolers are uncertain of the ontological status of fantasy characters. Morison and Gardner (1978) asked children to sort real entities (e.g. a dog) and fantastical entities (e.g. a witch and Mickey Mouse) into categories of *real* and *pretend*. Children in Kindergarten scored 14/20 and made more mistakes by judging fantasy characters as real than by relegating real entities to the realm of fantasy. Sharon and Woolley (2004) also used this method and found that 3-year-olds did not perform above chance levels in their categorisations of real and fantasy entities whereas 4- and 5-year-olds largely knew that real entities were real, but they only categorised 39% of the fantasy entities as pretend. Similar results were obtained by Woolley et al., (2004), indicating that a correct understanding that some characters are real and others are fantastical is still developing beyond the age of five.

As discussed in Chapter 1, a recent experiment by Skolnick and Bloom (2006) extended children's categorisations to explore whether they treat all fictional characters as belonging to one single world (in which case they would all be real to one other) or whether they consider multiple fantasy worlds, as adults do. Children aged between 3;7 and 6;2 were asked to judge the reality status of fantasy characters (e.g. Batman) as either 'real' or 'make-believe' and judge how someone from a different fantasy world (e.g. SpongeBob) would do so. Children scored on average -0.7 and -0.6 respectively (on a scale from -1 indicating an answer of 'make-believe' to +1 indicating an answer of 'real'). This indicated that children tended to judge that fantasy characters were 'make-believe' and that characters from different fictional worlds were also 'make-believe' to each other. In a second study, however, children were asked to judge which actions were possible between two characters. Children responded that characters from within the same world could see, touch, and talk to each other and, on the real/make-believe

question used in the first study, children scored 0.5 indicating that they correctly understood that Batman thinks Robin is real.

Another study (also presented in Chapter 1) that examined children's understanding of fantasy characters was conducted by Lee et al., (2002). They presented 3-6-year-olds with either a story or a live staged event in which a protagonist made an implausible claim about a ghost that jumped out of a book and broke a glass. One hundred percent of the 3-year-olds and 55% of the 4-year-olds accepted the protagonist's claim that the ghost committed the misdeed, suggesting to Lee et al., (2002) that children may be unsure of the rules that govern transformations between fantasy and reality.

In order to investigate further children's understanding of the reality status of fantasy characters, the current study examined the extent to which they realise that fantasy characters cannot act in the real world. This was achieved by use of a novel paradigm involving realistic scenarios. The findings of Lee et al., (2002) might suggest that preschoolers would not succeed in this study since they incorrectly believed that a ghost could come out of a book into the real world and break a glass. However, children's performance may be better if they are asked about realistic, everyday situations rather than fantastical events involving characters such as ghosts, which may invoke a strong emotional reaction (Samuels & Taylor, 1994).

In Studies 5 and 6 children were asked to decide whether various characters could perform roles in either real-world scenarios (Study 5) or real-world and cartoon scenarios (Study 6). The scenarios were presented as pictures and were accompanied by a brief explanation of the event spoken by the experimenter. Children were given a choice of four different characters that could perform the required role in the event. One of the real life scenarios, for example, depicted a fire and children were told that the fire needed to be put out. The identity of the appropriate character depended on the nature of

the scenario (real-world or cartoon): children had to choose among a relevant real character (a fireman), a relevant cartoon character (Fireman Sam), an irrelevant real character (a Doctor), and an irrelevant cartoon character (a Fimble). The critical choice was always between the relevant real character (real fireman) and the relevant cartoon character (Fireman Sam).

7.2 Method

Participants

Fifty seven children were recruited from two day care centres and one school in Berkshire, UK. There were 20 3-year-olds (mean age = 3;7, range = 3;1 – 3;11), 20 4-year-olds (mean age = 4;6, range = 4;0 – 4;11), and 20 5-6-year-olds (mean age = 5;9, range = 5;0 – 6;7), with equal numbers of girls and boys in each age group. They were predominantly from white working class backgrounds.

Stimuli and task

Children were presented with a total of 10 photographs that each depicted a real life scenario. Presentation of each scenario photograph was accompanied by a verbal description. For example, one photograph featured smoke rising above trees caused by a fire and children were told that someone needed to put out the fire (see Figure 7.1. All scenario pictures and accompanying descriptions are shown in Appendix 7.1). The choice of scenarios was made on the basis of particular actions performed by popular modern day cartoon characters and for which there was an obvious 'real' equivalent (such as building performed by Bob the Builder in comparison to a real builder). Also, a range of different entities were included as were people (Fireman Sam, Bob the Builder,

Postman Pat and Superman), animals (Nemo, Clifford the Big Red Dog, Pingu and Rabbit), and vehicles (Thomas the Tank Engine and Brum). Real life events that were the equivalent of events carried out by the cartoon characters were chosen, such as a building that requires completion or a fire that needs to be extinguished.

Figure 7.1: Picture used in the real life fire scenario and choice of characters

Each scenario was accompanied by photographs of four different characters presented on a single strip and children were required to point to the character that they thought could carry out the role. There was only one correct answer, the relevant real character (the real fireman in Figure 1), and three incorrect answers; a relevant cartoon character who also performed the key role (Fireman Sam), an irrelevant real character (a Doctor), and an irrelevant cartoon character (a Fimble). The two irrelevant characters

were unable (under normal circumstances) to fulfil the role. The two irrelevant characters were included as controls as a measure of whether children understood the scenarios. The left-right order of the characters on the accompanying strip (approx 20 cms. x 8 cms.) was varied systematically across the scenarios.

Procedure

One of the strips showing four character choices was presented to the child. With the help of the experimenter all four characters were named to ensure that the child was familiar with them and had considered all of them. Next, the scenario photograph was introduced with appropriate language and intonation, for example: *“Look! There’s a fire in the wood; can you point to the smoke?”* The second part of this introduction was to ensure that the child was attending to the picture. Once the child had responded they were told: *“When there’s a fire, someone has to put the fire out”*. The test question was then asked in the format: *“Which one of these (point to each of the 4 characters on the strip) can (e.g. put out the fire) (point to scenario)?”* Choice(s) were recorded by the experimenter and then the child was asked: *“Why did you choose that one/those ones?”* Presentation order of the 10 scenarios was varied for each child and the test session lasted approximately 10 minutes.

7.3 Results

Scoring

Selection of only the relevant real character received a score of 1 and choosing any other character or more than one character received a score of 0. The maximum score for each child was 10 since there were 10 scenarios.

Performance on the scenarios task

Scores for the three age groups on each of the 10 scenarios are shown in Table 7.1. These data show that scores increased with age and a 3 (age) x 10 (scenario) ANOVA confirmed the main effect of age, $F(2, 57) = 6.48, p < .01$. Post hoc testing (Games-Howell) revealed that the 5-year-olds chose the correct character significantly more often than the 3- and 4-year-olds ($p < .01$ and $p < .05$ respectively) but there was no difference between the 3- and 4-year-olds. There was also a significant effect of scenario, $F(9, 513) = 2.51, p < .01$, with scores on the rabbit scenario being significantly lower than scores on the soldier scenario ($p < .01$). There was no interaction between age and scenario, $F(18, 513) = 1.21, n.s.$

To examine the performance of individual children pass/fail scores were used (see Table 7.2). Using the binomial test, the pass mark was determined as 5 or above using the probability of being correct by chance of 25%, $p < .07$. This slightly less stringent pass mark was accepted (rather than a pass mark of 6 or above, $p < .02$) to take into account that young children may make errors owing to concentration difficulties. Table 7.2 shows that the number of children who passed the task increased with age but the distribution of pass/fail rates for the three age groups using Chi Square was not significantly different, $\chi^2(2, N = 60) = 0.17, n.s.$

Error types

Regarding children's incorrect judgements, the number increased significantly as a function of age, therefore errors were analysed as a percentage of the total number of errors given by each child. There were three error types (see Table 7.3). The most frequent error (41%) was selection of two characters, the relevant real character and the relevant cartoon character (e.g. the real fireman and Fireman Sam). The second most

Table 7.1: Mean scores (and standard deviations) on each scenario according to age.

Scenario	3-year-olds	4-year-olds	5-year-olds	Total
	<i>n</i> = 20	<i>n</i> = 20	<i>n</i> = 20	
Rabbit	0.25 (0.44)	0.70 (0.47)	0.70 (0.47)	0.55 (0.50)
Fireman	0.35 (0.49)	0.50 (0.51)	0.80 (0.41)	0.55 (0.50)
Fish	0.55 (0.51)	0.60 (0.50)	0.70 (0.47)	0.62 (0.49)
Dog	0.60 (0.50)	0.55 (0.51)	0.70 (0.47)	0.62 (0.49)
Builder	0.45 (0.51)	0.70 (0.47)	0.85 (0.37)	0.67 (0.48)
Penguin	0.55 (0.51)	0.65 (0.49)	0.80 (0.41)	0.67 (0.48)
Train	0.60 (0.50)	0.65 (0.49)	0.90 (0.31)	0.72 (0.45)
Postman	0.80 (0.41)	0.65 (0.49)	0.75 (0.44)	0.73 (0.45)
Car	0.75 (0.44)	0.65 (0.49)	0.90 (0.31)	0.77 (0.43)
Soldier	0.70 (0.47)	0.75 (0.44)	0.95 (0.22)	0.80 (0.40)
Total (max. 10)	5.60 (2.16)	6.40 (2.37)	8.05 (2.04)	6.68 (2.39)

Table 7.2: Number of children who passed or failed the scenarios task according to age

Age group	Number of scenarios correct			
	Fail	Pass		
	1-4 correct	5-7 correct	8-10 correct	Total number who passed
3-year-olds	7	9	4	13/20 (65%)
4-year-olds	5	7	8	15/20 (75%)
5-year-olds	2	5	13	18/20 (90%)
Total	14	21	25	46/60 (77%)

Table 7.3: Mean number (and standard deviations) (expressed as %) of each error type according to age

Age	Correct and incorrect relevant characters	Incorrect relevant character	Other	Total Number of errors
3-year-olds $n = 20$	22.72 (33.83)	41.79 (25.21)	35.50 (24.73)	100 (28.88)
4-year-olds $n = 19$	57.03 (36.10)	35.33 (39.09)	7.64 (16.95)	100 (37.71)
5-year-olds $n = 14$	45.24 (39.32)	32.74 (38.46)	22.02 (36.04)	100 (38.25)
Total $n = 53$	40.97 (38.51)	37.08 (33.85)	21.95 (28.24)	100 (34.57)

common error (37%) was selection of the relevant cartoon character (e.g. Fireman Sam). The third error (22%) was selection of an irrelevant character or any other combination of characters, which was classified as 'other'.

Oneway ANOVAs were performed on each type of error to determine whether the pattern of errors that was made changed with age. In relation to the most frequent error of choosing the two relevant characters, there was a significant effect of age, $F(2, 57) = 4.52, p < .01$, and post hoc testing (Tukey) revealed that the 4-year-olds made this error significantly more than the 3-year-olds ($p < .01$). There was no change with age in the number of errors made of choosing the relevant cartoon character, $F(2, 57) = 0.33, n.s.$ but there was an effect of age in the 'other' category, $F(2, 57) = 5.57, p < .001$. Post hoc testing (Tukey) indicated that the 3-year-olds made significantly more *other* errors than the 4-year-olds ($p < .01$).

Explanations for choice of character

To explore the level of children's understanding of their choice of character, their explanations for their choices were analysed to determine whether they considered the real/not-real nature of the task (irrespective of the accuracy of the choice). Explanations were coded as one of four major categories: *real*, *capability*, *desire*, or *uninformative*. Details of the coding categories are given below:

Real: Child explained choice by referring to the real nature of the character in some way, e.g. "*That's what comes into the real train station*" or "*It's a proper dog that's got real fur.*"

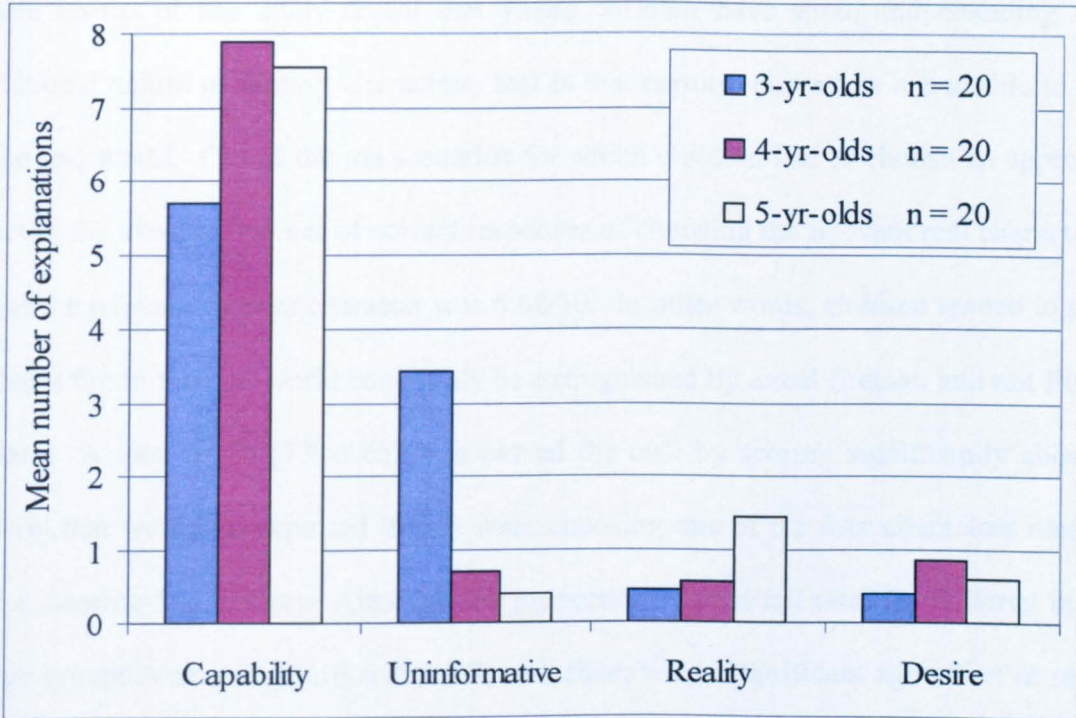
Capability: Child explained choice with reference to the ability of the character to carry out the action required for the scenario, e.g. "*Because he's (Bob the Builder) a fixer*" or "*He's (fireman) got a hose and some water.*"

Desire: Child inferred that the character has an emotional response to the scenario, e.g. "*Because he (dog) wants a bone*" or "*Because penguins love fish.*"

Uninformative: Child was unable to offer a response or provide a meaningful reason, e.g. "*Because it is*" or "*I don't know.*"

An independent coder coded one third of the total number of explanations and inter-rater reliability was 91%. Figure 7.2 shows the number of responses in each category of explanation according to age group. From the figure, it can be seen that the most common explanation was *capability* (71%). *Uninformative* responses accounted for 15% of the responses while *real* and *desire* explanations accounted, respectively, for 8% and 6% of the responses.

Figure 7.2: Pattern of explanations according to age



Oneway ANOVAs were performed on each explanation to determine whether use changed with age. Significant age effects were found in the category *capability*, $F(2, 57) = 5.22, p < .001$, and in the *uninformative* category, $F(2, 57) = 5.22, p < .001$. Post hoc testing (Tukey) revealed that the 4- and 5-year-olds produced significantly more *capability* explanations ($M = 7.85, SD = 2.21$) than the 3-year-olds ($M = 5.73, SD = 2.59, ps < .05$). In the *uninformative* category, post hoc testing (Games-Howell) showed that the 4- and 5-year-olds gave significantly fewer *uninformative* explanations ($M = 0.52, SD = 1.34$) than the 3-year-olds ($M = 3.53, SD = 2.97, ps < .001$). For the category *real*, there was an age trend, $F(2, 57) = 2.23, p < .10$, whereby the 5-year-olds gave this explanation more ($M = 1.56, SD = 2.09$) than the 3- and 4-year-olds ($M = 0.50, SD = 1.54, p < .10$). In the *desire* category there was no effect of age, $F(2, 57) = 1.52, ns.$, (3-year-olds $M = 0.46, SD = 0.88$; 4-year-olds $M = 0.95, SD = 0.98$; 5-year-olds $M = 0.69, SD = 0.72$).

7.4 Discussion

The results of this study reveal that young children have some understanding of the fictional nature of fantasy characters, that is that cartoon characters are unable to act in the real world. Out of the ten scenarios for which children had to choose an appropriate actor, the average number of correct responses of choosing the relevant real character and not the relevant cartoon character was 6.68/10. In other words, children tended to realise that a fire in the real-world could only be extinguished by a real fireman and not Fireman Sam. A total of 46 (77%) children passed the task by scoring significantly above the level that would be expected if they were choosing one of the four characters randomly (i.e. scoring 5 or above). Although the proportion of pass/fail rates for children in the 3 age groups were not significantly different, there was a significant age effect in relation to the mean number of scenarios for which children in each age group responded correctly. The 5-year-olds achieved a significantly higher mean score than the 3-4-year-olds suggesting that preschoolers are sometimes unsure of the relation between fantasy and reality.

Before drawing any conclusions about children's performance, it is important to consider whether an aspect of the method may have increased the likelihood that children passed the task. It could be argued that children were able to choose the correct character, not because they understood the distinction between 'real' and 'not-real' but because they used a matching strategy by relying on contextual cues available in the pictures to match the correct character to the scenario. This is unlikely, however, because the backgrounds in the scenarios and character pictures were carefully chosen to be dissimilar. For example, in the real life fire scenario the background of the photograph was a rural location while the background to the real fireman picture was of a fire-engine forecourt (refer back to Figure 7.1). In addition, the pictures of the two relevant

characters (e.g. Fireman Sam and the real fireman) had similar backgrounds, reducing the possibility that the child could choose the correct character by simply matching (as can be seen in the scenarios presented in Appendix 7.1).

There is another aspect of the task design, however, that may have been more likely to enhance children's performance: the correct answer was always the relevant real character and not the relevant cartoon character, so children may have formed the strategy 'always choose the appropriate real character' despite the fact that it's location on the strip was varied among the scenarios. Therefore in Study 6, an approach was adopted to prevent this by extending the scenarios to include cartoon scenarios. This meant that the relevant real character was the correct answer in the real life scenarios and the relevant cartoon character was the correct choice in the cartoon scenarios.

Chapter 8

Study 6: Children's understanding of the ontological status of fantasy characters in two different tasks

8.1 Introduction

Study 5 showed that children as young as 3-years-old have some understanding of the ontological status of fantasy characters, that is, that fantasy characters cannot interact with the real world. The children thus knew, for example, that Fireman Sam could not extinguish a real fire but that a real fireman could. Although the preschoolers were not always accurate in their choice of character, 46 (77%) passed the task by scoring significantly above the level expected if they were choosing randomly. A potential problem with the design of that study, however, was that the correct choice was always a real character. To address this issue the current study replicated that study but included scenarios in which the correct choice was the relevant cartoon character because the scenario was from a cartoon. In this study, a cartoon character was the correct choice in half of the scenarios and a relevant real character was the correct choice in the remaining half.

Previous research suggests that children might perform differently on the real life scenarios and the cartoon scenarios. Morison and Gardner (1978) and Sharon and Woolley (2004) both found that children were more likely to err in categorisation tasks by judging fantasy characters as 'real' than by relegating real characters to the world of fantasy. This was also found in Study 4. In the present study, therefore, it was anticipated that children would perform better when asked to choose, for example, who

could extinguish a fire in the cartoon world of 'Pontypandy' (Fireman Sam or a real fireman) compared to when they were asked who could extinguish fire in real life.

In addition to the scenarios task, in the current study children were also given a categorisation task in which they were asked to sort the 20 focal characters from the scenarios (e.g. Fireman Sam and the real fireman) into categories of *real* and *not-real*. This task was included in light of the results from studies such as Skolnick and Bloom (2006) and Sharon and Woolley (2004) in which children's performance on explicit judgement or categorisation tasks differed from their performance on tests of implicit understanding. Recall that in Skolnick and Bloom (2006) children were asked to label explicitly characters as 'real' or 'make-believe'. In making this type of judgement, children incorrectly judged that Batman thinks Robin is make-believe. In a different task children had to use an 'action-based' or implicit approach by deciding which actions were appropriate between pairs of characters and in this task they correctly judged that Batman can see, touch, and talk to Robin.

Woolley and colleagues (Sharon & Woolley, 2004; Woolley et al., 2004) also directly compared explicit fantasy-reality judgements with a task of implicit understanding. In the study by Sharon and Woolley (2004), children completed a standard categorisation task and a task that involved assigning physical, biological, social, and mental properties to real and fantasy characters. Three-year-olds did not differentially attribute properties to real and fantasy characters but 4- and 5-year-olds correctly granted more human-like properties (such as eating dinner with one's family and sleeping) to entities they had classified as real than to entities that they had classified as pretend. This contrasted with children's performance in the categorisation task in which only one third of their fantasy categorisations were correct.

In the current study, therefore, children's performance was compared on the scenarios task, which measured implicit understanding, and the categorisation task, which required an explicit real/not-real judgement. Following the pattern of results obtained by Skolnick and Bloom (2006) and Sharon and Woolley (2004), children were expected to score higher on the scenarios task than the categorisation task.

8.2 Method

Participants

Fifty-one children participated, divided into three age groups: there were 17 in the younger age group (mean age = 3;3, range 3;0 – 3;5), 17 in the middle age group (mean age = 4;1, range = 3;7 – 4;4), and 17 in the older age group (mean age = 4;8, range = 4;5 – 4;11). There were approximately equal numbers of girls and boys in each group. Children were recruited from two nurseries and one school in Berkshire, which serve predominantly white, working-class families.

Scenarios task

As in Study 5 there were 10 scenarios, but each scenario had two versions: in one version the scenario was a photograph from real life (as in Study 5) and in the other version it was a screen shot of a popular children's cartoon (there were 20 scenarios in total)⁶. The two versions of each scenario were manipulated electronically to make them as similar as possible by matching them for content and composition so that the main difference was

⁶ The 10 real life scenarios were also used in the previous study but some alterations were required in order to make comparisons with the cartoon scenarios.

Figure 8.1: Picture used for the cartoon fire scenario and choice of characters

their reality status. An example of a cartoon scenario is given in Figure 8.1. The choice of characters remained the same as they were for Study 5 with two real characters and two cartoon characters in each set, and of these, one was relevant and one was irrelevant.

The 20 scenarios were divided into two sets: Set 1 comprised 5 real life scenarios and 5 different scenarios depicted as cartoons; and Set 2 comprised the remaining scenarios. (Scenario pictures and accompanying descriptions for Set 1 are shown in Appendix 8.1 and for Set 2 they are shown in Appendix 8.2). Each child received scenarios either from Set 1 or Set 2. Across the two sets, therefore, each scenario occurred both in a real life and a cartoon version but children saw only one

version so that there was no possibility of carry over effects. Scenes within each set were presented in a random order. The procedure was the same as that used in the previous study.

Categorisation task

Twenty individual colour pictures (4 cm x 7 cms) comprising the relevant real and cartoon characters from the character choices presented in the scenarios task were used (e.g. a fireman and Fireman Sam, a builder and Bob the Builder) (see Appendix 8.3 for pictures of the stimuli). With the help of the experimenter all of the characters were named to ensure that the child was familiar with them. When necessary, the experimenter named the character for the child. Next, two opaque containers were placed in front of the child. The child was told that one container was for "*Pictures of things that are real*" and the other container was for "*Pictures of things that are not-real*". A quick check was made to see whether the child had remembered which container was for 'real things' and which container was for things that were 'not-real' by asking them to point to each one as they were named. Most children did this correctly but some needed reminding. The position of the containers was counterbalanced so that half of the children experienced the 'real' container on the left and the other half experienced the 'real' container on the right. The pictures were subsequently reintroduced in a random order and the child was asked: "*Is X (name of character) real (picture was held over the real container) or not-real (picture was held over the not-real container)?*" and then the picture was given to the child to place in one of the containers.

Procedure

Children were tested individually on two separate occasions spaced about one week apart. On one occasion they completed the scenarios task and on the other occasion they completed the categorisation task. The order of the tasks in the two test sessions was counterbalanced so that half of the children received the scenarios task first and half the children received the categorisation task first.

8.3 Results

Scoring

On each task, a correct answer received a score of 1 and an incorrect answer was scored 0. On the scenarios task the correct answer was the selection of the relevant character with the same reality status as the scenario photograph and on the categorisation task correct responses were to judge the cartoon characters as 'not-real' and the other characters as 'real'. The maximum score on the scenarios task was 10 and the maximum score on the categorisation task was 20.

Performance on the scenario task

Differences in how the three age groups performed on the scenario task and whether there was an effect of the reality status of the scenario (real life or cartoon) were investigated. Preliminary analysis revealed no effects of set within the scenario task, $t(46) = 0.69, n.s.$ (Set 1 $M = 6.58, SD = 1.82$; Set 2 $M = 6.25, SD = 1.51$), and no effect of task order, $t(46) = 0.00, n.s.$ (Scenario task first $M = 6.42, SD = 1.75$; Scenario task second $M = 6.42, SD = 1.58$). Subsequent analysis were collapsed across set and task order.

The mean number of correct responses was 6.47/10, as can be seen in the left half of Table 8.1. Although there was a trend towards higher scores with age, a 3 (age) x 2 (scenario type: real life vs cartoon) ANOVA revealed that the age effect was not significant, $F(2, 48) = 1.8, n.s.$ On subsequent analyses the data were collapsed across age. There was also no effect of the reality status of the scenarios, $F(1, 48) = 0.42, n.s.$, meaning that children were equally accurate when the scenario was depicted as a real life photograph and when it was depicted as a cartoon. In other words, children who were 3-4-years of age understood to an equal extent, for example, that a real fire can only be extinguished by a real fireman and that a fire in the cartoon world of 'Pontypandy' can only be extinguished by 'Fireman Sam'. There was no interaction between age and scenario type, $F(2, 48) = 1.7, n.s.$

Table 8.1: Mean scores (and standard deviations) on the scenarios task according to age

Mean age	Correct			Incorrect		
	Real Scenario (max. 5)	Cartoon Scenario (max. 5)	Total (max. 10)	Relevant Character (max. 5)	Irrelevant Character (max. 5)	Total (max. 10)
3;3 $n = 17$	3.12 (1.17)	2.76 (1.20)	5.88 (1.62)	2.47 (1.01)	1.65 (1.32)	4.12 (1.62)
4;1 $n = 17$	2.94 (1.39)	3.65 (1.22)	6.59 (1.58)	2.41 (1.33)	1.00 (0.87)	3.41 (1.58)
4;8 $n = 17$	3.41 (1.06)	3.53 (1.12)	6.94 (1.75)	2.41 (1.42)	0.65 (0.79)	3.06 (1.75)
Mean $n = 51$	3.16 (1.21)	3.31 (1.22)	6.47 (1.68)	2.43 (1.24)	1.10 (1.08)	3.53 (1.68)

To examine the performance of individual children pass/fail scores were used (see Table 8.2). As in Study 5, the pass mark was determined as 5 or above on the binomial distribution using the probability of being correct by chance of 25%, $p < .07$. Table 8.2 shows that the number of children who passed the task was similar at each age and the distribution of pass/fail rates for the three age groups using Chi Square was not significantly different, $\chi^2(2, N = 51) = 2.32$, n.s.

Table 8.2: Number of children who passed or failed the scenarios task according to age

Mean age	Number of scenarios correct			
	Fail	Pass		
	1-4 correct	5-7 correct	8-10 correct	Total number who passed
3;3	4	11	2	13/17 (76%)
4;1	1	13	3	16/17 (94%)
4;8	2	7	8	15/17 (88%)
Total	7	31	13	44/51 (86%)

Error types

Regarding the incorrect judgements that children made, there were two types. One error was selection of the relevant character with the incorrect reality status (e.g. the real fireman instead of Fireman Sam) and the second error was selection of an irrelevant character. Table 8.1, on the right hand side, shows that more errors involved choosing a relevant character with the incorrect reality status (69%) than an irrelevant character

(31%), and a paired t test showed that this difference was significant, $t(50) = 5.92, p < .001$.

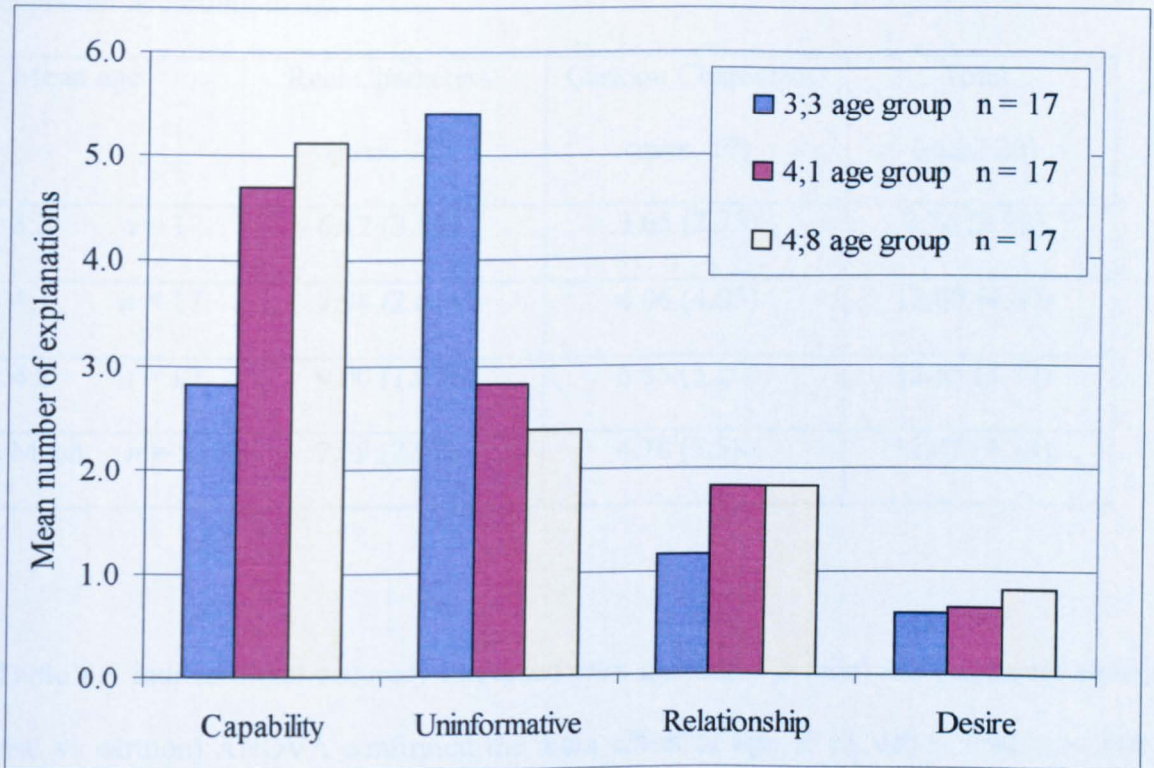
Explanations for choice of character

To explore the level of children's understanding of their choice of character, their explanations for their choices were analysed to determine whether they considered the real/not-real distinction implied by the task (irrespective of the accuracy of the choice). Explanations were coded as one of four major categories: *relationship*, *capability*, *desire*, or *uninformative*. An explanation that was coded as *relationship* was when the child made a relationship between the chosen character and the scenario, e.g. "Because they (people) can go in there (carriage)" or referred to a pre-existing relationship between the character and the scenario, e.g. "Bunny rabbits live in the wood", and "Sharks eat fish". The remaining three categories were the same as those in Study 5 (see Section 7.3).

An independent coder classified explanations from one third of the participants and inter-rater reliability was 85%. Figure 8.2 shows the number of responses in each category of explanation according to age group. This figure shows that the most common explanation was *capability* (42%) and *uninformative* responses were also common, accounting for 35% of the responses. *Relationship* and *desire* explanations were less common and accounted for 16% and 7% of the explanations respectively.

Oneway ANOVAs were performed on each explanation to determine whether patterns of explanation changed with age. Significant age effects were found in the categories *capability*, $F(2, 48) = 3.70, p < .03$, and *uninformative*, $F(2, 48) = 4.37, p < .02$. Post hoc testing (Tukey) showed that the 4;8 age group produced significantly more *capability* explanations ($M = 5.12, SD = 2.50$) than the 3;3 age group ($M = 2.82, SD = 2.67, p < .05$). In the *uninformative* category post hoc testing (Games-Howell) showed

Figure 8.2: Pattern of explanations on the scenarios task according to age



that this pattern was the reverse (4;8 age group $M = 2.24$, $SD = 2.41$; 3;3 age group $M = 5.41$, $SD = 3.94$, $p < .05$). For the explanations *desire* and *relationship* there were no effects of age (Desire, $F(2, 48) = 1.34$, *n.s.*, 3;3 $M = 1.18$, $SD = 1.38$; 4;1 $M = 1.82$, $SD = 1.38$; 4;8 $M = 1.83$, $SD = 1.13$: Relationship, $F(2, 48) = 0.26$, *n.s.*, 3;3 $M = 0.59$, $SD = 1.06$; 4;1 $M = 0.65$, $SD = 0.93$; 4;8 $M = 0.82$, $SD = 0.95$).

Performance on the categorisation task

Differences in how the three age groups performed on the categorisation task as well as whether there was an effect of type of character (real or cartoon) were investigated next (see Table 8.3). Preliminary analysis indicated that there was no effect of task order, $t(46) = 0.44$, *n.s.* (Categorisation task first $M = 12.42$, $SD = 4.61$; Categorisation task second $M = 11.83$, $SD = 4.51$), so subsequent analysis were collapsed across task order.

Table 8.3: Mean scores (and standard deviations) on the categorisation task for type of character according to age

Mean age	Real Characters (max. 10)	Cartoon Characters (max. 10)	Total (max. 20)
3;3 <i>n</i> = 17	6.12 (3.59)	3.65 (2.78)	9.76 (2.93)
4;1 <i>n</i> = 17	7.94 (2.61)	4.06 (4.05)	12.00 (4.80)
4;8 <i>n</i> = 17	9.00 (1.84)	6.65 (3.20)	15.65 (3.72)
Mean <i>n</i> = 51	7.69 (2.97)	4.78 (3.58)	12.47 (4.53)

Table 8.3 indicates that accuracy increased with age and a 3 (age) x 2 (character status: real vs cartoon) ANOVA confirmed the main effect of age, $F(2, 48) = 9.90, p < .001$. Post hoc testing (Games-Howell) revealed that the 4;8 age group categorised more characters correctly than the 4;1 ($p < .001$) and the 3;3 age groups ($p < .05$). Although there was no interaction between age and character, $F(2, 48) = 0.53, n.s.$, there was an effect of character, $F(1, 48) = 18.54, p < .001$. Table 8.3 shows that real characters were correctly categorised as 'real' more often (77%) than cartoon characters were correctly categorised as 'not-real' (48%).

To investigate the effect of reality status of character in each age paired *t* tests were conducted on each age group. These revealed that character status had no effect on scores for the 3;3 age group, $t(16) = 1.78, n.s.$ who claimed, for example, that both the real fireman and Fireman Sam were 'real' equally as often (61% and 64% respectively). There was, however, an effect on the categorisation behaviour of the 4;1 age group, $t(16) = 3.30, p < .001$, and 4;8 age group, $t(16) = 2.65, p < .01$. Children in these two groups

were more likely to judge, for example, that the real fireman was 'real' (85%) than they were to judge that Fireman Sam was 'not-real' (54%)

To examine the performance of individual children on the categorisation task pass/fail scores were used (see Table 8.4). Using the binomial test, the pass mark was determined as 15 or above using the probability of being correct by chance of 50%, $p < .04$. This pass mark was used rather than 14 because the alpha level at 14 was $p = .12$, which was considered too lenient. Table 8.4 shows that the number of children who passed the task increased with age and the distribution of pass/fail rates for the three age groups using Chi Square was found to be significantly different, $\chi^2(2, N = 51) = 11.11, p < .001$: one 3;3-year-old passed the task, five 4;1-year-olds passed the task, and ten 4;8-year-olds passed the task.

Table 8.4: Number of children who passed or failed the categorisation task according to age

Mean age	Number of correct judgements			
	Fail	Pass		
	1-14 correct	15-17 correct	18-20 correct	Total number who passed
3;3	16	1	0	1/17 (6%)
4;1	12	0	5	5/17 (29%)
4;8	7	1	9	10/17 (59%)
Total	35	2	14	16/51 (31%)

Comparison of performance on the scenarios task and the categorisation task

Children's performance on the scenarios task and categorisation tasks were compared to determine whether they performed better on the scenarios task. For this analysis pass/fail scores were used because scores on the scenarios task and categorisation task were not analogous owing to there being a different number of options from which to select a response on the two tasks: on the scenarios task there were four options from which to select a response while on the categorisation task there were only two options. Pass/fail scores for each child according to age group on the two tasks are shown in Table 8.5. It can be seen that the total number of children who passed both of the tasks increased with age while the total number of children who passed only one or none of the tasks decreased with age. Of the 30 children (59%) who passed one of the tasks 29 of these children passed the scenarios task and failed the categorisation task while only 1 child from the 4;8 age group failed the scenarios task and passed the categorisation task. This proportion of pass/fail rates for the three age groups was compared using Chi Square which showed that the distribution was significantly different across age, $\chi^2(4, N = 51) = 10.80, p < .03$.

Table 8.5: Number of children who passed or failed both of the tasks using a pass mark of 5 on the scenarios task and a pass mark of 15 on the categorisation task

Mean age	Failed Both	Passed 1 task	Passed Both	Total
3;3	4	12	1	17
4;1	1	11	5	17
4;8	1	7	9	17
Total	6	30	15	51

In relation to the pass/fail criteria selected for the scenarios task, however, it could be argued retrospectively that children did not often choose an irrelevant character, thus they were making a binary choice, i.e. between the two relevant characters (e.g. Fireman Sam and the real fireman)⁷. Therefore a more conservative pass mark on the binomial would be 8 (/10) with there being a 50% probability of being correct by chance, $p < .10$. The results using this stricter criterion are shown in Table 8.6, where it can be seen that 6 children passed the scenarios task and failed the categorisation task but 9 children passed the categorisation task and failed the scenarios task. At first sight, this pattern appears to suggest that children performed better on the categorisation task than on the scenarios task rather than the other way round as argued previously. However, closer inspection of these data casts doubt on this conclusion. Of the 9 children who passed the categorisation task but failed the scenarios task, 6 of them chose an irrelevant character at least once. Thus it could be argued that those children, at least, were not making a binary decision but were choosing one from four characters. In contrast, of the 6 children who passed the scenarios task but failed the categorisation task only 1 child on 1 occasion chose an irrelevant character. Thus it seems that these children may have been making a binary decision because, on the whole, they did not choose the irrelevant characters on the scenarios task. In contrast, it seems that other children (i.e. those that failed the scenarios task but passed the categorisation task) were making a decision on the scenarios task based on the four choices available because they chose the irrelevant characters more than the other group of children.

⁷ Thanks to Peter Bryant for making this point.

Table 8.6: Number of children who passed or failed the two tasks using a pass mark of 8 on the scenarios task and a pass mark of 15 on the categorisation task

Mean age	Failed Both	Passed 1		Passed Both	Total
		Passed scenarios	Passed categorisation		
3;3	14	2	1	0	17
4;1	11	1	3	2	17
4;8	4	3	5	5	17
Total	29	6	9	7	51

This can be taken as evidence that successful performance on the 4-choice scenario task did involve the active exclusion of irrelevant possibilities and so it is appropriate to use the 0.25 criterion for determining pass/fail performance. It is, however, clear that the decision about which probability to use cannot be determined unambiguously and further studies will be required to shed light on the decision processes that young children use in responding to the scenarios task.

8.4 Discussion

The results of this study support and extend the findings of Study 5 by showing that 3- and 4-year-olds have started to form an understanding that real characters cannot act within cartoon worlds and also that cartoon characters cannot act within the real-world. Of the ten scenarios that children had to judge, the average number for which they choose the correct character was 6.47/10. In other words when shown a picture of a cartoon fire

from the cartoon town of Pontypandy for example, children largely realised that only Fireman Sam and not a real fireman could extinguish it. To the same extent, they also understood that a real life fire could only be extinguished by a real fireman and not Fireman Sam. Although performance did not increase significantly between the ages of 3 and 4, the high number of individual children who passed the task ($N = 44$, 86%) adds strength to these results.

The results from the scenarios task thus challenges the traditional claim that young children are uncertain of the ontological status of fantasy characters (Morison & Gardner, 1978; Lee et al., 2002; Sharon & Woolley, 2004) and supports Sharon and Woolley's (2004) conclusion that children have a more developed appreciation of the boundary between fantasy and reality than is often supposed. In particular, the findings contrast with those from the study conducted by Lee et al., (2002) in which most preschoolers incorrectly judged that a fantasy character could act within the real world. Almost all of the preschoolers in that study accepted the claim that a ghost could come out of a book and break a glass in the real-world. In contrast, in the present study only about one third of responses from children were incorrect and of those, just over two thirds made the equivalent error found in Lee et al., (2002), such as judging that Fireman Sam could extinguish a fire in the real world and vice versa.

In the current study no difference was found between the accuracy of children's choice of characters in the real life scenarios compared to the cartoon scenarios. In light of previous research, which suggested that children make more errors by judging fantasy characters as real than by relegating real characters to the realm of fantasy (Morison & Gardner, 1978; Sharon & Woolley, 2004), this was unexpected. However, such previous conclusions have been drawn from studies that tested children's performance on

categorisation tasks and the demands of such tasks are quite different from the scenario task employed in the current study.

On the categorisation task, 12.47 (62%) of the judgements were correct and only 16 children (31%) passed the task. In addition children categorised more real characters correctly as 'real' (77%) than they categorised cartoon characters as 'not-real' (48%). These results reflect those obtained in Study 4 as well as previous research by Morison and Gardner (1978) and Sharon and Woolley (2004). They both found that children make more errors by relegating fantasy characters to the realm of reality than by relegating real entities to the realm of fantasy.

A critical aspect of this study, however, was whether children scored higher on the scenarios task than the categorisation task, following the results obtained by Sharon and Woolley (2004) and Skolnick and Bloom (2006). This was done by comparing the pass/fail data for individual children across the two tasks using a pass mark of 5 on the scenarios task and 15 on the categorisation task. Just under one third of the children (15) passed both of the tasks, 6 children failed both of the tasks, and the majority (30) passed one of the tasks. Of that majority, 29 passed the scenarios task and failed the categorisation task and only 1 passed the categorisation task and failed the scenarios task. Thus these data support the hypothesis that performance on the scenarios task would be better than performance on the categorisation task. The results also reflect the differences that were found by Sharon and Woolley (2004) and Skolnick and Bloom (2006) when comparing children's performance on two tasks that assessed the same underlying concept in different ways. Both of those studies compared children's performance on a categorisation task with either a properties attribution task (Sharon & Woolley, 2004) or an 'action-based' task in which children were required to judge which actions were appropriate between pairs of characters (Skolnick & Bloom, 2006). On the categorisation

task children sorted characters correctly only one third of the time (Sharon & Woolley, 2004) and tended to judge incorrectly, for example, that Batman thinks Robin is make-believe (Skolnick & Bloom, 2006). In contrast, the two alternative tasks revealed that children were cognisant of the properties with which real and fantasy characters possess, and they knew, for example, that fantasy characters from within the same world can hear and touch one another but that fantasy characters from different fictional worlds cannot.

How may this difference in performance across these sorts of tasks be explained? Woolley (2006) argues that these types of contradictory findings support the growing body of evidence for dissociations between children's behavioural or 'action-based' choices and their ability to reason verbally (Woolley, 2006). Woolley (2006) proposes that the dissociation between verbal and behavioural responses can be explained by the fact that "*they reflect implicit-explicit knowledge representations – with implicit procedures (first appearing in behaviour) eventually being 're-described' into consciously accessible knowledge (accessible to verbalisations)*" (p.1542). Woolley (2006) cites work by Karmiloff-Smith (1992) who provided a representational redescription model concerning the implicit-explicit knowledge shift. Karmiloff-Smith (1992) proposed that children are able to perform tasks before the knowledge required for them is explicitly available to the cognitive system. Gradually, with development, such implicit knowledge becomes redescribed until the point at which it is considered explicit in the cognitive system and available for verbal scrutiny. Karmiloff-Smith's model explains how children performed well in the scenarios task but performed poorly in the categorisation task.

Karmiloff-Smith's (1992) model also explains how, on the scenarios task, children performed well but were unable to explain their choice of character by referring explicitly to the real/not-real nature of the task. The most common explanation given by

children in the current study and the previous study was *capability* or, in other words, they described abilities or properties of a character that rendered it capable of performing the role. For example in the real-life-fire scenario, children explained their choice of the real fireman on the grounds that he wore protective clothing, drove a fire-engine, and could use a hose to put water on the fire. These explanations were not, however, sufficient to distinguish between the real fireman and the cartoon fireman who could also perform this role: Fireman Sam also wears a fireproof uniform, drives a fire-engine, and puts out fires using a hose. In order to differentiate between Fireman Sam and the real fireman it was necessary to refer to their reality status. In the previous study (Study 5) children only gave this type of explanation 8.2% of the time and in the current study where children were on average approximately 9 months younger, this type of explanation was entirely absent. Thus, children's explanations did not reflect the level of understanding that they demonstrated in the task by choosing the correct character over two thirds of the time.

An issue that remains unresolved is what precisely is the nature of the categorisation task that makes it difficult for preschoolers? There are two variables that need to be investigated separately. In categorisation tasks, children make an explicit decision about the reality status of a character, and they are required to do so according to labels such as 'real', 'not-real' 'pretend' etc, thus the effects of the method of sorting and the language used need to be disentangled. Recall from Study 1 that children used the word *real* to refer to existence as well as authenticity when talking about fantasy characters. Therefore, it may be that children's difficulty is not with the explicit nature of the sorting method but in the explicit nature of the task commands in relation to the language used.

In the next study (Study 7) therefore, preschoolers completed a modified categorisation task in which they sorted characters into two different sets, but words such as 'real' or 'pretend' were not used by the experimenter. Instead, two pictures were used, one to represent the notion of the real-world and one for the cartoon world. If children's failure on the standard categorisation task was because of confusion over terms such as *real* and *not-real* then they should be able to respond significantly above chance levels on this modified task (using pictures instead of words). Alternatively, if their performance remains the same when these words are not used, then this would suggest that it is the explicit nature of the sorting method with which preschoolers have difficulty.

Chapter 9

Study 7: Children's categorisations of food and characters

9.1 Introduction

The aim of the current study was to determine whether children's difficulty on the real/not-real categorisation task was because they were required to make an explicit judgement or whether it was because they experienced confusion about the meaning of the terms 'real' and 'not-real'. This was achieved by asking children to decide in which of two locations real and fantasy characters live, as depicted by generic photographs of a real city and of a cartoon city⁸. Thus in this modified task the labels 'real' and 'not-real' were not used.

9.2 Method

Participants

Forty-five children participated, divided into three age groups. There were 10 in the younger age group (mean age = 3;2, range 3;0 – 3;5); 19 in the middle age group (mean age = 3;9, range = 3;6 – 4;4); and 16 in the older age group (mean age = 4;10, range = 4;5 – 5;4), with approximately equal numbers of girls and boys in each group. Children were recruited from nurseries in Berkshire and Oxfordshire, which both serve predominantly white, working-class families.

⁸ Although Skolnick and Bloom (2006) found that children perceive multiple fantasy worlds in which, for example, Batman cannot see, hear, or touch SpongeBob Square Pants, two generic pictures, one representing the fantasy world and one the real world were used in the current study. This meant that the design of the task remained the same as the standard categorisation task, enabling a direct comparison between the standard and the modified versions.

Stimuli and task

The real and cartoon characters that children were required to sort were identical to those used in the previous study (see Appendix 8.3 for the stimuli). Instead of sorting these characters into categories of *real* and *not-real* two pictures were selected after pilot testing to represent the notion of the real-world and the fantasy world (see Figure 9.1)⁹. A second categorisation task involving items of food was introduced to serve as a warm up and to emphasis the distinction that was being sort. In this task, children had to allocate pictures of real and cartoon food, such as a picture of a real banana and a cartoon picture of a banana (see Figure 9.2), either to a picture of a real kitchen or a cartoon kitchen (see Figure 9.3). Food was used because the results from Study 2 showed that preschoolers made quite accurate real/not-real judgements for real and toy food.

Figure 9.1: Pictures representing the notion of the real world (left) and cartoon world (right)

⁹ The picture used to represent the cartoon world was actually from the cartoon 'The Simpsons'. This cartoon is not aimed at preschoolers and a brief check on some children indicated that they did not know where it was from. In the actual study, only one older child said that it was The Simpsons but he, for the majority, correctly judged that the fantasy characters lived there.

Figure 9.2: Example items from the food sorting task

Figure 9.3: Pictures representing a real kitchen (top) and a not-real kitchen (bottom).

Procedure

One of the kitchen pictures was introduced to the child accompanied by the introduction: *"Look at this kitchen. It's got a sink, a window, a fridge, and it has lots of cupboards."* Then the picture of the other kitchen was introduced with the same description. Instead of placing the pictures to the left and right of the child, one was placed above the other one leaving a gap in the middle. This was done to reduce the likelihood that children would perseverate (place consecutive items with the same picture) or alternate (place alternate items with alternate location pictures).

Next it was explained that: *"Some food lives in this kitchen (experimenter pointed to one kitchen) and some food lives in this kitchen (experimenter pointed to the other kitchen), and you've got to show me where the food lives, OK?"* Children were then shown an example using the real and cartoon bananas with the following explanation: *"Look at these bananas (The two banana pictures were placed on the table in the gap in between the two kitchen pictures.). This banana lives in this kitchen (experimenter placed one of the banana pictures into the appropriate kitchen) and this banana lives in this kitchen (experimenter did the same with the other banana picture)."* Then the pictures were removed and the child asked to: *"Show me where these bananas live."* When the child gave a correct response the experimenter said: *"That's right"* and if the child responded incorrectly the experimenter said: *"Actually, look carefully"*, repeated the demonstration and asked the child again. Only 5 children responded incorrectly on the first attempt and they all responded correctly on their second attempt.

The pictures of the bananas were removed and the child was told: *"Now, you have to decide where the rest of the food lives. Remember, some food lives in this kitchen (experimenter pointed to a kitchen) and some food lives in this kitchen (experimenter pointed to the other kitchen), OK?"* Items were introduced by name in a random order

with the instruction: "*Which kitchen does the _____ live in?*" and the picture was handed to the child to place in one of the kitchens. The experimenter was careful not to look at either of the two pictures while asking this question. After the child had made their judgement the picture was removed and the next one was introduced. No feedback was given.

Twice during the procedure the location of the kitchen pictures was swapped in order to remind children to consider each picture and to help to prevent them becoming stuck in a response set. Once all of the food pictures had been sorted children were asked to give two general explanations regarding their choices, one for the real kitchen and one for the cartoon kitchen. Specifically, children were asked: "*Now, can you tell me, why did you think that all this food (children's choices were shown to them) lives in this kitchen?*" and the same question was asked with respect to the other kitchen. Half of the children were asked for an explanation for the real kitchen followed by the cartoon kitchen and half the children were asked for their explanations in the reverse order. Children were thanked for performing the task and then the character categorisation task was introduced.

Before children were given the real and cartoon character categorisation task all of the characters were introduced in turn in a random order and named with the child. This was done to ensure that the child was familiar with the characters. The character pictures were then removed and one of the 'world' pictures was introduced, accompanied by the description: "*Look at this place. It has grass and trees, lots of buildings and shops, cars and trains, and behind there is the sea*" and the child was encouraged to inspect the picture. Next the picture of the other world was introduced with the same description, and the order with which each picture was introduced to each child was counterbalanced. This time there was no warm-up item and the child was told: "*Some*

things live in this place (experimenter pointed to one of the places) and some things live in this place (experimenter pointed to the other place), and you have to decide which place the things live in, OK?" The task was completed in the same manner as the food task.

9.3 Results

Scoring

Placing a character into the correct world (the cartoon world for the cartoon characters and the real world for the real characters) received a score of 1 and an incorrect choice was given a score of 0. The maximum score in the food task was 20 and the maximum score in the character task was 20.

Performance on the food and character categorisation tasks

Differences in how the three age groups performed on the food and the character sorting tasks were investigated (see Table 9.1). This table shows that accuracy increased with age on each of the tasks and that scores on the food task were consistently higher than scores on the character task. A 3 (age) x 2 (task) repeated measures ANOVA confirmed the main effect of age, $F(2, 42) = 17.01, p < .001$. Post hoc testing (Games Howell) revealed that accuracy increased significantly between each age group as age increased (3;2 vs 3;9 age group $p < .05$; 3;2 vs 4;10 age group $p < .001$; 3;9 vs 4;10 age group $p < .01$).

The main effect of task was also confirmed, $F(1, 42) = 20.87, p < .001$, indicating that children sorted more items of food correctly than the characters. To assess the effect of task in each age group three paired t tests were conducted. These revealed

that there was no effect of task on the performance of the 3;2 age group, $t(9) = 1.23, n.s.$ but there were significant effects of task in the 3;9 age group, $t(18) = 3.60, p < .01$, and the 4;10 age group, $t(15) = 3.68, p < .01$. These two groups scored significantly higher on the food task compared to the character task, i.e. they were more likely to sort the real and toy food into the correct kitchens than they were to sort the real and cartoon characters into the correct worlds. There was no interaction between age and task, $F(2, 42) = 0.98, n.s.$

Table 9.1: Mean scores (and standard deviations) on the two categorisation tasks according to age

Mean age	Food Task			Character Task		
	Real Food	Cartoon Food	Total (max. 20)	Real Characters	Cartoon Characters	Total (max. 20)
3;2 $n = 10$	5.70 (2.87)	6.20 (2.30)	11.90 (4.38)	5.00 (2.45)	5.50 (2.92)	10.50 (2.92)
3;9 $n = 19$	7.89 (3.21)	8.37 (2.09)	16.26 (4.48)	6.26 (2.77)	6.68 (1.86)	12.94 (3.29)
4;10 $n = 16$	9.81 (0.54)	9.75 (0.58)	19.56 (0.81)	8.88 (1.75)	7.44 (2.28)	16.32 (3.52)
Mean $n = 45$	8.09 (2.97)	8.38 (2.15)	16.47 (4.49)	6.91 (2.76)	6.69 (2.17)	13.60 (3.88)

To examine the performance of individual children on the two categorisation tasks pass/fail scores were used (see Table 9.2). As in Study 6, the pass mark was determined as 15 or above on the binomial using the probability of being correct by chance of 50%, $p < .04$. Table 9.2 shows that the number of children who passed both of the tasks increased with age while the number of children who failed both of the tasks decreased with age. Of the 13 children who only passed 1 task they all passed the food task and failed the character task. The distribution of pass/fail rates for the three age groups using Chi Square was significantly different, $\chi^2(4, N = 45) = 22.62, p < .001$.

Table 9.2: Number of children who passed and failed the food and character categorisation tasks

Mean age	Failed Both	Passed 1 task	Passed Both
3;2 $n = 10$	7 (70%)	2 (20%)	1 (10%)
3;9 $n = 19$	7 (37%)	7 (37%)	5 (26%)
4;10 $n = 16$	0	4 (25%)	12 (75%)
Total	14 (31%)	13 (29%)	18 (40%)

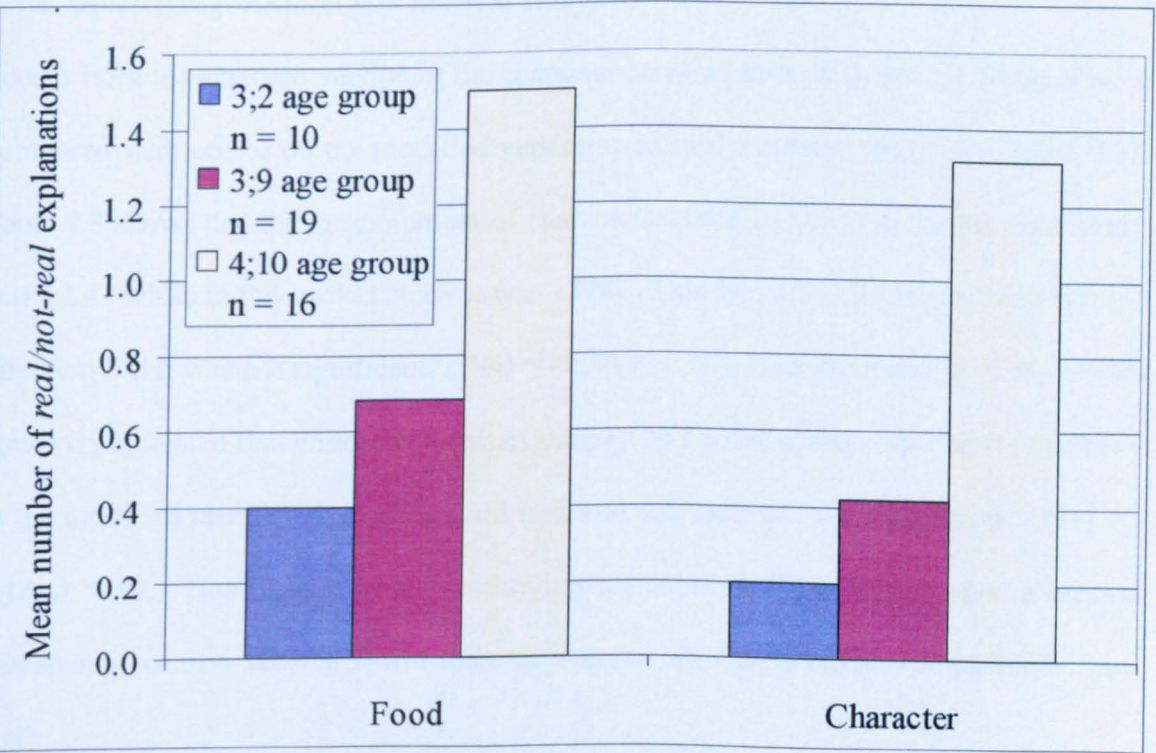
Explanations for categorisations

To gain further insight into children's understanding of the categorisation tasks, their explanations were analysed to determine whether they considered the real or not-real nature of the task, for example by explaining that "It's a pretend kitchen," or "Because they're not-real food because you can't eat them," or "That's a real place and these are

all real.” An independent coder classified explanations from one third of the participants and inter-rater reliability was 98%.

Figure 9.4 shows the number of *real/not-real* explanations that were produced on each of the two tasks according to age. From this figure it can be seen that the number of these explanations increased with age and a 3 (age) X 2 (task) repeated measures ANOVA confirmed the main effect of age, $F(2, 42) = 8.85, p < .001$. Post hoc testing (Tukey) revealed that the 4;10 age group gave significantly more *real/not-real* explanations ($M = 2.81, SD = 1.56$) than children in both the 3;9 ($M = 1.11, SD = 1.49$) and 3;2 age groups ($M = 0.60, SD = 1.26, ps < .01$). There was no effect of task on the number of *real/not-real* explanations produced, $F(1, 42) = 3.81, n.s.$ and no interaction between age and task, $F(2, 42) = 0.98, n.s.$

Figure 9.4: Number of *real/not-real* explanations given in the food and character tasks according to age (max. 2 for each task).



Performance on the character categorisation task according to reality status

Before scores on the modified character categorisation task from the current study could be compared with those obtained on the standard categorisation task used in Study 6, a 3 (age) X 2 (character status: real or cartoon) ANOVA was performed on scores from the task in the current study (see the right hand side of Table 9.1). There was a significant main effect of age, $F(2, 42) = 10.20, p < .001$, and post hoc testing (Tukey) indicated that the 4;10 age group scored significantly higher than both the 3;9 ($p < .01$) and 3;2 age groups ($p < .001$), with no difference between the younger two groups. This effect of age was the same as that obtained on the standard categorisation task from Study 6. In contrast to that study, however, in the current study there was no effect of status, $F(2, 42) = 0.13, n.s.$, indicating that both real and cartoon characters were categorised correctly equally as often.

Comparison of performance on the standard character categorisation task (Study 6) and the modified categorisation task (current study)

Scores from the standard version of the character categorisation task used in Study 6 were compared with scores on the modified version used in the current study (see Table 9.3). Table 9.3 shows that the mean number of characters sorted correctly in the previous study was 12.47 while in the current study it was 13.60. This was a small gain in the predicted direction but it was not significant, $t(94) = -1.30, n.s.$ A closer comparison of the results however, indicated that children sorted an average of 2 more cartoon characters correctly in the modified task than in the standard task and this increase was significant, $t(94) = -3.18, p < .01$. This suggests that preschoolers are more likely to indicate that a cartoon character lives in a cartoon world than they are to say that a cartoon character is 'not-real'.

Table 9.3: Mean scores on the standard version (Study 6) and the modified version (current study) of the character categorisation task

	Standard (Study 6)	Modified (current study)
Real Characters	7.69 (2.97)	6.91 (2.79)
Cartoon Characters	4.78 (3.58)	6.69 (2.19)
Total (max 20)	12.47 (4.53)	13.60 (3.92)

Finally, numbers of individual children who passed the character categorisation task in the current study and Study 6 were compared using pass/fail scores (see Table 9.4). As in Study 6, the pass mark was determined as 15 or above on the binomial using the probability of being correct by chance of 50%, $p < .04$. Table 9.4 shows that more children passed the modified version of the task used in the current study (18, 40%) compared to number of children who passed the standard version used in the Study 6 (16, 31%). However, the distribution of pass rates for the three age groups using Chi Square was not significantly different, $\chi^2(1, N = 96) = 0.78, n.s.$

Table 9.4: Number of children who passed the character categorisation task in the standard version (Study 6) and the modified version (current study)

Age group	Study 6	Current study
Younger 3-year-olds	1/17 (6%)	1/10 (10%)
Older 3-year-olds and younger 4-year-olds	5/17 (29%)	5/19 (26%)
Older 4-year-olds	10/17 (59%)	12/16 (75%)
Total	16/51 (31%)	18/45 (40%)

9.4 Discussion

This study was designed to explore why there is a discrepancy between preschoolers' understanding of the fictional status of fantasy characters when assessed using categorisation tasks compared to other measures such as the scenarios task (used in Studies 5 and 6). In the standard version of the categorisation task children were required to sort real and cartoon characters into categories of 'real' and 'not-real'. Typically, children under the age of 5 years perform poorly on this task, and they are inclined to categorise fantasy characters incorrectly as 'real' (c.f. Study 6; see also Morison & Gardner, 1978; Sharon & Woolley, 2004). This has led to the conclusion that young children are uncertain about the ontological status of fantasy characters.

Other studies, which have employed less explicit measures to test children's understanding of fantasy, have shown that preschoolers do have some understanding of the status of existence of fantasy characters: in Studies 5 and 6, children scored 6.68/10 and 6.47/10 respectively on the scenarios task, indicating that they had some understanding that fantasy characters cannot act in the real world and vice versa. Sharon and Woolley (2004) also found that preschoolers differentially attributed more human-like properties to characters they had judged as 'real' than to characters that they had classified as 'pretend'.

In the current study, children completed a modified version of the categorisation task whereby they sorted real and cartoon characters on the basis of where they thought each character lived, rather than whether they thought that they were 'real' or 'not-real'. Thus two pictures were used to convey the notions of the cartoon world and the real world, and critically, words such as 'real' and 'not-real'/'pretend' were not used. This modified version provided a method to establish whether children's difficulty in the standard categorisation task was because they experienced confusion about the meaning

of the terms 'real' and 'not-real' rather than a conceptual confusion about the ontological status of fantasy characters.

Overall, although there was no difference between the number of characters sorted correctly in the modified task and the standard version, there was a difference in relation to character status: children's judgements for cartoon characters were significantly more accurate in the modified task compared to the standard version. Therefore using a picture to convey the notion of the cartoon world significantly improved children's ontological judgements concerning cartoon characters compared to when they were required to judge whether or not they were 'real'. In other words, preschoolers' understanding that cartoon characters do not live in the real world was significantly better than their understanding that cartoon characters are 'not-real'.

Although children's difficulty in the standard categorisation task does not wholly appear to be related to their confusion over the sorting labels as originally hypothesised, it may be that the terms are ambiguous in relation to cartoon characters. When children are required to judge whether a fantasy character is 'real' or 'not-real'/'pretend' they may be uncertain whether the authenticity of the character is in question or its existence. This suggestion makes sense in light of two observations. First, Harris et al., (2006) propose that it is unusual to question the existence of something presupposed to exist, thus it seems likely that an alternative interpretation of the question will be sought if a child presupposes the existence of the character in question. Second, the findings from Study 1 revealed that children use the words *real* and *pretend* in their everyday speech to consider both the authenticity of fantasy characters and whether or not they exist. In the standard categorisation task, therefore, children sometimes may have sorted the cartoon characters according to whether they thought that they were, in some way, authentic or not. For example they may have classified Bob the Builder as

'real' because he wears a proper hard hat and concluded that he must be a 'real' builder rather than a mere look-alike. Alternatively, some children may have come to the opposite conclusion, i.e. that he is not a real/genuine builder because he only uses plastic tools and classified him as 'not-real'. Furthermore, some children could have considered whether Bob the Builder exists and concluded that he is 'real' on the basis that they have seen him on the T.V. None of these interpretations support the conclusion that a child is confused over the reality status of a cartoon character by claiming that it is 'real'. Similarly, the alternative argument cannot be made, that if a child categorises Bob the Builder as 'not-real' then they necessarily understand the nature of his existence. The results of Studies 5 and 6 do, however, indicate that preschoolers have begun to form an understanding of the fictional status of fantasy characters by being aware that they cannot act within the real world.

Despite the improvement in children's real/not-real judgements concerning cartoon characters in the modified task compared to the standard task, the current study showed that children's understanding in this domain lags behind their knowledge of the status of cartoon/toy food. These results support those obtained in Studies 2 and 3 in which 85% of preschoolers' real/not-real judgements concerning real and toy objects were correct in Study 2 while only 45% of their judgements regarding cartoon characters were correct in Study 3.

In the current study, the youngest age group (mean age 3;2) achieved a significantly lower score than the older age groups in both the food and the character categorisation task. Their poor performance on the food task is particularly surprising given that preschoolers scored highly in their judgements of items of real and toy food and other toy objects in Study 2. There are several possibilities for this difference, each stemming from the way in which the real/not-real judgement tasks were presented. In

Study 2, children had to indicate whether they thought that paired items of real and toy food were 'real' or 'not-real'. In contrast, in the current study the items of real and pretend food were presented individually and children had to make a dichotomized decision for each one. Another difference between the current study and Study 2 concerned the way in which the food was represented. In Study 2, the food items were presented as objects of real and toy food while in the current study they were presented as photographs of real food and pictures of cartoon food. Research on children's understanding of pictures may explain why they had difficulty with the version used in the current study. When adults talk to children about pictures they refer only to the picture's referent and do not acknowledge that they are representations, and children normally ignore the picture as a thing in itself and respond directly to the referent (Thomas et al., 1994). An adult sharing a picture book with a child, for example, may exclaim: "*Look at that nice horse!*" or ask the child to 'point to the horse', assuming that the child will understand that the conversation is about pictures of horses and not real horses (example cited in Thomas et al., 1994). Therefore, if children's normal tendency is to attend only to the referent then they may have interpreted the cartoon picture as its referent, i.e. a real kitchen.

This factor may also explain why the youngest age group achieved a low score in the world categorisation task, i.e. they may have viewed the picture of the cartoon place as its referent, a real city, rather than as the thing in itself. This explanation, however, does not explain why the older children did not seem to evidence this tendency in either the character or the food task, bearing in mind that research shows no developmental change between the ages of 3- and 4-years in children's perception of pictures as their referents (e.g. Thomas et al., 1994).

Another explanation may account for the difficulty experienced by the youngest age groups in the two tasks in the current study and this centres on the procedure that was required to sort the characters. It was noted during pilot testing that the action of placing the food and characters with one of the two location pictures caused some children to perseverate or alternate. In contrast, the procedure of Studies 2 - 4 did not so easily afford these strategies because children were required to indicate verbally 'real' or 'not-real' for each item. This may also explain why, in Studies 5 and 6, the 3-year-olds scored highly since they had to choose one character from an array of 4 and so their understanding was less likely to be masked by the demands of the task.

Turning now to children's explanations for their judgements, as was the case in Studies 5 and 6, children rarely offered an explanation that encompassed discussion of the reality status of the categories or the individual exemplars. In the food task the total number of such explanations was 45% (41/90) and in the character task it was lower (31/90 = 34%). Some explanation for why this may be was given in the discussion of Study 6 (see Section 8.4).

To summarise, this study was conducted to determine whether preschoolers' difficulty on the standard categorisation task was related to their confusion regarding the meaning of the category labels 'real' and 'not-real'. The current study modified the categorisation task so that pictures were used to signify the notions of the real world and the cartoon world rather than the spoken labels 'real' and 'not-real'. The results of the modified task showed that preschoolers categorised significantly more cartoon characters correctly by placing them with the picture of the cartoon world than they did in the standard task by judging that cartoon characters were 'not-real'. Factors that may account for their difficulty in the standard categorisation task include their bias towards interpreting pictures as their referents and/or their use of alternative strategies to sort the

items, such as perseverating or alternating. Further research could shed light on which explanation is most likely. For example, 3-year-olds' performance on the standard categorisation task using items of real and cartoon food could be tested to determine whether they do indeed view pretend food as 'not-real' but were reluctant to view it as absent from the real world.

Part 2: Summary and Conclusions

The second part of this thesis was concerned with the effects of language on children's understanding of the ontological status of fantasy characters. Two different tasks were used, a novel task (the scenarios task), which did not involve use of words such as *real* and *pretend* and two different types of categorisation tasks. It was important that the novel tasks did not use these words in light of the findings from Part 1 which showed that children use and interpret these words in relation to authenticity as well as existence (Studies 1, 3 and 4). Therefore it cannot be certain that when these words are used to question children's understanding of existence, children interpret them in this way.

In the first study in this part (Study 5) a novel paradigm was designed to test whether 3-5-year-olds understand that fantasy characters are restricted to the realm of fantasy and cannot act within the real world. Importantly, this avoided use of the words *real* and *not-real*. This scenarios task involved showing children real-life scenarios (for example a fire) in which somebody was required to perform a role (put the fire out). Children had to choose one character from a choice of 4 to fulfil the role. There were two relevant characters that could potentially carry out the role (a real fireman and Fireman Sam) and two characters that could not (a real Doctor and a cartoon Fimble). The critical choice was between the two relevant characters on the basis of their reality status, with the correct answer being the one that was real (the fireman).

The results showed that 3-4-year-olds have begun to form a basic understanding of the ontological status of fantasy characters in the sense that they understand that they cannot act in the real world: almost two thirds of their responses were correct. This contrasts with the traditional claim that children tend to be confused about the ontological status of fantasy characters when tested using words such as *real*. This difference was

hypothesised to be because the scenarios task did not require children to interpret the meaning of words such as *real* and *pretend*, which was a potential problem with previous research because of the different interpretations afforded by uses of these words.

Study 6 was conducted to strengthen the results from Study 5 by including cartoon scenarios that were presented among the real life scenarios. This meant that for half of the scenarios the correct answer was the real character and in the other half of the scenarios the correct answer was the cartoon character. The results supported and extended the findings from Study 5 by showing that preschoolers also understand to the same extent, that real characters cannot act within the fantasy world. In other words they understood that a real fireman cannot extinguish a fire in the cartoon world when the task did not require their interpretation of *real* and *not-real*.

In Study 6 the same children also completed a standard categorisation task in which they sorted the 20 relevant real and cartoon characters from the scenarios task as either 'real' or 'not-real'. On this task, children performed poorly with only 16 children (31%) responding significantly above chance, although more real characters were correctly categorised as 'real' than cartoon characters were categorised correctly as 'not-real'. From these results alone it could be concluded that children wrongly believe that fantasy characters exist. However, the results from the scenarios task in Studies 5 and 6 showed that children understand at least one aspect of the ontological nature of fantasy characters, namely that they cannot act in the real world. However, another factor could have accounted for children's apparent difficulty in the categorisation task and skill in the scenarios task: the nature of the task - the categorisation task required children to make an explicit real/not-real judgement while the scenarios task did not. Thus it seems that when a task does not require children to interpret words such as *real* and *not-real*, which can express both notions of authenticity and existence, their performance improves. To

explore this, in the final Study 7 children categorised the same 20 characters according to where they live and not whether they were 'real' or 'not-real'. The two choices were either the 'real world' or the 'cartoon world' and these were represented using pictures, not words.

The results from this modified categorisation task were interesting. Similarly to the standard task used in Study 6 only two thirds of the characters were sorted correctly, however where there was an effect of character in the standard task, in the modified task the effect disappeared. This meant that in the modified task significantly more judgements for cartoon characters were correct, or in other words, children placed more cartoon characters in the cartoon world in the current study compared to those that were judged as 'not-real' in Study 6. Thus perhaps in Study 6 children were uncertain about the meanings of the terms 'real' and 'not-real' particularly in relation to the fantasy characters. However, this explanation does not wholly account for the fact that so few children passed the modified categorisation task in comparison to the majority of children who passed the scenarios task. It was concluded that further research is required to pinpoint the source of preschoolers' difficulty in completing categorisation tasks of this nature.

To conclude, the results from the second part of this thesis reveal that children as young as 3 years of age have begun to form an understanding of an important aspect of the nature of existence of fantasy characters, i.e. that they cannot act in the real world (Studies 5 and 6) and also that real characters cannot act in fictional worlds (Study 6). This understanding appears to be somewhat masked by categorisation tasks in which real and cartoon characters are judged as 'real' or 'not-real'. In a modified categorisation task in which pictures were used instead of these labels to mark the notions of the real world and the cartoon world, children placed correctly significantly more cartoon characters in

the cartoon world in comparison to their judgements that cartoon characters were 'not-real' in the standard categorisation task. This suggests that the word *real*, as found in Study 1, was interpreted in relation to both the notions of authenticity and existence with regard to the topic of fantasy characters. This led some children to judge that the characters are real (perhaps meaning authentic), but also that they live in a cartoon (not-real) world. It was concluded that further research is required to explore the extent of young children's understanding of the existence of fantasy characters using subtle measures that avoid use of terms such as *real*, *not-real*, *really* and *pretend*.

Chapter 10

General Discussion and Conclusions

The studies presented in this thesis were conducted to explore possible reasons for the contradictory evidence pertaining to children's understanding of different real/not-real distinctions. In Chapter 1 it was explained that two particular real/not-real distinctions have been the focus of previous investigations. The first is the distinction between real and pretend and the second is the distinction between the real and the fantastical. In the case of the real-pretend distinction children's understanding of both symbolic and imaginary pretense have been of predominant interest, and in the case of the real-fantasy distinction children's beliefs in the existence of mythical, supernatural, or imaginary beings has been a primary concern. The issue that was addressed in this thesis was whether children's interpretation of critical terms used in task commands such as *real*, *not-real* and *pretend*, masks the extent to which they are judged to be aware of real/not-real distinctions. Of specific interest was children's understanding of the ontological status of fantasy characters, in light of the different connotations of these words to refer to notions of authenticity and existence.

In this chapter the two key themes that emerged from the studies will be presented and discussed in terms of their methodological implications for testing children's understanding of real/not-real distinctions. Finally, some directions for future research will be presented.

10.1 Connotations of the words 'real', 'really' and 'pretend'

10.1.1 Authenticity

The first key finding that emerged from the studies was that the most frequent connotation of the words *real*, *really* and *pretend* related to the notion of authenticity. In Study 1, 2-7-year-old children's everyday uses of the words *real*, *really* and *pretend* were collected through parent interviews and diaries. The analysis of children's uses of these words revealed that they largely commented on and discussed notions of authenticity in relation to a variety of different items and events in their environments. These included differences between real and unreal objects (such as real and toy/plastic food and vehicles), differences between really doing something versus pretending to do something (such as eating or sleeping), and differences between really being somebody and just dressing-up as that person (such as a fireman or a ballerina).

Children's understanding of authenticity was explored empirically in Study 2, in which children were required to justify their real/not-real judgements concerning real and toy food, vehicles, animals, and people dressing-up. All the children, including preschoolers, were very accurate in making such judgements, although the justifications provided by the preschoolers were often uninformative. Six-seven-year-olds, 9-10-year-olds and adults provided rich and varied justifications, including both explicit and implicit references to the notion of authenticity. An explicit reference included such words as 'real,' 'realistic,' or 'proper', such as "*It's not got a real crust*" and "*It's not really the proper colour yellow... it's too bright yellow*". Other justifications implicated the notion of authenticity. Some examples include "*You can only play with it (toy car),*" implying that the car is a substandard version of a proper vehicle because it cannot offer transportation, and "*It's (toy banana) made of plastic,*" which implies that the banana is not a genuine, authentic banana owing to its composition.

Therefore, Studies 1 and 2 revealed that children use the words *real*, *really* and *pretend* to discuss the authenticity of things in their everyday environment and that their real/not-real judgements concerning these everyday items are largely accurate. Furthermore, when school-aged children justify why these items are 'real' or 'not-real' they are able to comment on the nature of the authenticity of them. From these two studies it was concluded that children's use and interpretation of terms such as *real*, *really* and *pretend* in relation to the notion of the authenticity of objects is already fairly well established in the preschool years.

The finding that children's early discussions of real/not-real were largely concerned with authenticity was also supported, surprisingly, by their justifications for their real/not-real judgements about fantasy characters. The justifications that children gave Studies 3 and 4 sometimes featured explicit or implicit references to the notion of authenticity. For example they explained that Bob the Builder "*Doesn't have proper tools*", that the picture of Father Christmas is "*...not the real one because he hasn't got any presents*", and that Winnie the Pooh is "*...only a pretend bear because bears don't wear t-shirts*". Children who gave these types of justifications thus considered the fantasy characters as inauthentic or substandard versions of 'the real one' or 'real ones' in some way. In other words, they considered that Bob was not a real/genuine builder, that the picture of Father Christmas was not depicting the real one, and that Winnie the Pooh, despite being a bear, was not a real/authentic bear.

In the second study of children's real/not-real judgements about fantasy characters (Study 4) in which judgements were made alongside real characters, notions of authenticity were evident to an even greater extent. When children justified their real/not-real judgements concerning Bob the Builder and the real builder for example, they commonly considered whether Bob was a real builder or a real person, or whether he

was wearing real builders' clothing, used real tools and machinery, or had real building companions.

10.1.2 Existence

The other meaning of *real*, *really* and *pretend* that emerged from Studies 1-4 related to the notion of existence, although this meaning was not as strongly evident as the connotation relating to authenticity. In the diary data collected in Study 1 children discussed existence in relation to a narrow range of topics, namely animals and fantasy. They discussed, for example, whether dinosaurs are still alive or extinct, wondered whether there are any such things as witches, and worried about whether there really was a monster in their bedroom wardrobe.

When asked to justify their real/not-real judgements for fantasy characters in Studies 3 and 4, children considered, to some degree, the nature of their existence. Thus they explained, alongside other factors, whether there is any such character (in the world or in real life), whether anyone has ever seen a character, and whether they or other people believe in a character. They also adduced evidence about whether a character can or cannot act in the world. The extent to which children justified their judgements by referring to the notion of existence, however, depended on age and the context in which the judgement was made. Nine-ten-year-olds and adults gave more existence justifications than younger children and in Study 4 existence justifications were produced less often than in Study 3 where the real/not-real judgements were not made in a given context. These findings suggest that, despite the connotations of *real*, *really* and *pretend* being most strongly related to notions of authenticity, children can comment on and consider the nature of existence of fantasy characters, although age and context affect the extent to which they do this.

In light of these findings from Part 1 the second part explored the extent to which children understand the nature of existence of fantasy characters. The most important goal of this research was to do so in a way that avoided use of terms such as *real* and *not-real* or *pretend* to assess the influence of language on children's understanding of fantasy and reality.

10.2 Children's understanding of the existence of fantasy characters

In Part 2, the key finding that emerged was that preschoolers have a more sophisticated understanding of the nature of existence of fantasy characters than previous research has suggested. In the scenarios task words such as *real* and *pretend* were not used by the experimenter because Studies 1-4 suggested that these would imply notions of authenticity rather than existence, especially as the scenario context included real characters. Across 10 scenarios preschoolers choose the correct character approximately two thirds of the time, suggesting that they have begun to form an awareness of the nature of the existence of fantasy characters, namely that fantasy characters cannot act within the real world and vice versa. This is despite the fact that preschoolers (1) only occasionally discussed the existence of fantasy in their everyday conversations using the words *real*, *really* and *pretend* (Study 1); (2) only occasionally gave existence justifications for their real/not-real judgements of fantasy characters (Studies 3 and 4); and (3) tended to categorise fantasy characters as 'real' (Study 6).

10.3 Methodological Implications

10.3.1 Testing children's understanding of the existence of fantasy characters using words such as 'real,' 'really' and 'pretend'

The findings suggesting that the primary connotations of *real*, *really* and *pretend* relate to the notion of authenticity and that children seem more able to reason about the ontological nature of fantasy when these words are avoided, has important methodological implications. These implications centre on the language that is used in tasks that are designed to assess children's understanding of the fictional nature of fantasy characters. This was illustrated in Study 6 when children's performance in the scenarios task and in a standard categorisation task was compared.

In that Study, 44 children (86%) scored significantly above chance in their choice of character on the scenarios task while only 16 children (31%) scored above chance in their categorisation of real and cartoon characters as 'real' and 'not-real'. In light of the findings in the first part of this thesis, this difficulty on the categorisation task was attributed to use of the category labels 'real' and 'not-real'. This was because performance on the scenarios task did not rest on children's interpretation of these words while the categorisation task did. To test this hypothesis Study 7 modified the categorisation task so that, instead of sorting characters to the labels 'real' and 'not-real,' pictures were used to represent the notion of the real world and the cartoon world. At first glance the results did not appear to support the hypothesis that preschoolers' difficulty in the categorisation task was due to their misunderstanding of the terms 'real' and 'not-real' since their overall performance on the modified task was not significantly different from their performance on the standard task. However, children's categorisation of cartoon characters improved significantly in the modified task. This

suggested that preschoolers understand that cartoon characters live in the cartoon world to a greater extent than they understand that cartoon characters are ‘not-real’.

One implication of this difference in performance across tasks is that use of the terms *real* and *not-real* masks the extent to which children are attributed an understanding that fantasy characters do not exist. Consider the study by Woolley et al., (2004) in which 3-5-year-olds were asked whether they thought that the Candy Witch was ‘*real or pretend*’. Clearly this question was intended by the authors as a question about existence since they claimed that ‘many of the children believed wholeheartedly in her existence’. The results from this thesis suggest, however, that this conclusion may be misleading. It is likely that at least some of the children did not interpret the question asked by Woolley et al., (2004) in relation to existence but, rather, saw it as a question about authenticity, for example, they may have considered whether the Candy Witch was an authentic witch or an authentic human. These are even more likely possibilities given that children were asked whether the Candy Witch was ‘real’ alongside other ‘real’ entities such as their teacher and a cat (cf Study 4).

This interpretation is also supported by an observation made by Harris et al., (2006). They noted that it unusual to question the existence of something that is believed to exist. This would not adhere to the rules that underlie the ‘co-operative principle’ for effective communication (Grice, 1975) or to relevance theory (Sperber & Wilson, 1986/1995). Several studies have shown that the speech of preschoolers is already sensitive to these sorts of rules (Siegal, 1997) since they learn to take turns in conversation, and adjust their speech to the characteristics of the listener (Shatz & Gelman, 1973). In experimental settings these rules are often set aside: an experimenter may, contrary to the co-operative principle, pose questions where the answer may appear obvious. (For example, on repeated questioning the child may change their answer

assuming that their first response was incorrect when it was not (Gelman, 1982)). Unlike adults, preschool-aged children do not expect such rules to be broken so they interpret the question in a different way to the one intended (Siegal, 1997). This may partly explain why, when children are asked to decide whether a fantasy character is 'real' or 'not-real', they do not interpret it as a question about existence if they already presuppose the existence of the entity in question.

In light of the potential ambiguity in the interpretation of such questions about reality, it is clear that future research should consider carefully the wording of questions that are intended to probe children's judgements about existence. For example, a recent study by Harris et al., (2006) asked the less ambiguous question: "*Are there really ___ in the world?*" with regard to real (e.g. a giraffe), scientific (e.g. germs) and impossible (e.g. flying pigs) entities. Although the children in Study 1 in this thesis did not use *really* to consider existence very often, the question posed by Harris et al., (2006) clearly cannot be about authenticity. The youngest children in their study were 4-5-years-old and they responded as accurately as the 7-8-year-olds by correctly and confidently claiming that real and scientific entities exist. For impossible entities, however, although older children were more confident in denying their existence than the younger children both age groups tended to deny their existence. It would be revealing to see how younger children, i.e. 3-year-olds would interpret the question posed by Harris et al., (2006) and to see how children would deal with the same question with regard to cartoon characters.

Another way in which children have been questioned about ontological status uses the word *exist*. In a study conducted Woolley and Wellman (1992) children were asked: "*Have you ever seen X?*" in conjunction with the question: "*Does X exist?*" as well as whether one can think and dream about X. This was in relation to real and non-existent imaginary entities such as an ant crawling on the ground and an ant riding a

bicycle. This appears to be one of the few studies that have actually used the word *exist*, with the majority, as noted in Chapter 2, tending to use the word *real* instead. Interestingly, Woolley and Wellman (1992) found that children aged as young as 3-years responded quite accurately to these questions: they scored 93% on the ‘existence’ question and 91% on the ‘seen’ question. This seems to suggest that 3-year-old children understood this question posed by Woolley and Wellman, at least in relation to imaginary non-existent objects and animals. There is, however, a possible problem with the Woolley and Wellman (1992) study in that the answer to the ‘have you seen’ question and the existence question was always either ‘yes’ or ‘no’ to both.

It would be revealing to explore how children respond to similar questions using the term *exist* in relation to fantasy characters, in particular, cartoons or culturally supported characters such as Father Christmas. This is because, presumably, the correct answer to the ‘seen’ question would be ‘yes’ but the correct answer to the ‘exist’ question would be ‘no’. Would children be willing to express this contradiction? Another issue is how children interpret these questions with regard to the level of visibility or existence implied: cartoon characters are ‘seen on T.V.’ but not ‘in the street’ (as some children explained Study 3), and Father Christmas exists, in the sense that people from a Western culture know about the character, despite also knowing that there is no such person capable of flying around the world and delivering presents in one night.

10.3.2 Testing children's understanding of the existence of fantasy characters using categorisation tasks

The second methodological implication of the results concerns the use of categorisation tasks to examine children’s understanding of the ontological status of fantasy characters. The general conclusion from such tasks, in which young children tend to categorise

incorrectly fantasy characters as 'real', is that they believe in their existence. The studies presented in this thesis raise two implications in relation to categorisation tasks: the first is the way in which the category labels are represented, and the second concerns the method of sorting employed.

In Study 6 children completed a categorisation task by placing pictures of characters into one of two containers labelled 'real' and 'not-real.' Alternatively in Study 7 these labels were replaced with pictures, one to represent the real world and one to represent the cartoon world. Although performance was in the predicted direction with children scoring higher in the categorisation task in Study 7 (68%) than in Study 6 (62%) this difference was not significant. However, categorisation of the cartoon characters was significantly higher in Study 7 (67% vs 48% in Study 6) suggesting that children's interpretation of 'real' and 'not-real' may have been particularly problematic in relation to the fantasy characters¹⁰ (refer back to Section 9.4 for discussion of this point). From these data, it can be concluded that children are more likely to classify fantasy characters as belonging to the cartoon world than they are to judge that they are 'not-real'. Therefore pictures should be considered as a useful way to represent the distinctions in categorisations tasks assessing children's understanding of 'real' and 'not-real'.

The second implication of the results from the categorisation tasks used in this thesis stems from the different methods of sorting employed. In Studies 2 and 4 children were presented with real and not-real entities and they had to indicate verbally whether they thought that each one was 'real' or 'not-real'. In contrast, in Studies 6 and 7 children were required to allocate individual items to one of two containers. During pilot testing in Studies 6 and 7 it became apparent that some of the younger children became

¹⁰ It could be argued that use of the word 'pretend' would be a better contrast than 'not-real' but the results from Study 1 showed that this word has the same connotations as 'real'. Also, previous research has used both 'not-real' and 'pretend' as contrasts to 'real' and this does not seem to effect the general conclusions.

stuck in a particular response set¹¹, either by perseverating¹² or alternating. This same phenomenon was also noted in a study by Browne and Woolley (2004) where they found that some preschoolers became stuck in a response set when categorising events as either ‘magic’ or ‘not-magic’. In contrast, this did not seem to be an issue in Studies 2 and 4 of this thesis. Therefore it is important to be aware that, for some young children (i.e. those under the age of 3;6) the demands of the sorting procedure, as employed in Studies 6 and 7, are quite high. Thus measures need to be taken to reduce the tendency for children to exhibit an inappropriate response set.

10.4 Further Research

On the basis of the results presented in this thesis it is clear that more research is needed to explore unanswered questions relating to children’s understanding of the distinctions between what is ‘real’ and what is ‘not-real’. Two major questions include: how does children’s interpretation of the language involved in discussions of ‘real’ and ‘not-real’ relate to their conceptual understanding of the fictional status of fantasy characters? and how do children learn about what does and does not exist?’ In the remaining part of this chapter, suggestions will be proposed for how these two questions may be examined.

10.4.1 Longitudinal study of children’s everyday uses of ‘real’, ‘really’, and ‘pretend’

One way in which the first question involving the possible relation between language and understanding can be investigated is to conduct a longitudinal study. The diary study

¹¹ Note that in the actual procedure for Study 7 the location of the pictures was swapped during testing to limit the tendency for children to do this.

¹² This is similar to the “A not B” error made by infants when, after witnessing an object being hidden in location B following an initial hiding in location A, they repeat their search for the object at location A (Bower, 1982).

(Study 1) was limited because it employed a cross-sectional design, meaning that the pattern of change over time within individual children could not be examined. A longitudinal study of children's everyday uses of these words could be conducted by recruiting a group of 30 children, who have not yet used either of the target words, at around the time of their second birthday. This would be advantageous because it would reveal whether or not children's initial uses concern authenticity rather than existence. This would also provide an important baseline over which to view the developmental process of change over the forthcoming few years. Although the results from this thesis do not speak directly on the issue of children's initial uses, it seems a likely possibility that they would relate to authenticity rather than existence.

A diary record would be kept until the child reaches the age of about 5-years, or until the range of uses of the words found in Study 1 have been recorded. In light of the implications of the results from Study 1 for testing children's understanding of the ontological status of fantasy characters, it would be useful to ask parents to include in the diary records their child's use of the terms such as *exist* and *existence* as well as phrases such as '*any such thing*,' and general discussions of belief in fantasy characters.

Children's performance could also be measured using the tasks that were designed for the studies presented in this thesis. This would enable important comparisons to be made between children's language use and their level of understanding of real/not-real distinctions. It would be expected that children who demonstrated more flexible uses of these words would be those who score higher in tasks such as the scenarios task and the categorisation tasks.

Another extension to Study 1 could be to explore how children's uses of *real*, *really* and *pretend* are similar or different to adult uses. Adults would be expected to display a wider range of uses than children but the interesting question would be whether

adults made the same emphasis on authenticity compared to existence, as was evident from children's everyday uses. From ad lib observations made by the author, this would be expected to be the case. Perhaps this is not surprising given that existential matters do not often arise in everyday conversation, which is in contrast to wondering whether something is authentic or not. Consider the following scenarios: a cashier who served a teenager alcohol wondered whether their ID was genuine; a parent who bought a fruit drink for their child checked whether it contained real fruit or artificial flavourings; a musician who heard a song and tried to establish whether the music was played by real instruments or synthesisers; an employee, upon hearing a fire-alarm, considered whether it was a drill or a genuine fire, and a visitor, upon seeing an apparently real flower display, touched a leaf to make sure their observation was correct. These examples serve to illustrate that the notion of authenticity is a common occurrence in everyday matters. Adults ($n = 20$) could be asked to keep a diary for one month in the same way as parents did for the children tested in Study 1. The utterances that they recorded would be analysed in the same way as the children's uses and this would enable comparisons to be made between children's and adults' uses.

10.4.2 The development of children's understanding of existence

The second topic for further research concerns the ways in which children learn about what does and does not exist. One implication for such research concerns the way in which real/not-real distinctions are construed conceptually. Previous research has tended to view an understanding of the pretense-reality distinction as separate from an understanding of the fantasy-reality distinction, with knowledge of the former being shown to develop earlier than the latter. However, the studies in this thesis suggest that children's construal of fantasy has its roots in the pretense-reality distinction, or more

specifically, in the notion of authenticity. Thus rather than two (or more) separate real/not-real distinctions, these should perhaps be viewed as two ends of one continuum. This continuum would place knowledge about authenticity at one end and knowledge about existence at the other: in other words, an understanding that toy bananas are ‘not-real’ would be at one end and understanding that Father Christmas is ‘not-real’ at the other end. The middle ground is perhaps the region in which children learn about the nature of existence of fantasy characters which grows from an appreciation that fantasy characters lack authenticity.

This idea is perhaps what is implied in a comment made by Woolley (1997) in her review of children’s understanding of fantasy and reality in which she proposed that *“A developing understanding that the world is not always as it seems, that appearances and other representations can misrepresent reality, may help children to conceptualize the existence of a not-real world”* (p.1007). She also notes that entities that do not exist often seem real in certain ways making it a ‘tricky problem’ to verify the non-existence of such things. The results from this thesis certainly showed that children perceive fantasy characters in terms of their authenticity and existence. Therefore, further research is required, first to explore how children begin to understand that fantasy characters lack authenticity in comparison to real characters, and second to determine how they learn to appreciate that such characters do not exist in the real world.

Another way in which children may learn about existence has been investigated by Paul Harris and colleagues (e.g. Harris & Koenig, 2006; Harris et al., 2006). They argue that although much research in cognitive development (e.g. Vygotsky, 1986) implies that young children construct theories about the world around them via their own direct first-hand observations and experiences, use of this ‘empirical’ strategy is limited. He proposes that children must also rely on the testimony of others to learn about

unfamiliar concepts for which no first hand experience is available, such as the historical past, the invisible, and the fantastical (Harris, 2007). Furthermore use of an empirical strategy is limited because it would lead children to be inappropriately cautious in denying the existence of entities in these domains such as germs and oxygen (Harris et al., 2006).

Harris et al., (2006) showed that children are sensitive to the pattern of testimony which surrounds different domains of entity. In their study, 5-6-year-old children clearly distinguished between endorsed beings (e.g. God and Santa Claus) whose existence they tended to assert, and equivocal beings (e.g. ghosts and mermaids) whose existence they tended to deny, even though they had not encountered either type of being. Harris and colleagues (e.g. Dias & Harris, 1990; Clément, Koenig & Harris, 2004; Koenig & Harris, 2005) have also conducted experiments to examine young children's trust in testimony from selected informants. In these experiments, a familiarisation phase introduces preschoolers to two informants who make conflicting claims regarding the name or use of an object: one informant names or uses it correctly while the other one does not. In the test phase children are shown an unfamiliar object, which is named and used by both of the informants, and then the child is invited to indicate what they think the object is called or for what purpose it is used. Summarising across these experiments, the results revealed that preschool-aged children do display selective trust and prefer to endorse information from the accurate informant.

There is also evidence that preschoolers are guided by the reactions of other listeners when deciding on the trustworthiness of an informant (Fusaro & Harris, 2005, cited in Harris, 2007). In the study conducted by Fusaro and Harris (2005) preschoolers listened as an informant made implausible claims about a depicted animal such as: "*This fish lives in trees*". When two listening bystanders nodded in agreement with the claim

children were more likely to accept the claim compared to when two bystanders frowned in disagreement. Therefore, children can collate evidence from their own experience and the testimony from others to form beliefs about what does and does not exist.

The results from this thesis speak as to what type of testimony may be particularly effective for children to learn about the nature of existence of fantasy characters. That is, as suggested by the results from the scenarios task, children may rely on information about whether a character can act in the real-world or has real-world consequences¹³. This hypothesis could be tested by presenting children with a range of novel fictional entities and systematically varying the pattern of testimony that accompanies each one. For example, one group of children could hear a non-existent entity such as a *urnit* being described in terms of actions that are possible in the real world (*"It rides to work on a train"*) and the other group could hear it described in terms of actions that are impossible (*"It rides to work on a snail"*). Children would then be asked to decide whether they think that there is any such thing as a *urnit*. If children are sensitive to the pattern of testimony that they receive then those in the former group should confirm the existence of *urnits* and those in the latter group should not. If children do judge the reality status of novel entities on the basis of their knowledge of possible actions in the world then this would reveal an important factor in the development of children's knowledge of distinctions between 'real' and 'not-real'.

¹³ This may explain why children do not deny the existence of Father Christmas and the Tooth Fairy, who bring real presents and real money respectively, well up to their 8th birthday (Kowitz & Tigner, 1961).

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