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Is it real? The development of judgments about authenticity and ontological status

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ABSTRACT

We examined children's judgments of the real/not-real status of fictional characters given that such judgments can be based either on the ontological status of the character or on the authenticity of a representation of the character. Sixty 3 - 5 year-olds and 20 adults were shown paired photographs of fictional characters (e.g., Bob the Builder) and people dressing up as those characters (e.g., a person wearing a Bob the Builder costume). They were asked whether each depicted character lives in 'the real world' (ontology question) and whether each character is 'the real' fictional character (authenticity question), and why. As expected, younger children, and to some extent older children, made more accurate authenticity judgments than ontology judgments about the characters, whereas adults made accurate judgments in reply to both questions. Furthermore, younger children did not differentiate between the two questions in their justifications, unlike the older children and adults. Implications for the development of children's ability to make reality judgments about fictional characters are discussed.

1. Introduction

Young children learn that characters and events from novels, television programs, blockbuster movies or computer games form an ontologically distinct category that we label as not real

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(Harris, 2000; Skolnick & Bloom, 2006; Woolley, 1997). They come to realize, for example, that Harry Potter is not a real schoolboy and that Bob the Builder could not really come to mend our roof.

Improvement occurs at around the age of 4 years in children's ability to categorize a range of characters and events as real or fantastical (Boerger, 2011; Bunce & Harris, 2013; Carrick & Quas, 2006; Corriveau, Kim, Schwalen, & Harris, 2009; Harris, Brown, Marriott, Whittall, & Harmer, 1991; Samuels & Taylor, 1994; Sharon & Woolley, 2004; Skolnick & Bloom, 2006; Tullos & Woolley, 2009; Woolley & Cox, 2007; Woolley, Boerger, & Markman, 2004). For example, nearly two thirds of 3-year-olds in a study by Sayfan and Lagattuta (2008) incorrectly endorsed the existence of imaginary creatures such as monsters and witches; this number dramatically reduced to just 6% of 5-year-olds. Similarly, Sharon and Woolley (2004) reported that 3-year-olds failed to categorize systematically a variety of real entities (e.g., dinosaurs, clowns, a child) and fictional characters (e.g., Santa Claus, a monster, Superman) as real or pretend, whereas 4–5-year-olds were more systematic. The critical test in such studies usually involves asking children whether or not an entity is real or pretend, or asking children to sort a variety of entities into containers that represent the categories real and pretend.

Although these findings are fairly consistent, they are limited in two ways. First, the category 'fictional character' is not homogenous. It includes characters that range from those whose actions are impossible in the real world (e.g., Harry Potter) to those whose actions are possible (e.g., Bob the Builder), and characters about whose status children are deliberately misled (e.g., Santa Claus) or alternatively reassured (e.g., monsters under the bed) (Harris, 2012). In a study by Boerger (2011), (83)% and 52% of 3–7-year-olds judged Santa Claus and fairies respectively as 'real', but witches were only judged as real 22% of the time. Similarly Bunce (2007) found that 80% of 3–4-year-olds categorized Father Christmas as real but only 45% judged Bob the Builder and Winnie the Pooh as 'real'. By implication, even if children can, in principle, distinguish fictional characters from real entities, they may not always apply that distinction.

A second issue is that the term 'real' is multifaceted. As a result, it is not always clear what children mean when they judge something as real (Woolley, 1997; Woolley & Wellman, 1990). For example, Woolley, Boerger, and Markman (2004) found that 66% of 3–5-year-olds judged a novel Halloween character (the Candy Witch) to be real, but children also judged their teacher to be real. As a result, the authors doubted that children meant the same thing when they judged that both were real.

Another way of making reality judgments is on the basis of authenticity, that is, whether something or someone is genuinely what they appear to be, as opposed to an imitation or fake. In a study of children's everyday uses of the word 'real', Bunce and Harris (2008) found that 2–7-year-olds rarely commented on the ontological status of fictional characters, e.g., "Monsters aren't real", but often made statements about the authenticity of representations of fictional characters, e.g., "He's not the real Father Christmas" and "I saw the real Darth Vader." Among the 4–7-year-olds, uses of the word 'real' were substantially more common in relation to authenticity than ontological status (63% vs. 29%). Therefore, a judgment about whether something is real or not could be made on the basis of authenticity (Is X a real one?) or ontological status (Does X live in the real world?). For example, in the study by Woolley et al. (2004), it is possible that children thought they were being asked whether the Candy Witch was an authentic example of a witch in contrast to a person dressing up and pretending to be a witch.

Several studies have shown that children can make accurate judgments on the basis of authenticity by the age of 3 years (Bunce & Harris, 2008, 2013; Flavell, Flavell, & Green, 1987; Harris, Kavanaugh, & Meredith, 1994; Woolley & Wellman, 1990). For example, in a study by Moll and Tomasello (2012), 3-year-olds correctly distinguished 'the real X' from an object that 'looks like X', and in a study by Harris et al. (1994), 2–3-year-olds affirmed that the cotton wool being used in a pretense scenario to represent milk was 'pretend' milk, not 'real' milk. Three-year-olds can also categorize appropriately real entities and toys as 'real' or 'not real' on the basis of authenticity, although there is an improvement between the ages of 3 and 4 years in children's ability to make these judgments for people dressing up (Bunce & Harris, 2013).

Taken together, this evidence suggests that it is important to further examine children's reality judgments about fictional characters to determine the basis for their judgments. This was partly achieved in a recent study by Bunce and Harris (2013), in which children were provided with a context in which to make the real/not-real judgment. In that study, fictional characters were presented

in a pair with a human, e.g., the fictional character Bob the Builder was paired with a real builder, in an attempt to emphasize the ontological nature of the judgment. Compared to a control condition in which fictional characters were presented individually, the paired presentation increased children's judgments that humans are 'real' and fictional characters are 'not real'. However, the context only improved older children's judgments (mean age 4;11), not younger children's (mean age 3;11). The context also did not increase the number of justifications given by older and younger children that made a reference to the ontological status of the fictional character or human. Thus, the context was only partly successful in helping children to make a judgment on the basis of ontological status.

In the present study, we considered another way to clarify the intended judgment about the real/not-real status of fictional characters. We asked participants to make two different judgments about four different characters. Instead of only an ontological status judgment, they were asked to make both an ontological status and an authenticity judgment. Children were presented with two versions of a given character, e.g., a photograph of the cartoon television character Bob the Builder and a photograph of a real person dressing up as Bob the Builder. For each of the two versions of a character, they were asked an ontology question, e.g., 'Does this Bob the Builder live in the real world?' and also an authenticity question, e.g., 'Is this the real Bob the Builder?' They were also asked to justify each of these four judgments. Note that a correct answer to the ontology and authenticity questions for a given version of a particular character requires that children alter their judgment depending on the question posed. Thus, the picture of Bob the Builder depicted someone who does not live in the real world but it nonetheless depicted the authentic Bob the Builder. Conversely, the picture of a person dressed up as Bob the Builder depicted someone who lives in the real world but is not the authentic Bob the Builder.

Following Bunce and Harris (2008, 2013), the first hypothesis was that older children and adults would make significantly more accurate ontology judgments than younger children. The second hypothesis was that all participants would make accurate authenticity judgments. In other words, we expected younger children to make significantly more accurate authenticity judgments than ontology judgments but older children and adults to be equally accurate in making these two judgments. Our design also enabled us to examine potential age changes in the frequency of justifications referring to the properties of the character (e.g., whether or not it was wearing the character's authentic clothes) versus the status of the character (e.g., whether it was a television character).

2. Method

2.1. Participants

Forty younger children (M = 4;1, range 3;7 to 4;8), 20 older children (M = 5;3, range 4;10 to 5;10) and 20 adults (M = 23 years, range 18;35 years) were tested. Equal numbers of males and females were in each age group. Children were recruited from preschools and schools in Oxfordshire and Berkshire, UK, and adults were undergraduates from Oxfordshire.

2.2. Stimuli and procedure

The same procedure was used to test children and adults. Four well known fictional characters (Bob the Builder, Fireman Sam, Postman Pat, Fifi) were chosen from popular television shows for children in the UK. A pilot test on a sample of 10 children and 8 adults confirmed that these characters were familiar to them (i.e., 'Do you recognize this character?') and that they could assign the correct name from a choice of two names (e.g., 'Is this Postman Pat or Postman Pete?'). Separate photographs of each character, and a person dressing up as each character, were obtained from the internet. Each fictional character was paired with the person dressing up as the character, to produce 4 pairs (see Fig. 1 for an example of one pair).

The first pair of figures was introduced by the researcher saying: *Look at these two [name of fictional character]s.* The position of the fictional character was counterbalanced so that half the time it appeared on the left and half the time on the right. The researcher then pointed to one of the figures and asked either the authenticity question: *Is this the real [fictional character]?* or the ontology question: *Does*
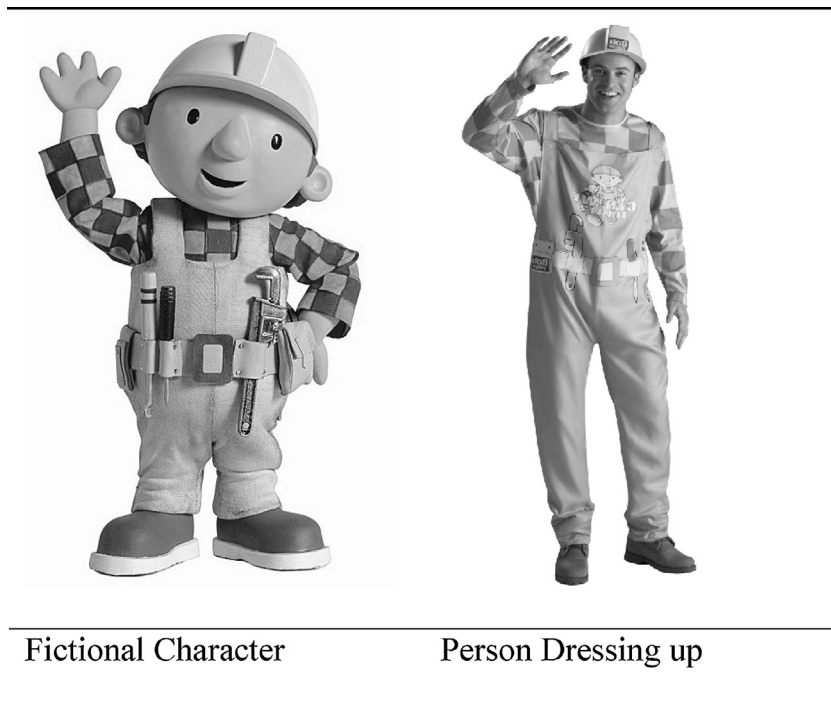
Fictional Character   Person Dressing up

Fig. 1. Bob the Builder stimuli.

this [fictional character] live in the real world? Each question was a forced choice Yes/No question; participants were not asked directly to compare the characters. After participants responded, they were asked to justify their response: *Why do you think he is/is not the real one?* or *Why do you think this one lives/does not live in the real world?* That pair of figures was removed after the participant answered just one question concerning one figure in the pair, and another pair was introduced. Each pair was presented 4 times (in a random order) so that the authenticity and ontology questions could be asked for each figure in the pair separately. This method was intended to increase the likelihood that responses to each question and for each figure were independent of each other.

3. Results

3.1. Coding and preliminary analysis

Overall, participants answered 8 authenticity and 8 ontology questions about 8 individual figures (4 fictional characters and 4 persons dressing up as those characters). Each correct response to a given question, namely that the fictional character but not the person dressing up was the real one, or that the person dressing up but not the fictional character lived in the real world, achieved a score of 1. Preliminary analyses revealed no effect of gender of the participant or pair (builder, fireman, postman, gardener), therefore, these data were combined for further analysis.

3.2. Judgment accuracy

The main analysis examined the effects of age, question (authenticity; ontology) and figure (fictional character; person dressing up) on accuracy (range = 0–4). Fig. 2 shows that accuracy on the authenticity question was similarly high in each of the three age groups, whereas accuracy on the ontology question improved with age. A 3 (age: 4;1-year-olds, 5;3-year-olds; adults) × 2 (Question: authenticity, ontology) × 2 (Figure: fictional character; person dressing up) analysis of variance (ANOVA) with repeated measures on the last two factors revealed no main effect of figure, $F(1, 77) = .014$, $p = .908$, but main effects of age, $F(2, 77) = 21.064$, $p < .001$, $\eta^2 = .354$, question, $F(1, 77) = 6.730$, $p < .01$, $\eta^2 = .180$, and an interaction between age and question, $F(2, 77) = 8.006$, $p < .001$, $\eta^2 = .172$.
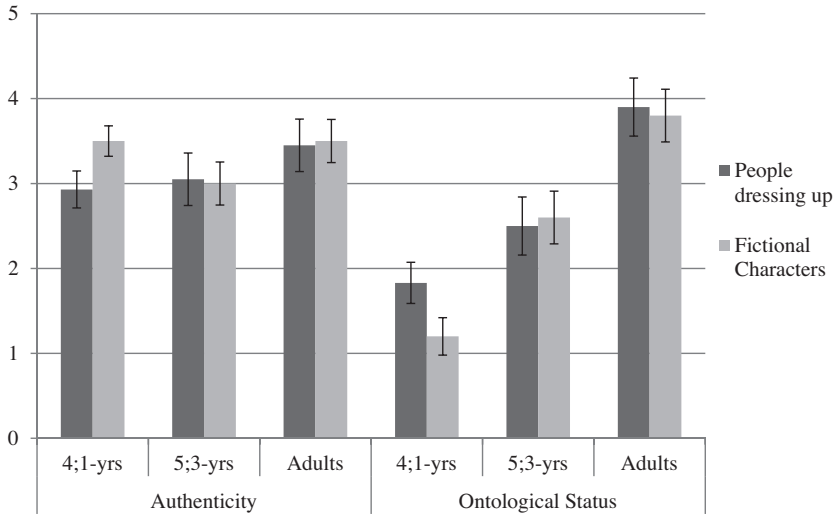
Fig. 2. Mean number of correct judgments on the authenticity and ontology questions (max. 4) according to age and figure (error bars represent standard errors).

To examine the interaction, pairwise comparisons were conducted to establish the effect of age for each question. These confirmed that there was no effect of age for the authenticity question (4-year-olds $M = 3.21$, $SE = .18$, 5-year-olds $M = 3.03$, $SE = .25$, adults $M = 3.48$, $SE = .25$), but there was an effect of age for the ontology question. Younger children ($M = 1.51$, $SE = .21$) scored lower than older children ($M = 2.55$, $SE = .30$), $p < .02$, and both younger and older children scored lower than adults ($M = 3.85$, $SE = .30$), $ps < .01$.

Analysis of the simple effect of question within each age group revealed that younger children scored significantly higher on the authenticity question than on the ontology question, $p < .001$. Older children and adults, however, scored as highly on the ontology question as the authenticity question.

In summary, older children and adults made significantly more accurate ontology judgments than younger children, supporting the hypothesis that understanding that fictional characters do not live in the real world develops substantially with age. In addition, younger children made significantly more accurate authenticity judgments than ontology judgments, supporting the hypothesis that understanding authenticity is an earlier developmental achievement than understanding ontological status.

3.2.1. Ontology question error patterns

To obtain a more detailed understanding of the age change in errors on the ontology question, we divided errors into three types with respect to a given character pair: (i) false positives (i.e., where children said that not only the person dressing up but also the fictional character lives in the real world); (ii) false negatives (i.e., where children said that not only the fictional character but also the person dressing up does not live in the real world); and (iii) double errors (i.e., where children said that the fictional character lives in the real world and the person dressing up does not live in the real world). Table 1 shows the mean number of errors of each type made by participants in each age group. Inspection of Table 1 shows that all error types generally decreased with age, but double errors were the most frequent type of error produced by both groups of children, especially younger children. Note that a double error on the ontology question reflects an answer pattern that would be doubly correct for an authenticity question. We return to this point in the Discussion.

Table 1

Mean number of errors of each type in each age group (standard errors in brackets).

	Error type		
	False positive	False negative	Double error
Age			
4;1-years	.83 (1.31)	.20 (.41)	1.98 (1.75)
5;3-years	.30 (.98)	.40 (.68)	1.10 (1.59)
Adults	.15 (.67)	.05 (.22)	.05 (.22)
Total	.53 (1.14)	.21 (.47)	1.28 (1.66)

3.2.2. Judgment accuracy of individuals

Judgment accuracy was examined by comparing individual participants' responses to chance. A score of $\geq 7/8$ was determined as a significant pass rate according to the binomial distribution, $t(7) = 3.00$, $p < .02$, assuming a 50% probability of being accurate by chance. For the authenticity question, similar proportions of participants in each age group scored above chance: 67% (27) of 4;1-year-olds, 60% (12) of 5;3-year-olds, and 70% (14) of adults, $\chi^2(2, 80) = 0.752$, *ns*. For the ontology question, the proportion of participants who scored above chance increased substantially with age: 15% (6) of 4;1-year-olds, 45% (9) of 5;3-year-olds, and 95% (19) of adults, $\chi^2(2, 80) = 34.987$, $p < .001$. These data support the analysis of the mean scores by showing that younger children make significantly fewer accurate ontology judgments than older children and adults and that younger children make more accurate authenticity judgments than ontological status judgments.

3.3. Justification analysis

Justifications were assigned to one of three categories: Properties, Status, or Uninformative. Property justifications referred to the genuine or fake nature of a property of the figure, e.g., *He has the proper tools; She has the right hair; He has the Fireman Sam hat on; He's got fake glasses; He's just dressing up.* Status justifications referred to the status of the figure or the location/medium in which the figure exists, e.g., *He's a cartoon character; It's a human being; It's a TV character so he lives on TV; He exists just on TV, not in the world; He's a boy and not in Fireman Sam's world; It's a real person that lives in this world; He lives in the real country where everyone else lives.* Uninformative justifications referred to perceptual features, e.g., *He's wearing a hat*, or *He's got a hammer* but also included responses such as *Don't know* and *Because he is.* All three types of justifications were produced in response to both authenticity and ontology questions. The first author coded all justifications and a second coder, blind to the hypotheses, separately coded 50% of the justifications. Agreement was 93% (Cohen's $\kappa = .89$) and disagreements were resolved through discussion. The mean number of property and status justifications are shown in Fig. 3a and b as a function of age, question and figure.

3.3.1. Property justifications

Inspection of Fig. 3a suggests that property justifications declined in frequency with age. In addition, whereas younger children often produced property justifications for both questions, older children and adults provided more property justifications in response to the authenticity question than the ontology question. A 3 (Age) × 2 (Question) × 2 (Figure) ANOVA on the number of authenticity justifications, with repeated measures on the last two factors, was conducted. This revealed a main effect of figure, $F(1, 77) = 10.287$, $p < .002$, $\eta^2 = .118$: More property justifications were produced for people dressing up ($M = 1.36$, $SE = .12$) than fictional characters ($M = 1.08$, $SE = .13$). There were also main effects of age, $F(2, 77) = 13.127$, $p < .001$, $\eta^2 = .254$, and question, $F(1, 77) = 16.841$, $p < .001$, $\eta^2 = .179$, as well as an interaction between age and question, $F(2, 77) = 6.481$, $p < .003$, $\eta^2 = .144$.

To examine the interaction, pairwise comparisons between question for each age group confirmed that younger children produced a similar number of property justifications in response to the authenticity question ($M = 1.83$, $SE = .19$) and ontology question ($M = 1.88$, $SE = .18$), *ns*. In contrast, older children produced significantly more property justifications in response to the authenticity question ($M = 1.85$, $SE = .26$) than the ontology question ($M = 90$, $SE = .25$), $p < .001$, as did adults (authenticity question $M = .80$, $SE = .26$; ontology question $M = .08$, $SE = .25$), $p < .005$.

Further exploration of the effect of age within each question revealed an effect of age for the authenticity question, $p < .005$. Younger children produced as many property justifications as older children, and both groups produced more than adults, *ps* < .01. There was also an effect of age for the ontology question, $p < .001$. Younger children produced significantly more property justifications than both older children and adults, *ps* < .007, but there was no difference between the number produced by older children and adults.

In sum, among older children and adults the authenticity question prompted more property justifications than did the ontology question but this difference did not emerge for the younger children. In addition, younger children produced more property justifications than older children and adults with this age change being especially marked for the ontology question.

3.3.2. Status justifications

Inspection of Fig. 3b shows that status justifications increased in frequency with age. In addition, whereas younger children produced few status justifications for either question, older children and adults provided more status justifications in response to the ontology question than the authenticity question. A 3 (Age) × 2 (Question) × 2 (Figure) ANOVA on the number of status justifications, with repeated measures on the last two factors, revealed a main effect of figure, $F(1, 77) = 11.505$, $p < .001$, $\eta^2 = .13$: More status justifications were produced for fictional characters ($M = 1.99$, $SE = .12$) than people dressing up ($M = 1.70$, $SE = .10$). There were also effects of age, $F(2, 77) = 52.384$, $p < .001$, $\eta^2 = .58$, and question, $F(1, 77) = 22.136$, $p < .001$, $\eta^2 = .22$, as well as an interaction between age and question, $F(2, 77) = 12.571$, $p < .001$, $\eta^2 = .25$.

To examine the interaction, pairwise comparisons were conducted to establish the effect of question for each age group. These confirmed that younger children produced a similar number of status justifications in response to the authenticity ($M = .88$, $SE = .17$) and ontology questions ($M = .71$, $SE = .16$), *ns*. In contrast, older children produced significantly more status justifications in response to the ontology question ($M = 1.90$, $SE = .22$) than the authenticity question ($M = 1.20$, $SE = .23$), $p < .007$, as did adults (ontology question $M = 3.85$, $SE = .22$, authenticity question $M = 2.53$, $SE = .23$), $p < .001$.

Further exploration of the effect of age within each question revealed an effect of age for the authenticity question, $p < .001$. Both younger children and older children produced fewer status justifications than adults, *ps* < .001, but there was no difference
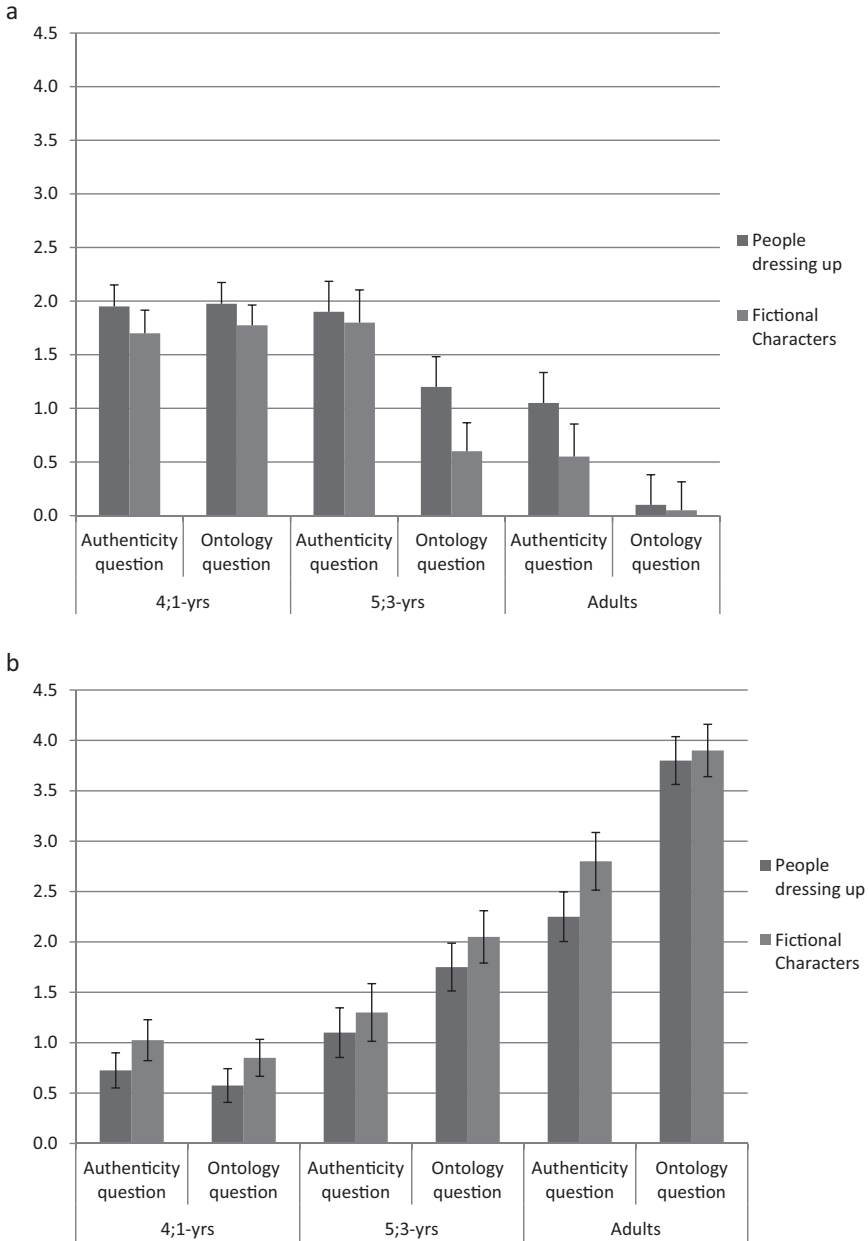
a

b

Fig. 3. (a) Mean number of property justifications according to age, question, and figure (error bars represent standard errors). (b) Mean number of status justifications according to age, question, and figure (error bars represent standard errors).

between the number of status justifications produced by younger and older children. An effect of age also emerged for the ontology question, $p < .001$. Pairwise comparisons revealed that younger children produced fewer status justifications than older children, $p < .001$, and both groups of children produced fewer than adults, $ps < .001$.

In sum, among older children and adults the ontology question prompted more status justifications than did the authenticity question. In addition, younger children produced fewer status justifications than older children and adults; this age change was especially marked for the ontology question.

3.4. *Effect of judgment accuracy on justification*

Finally, the relationship between judgments and justifications was explored for each question to establish whether correct judgments were followed by an informative justification (i.e., either a property or a status justification) more often than incorrect judgments. Participants were assigned to one of four categories based on whether they performed above chance on the judgments ($\geq 7/8$) and whether they produced 7 or more informative justifications.

A chi square test on the relationship between judgments and justifications for the authenticity question was significant, $\chi^2(1, N = 80) = 9.748$, $p < .002$, $\phi = .344$. Of those who did not perform above chance on the judgment task ($n = 27$), the majority (74%, $n = 20$) also failed to produce 7 or more informative justifications. Of those who performed significantly above chance on the judgment task ($n = 53$), the majority also produced 7 or more informative justifications (62%, $n = 33$).

This relationship for the ontology question was also significant, $\chi^2(1, N = 80) = 14.034$, $p < .001$, $\phi = .41$. Of those who did not perform above chance on the judgment task ($n = 46$), the majority (54%, $n = 25$) also failed to produce 7 or more informative justifications. Of those who performed significantly above chance ($n = 34$), the majority also produced 7 or more informative justifications (85%, $n = 29$).

4. Discussion

The current study examined children's judgments of the real/not-real status of fictional television characters such as Bob the Builder and Fireman Sam. Children were presented with photographs of fictional characters paired with people dressing up as those characters. They were then asked to make two judgments: whether each figure lives in 'the real world' (ontology question) and whether each figure is 'the real' fictional character (authenticity question). Previous studies have tended to pose children a single, unadorned question about whether such characters are 'real'. This, however, may be misleading because children might construe the question as a question about the character's fictional status or as a question about the authenticity of a particular representation of the character. For example, children who claim that a Santa Claus character is not real might do so because it is evident that he is an ordinary man dressing up and not because they disbelieve in the existence of Santa Claus. The method used in the current study was intended to clarify what was being asked and to provide a clearer assessment of children's understanding of the real/unreal nature of fictional characters. In line with our first hypothesis, there was no effect of age on accuracy for the authenticity question. In other words, younger children, older children, and adults all made accurate authenticity judgments to the same extent. In contrast, younger children made significantly fewer correct ontology judgments than older children, and older children made significantly fewer correct ontology judgments than adults. Our second hypothesis was also supported: younger children (but not older children or adults) made significantly more accurate authenticity judgments than ontology judgments. Inspection of the pattern of errors for the ontology question further pinpointed children's difficulty in making ontology judgments. The most common error made by both groups of children, and especially younger children, was to judge that the fictional character lives in the real world but the person dressing up does not live in the real world. This type of double error reflects an answer pattern that would be correct for an authenticity question. A plausible interpretation, therefore, is that, children, especially younger children, may have been prone to treat the ontology question as an authenticity question.

The justifications that participants produced provided further support for this interpretation. Younger children produced an equal number of property justifications in response to the authenticity and ontology question, suggesting that they did not treat the ontology question differently from the authenticity question. In addition, they produced very few status justifications. In contrast, older children, and to a greater extent adults, produced more property justifications than status justifications for the authenticity question, and more status justifications than authenticity justifications for the ontology question.

Together, these findings suggest that it may be misleading to assess children's understanding of the ontological status of fictional characters by asking them to make a yes–no judgment about whether or not the character is real. This is because children might answer such a question in relation to ontological status or authenticity. Our asking children to make both types of judgment revealed that the younger children made accurate authenticity judgments about whether a figure was the real fictional character. However, fewer than half of the younger and older children performed above chance when making an ontological judgment about whether or not the figure lives in the real world.

Our method has the limitation that children were asked to make explicit verbal judgments about whether the figures were real. A more nuanced assessment of children's understanding of the distinction between humans and fantasy characters may be obtained when they are probed indirectly via questions about the properties of the characters rather than their ontological status. In studies by Boerger (2011), Sharon and Woolley (2004), and Shtulman (2008), preschoolers demonstrated some understanding of the difference between fantasy characters and humans in their attribution of properties. For example, in Boerger (2011), 3–5-year-olds attributed more unusual abilities to fantasy characters than people across biological, psychological, physical and social domains, although their differentiation was far from complete.

The extent to which children understood that fictional characters do not live in the real world was somewhat less than other recent studies have found. In studies by Corriveau et al. (2009) and Corriveau, Chen, and Harris (in press), 5–7 year olds were very accurate categorizing familiar real (historical) and fictional characters as real and pretend respectively; indeed, overall 3–4-year-olds performed better than chance (Corriveau et al., 2009; Corriveau & Harris, in press). A possible explanation for these findings is that children were asked to assign each character to a 'real' box or a 'pretend' box. By contrast, in the present study children were asked to give a 'yes' or 'no' response to each question. Thus, it is possible that children in our study were incorrect due to a 'yes' or 'no' response bias (Fritzley & Lee, 2003). This, however, seems unlikely. Either type of response bias would have meant that children would be mostly correct for one member of a pair and mostly incorrect for the other but, as noted earlier, this pattern did not emerge. In making their judgments about members of a pair of characters, children tended to score similarly across members of the pair, and the most common error pattern (double error) meant that they responded yes to one question and no to the other.

Children in our study were questioned about a specific type of fictional character – cartoon characters. Although children are likely to encounter these characters via a range of media (on television, in a book, as a toy, in a computer game) there was more homogeneity among the characters in terms of their properties in the present study than in previous studies. Past research has asked children about a range of fantasy characters – from monsters to Santa Claus. The cartoon characters we used could be described as being more realistic; for example, Bob the Builder is a builder and Fireman Sam extinguishes fires. In principle, this might have increased the extent to which children incorrectly judged the characters as living in the real world. However, inaccurate ontology judgments were rarely followed by status justifications. For example, having judged Bob the Builder to live 'in the real world' children did not justify that judgment by saying that he is 'on T.V.' By implication, children were not drawing on a potentially useful type of evidence (that they had seen the character on television) but then coming to the wrong conclusion on the basis of that evidence. Instead they were often unable to provide a status justification. A more likely possibility is that children's performance reflects their difficulty in differentiating among the various characters that they primarily encounter on television. Television can depict both real events involving real people as well as fictional events involving fictional characters. In time, the experience of watching television may enable children to make sense of the variety of characters that they see and eventually develop an understanding that any individual character on television may or may not correspond to a person in the real world (Troseth, 2010; Wright, Huston, Reitz, & Piemyat, 1994).

In sum, this study supports the hypotheses that young preschoolers can make accurate authenticity judgments about fictional characters, whereas an understanding of ontological status continues to develop beyond the preschool years. Preschoolers competently distinguished between the real, authentic representation of a fictional character and a person dressing up, pretending to be that character. However, they had difficulty with the concept of ontological status: Only 15% performed above chance, and the most common error type was to say that the fictional character lived in the real world but that the person dressing up did not live in the real world. This response pattern was consistent with correct performance on the authenticity question, i.e., to affirm that the fictional character was the real one and that the person dressing up was not. In addition, the younger children did not differentiate between the two questions in their pattern of justifications: they largely produced property justifications to both questions and produced very few status justifications. These data support the conclusion that the younger children may have been prone to treat the ontology

question as an authenticity question, perhaps because they did not understand the ontology question or because they do not readily consider ontological status.

References

Boerger, E. (2011). 'In fairy tales, fairies can disappear': Children's reasoning about the characteristics of humans and fantasy figures. *British Journal of Developmental Psychology*, 29(3), 635–655. http://dx.doi.org/10.1348/026151010X528298

Bunce, L. (2007). *Children's understanding of distinctions between 'real' and 'not-real'* (Ph.D. thesis). Oxford Brookes University.

Bunce, L., & Harris, M. (2008). "I saw the real Father Christmas!" Children's everyday uses of the words real, really, and pretend. *British Journal of Developmental Psychology*, 26, 445–455. http://dx.doi.org/10.1348/026151007X258733

Bunce, L., & Harris, M. (2013). "He hasn't got the real toolkit!" Young children's reasoning about real/not-real status. *Developmental Psychology*, 49(8), 1494–1504. http://dx.doi.org/10.1037/a0030608

Carrick, N., & Quas, J. A. (2006). Effects of discrete emotions on young children's ability to discern fantasy and reality. *Developmental Psychology*, 42(6), 1278–1288. http://dx.doi.org/10.1037/0012-1649.42.6.1278

Corriveau, K. H., Chen, E. E., & Harris, P. L. (2014). Judgments about fact and fiction by children from religious and non-religious backgrounds. *Cognitive Science*, http://dx.doi.org/10.1111/cogs.1213 (in press)

Corriveau, K. H., & Harris, P. L. (2014). Children's developing realization that some stories are true: Links to the understanding of beliefs and signs. *Cognitive Development* (in press).

Corriveau, K. H., Kim, A. L., Schwalen, C. E., & Harris, P. L. (2009). Abraham Lincoln and Harry Potter: Children's differentiation between historical and fantasy characters. *Cognition*, 113, 213–225. http://dx.doi.org/10.1016/j.cognition.2009.08.007

Flavell, J. H., Flavell, E. R., & Green, F. L. (1987). Young children's knowledge about the apparent-real and pretend-real distinctions. *Developmental Psychology*, 23, 816–822. http://doi.apa.org/journals/dev/23/6/816.pdf

Fritzley, V. H., & Lee, K. (2003). Do young children always say yes to yes–no questions? A metadevelopmental study of the affirmation bias. *Child Development*, 74(5), 1297–1313. http://dx.doi.org/10.1111/1467-8624.00608

Harris, P. L. (2000). *The work of the imagination*. Blackwell: Oxford.

Harris, P. L. (2012). *Trusting what you're told: How children learn from others*. Cambridge, MA: Harvard University Press.

Harris, P. L., Brown, E., Marriott, C., Whittall, S., & Harmer, S. (1991). Monsters, ghosts and witches: Testing the limits of the fantasy-reality distinction in young children. *British Journal of Developmental Psychology*, 9, 105–123. http://dx.doi.org/10.1111/j.2044-835X.1991.tb00865.x

Harris, P. L., Kavanaugh, R. D., & Meredith, M. C. (1994). Young children's comprehension of pretend episodes: The integration of successive actions. *Child Development*, 65, 16–30.

Moll, H., & Tomasello, M. (2012). Three-year-olds understand appearance and reality – just not about the same object at the same time. *Developmental Psychology*, 48(4), 1124–1132. http://dx.doi.org/10.1037/a0025915

Samuels, A., & Taylor, M. (1994). Children's ability to distinguish fantasy events from real-life events. *British Journal of Developmental Psychology*, 12(4), 417–427. http://dx.doi.org/10.1111/j.2044-835X. 1994.tb00644.x

Sayfan, L., & Lagattuta, K. H. (2008). Grownups are not afraid of scary stuff, but kids are: Young children's and adults' reasoning about children's, infants', and adults' fears. *Child Development*, 79, 821–835. http://dx.doi.org/10.1111/j.1467-8624.2008.01161.x

Sharon, T., & Woolley, J. D. (2004). Do monsters dream? Young children's understanding of the fantasy/reality distinction. *British Journal of Developmental Psychology*, 22, 293–310. http://dx.doi.org/10.1348/026151004323044627

Shtulman, A. (2008). Variation in the anthropomorphization of supernatural beings and its implications for cognitive theories of religion. *Journal of Experimental Psychology: Learning, Memory, and Cognition*, 34(5), 1123–1138. http://dx.doi.org/10.1037/0278-7393.34.5.1123

Skolnick, D., & Bloom, P. (2006). What does Batman think about SpongeBob? Children's understanding of the fantasy/reality distinction. *Cognition*, 101(1), B9–B18. http://dx.doi.org/10.1016/j.cognition.2005.10.001

Troseth, G. L. (2010). Is it life or is it Memorex? Video as a representation of reality. *Developmental Review*, 30(2), 155–175. http://dx.doi.org/10.1016/j.dr.2010.03.007

Tullos, A., & Woolley, J. D. (2009). The development of children's ability to use evidence to infer reality status. *Child Development*, 80(1), 101–114. http://dx.doi.org/10.1111/j.1467-8624.2008.01248.x

Woolley, J. D. (1997). Thinking about fantasy: Are children fundamentally different thinkers and believers from adults? *Child Development*, 68, 991–1011. http://dx.doi.org/10.1111/j.1467-8624.2006.00956.x

Woolley, J. D., Boerger, E. A., & Markman, A. B. (2004). A visit from the candy witch: Factors influencing children's belief in a novel fantastical being. *Developmental Science*, 7, 456–468. http://dx.doi.org/10.1111/j.1467-7687.2004.00366.x

Woolley, J. D., & Cox, V. (2007). Development of beliefs about storybook reality. *Developmental Science*, 10(5), 681–693. http://dx.doi.org/10.1111/j.1467-7687.2007.00612.x

Woolley, J. D., & Wellman, H. M. (1990). Young children's understanding of reality, nonrealities, and appearances. *Child Development*, 61, 946–961. http://dx.doi.org/10.1111/j.1467-8624.1990.tb02833.x

Wright, J. C., Huston, A. C., Reitz, A. L., & Piemyat, S. (1994). Young children's perceptions of television reality: Determinants and developmental differences. *Developmental Psychology*, 30, 229–239. http://dx.doi.org/10.1037/0012-1649.30.2.229