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Young Children Distinguish Between Different Unrealistic Fictional Genres

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Children are exposed to a range of unrealistic fiction, which they recognize as unrealistic. But it remains unknown whether children understand the distinction between different genres of unrealistic fiction, specifically science fiction and fantasy. We asked whether children have consistent expectations about the events that tend to occur in these two types of stories and whether children expect these stories to have a consistent genre over the course of their narratives. To do so, we read 4- to 6-year-old children ($N = 90$) a story from 1 of 3 different fictional genres: realistic, science fiction, or fantasy. We then asked children to choose between a matching ending from the same genre and an ending from one of the other genres. Children successfully chose the matching ending for the science fiction and fantasy story genres when the matching ending was pitted against the other unrealistic ending, suggesting that children are sensitive to the distinction between these two unrealistic fictional genres. However, children tended to choose the realistic ending when asked to choose between this ending and a matching unrealistic ending, replicating previous work that children have a bias toward reality when completing stories.

Keywords: story cognition, reality/fiction distinction, fantasy, science fiction, children

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Children understand the difference between reality and fiction in the early preschool years, accurately judging that some entities and events exist in real life and some exist merely in stories (Bourchier & Davis, 2002; Leslie, 1987; Weisberg, 2013). Not only do they make this separation, they also are sensitive to the difference between different types of stories, specifically realistic and unrealistic ones. By at least four years of age, children are able to classify realistic stories or characters as potentially real and unrealistic stories or characters—like a boy fighting a dragon—as only pretend (Corriveau, Kim, Schwalen, & Harris, 2009; Morison & Gardner, 1978; Woolley & Cox, 2007). Children at this age are also more likely to ascribe realistic physical, biological, and mental properties to characters from realistic stories versus fantastical stories (Sharon & Woolley, 2004; Wellman & Estes, 1986). Further, children transfer new information differently from realistic and unrealistic stories: They learn physical causal information better from realistic than unrealistic stories (Walker, Gopnik, & Ganea, 2015) and generalize new knowledge from realistic but not unrealistic stories to novel situations (Richert, Shawber, Hoffman,

& Taylor, 2009; Richert & Smith, 2011; but see Weisberg et al., 2015).

Yet while young children appear to understand the distinction between realistic and unrealistic fictional stories, little is understood about whether children understand the distinction between different *kinds* of unrealistic fiction. For example, some unrealistic stories present futuristic technology or alien races, while others have elements such as magic or dragons. While both of these types of unrealistic stories are characterized by violations of reality, they violate reality in different ways. Our main goal in this paper is to ask whether young children, like adults, understand that these stories present different kinds of fictional worlds.

What kinds of cues could children use to distinguish among genres of unrealistic stories? One potential cue is that, within genres, unrealistic elements tend to form coherent clusters. For example, some stories are set in the future and contain advanced technology, while other stories draw on the past and contain magic. That is, story elements within genres tend to occur together with regularity (e.g., warp drives and matter transporters are more likely to occur together than warp drives and magic wands).

Another potential cue is that stories from different genres tend to be internally consistent with respect to the types of events that happen within them. Events in realistic stories follow the rules of reality, while unrealistic stories continue with events that typically match the kind of violations that have already occurred. For example, a story that includes a ship traveling at light speed is unlikely to later include a wizard performing magic. Further, clusters of story elements also tend to be thematically related, meaning that stories within a particular genre tend to violate the rules of reality in similar ways. Sensitivity to clusters of story

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features, and to continuity of the elements within these clusters throughout the course of the story, means understanding that breaking one set of rules in a story context does not necessarily license breaking all of them.

It is currently unknown whether children can make use of any of these cues to distinguish between different types of fictional genres. One possibility is that children may categorize all unrealistic fiction as simply “different from reality,” showing no sensitivity to genre. There is some evidence to support this argument. For example, children younger than 8 years old tend to classify *all* unrealistic events, even those that are merely implausible (such as an alligator hiding under your bed) as impossible (Shtulman & Carey, 2007). Further, even if children recognize that story elements are impossible, they may not understand that a story containing impossible events should continue to be unrealistic over the course of the story narrative. Weisberg and Gopnik (2013) showed 4-year-old children a story in which a character performed a series of actions that were either realistic, such as walking through an open door, or impossible, such as walking through a solid wall. They then showed children two alternative endings for the story, which depicted the character taking a realistic action or an impossible action, and asked children to choose the ending that belonged in the story. Children correctly chose the realistic action for realistic stories, but also chose the realistic action when the stories contained a series of impossible events. This suggests that children may not appreciate that a fictional world containing unrealistic elements should remain consistently unrealistic.

Alternatively, however, children may be sensitive to genre cues when reading unrealistic fiction, enabling them to separate types of unrealistic fictional worlds. Prior work shows that children expect that fictional elements or characters from one story cannot exist in another unrealistic story (Skolnick & Bloom, 2006). They are also reluctant to use pretend elements from one pretend game in a different pretend game (Weisberg & Bloom, 2009). This work demonstrates that children can use elements of fictional worlds to distinguish between different narratives, and this competence may allow them to appreciate the distinction between unrealistic genres in general. Young children also are more likely to include events that violate physical causal laws than biological causal laws when constructing stories (Sobel & Weisberg, 2014), demonstrating that children may understand that stories can contain different types of unrealistic events. In addition, young children tend to judge the events and characters in religious stories as real, even though religious stories feature impossible events, such as a character walking on water or transforming physical objects (Corriveau, Chen, & Harris, 2015; Woolley & Cox, 2007). This suggests that children may take story genre into account when judging the realism of certain kinds of stories.

In addition, the work reviewed above on children’s failures to distinguish different types of stories may underestimate children’s competence. Previous work that showed that children were “reality prone” used stories that consisted of strings of somewhat unrelated events that were not part of a larger narrative structure. Presented with this kind of story structure, children may have difficulty making inferences about the internal consistency of the story, and may therefore have had difficulty choosing an appropriate ending for a story. Under uncertainty, children may default to choosing a more realistic ending, masking their ability to appreciate that fictional worlds should be internally consistent in their relationship

to reality. Indeed, although most children chose to include only realistic events in the stories they constructed when given the choice between realistic and unrealistic events, those few children who used unrealistic events in their stories tended to do so consistently (Sobel & Weisberg, 2014). In addition, children demonstrated some success with the distinction between implausible and impossible events when they were asked to complete stories as opposed to making explicit judgments about events’ relationship to reality, suggesting that children of this age do have some sensitivity to the distinction between improbable and impossible (Weisberg & Sobel, 2012).

These conflicting sets of results make it unclear whether young children can distinguish between different unrealistic fictional genres and whether these children understand that stories from different genres should consistently conform to those genres. To address these two issues directly, we used a modified version of the story completion task from Weisberg and Sobel (2012). We tested 4- to 6-year-old children, since previous work exploring children’s understanding of fictional stories has focused on this age range (e.g., Corriveau et al., 2015; Weisberg & Sobel, 2012). We constructed stories representative of three common fictional genres: realistic fiction, science fiction, and fantasy. The realistic story contained only events that could happen in real life (e.g., living in a house). The science fiction and fantasy stories contained events that are typical of these two genres but roughly matched for content (e.g., living on the moon vs. living in a castle). We also constructed our stories to have a consistent narrative, which was equated across the three stories. After hearing one of these three stories, children saw two alternative endings for this story, one that matched the story they had heard or one from one of the other genres. We asked whether children would choose the matching ending for the story, which would indicate their understanding of the different ways in which unrealistic stories may break the laws of reality.

Our study had two main aims. The first aim was to determine whether children could distinguish between different types of unrealistic fictional genres. Here, we used science fiction and fantasy, which are common but distinct unrealistic fictional genres. The second aim was to clarify the degree to which children expect stories, even unrealistic stories, to maintain internal consistency in their genre over the course of the story. These two issues are related: appreciating the distinction between different types of unrealistic genres means not only appreciating that these genres contain different clusters of unrealistic elements, as discussed above, but also that these clusters should remain internally consistent throughout the course of the story. That is, while both science fiction and fantasy stories are unrealistic, children should appreciate that warp drives are not likely to appear in *Frozen*, and that elves are not likely to appear in *Wall-E*.

Our investigation of fictional genre can thus provide insight into whether children understand the need for internal coherence in fictional worlds, and hence into the way children conceptualize unrealistic fiction. Further, gaining a better understanding of children’s comprehension of fiction can provide insights into why children may learn differently from different types of fiction (see, e.g., Weisberg et al., 2015), since the process of learning from fictional stories depends on how children understand these stories’ relationship to reality. Along similar lines, because the process by which children imagine the worlds of fictional stories is the same

as the process by which they consider counterfactual and hypothetical scenarios (Weisberg & Gopnik, 2013), these investigations into children's understanding of unrealistic stories can help to clarify how they construct and use possible worlds in causal and scientific reasoning.

Our critical conditions were the ones in which children heard either the science fiction story or the fantasy story. We predicted that children would be able to distinguish between these two unrealistic genres, correctly choosing the matching ending for each story when that ending was pitted against an ending from the other unrealistic fictional category (e.g., choosing a fantasy ending for a fantasy story when it was pitted against a science fiction ending). This pattern of behavior would demonstrate that children are indeed sensitive to the distinction between unrealistic fictional genres. We also predicted that children would be able to use the internal consistency of the story narrative to develop predictions about the ending of a story, avoiding the "reality bias" seen in previous work. Thus, we predicted that children would successfully choose the matching ending for science fiction and fantasy stories even when the alternative choice was from the realistic genre. This response pattern would demonstrate that children appreciate that fictional stories must remain internally consistent in their relationship to reality.

The realistic story conditions acted as control conditions. Since previous results have robustly shown that children typically choose realistic endings when confronted with realistic stories and unrealistic distractor endings (e.g., Weisberg et al., 2013; Weisberg & Sobel, 2012), we predicted that children who were read the realistic story would choose the realistic ending when it was pitted against either the science fiction or the fantasy ending. Children's success at doing so would replicate previous work and show that our stories were sufficient to elicit consistent response patterns from children.

Finally, after children heard the story, we asked them to make explicit judgments about whether the story was *fictional* and whether the story was *possible*. These questions were designed to explore children's understanding of the story and its events. We made two predictions about children's explicit judgment of stories. First, we predicted that children would judge the stories from all three genres as *fictional*, since children of this age typically understand that stories depicted in story books tend to not necessarily have happened in real life (e.g., Corriveau et al., 2009; Woolley & Cox, 2007). Second, we predicted that children would be less likely to judge the fantasy stories as *possible* compared with the realistic story, since children know that rule-breaking events are

not possible in real life (e.g., Shtulman, 2009). However, we made no predictions about how children would classify the science fiction story, since the events in this story are physically possible but are currently improbable. Children may rate science fiction stories as more possible than fantasy stories, but may rate them as slightly less or as possible as realistic stories. Or, children may rate science fiction and fantasy stories as similarly impossible, since they are both unrealistic.

Method

Participants

Ninety 4- to 6-year-old children participated in the laboratory (mean age: 5 years 3 months; range: 4 years 0 months to 6 years 11 months; 45 girls). Two additional children were tested but were not included in analysis due to experimenter error (1) or failure to respond to study questions (1). Participants were recruited via phoning and mailing lists. All children received a small gift for their participation.

Children were randomly assigned to one of six conditions ($n = 15$ per condition) in which they heard one type of story and were asked to choose between a matching or nonmatching ending. Conditions are summarized in Table 1. The conditions were: realistic—realistic versus science fiction, realistic—realistic versus fantasy, science fiction—science fiction versus realistic, science fiction—science fiction versus fantasy, fantasy—fantasy versus realistic, and fantasy—fantasy versus science fiction.

Materials

We constructed three stories containing a series of seven pictures (see online supplemental materials for full text of stories). Each story depicted a character, Elizabeth or Edgar, who was on her/his way to the school bus and got lost along the way. The three stories were constructed so that the actions and events depicted in them followed a consistent narrative and matched each other as closely as possible. The realistic story was set in a contemporary city, and all of the actions and events depicted were possible in real life (e.g., the character lives in a brick building, walks to the bus stop along a street, takes a wrong turn on the way to the bus, and is given directions by a crossing guard). The science fiction story was set on the moon (e.g., the character lives in a dome, dons a space suit to walk to the bus stop, falls into a crater on the way to the bus stop, and is helped by a man in a robot suit). The fantasy

Table 1
Summary of Conditions

Condition	Story type	Nonmatching ending
Realistic—Realistic vs. science fiction	Realistic	Science fiction
Realistic—Realistic vs. fantasy	Realistic	Fantasy
Science fiction—Science fiction vs. realistic	Science fiction	Realistic
Science fiction—Science fiction vs. fantasy	Science fiction	Fantasy
Fantasy—Fantasy vs. realistic	Fantasy	Realistic
Fantasy—Fantasy vs. science fiction	Fantasy	Science fiction

Note. Children were read a story of one type and were then asked to choose an ending for the story. Children were given a choice between a matching ending from the same story type and a nonmatching ending from a different story type.

story was set in a pseudomedieval time period (e.g., the character lives in a castle, walks to dragon-taming school, is lead astray from the path to school by a will-o-the-wisp, and receives magical guidance to the bus stop from a witch). Whether the story was about Elizabeth or Edgar depended on the sex of the child; girls heard a story about Elizabeth while boys heard a story about Edgar. The story pictures depicted the character as ambiguous in gender, so that the same set of pictures could be used for all children. There was no text on the pictures; instead, the story was read from a script by the experimenter while the child looked at the pictures.

After children heard one of the stories, they were given an Ending Choice Trial in which they were shown two pictures side by side. Each picture depicted a school bus waiting at a bus stop. In the realistic ending, the bus was a typical yellow school bus and was depicted waiting by a bus stop sign. In the science fiction ending, the yellow school bus was rounded with rockets attached to the sides, and was depicted waiting by a floating school bus sign. In the fantasy ending, the yellow school bus was a medieval coach with dragon wings, and was depicted waiting by an antique wooden school bus sign. Figure 1 depicts each ending.

Procedure

Story task. Children were seated across from the experimenter at a child-sized table. The experimenter told the child that he was going to read them a story. Children were read either the realistic story, the science fiction story, or the fantasy story. Children then completed a single Ending Choice Trial. To introduce this trial, the experimenter said, “Oh no, the last page of my story fell out! I have two pages here that might come from my story, can you help me decide which picture belongs in my story?” He then placed both pictures side by side on the table. One picture always depicted an ending that matched the story that the child had heard (e.g., the child was read a realistic story, and one ending was realistic) while the other picture did not match the story (e.g., the child was read a realistic story, and one ending was science fiction). The experimenter then said,

In both of these pictures, a bus is waiting to take [Elizabeth/Edgar] to school. In this picture, a bus with [wheels/rockets/wings] is waiting to take [her/him] to school. In this picture, a bus with [wheels/rockets/wings] is waiting to take [her/him] to school. Can you help me decide which picture belongs in my story?

Whether the matching ending was described first, and whether the matching ending was presented on the left or the right side, was counterbalanced across children. If children were reluctant to choose, this prompt was repeated.

Fictional judgments. After the child chose an ending, the experimenter asked two questions to assess children’s ability to categorize the story that they just heard. First, to assess whether children thought that the story was fictional, children were asked whether the story they just heard was *real* or whether it was *make-believe*. Then, to assess whether children thought the story was possible, children were asked whether the story they just heard *could happen for real*, or whether it *could only happen for pretend*.

Coding. Experimental sessions were video recorded. The experimenter noted children’s responses to the story task and to the fictional ratings questions during the experimental session. Chil-

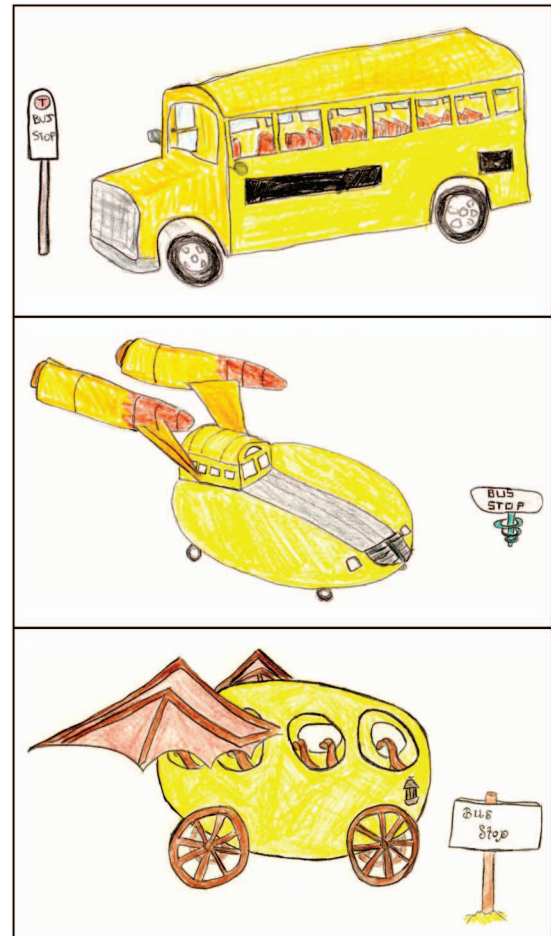


Figure 1. Stimuli used in the Ending Choice Trial. Top panel depicts the realistic ending, middle panel depicts the science fiction ending, and bottom panel depicts the fantasy ending. On the Ending Choice Trial, children were shown two of these endings, one that matched the type of story they just heard and one belonging to a different type. See the online article for the color version of this figure.

dren’s responses were later recoded from video by an additional observer who viewed only the Ending Choice Trial and subsequent fictional ratings questions, and was therefore unaware of the condition to which the child was assigned. Agreement between experimenter and observer was 100%.

Results

Story Task

First, we asked whether children who heard the realistic story would choose the matching realistic ending when it was paired with either the science fiction ending or the fantasy ending. We found that children successfully chose the matching ending at rates significantly above chance for both the realistic—realistic versus science fiction condition (14/15 children, 93%, binomial test $p = 0.001$, two-tailed) and the realistic—realistic versus fantasy condition (13/15 children, 87%, binomial test $p = 0.007$, two-tailed;

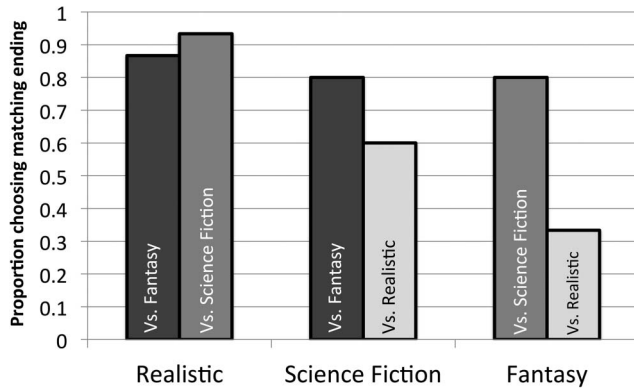


Figure 2. The proportion of children choosing the matching ending for each story type (realistic, science fiction, and fantasy). Chance performance is 50%.

Figure 2). We also examined whether younger and older children responded differently. We divided children in each condition into two groups, those below and including the median age and those above the median age. We found that younger and older children responded similarly. In the realistic—realistic versus science fiction condition (median age = 64 months 9 days), 6/8 younger children and 7/7 older children chose the matching ending (Fisher's exact test $p = 0.47$, two-tailed). In the realistic—realistic versus fantasy condition (median age = 58 months 0 days), 7/8 younger children and 7/7 older children chose the matching ending (Fisher's exact test $p = 1.0$, two-tailed).

Next, we asked whether children could distinguish the *unrealistic* story types, correctly choosing the matching ending for an unrealistic story when the alternative was an unrealistic story from a different type. We found that children successfully chose the matching ending in the science fiction—science fiction versus fantasy condition (12/15 children, 80%, binomial test $p = .03$, two-tailed) and in the fantasy—fantasy versus science fiction condition (12/15 children, 80%, binomial test $p = .03$, two-tailed; Figure 2). There was no difference in children's performance across the two conditions (Fisher's exact test $p = 1.0$, two-tailed). We then asked whether younger and older children responded differently. In the science fiction—science fiction versus fantasy condition (median age = 64 months 21 days), 5/8 younger children (62.5%) chose the correct ending, compared with 7/7 older children (100%). The same pattern was observed in the fantasy—fantasy versus science fiction condition (median age = 61 months 26 days); 5/8 younger children (62.5%) and 7/7 older children (100%) chose the matching ending. Given this pattern, we asked whether older children performed better overall at choosing the matching ending to an unrealistic story from among unrealistic choices, regardless of genre. We found that, although older children chose matching endings slightly more than younger children, these differences were not significant (10/16 younger children, 14/14 older children, Fisher's exact test $p = 0.53$, two-tailed).

Finally, we asked whether children who heard the unrealistic fiction stories could distinguish them from realistic endings (that is, we asked whether children in these conditions would exhibit the "reality bias" as observed in previous studies). We found that children's performance was not different from chance in either the

science fiction—science fiction versus realistic condition (9/15 children, 60%, chose the matching ending, binomial test $p = .60$, two-tailed) or in the fantasy—fantasy versus realistic condition (5/15 children, 33%, chose the matching ending, binomial test $p = .30$, two-tailed; Figure 2). Children tended to match less often in the fantasy condition (33%) than in the science fiction condition (60%), but this difference was not significant (Fisher's exact test $p = 0.27$, two-tailed). We found that older children chose the matching ending at rates slightly greater than younger children, but only in the science fiction—science fiction versus realistic condition (median age = 66 months 12 days). For younger children, 3/8 (37.5%) chose the matching ending, while 6/7 older children (85.7%) chose the matching ending; this difference was not significant (Fisher's exact test $p = 0.12$, two-tailed). In the fantasy—fantasy versus realistic condition (median age = 69 months 16 days), younger and older children chose the matching ending at similar rates (younger children: 3/8, 37.5%, chose matching ending; older children: 2/7, 28.5%, chose matching ending).

Fictional Judgments

Eight out of the 90 children who were tested chose to end the study following the story task, and therefore did not complete the fictional judgments questions. For the remaining 82 children, we asked children whether they thought the events in the story were fictional, and whether they thought the events in the story were possible. Children's responses to these questions are summarized in Table 2.

For all story types, children were more likely than chance to say that the story was *fictional* (realistic 73%: binomial test $p = 0.02$, two-tailed; science fiction 88%: binomial test $p < 0.01$, two-tailed; fantasy 85%: binomial test $p < 0.01$, two-tailed). There was no difference in children's ratings between story types (Fisher's exact test, all p values > 0.05 , two-tailed).

Children's judgments of whether the stories were *possible* differed across story types. Children were more likely than chance to judge the science fiction and fantasy stories as impossible (science fiction 88%: binomial test $p < 0.01$, two-tailed; fantasy 89%: binomial test $p < 0.01$, two-tailed), and this pattern did not differ with age (science fiction: 10/12 younger children, 83.3%, 12/13 older children, 92.3%; fantasy: 12/14 younger children, 85.7%, 12/13 older children, 92.3%). But children were uncertain about whether the realistic story was possible (63%: binomial test $p = 0.20$, two-tailed). Examination of children's responses showed that younger children were slightly more likely than older children to judge the realistic story as impossible: 12/16 younger children (75%) judged the realistic story to be impossible, compared with 5/14 older children (35.7%; Fisher's exact test $p = 0.06$, two-

Table 2
Children's Ratings of Whether the Stories Were Realistic or Fictional, and Whether the Stories Were Possible or Impossible

Story type	<i>n</i>	Did story happen for real?	Could story happen for real?
Realistic	30	No: 22 (73%)	No: 19 (63%)
Science fiction	25	No: 22 (88%)	No: 22 (88%)
Fantasy	27	No: 23 (85%)	No: 24 (89%)

tailed). Overall, children were significantly less likely to judge the realistic story as impossible versus the fantasy story (Fisher's exact test $p = .03$, two-tailed) and slightly, but not significantly, less likely to judge the realistic story as impossible versus the science fiction story (Fisher's exact test $p = .06$, two-tailed).

Discussion

Previous research suggests that children may appreciate the distinction between realistic and unrealistic stories, but less is known about whether children appreciate the distinction between different types of unrealistic stories. Previous research is also mixed on whether children expect fictional stories to be internally consistent, that is, to conform to a single genre throughout the narrative. Here, we addressed these two issues by reading children a story that was representative of one of three fictional genres: realistic, science fiction, and fantasy. To highlight that the stories each represented internally consistent worlds, we constructed the stories so that they followed a coherent story plot and consistent internal rules. After hearing one of these stories, children were asked to choose an ending for the story, given a choice between the matching ending or an ending from a different story genre (story task). We also asked children to make explicit judgments about whether they thought the stories were real or fictional, and whether they thought the stories were possible or impossible (fictional judgments). To our knowledge, this study represents the first systematic investigation of how children think about different story genres and their relationships to each other and to reality, and as such lays the groundwork for future research in this area.

Story Task

We made two predictions about children's performance on the story task. First, we predicted that children would appreciate the distinction between these different fictional types and would successfully choose the matching ending for each story. In particular, we predicted that children would successfully choose the matching ending when presented with a story from one unrealistic genre and asked to choose between a matching ending and an ending from a different unrealistic genre, showing that they could distinguish between different types of unrealistic fiction. This prediction was supported by our results. When children were read either the science fiction or fantasy story, and were then presented with the matching ending and an ending from the other *unrealistic* genre, children chose the matching ending at rates significantly above chance. These results are the first to show that children can distinguish between types of unrealistic fiction. Further, when the story was realistic, children were again successful at choosing the matching ending. Together, these results provide clear evidence that children understand the difference between different story genres and the importance of maintaining some degree of internal consistency within unrealistic stories.

Second, we predicted that children who were read unrealistic stories with consistent story narratives would be less likely to show the "reality bias" found in previous studies (e.g., Sobel & Weisberg, 2014; Weisberg & Sobel, 2012; Weisberg et al., 2013). We reasoned that children's previously observed inclination to choose a realistic ending for an unrealistic story might have been driven by uncertainty about the story plot, and that a coherent story

narrative would help scaffold children's ability to choose the correct ending for an unrealistic fictional story. This prediction was not supported by our results. Children had considerably more difficulty choosing the matching ending for an unrealistic story if one of the choices was a realistic ending. After hearing the science fiction or fantasy story, and being presented with either a matching ending or a realistic ending, children's performance was not different from chance, consistent with previous results (Weisberg et al., 2013). Children's bias toward the realistic events in these conditions was not moderated by the consistent plot of the stories: although children were shown a series of events that followed a coherent narrative, they were unable to use that narrative to complete unrealistic stories in the face of a realistic alternative.

However, unlike in previous studies, children did not significantly prefer the realistic ending to either unrealistic ending, suggesting that consistent narratives may somewhat mitigate their tendency to choose a realistic ending. Further, older children who heard the science fiction story were slightly better at choosing the matching ending than younger children and children who heard the fantasy story. This result suggests that children's understanding of genre may develop differentially across genres.

Fictional Judgments Task

We made two predictions about children's performance on the fictional judgments task. First, we predicted that children would be more likely to judge stories from all three genres as *fictional* as opposed to real. In line with this prediction, we found children tended to judge all stories as fictional, regardless of genre. In line with previous work, this suggests that children are sensitive to fact that stories in storybooks tend to depict fictional scenarios, even when they may contain realistic events.

Second, we predicted that children would tend to judge the realistic story as *possible*. But children were not unanimous in their explicit judgments about the possibility of the realistic story; older children were more likely than younger children to rate the realistic story as possible. However, while younger children's *explicit* judgments suggested they were less certain about whether the realistic story was possible, these children nevertheless were sensitive to the story's components: they were able to select the correct ending for this story at rates above chance, suggesting an implicit understanding of the consistency of the story's elements. Together, these results suggest developmental change in children's explicit understanding of the possibility of realistic fictional stories and developmental continuity in their sensitivity to the elements of the realistic genre. However, this interpretation is somewhat tempered by the limitations imposed by our small sample size per age group. Future work would further explore developmental differences in children's understanding of the possibility of fictional elements in stories.

We also predicted that children would be more likely to rate the fantasy story as impossible. In line with this prediction, children rated the fantasy story as less possible than the realistic story, suggesting that they understood that the elements in the fantasy story could not happen in real life. We made no predictions about children's explicit judgments about the possibility of science fiction stories, noting that children could either judge these stories as possible, since the story elements are physically possible, or as impossible, since the story elements are currently unrealistic. We

found that children generally judged science fiction stories as impossible, suggesting that they recognized that the elements in these stories were unrealistic.

While children judged both fantasy and science fiction stories as equally impossible, children's success at choosing the correct ending for unrealistic stories when presented with two unrealistic endings suggests that they do not simply view all unrealistic fiction as simply "less possible than reality" but may be sensitive to the differences in the elements that make up these different genres. However, children had more difficulty choosing matching endings for unrealistic stories when the alternative choice was a realistic ending, suggesting that their sensitivity to genre elements does not insulate them from showing a bias toward choosing the more possible outcome, as observed in previous work (e.g., Weisberg et al., 2013).

What Mechanisms Underlie Children's Understanding of Genre?

Together, our results suggest that young children do not treat all unrealistic fiction equally, since they appear to be sensitive to the distinction between unrealistic genres. There are several possible explanations for how children are able to make this distinction. Children might be sensitive to semantic associations between elements in stories of the same genre (e.g., the association between "rocket" and "moon"). They also might be noticing differences in story settings based on presence or absence of technology or other links with futuristic versus antiquated settings. Thus, when children hear a story that takes place on the moon and features robots, they may look for matching elements in the ending, and choose the bus with rockets over the bus with dragon wings. This is a sensible strategy, and such semantic matching may even underlie adults' genre concepts. However, it assumes that children notice genre-relevant similarities that go far beyond surface features, for example, categorizing dragons as belonging with spooky forests rather than with moon craters. This remains an open question. Further, matching semantically similar elements is unlikely to be the only source of children's understanding of genre. Children fail to choose the correct ending for an unrealistic story when it is pitted against a realistic ending, suggesting that the story elements alone are insufficient to define genres for them.

A somewhat richer possibility is to characterize the difference between unrealistic fictional genres in terms of their relationship to reality. Science fiction can often be characterized by situations that are implausible, rather than strictly impossible, like the space travel depicted in *Star Trek*. Fantasy, by contrast, can more often be characterized by situations that are impossible in reality, like the magic spells depicted in *Harry Potter*. Children show some developing sensitivity to the distinction between improbable and impossible events at this age (Shtulman & Carey, 2007; Weisberg & Sobel, 2012), which may underlie their abilities to group unrealistic elements into different genres. Future work should investigate this possibility more directly, perhaps starting with a content analysis of impossible and improbable events in children's books and movies.

We found that although children appear to be sensitive to the internal consistency of unrealistic fictional worlds (choosing a fantasy ending for a fantasy story and a science fiction ending for a science fiction story), they nevertheless show a bias toward

realism when they are constructing stories. This suggests an important constraint on children's understanding of fictional genre: when presented with an internally consistent story narrative from an unrealistic genre, children are still pulled toward reality. This bias is unlikely to be due to difficulty understanding the internal structure of unrealistic story genres, since children successfully chose matching endings for these stories when the alternative ending was from a different, but still *unrealistic*, genre. One possibility is that children may be drawn to story elements that are more familiar to them: faced with a familiar-looking ordinary school bus and an unfamiliar-looking rocket bus, children may gravitate toward choosing the familiar. Another possibility is that children's understanding of unrealistic fictional genres may still be somewhat tenuous, and they may be uncertain about which elements ought to complete a story. After all, even fantastical stories contain many realistic elements (see, e.g., Weisberg & Goodstein, 2009). When faced with one unrealistic ending and one realistic one, children may use the less effortful strategy of simply choosing the ending that matches the parts of the story that are realistic. Still another possibility is that children's understanding of different genres may be still be developing. By 4- to 6-years of age, children may appreciate that unrealistic fictional worlds should be separate and internally consistent, but may nevertheless believe that fictional stories should be realistic by default. As children develop and gain more experience with stories, this realistic default may give way to more sophisticated reasoning about stories. Future work should attempt to adjudicate between these possibilities and further explore how children's appreciation for different types of fiction develops.

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