

"Because it's hers": When preschoolers use ownership in their explanations.

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Abstract

Young children show competence in reasoning about how ownership affects object use. In the present experiments, we investigate how influential ownership is for young children by examining their explanations. In three experiments, we asked 3- to 5-year-olds ($N = 323$) to explain why it was acceptable (Experiments 1 to 3) or unacceptable (Experiment 2 and 3) for a person to use an object. In Experiments 1 and 2, older preschoolers referenced ownership more than alternative considerations when explaining why it was acceptable or unacceptable for a person to use an object, even though ownership was not mentioned to them. In Experiment 3, ownership was mentioned to children. Here, younger preschoolers frequently referenced ownership when explaining unacceptability of using an object, but not when explaining why using it was acceptable. These findings suggest that ownership is influential in preschoolers' explanations about the acceptability of using objects, but that the scope of its influence increases with age.

"Because it's hers": When preschoolers use ownership in their explanations.

1. Introduction

Ownership influences whether it is acceptable to use objects (e.g., Snare, 1972). Young children are aware of this. Children ages three and four recognize that property should not be used without consent, and they side with owners in conflicts about who should use property (Kanngiesser & Hood, 2014; Neary & Friedman, 2014; Rossano, Rakoczy, & Tomasello, 2011; also see Kim & Kalish, 2009). They defend owners' right to share their property and allow others to use it (Schmidt, Rakoczy, & Tomasello, 2013), and are sensitive to information about ownership when reporting what people may do with property (Nancekivell & Friedman, 2014a). Such findings show that young children reason about how ownership affects object use with great competence.

These findings also suggest that ownership strongly influences young children's judgments about whether it is acceptable to use objects. After all, these findings all show that children's judgments (and behavior) vary depending on who is said to own an object. However, there are two crucial gaps in our knowledge about how influential ownership is for young children. First, in all previous experimental studies on ownership, the relevance of ownership was highlighted for children, so these studies do not show whether children are influenced by ownership when it is not highlighted. In these studies, children were either told about ownership or were asked about it (e.g., "It is the girl's ball", "Does this ball belong to someone?"). This occurred in studies examining children's recognition of ownership rights (e.g., Kim & Kalish, 2009; Nancekivell & Friedman, 2014a; Rossano et al., 2011), and in studies investigating children's understanding of whether objects are owned and who they are owned by (Blake, Ganea, & Harris, 2012; Gelman, Manczak, & Noles, 2012; Gelman, Noles, & Stilwell, 2014; Kanngiesser, Hood, & Itakura, 2014; Kanngiesser & Hood, 2014; Neary, Van de Vondervoort, & Friedman, 2012).

Second, studies have not examined whether children privilege ownership over other factors affecting object use (e.g., object properties, welfare, and authority; e.g., Laupa, 1994; Killen & Smetana, 1999; Smetana, 1989). Young children might privilege these factors over ownership. For instance, children might be more influenced by observable or concrete properties of objects (Sobel, et al., 2007; Walker, Lombrozo, Legare & Gopnik, 2014; Hickling & Wellman, 2001). For example, when reasoning about the prospect of using a hat, a child might be more preoccupied with its fit than to whom it belongs. Only one previous study has compared the influence of ownership with another factor affecting object use—a person's need for an object to complete a goal (Neary & Friedman, 2014). Although 3-7-year-olds gave priority to ownership over this factor, other factors might nonetheless be more influential than ownership in children's reasoning about object use.

In this paper, we investigate the influence of ownership by examining children's explanations about why it is acceptable (or unacceptable) for a person to use an object. We examine children's explanations because they are a window into the theories and principles that children use to reason about the world. (Carey, 1985; Legare, Wellman, & Gelman, 2009; Rhodes, 2014; Wellman, 2011; Wellman & Lagattuta, 2004). Examining explanations is particularly useful because they allow us to investigate the influence of ownership without explicitly mentioning it to children. We focus on children's explanations about the acceptability of using objects since (as noted above) this is an area where children might readily acknowledge the importance of ownership. Finally, we focus on children aged three to five because these are

the first ages at which children reliably produce explanations (Wellman, 2011), and also the youngest ages at which children respect others' ownership (Nancekivell, Van de Vondervoort, & Friedman, 2013; Rossano et al., 2011).

This investigation will also be informative about the development of explanation in children. Previous research shows that when explaining outcomes, preschoolers invoke non-obvious causes from a variety of domains. For instance, they refer to physical forces and mechanisms to explain physical events (e.g., Gelman & Gottfried, 1996; Sobel, 2004). They refer to germs and biological processes to explain illness and bodily functions (Legare, Wellman, & Gelman, 2009; Miller & Bartsch, 1997). They refer to mental states to explain people's behavior and emotions (e.g., Bartsch & Wellman, 1989; Wellman & Lagattuta, 2004). And they refer to social norms and social categories when explaining certain socio-moral events (e.g., Lagattuta, Nucci, & Bosacki, 2010; Nucci, & Weber, 1995; Rhodes, 2014). Ownership is also non-obvious (e.g., Snare, 1972), but no previous studies have examined whether children use it in their explanations.¹ Investigating the development of children's use of ownership in explanations will therefore extend knowledge about the kinds of non-obvious properties and causes children use to explain the world.

We conducted three experiments. Experiments 1 and 2 examine whether children spontaneously refer to ownership in their explanations, and whether children reference ownership in their explanations more than alternative considerations. Experiment 3 only examines the latter issue. If children offer ownership as an explanation more than other types of explanations, it would suggest that ownership is influential for preschoolers, and more influential than other factors that can affect whether objects may be used.

One potential concern with this approach is that children might have difficulty meeting the linguistic demands required to produce explanations, leading us to underestimate the importance they place on ownership. However, referencing ownership in explanations only requires producing simple possessive utterances (e.g., "It's her sock"), and even toddlers can do this (e.g., Brown, 1973; Hay, 2006; Hay, Hurst, Waters, & Chadwick, 2011; Tomasello, 1998). As such, preschoolers have sufficient linguistic skills to succeed on our task, and so developmental changes in their use of ownership in explanations should indicate conceptual development, not linguistic development.

2. Experiment 1

In this experiment, we asked preschoolers to explain either why it was acceptable for a character to use one of two objects, or why the character knew how to use one of two objects. Knowledge is similar to acceptability because it affects how and if objects are used. However, we expected that children would refer to ownership more when explaining why it is acceptable to use objects than when explaining why someone knows how to use them. This difference was expected because children might appreciate that knowledge depends more on other factors, such as previous experience with objects. To assess whether ownership influences children even when it is not highlighted, we never mentioned ownership to them.

¹ Observational studies suggest that children sometimes spontaneously refer to ownership in disputes over property. However, it is not clear how often these mentions of ownership are used in an explanatory capacity—they could instead be used to make claims (e.g., saying "Mine!" to indicate that others should keep away). Also, these references to ownership mainly occur for children's own property and rarely for others' (Dunn & Munn, 1987; Hay & Ross, 1982; Ross, 1996).

2.1. Method

2.1.1. Participants. We tested 107 children: 36 3-year-olds (3;0-3;11 [years;months], $M = 3;6$, 22 girls), 35 4-year-olds (4;0-4;11, $M = 4;5$, 18 girls) and 36 5-year-olds (5;0-5;11, $M = 5;5$, 12 girls).

2.1.2. Materials and Procedure. Children in each age group were randomly assigned to either of two conditions, acceptability-of-use or knowledge-of-use. All children completed two test trials. In each trial, children were shown a picture depicting a character and two objects (two backpacks in trial one, two robot toys in trial two). In the acceptability-of-use condition, children were told that it was “okay” for the character to use one of the objects but not the other, and were then asked to explain why (e.g., “Why is it okay for the girl to open just this backpack?”). In the knowledge-of-use condition, children were told that the character knew how to use one of the objects but not the other, and were asked to explain this (e.g., “Why does the girl know how to open just this backpack?”). See Fig. 1 for sample materials and scripts from all experiments.

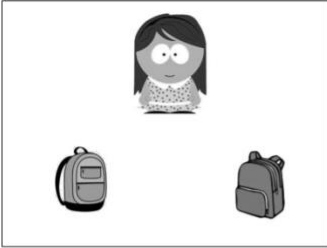
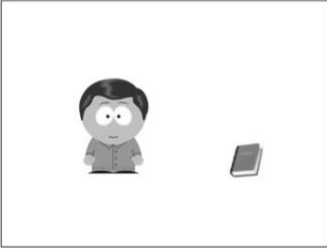
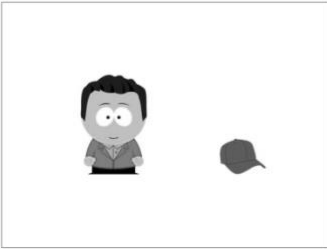
<p>Experiment 1</p> 	<p>Acceptability condition. Look here is a girl and two backpacks. It’s okay for the open this backpack but not this backpack. Why is it okay for the girl to open just this backpack?</p> <p>Knowledge condition. Look here is a girl and two backpacks. The girl knows how to open this backpack but not this backpack. Why does the girl know how to open just this backpack?</p>
<p>Experiment 2</p> 	<p>Acceptability condition. Look here is a man and a book. It’s okay for the man to take the book home. It’s okay for the man to take the book home. Why is it okay for him to take it home?</p> <p>Unacceptability condition. Look here is a man and a book. It’s not okay for the man to take the book home. It’s not okay for him to take the book home. Why is it not okay for him to take it home?</p>
<p>Experiment 3</p> 	<p>Acceptability condition. Look here is a man and a hat. It’s the man’s hat and it’s the right size for him. It’s okay for him to wear it. Why is it okay for him to wear it?</p> <p>Unacceptability condition. Look here is a man and a hat. It’s someone else’s hat and it’s too big for him. It’s not okay for him to wear it. Why is it not okay for him to wear it?</p>

Figure 1. Sample scripts and materials used for all experiments.

When children did not produce an explanation, or said “I don’t know” they were prompted up to three times, and if an explanation was still not produced, the experimenter moved on to the next trial. Children sometimes produced explanations by simply repeating information from the test question (e.g., “She can open this one”). These children were prompted once

(“That’s right. But why?”). If they persisted in repeating information, this answer was accepted. Both subsequent experiments used this prompting procedure.

2.1.3. Transcription and Coding. Testing sessions were audio-recorded and transcribed. Answers to *why* questions were then separated from the rest of the transcript, and randomly sorted so that they could not be associated with their condition. Next, children’s answers were coded. Responses were first coded as informative or uninformative. A response was only considered uninformative if unrelated to the task (e.g., “I have lots of backpacks at home”) or if the child indicated they did not know the answer; see the Supplementary Materials for a table reporting the percentage of uninformative responses in each experiment. Informative explanations were then coded as *one of four* mutually exclusive explanation types: ownership, object property, other-normative², and other. See Table 1 for descriptions of each category. Explanations never fell into more than one category and the entire response was always coded.

Two coders coded all explanations independently. The inter-coder-reliability was very high ($\kappa = 0.91$). All disagreements were resolved by discussion.

Table 1. Criteria for all coded categories.

Category	Criteria	Examples
Uninformative	Any utterance which was not comprehensible. This category also includes silences and “I don’t know.”	“Dog.” “I don’t know.” “I only have one backpack.”
Ownership	Explanations referencing someone’s ownership or the absence of their ownership. This also includes referencing ownership-based rules about purchasing objects or permission.	“It is the girl’s.” “It’s someone else’s.” “He paid for it.”
Object properties	Explanations referencing features or properties of the object such as its shape, size, or function. This includes non-obvious properties such as safety and remote operation.	“It’s blue.” “It’s for wearing.” “It has a remote.”
Other-normative	Explanations referencing non-ownership rules or conventions in some way. This includes references to authority, stereotypes, and location-based rules.	“It’s a school rule.” “It’s a boy one.” “It’s always like that.”
Other	All other explanations.	“He wanted to.” “It is sunny outside.” “It’s nice.”

2.2. Results and Discussion

Table 2 shows children’s mean use of each explanation type. Inspection of the table suggests that children’s use of ownership in explanations varied by both condition and age. When explaining why it was acceptable to use an object, children rarely gave ownership

² This category refers to normative considerations *other than ownership*. It is possible that some utterances falling under this category were implicit references to ownership norms. For instance, the explanation “It’s a boy one” might be a way of expressing that an item *belongs* to a boy. However, we conservatively coded such items outside of the ownership category unless there was a clear indication that ownership was being referred to.

explanations at age three (14% of explanations), but by age 5 these constituted half of their explanations (50% of explanations). In contrast, when children were asked to explain knowledge of how to use the objects, ownership explanations were given infrequently at all ages (e.g., only 11% of explanations at age five).

Table 2. Experiment 1: Children’s percent use of each explanation type by condition and age (standard deviation in brackets).

	Explanation type	Acceptability-of-use	Knowledge-of-use
three-year-olds	ownership	14 (33)	0 (0)
	object properties	33 (42)	33 (42)
	other-normative	14 (29)	11 (27)
	other	3 (12)	14 (29)
four-year-olds	ownership	39 (47)	9 (26)
	object properties	33 (42)	38 (45)
	other-normative	3 (12)	0 (0)
	other	11 (27)	38 (42)
five-year-olds	ownership	50 (49)	11 (27)
	object properties	25 (31)	72 (35)
	other-normative	11 (21)	0 (0)
	other	11 (21)	14 (23)

Note: Percentages do not add up to 100 because uninformative responses are not reported here.

Analyses confirmed these impressions. Children produced more ownership explanations in the acceptability-of-use condition than in the knowledge-of-use condition, Mann-Whitney $U = 990.50$, $z = 3.66$, $p < .001$. This pattern was also found when separately examining each age group, though it only emerged as a trend in children aged three: 3-year-olds, Mann-Whitney $U = 135.00$, $z = 1.78$, $p = .075$; 4-year-olds, Mann-Whitney $U = 101.00$, $z = 2.17$, $p = .030$; 5-year-olds, $U = 92.00$, $z = 2.61$, $p = .009$. Whereas, production of ownership explanations increased with age in the acceptability-of-use condition, Jonckheere-Terpstra test, J-T statistic = 617.00, $p = .016$, it only showed a weak trend in this direction in the knowledge-of-use condition, J-T statistic = 520.00, $p = .094$. Together, these findings show that children selectively use ownership to explain why it is acceptable for a person to use an object, and that this selective production of ownership explanations increases with age.³

3. Experiment 2

In our first experiment, as children grew older, they became increasingly likely to use ownership to explain why it is acceptable to use an object. Here we examined a factor that might increase younger children’s use of ownership in explanations—their sensitivity to how ownership governs what should *not* be done (see Hay & Ross, 1982; Nancekivell & Friedman, 2014a). For instance, children might reason that an object should not be used because it belongs to someone else. The principle that ownership restricts non-owners from using property is sometimes referred to as the “Right of Exclusion” (Snare, 1972). Children might be more sensitive to this principle than the principle that entitles ownership to use their own property, a

³ As Table 2 shows, children often gave object property explanations. In the Supplementary Materials, we conducted similar analyses on these responses, both for this experiment and for Experiment 2.

principle referred to as the “Right of Use”. If so, then children might use ownership more when explaining why it is unacceptable to use an object than when explaining why it is acceptable. We also asked children to explain a wider range of object uses, and added a screening task.

3.1. Method

3.1.1. Participants. We tested 108 children: 36 3-year-olds (3;0-3;11, $M = 3;6$, 23 girls), 36 4-year-olds (4;0-4;11, $M = 4;6$, 18 girls) and 36 5-year-olds (5;0-5;11, $M = 5;5$, 18 girls). An additional 8 children were tested but were replaced because they failed the screening task.

3.1.2. Materials and Procedure. Children first participated in a screening task. This task was included to identify children who could not generate explanations and who were unlikely to speak during the main task. In the task, children were shown a picture of a girl using an umbrella in the rain, and they were asked to explain why she was using the umbrella. Children were given two opportunities to answer the question, and were only scored as failing if they did not provide a relevant answer.

After the screening task, children in each age group were randomly assigned to either of two conditions: acceptability-of-use or unacceptability-of-use. Each condition included two trials—“hat” and “book”. These trials were always administered in this order but in either of two versions.

In the acceptability-of-use condition, children were told that it was okay for one character to wear a particular hat and for another character to take a particular book home (version 1), or that it was okay for the first character to take a hat home and for the second character to read a particular book (version 2). The trials in the unacceptability-of-use condition were identical, except children were told that it was not okay for each character to perform the actions. After each trial, children were asked why it was okay (acceptability condition) or not okay (unacceptability condition) for the character to engage in the actions.

The same transcription and coding procedures occurred as in Experiment 1. Inter-coder-reliability was very high ($\kappa = 0.84$).

3.2. Results and Discussion

Table 3 shows children’s mean use of each explanation type.⁴ Inspection of the table again suggests that children’s use of ownership in explanations increases with age. Whereas 3-year-olds gave ownership explanations infrequently (e.g., 11% and 19% of responses in the acceptability- and unacceptability-of use conditions), 5-year-olds again gave ownership explanations close to half the time (42% and 47% of explanations in the acceptability- and unacceptability-of use conditions). However, these same comparisons also suggest that explanations may not have been affected by whether children explained why it is acceptable versus unacceptable to use objects.

⁴ We examined whether ownership explanations varied depended on whether children were asked about using an object or taking it home. Taking an object home might be viewed as more indicative of ownership than using it. Consistent with this, 4- and 5-year-olds mentioned ownership more when asked about taking objects home than when asked about using them, 4-year-olds Wilcoxon, $z = 1.94$, $p = .052$; 5-year-olds, Wilcoxon, $z = 2.12$, $p = .034$. Three-year-olds did not show this difference, $z = 1.34$, $p = .180$. To simplify the main analyses we do not consider this factor further.

Table 3. Experiment 2: Children's percent use of each explanation type by condition and age (standard deviation in brackets).

		Acceptability-of-use	Unacceptability-of-use
three-year-olds	ownership	19 (35)	11 (27)
	object properties	17 (30)	3 (12)
	other-normative	6 (16)	11 (27)
	other	39 (37)	47 (47)
four-year-olds	ownership	28 (35)	36 (38)
	object properties	17 (24)	19 (30)
	other-normative	14 (23)	19 (30)
	other	39 (27)	25 (31)
five-year-olds	ownership	42 (43)	47 (47)
	object properties	6 (16)	3 (12)
	other-normative	19 (30)	14 (23)
	other	33 (42)	33 (38)

Note: Percentages do not add up to 100 because uninformative responses are not reported here.

Analyses confirmed these impressions. Children's production of ownership explanations did not vary by condition, both when considering all children, Mann-Whitney $U = 1435.00$, $z = 0.16$, $p = .874$, and when separately examining each age group, all $ps > .540$. However, as in the first experiment, production of ownership explanations increased with age, Jonckheere-Terpstra test, J-T statistic = 1944.00, $p < .001$. These findings again show that children's use of ownership in explanations increases with age.

3.3. Combined Analysis

The results of Experiments 1 and 2 suggest that with age, children increasingly use ownership to explain why it acceptable (or unacceptable) to use an object. But how do ownership explanations compare with *other* kinds of explanations that children provide? To assess this, we examined how frequently children in Experiments 1 and 2 gave ownership explanations in comparison with other types of explanations produced most frequently at each age.

To ensure sufficient power, we combined data from Experiments 1 (acceptability-of-use condition) and 2 (both conditions). At each age, we assigned each child a score by taking the number of ownership explanations they gave (0, 1, or 2) and subtracting the number of explanations given in the competing category—at each age, this turned out to be the “other” category. These scores could range between 2 (i.e., two ownership explanations) and -2 (two explanations in the “other” category). We then used a single-sample Wilcoxon Signed ranks test to see if scores significantly differed from the midpoint score of 0. In this approach, scores greater than the 0, indicate that ownership explanations were given more than “other” explanations, and scores lower than 0 indicate that “other explanations” were given more.

Three-year-olds showed a marginal trend to give more “other” explanations than ownership explanations (M score = -0.30), Wilcoxon, $z = 1.72$, $p = .085$. Four-year-olds gave ownership and “other” explanations equivalently (M score = 0.19), Wilcoxon, $z = 1.33$, $p = .18$. And five-year-olds gave ownership explanations more than “other” explanations (M score = 0.41), Wilcoxon, $z = 2.23$, $p = .026$

Together, these analyses show that from age 5, but not before, children gave ownership more frequently than any other particular kind of explanation. Our analyses are somewhat conservative on this point, because the comparisons were with explanations in the “other” category, and these explanations do not form a coherent group.⁵ Nonetheless two caveats should be noted: First, the finding that 5-year-olds provided ownership more frequently than any other kind of explanation does *not* imply that they gave ownership explanations most of the time—across Experiments 1 and 2, 46% of explanations referenced ownership. Second, these findings are contingent on the particular coding categories we used. For instance, if we had omitted the object properties category, this would have led to more responses to be coded in the “other” category, perhaps enough for such explanations to be offered about as often as ownership explanations.

4. Experiment 3

In the previous experiments, younger children rarely referenced ownership in their explanations. One possible reason is that they may find it difficult to infer that ownership is relevant. Therefore, in this experiment, we provided children with information about ownership, so they did not have to seek it out, and only had to recognize its relevance. We also provided information about object properties, so that children could choose whether this factor or ownership was more relevant. Object properties were chosen because 3-4-year-olds frequently referred to these in Experiment 1 and 2. Although “other” sometimes occurred more, it could not be used in our comparison because of its heterogeneous nature. We again included acceptability- and unacceptability-of-use conditions, because we expected children’s references to ownership to increase, perhaps allowing a difference between the conditions to be revealed.

4.1. Method

4.1.1. Participants. We tested 108 children: 36 3-year-olds (3;0–3;11, $M = 3;5$, girls = 15), 36 4-year-olds (4;0–4;11, $M = 4;5$, girls = 15) and 36 5-year-olds (5;1–5;11, $M = 5;7$, girls = 15). One additional child was tested but excluded from analysis because they failed a screening task. This screening task was the same as Experiment 2.

4.1.2. Materials and Procedure. After completing the screening task, children in each age group were randomly assigned to either an acceptability- or unacceptability-of-use condition; both included two test trials. In each trial in the acceptability-of-use condition, children were shown a picture of a character next to an object (hat in trial 1, book in trial 2). They were then told two pieces of information, one about a property of the object (e.g., “It’s the right size for him”) and the other about ownership (e.g., “It’s the man’s hat”); order counterbalanced across participants. Children were then told that it was acceptable for the character to use the object, and were then asked why (e.g., “Why is it okay for him to wear it?”).

The unacceptability-of-use condition was identical, except the ownership and object properties were adjusted for the action being “not okay”. Children were told a negative object property (e.g., “It’s too big for him” or “It’s too hard to read”) and that the object did not belong to the character (e.g., “It’s someone else’s”).

4.1.3. Transcription and Coding. Because children in this experiment were given information about ownership and object properties, their informative explanations were coded based on whether they referred to ownership, object properties, or neither of these factors. Uninformative responses (e.g., “I don’t know”) were coded into an uninformative category. Six of the 108

⁵ In the Supplementary Materials, we report similar analyses in which we compared children’s ownership explanations with their object property explanations.

children tested provided both explanation types, and were given credit in each category. The coders had substantial agreement ($\kappa = 0.72-0.94$)⁶. All disagreements were resolved by discussion.

4.2. Results and Discussion

Fig. 2 shows children's mean use of each explanation type. It suggests that children may have produced more ownership explanations when explaining unacceptability-of-use than when explaining acceptability-of-use, though the difference is most apparent among 3-year-olds. Consistent with this, analyses found that children produced more ownership explanations in the unacceptability-of-use condition than in the acceptability-of-use condition, Mann-Whitney $U = 1118.50$, $z = 2.30$, $p = .021$. As suggested by the figure, this effect was significant in 3-year-olds only, Mann-Whitney $U = 98.50$, $z = 2.48$, $p = .013$, and not significant in 4-year-olds, $U = 127.50$, $z = 1.24$, $p = .216$, or 5-year-olds, $U = 152.50$, $z = 3.21$, $p = .748$. Also, whereas, production of ownership explanations increased with age in the acceptability-of-use condition, Jonckheere-Terpstra test, J-T statistic = 658.00, $p = .001$, it did not increase with age in the unacceptability-of-use condition, J-T statistic = 564.00, $p = .185$ (likely because of 3-year-olds' elevated rate of ownership explanations in the unacceptability-of-use condition). These findings contrast with those from Experiment 2, where children gave ownership explanations equivalently when explaining why it was acceptable and unacceptable for an object to be used. We discuss this difference in more detail below.

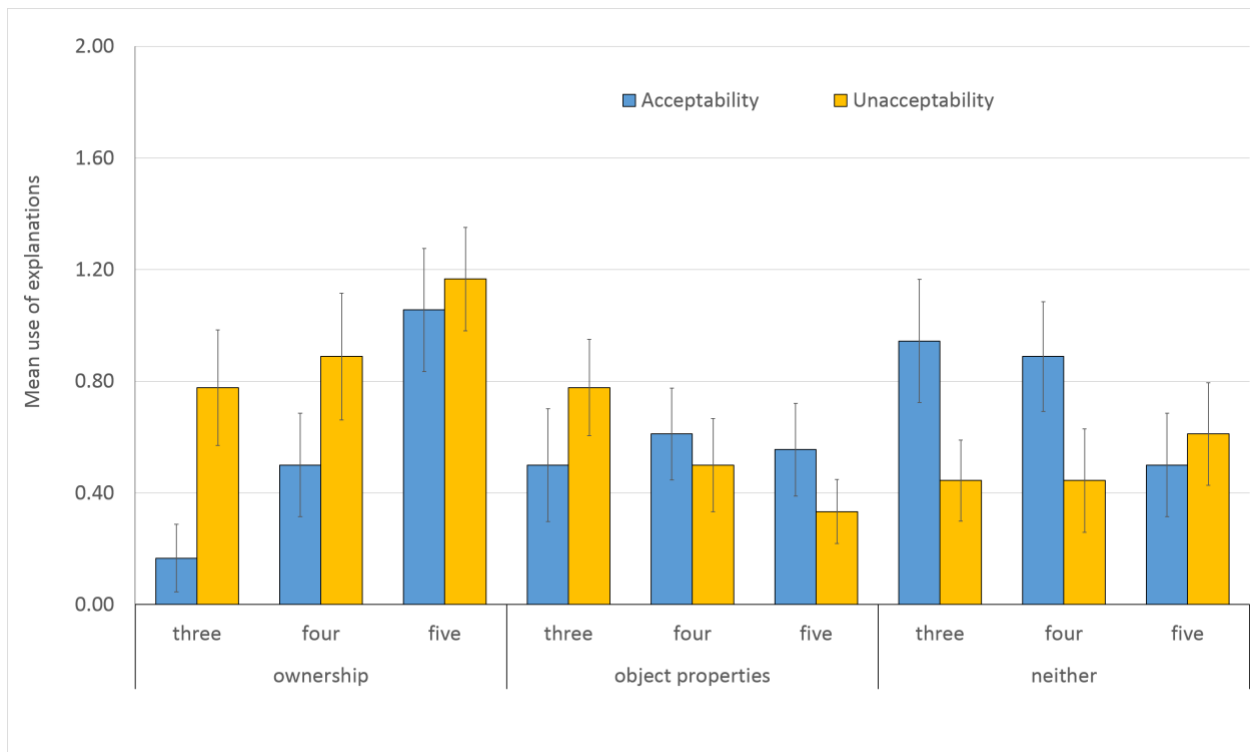


Figure 2. Experiment 3: Children's average use of each explanation type shown by condition and age; error bars show \pm standard error.

⁶ Because categories were not mutually exclusive in this experiment, Cohen's Kappa was calculated for each category.

We next examined how frequently children gave ownership explanations in comparison with other types of explanations produced most frequently at each age (i.e., either neither or other). To ensure sufficient power, we combined data from the acceptability- and unacceptability-of-use conditions. As in the previous combined analysis, we assigned each child a score by taking the number of ownership explanations they gave (0, 1, or 2) and subtracting the number of explanations given in the competing category—at all ages, this was explanations in the “neither” category. These scores were then analyzed against the midpoint score of 0 using single-sample Wilcoxon Signed ranks tests. Three- and four-year-olds gave ownership and “neither” explanations equivalently: 3-year-olds (M score = -0.22), $z = 0.84$, $p = .400$; 4-year-olds (M score = 0.03), $z = 0.28$, $p = .783$. However, 5-year-olds gave ownership explanations more than “neither” ones (M score = 0.56), $z = 1.99$, $p = .046$. As in Experiment 2, children from age 5 (but not before) gave ownership explanations more than any other particular kind of explanation.

4.3. Comparison of Experiments 2 and 3

The findings from Experiment 3 contrast with those from Experiment 2: In Experiment 2, children responded equivalently in the acceptability- and unacceptability-of-use conditions. In contrast, in Experiment 3, 3-year-olds gave more ownership explanations in the unacceptability-of-use condition, though older children did not show this effect. This difference between the experiments may have resulted because ownership was explicitly mentioned to children in Experiment 3, whereas it was not mentioned in Experiment 2. To investigate this possibility, we tested whether responses differed across these two experiments. Because the main difference between the experiments appears to have been in the responses of 3-year-olds in the unacceptability-of-use condition, we separately examined responses within each age and condition. These analyses found that 3-year-olds in the unacceptability-of-use conditions gave more ownership explanations in Experiment 3 than in Experiment 2, Mann-Whitney $U = 105.00$, $z = 2.16$, $p = .031$; all other comparisons across the experiments yielded null results, Mann-Whitney tests, all $ps > .223$. This finding suggests that mentioning ownership to children does increase their production of ownership explanations, but in a restricted sense—it only influences younger children when they explain why it is unacceptable for a person to use an object. This finding suggests that younger children may be especially sensitive to how ownership governs what should *not* be done with objects (Hay & Ross, 1982; Nancekivell & Friedman, 2014a). However, this sensitivity is not apparent in children’s unprompted production of explanations— younger children only show it when ownership is highlighted for them.

5. General Discussion

Our findings suggest that ownership becomes increasingly influential in young children’s explanations about why it is acceptable (or unacceptable) to use objects. Whereas 5-year-olds referenced ownership in almost half of their explanations, 3-year-olds typically referenced it rarely. Also, whereas 5-year-olds gave ownership explanations more than any other particular kind of explanation, ownership was not the most frequently given type of explanation in younger children.

These age-related changes reflect development in children’s conceptual reasoning, rather than changes in their linguistic abilities. Three-year-olds met the linguistic demands of our task and provided many coherent explanations—they were just not about ownership. The findings of

Experiment 3 further show that 3-year-olds could meet the linguistic demands of the task, as they often produced ownership explanations when explaining why it was unacceptable to use an object.

In Experiments 1 and 2, we examined whether children spontaneously reference ownership in their explanations, and in Experiment 3 we examined whether they reference it when it is mentioned. Findings across these experiments were quite similar in older children, suggesting that mentioning ownership does not affect their subsequent production of ownership explanations. For instance, our comparison of Experiments 2 and 3 showed that 4- and 5-year-olds gave ownership explanations at similar rates regardless of whether ownership was mentioned. However, whether ownership was mentioned did influence 3-year-olds: When 3-year-old explained why it was unacceptable to use an object, they referenced ownership more often when it was mentioned than when it was not mentioned.

This difference between 3-year-olds and older children could stem from differences in their executive capacities. Young children readily respond to information about ownership when it is mentioned to them (e.g., Gelman et al., 2012; Rossano et al., 2011; Pesowski & Friedman, 2015). However, because ownership is non-obvious, children must seek it out as a relevant explanatory factor when it is not mentioned to them. This may depend on the executive control of memory—the active search of semantic memory for relevant information (e.g., Tomita, Ohbayashi, Nakahara, Hasegawa, & Miyashita, 1999). Three-year-olds may not have the necessary executive capacities to actively search semantic memory for non-obvious explanatory factors like ownership. Mentioning ownership to them, removes the need for them to seek it out as an explanatory factor—when ownership is mentioned, children only need to recognize that it is relevant. In contrast, 4-year-olds may have the necessary capacities to actively search semantic memory for non-obvious explanatory factors like ownership (for similar discussion see Nancekivell, & Friedman, 2014b). It must be acknowledged, though, that this is just one possible account for the development observed, and future research will be needed to test it.

In Experiment 3, we also found that 3-year-olds referenced ownership more when explaining why it is unacceptable to use an object than when explaining why using it was acceptable. In contrast, 4- and 5-year-olds did not show this difference. These findings suggest that younger children may be more sensitive to the “Right of Exclusion” (i.e., the principle restricting non-owners from using others’ property) than to the “Right of Use” (i.e., the principle entitling owners to use their property). In contrast, older children may show similar sensitivity to *both* sides of ownership.

5.1. Limitations and Future Directions

Although our findings are informative about the influence of ownership on young children, and their use of ownership in explanations, three limitations of our study should be acknowledged. First, we examined the influence of ownership using a very explicit measure—children’s explanations. Although linguistic difficulties cannot explain our developmental findings, as explained above, younger preschoolers might nonetheless show greater influence of ownership if assessed using less explicit measures. Put another way, our findings may be most informative about the prevalence of ownership in children’s explanations, but not informative about how it enters their thinking outside of explanations.

Second, children only considered scenarios characteristic of everyday situations, in which characters used common objects in harmless ways. However, responses might differ if children were asked about other actions or about other kinds of objects. For instance, children might

reference ownership more if asked about why a person is allowed to modify an object; but they might reference ownership less if asked about gender-typed objects or objects that are potentially dangerous, as other explanatory factors might be more compelling for such items (i.e., gender norms; safety concerns).

Third, we asked children to explain why it is acceptable (or unacceptable) to use objects. But findings might differ if children were asked to explain people's use of objects (e.g., "Why did the girl use this backpack?") or their emotional reactions (e.g., "Why is the girl sad that the backpack is broken?"). For instance, intense emotional reactions might be very indicative of ownership, and might yield more references to ownership than explanations than we observed.

5.2. Broader Implications for Children's Explanations

Our findings have two important implications for the study of explanations. First, we extend existing knowledge regarding the kinds of non-obvious properties that children use to explain events and outcomes. Previous research has shown that young children's explanations reference non-obvious properties including physical forces, biological processes, mental states, and social norms and categories other than ownership (e.g., Bartsch & Wellman, 1989; Legare et al., 2009; Miller & Bartsch, 1997; Wellman & Lagattuta, 2004; Rhodes, 2014). Our findings are the first to demonstrate that ownership is also part of the explanatory framework that young children use to explain events and outcomes.

Second, our findings show that mentioning ownership directly affected the degree to which 3-year-olds, but not 4-year-olds, referenced ownership in their explanations. In many studies showing that 3-year-olds reference non-obvious properties in their explanations, the experimenters alluded to the non-obvious property in the preceding vignette or question (e.g., Au, Sidle, & Rollins, 1993; Bartsch, & Wellman, 1989; Lagattuta & Wellman, 2001; Kelemen et al., 2003). Our findings suggest that these studies might have found different results if they had not first provided children with this kind of information. Our findings highlight the importance of distinguishing between the kinds of explanations that young children produce when given little supporting information and the kinds of explanations they produce when given more supporting information.

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