

# Unsolicited But Acceptable: Non-Owners Can Access Property if the Owner Benefits

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People are normally restricted from accessing property without permission from the owner. The principle that nonowners are excluded from property is central to theories of ownership, and previous findings suggest it could be a core feature of the psychology of ownership. However, we report six experiments on children ( $N = 480$ ) and adults ( $N = 211$ ) showing that this principle may not apply for actions that benefit the owner—actions like repairing broken property. In Experiment 1, 3–5-year-olds judged it more acceptable for a nonowner to repair broken property than to move it. Experiments 2 and 3 replicated this with 4–6-year-olds using different question wordings and showed that children also approve of replacing broken property. Experiment 4 showed these findings replicate regardless of whether the nonowner and owner are acquainted. Finally, Experiments 5 and 6 revealed a boundary condition on approval of unsolicited beneficial actions: Both 4–6-year-olds and adults judged repairing property more acceptable than modifying it to suit the owner's preferences. These findings suggest that restrictions on nonowners are less absolute than often claimed, and that participants' judgments depended on generic information about which actions are typically beneficial, rather than on consideration of owners' specific preferences.

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While the family next door is on vacation, you decide to surprise them by repairing their broken lawn mower. Are you allowed to do this? Or would your helpful action violate their ownership rights? Investigating the acceptability of repairing others' property without permission can contribute to our understanding of the psychology of ownership. Nonowners are normally restricted from others' property. But if unsolicited repairs are acceptable, this would suggest that restrictions on nonowners are less absolute, or less central to ownership, than generally believed.

Repairing property without the owner's permission might be unacceptable. Ownership is often claimed to confer a *right of exclusion* specifying that nonowners should not use, or otherwise act on, property without the owner's consent.<sup>1</sup> This right is central to theories of ownership outlined by legal scholars, philosophers, and cognitive scientists (e.g., Jackendoff, 1992;

Merrill, 1998; Miller & Johnson-Laird, 1976; Snare, 1972). It may also be a core principle in the psychology of ownership. Young children recognize restrictions on nonowners in their actions on objects (e.g., Davoodi, Nelson, & Blake, 2020; Kanngiesser, Rossano, Frickel, Tamm, & Tomasello, 2020), reactions to others (Rossano, Rakoczy, & Tomasello, 2011), judgments about hypothetical disputes (e.g., Kim & Kalish, 2009), and open-ended explanations (Nancekivell & Friedman, 2014a & 2014b). Beliefs that nonowners are excluded from property may also contribute to adults' dislike of plagiarizers (Silver & Shaw, 2018) and to their resentment of outgroup members having access to ingroup resources (Verkuyten & Martinovic, 2017). So even those unfamiliar with theories of ownership might feel that nonowners should refrain from repairing others' property.

Nonetheless, unsolicited repairs could be acceptable. Some everyday examples suggest that permission is not needed for helpful actions that violate the right of exclusion to a lesser degree. For example, you are allowed to bring lost items to a lost-and-found (e.g., Lastdrager, Montoya, Hartel, & Junger, 2013; West, 2003), to mail a letter you find on the ground (e.g., Milgram, Mann, & Harter, 1965), and to help retrieve objects that were accidentally dropped (e.g., Guinote, Cotzia, Sandhu, &

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<sup>1</sup> Legal theorists sometimes term this the "right to exclude." Nonetheless, they typically view the right as establishing the default expectation that non-owners are excluded. For example, Cohen (1954) likens the right to a label reading "Keep off × unless you have my permission, which I may grant or withhold."

Siwa, 2015; Warneken, 2013). Unsolicited repairs violate the right of exclusion more flagrantly (i.e., they involve modifying property) and are not needed to ensure that property is restored to its owner. So, if they are acceptable, this could mean that the right of exclusion is less central to ownership than is sometimes claimed (e.g., Cohen, 1954; Merrill, 1998).

Unsolicited repairs could be acceptable if they happen to fulfill the owner's desires and preferences. For example, repairing the lawnmower may be acceptable because your neighbors would prefer it fixed rather than broken. This account is broadly consistent with claims that owners are entitled to set the agenda for their property, and that unsolicited actions are acceptable to the degree that they fit with this agenda (Katz, 2008). This account is also broadly consistent with the idea that actual consent may be unnecessary if you have *hypothetical* consent and are sure that permission would have been granted if it had been requested (for related discussion, see Levine, 2016; Mikhail, 2009, and Vandever, 1986).

Alternatively, unsolicited repairs could be acceptable for the opposite reason—because they *do not* require knowledge of what the owner desires or prefers. Many ownership rules appear to be designed to minimize information demands (Smith, 2012). For example, you can heed the right of exclusion and avoid using another person's property without knowing who it belongs to, how the owner acquired it, let alone anything about the owner's specific desires and preferences. Exceptions to the right of exclusion may also minimize information demands. Almost all objects are better fixed rather than broken—this may feel like an *objective* fact. So unsolicited repairs may be acceptable because they are assumed to benefit the owner, even if you have no information about who the owner is or what they want. A key prediction of this account is that people might disapprove of unsolicited actions that provide only *subjective* benefits (i.e., actions that can only be seen as beneficial if one considers the owner's idiosyncratic preferences).

The present paper explores these issues. To provide a stringent test of whether unsolicited repairs and other helpful actions are viewed as acceptable, we primarily investigated children aged 6 years and younger. Young children provide a stringent test because they are relatively inflexible in thinking about exceptions to moral rules and social norms. For instance, compared with older children and adults, they are less accepting of lying or hitting to prevent harm (e.g., Jambon & Smetana, 2014; Peterson, Peterson, & Seeto, 1983; Pnevmatikos, 2018) and violating a rule while keeping its spirit (i.e., not causing the negative outcome it serves to prevent; Bregant, Wellbery, & Shaw, 2019). Children's inflexibility extends to their thinking about ownership, as they are overall less likely than adults to conclude that nonowners can use property when the owner opposes this (Neary & Friedman, 2014; Ross, 1996). Given this background, we might likewise expect children to find unsolicited repairs unacceptable. But if children instead find these actions acceptable, it could indicate that these exceptions to the right of exclusion are a basic feature of the psychology of ownership.

We conducted six experiments—five on young children, and a final experiment on adults. We began our investigation by com-

paring 3–5-year-olds' judgments about the acceptability of a non-owner repairing a broken object or moving it.

## Experiment 1

### Method

**Participants.** We tested 120 3–5-year-olds ( $M_{\text{age}} = 4;6$  [years; months], range = 3;0–5;11, 61 female). An additional 5 children were tested but excluded for not answering the test questions ( $n = 4$ ) or failing a comprehension check twice ( $n = 1$ ). In experiments on children, there were 60 children per between-subjects condition, and equal numbers of children per age-in-years were randomly assigned to each condition. Children were tested at daycares, preschools, and elementary schools in the Region of Waterloo (Ontario, Canada). Residents of the region are predominantly middle-class; 81% of residents are White, and Chinese and South Asians residents are the main visible minority. The studies were approved by the Office of Research Ethics at the University of Waterloo, under Project 30395: Social Understanding in Children.

**Procedure.** Children heard a story narrated by the experimenter, with accompanying pictures displayed on a laptop computer. See Figure 1 for scripts from all experiments; the corresponding pictures are available online at <https://osf.io/uhxzsz/>.

In the story, two girls were at a park. One girl owned a hula-hoop, which was broken and no longer worked. The girl left it on the ground and went home for a minute. While she was gone, the other girl either fixed the hula-hoop so it worked again, or moved it onto a bench (manipulated across two between-subjects conditions). Children were asked whether the action was good or bad ("Was it good or bad for the girl to [move/fix] the hula-hoop?"), and then asked whether the action was a "little [good/bad], medium [good/bad], or very [good/bad]." Responses to these two questions were recoded onto a 6-point scale ranging from 1 (*very bad*) to 6 (*very good*); similar questioning procedures have been used in previous studies on children's judgments of acceptability (e.g., Olson & Shaw, 2011; Shaw & Olson, 2015). One child said, "I don't know" to the follow-up question, and was conservatively recorded as having responded, "A little."

The story also included a comprehension question about which girl owned the hula-hoop. If children answered incorrectly, the experimenter repeated the ownership information. The experimenter then reasked the comprehension question; children who responded incorrectly were excluded from the analyses.

### Results and Discussion

In each experiment, the main analysis used a generalized estimating equations model for ordinal logistic data, though pairwise comparisons (all Bonferroni corrected) assumed linear data. Table 1 provides an overview of factors entered into each model. Age-in-months was also entered into each model (mean-centered and entered as a covariate), except in Experiment 6 which investigated adults. The table lists all significant and marginal effects, though we only discuss significant effects. The data and analysis syntax for all experiments are available online at this <https://osf.io/uhxzsz/>.

Figure 2 shows children's ratings of each action. Children gave more positive ratings for fixing the hula-hoop than for moving it,

**Experiment 1.** Here's two girls and they're both at a park. And look, at this broken hula-hoop on the ground. It doesn't work anymore. The hula-hoop belongs to this girl. It's the girl's hula-hoop. So, whose hula-hoop is it? Well, the girl has to go home for a minute. Let's see what happens while she's gone. The other girl goes over and [fixes the broken hula-hoop so it works again / puts the broken hula hoop on this bench]. So now I have a question for you. Was it good or bad for the girl to [fix/move] the hula-hoop?

**Experiments 2 & 3.** Here are two girls and they're at a park. And look, at this broken hula-hoop on the ground. It doesn't work anymore. The hula-hoop belongs to this girl. It's this girl's hula-hoop. So, whose hula-hoop is it? Well, this girl has to go home for a minute. Do you see this other girl over here? [Would it be okay for this girl to... / Is this girl allowed to...] ...look at the broken hula-hoop? ...fix the broken hula-hoop so that it works again? ...replace the broken hula-hoop with a new one? ...move the broken hula-hoop?

**Experiment 4.** Here are two girls and they're at a park. [The girls do not know each other. They've never met before. / The girls know each other. They're in the same class.] And look, at this broken hula-hoop on the ground. It doesn't work anymore. The hula-hoop belongs to this girl. It's this girl's hula-hoop. So, whose hula-hoop is it? Well, the girl has to go home for a minute. Do you remember this other girl over here? Is she allowed to... ...stand near the broken hula-hoop? ...fix the broken hula-hoop so that it works again? ...replace the broken hula-hoop with a new one that works? ...move the broken hula-hoop?

**Experiment 5.** Here is a girl and this is her mailbox. [The mailbox is broken. She wishes it was fixed/ The mailbox is blue. She wishes it was red.] Well, she is going to go away on vacation. And look! Here comes another girl. So now I have a question for you. Is she allowed to... ...stand beside the mailbox? ...look inside the mailbox? ...[fix the broken mailbox/paint the mailbox red?] ...take things from inside the mailbox?

**Experiment 6.** Here is a girl and this is her mailbox. [The mailbox is broken. She wishes it was fixed/ The mailbox is blue. She wishes it was red.] Well, she goes away on vacation. And look! Here comes another girl. So now I have a question for you. Is she allowed to... ...stand beside the mailbox? ...look inside the mailbox? ... [fix the broken mailbox/paint the mailbox red?] ...take things from inside the mailbox?

*Figure 1.* Scripts from all experiments. Text in brackets varied across between-subjects conditions. These scripts only show the main test questions from Experiments 1 to 5; see the Method sections for the follow-up questions.

Wald's chi-square(1) = 48.25,  $p < .001$ . There was no main effect of age, Wald's chi-square(1) = 0.46,  $p = .498$ , and no interaction between action and age, Wald's chi-square(1) = 0.00,  $p = .993$ .

These findings provide preliminary evidence that 3–5-year-olds approve of fixing others' property without permission. However, our test question about whether actions were "good" or "bad" might have led children to focus on outcomes, rather than on the acceptability of the actions themselves. Although outcome-based moral judgments are often of great interest (e.g., Cushman, 2013), it is obvious that having a fixed possession is a good outcome. The real question is whether it is acceptable to bring about this good outcome via unsolicited actions.

The next experiments therefore used test questions intended to probe the permissibility of the actions. In Experiment 2, children were asked whether it would "be okay" for the girl to perform the actions. However, in some contexts, this question wording may also lead people to focus their moral judgments on outcomes (Nobes, Panagiotaki, & Bartholomew, 2016). So, in Experiment 3, we instead asked if the girl was "allowed to" perform the actions. These experiments also probed children about additional actions, including whether the nonowner could look at the object, and

whether they could replace it with a new item. Asking about replacing provides a stringent test of whether children approve of helpful but unsolicited actions—replacing property is a serious violation because it deprives the owner of their original property.

## Experiments 2 and 3

### Method

**Participants.** We tested 120 4–6-year-olds: 60 in Experiment 2 ( $M_{\text{age}} = 5;6$ , range = 4;0 to 6;11, 31 female) and a further 60 in Experiment 3 ( $M_{\text{age}} = 5;4$ , range = 4;2 to 6;10, 30 female). We also aimed to test 3-year-olds in these experiments. But after collecting data from 20 (10 per experiment), we found their responses did not vary across the questions, suggesting the within-subjects designs made the tasks difficult for them.

**Procedure.** In both experiments, children again saw the story about the two girls and the broken hula-hoop. Each experiment used a within-subjects design, in which children were asked whether it was acceptable for the nonowner to perform four actions: look at the hoola-hoop, fix it, replace it with a new

Table 1  
*Factors and Effects From Each Analysis*

Experiment	Factors	Effects	Wald $\chi^2$	df	p
1	Action: fix, move	Action	48.25	1	<.001
2	Action: look, fix, replace, move	Action	63.40	3	<.001
		Action $\times$ Age	12.16	3	.007
3	Action: look, fix, replace, move	Action	61.33	3	<.001
		Action $\times$ Age	10.52	3	.015
4	Action: stand near, fix, replace, move	Action	136.53	3	<.001
	Relation: strangers, classmates	Age	5.44	1	.020
		Action $\times$ Age	22.19	3	<.001
5	Action: stand near, modify, look in, take from	Action	82.30	3	<.001
	Condition: objective, subjective	Age	27.00	1	<.001
		Action $\times$ Condition	45.64	3	<.001
		Action $\times$ Age	18.84	3	<.001
		Action $\times$ Condition $\times$ Age	6.71	3	.082
6	Action: stand near, modify, look in, take from	Action	237.99	3	<.001
	Condition: objective, subjective	Condition	3.06	1	.080
		Action $\times$ Condition	63.47	3	<.001

hula-hoop, or move it. Children were either asked about the actions in this order, or the reverse order (counterbalanced within each experiment).

The experiments only differed in how the test questions were phrased. In Experiment 2, children were asked, "Would it be okay for this girl to [action]?" In Experiment 3, they were instead asked "Is this girl allowed to [action]?" In both experiments, each question was followed by another assessing certainty, "Definitely [yes/no] or maybe [yes/no]?" and responses to the main and follow-up questions were recoded onto a 4-point scale ranging from 1 (definitely no) to 4 (definitely yes). We switched to a 2-option follow-up because of difficulty devising a 3-option version suitable for yes/no questions.

In these experiments, children sometimes did not respond to one or more of the follow-up questions (9 children in Experiment 2, and 8 children in Experiment 3). This also happened in the later experiments. We conservatively recorded omissions as responses of "maybe." However, in the [online supplemental material](#) we show that the overall pattern of results in each experiment does not substantially change in analyses limited to trials where children answered the follow-up question.

### Results and Discussion

Figure 2 shows children's ratings of each action for both experiments. In Experiment 2, children's ratings varied across the four actions, Wald's chi-square(3) = 63.40,  $p < .001$ . Fixing was rated as more acceptable than all other actions,  $p < .001$ , moving was rated as less acceptable than all others,  $ps < .001$ , while looking and replacing did not significantly differ from one another,  $p > .999$ . There was no overall effect of age, Wald's chi-square(1) = 1.47,  $p = .226$ , but it did interact with type of action, Wald's chi-square(3) = 12.16,  $p = .007$ . This interaction resulted because ratings for fixing increased with age, Wald's chi-square(1) = 4.10,  $p = .043$ , ratings for moving decreased, Wald's chi-square(1) = 8.35,  $p = .004$ , while ratings for looking and replacing did not change, both  $ps \geq .190$ .

In Experiment 3, children's ratings again varied across the four actions, Wald's chi-square(3) = 61.33,  $p < .001$ . Fixing was rated more acceptable than replacing,  $p = .001$ , and moving,  $p < .001$ , but not significantly different than looking,  $p = .876$ . Moving was rated as less acceptable than all other actions,  $ps < .001$ , and ratings for replacing and looking did not

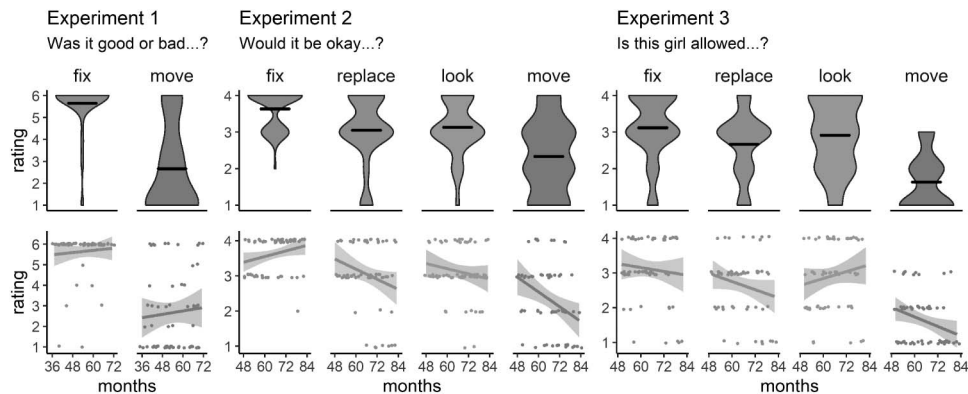


Figure 2. Ratings in Experiments 1 (left), 2 (center), and 3 (right). The upper figures are violin plots of children's overall ratings of each action; horizontal bars show means. The lower figures are scatterplots showing ratings by age-in-months; points are jittered to avoid overplotting and bands show  $\pm 1$  SE.



significantly differ,  $p = .443$ . There was no overall effect of age, Wald's chi-square(1) = 0.30,  $p = .583$ , but it did interact with type of action, Wald's chi-square(3) = 10.52,  $p = .015$ . This interaction resulted because ratings for moving decreased with age,  $p = .018$ , while ratings for the other actions did not change with age,  $ps \geq .137$ .

In sum, young children again approved of unsolicited helpful actions, and even found it relatively acceptable for the nonowner to replace the broken object with a new version. Although less acceptable than fixing, replacing was nonetheless more acceptable than moving the object, and about as acceptable as looking at it.

The experiments so far did not specify the relationship between the owner and nonowner. Nonetheless, children might have made assumptions about this. For example, children may have assumed the characters knew one another, and concluded that the owner would have permitted the nonowner to repair or replace the broken object if asked (i.e., hypothetical permission). We next investigated this possibility by manipulating whether the owner and nonowner knew one another or were strangers.

### Experiment 4

#### Method

**Participants.** We tested 120 4–6-year-olds ( $M_{\text{age}} = 5;6$ , range = 4;0 to 6;10, 61 female).

**Procedure.** Children saw the story about the two girls and the broken hula-hoop. In one of two between-subjects conditions, the two girls knew one another and were classmates; in the other condition, they did not know one another and had never met before.

After the story, children were asked whether the nonowner was allowed to perform four actions: stand near the hula-hoop, fix it,

replace it with a new hula-hoop, or move it. Children were either asked about the actions in this order, or the reverse order. In this experiment, we asked about standing near the object, instead of looking at it, in case some children in the previous experiments had assumed that “looking at” entailed holding the object to examine it (i.e., a violation of exclusion).

Each question was again followed by one assessing certainty, “Definitely [yes/no] or maybe [yes/no]?,” and responses to the main and follow-up questions were recoded onto a 4-point scale ranging from 1 (definitely no) to 4 (definitely yes). In this experiment, 24 children did not respond to one or more of the follow-up questions, and we again treated these omissions as responses of “maybe.”

### Results and Discussion

Figure 3 shows children's ratings of each action. Ratings were not significantly affected by whether the characters knew one another or were strangers, all  $ps \geq .167$ . As in the previous experiments, children's ratings varied across the actions, Wald's chi-square(3) = 136.53,  $p < .001$ . Fixing was rated as more acceptable than all other actions,  $ps < .001$ , and moving was rated as less acceptable than the other actions,  $ps < .001$ ; standing near and replacing did not significantly differ from one another,  $p > .999$ . This pattern also emerged when we ran separate analyses on each relation: fix > all other actions,  $ps_{\text{know}} < .001$ ,  $ps_{\text{strangers}} < .001$ ; move < all other actions,  $ps_{\text{know}} < .001$ ,  $ps_{\text{strangers}} \leq .003$ ; stand near versus replace,  $p_{\text{strangers}} > .999$ ,  $p_{\text{know}} > .999$ .

There was also an overall effect of age, Wald's chi-square(1) = 5.44,  $p = .020$ , qualified by an interaction with action, Wald's chi-square(3) = 22.19,  $p < .001$ . This interaction resulted because ratings decreased with age for replacing, Wald's chi-square(1) = 5.59,  $p = .018$ , and for moving Wald's chi-square(1) = 17.39,  $p < .001$ .

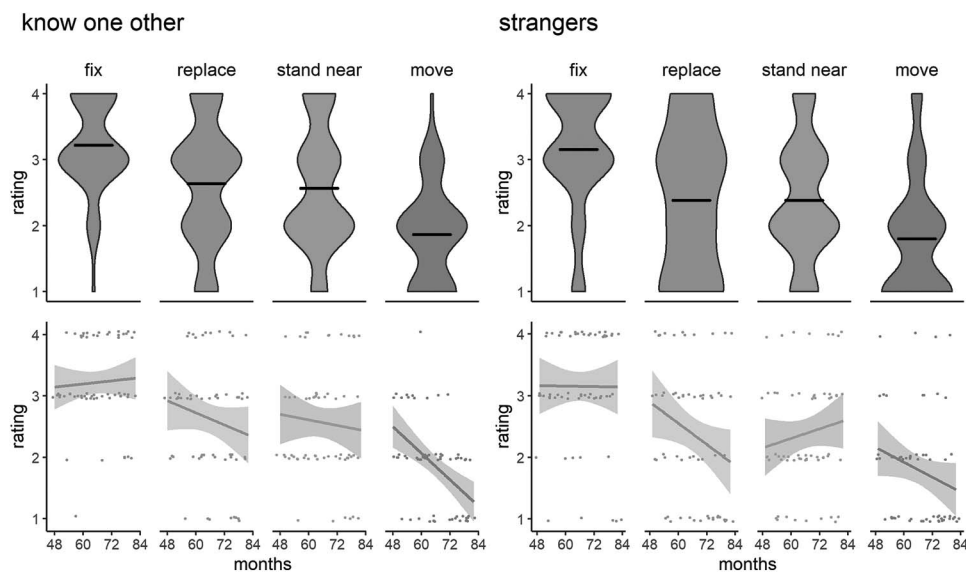


Figure 3. Ratings in Experiments 4 when the two characters knew one another (left) and were strangers (right). The upper figures are violin plots of children's overall ratings of each action; horizontal bars show means. The lower figures are scatterplots showing ratings by age-in-months; points are jittered to avoid overplotting and bands show  $\pm 1$  SE.

.001, while ratings for fixing and standing near did not change,  $ps \geq .379$ .

In sum, children's judgments did not vary based on whether the owner and nonowner knew one another, and they approved of unsolicited helpful actions even when the characters were strangers. This casts doubt on the possibility that children attempted to infer whether the owner would have given permission if asked (i.e., permission might be less likely for a stranger than a classmate), but is broadly consistent with the possibility that children did not consider the owner's preferences.

The next experiment investigated this issue more directly by comparing judgments about unsolicited actions that can be viewed as providing objective benefits (i.e., fixing a broken object) with judgments about actions that are only helpful given the owner's subjective preferences (i.e., painting an object to fit the owner's desires).

## Experiment 5

### Method

**Participants.** We tested 120 4–6-year-olds ( $M = 5;5$ , range = 4;0–6;11, 63 female). In this experiment, two 5-year-olds were recruited and tested at a local science center.

**Procedure.** Children saw a story about a girl who owned a blue mailbox. In one of two between-subjects conditions, the mailbox was broken; in the other condition, the girl wished it was red rather than blue. The girl left to go on vacation and another girl, the nonowner, appeared. Children then judged whether she was allowed to perform four actions: stand beside the mailbox, modify the mailbox by either fixing it (objective condition) or painting it (subjective condition), look inside it, and take things from in it. So, children in the objective condition were asked "Is she allowed to fix the broken mailbox?," while children in the

subjective condition were asked, "Is she allowed to paint the mailbox red?" Children were either asked about the actions in this order, or the reverse order. Each question was again followed by one assessing certainty, "Definitely [yes/no] or maybe [yes/no]?" and responses to the main and follow-up questions were recoded onto a 4-point scale ranging from 1 (definitely no) to 4 (definitely yes). In this experiment, 17 children did not respond to at least one follow-up questions, and so their omissions were conservatively treated as responses of "maybe."

### Results and Discussion

Figure 4 shows children's ratings. Children's ratings again varied across the actions, Wald's chi-square(3) = 82.30,  $p < .001$ , and this effect was qualified by an interaction with condition (objective, subjective), Wald's chi-square(3) = 45.64,  $p < .001$ . This interaction resulted because children rated it more acceptable for the nonowner to modify the mailbox in the objective than subjective condition,  $p < .001$ , whereas no other action ratings significantly differed across the conditions,  $ps > .999$ .

In both conditions, taking things from inside the mailbox was rated less acceptable than all other actions,  $ps < .001$ . In the objective condition, ratings for improving the mailbox and standing beside it did not significantly differ from one another,  $p = .224$ , and both were rated more positively than looking in it,  $ps \leq .001$ . In the subjective condition, ratings for improving the mailbox and looking inside it did not significantly differ from one another,  $p > .999$ . Improving the mailbox was viewed as less acceptable than standing beside it,  $p < .001$ , while ratings for standing beside the mailbox and looking inside it did not significantly differ,  $p = .197$ .

There was also an overall effect of age, Wald's chi-square(1) = 27.00,  $p < .001$ , qualified by an interaction with action, Wald's chi-square(3) = 18.84,  $p < .001$ . This interaction resulted because

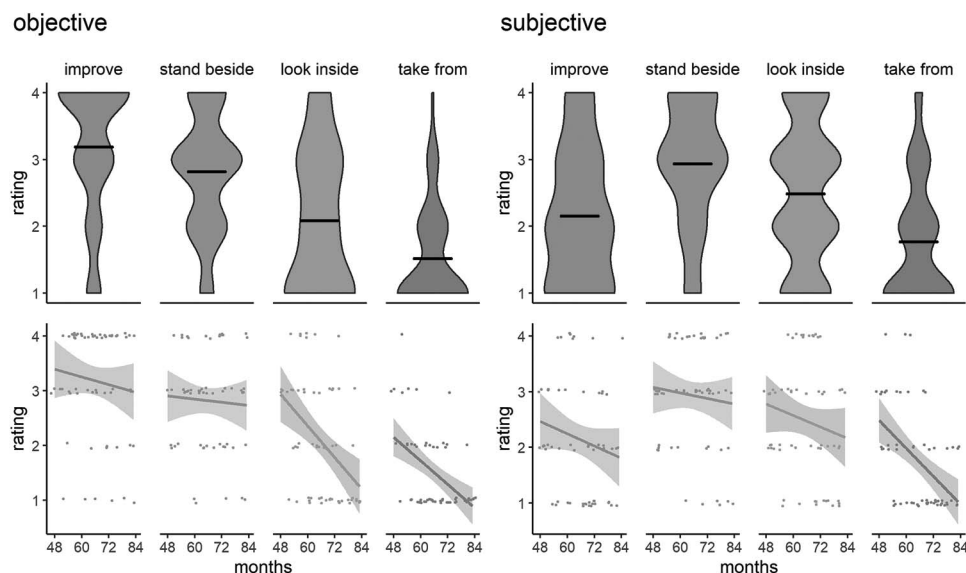


Figure 4. Ratings in Experiments 5 in the objective (left) and subjective (right) conditions. The upper figures are violin plots of children's overall ratings of each action; horizontal bars show means. The lower figures are scatterplots showing ratings by age-in-months; points are jittered to avoid overplotting and bands show  $\pm 1$  SE.

with age, ratings decreased for looking inside the mailbox, Wald's chi-square(1) = 13.99,  $p < .001$ , and taking things from it, Wald's chi-square(1) = 25.28,  $p < .001$ , while ratings for improving it and standing beside it did not change with age,  $ps \geq .182$ .

Children disapproved of painting the mailbox to suit the owner's tastes. This suggests that children approve of unsolicited repairs because they provide objective benefits, and not because they fit the owner's specific preferences. This pattern could reflect a meaningful feature of the psychology of ownership, but could also result from limits in children's ability to integrate theory of mind with other judgments. Our final experiment examined this possibility by testing whether this pattern of results also emerges in adults (i.e., who should not have difficulty integrating theory of mind with other judgments).

## Experiment 6

### Method

This experiment was preregistered at <https://aspredicted.org/9pu75.pdf>. The preregistration covered the number of participants, design, and analysis plan.

**Participants.** The experiment was successfully completed by 211 adults (range = 18–72 years,  $M_{\text{age}} = 37$  years, 120 males, 90 females, 1 reporting “other or prefer not to answer”) recruited using Amazon Mechanical Turk; we limited recruitment to participants in the United States with a HIT approval rate of 95% or greater. Based on our preregistration, we excluded data from 91 additional participants who neglected to answer one or more of the four main test questions, or who failed at least one of two attention check questions. A further 5 participants were excluded for providing uninterpretable answers.<sup>2</sup> This study was approved by the Office of Research Ethics at the University of Waterloo, under Project 41493: Improving Others' Property.

**Procedure.** Participants saw an online version of the scenario about the mailbox. As in the previous experiment, the scenario varied across two between-subjects conditions. In the objective condition, the mailbox was broken, and the owner wished it was fixed; in the subjective condition, the mailbox was not broken, but the owner wished it was red rather than blue. The story was conveyed across 4 slides, which each appeared on separate screens. On the last screen, participants responded to the test questions asking whether the nonowner is allowed to stand beside, modify, look inside, or take things from the mailbox. The questions either appeared in this order or the reverse order, and participants could respond by checking boxes for the options “Definitely no” (1), “Maybe no” (2), “Maybe yes” (3), and “Definitely yes” (4).

We included two checks to test whether participants were paying attention. First, we included a catch item, which always appeared fourth in the list of questions. This item asked if the nonowner was allowed to touch the mailbox but instructed participants to respond “definitely yes” regardless of how they felt. Second, after answering the test questions, participants proceeded to a screen with a 4-option question about which girl owned the mailbox (options included each girl, neither, or both of them). Finally, the screen after this asked participants to indicate their age and gender.

## Results and Discussion

Figure 5 shows adults' ratings of each action. Their ratings varied across the actions, Wald's chi-square(3) = 237.99,  $p < .001$ , and this effect was qualified by an interaction with condition (objective, subjective), Wald's chi-square(3) = 63.47,  $p < .001$ . Pairwise-comparisons showed that this interaction resulted because they rated it more acceptable for the nonowner to modify the mailbox in the objective than subjective condition,  $p < .001$ , whereas no other action ratings significantly differed across these conditions,  $ps > .999$ .

In both conditions standing beside the mailbox was rated as more acceptable than all other actions,  $ps < .001$ . In the objective condition, improving the mailbox was rated as more acceptable than looking inside it or taking things from it,  $ps < .001$ , but ratings between those actions did not significantly differ,  $p > .999$ . However, in the subjective condition, there were no significant differences between ratings for improving the mailbox, looking inside it, and taking things from it,  $ps > .999$ .

As with children, adults were more accepting of repairing property than modifying it to suit its owner's preferences.

## General Discussion

Children and adults viewed unsolicited repairs as more acceptable than other actions involving physical contact with property, including relatively benign actions like moving property, and helpful actions like modifying property to suit its owner's preferences. Children also judged it relatively acceptable for nonowners to replace broken items, regardless of whether the owner and nonowner knew one another. We also found that children's approval of unsolicited repairs was stable across the age range we tested (3–5 years in the first experiment, 4–6 years in the others); the only consistent developmental effect was that older children were less accepting than younger children of certain other actions (e.g., moving a hula-hoop, looking inside a mailbox).

These findings undermine claims that exclusion is a core feature of ownership (Cohen, 1954; Merrill, 1998). The right of exclusion holds that using property, or otherwise acting on it, requires permission from the owner (e.g., Snare, 1972). But participants judged it relatively acceptable for nonowners to repair and replace property without permission. In contrast with actions like bringing lost items to a lost-and-found, these actions flagrantly violate the right of exclusion and are not necessary to prevent owners from being deprived. Hence, although the right of exclusion is heeded when it is likely to protect owners, it may be overridden, to some degree at least, when the owner is likely to benefit.

One way of deciding whether unsolicited actions are acceptable would be to ask if they fit with owners' preferences and desires (see Katz, 2008). Similarly, one could attempt to infer whether owners would have given permission if they had been asked.

<sup>2</sup> Participants responded by choosing options ranging from “Definitely No” (1) to “Definitely Yes” (4). However, we accidentally allowed participants to select multiple options for each question. Sixteen selected adjacent options (e.g., 1 and 2) for at least one question. We assumed these participants intended to indicate an answer between the options, and so we derived final responses by averaging; excluding these responses does not change the findings. However, five participants chose non-consecutive options (e.g., 1 and 3) that could not be interpreted.

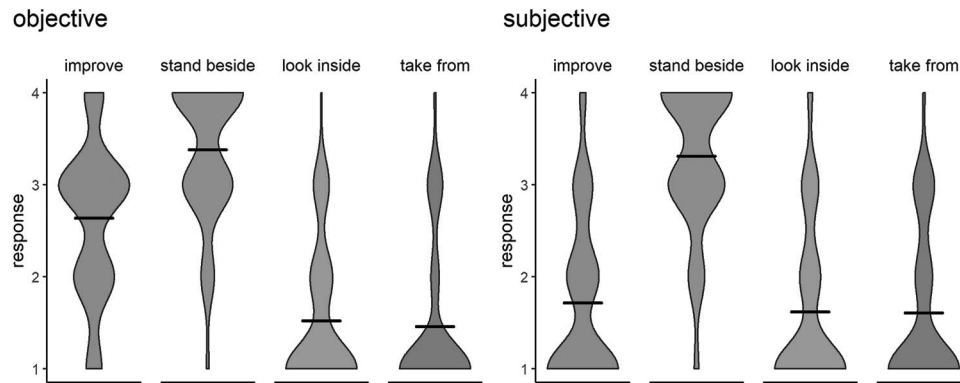


Figure 5. Ratings in Experiments 6 in the objective (left) and subjective (right) conditions. The figures are violin plots of adult's overall ratings of each action; horizontal bars show means.

However, our findings cast doubt on these accounts, as they (wrongly) predicted that it should be acceptable to modify property to suit the owners' tastes, and relatively unacceptable for a stranger to undertake unsolicited repairs. The findings likewise suggest that unsolicited repairs differ from paternalistic helping that focuses on beneficiaries' desires and goals (Martin & Olson, 2013; also see Hepach, Benziad, & Tomasello, 2020). We found no evidence that participants considered owners' preferences or goals (i.e., considering this should have led children to approve of painting the mailbox to suit the owner's preferences).

Our findings instead suggest that judgments about unsolicited actions depend on *generic* information about whether actions are likely to benefit the owner. For example, unsolicited repairs may be accepted because it can normally be assumed that objects are better repaired than broken (i.e., without considering the preferences of any particular owner). This account is consistent with the idea that ownership rules often minimize demands for information, and do not require knowledge about who the owner is, or what they prefer or desire (e.g., Smith, 2012). It is also in keeping with previous findings showing that judgments about ownership are often independent from information about preferences and desires (e.g., Noles & Gelman, 2014). This said, judgments about unsolicited actions may not be wholly encapsulated from information about owners' preferences. For instance, unsolicited repairs would likely be unacceptable if the owner conveyed that they did not want their property to be touched. Also owners' preferences might matter substantially more if they were asked about unsolicited actions—perhaps many people would view actions providing objective and subjective benefits similarly if they were the ones receiving the benefits.

Although the generic account can explain our findings, other explanations are also possible. One alternative is that the acceptability of unsolicited actions depends on objects' intended functions. On this teleological account, repairing broken objects is permissible because it allows or helps objects to serve their intended functions. Painting a mailbox might be unacceptable, then, because it does not have this effect. Previous work shows that children's knowledge of artifact function leads them to protest when artifacts are used in atypical ways (Casler, Terziyan, & Greene, 2009; Weatherhead & Nancekivell, 2018; also see Schmidt, Rakoczy, & Tomasello, 2011). So perhaps the present

findings reveal another way that artifact function affects acceptability.

However, some observations cast doubt on the teleological account. It does not readily explain the acceptability of actions like bringing a lost item to a lost-and-found (i.e., this does not help the item serve its function). The account may also have difficulty explaining why children and adults approved of repairing the mailbox. Although the mailbox was broken, this did not necessarily undermine its ability to serve its function, and our test question about taking things from inside the mailbox implied it could fulfill its function. Finally, in an incomplete pilot study, we found that 4–6-year-olds ( $N = 30$ ) approved of a nonowner cleaning a dirty mailbox more than other actions, even though cleaning is unlikely to help the mailbox serve its function (see the [online supplemental material](#) for the full methods and results). This suggests that approval of unsolicited actions is not limited to actions that remedy damage. These observations are not decisive, though, and additional work will be needed to further probe the teleological account and other explanations for why people approve of certain unsolicited actions. For example, the teleological account could more directly be tested by examining judgments about beneficial actions that target objects that do not have clear intended functions (e.g., treating a diseased tree without the owner's permission).

Further insight could also be provided by investigating factors that might impact the acceptability of unsolicited actions. For example, repairs might not be allowed if they are likely to fail or go awry. Even young children understand that people have varying expertise with fixing objects (Kushnir, Vredenburgh, & Schneider, 2013), and that some objects are more difficult to repair than others (Kominsky, Zamm, & Keil, 2018). Unsolicited repairs might also be restricted for objects that are special to their owners, or which have distinctive histories. Adults judge that celebrity possessions lose value if they are cleaned or modified (Marchak & Hall, 2017; Newman & Bloom, 2014), and young children prefer their old stuffed animals over new replacements (Gelman & Davidson, 2016; Hood & Bloom, 2008; see Gelman & Echelbarger & Gelman, 2019 for a review of related findings). So, repairing such objects might be viewed as causing more harm than good. Finally, although participants' judgments did not seem to be impacted by whether the characters were classmates or strangers, they might be affected by other manipulations of the characters'



identities or relations. For example, unsolicited actions might be more acceptable if we specified that the characters were best friends or siblings.

Although it may turn out that many factors affect the acceptability of unsolicited actions, one tentative conclusion from our findings is that reasoning about ownership rights often depends on rules that require little information. This conclusion fits with previous findings showing that many ownership judgments require minimal information. For example, young children use a variety of simple heuristics to infer whether objects are owned and to determine who objects belong to (for a review see Nancekivell, Van den Vondervoort, & Friedman, 2013). This aspect of the psychology of ownership likely arises from necessity. People lack detailed information about most of the individual objects they encounter. So thinking about ownership would rarely be possible if it required this information.

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