

Preprint version of:

Bowman-Smith, C. K., Goulding, B. W., & Friedman, O. (in press). Children hold owners responsible when property causes harm. *Journal of Experimental Psychology: General*. <http://dx.doi.org/10.1037/xge0000429>

Children Hold Owners Responsible When Property Causes Harm

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Research was supported by a grant from the Natural Sciences and Engineering Research Council of Canada awarded to OF. Findings from some experiments in this paper were presented at the Kellogg-UIC Conference on Children's Well-Being and Happiness (2017, hosted at Kellogg School of Management) and at the Future of Ownership Research workshop (2017, Vienna University of Economics and Business).

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Abstract

Since ancient times, legal systems have held owners responsible for harm caused by their property. Across 4 experiments, we show that children aged 3-7 (N=572) also hold owners responsible for such harm. Older children judge that owners should repair harm caused by property (Experiments 1A and 1B), and younger children may do this as well (Experiment 4). Younger and older children judge that owners should apologize for harm (Experiments 2A and 3), even when children do not believe the owners allowed the harm to occur (Experiment 2B). Children are also as likely to hold owners responsible for harm caused by property as for harm caused by the owners themselves (Experiment 3). The present findings contribute to psychological accounts of ownership by showing that ownership not only confers rights to control property, but also responsibility for harm caused by property. The findings also contribute to our understanding of the attribution of responsibility, and challenge accounts claiming that directly causing harm, or allowing it to happen, is a prerequisite for responsibility. The findings provide support for an account claiming that property is an extension of its owner, and likewise reveal that responsibility for harm caused by property is an early developing aspect of the psychology of ownership.

Keywords: ownership; responsibility; harm; social cognition; cognitive development

Children Hold Owners Responsible When Property Causes Harm

If an ox gored an ox and caused it to die, both ox owners shall divide the price of the live ox and the carcass of the dead ox.

Laws of Eshnunna

From its origins in ancient times, the law has been concerned with the responsibility of owners when their property causes harm. For example, the Code of Hammurabi, the Laws of Eshnunna, and the Book of Exodus each discuss the compensations an owner must pay when their ox harms people or other oxen (Yaron, 1966). Today, responsibility when property causes harm remains a part of tort law.

Investigating responsibility for harm caused by property can contribute to our understanding of the psychology of ownership. People have rights over their property, and these rights are the focus of psychological theories of ownership. For example, the most prominent psychological account of ownership posits that owners have three main rights over property—the rights to use it, to exclude others from it, and to transfer ownership of it (Jackendoff, 1992; Snare, 1972; also see Merrill, 1998). Such accounts have not given attention, though, to responsibility conferred by ownership. If people normally hold owners responsible when their property causes harm, this will increase our knowledge of the consequences of ownership.

Investigating responsibility for harm caused by property can also contribute to our understanding of the attribution of responsibility. Normally, people are only responsible for outcomes they cause directly (Darley & Shultz, 1990; Malle, Guglielmo, & Monroe, 2014; Alicke et al., 2015). But responsibility for harm caused by property appears to contradict this. When a vase falls from a window ledge onto a person's head, the owner may be held responsible, even if the fall was caused by the wind, and not the owner (Dan-Cohen, 1992).

Perhaps owners' responsibility could stem from "causation by neglect" (Malle et al., 2014), in which an individual is viewed as causing an event because they *allowed* it to happen. For example, people might feel the owner of the vase caused the harm by allowing it to fall.

However, legal history shows that owners have often been held responsible even when it would be difficult to claim they allowed their property to cause harm (Harris, 1932; Isaacs, 1918).

We suggest that responsibility for harm caused by property arises because property is viewed as an extension of its owner (Belk, 1988, 1991; James, 1890). One implication of this "extended self" account is that a person's rights and responsibilities extend to their property. Hence, just as a person is responsible for harm they cause, they are likewise responsible for harm caused by their property (Dan-Cohen, 1992, 2011). Recent research suggests that extension may underlie notions of ownership rights, as there are striking parallels between children's and adults' judgments of body rights and ownership rights (Humphrey, 1992; Van de Vondervoort & Friedman, 2015; Van de Vondervoort, Meinz, & Friedman, 2017). Extension also contributes to the endowment effect, wherein people value objects they own over un-owned objects (Hood, Weltzien, Marsh, & Kanngiesser, 2016; Maddux et al., 2010), and it affects how people view giving, borrowing, and lending objects (Diesendruck & Perez, 2015; Uhlman & Zhu, 2013).

In the present paper, we examine judgments of owners' responsibility by investigating young children. In recent years, research has shown that young children have a multifaceted understanding of ownership. Children aged 2 and older infer, recognize, and keep track of who owns what (Blake & Harris, 2009; Fasig, 2000; Gelman, Manczak, & Noles, 2012; Gelman, Manczak, Was, & Noles, 2016; Kanngiesser, Gjersoe, & Hood, 2010; Neary, Friedman, & Burnstein, 2009), and those aged 3 and 4 recognize and uphold ownership rights (Kim & Kalish, 2009; Nancekivell & Friedman, 2014; Neary & Friedman, 2014; Rossano, Rakoczy, &

Tomasello, 2011; Schmidt, Rakoczy, & Tomasello, 2013). In contrast to adults, young children are unlikely to be familiar with the law and legal cases where owners are held responsible for harm caused by their property. Hence, if they view owners as responsible, this will suggest that responsibility for harm caused by property is a basic aspect of people's conception of ownership.

Experiment 1A

This experiment examined children's judgments of whether owners should repair damage caused by their property; see Table 1 for an overview of all experiments.

Table 1
Overview of Age Range and Design in Each Experiment

Experiment	Age range	Summary of Design
1A	3-7-year-olds	Children in Ownership or Proximity conditions (BP) indicated which of two agents should repair harm
1B	4-6-year-olds	Children in Ownership condition indicated which of two agents should repair harm
2A	4-6-year-olds	Children judged whether owner of harm-causing object or another agent (WP) should each apologize for harm
2B	4-6-year-olds	Children judged whether an owner of harm-causing object or other agent (WP) each allowed harm to occur
3	4-6-year-olds	Children judged whether a pet owner or another agent (WP) should apologize for noise made by the pet or the owner (BP)
4	4-6-year-olds	Children judged whether an owner should repair harm, apologize for it, or be punished for it (WP)

Note. BP indicates factors manipulated between-participants; WP indicates factors manipulated within-participants.

Method

Participants. We tested 200 children: 40 3-year-olds ($M_{\text{age}} = 3;5$, range = 3;0-3;11, 18 girls), 40 4-year olds ($M_{\text{age}} = 4;6$, range = 4;0-4;11, 21 girls), 40 5-year olds ($M_{\text{age}} = 5;5$, range = 5;0-5;11, 19 girls), 40 6-year olds ($M_{\text{age}} = 6;5$, range = 6;0-6;10, 20 girls), and 40 7-year olds ($M_{\text{age}} = 7;4$, range = 7;0-7;11, 16 girls). Two further children were tested but were excluded from analysis; one child remained silent throughout the testing procedure, and the other gave nonsensical answers to the test question. In Experiments 1 to 3, we tested 20 children per age per

condition, with equal numbers of children in each age group randomly assigned to a condition; we used this sample size as it has proven sufficient in studies featuring similar designs. In all experiments, children were recruited and tested at child-care centers and schools. Although further demographic information was not formally collected, participants were predominantly Caucasian and from middle-class families. All studies reported in this paper were approved by the Office of Research Ethics at the University of Waterloo.

Materials and procedure. Children were told two stories with accompanying pictures shown on a laptop computer; tasks were conveyed this way in experiments. Each story was about two children and two similar toys (girls and wagons in Story 1; boys and balls in Story 2). Within each age group, children were randomly assigned to either of two conditions, ownership or proximity. In the ownership condition, each toy was described as belonging to one of the characters; in the proximity condition, each was described as closer to one of the characters. In both stories, the wind blew one toy so that it knocked down a further object, which then landed closer to the other toy. In Story 1, the wind blew one wagon into a tree, causing a birdhouse to fall onto the ground. In Story 2, the wind blew one ball into a statue, tipping it over. Children were told that one of the characters should fix the damage, and were asked which character should do this (e.g., “One of the girls should put the birdhouse back in the tree. Which girl should put it back in the tree?”). See the Supplemental Material at <https://osf.io/en27t/> for scripts, materials, and counterbalancing information for all experiments.

Each story included two comprehension questions to confirm children understood which character owned, or was closer to, each toy (see Figure 1). If children answered a comprehension question incorrectly, the experimenter began the story anew; if they failed a second time, the

experimenter corrected them, and continued with the task. This protocol for comprehension questions was also in Experiment 1B.¹

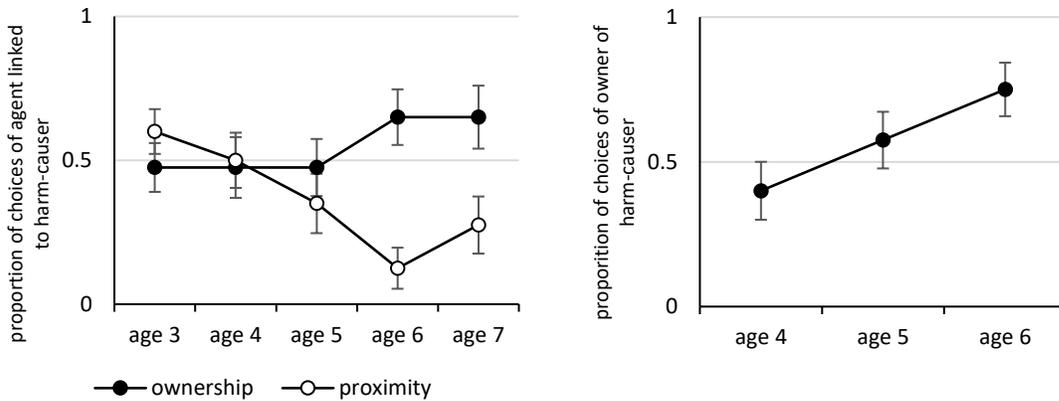


Figure 1. Experiments 1A (left) and 1B (right). Mean proportion of times children indicated the harm should be repaired by the agent linked with the harm-causing object. Vertical lines depict ± 1 standard errors of the means.

Results and Discussion

We entered children's responses into a generalized estimating equations (GEE) model for binary logistic data, with the between-subjects factors *condition* (ownership, proximity) and *age* (3, 4, 5, 6, 7); the data from all experiments are available at <https://osf.io/en27t/>. Children chose the agent linked with the harm-causing-object more often when this character owned the object, than when they were merely described as close to it, Wald $\chi^2(1) = 8.72, p = .003$. However, this main effect was qualified by an interaction with age, Wald $\chi^2(4) = 15.95, p = .003$, which resulted because 6- and 7-year-olds responded differently across the conditions, $ps \leq .009$, while younger children did not, $ps \geq .265$ (see Figure 1). Further, single-sample tests revealed that 3-to-5-year-olds chose the agent linked with the harm-causing object at chance rates in both

¹ In Experiment 1A, children aged 4 and older rarely failed comprehension questions. For example, whereas 5/40 3-year-olds repeatedly failed at least one comprehension question, only one older child did this. The subsequent experiments only included children aged 4 and older, and no children in Experiment 1B repeatedly failed comprehension questions. Hence, we did not include these questions in the subsequent experiments.

conditions, $ps \geq .162$. Children aged 6 and 7 chose this character at chance rates in the ownership condition, $ps \geq .135$, but less than expected by chance in the proximity condition, $ps \geq .046$.

These findings suggest that by age 6, but not before, children consider ownership in judgments about who should repair harm caused by property. However, children did not predominantly hold the owner responsible at any age. The findings also suggest that to the extent that proximity influenced children, it conflicted with choosing the agent linked with the harm-causing object, and swayed children to choose the agent who was closer to the final location of the object that was knocked over (especially in the proximity condition). With no information about ownership available in the proximity condition, children may have felt this agent was in a better position to fix the damage.

In the next experiment, we examined whether simplifying the scenarios, and making the causal connection between property and harm more direct, would reveal that children believe owners should repair harm caused by their property.

Experiment 1B

Method

Participants. We tested 60 children: 20 4-year-olds ($M_{\text{age}} = 4;4$, range = 4;0-4;11, 6 girls), 20 5-year olds ($M_{\text{age}} = 5;5$, range = 5;0-5;11, 13 girls), and 20 6-year-olds ($M_{\text{age}} = 6;5$, range = 6;0-6;11, 14 girls).

Materials and procedure. Children were shown simplified versions of the stories from the ownership condition of Experiment 1A. In the story about the girls and wagons, the wind caused one wagon to bump into a potted plant, knocking it over. This made the harm direct, because the wagon touched the plant. Also, the stories no longer emphasized where the knocked-over object ended.

Results and Discussion

We entered children's responses into a GEE model for binary logistic data, with the between-subjects factor *age* (4, 5, 6). We observed a marginally significant effect of age, Wald $\chi^2(2) = 5.74, p = .057$ (see Figure 1), in which 6-year-olds were more likely than 4-year-olds to choose the owner of the harm-causing object, $p = .008$, but 5-year-olds' choices did not differ from those of children at the other ages, $ps \geq .182$. Also, 6-year-olds mostly chose the owner of the harm-causing object, Wald $\chi^2(1) = .022$, whereas 4- and 5-year-olds' only chose this agent at chance rates, $ps \geq .318$.

These findings suggest that children's understanding that owners must repair harm caused by their property only emerges at age 6. However, younger children's difficulty understanding who should repair damage could result from inexperience with repairs, as damage they cause is often repaired by their parents or other adults. Children might show earlier understanding, though, if asked about a different indicator of responsibility—apology. Apologizing for an outcome has been viewed as a sign of responsibility in philosophical analyses (e.g., Gill, 2000), politics (e.g., Zutlevics, 2002), and previous research in psychology (e.g., Bennett, Yuill, Banerjee, & Thomson, 1998), though it must also be acknowledged that people also sometimes offer apologies without expressing responsibility (e.g., when expressing sympathy). Young children might understand that owners should apologize for harm caused by their property, as preschoolers often link apologies with feelings of remorse, and understand that people should apologize for harm they cause (Smith, Chen, & Harris, 2010; Wellman, Larkey & Somerville, 1979).

The next experiment examined the possibility that children might believe owners should apologize for harm caused by their property. In this experiment, children again saw stories in

which two agents owned similar items, and one agent's item caused harm. In this experiment, we also changed the question format. Instead of asking a question that implies that one agent is responsible and forces children to choose which agent this is (as in Experiments 1A and 1B), we used a within-subjects design, in which children were asked separate yes/no questions about each agent.

Experiment 2A

Method

Participants. We tested 60 children: 20 4-year-olds ($M_{\text{age}} = 4;7$, range = 4;0-4;11, 12 girls), 20 5-year-olds ($M_{\text{age}} = 5;6$, range = 5;0-5;11, 7 girls), and 20 6-year-olds ($M_{\text{age}} = 6;6$, range = 6;0-6;11, 7 girls).

Materials and procedure. Children again saw two stories where wind caused one of two owned items to knock over another object. In story 1, two girls each owned a different wagon, and one of the wagons knocked over a plant; in story 2, two boys each owned a different ball, and one of the balls knocked over a statue. After the object was knocked over, an adult character appeared, and was described as owning the object that had been knocked over. Children were then asked two yes/no test questions, each asking whether one of the child characters should apologize about the knocked-over object (e.g., "Should this girl say sorry about the plant?").

Results and Discussion

We analyzed children's responses with a GEE model for binary logistic data, with the within-subjects factors agent-type (owner, other) and the between-subjects factor age (4, 5, 6). Children were more likely to judge that the owner of the harm-causing object should apologize to the victim, than to say the other agent should apologize, Wald $\chi^2(1) = 46.73$, $p < .001$. There was no main effect of age, and no interaction between agent-type and condition, $ps \geq .150$ (see

Figure 2). Moreover, children mostly judged that the owner should apologize to the victim, Wald $\chi^2(1) = 30.70, p < .001$, and mostly denied that the other non-owner should apologize, Wald $\chi^2(1) = 25.79, p < .001$. These response patterns were also observed when separately examining children at each age, all $ps \leq .047$.

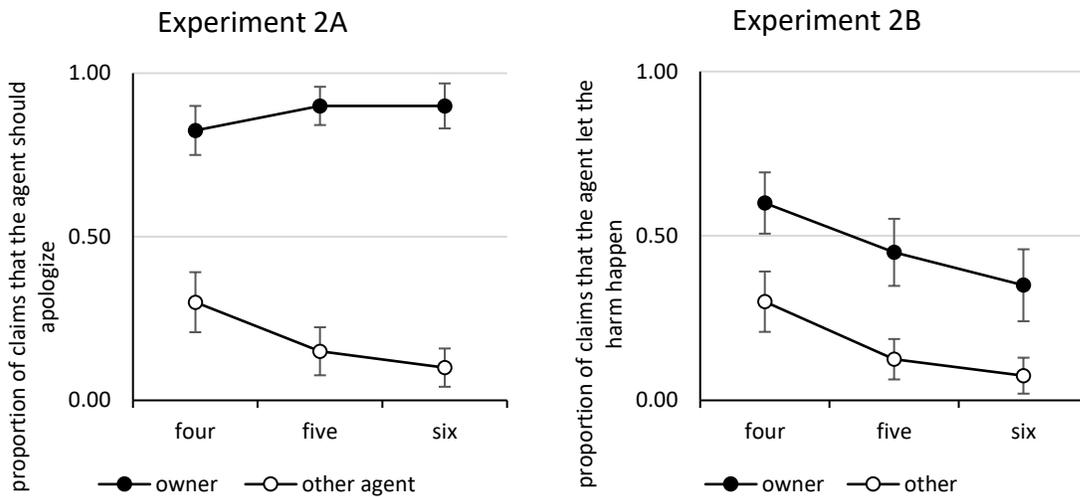


Figure 2. Experiments 2A & 2B. Mean proportion of times children claimed each agent should apologize to the person whose object was knocked over (left panel) or that each agent let the toy knock the object over (right panel). Vertical lines depict ± 1 standard errors of the means.

We found that even children aged 4 hold owners responsible for harm caused by property when asked about apologies. Together, with the findings of Experiments 1A and 1B, this suggests that children's understanding that owners are responsible for harm caused by their property is first apparent in their judgments about apologies, and then emerges later in their judgments of repairing harm. One potential concern with this claim is that although apologies often signal responsibility, one could worry that children view apologies differently, and perhaps as merely acknowledging that the outcome was negative or regrettable. However, this would still leave the question of why children mostly judged that the owner should apologize, and mostly denied that the non-owner should. Attributions of responsibility provide a straightforward explanation for this.

But why do children selectively view owners as responsible for harm caused by their property? One possibility is that children judge that owners indirectly caused the harm, by allowing it to happen (i.e., causation by neglect; Malle et al., 2014). The next experiment examines this possibility by showing children the same stories used in this experiment, but asking them to judge whether each agent *allowed* the harm to happen.

Experiment 2B

Method

Participants. We tested 60 children: 20 4-year-olds ($M_{\text{age}} = 4;4$, range = 4;0-4;11, 10 girls), 20 5-year-olds ($M_{\text{age}} = 5;5$, range = 5;0-5;11, 11 girls), and 20 6-year-olds ($M_{\text{age}} = 6;7$, range = 6;1-6;11, 11 girls).

Materials and procedure. We tested children using the procedure from Experiment 2, but with one change: Rather than asking about whether each child character should apologize, we asked whether each character had allowed the harm-causing object to cause damage (e.g., “Did this girl let the red wagon knock over the plant?”).

Results and Discussion

We again analyzed children’s responses with a GEE model for binary logistic data, with the within-subjects factor agent-type (owner, other) and the between-subjects factor age (4, 5, 6). Children were more likely to judge that the owner of the harm-causing object let it knock over the object, than to judge that the other agent let this happen, Wald $\chi^2(1) = 18.89$, $p < .001$ (see Figure 2). There was also an age-related decline in judgments that the agents allowed the object to be knocked over, Wald $\chi^2(2) = 6.37$, $p = .041$, but no interaction, Wald $\chi^2(1) = 0.63$, $p = .731$. Crucially, though, single sample tests showed that children did not endorse claims that either agent let the harm occur. When considering the owner of the harm-causing object, children

responded at chance rates at all ages, $ps \geq .187$, and they mostly denied that the other character let the harm occur, $ps \leq .047$.

To confirm that children's judgments of whether each agent allowed the harm to occur differ from children's judgments about apology, we also compared the results across Experiments 2A and 2B. This analysis only revealed a main effect of experiment, $\chi^2(1) = 12.85$, $p < .001$, and a significant interaction between agent-type and experiment, $\chi^2(1) = 9.13$, $p = .003$; all other $ps \geq .102$. As Figure 2 shows, children were more likely to judge that the owner of the harm-causing object should apologize (Experiment 2A) than to judge this character allowed the harm to occur (Experiment 2B), $p < .001$; in contrast these judgments did not differ when children considered the other agent, $p = .707$. This conclusion warrants some caution, though, as these analyses compare across experiments, and it is possible that unanticipated differences between the samples of children tested in each experiment could contribute to differences in the findings.

Before addressing the main conclusion of Experiment 2B, we should note that its results help rule out a potential concern with Experiment 2A: Although children were asked separate yes/no questions about whether each agent should apologize, they may have viewed it as a forced-choice situation, and felt they were supposed to answer "yes" for one agent. However, the findings of Experiment 2B suggest otherwise, as children were again asked separate yes/no questions about each agent, but gave fewer "yes" responses, as revealed by the main effect of experiment in the cross-experiment analysis. Further evidence against this concern is revealed by examining the proportion of times in each experiment that children gave the same response for both agents (i.e., saying "yes" for both agents or "no" for both). In Experiment 2A, this occurred only 11.5% of the time (23 out of 200 pairs of responses; 8 instances of "yes" for both agents, 15

instances of “no” for both). This pattern could have resulted from children feeling they were supposed to say “yes” for one agent (and one agent only). Again, the findings from Experiment 2B suggest otherwise, as children gave the same response for both agents 55% of the time (66 out of 200 pairs of responses, with 11 instances of “yes” for both agents, and 55 instances of “no” for both). This suggests that children were not strongly compelled to give different answers for each agent, and to say “yes” exactly once. However, this analysis may not conclusively rule out this concern, as one could posit that children only felt compelled to answer “yes” for one agent when asked about apologies (Experiment 2A), and not when asked about whether each agent allowed the harm to occur (Experiment 2B).

The results of Experiment 2B also suggest that responsibility for harm caused by property does not depend on attributions that the owner allowed their property to cause harm (i.e., causation by neglect; Malle et al., 2014). However, the results of Experiments 2A and 2B do fit with the possibility that property is viewed as an extension of its owner. On this view, responsibility depends on causation, but the responsible individual does not have to cause the harm—they are deemed responsible because their property caused it. We examined predictions of this account in the next experiment.

In the next experiment, we examined children’s judgments about harm caused by pets. Because pets are alive and have agency, they are generally more difficult to control than inanimate objects like wagons or balls. For example, the owner of a dog can do little to prevent it from barking. So if the dog’s barking happens to scare someone, it is unlikely that the owner could be viewed as allowing this negative outcome to occur. Nonetheless, pets could be viewed as extensions of their owners, and so the extension account predicts that owners are responsible when their pets cause harm. We also compared harm caused by pets with harm caused by the

owner of the pet. If people are most responsible for harm they cause directly, then agents should be more responsible when they cause harm than when their pet does. But if pets are viewed as extensions of their owners, owners should be responsible regardless of whether the harm is caused by their pets or by themselves.

Experiment 3

Method

Participants. We tested 120 children: 40 4-year-olds ($M_{\text{age}} = 4;6$, range = 4;0-4;11, 20 girls), 40 5-year-olds ($M_{\text{age}} = 5;6$, range = 5;0-5;11, 23 girls), and 40 6-year-olds ($M_{\text{age}} = 6;6$, range = 6;0-7;0, 20 girls).

Materials and procedure. Children were randomly assigned to either see two stories in which harm was caused by an owned pet or where it was caused by the owner of the pet. Story 1 was about two girls, a dog owned by one of them, and a man who was easily scared; story 2 was about two boys, a parrot owned by one of them, and a woman who was easily scared. In each story, the adult was scared by a loud noise. In stories in the animal-caused condition, the noise was made by the animals (the dog barked loudly; the bird squawked loudly); in the stories in the human-caused condition, the owner sneezed loudly. Hence, in both the animal- and human-caused conditions, the owner did not intend to scare the adult, and did not intend for the noise to be made. In both condition, children were asked two yes/no test questions, each regarding whether one of the child characters should apologize to the adult (e.g., “Should this girl say sorry to the man?”).

Results and Discussion

We analyzed children’s responses with a GEE model for binary logistic data, with the within-subjects factor agent-type (responsible-for-noise, other) and the between-subjects factors

age (4, 5, 6) and condition (animal-caused, human-caused). Children were more likely to say that the owner should apologize, than to say that the other agent should apologize, Wald $\chi^2(1) = 81.53, p < .001$ (see Figure 3). With age, there was an overall decline in claims that agents should apologize, Wald $\chi^2(2) = 14.64, p = .001$. Crucially, as Figure 3 shows, there were no effects of whether the harm was caused by the animal or by its owner, $ps \leq .117$. Also, children at all ages mostly judged that the owner should apologize, all $ps < .001$. Children aged 5 and 6 denied that the other agent should apologize, $ps \leq .005$, and 4-year-olds judged this agent should apologize at chance rates, $p = .853$.

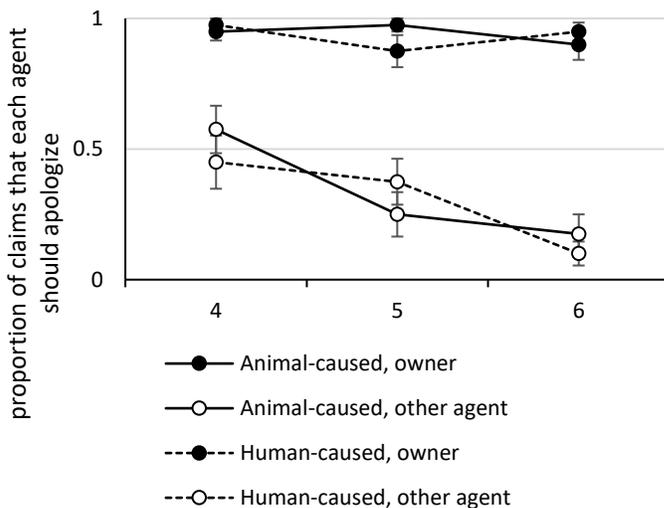


Figure 3. *Experiment 3.* Mean proportion of times children claimed each agent should apologize to the person who was scared by the noise. Vertical lines depict ± 1 standard errors of the means.

These results show that children hold owners responsible for harm caused by their pets, and that children's attributions of responsibility do not differ regardless of whether harm is caused by the pet or by its owner. These findings are predicted by the view that property is seen as an extension of its owner, but are not readily explained by accounts positing that people are responsible for harm they directly cause, or allow to occur.

We should acknowledge, though, that children might have viewed the pet owner as causal (and hence responsible) if they assumed the owner was more likely than the other agent to know that their pet might scare others. Agents are more likely to be viewed as causing outcomes for which they have relevant knowledge (Gilbert, Tenney, Holland, & Spellman, 2015) and children may assume that owners know more than others about their possessions (Banerjee, Kominsky, Fernando, & Keil, 2015). Also, because our measures were binary (i.e., yes/no responses), they do not provide an indication of *how* responsible children viewed the owner for each outcome, and so differences between the animal-caused and human-caused conditions might emerge with a continuous measure of responsibility.

We conducted a final study to address two concerns with the previous studies. The first concern is that Experiments 1A and 1B used a forced-choice question that implied one agent should repair harm caused by their property. So it is unclear whether children would judge the owner should repair the harm if they were asked a question that did not imply that someone was responsible. The second concern is that although children in Experiment 2B did not judge that the owner allowed the harm to occur, children in *all* experiments might have felt the owner negligently brought their property to a place where it could cause harm.

To address these concerns, we told children a story in which a girl's wagon knocked over a basket of apples belonging to a man. Crucially, the man brought the apples to the park *after* the wagon was already there, so it would be difficult to view the owner as negligent. We asked children about whether the owner should repair the harm caused by her wagon, and whether she should apologize for it, using yes/no questions. We also asked whether the owner should be punished. Punishment is a clear sign of responsibility and so it could be expected that children would hold the owner responsible in this way. On the other hand, the owner in our story did not

intend the negative outcome and did not behave carelessly, and previous findings suggest children do not strongly endorse punishment in the absence of these features (e.g., Nobes, Panagiotaki, & Pawson, 2009). Because our previous experiments repeatedly found that children do not hold non-owners responsible, we only asked children questions about the owner. To rule out the possibility of children saying “yes” for every question involving the owner, we included a control question that did not concern responsibility.

Experiment 4

Method

Participants. We tested 72 children: 24 4-year-olds ($M_{\text{age}} = 4;6$, range = 4;0-4;11, 10 girls), 24 5-year-olds ($M_{\text{age}} = 5;7$, range = 5;1-5;11, 17 girls), and 24 6-year-olds ($M_{\text{age}} = 6;5$, range = 6;0-6;11, 14 girls). One further 4-year-old was also tested but could not be included in the analysis as they did not respond to any test questions. In this experiment, we tested 24 children at each age (i.e., rather than 20) because our counterbalancing scheme required the sample size to be a multiple of six.

Materials and procedure. Children saw a single story. In the story, a girl was at a park with her wagon. A man arrived, and placed a basket of apples on the ground, directly in the wagon’s path. The wind then blew the wagon so that it knocked over the basket, spilling the apples. Children were asked yes/no questions about three indicators of responsibility: apology (“Should the girl say sorry to the man about the apples?”), repair (“Should the girl put the apples back in the basket?”), and punishment (“Should the girl get in trouble because the basket got knocked over?”). We also included a fourth “control” question, “Should the girl eat one of the apples?” This judgment did not assess the owner’s responsibility, and we included it to rule out the possibility of children answering according to a “yes” bias; we anticipated that children

would respond “no” because eating one of the man’s apples would require the girl to violate his ownership rights. Immediately after children answered each yes/no question, they were asked a follow-up question gauging their certainty, “Maybe [yes/no] or definitely [yes/no]?”. Responses from the yes/no and follow-up questions were combined on a 4-point scale ranging from 1 “Definitely no” to 4 “Definitely yes”.

Of the 72 children tested, 4 did not respond to the punishment test question. Also, 9 children did not answer at least one maybe/definitely question; non-answers to this question were conservatively coded as answers of “maybe”.

Results and Discussion

We analyzed children’s responses with a repeated measures Analysis of Variance, with the within-subjects factor judgment-type (repair, apology, punishment, control) and the between-subjects factor age (4, 5, 6); see Figure 4. This analysis revealed a main effect of judgment-type, $F(3, 2.54) = 116.72, p < .001, \eta_p^2 = .64$, no main effect of age, $p \geq .596$, and a marginal interaction between judgment-type and age, $F(3, 5.07) = 2.24, p = .052, \eta_p^2 = .06$ (all *dfs* and *ps* with Greenhouse-Geisser corrections). Linear contrasts revealed that this marginal interaction resulted because there was an age-related decline in agreement in the control judgment, $F(2, 69) = 5.63, p = .005$, but no age-related changes for the three judgments pertaining to responsibility, all *ps* $\geq .252$. Because this interaction was only marginal, and did not concern the measures of main interest, we do not consider it further.

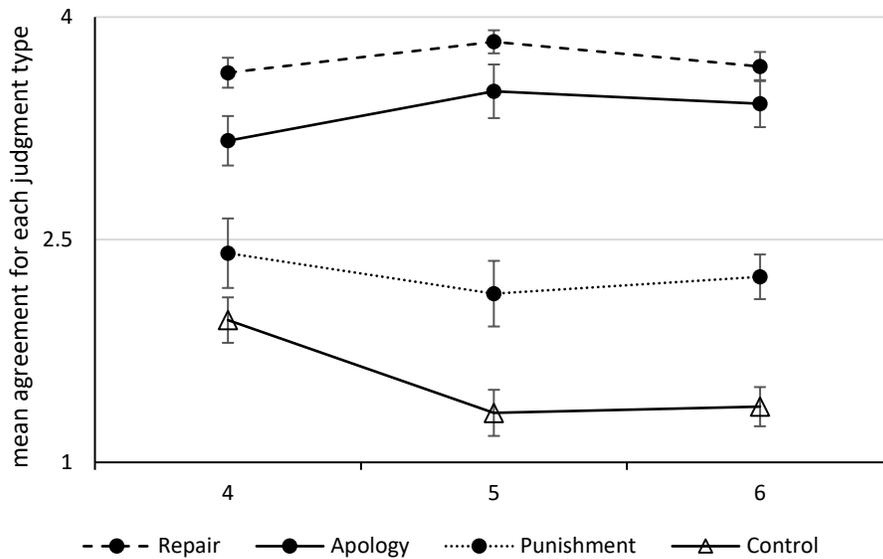


Figure 4. *Experiment 4.* Mean agreement ratings for each judgment on a scale ranging from 1 “definitely no” to 4 “definitely yes”. Vertical lines depict ± 1 standard errors of the means.

Pairwise comparison revealed that children’s responses differed between all four judgment-types, all $ps \leq .019$. Children mostly agreed the owner should apologize for the harm caused by her property, $p < .001$, and that she should repair the harm, $p < .001$. However, they mostly disagreed that she should be punished, $p = .046$, and when asked the control judgment, they also mostly disagreed she should eat an apple, $p < .001$.

These results again show that children judge owners should repair harm caused by their property, and should also apologize for this harm. In contrast with Experiments 1A and 1B, even younger children felt that the owner should repair harm; younger children’s stronger performance in this experiment suggests that deciding *whether* a particular agent should repair harm may be easier than deciding which of two agents should repair it. Although children in the present experiment affirmed the owner should repair harm and apologize for it, they mostly denied the owner should be punished. It is possible, though, that children would feel the girl should be punished if we specified that she refused to apologize, or refused to repair the harm

caused by her property. Regardless, the findings reveal differences in children's judgments across forms of responsibility.

General Discussion

Our findings show that young children hold owners responsible when their property causes harm. Children aged 4 years and older recognize that owners should apologize for such harm. Our findings were mixed regarding whether recognition that owners should repair such harm emerges at age 6, or is already present at age 4. Children were reluctant, though, to judge that owners should be punished for harm caused by their property.

These findings suggest that responsibility for harm caused by property is an early-developing aspect of people's conception of ownership, and is present in children's understanding before they are likely to be acquainted with many examples of owners being held responsible for harm caused by their property. The findings extend our knowledge of the psychology of ownership. Previous theorizing and research on the normative consequences of ownership has mostly focused on the rights of owners (e.g., Jackendoff, 1992; Kim & Kalish, 2009; Neary & Friedman, 2014; Rossano et al., 2011; Schmidt et al., 2013). Our findings show that ownership also creates responsibilities.

The findings also contribute to our understanding of the attribution of responsibility. The findings may challenge accounts claiming that people are only responsible for harm they directly cause (e.g., Darley & Shultz, 1990; Malle, Guglielmo, & Monroe, 2014). In our studies, children held owners responsible for harm directly caused by their property, and not by the owners themselves. The findings also suggest that children's responsibility judgments did not result from attributions that owners *allowed* the harm to occur (i.e., causation by neglect). First, children were more likely to hold owners responsible for harm caused by property than to judge that

owners indirectly caused the harm by allowing it to occur. Second, children overwhelmingly judged that an owner should apologize for a loud noise that scared someone, regardless of whether it was made by the pet or the owner. This is noteworthy because these situations differ in the extent to which the owner can be construed as causing the noise. It is also worth briefly acknowledging that children's explanations cannot be explained by mere association with the harm-causing object (Hamilton, 1978; Heider, 1958), as associative judgments would have led children to respond identically in the ownership and proximity conditions in the first experiment.

The findings are readily explained, though, by the "extended self" theory, which posits that property is viewed as an extension of its owner (Belk, 1988, 1991; James, 1890). This account simultaneously explains why owners are viewed as having rights and responsibilities—owners have both because we view a person's personal rights and responsibilities as extending to their property. Like other accounts of responsibility and blame, this theory holds that attributions of causality are crucial for judgments that an owner is responsible for harm caused by their property. But unlike other accounts of responsibility, the "extended self" theory does not require that the owner causes the harm. It is enough for harm to be caused by property, as it is viewed as an extension of the owner (Dan-Cohen, 1992, 2011). Broadly consistent with this, we found that children's attributions of responsibility did not differ regardless of whether harm stemmed from an owners' actions or from their pet's actions. This said, the "extended self" account may not be unique in anticipating our findings, and so other explanations are possible (e.g., the responsibility of owners could have developed to motivate owners to ensure their possessions do not cause harm). Also, the extended self account needs to be refined so that it is formulated more clearly. For example, it does not yet specify *which* aspects of a person extend to their property. Our findings suggest that an owner's responsibility may extend to their property, but it is unlikely

that anyone would view an owner's marital status, personal name, or career as extending to their property.

Finally, we conclude by noting an implication of our findings for the "extended self" theory. One implication of people having extended selves is that each person includes their property (and perhaps many other things as well) in their self-concept. This is a first-person implication, as it affects how each person views their self. However, our findings suggest that there are also third-person implications of extending selves. We each extend other people's selves to include their property, and this may explain why we view others as having ownership rights and also responsibility for their property.

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