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Varieties of Value: Children Differentiate Caring from Liking

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Abstract

Liking one object more than another does not guarantee caring about it more, and vice-versa.

Here we show that with age, children increasingly distinguish between these two ways of valuing objects. We conducted three experiments on 589 children and 415 adults. In Experiment 1, 3-7-year-olds and adults chose between their own plain sticker and another more attractive one.

Among 6-7-year-olds and adults, choices of the plain sticker were relatively more common for caring than liking. In Experiment 2, 3-6-year-olds and adults inferred what others care about and like. Among 4-6-year-olds and adults, choices of a plain object owned by another person were relatively more common in inferences about caring than liking. However, children chose the owned objects at low rates, raising the possibility that children had predominantly based judgments on the relative attractiveness of the objects. Experiment 3 addressed this concern by examining judgments about identical-looking objects.

Keywords: preferences; value; objects; caring; liking; ownership

Varieties of Value: Children Differentiate Caring from Liking

Consider the winter jacket that you have worn for the last five years, and a new, more attractive jacket on display in a store. Which jacket do you like more, and which do you care about more? Your responses to these questions might differ. For example, you might like the new jacket more because of its perceptible properties and physical features—it looks better and has more pockets. Yet, you might care more about your old jacket because of its non-perceptible features, such as the fact that you own it, and perhaps especially because you have owned it for a long time. As this example illustrates, liking and caring may be distinct ways of valuing objects, much as liking and loving might be different kinds of regard for people (e.g., Sternberg, 1987).

In the current paper, we examine whether young children (and adults) distinguish liking from caring. We contrast object attractiveness and ownership to investigate whether these forms of regard are differentially influenced by objects' perceptible and non-perceptible features. As we detail, this investigation is informative both about children's concepts of preference and regard, and about their understanding of ownership.

Understanding preferences

We know that children have a sophisticated understanding of preferences. Preschoolers and toddlers understand that preferences are subjective, and that people can like different items from one another (e.g., Flavell et al., 1990; Repacholi & Gopnik, 1997; Wellman & Woolley, 1990). They also understand that preferences vary in intensity and are transitively graded (Hu et al., 2015; also see Mou et al., 2014). Older preschoolers also anticipate that their preferences will change as they grow older (Bélanger et al., 2014; Lee & Atance, 2016), and understand that people can choose to act against their own preferences (e.g., not eating a tasty cookie; Kushnir et al., 2015).

It is unknown, though, whether young children distinguish liking from other forms of regard, such as caring. Previous work shows that young children are aware of some different forms of regard for objects. For example, besides judging which objects they (and others) like or want (e.g., Echelbarger & Gelman, 2017; Hood et al., 2016; Shutts et al., 2010), young children by age 4 can also infer and explain why some objects are special and cared for (Dyl & Wapner, 1996; Lehman et al., 1995; Pesowski & Friedman, 2019). But this work did not examine whether children understand that these forms of regard can conflict with one another.

Some previous work does show that children differentiate their *personal* preferences from *public* indicators that objects are valued, such as objects' monetary worth and suitability for display in museums (Frazier & Gelman, 2009; Gelman et al., 2015). For example, although children would rather have a new teddy bear than the first one ever made, they understand that the original teddy bear belongs in a museum (Frazier & Gelman, 2009). However, these findings could reflect children's awareness of the subjectivity of preferences—they may understand that their own valuations are not shared by the adults who manage or visit museums. So, it remains unknown whether children understand that a *single* individual can value objects in different, conflicting ways.

Examining whether children distinguish liking from caring will address this question. If children view liking as distinct from caring, then they might understand conflicts between these forms of regard, such as the conflict between your valuations of the two jackets. Such findings would extend our knowledge of children's understanding of inner conflicts, an area with mixed findings (for a review see Starmans, 2017): Some studies report that children do not understand conflicts between an individual's preferences (or between their preferences and goals) until around age 7 (e.g., Choe et al., 2005; Yang & Frye, 2017), while other studies suggest children

grasp these conflicts at age 4 or 5 (e.g., Rostad & Pexman, 2015; Starmans & Bloom, 2016).

Alternatively, children could view liking and caring as lying on a continuum of intensity—with caring being an intense form of liking. If so, children should not understand or infer that you care for your old jacket more than the new one, despite liking it less.

Influence of ownership

We use ownership as a case study to investigate whether caring and liking are separately influenced by perceptible and non-perceptible object features. Young children have a rich understanding of ownership (for a review see Nancekivell et al., 2019). They distinguish it from related concepts, such as physical possession (e.g., Blake et al., 2012; Friedman & Neary, 2008), and desire and preferences for objects (e.g., Noles & Gelman, 2014). Young children also use ownership as a principle of entitlement in their own disputes over objects (e.g., Ross, 1996), and when defending others' rights (e.g., Rossano et al., 2011).

Most importantly for present purposes, ownership affects children's own regard for objects. They *like* their possessions more than objects that are not theirs and *value* them more in transactions—they show the “mere ownership” and “endowment” effects (e.g., Gelman et al., 2012; Harbaugh et al., 2001; Hartley & Fisher, 2018; Irwin & Gebhard, 1946; also see Gelman & Echelbarger, 2019). However, when attractiveness and ownership are pitted against one another, children usually give more weight to attractiveness—they like unowned attractive objects more than their own possessions, and similarly expect others to prefer attractive objects over their own (Gelman et al., 2012; Goulding & Friedman, 2018; Pesowski & Friedman, 2018; but see Gelman & Davidson, 2016 for an exception).

However, this advantage for attractive objects over owned ones might not hold if children were asked about caring rather than liking. That is, children might *care* more for their own

possessions than other more attractive objects, and might expect the same of other people. Such findings would advance knowledge of children's understanding of the affective side of ownership. Children infer that owners are sad when their property is lost or used by others, and show empathy to owners when their property is destroyed (e.g., Pesowski & Friedman, 2015; Vaish et al., 2009). The present investigation might further contribute to this picture by showing that whereas children link the attractiveness of objects with more superficial forms of regard for objects, they might link ownership more specifically with deeper forms of regard, like caring.

The current experiments

We investigated whether children view liking and caring as distinct forms of value, and how ownership influences these valuations in three experiments. Experiment 1 investigated first person judgments in which children indicated which of two objects they either care about or like more—a plain sticker belonging to them, or a more attractive one belonging to the experimenter. Although, the prospect of children caring about stickers might seem odd, previous work shows that stickers can prompt strong responses in children (e.g., LoBue et al., 2011). Experiments 2 and 3 then investigated children's inferences about which objects other people would care about and like, and included a broader range of items to ensure that the findings generalize across varied object types. We also tested adults in the first two experiments to determine whether children's conceptions of caring and liking resemble those of adults.

Experiment 1

Methods

Participants. We tested 289 children aged 3-7 ($M_{\text{age}} = 5;4$, range = 3;0-7;11, 140 females); see Table 1 for a more detailed breakdown. We aimed to test 60 children per age in years (i.e., 30 per between-subject condition, with equal numbers of children assigned randomly

to each condition), but only succeeded in testing 49 7-year-olds. Two additional children were seen but not included (one did not complete the task and the other did not respond to any questions). In all experiments, the children were individually tested in their daycares and schools in the region of Waterloo (Ontario, Canada), with testing conducted in English (the main language spoken in the area). The population in the area is predominantly middle-class; approximately 79% of residents are White, and Chinese and South Asians residents are the main visible minorities. Different children participated in each experiment. The studies we reported were approved by the Office of Research Ethics at the University of Waterloo.

Table 1*Age Groups for Children in Experiment 1*

Age group	Judgment	n	<i>M</i>	<i>SD</i>	Range
3-year-olds	care	31	3;6	0;3	3;0 - 3;10
	like	29	3;4	0;3	3;0 - 3;11
4-year-olds	care	30	4;5	0;3	4;0 - 4;11
	like	30	4;4	0;2	4;1 - 4;11
5-year-olds	care	30	5;6	0;3	5;0 - 5;11
	like	30	5;6	0;3	5;1 - 5;11
6-year-olds	care	30	6;5	0;3	6;0 - 6;11
	like	30	6;6	0;3	6;0 - 6;11
7-year-olds	care	23	7;4	0;3	7;0 - 7;11
	like	26	7;4	0;2	7;0 - 7;11

Note. *M* = Mean, *SD* = Standard deviation.

We also tested 213 adults ($M_{\text{age}} = 36$ years, range = 18-71, 79 females); see Table 2 for a more detailed breakdown. A further 90 adults were excluded because they failed at least one of two attention check questions or did not respond to the test question. In this experiment and in Experiment 2, adults were recruited and tested online using Amazon's Mechanical Turk. They were required to be U.S. residents and to have a Mechanical Turk HIT approval rate greater than 90%. Although these exclusion rates are high, they are typical of other studies we conducted using Mechanical Turk around the time these data were collected. We are confident about the

quality of the retained data, though, because the odds of passing both comprehension questions by chance was only 1 in 16 (~6%).

Table 2

Age Distribution of Adults in Experiment 1

Age range	Judgment	n
18-29	care	32
	like	39
30-39	care	37
	like	46
40-49	care	14
	like	20
50-59	care	6
	like	8
60-71	care	6
	like	5

For both children and adults, we decided on the sample sizes before testing commenced. We chose the sample sizes because we found they had sufficed in previous studies we conducted using similar designs (e.g., Cleroux & Friedman, 2020; Goulding & Friedman, 2020).

Materials and Procedure. Children were shown two star-shaped stickers, one plain and the other more attractive; see Figure 1 (top panel). Children were told the plain sticker belonged to them and that the other sticker belonged to the experimenter. They were then either asked which sticker they care about most or which one they like the most (question manipulated between-subjects).¹

Adults were tested using a similar procedure adapted for online testing. They saw a picture of the two stickers with text under each. The text under the plain sticker said, “Imagine

¹ When asked to choose between the items, some children in each experiment gave uninformative responses (e.g., “I don’t know”) or remained silent. When this happened, the experimenter prompted them to respond by saying “What do you think?” or “Can you point?”. In Experiment 1, all children indicated one of the items after being prompted. There were three trials in Experiment 2, and two trials in Experiment 3 in which children did not indicate one of the items after being prompted.

that this sticker is your sticker. This sticker belongs to you”, and the text under the more attractive sticker said, “Imagine that this sticker is someone else’s sticker. This sticker belongs to someone else”. Instructions above the picture either asked them to click on the sticker they cared about most or liked the most (question manipulated between-subjects). The next testing screen posed two 4-option comprehension check questions, which were asked to ensure that participants had attended to the task (e.g., one question asked about the shapes of the stickers). A final screen asked adults to indicate their gender and age.

For both children and adults, we counterbalanced the side (left vs right) of the plain and attractive stickers. The color of the plain sticker was also counterbalanced across children (i.e., it was either green, yellow, orange, or blue). For adults it was always green.

Here are two stickers. This sticker is my sticker. This sticker belongs to me, and I get to take this sticker home tonight. And this sticker is your sticker. This sticker belongs to you, and you get to take this sticker home tonight. I have a question for you: Which sticker do you [care about/like] the most?

Figure 1. *Experiment 1.* The top panel shows a sample of the scripts and materials used with children; see the main text for details of how these varied for adults. The bottom-left plot shows individual children's responses across the full age range tested. The bottom-right plot contrasts the mean responses of 6-7-year-olds and adults; colored bands and error bars show 95% confidence intervals.

Results and Discussion

We analyzed data from all experiments using generalized estimating equations (GEE) models conducted using SPSS v26. We used GEEs because they readily handle binary and ordinal data in relation to both categorical and continuous predictors, and because they rest on fewer assumptions than do generalized linear mixed models (Zhang et al., 2012).

All models used independent correlation matrixes (binary logistic in Experiments 1 and 2; ordinal logistic in Experiment 3). In the main analyses of children's responses, age was entered in months and centered. Each model included all main effects and interactions; we did not run and discard other models. In the online Supplementary Materials we also report exploratory analyses showing that gender (all experiments) and item set (only relevant for Experiments 2 and 3) did not substantially impact children's responses. The Supplementary Materials also includes tables summarizing the mean response rates at each age in years. Table S1 summarizes the responses from Experiment 1; Table S2 summarizes the responses from Experiment 2; and Table S3 summarizes the responses from Experiment 3. The complete data from all experiments is available online at <https://osf.io/t27wc/>.

Figure 1 (bottom panel) shows children's and adults' choices of their plain sticker over the more attractive sticker. We first examined children's choices. A judgment-type (caring, liking) by age model revealed a main effect of judgment, $Wald \chi^2 = 13.51, p < .001$, resulting because children chose their own plain sticker more when they were asked about caring than liking, $Wald \chi^2 = 13.51, p < .001$. The model also revealed a main effect of age, $Wald \chi^2 = 23.49$,

$p < .001$, resulting because younger children were overall more likely than older ones to choose this item. However, these main effects were qualified by an interaction, $Wald \chi^2 = 4.67, p = .031$.

This interaction resulted because the age-related decline in children's choices of their own sticker was stronger for liking, $Wald \chi^2 = 22.90, p < .001, B = 0.90$ than for caring, $Wald \chi^2 = 3.89, p = .049, B = 0.34$. Also, whereas 6- and 7-year-olds were more likely to indicate their sticker when asked about caring than liking, $Wald \chi^2_{6\text{-year-olds}} = 6.43, p = .011$, $Wald \chi^2_{7\text{-year-olds}} = 6.84, p = .009$, children aged 5 and younger responded similarly regardless of which question was asked, all $ps \geq .121$.

We also compared the responses of 6-7-year-olds (i.e., the age range where children responded differently for caring and liking) with those of adults. This comparison used a judgment-type (caring, liking) by age-group (6-7-year-olds, adults) model, where age was entered categorically (i.e., not in months). There was a main-effect of judgment-type in which participants chose their own plain sticker more when asked about caring than liking, $Wald \chi^2 = 29.61, p < .001$. There was also a main effect of age-group, as adults were more likely than 6-7-year-olds to choose the plain sticker, $Wald \chi^2 = 27.56, p < .001$. However, there was no interaction between these factors, $Wald \chi^2 = 0.00, p = .970$.

Finally, single-sample tests showed that when asked about caring, both 6-year-olds and adults mostly chose their plain sticker $ps = .033$ and $.018$ respectively, while 7-year-olds indicated the plain and attractive sticker at similar rates, $p = .835$. When asked about liking, 6-year-olds picked both stickers at similar rates, $p = .149$, 7-year-olds mostly picked the more attractive sticker, $p = .002$, and adults mostly picked their own plain one, $p < .001$.

In sum, 6-7-year-olds and adults distinguished between caring and liking. Although children were more likely than adults to choose the attractive items, participants in both age

groups were *relatively* more likely to indicate their own plain item when asked about caring than when asked about liking. The next experiment tests whether children and adults also differentiate between caring and liking when inferring other people's valuations, and uses a broader range of items.

Experiment 2

Methods

Participants. We tested 120 3- to 6-year-olds ($M_{\text{age}} = 4;11$, range = 3;0-6;11, 59 females); see Table 3 for a more detailed breakdown. An additional 3-year-old was tested but refused to participate midway through the task. We also tested 202 adults ($M_{\text{age}} = 37$ years, range = 18-69, 79 females; one age not reported); see Table 4 for a more detailed breakdown. A further 101 adults were excluded because they failed at least one of two attention check questions or did not respond to at least one test question.

Table 3

Age Groups for Children in Experiment 2

Age group	n	<i>M</i>	<i>SD</i>	Range
3-year-olds	30	3;7	0;3	3;0 - 3;11
4-year-olds	30	4;5	0;3	4;0 - 4;11
5-year-olds	30	5;7	0;3	5;0 - 5;11
6-year-olds	30	6;6	0;3	6;0 - 6;11

Note. *M* = Mean, *SD* = Standard deviation.

Table 4

Age Distribution of Adults in Experiment 2

Age range	n
18-29	49
30-39	92
40-49	33
50-59	19
60-69	8

Materials and Procedure. In each of four trials, children were shown pictures on a laptop of a child and a pair of objects (stickers, balls, kites, rocking-horses); see Figure 2 (top panel). One object in each pair was plain and the other was more attractive. Children were told the plain item belonged to the child in the picture, and then told that the more attractive item belonged to someone else. Children were then asked which item the child *cared* about most (e.g., “Which sticker does Jesse care about the most?”) and which the child *liked* the most (e.g., “Which sticker does Jesse like the most?”); question order was counterbalanced across participants.

Adults completed an online version of this task. They saw the same pictures, but text under each object specified whether it belonged to the child in the picture or someone else. Each test trial appeared on a different screen of the online survey, and test questions asking which item the children cared about and liked most appeared below the pictures (question-order counterbalanced across participants). A further screen posed two 4-option multiple choice questions, which were asked to ensure that participants had attended to the task. A final screen asked adults to indicate their gender and age.

This is Sam. And look! Here are two balls. This ball belongs to Sam. This ball belongs to someone else. I have some questions for you. Which ball does Sam like the most? Which ball does Sam care about the most?

Figure 2. *Experiment 2.* The top panel shows a sample of the scripts and materials used with children; see the main text for details of how these varied for adults. The bottom-left plot shows individual children's responses across the full age range tested. The bottom-right plot contrasts the mean responses of 4-6-year-olds and adults; colored bands and error bars show 95% confidence intervals.

Results and Discussion

Figure 2 (bottom panel) shows children's and adults' choices of the agents' plain items over the more attractive items. We first examined children's responses. A judgment-type (caring, liking) by age model revealed a main effect of judgment-type, which resulted because children chose the agent's plain items more often when asked about caring than liking, $Wald \chi^2 = 9.78, p$

= .002. There was also a main effect of age, resulting because these items were chosen more often by younger than older children, $Wald \chi^2 = 5.97, p = .015$. However, these main effects were qualified by an interaction, $Wald \chi^2 = 5.18, p = .023$. Caring judgments did not vary with age, $Wald \chi^2 = 0.01, p = .907$, whereas older children were more likely than younger ones to infer the agent would like the more attractive object, $Wald \chi^2 = 10.89, p = .001$. Also, whereas 3-year-olds responded similarly when asked about caring and liking, $Wald \chi^2 = 0.26, p = .611$, older children were more likely to indicate the agent's plain object when asked about caring than liking, though this effect was only marginal at age 5: $Wald \chi^2_{4\text{-year-olds}} = 4.17, p = .041$; $Wald \chi^2_{5\text{-year-olds}} = 3.02, p = .082$; $Wald \chi^2_{6\text{-year-olds}} = 7.77, p = .005$.

We also compared the responses of 4-6-year-olds (i.e., the age range where children responded different for caring and liking) with those of adults. This comparison used a judgment-type (caring, liking) by age-group (4-6-year-olds, adults) model, where age was entered categorically (i.e., not in months). There was a main-effect of judgment-type in which participants chose the agent's own, plain objects more when asked about caring than liking, $Wald \chi^2 = 50.66, p < .001$. There was also a main effect of age-group, as adults were more likely than 4-6-year-olds to choose the plain objects, $Wald \chi^2 = 74.63, p < .001$. However, there was no interaction between these factors, $Wald \chi^2 = 0.31, p = .578$.

Finally, single sample tests showed that when asked about caring, 4-6-year-olds indicated the plain and attractive items at similar rates, $p = .176$, whereas adults mostly indicated the plain items, $p < .001$. When asked about liking, 4- and 5-year-olds indicated the plain and attractive items at similar rates, $ps = .094$ and $.057$, 6-year-olds mostly picked the attractive items, and adults mostly picked the plain ones, $p < .001$. (These analyses collapsed across children's ages

for caring but not liking because the main analysis only revealed an effect of age for liking judgments).

Together, these findings suggest that even 4-year-olds differentiate liking from caring when reasoning about others' regard for objects. As in the first experiment, children were overall more likely than adults to indicate the attractive objects. Nonetheless, both children and adults were relatively more likely to indicate the plain owned objects when inferring caring than when inferring liking.

One concern, though, is that children in this experiment might have based their judgments *only* on the appearance of the objects — perhaps they would have responded similarly without ownership information. The findings of the first experiment cast some doubt on this concern though, as children in that experiment *did* consider ownership (i.e., they often valued their own plain sticker more than the experimenter's attractive one). However, this is not decisive as ownership might affect children's own regard for objects, without children using ownership to infer others' regard.

To address this concern, we conducted a final experiment where the agent's object looked identical to the object belonging to someone else. If children judge that agents like and care about their own possessions more than someone else's, this will suggest they *do* consider ownership. We did not test 3-year-olds in the final experiment because they did not distinguish between caring and liking in the previous ones; and we did not test adults, as they picked the owned objects over the attractive ones (showing that this concern does not apply to them).

Experiment 3

Methods

Participants. We tested 180 4- to 6-year-olds ($M_{\text{age}} = 5;6$, range = 4;0 to 6;11, 89 females); see Table 5 for a more detailed breakdown.

Table 5
Age Groups for Children in Experiment 3

Age group	Item set	n	<i>M</i>	<i>SD</i>	Range
4-year-olds	attractive	30	4;7	0;2	4;0 - 4;11
	plain	30	4;6	0;3	4;0 - 4;11
5-year-olds	attractive	30	5;5	0;3	5;0 - 5;11
	plain	30	5;6	0;3	5;0 - 5;11
6-year-olds	attractive	30	6;6	0;3	6;0 - 6;11
	plain	30	6;6	0;3	6;0 - 6;11

Note. *M* = Mean, *SD* = Standard deviation.

Materials and Procedure. In each of two trials, children were shown a picture of a child and two identical-looking objects (balls in trial 1, kites in trial 2); see Figure 3 (top panel). Children were told that one item belonged to the child in the picture, and that the other item belonged to someone else. They were then asked questions about caring and liking; order counterbalanced across participants. Each test question was immediately followed by a question probing the degree of caring or liking (e.g., “Does she care about it a lot more or just a little more?”). Responses to the main and follow-up questions were recoded onto a scale ranging from 1 (*caring/liking a lot for other person’s item*) to 4 (*caring/liking a lot for agent’s own item*).²

Children were tested with one of two sets of stimuli (manipulated between-subjects). In one set, the identical-looking items were attractive, whereas in the other set they were plain. Given that participants in the previous experiments had responded differently for attractive

² We added the follow-up because we anticipated that without it there would be little chance of finding differences between caring and liking judgments (i.e., given that both objects were equally attractive). Also, one 4-year-old did not answer the follow-up questions on any trial, so we conservatively scored this child as having responded “a little” each time.

versus unattractive items, this manipulation was included as a precaution, to test if findings would depend on the overall attractiveness of the items in each pair.

Figure 3. *Experiment 3.* The top panel shows a sample of the scripts and materials. The plot in the bottom panel shows individual children's mean responses with the attractive and plain item sets; colored bands show 95% confidence intervals.

Results and Discussion

Figure 3 (bottom panel) shows children's choices of the agents' items over the items belonging to someone else. A model involving judgment-type (caring, liking), stimulus set (attractive, plain), and age revealed a main effect of judgment-type, which resulted because the agent's items were chosen more often when children were asked about liking than when they

were asked about caring, $Wald \chi^2 = 6.48, p = .011$. There was also a main effect of age, which resulted because the agent's items were chosen more often overall by older children than younger ones, $Wald \chi^2 = 4.07, p = .044$. The interaction between these factors was only marginally significant, $Wald \chi^2 = 3.38, p < .068$, so we treat it as null. All other effects were non-significant, $ps \geq .247$. Importantly, as can be seen in the figure, children's caring judgments departed from the midpoint score of 2.5, and a single-sample test confirmed this was even true for 4-year-olds, $p = .001$, whose responses were closest to the mid-point. As such, children do consider ownership when inferring caring and liking (i.e., because the objects in each pair looked identical, attractiveness could not have affected judgments).

General Discussion

We found that children and adults distinguish between caring and liking. In the first experiment, caring and liking differed from one another when 6-7-year-olds chose between an object they owned and another more attractive object. Caring and liking also differed in adults, but not in children aged 3-5. The next experiments revealed, though, that caring and liking can differ in children as young as age 4, when they consider which items other people value.

Children's responses suggest they understand that a single individual can value objects in different ways. For example, they understand that liking one object more than another does not necessarily entail caring about it more, and vice-versa. Previous work shows that children understand that their preferences for objects can differ from those of other people (e.g., Repacholi & Gopnik, 1997), from their own future preferences (Bélanger et al., 2014), and from public valuations, like museum-worthiness (Frazier & Gelman, 2009). To our knowledge, though, the present findings are the first to show that children understand that a single person can concurrently have varying valuations of objects.

Our findings also suggest that ownership and attractiveness contribute to caring and liking in different ways. When these factors were pitted against one another, children predominantly based their liking judgments on the objects' perceptible features. However, when asked about caring, children were relatively less likely to favor attractive objects, suggesting that caring judgments may have been based on ownership. These findings raise the possibility that other properties of objects might contribute to caring judgments more strongly. We know that children recognize that objects with noteworthy and distinctive histories are worth a lot of money, belong in museums, and are special to their owners (Frazier & Gelman, 2009; Gelman et al., 2015; Pesowski & Friedman, 2019). Children also show the IKEA effect (Norton et al., 2012) and prefer objects they create and design over other objects (Li et al., 2013; Marsh et al., 2018). Our findings, thus, raise the possibility that children might care for these kinds of objects over more attractive alternatives, despite liking the attractive ones more.

Our findings also suggest that children's ability to differentiate caring from liking may occur earlier in judgments about third parties than in their own valuations. However, this observation is tentative as it is based on comparisons across experiments that also used somewhat different procedures. If this developmental difference is robust though, it could be informative about the development of children's own valuations; for instance, owning an item might jointly increase younger children's sense of caring *and* liking, making these states difficult to distinguish (see further discussion below).

Similar to children, adults also put relatively more emphasis on ownership when judging caring than liking (i.e., as evidenced by the non-significant interactions between judgment type and age group). However, they chose the owned objects overall more often than did children. This finding suggests a developmental shift in which valuations of objects become less

dependant on attractiveness, more dependant on ownership, or possibly both. However, other findings complicate this conclusion: If we restrict our focus to children, there was an age-related decline in choices of the plain owned objects (and hence a corresponding increase in choices of the attractive objects). In the first experiment this shift occurred for both caring and liking, while in the second experiment, it only occurred for liking. So, the findings suggest that older children are generally more likely than younger children to value objects for their perceptible features.

The overall developmental picture that emerges, then, is a U-shaped curve wherein ownership contributes to valuations less for older children than for younger children and adults. It will be important for future work to follow-up on this finding, so we can better understand it, and the underlying mechanisms responsible for it. In particular, it would be useful for future work to investigate a broader range of ages, including adolescents, to determine the turning point—the age at which choices of the plain owned object start increasing. For now, we offer one speculative explanation of this developmental pattern: When a person owns an object, they do not just possess the material object itself—they also have the non-material *relation* of owning. This relation itself can have value (Radin, 1982), and may sometimes be more valued than the physical possession itself (Dan-Cohen, 2001). The U-shaped developmental pattern, then, may pertain to changes in the extent to which valuations depend on perceptible and material aspects of objects (e.g., attractiveness) in comparison with non-perceptible features and relations (e.g., ownership). That is, younger children and adults might value objects for their relations, whereas older children might value objects more for their perceptible features.

Broadly consistent with this possibility, a U-shaped pattern is also seen in the development of materialism. This is the tendency to assign importance to objects such that they become a major source of satisfaction and dissatisfaction (Belk, 1985). Developmental research

on childhood materialism has found that it increases from middle childhood to early adolescence, and then declines afterward (Chaplin & John, 2007). Although we did not initially view our experiments as investigating the development of childhood materialism, our findings may speak to it nonetheless. Specifically, older children's greater focus on attractiveness in comparison with ownership might be a sign of heightened materialism.

Limitations and Future Directions

Our findings suggest that by age 4, children distinguish between caring and liking. At age 3, children responded similarly regardless of whether they were making caring or liking judgments, suggesting that younger children might not differentiate between these two forms of regard. This conclusion about younger children may be premature, though—it is possible that 3-year-olds *do* conceptually differentiate between caring and liking.

We consider two explanations for why 3-year-olds might differentiate between caring and liking, despite responding similarly to questions about both forms of regard in our current studies. First, these similar responses might stem from limits in 3-year-olds' linguistic understanding, as they might have interpreted the caring and liking questions as asking about the same thing. So rather than revealing development in children's ability to differentiate caring from liking, some findings could reflect changes in how young children understand the terms "like" and "care about".

Second, 3-year-olds might have responded similarly because they happen to weigh ownership (and physical attractiveness) similarly for both states. For example, in the first experiment 3-year-olds might have cared about and liked their own plain sticker more than the experimenter's more attractive sticker. On this account, rather than revealing development in

children's ability to differentiate caring from liking, the findings might instead reveal development in how ownership and physical attractiveness affect each state.

Future research will be needed to follow-up on these alternative possibilities. For example, to avoid asking about caring and liking directly, younger children could be asked to make other types of inferences and predictions that might differentiate caring and liking. For example, children might anticipate that liking will affect decisions about which objects people will use, whereas caring will affect decisions about which objects to protect. Future research could also investigate other factors that might be more likely to differentiate caring and liking in young children, such as history and popularity. For now, though, our findings provide the first evidence that from age 4, children do differentiate between these two forms of regard.

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