

A dollar is a dollar is a dollar, or is it?
Insights from children's reasoning about "dirty money"

Arber Tasimi¹ & Susan A. Gelman²

1. Department of Psychology, Emory University
2. Department of Psychology, University of Michigan

Word count: 8,693

Corresponding author:

Arber Tasimi

Department of Psychology

Emory University

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/cogs.12950](https://doi.org/10.1111/cogs.12950)

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36 Eagle Row

Atlanta, Georgia

e-mail: arber.tasimi@emory.edu

Acknowledgments: We thank the children, families, and staffs of the following public elementary schools in Connecticut: Alcott, Frisbie, Kelley, Middlebury, Plantsville, Pomperaug, Strong, South End, and Thalberg. We also thank three anonymous reviewers for their helpful feedback.

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Article type : Regular Article

Running head: Dirty Money

Author Manuscript

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3 Department of Psychology
4 Emory University
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10 elementary schools in Connecticut: Alcott, Frisbie, Kelley, Middlebury, Plantsville, Pomperaug,
11 Strong, South End, and Thalberg. We also thank three anonymous reviewers for their helpful
12 feedback.

13 Abstract

14
15 Money can take many forms—a coin or a bill, a payment for an automobile or a prize for an
16 award, a piece from the 1989 series or the 2019 series, and so on—but despite this, money is
17 designed to represent an amount and only that. Thus, a dollar is a dollar, in the sense that money
18 is fungible. But when adults ordinarily think about money, they think about it in terms of its
19 source, and in particular, its moral source (e.g., dirty money). Here we investigate the
20 development of the belief that money carries traces of its moral history. We study children ages
21 5-6 and 8-9, who are sensitive to both object history and morality, and thus possess the
22 component pieces needed to think that a dollar may not be like any other. Across three principal
23 studies (and three additional studies in the Supplementary Materials; $N = 327$; 219 five- and six-
24 year-olds; 108 eight- and nine-year-olds), we find that children are less likely to want money
25 with negative moral history, a pattern that was stronger and more consistent among 8- and 9-
26 year-olds than 5- and 6-year-olds. These findings highlight pressing directions for future research
27 that could help shed light on the mechanisms that contribute to the belief that money carries
28 traces of its moral history.

29 30 1. Introduction

1 Years ago, a woman stole money from a dying old man. Rather than keep the money all
2 to herself, she decided to give some of it to her son and daughter-in-law. The couple knew that
3 the old man did not need the money—he had no family and was on his deathbed, after all—yet
4 they refused to accept it. According to the daughter-in-law, who reported this event to us in an
5 experimental investigation (see Tasimi & Gelman, 2017, Study 8), she and her husband rejected
6 the money because it was “dirty.”

7 What this example brings to light is what a growing body of research converges on—the
8 idea that an object’s history guides people’s understanding of, and reasoning about, the material
9 world (e.g., Bloom, 2010; Friedman, Neary, Defeyter, & Malcolm, 2011; Fuchs, Schreier, & van
10 Osselaer, 2015; Gelman, 2013; Gelman & Echelbarger, 2019; Huang, Ackerman, & Newman,
11 2017; Nemeroff & Rozin, 1994, 2000; Newman & Bloom, 2014; Newman, Diesendruck, &
12 Bloom, 2011; Rozin, Millman, & Nemeroff, 1986; Rozin, Nemeroff, Wane, & Sherrod, 1989).
13 Thus, in the example above, the stolen money was rejected not due to its physical appearance,
14 functional value, or ability to harm. Rather, it was rejected because it was judged to be tainted by
15 its morally suspect origins.

16 In the current investigation, we provided a critical test of the proposal that objects are
17 evaluated in terms of their history by studying children’s reasoning about money with differing
18 moral histories. The remainder of this introduction discusses how money serves as a particularly
19 revealing window onto the idea that objects are imbued with history, and then reviews why
20 children—and their attention to moral history, in particular—may offer unique insights onto this
21 issue. Following this, we report findings from three principal studies (as well as three additional
22 studies in the Supplementary Materials). The General Discussion considers potential
23 mechanisms and implications of the current work.

24 *1.1. Adults’ reasoning about money in terms of its (moral) history*

25 From a purely economic perspective, the only important quality of money is its amount,
26 not what it looks like or where it has been (Coulborn, 1950; see Thaler, 1990, for discussion).
27 The assumption that money is fungible seems to underlie many everyday behaviors, from
28 making change (e.g., a one-dollar bill is equivalent to four quarters) to using bank accounts (e.g.,
29 if you put \$100 into your bank account on Monday and then withdraw \$100 on Friday, you do
30 not expect to receive the same bills that you deposited). The fungibility of money stands in stark
31 contrast to perhaps all other material items, which cannot be freely interchanged (e.g., Gelman,

1 Manczak, & Noles, 2012; Hood & Bloom, 2008; McEwan, Pesowski, & Friedman, 2016). For
2 example, if someone lends you a \$20 bill you may give them a different \$20 bill in return, but if
3 someone lends you their umbrella you may hesitate to give them a different, yet identical,
4 umbrella back (see McEwan et al., 2016).

5 There are, however, clues from both inside and outside the laboratory suggesting that the
6 psychology of money deviates from the strict notion of fungibility assumed by classic economic
7 models. Several studies indicate that adults are sensitive to the physical attributes of money (e.g.,
8 Di Muro & Noseworthy, 2013; Galoni & Noseworthy, 2015; Uhlmann & Zhu, 2013) as well as
9 how money is earned (e.g., Chen, Chen, & He, 2017; Crockett, Siegel, Kurth-Nelson, Dayan, &
10 Dolan, 2017; Hoigard & Finstad, 1992; Kardos & Castano, 2012; Levav & McGraw, 2009;
11 Stellar & Willer, 2014). In fact, when people ordinarily think about money, they think about it in
12 terms of its source and, in particular, its moral source (e.g., Bandelj, Wherry, & Zelizer, 2017;
13 Gasiorowska, 2017; Shipton, 1989; Tasimi & Gross, 2020; Zelizer, 1994). For example, read an
14 ethnography and get to know Marty, who refused to give the money he earned from his gang's
15 robberies to his church, preferring instead to donate his mother's hard-earned, "honest" money
16 (Nightingale, 1993). Switch over to a television series like *The Sopranos* and enter the life of the
17 mobster Tony Soprano and his wife, Carmela, whose therapist once denied her payment for a
18 session because he could not accept "blood money" (Feidelson, 2019). Or check out an issue of
19 *The New York Times* and read about organizations that stage protests at museums that have
20 accepted monetary gifts from people who have inherited their wealth through unsavory means
21 (Moynihan, 2019). Taken together, these examples highlight the possibility that money is
22 thought to carry traces of its moral history.

23 Confirming this impression, empirical work indicates that adults believe that moral
24 history clings to physical currency (Tasimi & Gelman, 2017). In this research, participants were
25 asked to imagine a morally neutral individual offering them a stolen dollar (e.g., "Frank found a
26 stolen dollar in his desk. Frank says you can have the dollar, if you want.") as well as a morally
27 negative individual offering them a non-stolen dollar (e.g., "Paul stole a dollar from another
28 person. The dollar that he stole is in his pocket. Paul has another dollar that he did not steal, in
29 his desk. Paul says you can have the dollar in his desk, if you want."). Adults consistently
30 reported that they would rather accept a non-stolen dollar offered to them by a morally negative
31 individual than a stolen dollar offered to them by a morally neutral individual. This effect was

1 evident when the amount on offer increased to \$100, and even when it was stipulated that there
2 was no way that one could get into trouble for accepting the proffered money.

3 An important next step is to understand whether the belief that money carries traces of its
4 moral history represents a foundational way of thinking. One way to explore this question is to
5 study children, who have less cultural knowledge and experience with money. Although children
6 care about object history as well as morality (as will become evident in the next section, in which
7 we review these two parallel lines of research), an open question is whether they connect these
8 component pieces and think that moral history clings to money. On the one hand, children may
9 not at first construe money as carrying traces of its moral history. After all, moral judgments
10 concern the actions of agents (e.g., someone is “bad” because they stole a dollar), and thus moral
11 consequences (e.g., rejection) may at first attach only to those who engage in the bad behaviors.
12 On the other hand, it is possible that even children treat moral history as persisting in money,
13 given that they are sensitive to both object history and morality.

14 1.2. *Children’s reasoning about object history and morality*

15 Adults are not unique when it comes to reasoning about unobservable history—a variety
16 of work illustrates the power of object history in children’s everyday thinking (e.g., Friedman,
17 Van de Vondervoort, Defeyter, & Neary, 2013; Gelman & Davidson, 2016; Gelman, Frazier,
18 Noles, Manczak, & Stilwell, 2015; Gelman, Manczak, & Noles, 2012; Gelman, Manczak, Was,
19 & Noles, 2016; Hood & Bloom, 2008; Nancekivell, Van de Vondervoort, & Friedman, 2013).
20 For example, 5- and 6-year-olds prefer items that they made themselves compared to identical
21 items made by someone else (DeJesus, Gelman, Herald, & Lumeng, 2019; Marsh, Kanngiesser,
22 & Hood, 2018), and even preschoolers find it unacceptable when an individual takes one of two
23 identical objects that is not their own (McEwan et al., 2016). These findings, in combination with
24 other work suggesting that children reliably show contamination sensitivity by age five (e.g.,
25 Diesendruck & Perez, 2015; Hejmadi, Rozin, & Siegal, 2005; Legare, Wellman, & Gelman,
26 2009), suggest the possibility that children, like adults (Tasimi & Gelman, 2017), may believe
27 that money carries traces of its moral history.

28 Another reason to suspect that children may imbue money with moral history comes from
29 a consistent finding in contemporary developmental psychology: children—even infants—wish
30 to avoid individuals who engage in negative actions (e.g., Buon, Jacob, Margules, Brunet, Dutat,
31 Cabrol, & Dupoux, 2014; Hamlin & Wynn, 2011; Hamlin, Wynn, & Bloom, 2010; Kenward &

1 Dahl, 2011; Scola, Holvoet, Arciszewski, & Picard, 2015; Tasimi, 2020; Vaish, Carpenter, &
2 Tomasello, 2010). What is more, this aversion toward wrongdoers appears to be powerful
3 enough to reduce children's material interests (Tasimi, Johnson, & Wynn, 2017; Tasimi &
4 Wynn, 2016). For example, in one study (Tasimi & Wynn, 2016), 5- to 8-year-olds were
5 introduced to a nice character and a mean character, each of whom offered the child stickers.
6 Whereas the nice character offered the child only one sticker, the mean character offered a larger
7 amount—two, four, eight, or sixteen stickers. Across all ages tested, children rejected a larger
8 offering from a mean character in favor of a smaller offering from a nice character. Importantly,
9 however, the amount on offer mattered—the larger the mean character's offering, the more likely
10 children were to accept it.

11 That children are willing to sacrifice their material interests when wrongdoers offer them
12 goods is open to two distinct explanations, either or both of which could be underlying their
13 decision-making. One possibility is that children reject goods from wrongdoers strictly because
14 they wish to avoid interactions with those whom they view as morally bad. Another possibility is
15 that children may see the goods themselves as tainted by their moral history—that is, the rewards
16 may have become undesirable because of their past. If the latter possibility is so, we would
17 expect children to reject goods with negative moral history. Prior work has not distinguished
18 between these possibilities, leaving open the question of whether children would evaluate
19 proffered goods in terms of (a) the morality of the giver, (b) the morality of the item, or (c) both
20 the morality of the giver and the item.

21 The current investigation was designed to tease apart the above possibilities, with the
22 ultimate goal of determining whether children imbue money with moral history. We focused on
23 money as a strong test, given that money is designed to effectively "erase" its history, with the
24 capacity to participate in indefinitely many changes of hand, and with each token equivalent to
25 every other. Following past research indicating that children's sensitivity to contagion and
26 contamination increases from 4-6 to 8-9 years of age (e.g., Diesendruck & Perez, 2015; Hejmadi
27 et al., 2004; Legare et al., 2009), the present studies focused on children ages 5-6 and ages 8-9.

28 2. The Current Studies

29 Across three studies (and three additional studies reported in the Supplementary
30 Materials), we adapted a procedure used to examine how adults reason about money with
31 differing moral histories (Tasimi & Gelman, 2017). Children were presented with a set of

1 hypothetical scenarios in which a character offered a piece of money to the child, and the child
 2 was asked if they wanted the money. Four of the scenarios were of focal interest and crossed two
 3 key factors: the moral history of the money (neutral vs. bad) and the moral quality of the person
 4 offering the money (henceforth, the "giver") (neutral vs. bad). This 2x2 design permits us to test
 5 whether children differentially evaluate money based on its moral history as well as the relative
 6 importance of the moral history of the money relative to the moral standing of the giver. Finally,
 7 there was also a fifth scenario that served as a baseline measure of how much children wanted
 8 money that was literally dirty, namely, currency on which a character sneezed. This fifth
 9 scenario served strictly to assess whether the task was sensitive for the age groups tested. Table 1
 10 provides examples of all five types of trials.

		Giver	
		Neutral	Bad
Money	Neutral	This is Angela. Angela has a dollar in her cubby. Angela says you can have the dollar, if you want.	This is Lila. Lila stole a cookie from another person. Lila has a dollar that she did not steal, in her cubby. Lila says you can have the dollar, if you want.
	Bad	This is Martha. Martha found a stolen dollar in her cubby. Martha says you can have the dollar, if you want.	This is Sharon. Sharon stole a dollar from another person. It's in her cubby. Sharon says you can have the dollar, if you want.

Dirty Money	This is Nicole. Nicole sneezed and used a dollar to wipe her nose. Nicole says you can have the dollar, if you want.
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13 Table 1. Sample scenarios, in the 2 (money) x 2 (giver) design, plus Dirty Money (baseline).

14
 15 2.1. Predictions

16 Should moral concerns influence how children reason about money, there are three
 17 different accounts that could explain their responses. (1) On an associative account, any item
 18 with a negative association would be undesirable to children, which means that children would

1 prefer non-stolen money to stolen money, and they would also prefer money that is offered by a
2 morally neutral individual than a morally negative individual. Thus, we would expect to obtain
3 main effects of both money and giver on children's ratings. (2) On a wrongdoer account,
4 children would feel an aversion toward morally negative individuals but not toward stolen
5 money per se. This account would predict that we would obtain a main effect of giver, but not a
6 main effect of money on children's ratings. (3) On a moral history account, children, like adults
7 (Tasimi & Gelman, 2017), would believe that stolen money is imbued with moral history. On
8 this account, we would expect to obtain a main effect of money, but not a main effect of giver.
9 As an especially strong test of a moral history account, we would predict that children would be
10 more likely to want the money in the bad-giver/neutral-money scenario, which does not feature
11 stolen money, than in the neutral-giver/bad-money scenario, which does feature stolen money.

12 3. Study 1

13 3.1. Participants

14 Study 1 included twenty-four 5- and 6-year-olds (10 girls, 14 boys; age range = 5.14-6.18
15 years; mean age = 5.69 years; SD = 0.35) and twenty-four 8- and 9-year-olds (10 girls, 14 boys;
16 age range = 8.17-9.68 years; mean age = 8.84 years; SD = 0.49). Across our studies, participants
17 were recruited from suburban towns in the northeastern United States and tested individually in a
18 quiet room at their elementary school. In each study, parents provided written consent and
19 children provided oral assent. All sessions were audio-recorded.

20 3.2. Procedure

21 The task began with the following three practice trials: "Do you like candy?" "Do you
22 like dog food?" "Do you like carrots?" If children responded "yes," the experimenter asked if
23 they liked the item in question "a little" or "a lot." We included these questions at the beginning
24 of each study to convey the 3-point scale used for the test questions, with 0 corresponding to
25 "no," 1 corresponding to "a little," and 2 corresponding to "a lot." To elaborate, the first question
26 (about candy) was designed to elicit a response of "a lot," the second question (about dog food)
27 was designed to elicit a response of "no," and the third question (about carrots) was designed to
28 elicit a response of "a little."

29 Each child was then presented with five scenarios in which a dollar was described (see
30 Table 1), and they were asked if they wanted the dollar ("Do you want the dollar?") and, if so,
31 how much they wanted it ("Do you want it a little or a lot?"). The gender of the characters was

1 matched to the gender of the child. An experimenter read the scenarios aloud, using a stick figure
2 drawing to represent each character. Order of presentation was counterbalanced across children,
3 and children were randomly assigned to one of five pre-determined orders.

4 Children received comprehension questions (e.g., “Who stole the dollar: Martha or
5 someone else?”; see Supplementary Materials for more information regarding each study) at the
6 end of each scenario, but before the test question, to ensure that they properly encoded the
7 relevant information. If children responded correctly, then the experimenter offered praise and
8 repeated the correct response (e.g., “That’s right! Someone else stole the dollar.”). If children
9 responded incorrectly, then the experimenter corrected the child and asked the question again
10 until they responded correctly, at which point the experimenter offered praise. In total, 7 of 24
11 children in the older age group and 13 of 24 children in the younger age group made at least one
12 error on the comprehension questions. Across all trials, 8- and 9-year-olds responded incorrectly
13 to 7% of the comprehension questions; 5- and 6-year-olds responded incorrectly to 18% of the
14 comprehension questions.

15 Finally, at the end of each trial (i.e., once the child responded whether and how much
16 they wanted the dollar in question), the experimenter asked the child to explain their response
17 (“Why?”). These explanation data will be reported later on in Section 7, collapsed over the three
18 studies, in order to have additional power for meaningful analyses.

19 3.3. Results and Discussion

20 Table 2 presents the data from this study. To understand whether children tracked the
21 information provided and responded appropriately to the task, we first compared the baseline
22 dirty-money scenario to the neutral-giver/neutral-money scenario. Both 5- and 6-year-olds and 8-
23 and 9-year-olds were more likely to want the dollar in the neutral-giver/neutral-money scenario
24 than in the dirty-money scenario, $p_s < .001$, indicating that both age groups were sensitive to the
25 task.

26 Next, we conducted a 2 (giver: neutral, bad) x 2 (money: neutral, bad) ANOVA on
27 children’s ratings on the four focal scenarios, with age as a between-subjects factor. This analysis
28 yielded a main effect of money, $F(1, 46) = 13.50$, $p = .001$, $\eta_p^2 = .23$, with stolen money ($M =$
29 0.67 ; $SD = 0.94$) being less desirable than non-stolen money ($M = 1.03$; $SD = 0.91$). There was
30 no main effect of giver, $F(1, 46) = .02$, $p = .90$, $\eta_p^2 = 0$, which suggests that children’s ratings
31 were unaffected by whether the money was offered by a morally negative individual ($M = 0.85$;

1 SD = 0.94) or a morally neutral individual ($M = 0.84$; $SD = 0.94$). This analysis also yielded a
 2 main effect of age, $F(1, 46) = 22.01$, $p < .001$, $\eta_p^2 = .32$, with older children ($M = 0.42$; $SD =$
 3 0.75) wanting money less overall than younger children ($M = 1.28$; $SD = 0.91$), as well as a giver
 4 \times money interaction, $F(1, 46) = 11.28$, $p = .002$, $\eta_p^2 = .20$. Follow-up analyses clarify the
 5 interaction by revealing that stolen money was less desirable when it was offered by someone
 6 who found it (neutral-giver/bad-money; $M = 0.54$; $SD = 0.90$) than someone who stole it (bad-
 7 giver/bad-money; $M = 0.79$; $SD = 0.97$), $t(47) = 2.13$, $p = .038$, $d = 0.31$, whereas non-stolen
 8 money was less desirable when offered by a thief (bad-giver/neutral-money; $M = 0.92$; $SD =$
 9 0.92) than a non-thief (neutral-giver/neutral-money; $M = 1.15$; $SD = 0.90$), $t(47) = 2.30$, $p =$
 10 $.026$, $d = 0.33$.

11

Scenario	8- and 9-year-olds	5- and 6-year-olds
Neutral-Giver/Neutral-Money	0.75 (0.85)	1.54 (0.78)
Neutral-Giver/Bad-Money	0.17 (0.56)	0.92 (1.02)
Bad-Giver/Neutral-Money	0.50 (0.78)	1.33 (0.87)
Bad-Giver/Bad-Money	0.25 (0.68)	1.33 (0.92)
Dirty-Money	0.13 (0.45)	0.21 (0.59)

12 **Table 2.** Study 1, Children's mean ratings of how much they would want the dollar, on a scale of
 13 0 to 2, across the 5 scenarios. Standard deviations are in parentheses.

14

15 Finally, to understand whether children's ratings were more affected by the moral
 16 valence of the money or the moral valence of the giver, we compared the neutral-giver/bad-
 17 money and bad-giver/neutral-money scenarios and found that children were less likely to want
 18 the dollar in the neutral-giver/bad-money scenario than in the bad-giver/neutral-money scenario,
 19 $t(47) = 3.09$, $p = .003$, $d = 0.45$.

20 Overall, the findings from Study 1 indicate that children 5-9 years of age believe that
 21 money carries traces of its moral history. In the following study, we sought to replicate these
 22 initial findings by employing a stronger test of whether children think that stolen money is
 23 tainted.

24

4. Study 2

25 The findings from Study 1 point to the possibility that children link moral history to

1 physical currency. However, in the previous study, the bad-giver/neutral-money scenario
2 involved a morally negative individual who stole a food item and then offered the participant a
3 dollar. Importantly, a dollar is not necessarily equivalent to a food item. Thus, the finding that
4 children were less likely to want the money in the neutral-giver/bad-money scenario than in the
5 bad-giver/neutral-money scenario does not directly pit the morality of the giver against the
6 morality of the money. In Study 2, we provided such a test by presenting a scenario in which a
7 thief stole a dollar but offered the participant another dollar that was not stolen.

8 From the standpoint of economic value, it should not matter if the proffered bill was the
9 stolen one or not—the two scenarios should be equivalent in terms of the monetary benefit
10 afforded to the child. Under this perspective, if a child would reject the stolen dollar, they should
11 also reject the non-stolen dollar offered to them by a thief of another dollar, as in both cases one
12 is rejecting a gift in the amount of the stolen sum. However, from a moral history standpoint, if
13 children believe that moral history clings to physical currency itself, then they should show a
14 particularly strong aversion toward the dollar that was itself stolen, and thus be less likely to
15 want the stolen dollar offered by a morally neutral individual than the non-stolen dollar offered
16 by a thief of another dollar.

17 4.1. Participants

18 Study 2 included twenty-four 5- and 6-year-olds (9 girls, 15 boys; age range = 5.27-6.81
19 years; mean age = 5.81 years; SD = 0.36) and twenty-four 8- and 9-year-olds (12 girls, 12 boys;
20 age range = 8.23-9.75 years; mean age = 9.08 years; SD = 0.39).

21 4.2. Procedure

22 The procedure was the same as in Study 1, with one exception: Here, the bad-
23 giver/neutral-money scenario involved a wrongdoer stealing a dollar rather than a cookie (e.g.,
24 “This is Lila. Lila stole a dollar from another person. The dollar that she stole is in her pocket.
25 Lila has another dollar that she did not steal, in her cubby. Lila says you can have the dollar in
26 her cubby, if you want.”). In total, 8 of 24 children in the older age group and 16 of 24 children
27 in the younger age group made at least one error on the comprehension questions. Across all
28 trials, 8- and 9-year-olds responded incorrectly to 10% of the comprehension questions (one
29 child needed to be corrected a second time on one trial); 5- and 6-year-olds responded incorrectly
30 to 23% of the comprehension questions (one child needed to be corrected a second time on one
31 trial). All errors were corrected, as described in Study 1.

1 4.3. Results and Discussion

2 See Table 3 for means. Children in both age groups were more likely to want the dollar in
 3 the neutral-giver/neutral-money scenario than in the dirty-money scenario, $p_s < .01$, indicating
 4 that they were sensitive to the task. Next, we conducted a 2 (giver: neutral, bad) x 2 (money:
 5 neutral, bad) ANOVA on children’s ratings with age as a between-subjects factor. This analysis
 6 yielded a main effect of money, $F(1, 46) = 10.65, p = .002, \eta_p^2 = .19$, but no main effect of giver,
 7 $F(1, 46) = .46, p = .50, \eta_p^2 = .01$. As in the previous study, children’s ratings were affected by
 8 whether the proffered money was stolen ($M = 0.68; SD = 0.93$) or not ($M = 1; SD = 0.91$), but
 9 their ratings were unaffected by whether the proffered money was offered by a morally negative
 10 individual ($M = 0.86; SD = 0.95$) or a morally neutral individual ($M = 0.81; SD = 0.92$). This
 11 analysis also yielded a main effect of age, $F(1, 46) = 36.58, p < .001, \eta_p^2 = .44$, with older
 12 children ($M = 0.32; SD = 0.66$) wanting money less overall than younger children ($M = 1.35; SD$
 13 $= 0.88$), which is consistent with Study 1.

14

Scenario	8- and 9-year-olds	5- and 6-year-olds
Neutral-Giver/Neutral-Money	0.54 (0.78)	1.46 (0.78)
Neutral-Giver/Bad-Money	0.00 (0.00)	1.25 (0.94)
Bad-Giver/Neutral-Money	0.54 (0.78)	1.46 (0.83)
Bad-Giver/Bad-Money	0.21 (0.59)	1.25 (0.99)
Dirty-Money	0.00 (0.00)	0.33 (0.70)

15 **Table 3.** Study 2, Children’s mean ratings of how much they would want the dollar, on a scale of
 16 0 to 2, across the 5 scenarios. Standard deviations are in parentheses.

17

18 Once again, we found that children were less likely to want the dollar in the neutral-
 19 giver/bad-money scenario ($M = 0.63; SD = 0.91$) than in the bad-giver/neutral-money scenario
 20 ($M = 1.00; SD = 0.92$), $t(47) = 2.77, p = .008, d = 0.40$, which suggests that children’s ratings
 21 were influenced more by the moral valence of the money than the moral valence of the giver.

22 In sum, these findings provide further support for the possibility that children imbue
 23 money with moral history. As in Study 1, we found that children were more likely to want a non-
 24 stolen dollar offered by a morally negative individual than a stolen dollar offered by a morally
 25 neutral individual. Thus, children, like adults (Tasimi & Gelman, 2017), may believe that moral

1 history clings to physical currency.

2

5. Study 3

3

4 Although Studies 1 and 2 indicate that children report that they would less like to have
5 money with negative moral history, it is striking that older children were less likely to want
6 money overall. Compared to 5- and 6-year-olds, 8- and 9-year-olds seemed uninterested in the
7 proffered money, as evidenced by the main effect of age obtained in both Studies 1 and 2. In
8 fact, at least half of the 8- and 9-year-olds in each of the previous studies reported that they did
9 not want the money in the neutral-giver/neutral-money scenario (12 of 24 children in Study 1
10 and 15 of 24 children in Study 2). We suspect this reluctance may have been due to the older
11 children reasoning that money is not theirs to take unless otherwise stated. To address this
12 possibility, Study 3 stipulated that the character offering the dollar in each scenario did not need
13 it, and that the participant (child) had permission to take it. We reasoned that, with this
14 stipulation, we could understand how 8- and 9-year-olds reason about money with differing
15 moral histories in a context that removes a potential barrier to wanting the money.

5.1. Participants

16

17 Study 3 included twenty-four 5- and 6-year-olds (12 girls, 12 boys; age range = 5.09-6.99
18 years; mean age = 6.14 years; SD = 0.64) and twenty-four 8- and 9-year-olds (12 girls, 12 boys;
19 age range = 8.02-9.72 years; mean age = 8.84 years; SD = 0.51).

5.2. Materials and Procedure

20

21 The procedure was the same as in Study 2, with one exception: Here, it was noted that the
22 character in each scenario did not need the dollar and said the participant could have it (e.g.,
23 neutral-giver/neutral-money: “This is Angela. Angela has a dollar in her cubby. Angela doesn’t
24 need the dollar and she says you can have it.”). In total, 7 of 24 children in the older age group
25 and 16 of 24 children in the younger age group made at least one error on the comprehension
26 questions. Across all trials, 8- and 9-year-olds responded incorrectly to 7% of the comprehension
27 questions; 5- and 6-year-olds responded incorrectly to 18% of the comprehension questions. All
28 errors were corrected, as in the previous studies.

5.3. Results and Discussion

29

30 We first analyzed whether 8- and 9-year-olds were more likely to want the dollar in the
31 neutral-giver/neutral-money scenario in this study than in Studies 1 and 2. A one-way ANOVA
with study (1, 2, 3) as a between-subjects factor on children’s responses in the neutral-

1 giver/neutral-money scenario did not yield an effect of study, $F(2, 69) = .40, p = .68, \eta_p^2 = .01$.
 2 Thus, stipulating that the character did not need the money resulted in no change in 8- and 9-
 3 year-olds' ratings.

4 As in Studies 1 and 2, children in both age groups preferred the dollar in the neutral-
 5 giver/neutral-money scenario than in the dirty-money scenario, $ps < .001$. We next conducted a 2
 6 (giver: neutral, bad) x 2 (money: neutral, bad) ANOVA on children's ratings with age as a
 7 between-subjects factor (see Table 4 for means), which yielded a main effect of money, $F(1, 46)$
 8 $= 7.84, p = .007, \eta_p^2 = .15$, but no main effect of giver, $F(1, 46) = 0.36, p = .55, \eta_p^2 = .01$.
 9 Consistent with the previous studies, children preferred non-stolen money ($M = 1.06; SD = 0.90$)
 10 to stolen money ($M = 0.83; SD = 0.91$), but they did not distinguish between money offered by a
 11 morally neutral individual ($M = 0.92; SD = 0.91$) and money offered by a morally negative
 12 individual ($M = 0.98; SD = 0.92$). This analysis also yielded a main effect of age, $F(1, 46) =$
 13 $13.68, p = .001, \eta_p^2 = .23$, such that older children ($M = 0.60; SD = 0.79$) wanted money less
 14 overall than younger children ($M = 1.29; SD = 0.91$), as well as an age x giver x money
 15 interaction, $F(1, 46) = 7.34, p = .009, \eta_p^2 = .14$. Given the interaction, results are reported
 16 separately for the two age groups.

17

Scenario	8- and 9-year-olds	5- and 6-year-olds
Neutral-Giver/Neutral-Money	0.63 (0.82)	1.50 (0.78)
Neutral-Giver/Bad-Money	0.50 (0.72)	1.04 (1.00)
Bad-Giver/Neutral-Money	0.88 (0.85)	1.25 (0.94)
Bad-Giver/Bad-Money	0.42 (0.72)	1.38 (0.88)
Dirty-Money	0.00 (0.00)	0.17 (0.48)

18 **Table 4.** Study 3, Children's mean ratings of how much they would want the dollar, on a scale of
 19 0 to 2, across the 5 scenarios. Standard deviations are in parentheses.

20

21

22 Looking at the 8- and 9-year-olds, a 2 (giver: neutral, bad) x 2 (money: neutral, bad)
 23 ANOVA on their ratings yielded a main effect of money, $F(1, 23) = 5.24, p = .032, \eta_p^2 = .19$, but
 24 no main effect of giver, $F(1, 23) = .49, p = .49, \eta_p^2 = .02$. Children in this older age group
 25 preferred non-stolen money ($M = 0.75; SD = 0.84$) to stolen money ($M = 0.46; SD = 0.71$), but

1 they did not prefer money offered by a morally neutral individual ($M = 0.56$; $SD = 0.77$) to
 2 money offered by a morally negative individual ($M = 0.65$; $SD = 0.81$). What is more, these
 3 children were less likely to want the dollar in the neutral-giver/bad-money scenario ($M = 0.50$;
 4 $SD = 0.72$) than in the bad-giver/neutral-money scenario ($M = 0.88$; $SD = 0.85$), $t(23) = 2.10$, $p =$
 5 $.047$, $d = 0.43$, indicating that the moral history of the money mattered more than the moral
 6 standing of the giver.

7 Turning to the younger age group, a 2 (giver: neutral, bad) x 2 (money: neutral, bad)
 8 ANOVA on their ratings did not yield a main effect of money, $F(1, 23) = 2.63$, $p = .12$, $\eta_p^2 = .10$,
 9 nor did it yield a main effect of giver, $F(1, 23) = .06$, $p = .81$, $\eta_p^2 = .003$. This analysis did,
 10 however, yield a giver x money interaction, $F(1, 23) = 5.55$, $p = .027$, $\eta_p^2 = .19$. Follow-up
 11 analyses clarify the interaction by revealing that 5- and 6-year-olds were less likely to want
 12 stolen money ($M = 1.04$; $SD = 1.00$) than non-stolen money ($M = 1.50$; $SD = 0.78$) offered by a
 13 morally neutral individual, $t(23) = 2.70$, $p = .013$, $d = 0.55$. However, when it came to money
 14 offered by a morally negative individual, they did not distinguish between stolen ($M = 1.38$; SD
 15 $= 0.88$) and non-stolen money ($M = 1.25$; $SD = 0.94$), $t(23) = .83$, $p = .42$, $d = 0.17$. Finally,
 16 unlike the older age group, children in the younger age group responded similarly to the dollar in
 17 the neutral-giver/bad-money scenario and the dollar in the bad-giver/neutral-money scenario,
 18 $t(23) = 1.16$, $p = .26$, $d = 0.24$.

19 Overall, although the manipulation in Study 3 did not increase the rate at which 8- and 9-
 20 year-olds wanted a dollar (i.e., they still typically rejected a dollar, even when it was offered by
 21 someone who said they did not need it), this study nevertheless provides additional evidence that
 22 children ages 8-9 think that moral history clings to physical currency. Importantly, however, the
 23 findings from children ages 5-6 are less clear. That is, in this study, the younger age group did
 24 not distinguish between stolen and non-stolen money. Following best practices suggested by
 25 methodologists and statisticians (e.g., Cumming, 2013; Funder et al., 2014), we conducted a
 26 mega-analysis across our studies so that we could arrive at a more precise estimate of how
 27 children reason about money with differing moral histories, and whether this reasoning may
 28 reflect a developmental progression.

29 6. Mega-Analysis

30 For the mega-analysis, we conducted a 2 (giver: neutral, bad) x 2 (money: neutral, bad)
 31 ANOVA on children's ratings with age (5- and 6-year-olds, 8- and 9-year-olds) and study (1, 2,

3) as between-subjects factors (see Table 5 for means). This mega-analysis yielded a main effect of money, $F(1, 138) = 31.91, p < .001, \eta_p^2 = .19$, such that non-stolen money ($M = 1.03; SD = 0.90$) was preferred to stolen money ($M = 0.73; SD = 0.93$). There was no main effect of giver, $F(1, 138) = .66, p = .42, \eta_p^2 = .01$, indicating that children did not distinguish between money offered by a morally neutral individual ($M = 0.86; SD = 0.92$) and money offered by a morally negative individual ($M = 0.90; SD = 0.93$). Moreover, there was a main effect of age, $F(1, 138) = 68.38, p < .001, \eta_p^2 = .33$, with older children ($M = 0.45; SD = 0.74$) wanting money less overall than younger children ($M = 1.31; SD = 0.90$). Finally, this analysis yielded a giver \times money interaction, $F(1, 138) = 7.48, p = .007, \eta_p^2 = .05$, as well as an age \times study \times giver \times money interaction, $F(2, 138) = 3.55, p = .031, \eta_p^2 = .05$. Given the interaction, results are reported separately for the two age groups.

Scenario	8- and 9-year-olds (n = 72)	5- and 6-year-olds (n = 72)
Neutral-Giver/Neutral-Money	0.64 (0.81)	1.50 (0.77)
Neutral-Giver/Bad-Money	0.22 (0.56)	1.07 (0.98)
Bad-Giver/Neutral-Money	0.64 (0.81)	1.35 (0.87)
Bad-Giver/Bad-Money	0.29 (0.66)	1.32 (0.92)
Dirty-Money	0.04 (0.26)	0.24 (0.59)

Table 5. Mega-analysis, Children's mean ratings of how much they would want the dollar, on a scale of 0 to 2, across the 5 scenarios, collapsing across Studies 1-3. Standard deviations are in parentheses.

Looking at the 8- and 9-year-olds, a 2 (giver: neutral, bad) \times 2 (money: neutral, bad) ANOVA on their ratings with study as a between-subjects factor yielded a main effect of money, $F(1, 69) = 29.05, p < .001, \eta_p^2 = .30$, with non-stolen money ($M = 0.64; SD = 0.81$) being more desirable than stolen money ($M = 0.26; SD = 0.61$). There was no main effect of giver, $F(1, 69) = 0.33, p = .57, \eta_p^2 = .01$, indicating that children in the older age group did not distinguish between money offered by a morally neutral individual ($M = 0.43; SD = 0.73$) and a morally negative individual ($M = 0.47; SD = 0.76$). Finally, 8- and 9-year-olds placed more weight on the moral history of the money relative to the moral standing of the giver—they wanted the dollar

1 more in the bad-giver/neutral-money scenario ($M = 0.64$; $SD = 0.81$) than in the neutral-
 2 giver/bad-money scenario ($M = 0.22$; $SD = 0.56$), $t(71) = 4.62$, $p < .001$, $d = 0.54$.

3 Looking at the 5- and 6-year-olds, a 2 (giver: neutral, bad) x 2 (money: neutral, bad)
 4 ANOVA on their ratings with study as a between-subjects factor yielded a main effect of money,
 5 $F(1, 69) = 7.86$, $p = .007$, $\eta_p^2 = .10$, such that non-stolen money ($M = 1.42$; $SD = 0.82$) was more
 6 desirable than stolen money ($M = 1.19$; $SD = 0.96$). This analysis did not yield a main effect of
 7 giver, $F(1, 69) = 0.35$, $p = .56$, $\eta_p^2 = .01$, indicating that children in the younger age group, like
 8 children in the older age group, did not distinguish between money offered by a morally neutral
 9 individual ($M = 1.28$; $SD = 0.91$) and a morally negative individual ($M = 1.33$; $SD = 0.89$).

10 Unlike the older age group, this analysis also yielded a giver \times money interaction, $F(1,$
 11 $69) = 10.14$, $p = .002$, $\eta_p^2 = .13$. Follow-up analyses clarify the interaction by revealing that 5-
 12 and 6-year-olds distinguished between stolen (neutral-giver/bad-money; $M = 1.07$; $SD = 0.98$)
 13 and non-stolen money (neutral-giver/neutral-money; $M = 1.50$; $SD = 0.77$) offered by a morally
 14 neutral individual, $t(71) = 4.05$, $p < .001$, $d = 0.48$, but they did not distinguish between stolen
 15 (bad-giver/bad-money; $M = 1.32$; $SD = 0.92$) and non-stolen money (bad-giver/neutral-money;
 16 $M = 1.35$; $SD = 0.87$) offered by a morally negative individual, $t(71) = 0.28$, $p = .78$, $d = 0.03$.
 17 Finally, like the 8- and 9-year-olds, the 5- and 6-year-olds placed more weight on the moral
 18 history of the money than the moral standing of the giver—they wanted the dollar more in the
 19 bad-giver/neutral-money scenario than in the neutral-giver/bad-money scenario, $t(71) = 2.40$, $p =$
 20 $.019$, $d = 0.28$.

21 Taken together, the findings from the mega-analysis reveal that children in both age
 22 groups seem to imbue money with moral history, but this effect was more robust in 8- and 9-
 23 year-olds than 5- and 6-year-olds. We explore this point, as well as broader implications of the
 24 findings, in the General Discussion below.

25 7. Children's Explanations

26 As foreshadowed above, we asked children to explain their response for each of the five
 27 scenarios. The two authors independently coded children's explanations according to the
 28 following coding categories, and were blind to scenario and age group when doing so:

- 29 • Stealing (e.g., “He stole it”; “He stole it from somebody else”; “Then it would be like I
 30 was stealing it, and I don't want to have the dollar”);
- 31 • Trouble (e.g., “You'd get in trouble if somebody found out”; “If I took the dollar and

- 1 someone found me, they'd tell the principal or something"; "You might get arrested");
- 2 • Ownership (e.g., "It's his"; "It's not yours"; "Because it's somebody else's");
- 3 • Need (e.g., "Because I don't need dollars"; "I have lots of money already"; "He wouldn't
- 4 be able to get more food to be alive");
- 5 • Money Good (e.g., "I love dollars"; "You could buy stuff with it"; "Because it's money
- 6 and everybody wants money");
- 7 • Do Good (e.g., "So I can give it to my sister"; "When it's Mother's Day, I want to use it
- 8 to buy my mom some jewelry"; "I would give it to the right person that had it");
- 9 • Dirty (e.g., "It's dirty"; "He has snots on it"; "Because she just wiped her nose with it.
- 10 It's disgusting");
- 11 • Low Value (e.g., "Because it's just one dollar"; "It's just money"; "Because I don't think
- 12 money is that important");
- 13 • Permission (e.g., "Because she's offering to give it to me"; "She asked me"; "Because
- 14 she says I can have it and that's nice"); and
- 15 • Earn (e.g., "I want to earn money by myself"; "If you really want lots of money, you can
- 16 earn it or work for money"; "I'm going to earn money by myself by doing chores").

17

18 All other responses that did not receive one of the above codes were coded as Other (e.g., "I

19 forgot"; "My parents let me name my cat, and I named him Dollar. That's why"; "I don't

20 know"). Three of the codes (Low Value, Permission, and Earn) are not considered further as they

21 were used so infrequently (8 of 720 trials for Low Value, 10 of 720 trials for Permission, and 6 of

22 720 trials for Earn). For the remaining eight codes, Cohen's kappas ranged from 0.79-0.98 (M =

23 0.91).

24

	Stealing	Trouble	Ownership	Need	Money Good	Do Good	Dirty	Other
Neutral	3%	0%	7%	6%	43%	1%	1%	39%
Bad- Money	10%	1%	7%	7%	31%	6%	1%	40%

Bad-Giver	7%	0%	8%	7%	36%	8%	1%	36%
Bad-Both	13%	1%	3%	8%	36%	4%	1%	36%
Dirty	0%	0%	0%	0%	6%	3%	81%	11%

1 **Table 6.** 5- and 6-year-olds' explanations, collapsed across Studies 1-3. Summing across
 2 categories may exceed 100% due to rounding. For ease of presentation, 'Neutral' refers to the
 3 neutral-giver/neutral-money scenario, 'Bad-Money' refers to the neutral-giver/bad-money
 4 scenario, 'Bad-Giver' refers to the bad-giver/neutral-money scenario, 'Bad-Both' refers to the
 5 bad-giver/bad-money scenario, and 'Dirty' refers to the dirty-money scenario.

	Stealing	Trouble	Ownership	Need	Money Good	Do Good	Dirty	Other
Neutral	8%	1%	43%	8%	22%	8%	1%	22%
Bad-Money	35%	15%	38%	1%	7%	10%	0%	18%
Bad-Giver	25%	1%	28%	13%	15%	8%	0%	25%
Bad-Both	53%	10%	32%	3%	8%	8%	0%	11%
Dirty	0%	0%	0%	0%	0%	0%	94%	6%

8 **Table 7.** 8- and 9-year-olds' explanations, collapsed across Studies 1-3. Summing across
 9 categories may exceed 100% due to rounding. For ease of presentation, 'Neutral' refers to the
 10 neutral-giver/neutral-money scenario, 'Bad-Money' refers to the neutral-giver/bad-money
 11 scenario, 'Bad-Giver' refers to the bad-giver/neutral-money scenario, 'Bad-Both' refers to the
 12 bad-giver/bad-money scenario, and 'Dirty' refers to the dirty-money scenario.

13
 14 The predominant theme among the 5- and 6-year-olds was Money Good, which suggests

1 that the functional utility of money was particularly salient to the younger age group. In contrast,
2 the 8- and 9-year-olds were more likely to use the full range of explanation codes, though
3 especially Stealing and Ownership, both of which involve attention to object history. Thus,
4 children's explanations mirror the overall data in two key respects: (1) younger children were
5 more likely to want money overall compared to older children, and (2) older children showed
6 greater attention to money's (moral) history than younger children. Moreover, children in both
7 age groups rarely appealed to the possibility of getting into trouble, suggesting that their aversion
8 to stolen money reflected an avoidance of money with negative moral history rather than a fear
9 of the consequences of accepting such money.

10 8. General Discussion

11 The present studies indicate that children do not think that a dollar is just a dollar.
12 Instead, children treat monetary tokens as carrying traces of their moral history, a pattern of
13 thinking that was largely clear and consistent among children ages 8-9 and present but weaker
14 among children ages 5-6. The mega-analysis, taking into account the data from all three studies,
15 revealed that children in both age groups preferred a non-stolen dollar offered by a morally
16 negative individual to a stolen dollar offered by a morally neutral individual. At the same time,
17 the mega-analysis also revealed that whereas older children preferred non-stolen over stolen
18 money regardless of who was offering it (i.e., a morally neutral or a morally negative individual),
19 younger children only preferred non-stolen over stolen money when it was offered by a morally
20 neutral individual.

21 Based on these findings, it seems that thinking about money in terms of its moral history
22 does not require experience with concepts that only adults likely encounter such as “dirty
23 money” or “blood money” (e.g., Tasimi & Gelman, 2017; Tasimi & Gross, 2020; Zelizer, 1994).
24 Instead, by elementary school age, children show reduced interest in money with negative moral
25 history. Specifically, when a “bad dollar” (neutral-giver/bad-money) and a “bad giver” (bad-
26 giver/neutral-money) were directly pitted against one another, the mega-analysis reported above
27 revealed that the “bad dollar” was judged to be worse, in both age groups. Given this difference,
28 neither an associative nor a wrongdoer account could capture the current findings, as negativity
29 did not affix equally to the scenarios involving negative information (associative) and, moreover,
30 children's responses were not due to a strict desire to avoid interactions with a thief (wrongdoer).
31 Instead, our findings seem to be best captured by a moral history account—that is, children were

1 particularly resistant to accepting money that itself had a tainted history, at least when this
2 history was explicitly highlighted. An open question for future research is whether children
3 would make use of moral history if it were not so explicitly highlighted (e.g., if this information
4 was only indirectly communicated).

5 The current findings raise the question of why 5- and 6-year-olds showed less sensitivity
6 to moral history compared to 8- and 9-year-olds, especially because children ages 5-6 possess the
7 component pieces to reason about moral history—a sensitivity to object history as well as a
8 sensitivity to morality. Our data allow us to rule out several explanations for 5- and 6-year-olds’
9 responses, including difficulties with comprehending or processing the task. For example, that 5-
10 and 6-year-olds did not show strong and consistent attention to moral history is unlikely to
11 reflect insufficient attention to the details of the scenarios because children were not asked the
12 test question until they correctly responded to the comprehension question(s) for each scenario.
13 Moreover, children appropriately distinguished the neutral-giver/neutral-money and dirty-money
14 scenarios, indicating that the task was understandable to this age group. Furthermore, we also
15 can rule out the possibility that young children thought the thefts described in these vignettes
16 were morally acceptable. Specifically, in an additional study (see Study S1 in the Supplementary
17 Materials), we found that when 5- and 6-year-olds were asked what the giver should do with the
18 dollar in each scenario (i.e., keep it or give it away), they typically reported that thieves should
19 give away the money, indicating that they understand not only that stealing is wrong, but also
20 that stealing as described in these scenarios is wrong. Given these points, we view the
21 developmental change documented here as consistent with prior work showing that a sensitivity
22 to contamination and contagion increases from ages 5-6 to ages 8-9 (e.g., Diesendruck & Perez,
23 2015; Gelman et al., 2015; Hejmadi et al., 2004; Legare et al., 2009). In other words, the belief
24 that moral history clings to objects may be fragile among children ages 5-6 (see Study S2 in the
25 Supplementary Materials in which we compare 5- and 6-year-olds’ attention to the moral history
26 of money vs. non-monetary objects), and this may be particularly true as the objects that children
27 reason about increase in value (although see Study S3 in the Supplementary Materials in which
28 we compare 5- and 6-year-olds’ attention to the moral history of dollars vs. pennies and find no
29 effects of stolen money).

30 Elucidating the mechanisms that contribute to the belief that money carries traces of its
31 moral history represents an important direction for future work, as is the issue of what processes

1 may have influenced children's performance in the current studies. For example, one issue that
2 deserves further research is whether children may have been particularly prone to reasoning
3 about the experimental scenarios through the lens of ownership, and specifically to have been
4 hesitant to accept money when its provenance was unknown (namely, in the neutral-giver/bad-
5 money scenario, where it was unclear how the stolen dollar got to the character's desk and who
6 put it there). Recall that, in the mega-analysis, 5- and 6-year-olds preferred a non-stolen dollar
7 from a thief to a stolen dollar from a morally neutral individual, but they did not distinguish
8 between a thief offering them a stolen or a non-stolen dollar. From a pure valence standpoint,
9 this result is somewhat surprising, as a thief offering a stolen dollar involves two "negative
10 strikes" whereas a morally neutral individual offering a stolen dollar involves only one "negative
11 strike." That said, much evidence indicates that, by preschool age, children have a naïve theory
12 of ownership (Nancekivell, Friedman, & Gelman, 2019), in which case it seems plausible that
13 children would find it unsettling to accept an item with unknown provenance. Moving forward, it
14 would be interesting to determine whether, and how, reasoning about ownership contributes to
15 the belief that moral history can cling to physical currency. It would also be interesting to
16 examine whether the present findings would generalize to other forms of moral taint not
17 involving theft and ownership (e.g., profits from a company that exploits its laborers or harms
18 the environment).

19 One unexpected result with the older children (8-9 years of age) is that they generally
20 reported that they did not want the proffered money, even when the money had no morally
21 negative past whatsoever (as in the neutral-giver/neutral-money scenario). Indeed, in Study 3,
22 children ages 8-9 were not any more likely to want a dollar when it was stipulated that the person
23 offering it to them had no need for it and said they could have it. One possibility is that children
24 of this age were hesitant to accept money that belonged to someone else, again given children's
25 sensitivity to ownership. Consistent with this possibility, the older children often mentioned
26 ownership in their explanations, and did so even in the neutral-giver/neutral-money scenario.
27 This sensitivity to ownership may have been especially pronounced in our studies, given that the
28 proffered money was stored in the givers' cubbies, which serve as storage areas for personal
29 property. Another possibility for why 8- and 9-year-olds were resistant to accepting money may
30 be because they questioned the giver's motives, and therefore were hesitant to accept their
31 offering (see Heyman, Barner, Heumann, & Schenck, 2014; Heyman, Fu, Barner, Zhishan,

1 Zhou, & Lee, 2016). Perhaps with additional information about the givers as well as their
2 motives, children ages 8-9 would be more likely to want money from unfamiliar others; research
3 is needed to address this issue.

4 Another potentially surprising result is that children in both age groups did not
5 distinguish between money that was offered by a morally negative or a morally neutral
6 individual. Although this finding may seem at odds with previous work showing that children
7 reject offerings from wrongdoers (Tasimi et al., 2017; Tasimi & Wynn, 2016), there are at least
8 two key differences between these two lines of research. First, children in the current
9 investigation were presented with the opportunity to accept money from wrongdoers, whereas
10 children in previous investigations were presented with the opportunity to accept stickers from
11 wrongdoers. We know from prior work that the greater the amount on offer, the more likely
12 children are to accept a wrongdoer's offering (Tasimi & Wynn, 2016), which indicates that value
13 can override children's aversion toward wrongdoers. It may be that money is especially valuable
14 to children (a point supported by children's explanations in the current study, in which 5- and 6-
15 year-olds, in particular, predominantly focused on money's positive qualities), thus overriding
16 their aversion toward wrongdoers. Second, the current research involved wrongdoers that stole
17 from others whereas past research involved wrongdoers that hit others. If children, like adults
18 (see Powell & Horne, 2017), consider hitting to be a more severe moral violation than stealing
19 (especially when the amount stolen is relatively modest), then this may affect their willingness to
20 accept the goods. As previous work has pointed out (Tasimi & Wynn, 2016), varying the types
21 of goods on offer as well as the nature of a wrongdoer's bad actions can help clarify whether and
22 to what extent children's decision to profit is affected by the moral standing of a giver.

23 Finally, although the present investigation focused on whether and when money is
24 imbued with moral history by characterizing broad patterns within each age group, our data
25 indicate variability in responding, both within and across studies. An open question is what
26 contributes to this variability. One possibility is that it may not reflect anything systematic, but
27 rather simply uncertainty at the level of individual respondents. However, a more intriguing
28 possibility is that this variability may reflect systematic variation across individuals, families,
29 schools, and/or communities. A first step toward addressing this possibility would be to assess
30 children at multiple time points to determine whether or not we detect stable individual
31 differences, wherein some children are consistently more bothered by "dirty money" than others.

1 Furthermore, if stable individual differences were found, it would be important to understand
 2 what contributes to such differences. These might include, for example, contagion sensitivity,
 3 messages from parents, explicit norms about property within schools, and so on. Relatedly, it is
 4 intriguing to consider whether these individual differences persist across development. Even
 5 adults vary in their response to "dirty money", with roughly half indicating they would reject
 6 such a gift and the remainder indicating some degree of willingness to accept it (Tasimi &
 7 Gelman, 2017). Understanding when in development such differences emerge is an issue
 8 deserving of research. Altogether, these questions represent rich avenues for future work given
 9 our finding that children do not think that a dollar is just a dollar.

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