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Judgments of the Lucky Across Development and Culture

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For millennia, human beings have believed that it is morally wrong to judge others by the fortuitous or unfortunate events that befall them or by the actions of another person. Rather, an individual's own intended, deliberate actions should be the basis of his or her evaluation, reward, and punishment. In a series of studies, the authors investigated whether such rules guide the judgments of children. The first 3 studies demonstrated that children view lucky others as more likely than unlucky others to perform intentional good actions. Children similarly assess the siblings of lucky others as more likely to perform intentional good actions than the siblings of unlucky others. The next 3 studies demonstrated that children as young as 3 years believe that lucky people are nicer than unlucky people. The final 2 studies found that Japanese children also demonstrate a robust preference for the lucky and their associates. These findings are discussed in relation to M. J. Lerner's (1980) just-world theory and J. Piaget's (1932/1965) immanent-justice research and in relation to the development of intergroup attitudes.

Keywords: preference for the lucky, immanent justice, evaluative contagion, social cognitive development, cross-cultural psychology

In many societies and legal systems across time, one moral tenet has reigned supreme: Individuals are to be judged by the purposeful actions they commit and not by the random events that befall them. This understanding has been broad and deep, evident across time and place, from Aristotle's *Nicomachean Ethics*, Roman law (e.g., *animus nocendi*), and English law (e.g., *mens rea*) to the modern penal law in the United States and the Rome Statute of the International Criminal Court (United Nations, 2003). This fundamental moral dictum was most clearly described in the 13th century by Henry Bracton (13th century/1968–1977): "A crime is not committed unless an intention to injure exists." From it we have the practice that volitional and premeditated behaviors, such as stealing and cheating, are punished, just as hard work and helping others are rewarded—these actions speak to the character of the person performing them. On the other hand, we treat differently those behaviors that involve accidental, unintentional, and random causes. Whether the outcomes themselves are good or bad, such as winning a lottery or being hit by a tornado, we are not to attribute these to the character of the actor.

Even when it comes to intentional behavior, we hold that it is those who are involved in producing it who should be held responsible or praised, not those who happen to be associated with the perpetrators via group membership. The Bible supports this belief clearly: "The fathers shall not be put to death for the children, neither shall the children be put to death for the fathers: Every man shall be put to death for his own sin" (Deuteronomy 24:16, King James Version). The belief that deems guilt by association to be immoral is also broad and deep, being upheld by the oldest moral codes from Ptahotep and the Assize of Clarendon to most modern legal doctrine (Banaji & Bhaskar, 2000).

Our research concerns the dissociation between these ratified codes of conduct and the behavior of ordinary humans. It seeks to understand the disparity between belief and action, between abstractly held ideals and everyday moral judgments of good and bad. In these studies, we investigated the developmental aspects of

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A full list of items and supplementary statistics for all eight studies are available at http://www.people.fas.harvard.edu/~banaji/research/olson_luck.htm

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such dissociations by analyzing the relatively early manifestation of such discrepancies in childhood. Do children recognize that the random bad events that befall others do not make them blameworthy? Do they understand that other people who are associated with an unlucky individual are not blameworthy? Observing children as they grapple with such questions can provide an understanding of the developmental origins of adult minds that routinely offer such judgments with consequence.

We explored this question in the context of two empirical phenomena: *preference for the lucky* (over the unlucky) and the evaluation of an individual based on his or her association with another actor—what we call *evaluative contagion*. Preference for the lucky is simply the greater liking, greater preference, or more positive attitude toward those who experience randomly occurring good or lucky events (e.g., finding $5 on the sidewalk) than toward those who experience random bad or unlucky events (e.g., getting splashed by a passing car). More complex evaluations, which we call *judgments of the lucky,* involve thinking, for example, that lucky people are more likely to perform good actions than are unlucky people. We use the term "random" as the overarching term for lucky and unlucky events, standing in clear contrast with actions that we term "intentional." Whereas intentional actions tend to be deliberate and foreseen, random events, for our purposes, are those that are not intended or foreseen by the targets of those actions.

Evaluative contagion refers to the extension of evaluations of one actor to his or her associates, such as family or social-group members. Disliking the sibling of someone who was splashed by a passing car would be an example of evaluative contagion, because the negative evaluation of the target of the action (the person splashed) has spread to the sibling of that target. Such evaluations are not only theoretically important but also may have important implications for work on the development of prejudice toward disadvantaged groups. That is, insofar as members of disadvantaged groups tend to experience more unlucky events, a dislike of people associated with others who experience unlucky events could lead to prejudice against members of families or social groups who themselves have not experienced bad or unlucky events.

We seek to establish the generality and breadth of these phenomena across age and culture. As we discuss below, there are several theories relevant to a preference for the lucky. One way to evaluate how well these theories explain the preference for the lucky is to examine the developmental predictions of these theories and to look for convergence or divergence between these theories and the preference for the lucky across development. Therefore, one goal of this article is to investigate how the evaluations of the lucky and evaluative contagion might increase or decrease across development and what these changes imply for alternative explanations of these effects.

In addition, we seek to understand whether these phenomena are cross-culturally invariant or whether something about American or Western culture might lead young children to prefer the lucky and their associates. Previous research (Masuda & Kitayama, 2004; Morris & Peng, 1994) has demonstrated that Westerners tend to use dispositional attributions to explain behavior (e.g., he tripped because he was clumsy), whereas Easterners tend to use situational explanations (e.g., he tripped because there was a cord on the floor). One possible explanation for children's preference for the lucky could be that children are making dispositional explanations for the lucky events. Such an explanation leads to the prediction that children growing up in a country that tends to use situational explanations for behavior will not show this preference. Therefore, in an initial exploration of the universality of the preference for the lucky and its contagious nature, we presented young Japanese children with the same tasks we presented to American children.

Immanent Justice and Belief in a Just World

As early as 6 months of age, children appear to have a basic understanding of differences between intentional action and unintentional action (Woodward, 1998), and by 3 years of age, children are able to distinguish intentional from unintentional actions in linguistic tasks (Shultz & Wells, 1985; Shultz, Wells, & Sarda, 1980). Nevertheless, considerable evidence suggests that this distinction is not the only guide to children's evaluations of others. Children's tendency to evaluate others on the basis of unintentional acts has been stated or implied by several prominent theories, most notably in work on immanent justice (Piaget, 1932/1965) and belief in a just world (BJW; Lerner, 1980).

Immanent Justice

In his groundbreaking work on moral development, Piaget (1932/1965) described the belief that "a fault will automatically bring about its own punishment" (p. 256). A classic example is evident in children's responses to the following story: After stealing apples from an orchard, a boy rides his bike over a rotting bridge and falls into the water. Piaget asked 6- to 12-year-old children why the boy fell into the water and whether the boy would have fallen into the water had he not stolen the apples. A sizeable number of young children reported that the perpetrator fell into the water because he stole the apples. In other words, the random bad event (falling into the water) was viewed as a direct consequence of an intentional bad action (stealing the apples). Other research extended Piaget's findings to positive events, showing that children believe that a positive random event will occur as the consequence of an intentional good action (Fein & Stein, 1977).

It is important to note that immanent-justice reasoning is a mistaken belief about the nature of causation. That is, people who endorse immanent-justice reasoning are arguing that a good or bad action can cause a lucky or unlucky event and, consequently, that the lucky or unlucky event would not have occurred if the good or bad action had not occurred. For our purposes, the most important result is the developmental trend of this belief. Piaget (1932/1965) found a decline in immanent-justice reasoning across the elementary school years. Subsequently, other researchers have confirmed the general decline of immanent-justice reasoning throughout childhood (Jahoda, 1958; Jose, 1991; Percival & Haviland, 1978; Suls & Kalle, 1979; but cf. Karniol, 1980; Najarian-Svajian, 1966). This work has been extended more recently into samples of older teens, generally finding that immanent-justice reasoning further decreases in middle and high school (Johnson, 1962; Najarian-Svarian, 1966), although there is new evidence suggesting that immanent-justice reasoning may reemerge in adulthood (Callan, Ellard, & Nicol, 2006; Raman & Winer, 2004).

In our current research, we examined whether young children prefer lucky to unlucky individuals and whether they use evidence

of lucky or unlucky events to predict an actor's future good or bad behavior. That is, do children think a lucky child is more likely than an unlucky child to perform a good action in the future? Although this question is clearly related to immanent justice, there are differences between these procedures. Immanent-justice research focuses on how children reason about the causal consequences of intentional good and bad actions. It shows a general decline in immanent justice with age, presumably because children integrate and articulate a more diverse set of causal principles governing the behavior of agents (Schult & Wellman, 1997). In contrast, judgments of the lucky concern the evaluative consequences of having viewed another's experience of a lucky or unlucky event. In Study 2, we investigated the relationship between judgments of the lucky and immanent justice by testing the developmental trajectories of both patterns of reasoning in the same participants.

BJW

The idea that people get what they deserve is at the heart of Lerner's BJW theory (Furnham, 2003; Lerner, 1980; Montada & Lerner, 1998). One classic demonstration of BJW involved asking participants about the blameworthiness of a rape victim (Jones & Aronson, 1973). Experimenters manipulated whether the police report revealed that the victim was a virgin, a married woman, or a divorcee and then asked participants how much the victim was to blame for the rape. Counterintuitively, the finding was that participants blamed the virgin and married woman the most and the divorcee the least, though they still blamed the latter. The authors interpreted this finding and many others in terms of their self-protective function: If we believe the world to be a just and fair place, we can reinterpret or explain good and bad events that seem to befall individuals for no reason at all and, as a result, still feel personally safe. In this case, the authors argued that the idea of an innocent virgin or married woman being raped was simply so inconsistent with participants' view of a just world that they derogated the victim, whereas a divorcee being raped is not as inconsistent with a view of the world as just, and therefore, less blame was necessary to maintain a sense of the world as just.

BJW colors not only people's beliefs about others but also their attitudes. In another study, participants liked a person who was randomly assigned to be electrically shocked with no compensation less than a person who was randomly assigned to be shocked for a payment of $30 (Lerner, 1971). The logic of BJW predicts that the victim of uncompensated shocks was denigrated because of the underlying belief that a truly blameless person would not be so treated.

Traditionally, BJW researchers have tested these questions by examining adults' responses to extreme events that were presumably strong violations of a sense of justice (e.g., rape, electric shock, etc.). Less is known about whether more everyday events (e.g., seeing someone get splashed by a passing car) would trigger just-world beliefs.

In addition, the developmental origins of BJW have not been closely studied, as most developmental research has either focused on older children and teens (Furnham, 1985; Furnham & Rajamanickam, 1992) or has involved tasks that have an uncertain relationship to just-world beliefs themselves, such as distribution of resources (Lerner, 1974; Long & Lerner, 1974), rather than blame and evaluation (but see Fein, 1976). Although little research has been conducted on younger children, Lerner (1977) articulated a theoretical argument about the development of just-world thinking. Most notable, he argued that children move from a focus on getting what they want immediately to understanding that their actions at Time A can be rewarded or punished at Time B. Lerner related this transition to the development of delay of gratification (Long & Lerner, 1974), arguing that once this "action now = consequence later" rule is understood, children begin to apply this understanding to other people, recognizing that a person's actions now will produce consequences for him or her later. These arguments suggest that children may begin showing just-world beliefs in mid childhood, somewhere around age 6 or 7 years. Lending further credence to this approximate age prediction, Lerner's own research tended to involve children in middle to late elementary school, although he demonstrated related principles, such as an understanding of parity and equity, in kindergarteners and first graders (Lerner, 1974).

The current work is aimed at testing the core proposition that children, starting early in childhood, prefer the lucky over the unlucky. If BJW is indeed the mechanism by which preference for the lucky emerges, then preference for the lucky should emerge sometime after BJW reasoning has developed. However, an alternative possibility is that the tendency to prefer the lucky precedes the more elaborate sort of reasoning described in BJW; if so, it should emerge earlier in development. Indeed, preference for the lucky might be a core, early-developing tendency that is later justified via just-world beliefs. The present studies tested the development of the preference for the lucky and assess its origin in relation to just-world beliefs.

The Current Work

One of the most important tasks children face in navigating their social world is determining who to approach and who to avoid, who is a friend and who is a foe. Therefore, we were interested in whether children would assume that lucky people are more likely to engage in intentional good behaviors and unlucky people are more likely to engage in intentional bad behaviors. In an initial set of studies, we demonstrated that 5- to 7-year-olds prefer lucky to unlucky people and prefer members of a lucky group to members of an unlucky group (Olson, Banaji, Dweck, & Spelke, 2006). Here, we pursued these findings by asking whether children make deeper inferences about lucky and unlucky individuals, such as whether they believe lucky people are more likely to perform intentional good actions, whether the preference for the lucky is observed across cultures, and when this preference begins in childhood.

In the first two studies, we examined whether children judge lucky people as more likely to perform intentional good actions than unlucky people and unlucky people as more likely to perform intentional bad actions than lucky people. In both studies, we examined the developmental trajectory of these evaluations, and in the second study, we compared this trajectory with performance on an immanent-justice task.

In the third study, we investigated whether young children show evaluative contagion for behavioral predictions, asking whether children believe that the siblings of lucky individuals are more likely to engage in intentional good actions than the siblings of

unlucky individuals. This study, along with the final study, which examines evaluative contagion in novel social groups, suggests that evaluative contagion exists and is not limited to the American context. Placed alongside the work on preference for the lucky, these data suggest that the development of prejudice against members of disadvantaged groups may be fueled by (a) the presence of negative evaluations of individuals who experience unlucky events and (b) the presence of negative evaluations of people merely associated with those who experience misfortune, together resulting in prejudice against the disadvantaged either because they themselves experienced bad luck or because they are associated with others who have.

The second emphasis of the current article is an investigation of the developmental course of preferences and judgments favoring the lucky. In the first three studies, we tested children aged 4 to 12 years to assess the developmental trajectory of judgments of the lucky. Previously, this question has only been addressed using an attitude measure in children aged 5 to 7 years (Olson et al., 2006). In Studies 4, 5, and 6, we investigated the basic preference for the lucky in preschool-aged children. Testing such young children allowed us to investigate whether the developmental predictions of Lerner (1977), and therefore just-world beliefs, might explain such a preference.

A final question this work seeks to examine is whether our initial discoveries of preference for the lucky are the result of some culture-specific teaching or whether this preference might be invariant across cultures. A cross-cultural test, coupled with work with very young children, can indicate whether a tendency or evaluation might be universal or whether it is the result of specific experiences or antecedents. Thus, in Studies 7 and 8, we investigated whether preference for the lucky and evaluative contagion are seen cross-culturally or whether they are the result of a culturally specific experience or process.

Taken together, these studies have the potential to deepen our understanding of preference for the lucky, judgments of the lucky, and evaluative contagion effects. They can inform our understanding of whether children merely prefer lucky people or whether they make corresponding behavioral predictions about lucky and unlucky targets. These studies also clarify the relationship between preference for the lucky, immanent justice, and just-world beliefs. Finally, these studies allow a new understanding of the developmental trajectory and cross-cultural generality of these effects.

Study 1: Behavioral Predictions of the Lucky and Unlucky

Learning to decide who is good and who is bad is a major component of successful functioning in the social world. Previous research suggests that even 6-month-old infants can distinguish an agent that helps from an agent that harms and can use this information to form preferences for the former (Hamlin, Wynn, & Bloom, 2007). In addition, by the age of 18 months, children prefer to accept a toy from a helpful rather than a harmful actor (Nurock, Jacob, Margules, & Dupoux, 2008). This evidence suggests that very young children evaluate agents on the basis of their helpful or harmful behavior.

What do children think when they observe something good or bad befalling someone? Do they form expectations about that person's future behavior? For example, do children believe that a person who found $5 on the sidewalk (random good event) is more likely to read a story to her little brother (intentional good event) than a person who was rained on while walking home (random bad event)? Similarly, is the person who was rained on seen as more likely to lie to his mother (intentional bad event) than the person who found $5? We tested this hypothesis and included comparison items in which actors were described as having previously performed intentional good or bad actions. Because such actions invite dispositional attributions and so should motivate consistent predictions about future actions, these items served as a standard against which to compare the impact of random events.

In addition, this study investigated whether there are developmental changes in the behavioral predictions of the lucky and unlucky across middle childhood.[1] Previous research has suggested that children's moral reasoning changes considerably between the ages of 4 and 12 years and, most relevant, that immanent-justice reasoning declines across this age range (Jose, 1991; Piaget, 1932/1965). Therefore, we investigated possible age differences in children's judgments of lucky and unlucky targets. Although we provided conceptual arguments for why these two phenomena are different, we sought to bolster this contention with a direct test. If behavioral predictions following observation of random events stem from the same underlying process as immanent justice, we would expect to see an age-related decrease in children's tendency to think that lucky people perform good actions and unlucky people perform bad actions.

Method

Participants and recruitment. Participants included 57 children (18 female) aged 4 to 12 years ($M = 7$, $SD = 2$) who participated while visiting the Harvard Museum of Natural History in Cambridge, Massachusetts, with their parents or guardians. For complete age breakdowns for this and subsequent studies, see Table 1. One additional participant began the study but quit after completing less than half of the study and is therefore excluded from analyses. Participants were approached by an experimenter who asked if they would be interested in participating in a study lasting 5 to 10 min. Interested parents were asked to complete a short consent form, any questions from the child or parent were answered by the experimenter, and the child and parent were escorted to the testing area. The experimenter then explained to the child that he or she was free to stop participation at any time and asked the child if he or she was ready to begin. Although race information was not asked of participants in this study, experimenters observed that the sample was predominately White and middle to upper-middle class.

[1] Social cognition research with adult participants has found that adults overestimate their ability to predict the behavior of individuals, for example, thinking that they can predict one's year-long performance in the Peace Corps from a single interview when in fact, interviews are poor predictors of actual performance (participants estimated $r = .59$ between interview performance and Peace Corps performance, when in fact, $r < .10$; Kunda & Nisbett, 1986). The above-mentioned work differs from the work proposed here. Those authors were concerned with accuracy of predictions compared with reality, whereas the current work is focused on whether children make systematic predictions in a particular direction to reveal an underlying belief that lucky people perform good actions.

Table 1
Sample Size Broken Down by Age for Each Study (After Exclusions)

	Age (years)													
Experiment	2.5	3	3.5	4	4.5	5	6	7	8	9	10	11	12	*N*
1					6		9	6	10	6	10	6	3	1	57
2							8	25	23	19	14	17	14	7	127
3					14		11	19	7	8	4	7	6	2	78
4		12	31	29	27	16									115
5					23	17	9								49
6			25												25
7						7		9	4	3					23
8						21		30	28	8					87

Materials. Thirty-two pictures of White children were selected from the Internet and were arranged into 16 same-sex pairs. Pictures were paired such that both pictures had been rated by several adult raters as equal in attractiveness and approximate age. Of the 16 pairs, eight were pairs of boys and eight were pairs of girls. Adults' estimates of age ranged from 4 to 12 years. These 16 pairs were then arranged into four same-sex sets of four pairs (two all male, two all female). Four different versions of the task were created, one beginning with each set of four pairs, alternating between four pairs of boys and four pairs of girls. The side of presentation of each picture was orthogonally counterbalanced across participants, yielding eight versions of the task to which participants were sequentially assigned.

Procedure. Participants were presented with 16 trials. In each trial, they were first shown two photographs of children and were told their names and one fact about them (e.g., "This is John. John stole a cookie from his brother"). As each person was mentioned, a picture of a child appeared on the screen. Pictures were approximately 2 in. × 3 in. and appeared on either the right or left side of the screen. This part of the trial is called the "learning phase" and always consisted of a learning pair (one fact about each of two children). After the learning phase, participants were asked to guess which of the two children engaged in another action (e.g., "On Sunday, one of these children got into a fight. Which child got into a fight?"). Henceforth, this part of the trial is called the "test phase." Participants were instructed to point to the child that they believed engaged in the action in question, and their responses were recorded.

The facts used in the learning phase were all either intentionally caused (by the actor) or randomly caused (not by the actor) and were either good or bad. For example, getting rained on or turning on the television to discover that no cartoons were on are examples of random bad events, whereas finding $5 on the sidewalk or getting to eat cake in school because it was a classmate's birthday are examples of random good events.[2] In contrast, pulling a classmate's hair or cheating on a test were examples of intentional bad actions, and helping to bake cookies for one's grandmother or sharing toys with one's little brother were considered intentional good actions. Each pair of learning items was created to be as parallel as possible (e.g., accidentally hitting someone vs. intentionally hitting someone). Across the 16 trials, four kinds of pairings were made in the learning phase: intentional bad versus intentional good, random bad (unlucky) versus random good (lucky), intentional good versus random good, and intentional bad versus random bad. These four types of learning pairings were crossed with each of the two possible types of test items (intentional good, intentional bad) in the test phase, resulting in eight types of items. A tabular representation of the design is depicted in Table 2. Finally, we made two examples of each type of item (e.g., two items that were random good vs. random bad learning trials with an intentional bad question item), resulting in 16 unique questions. The order of mention of the targets (e.g., mentioning lucky vs. unlucky first) was counterbalanced across items.

Experimenters in this study and all subsequent studies were trained to state each item in a neutral or slightly positive tone, even when the item was negative in valence. Although this was a less natural way to state the items, this allowed us to be certain that children were not using the experimenter's tone as information in their responses, so it provided a more conservative test of our hypotheses.

Data preparation and analyses. For each item, participants were given a one if they selected the predicted choice (e.g., the lucky target in the lucky vs. unlucky target predicting an intentional good action item) and a zero if they selected the other choice (e.g., the unlucky target). The four items involving the same learning pairs (e.g., lucky vs. unlucky) were combined such that each participant then had a prediction score between 0 (*never picked the predicted answer*) to 4 (*always selected the predicted answer*). Thus, if a participant said that a child who turned on the television and found no cartoons on was more likely to cheat on a test than a child who turned on the television and found an extra hour of cartoons on, the participant was given one point for the lucky versus unlucky prediction score. Similarly, if the participant said that the child who walked to school while it was sunny was more likely to bake a cake for his grandma than the child who walked to school while it was rainy, that participant scored one point for the lucky versus unlucky prediction score. Each child ended up with four prediction scores (lucky vs. unlucky, inten-

[2] An anonymous reviewer raised an important concern that perhaps children saw lucky items as good, rather than lucky, converting what is a preference for the good into a preference for the lucky. For example, this reviewer pointed out that getting to eat cake for a classmate's birthday might be seen as good by children and not as lucky. Similarly, one could argue that children perhaps see unlucky events as bad, rather than unlucky. One piece of evidence against this argument is the finding throughout this article that children differentially evaluated lucky and good actors and that they distinguished unlucky and bad actors. However, as a more direct test of this concern, we conducted a small-scale pilot study. We presented a new group of 26 children aged 5–10 years with each of the lucky and intentional good items from Study 1 and asked them to state whether each item was something lucky that happened to the target or whether the actor "meant to do good" (we used this phrase because "intentional good" is confusing for 5-year-olds). A partially overlapping group of 26 children aged 5–10 years completed the parallel task for unlucky and intentional bad actions. Overall, the pilot participants identified 75.5% of the lucky targets as lucky, 74.0% of the intentional good targets as intentional good, 88.5% of the unlucky targets as unlucky, and 83.3% of the intentional bad targets as intentional bad. Chance responding would have been 50%, and the reviewer's predictions would have suggested results significantly lower than 50% for the lucky and unlucky items, which we did not find. We are therefore confident that children did understand that the lucky events were lucky and that the unlucky events were unlucky.

tional good vs. intentional bad, intentional good vs. lucky, and intentional bad vs. unlucky) unless that child failed to complete one or more questions required to complete a score. At most, one participant was excluded from each prediction score. We analyzed prediction scores using one-sample *t* tests, comparing children's prediction scores with chance (2.0). Finally, to examine possible age changes in predictions, we correlated prediction scores with age.

Results

Lucky versus unlucky. The comparison between lucky and unlucky targets was the primary result of interest. Our hypothesis was that children would believe that the unlucky target was more likely to perform an intentional bad action and less likely to perform an intentional good action than the lucky target, consistent with predictions of judgments of the lucky. A one-sample *t* test comparing children's mean prediction score ($M = 2.47$) with chance (2.0) supported this hypothesis, $t(56) = 3.57$, $p = .001$. Figure 1 shows the proportion of predicted responses made for lucky versus unlucky items and intentional good versus bad items. Using a paired *t* test, we found no effect of the valence of the question; that is, participants were just as likely to think a lucky target would perform a good action as they were to think an unlucky target would perform a bad action, $t(56) = 1.53$, $p = .13$. In addition, there was a nonsignificant but positive relationship between age and prediction score ($r = .18$, $p = .18$), indicating that this was not likely to be related to immanent-justice reasoning, which typically shows a decline with age (Jose, 1991; Piaget, 1932/1965). In addition, although previous work has suggested that young children have a poorer understanding of randomness in general than do older children (Weisz, 1980), the increase in predictions based on lucky and unlucky events with age suggests that our result is not due to limitations in children's understanding of randomness.

Intentional good versus intentional bad. We were interested in whether children believed in behavioral consistency, thinking that a person who did something intentionally good one time would do so a second time and that someone who did an intentional bad action would do another. Previous work has suggested that young children do not tend to believe that a person will necessarily do the same intentional action a second time (Kalish, 2002), but here we asked whether the individual would do a different intentional action of the same valence. We predicted that they would expect valence consistency, and indeed, children viewed an actor who had committed an intentional bad action as more likely to perform a different intentional bad action and an actor who had committed an intentional good action as more likely to perform a different intentional good action as indicated by a one-sample *t* test comparing children's average prediction score ($M = 3.19$) with chance (2.0), $t(56) = 9.27$, $p < .001$ (see Figure 1 for proportion of predicted responses). Children were equally likely to think an intentional good actor would do another good action as to think that an intentional bad actor would do another bad action, as indicated by a paired *t* test in which responses did not differ by valence, $t(56) = 1.18$, $p = .24$. Prediction scores were correlated with age ($r = .45$, $p < .001$), suggesting that older children were more likely to predict consistency in the behavior of intentional good and bad actors. Also as expected, children's prediction scores were higher for the intentional good versus bad comparison ($M = 3.19$) than for the lucky versus unlucky comparison ($M = 2.47$), at least indirectly indicating that children understand a distinction between intentional and random behavior, $t(56) = 4.45$, $p < .001$, although the next two comparisons test this question more directly.

Intentional good versus lucky. To examine whether children distinguish intentional behavior from random behavior, we asked whether children would select an intentional good actor as more likely to perform a different intentional good action than a lucky target and whether they would select a lucky target as more likely to perform an intentional bad action than an intentional good actor. We found that children make these selections, as evidenced by a one-sample *t* test comparing participants' average prediction score ($M = 2.51$) with chance (2.0), $t(56) = 3.90$, $p < .001$. Participants were equally likely to think that an intentional good actor would

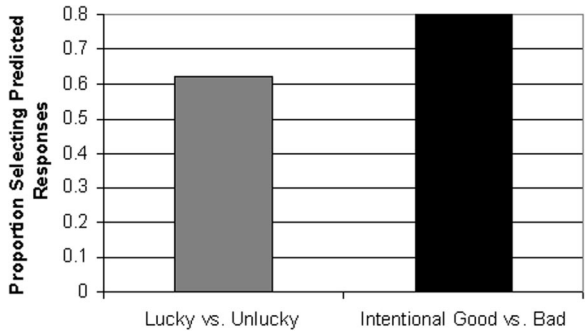

Figure 1. Mean proportion of responses in which participants selected the predicted response in Study 1. The predicted response was selecting the lucky or intentional good actor to perform a good action and selecting the unlucky or intentional bad actor to perform a bad action. The proportion of unpredicted responses is simply 1 − the proportion of predicted responses. Because including both the predicted and unpredicted bars is redundant, we only included the predicted responses in the graph.

Table 2
A Schematic Representing the Items Presented in Studies 1 and 3

Learning phase	Test phase (Who would perform an. . . ?)	Predicted response
Intentional good vs. intentional bad*	Intentional good action	Intentional good
Intentional good vs. intentional bad*	Intentional bad action	Intentional bad
Lucky vs. unlucky*	Intentional good action	Lucky
Lucky vs. unlucky*	Intentional bad action	Unlucky
Intentional good vs. lucky	Intentional good action	Intentional good
Intentional good vs. lucky	Intentional bad action	Lucky
Unlucky vs. intentional bad	Intentional good action	Unlucky
Unlucky vs. intentional bad	Intentional bad action	Intentional bad

Note. In the learning phase, participants were introduced to two characters (and their siblings, in the case of Study 3). Participants were then asked which of the two characters (or their siblings in Study 3) would perform a different intentional good or bad action in the test phase. We have also listed the predicted response used to conduct analyses. The types of items with asterisks were included in Study 2.

perform a good action as they were to think that a lucky target would perform a bad action, $t(56) = 0.14$, $p = .89$. Age was not significantly correlated with prediction score ($r = .14$, $p = .31$), suggesting that children of all ages distinguished intentional good and lucky actors.

Intentional bad versus unlucky. In the final set of comparisons, we paired intentional bad actors with unlucky targets and had children report which of these targets would commit other intentional good or intentional bad tasks. We asked whether children would select an intentional good actor as more likely to engage in a different intentional good action than a lucky target and whether they would select a lucky target as more likely to perform an intentional bad action than an intentional good actor. We found support for this prediction, as evidenced by a one-sample t test comparing the average prediction score ($M = 2.69$) with chance (2.0), $t(55) = 5.17$, $p < .001$, suggesting that children do in fact distinguish between actors who perform intentional bad actions and those who experience unlucky events, seeing the former as more likely to perform an additional bad action and the latter as more likely to perform an additional good action. There was no significant effect of the valence of the question asked, indicating that children were equally likely to think that an intentional bad actor would perform other bad actions as to think that an unlucky target would perform more good actions, as indicated by a one-sample t test, $t(56) = 0.65$, $p = .52$. In addition, older children were more likely to demonstrate this prediction, as evidenced by a significant correlation between age and prediction score ($r = .49$, $p < .001$), a somewhat surprising finding given that the previous comparison of intentional good with random good demonstrated no significant relationship between an intentional and random distinction and age. Because this finding was unexpected and did not replicate across these conceptually similar comparisons, we do not address this issue further.

Nonparametric analyses. Because of possible concerns about the use of parametric statistics throughout this and subsequent studies, we also conducted analyses throughout this article using nonparametric statistics. However, because it is more common to use parametric responses and because of limited space, parametric tests are always reported in this article. The relevant nonparametric tests are available at Mahzarin R. Banaji's Web site (see the URL in the author note). The findings reported in the text are identical, regardless of our use of parametric versus nonparametric statistics.

Discussion

This study provided evidence that children make behavioral predictions for lucky and unlucky targets. Children judged unlucky targets as more likely to commit intentional bad actions and less likely to commit intentional good actions than lucky targets. Thus, children do not simply prefer lucky to unlucky targets but make different predictions about lucky and unlucky targets. These differing predictions may suggest that children make enduring dispositional inferences about actors and may rely on these inferences to motivate future predictions, although alternative accounts could explain these findings.

Study 1 also provided assurance that our basic method was valid in that our clearest case, comparisons between intentional good and bad actors, showed the expected results. Participants judged intentional good actors as more likely to perform other intentional good actions compared with intentional bad actors. Indeed, the trends for these cases were even stronger than in the case of random events, demonstrating that children recognize a difference between intentional and random actions.

One possible concern regarding these results is that our participants in this study, as well as those in previous studies examining a preference for the lucky (Olson et al., 2006), came from largely advantaged populations (i.e., White, middle- to upper-middle-class children with parents willing and able to take them to a museum, etc.). Perhaps it is because they themselves are lucky or fortunate that they show these effects. To test this possibility, we conducted a pilot study with a sample of 23 participants (aged 6–12 years) who were all Black and all of low socioeconomic status, many living at or below the poverty line. We found that these children, like the children in Study 1, predicted that a lucky target would perform a good action more than an unlucky target and, similarly, that an unlucky target would perform a bad action more than a lucky target, suggesting that one does not need to be a member of a lucky group to make these evaluations.[3]

As previously mentioned, Piaget (1932/1965) found a decrease in immanent-justice reasoning across childhood. In contrast, we did not find such a pattern. If anything, the general trend was for older children to show behavior more in line with preference for the lucky than younger children showed. At the very least, these results suggest a developmental dissociation between immanent justice and preference for the lucky, militating against the idea that these phenomena arise from the same mental process or belief. However, to test the relationship between immanent justice and predictions about lucky and unlucky targets' behavior more directly, in Study 2, we tested both phenomena in the same sample, allowing us to empirically evaluate the relationship between immanent justice and judgments of the lucky.

Study 2: The Dissociation of Immanent Justice and Behavioral Predictions of the Lucky

Researchers since Piaget (1932/1965) have found that children believe that intentional bad actions can cause unlucky events to occur, and this thinking has been applied to intentional good actions and lucky events (Fein & Stein, 1977). In these studies, children are often told about a person who has performed, for example, a bad action and who has then experienced an unlucky event (e.g., a boy who stole apples from an orchard and then fell through a bridge on his way home). Children are then asked why the unlucky event happened and/or whether the unlucky event would have happened if the child had not performed the intentional

[3] These participants were presented with only two items comparing lucky and unlucky targets. In one item, they were asked which target would perform an intentional good action, and in the other item, they were asked which target would perform an intentional bad action. Participants were given one point if they selected the lucky target to perform the intentional good action and one point if they selected the unlucky target to perform the intentional bad action, resulting in scores of 0, 1, or 2 for each subject. The distribution of these scores was compared with a binomial distribution (25% chance of 0, 50% chance of 1, 25% chance of 2). We found that this pilot sample selected the predicted responses more often than chance, as indicated by a chi-square goodness-of-fit test, $\chi^2(2, N = 23) = 7.09$, $p = .029$.

bad action. The main result is that young children often say that the unlucky event happened because of the intentional bad action and that it would not have happened had the target not performed the intentional bad action. This type of reasoning is referred to as immanent-justice reasoning. Studies have largely shown that as children get older, their immanent-justice reasoning declines (Jahoda, 1958; Jose, 1991; Percival & Haviland, 1978; Suls & Kalle, 1979).

As we have discussed, there is a similarity, although more superficial than it might seem, between the procedures that test the idea of immanent justice and the present work. Whereas immanent justice concerns reasoning about causation, the present research is not interested in causal relations. If anything, the causal pathway in our studies must be reversed, as children are told about lucky and unlucky events and then infer intentional good and bad behavior. Although we have argued that these are conceptually distinct phenomena, in Study 2, we tested this dissociation directly by asking the same children to perform both an immanent-justice task and a judgment of the lucky task. Although age should be negatively correlated with immanent-justice reasoning, as previous research suggests, age should be uncorrelated or even slightly positively correlated with behavioral predictions of the lucky, as demonstrated in Study 1.

Method

Participants. Participants included 127 children (63 male, 64 female; 118 White, 3 Asian, 2 Hispanic, 1 Middle Eastern, and 1 Black/White biracial; 2 were not identified by parents and race or ethnicity could not be identified by experimenters) between the ages of 5 and 12 years ($M = 8.7$, $SD = 2.0$) in a suburban elementary school in Utah from a mostly middle-class background.

Materials. Participants completed two tasks, including an immanent-justice task taken from Jose (1990) and the judgments of the lucky task from Study 1. Across participants, there were a total of eight immanent-justice stories: In four stories, the protagonist performed a bad action and then experienced a negative event, and in four parallel stories, the protagonist performed a good action and then experienced a positive event. For example, in the orchard stories, the negative version involved a boy stealing apples from an orchard and then falling through a board on a bridge and into a river on his way home, whereas the positive version involved a boy helping a farmer to pick apples and then finding a wristwatch on a bridge on his way home. Four scripts were created, each consisting of one version of each of the four base stories. Each script contained two positive and two negative stories. Participants were randomly assigned a script.

The second task involved eight of the judgments of the lucky prediction items from Study 1. These included the four items from the intentional good versus intentional bad set and the four items from the lucky versus unlucky set. The other eight items from Study 1 (the intentional good vs. lucky and intentional bad vs. unlucky items) were not used, as they made the task too long for the youngest children and were unrelated to the question of interest. The items were randomized into three scripts, each containing all eight items. Participants were randomly assigned a script. Across items, the order of mention of lucky and unlucky targets and the order of mention of intentional good and bad targets was counterbalanced.

Procedure. Participants were brought into a conference room in the school and were greeted by an experimenter. They were told they would be playing two games and that in both games there were no right or wrong answers. They were also informed they could quit at any time (although none of the children did). Participants were sequentially assigned to complete either the immanent-justice task and then the preference for the lucky task or vice versa. For the immanent-justice items, children were read a story while being shown a photograph of a boy (the protagonist) and were then asked to recall as much as they could about the story. They were then asked why the good or bad action from the end of the story happened (e.g., "Why did Joey fall into the river?"). Finally, they were asked if the final action would have happened if the initial action had not (e.g., "Would Joey have fallen into the river if he hadn't stolen the apples?"). For the luck-prediction items, a picture was presented to represent each of the two targets mentioned, and on the test trials, participants were asked to indicate their answers by pointing to the target who they believed had performed the action, as they did in Study 1. After completion of both tasks, participants were thanked for their time and returned to class.

Results

Data preparation. Responses to the why question (e.g., "Why did Joey fall into the river?") were coded by two judges, using predetermined categories from Jose (1991). The categories included immanent-justice reasoning (e.g., "He fell into the water because he stole the apples"); mediated causality, including physical mediation (e.g., "He fell through the bridge because he was carrying so many apples") and psychological mediation (e.g., "He fell because he was feeling badly about stealing the apples and did not see the old board"); chance contiguity (e.g., "He fell into the river because the bridge was old and the boards on the bridge were falling apart"); don't-know responses (e.g., "I have no idea"); and uncodable responses (e.g., "The boy didn't fall in the water"). Overall, raters agreed on categorization 96% of the time, and in those cases in which they disagreed, the coders discussed their responses and came to an agreement on a final categorization.

Participants' answers to the why and yes or no (i.e., would x have happened if y had not?) immanent-justice questions were used for statistical analyses only if they had correctly answered the memory question. A correct memory answer required the participant to accurately recall the initial action and the final action in a given story (e.g., remembering that the boy stole apples and fell into the river). Overall, children passed the memory requirement 89% of the time.

For the luck-prediction items, prediction scores were computed for each category (lucky vs. unlucky and intentional good vs. bad) as was done in Study 1, resulting in a total score ranging from 0 (*never selected the expected response*) to 4 (*always selected the expected response*) for each participant. Children who completed all eight items ($n = 126$) were included in all analyses.

Immanent justice. On the why question, children gave immanent-justice responses 47% of the time, mediated-causality responses 3% of the time, chance-contiguity responses 43% of the time, don't-know responses 4% of the time, and uncodable responses 3% of the time. On the yes or no questions, participants said "yes" 37% of the time and "no" (the immanent-justice response) 63% of the time.

The proportion of immanent-justice responses to the why question was negatively correlated with age ($r = -.19$, $p = .033$), indicating that younger children gave more immanent-justice responses than did older children. Don't-know responses and uncodable responses were also negatively correlated with age (don't know, $r = -.22$, $p = .018$; uncodable, $r = -.16$, $p = .078$). In contrast, mediated-causality and chance-contiguity responses were positively correlated with age, indicating that older children were more likely to use these explanations (mediated causality, $r = .26$, $p = .004$; chance contiguity, $r = .25$, $p = .004$). Age was negatively correlated with "no" answers on the yes or no question, again suggesting that younger children supplied more immanent-justice responses than did older children ($r = -.22$, $p = .016$).

Judgments of the lucky. Overall, children were more likely to believe that an intentional good actor would perform an intentional good action and an intentional bad actor would perform an intentional bad action ($M = 3.39$) than expected by chance, $t(125) = 19.74$, $p < .001$, one-sample t test. Children were also more likely to believe a lucky target would perform a good action and that an unlucky target would perform a bad action ($M = 2.94$) than expected by chance, $t(125) = 10.33$, $p < .001$, one-sample t test. Performance on the intentional good versus bad items was correlated with performance on the lucky versus unlucky items ($r = .24$, $p = .007$), although overall, children selected the predicted responses more for the intentional good or bad items than for the lucky or unlucky items, $t(125) = 4.50$, $p < .001$, paired-samples t test, as was the case in Study 1. In addition, age was positively correlated with both composites (intentional good or bad, $r = .37$, $p < .001$; lucky or unlucky, $r = .19$, $p = .032$), suggesting that older children were more consistent in their responses. It is important to note that although the latter correlation was not significant in Study 1 and is significant here, the effect sizes in both cases were nearly identical ($r = .18$ in Study 1, and $r = .19$ in Study 2), suggesting that the sample size explains this difference. Thus, age was negatively correlated with immanent-justice responses and positively correlated with judgments about the lucky and unlucky.

The relationship between immanent justice and judgments of the lucky. Immanent justice was not related to predictions about the lucky and unlucky, as indicated by nonsignificant correlations between the why and yes or no immanent-justice questions and the lucky or unlucky prediction composite (immanent-justice responses on the why question, $r = -.06$, $p > .50$; "no" answers on yes or no question, $r = -.05$, $p > .5$). Indeed, as noted, the age trends for immanent justice and judgments of the lucky were in opposite directions (see Table 3 for all means by age). Thus, both conceptual and empirical arguments strongly suggest a distinct basis for each phenomenon.

Table 3
Proportion of Responses on the Immanent Justice Task by Type and Mean Prediction Score on Lucky/Unlucky and Intentional Good/Bad Behavioral Prediction Items by Participant Age for Study 2

	Age (years)						
	5	6	7	8	9	10	11
n	7, 8	24, 25	22, 23	19	14	16, 17	13, 14
"No" responses	0.44	0.79	0.71	0.67	0.61	0.60	0.54
Why—immanent justice	0.49	0.44	0.69	0.47	0.42	0.42	0.30
Why—mediation	0.00	0.01	0.01	0.02	0.05	0.00	0.09
Why—chance	0.36	0.39	0.27	0.41	0.47	0.54	0.59
Why—don't know	0.12	0.09	0.03	0.04	0.00	0.03	0.00
Why—uncodable	0.04	0.07	0.00	0.05	0.05	0.00	0.02
Lucky/unlucky	2.75	2.28	3.22	3.05	3.36	3.06	2.85
Intentional good/bad	2.62	3.08	3.22	3.47	3.64	3.88	3.54

Note. When two numbers are present, the valid sample size varied depending on the dependent variable. "No" responses indicated proportion of participants saying no on the yes/no immanent-justice question. The rows starting with why include the proportion of participants at each age giving each of the possible responses to these items. The lucky/unlucky and intentional good/bad rows indicate the average number of times (out of four) that participants at each age selected the good/lucky does good or bad/unlucky does bad responses.

Discussion

Despite surface similarities between the judgments of the lucky task and immanent-justice reasoning, these two underlying phenomena are quite distinct. We found no significant relationship between these measures. In addition, whereas immanent-justice reasoning decreased with age, predictions about the lucky increased with age, providing further evidence that the mechanism responsible for these effects is not the same. In addition to an empirical dissociation, we see a theoretical dissociation as well. Whereas immanent-justice reasoning relies on a misunderstanding about causation (believing that performing a good or bad action can cause a lucky or unlucky event to occur), predictions of the behavior of lucky and unlucky people are not claims about causality. One could imagine, for example, a person who does not believe in immanent-justice reasoning but does believe that an unlucky person is more likely to perform a bad action.

With this effect established, we moved on to ask whether children's inferences about the actions of lucky and unlucky targets are confined to the targets as isolated individuals or whether associates of lucky and unlucky targets are also affected by the targets' circumstances. In other words, are those who are related to unlucky people seen as more likely to engage in bad actions? And is the converse true of someone who is the relative of a lucky individual?

Study 3: Evaluative Contagion

Although most people would argue that it is acceptable to judge someone on the basis of his or her intentions, almost nobody believes it to be fair to judge another by the random events that befall him or her. Similarly, some believe it is undesirable to judge an actor's associate by the actions of the actor, even if the actor has performed a premeditated crime but especially if the actor has been the victim of a random negative or positive event. That is, making negative inferences about the sibling of a known thief is not deemed right by some people, but making negative inferences about the sibling of someone who was the victim of a robbery seems even less permissible.

In Study 3, we tested whether this is indeed the case in the actions of children. We asked whether children's behavioral predictions of the lucky extend beyond evaluations of individuals to evaluations of the associates of lucky and unlucky targets. That is,

if Jan found $5 on the sidewalk, would children believe that Jan's sister is more likely to perform a good action than Susan's sister if Susan was splashed by a passing car? We compared these evaluations with evaluations of the siblings of individuals who perform intentional good and bad behaviors. Such a study can provide initial information about whether evaluative contagion occurs in the prediction of behavior. If children evaluate people on the basis of the events that their associates experience, consistent with predictions of evaluative contagion, this may illuminate how stereotypes and prejudice toward social groups, some of whom experience more unlucky events, develop.

Method

Participants. Ninety-four participants (48 female) between the ages of 4 and 12 years ($M = 7$, $SD = 2$) were recruited to participate in this study, in the same manner as in Study 1. Participant race and socioeconomic status were not requested, but experimenters reported that participants were largely White and, because of location (campus museum), largely middle and upper-middle class.

Stimuli. The exact items and pictures from Study 1 were used in Study 3 with a few additions: We doubled the number of pictures because a sibling was added for each actor. These pictures were drawn from the same database of pictures used in Study 1. As in Study 1, the side of presentation of pictures was counterbalanced across participants, and the mention of targets (e.g., lucky first vs. unlucky first) was counterbalanced across items.

Procedure. Participants were read a script that included 16 items. On each trial, participants were told the names of two children and a fact about each of them that was classified as either intentional good, intentional bad, lucky, or unlucky (identical to Study 1). Participants were also shown pictures of the siblings of each of the children. They were then told about another action (intentional good or bad) and were told that the sibling of one of the two initial actors had performed that action. Participants were asked to point to the sibling who they believed performed the action. As in the previous studies, when a child or his or her sibling was mentioned, a picture of that child appeared on the screen. Below is a complete example of an intentional comparison: Intentional good: This is Ross [picture appears] and his brother [picture appears]. Ross shared his toys with his neighbor. Intentional bad: This is Liam [picture appears] and his brother [picture appears]. Liam stole a toy from his neighbor. Intentional bad: The brother of either Ross or Liam punched a classmate. Which brother punched his classmate?

Below is a complete example of a random comparison: Unlucky: This is Jeff [picture appears] and his brother [picture appears]. On Saturday, Jeff turned on the television and found that there were no cartoons on. Lucky: This is Todd [picture appears] and his brother [picture appears]. On Saturday, Todd turned on the television and found that there was an extra hour of cartoons on. Intentional good: Either Jeff's or Todd's brother helped the teacher clean up after art. Which brother helped his teacher?

This study took slightly longer than previous studies, and therefore, halfway through the script (after eight items), we routinely asked participants if they wanted to keep playing. Often children, especially the younger ones, wanted to stop. We always allowed children to stop whenever they asked, and the majority, if they stopped, stopped after eight items. Therefore, we also alternated whether children started at Item 1 or Item 9 to maximize the number of children completing each item. In total, 20 participants did not complete all 16 items; however, all participants, except the ones described below, completed at least six items.

Data preparation and analyses. Several participants were dropped from analyses for the following reasons: Participants always picked the same side of the screen or picked the same side of the screen on 15 of 16 trials ($n = 10$), the parent interfered during the task ($n = 2$), the participant quit after one item ($n = 1$), or the child clearly did not understand the task ($n = 3$). After these exclusions, our sample included 78 participants (41 female), aged 4 to 12 years ($M = 7$, $SD = 2$).

We then computed prediction scores in the same manner as in Study 1; however, because 20 participants did not complete all of the items, we had to exclude these participants from any prediction score in which they did not answer all four items, which resulted in a sample of 58–63 participants for each prediction score (comparable to the number of subjects in Study 1).[4]

Data were prepared and analyzed using the methods described in Study 1.

Results

Lucky versus unlucky. In our main comparison of interest, we found that participants were significantly more likely to pick the sibling of the unlucky target to perform an intentional bad action than the sibling of a lucky target, who was in turn selected to be more likely to perform a good action, as indicated by a one-sample t test comparing the mean prediction score ($M = 2.48$) with chance ($M = 2.0$), $t(57) = 3.51$, $p = .001$ (see Figure 2 for proportion of predicted responses). That is, children generalized evaluations of an actor to the moral behavior of his or her siblings. It was possible that this significant effect was driven largely by children believing either that the siblings of lucky people would do more good things or that the siblings of unlucky people would do more bad things; however, a paired-samples t test indicated that there was no significant difference on the basis of the valence of the prediction question, $t(57) = 0.90$, $p = .37$. As in Study 1, we found that age did not correlate significantly with prediction score for the lucky versus unlucky comparison, although it was in the positive direction ($r = .15$, $p = .25$).

Intentional good versus bad. The sibling of the intentional bad actor was judged as more likely to perform another intentional bad action than was the sibling of the intentional good actor (and vice versa for a different intentional good action), as indicated by

[4] Because of concerns about the number of participants excluded in these analyses, we reanalyzed the data using proportions, so that a child who completed only two lucky versus unlucky items but selected the predicted response on both items would get a score of 1.0, the same as a child who completed four items and always selected the predicted response. Note, however, that a child who was distracted for one item would look very different when he or she had answered two questions than when he or she had answered four questions. In the former case, the child would get a score of .5 (chance), whereas in the latter case, the child would get a score of .75 (better than chance). This is why we did not analyze the data using this strategy in the text; this limitation not withstanding, the results of these proportion-based analyses were almost identical to those reported in the text using overall scores.

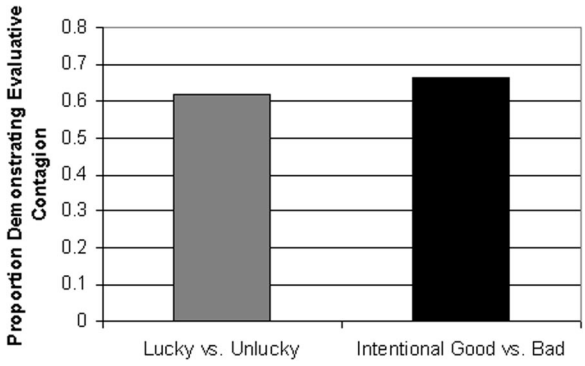

Figure 2. Mean proportion of responses in which participants selected the predicted response in Study 3. The predicted response was selecting the sibling of the lucky or intentional good actor to perform a good action and selecting the sibling of the unlucky or intentional bad actor to perform a bad action. The proportion of unpredicted responses is simply 1 − the proportion of predicted responses. Because including both the predicted and unpredicted bars is redundant, we only included the predicted responses in the graph.

a one-sample *t* test comparing the average prediction score (M = 2.66) with chance, $t(58) = 4.52$, $p < .001$ (see Figure 2 for proportion of predicted vs. unpredicted responses). This result suggests that, barring the presence of other information, children use the purposeful behavior of one sibling to predict the purposeful behavior of another sibling. A nonsignificant paired-sample *t* test indicated that this effect was equally driven by participants' tendency to see the sibling of an intentional good actor as likely to perform a good action and by participants' tendency to see the sibling of an intentional bad actor as likely to perform a bad action, $t(58) = 0.15$, $p = .89$. As in Study 1, age was correlated with performance on the intentional good versus bad comparison (r = .44, $p < .001$), again suggesting that older children show more consistency across trials than do younger children.

Intentional good versus lucky. Surprisingly, given the previous results, participants did not distinguish between the siblings of intentionally good and lucky targets in predicting behavior of siblings, as indicated by a one-sample *t* test comparing the mean prediction score (M = 2.15) with chance (2.0; $p > .30$). Thus, children did not make a significant distinction between whether a target's sibling performed an intentional good action or experienced a lucky event in evaluating that target's future behavior. There was no significant difference between predictions of good versus bad actions, as indicated by a paired-samples *t* test, $t(59)$ = 0.74, $p = .46$. Just as in Study 1, the correlation between performance on this comparison and age was not significant (r = .06, $p = .63$).

Intentional bad versus unlucky. In a similar vein, across all participants, children did not distinguish between intentional bad actors and unlucky targets in predicting sibling behavior (M = 2.17, $p < .15$). They did not evaluate the sibling of an intentional bad actor to be any more or less likely to perform a different intentional bad action than the sibling of an unlucky target. In addition, there was a correlation between age and this comparison (r = .31, $p = .013$), suggesting that older children tended to show this expectation more than did younger children (as they did in Study 1). Again, there was no significant difference between prediction scores for good and bad prediction items, $t(62) = 0.11$, $p = .91$.

Discussion

Study 3 demonstrated that children are willing to evaluate people on the basis of the actions and experiences of their siblings. The negative evaluation of unlucky people observed in Studies 1 and 2 "rubs off" on children's evaluations of their siblings—they are seen as more likely to perform other bad actions. In the same vein, siblings of lucky people are viewed as more likely to perform intentional good actions. These findings provide evidence that evaluative contagion exists and that children's preference extends to the associates of lucky and unlucky people.

Surprisingly, children seemed to lose the distinction they made in Study 1 between intentional and random events when evaluating the siblings of targets. Although children view siblings of intentional good actors as likely to engage in intentional good actions when compared with intentional bad actors, they do not believe that siblings of intentional good actors are more likely to do so than siblings of lucky targets. Similarly, although siblings of intentional bad actors are seen as likely to engage in intentional bad actions themselves when compared with siblings of intentional good actors, they are not seen as more likely to do so than the siblings of their unlucky counterparts. Lending further evidence to this claim is the fact that, unlike in Study 1, there is no significant difference between the mean scores on the intentional good versus bad items and the mean scores on the lucky versus unlucky items, $t(56) = 0.67$, $p = .51$. In other words, whether a child was robbed or was a robber, the sibling was viewed equally negatively despite the fact that the evaluations of the actual robbed child or robber child may have differed. A possible explanation for this pattern is that siblings merely get tagged with a valence (good vs. bad), and the nature of the original source event is not involved in the subsequent evaluation. We return to this affective tagging hypothesis in the General Discussion, but given past findings (e.g., Olson et al., 2006), one could see how being a member of an unlucky or otherwise disadvantaged group could lead to being negatively evaluated, even if the member being evaluated was not the person involved in the original negative event (such as the siblings in this study).

These first three studies stand as evidence of the breadth of the preference for the lucky and evaluative contagion effects. These phenomena extend beyond judgments of preference to beliefs about the likelihood of future action, including predictions of both a target's actions and the actions of a target's sibling.

All three studies also demonstrated a small increase in the consistency of behavioral predictions for lucky and unlucky targets over development, from roughly age 5 through age 12. In the next three studies we further investigated the development of preference for the lucky by testing whether even younger, preschool-aged children showed a preference for the lucky.

Study 4: Preference for the Lucky in Preschoolers

The question of how early this preference emerges has not been broached. In the current research, we tested this question directly by creating a simple task that very young children could perform.

Namely, we presented children with pairs of targets and asked them simply "who's nicer?" As in Study 1, we compared children's evaluations of lucky and unlucky targets but also compared intentional good with intentional bad actors, intentional good with lucky targets, and intentional bad with unlucky targets.

Thus, we explored the emergence of these distinctions in 2.5- to 4.5-year-old children. Evidence of a failure (random performance) at one age and a success at the following age would suggest that either a distinction begins to be made during this period or the task is too hard for children below this age. To differentiate between these two possibilities, we compared performance on the comparison of interest (lucky vs. unlucky) with the other three comparisons (intentional good vs. bad, intentional good vs. lucky, intentional bad vs. lucky). If children performed above chance in an expected direction on at least one comparison, this would suggest that children understood the task and simply failed to make the lucky versus unlucky distinction. If they failed at all tests, it would either mean that young children fail to make all distinctions or, more likely, that the children failed to understand the task.

Because so many cognitive and social psychological changes occur in children during this time (e.g., emergence of reasoning about false beliefs; Gopnik & Astington, 1988; Wellman, Cross, & Watson, 2001), we placed children into narrower 6-month age ranges to determine exactly how they perform at each age. For ease of discussion, we label each age group by its lower bound (e.g., children aged 36–41 months are called 3.0-year-olds). This sample included not only younger children than the first three samples but also more racial and ethnic diversity. This allowed us to test (beyond the pilot study mentioned in the discussion of Study 1) whether our results are limited to majority group participants.

Finally, by using such young children in this study, we shed light on whether BJW is a likely explanation for children's preference for the lucky. As was described in our introduction, Lerner (1977) predicted that the origins of just-world beliefs are tied to learning to delay gratification and a transition away from egocentrism. In addition, his theory postulated that children must understand the relationship between their behavior and the consequences that occur later and then must apply this understanding to the behavior of others. All of these abilities are beyond the scope of young preschoolers (Harris, 1992; Kurdek, 1979; Kurdek & Rodgon, 1975; Mischel & Mischel, 1983), so evidence of a preference for the lucky in young preschoolers would call into question BJW theory as an explanation for preference for the lucky in young children.

Method

Participants. Twelve 2.5-year-olds (5 female; 33.2–36.9 months, $M = 35.1$, $SD = 0.77$), thirty-one 3.0-year-olds (16 female; 36.3–41.9 months, $M = 39.0$, $SD = 1.8$), twenty-nine 3.5-year-olds (16 female; 42.0–47.8 months, $M = 45.2$, $SD = 1.6$), twenty-seven 4.0-year-olds (18 female; 48.0–53.6 months, $M = 50.4$, $SD = 1.9$), and sixteen 4.5-year-olds (8 female; 54.1–59.9 months, $M = 56.7$, $SD = 2.1$) participated. This sample was considerably more diverse than those in the previous studies, as it included 44 White, 11 Black, 19 Asian, 10 Hispanic, 2 Native American, and 17 biracial participants and 12 participants whose parents did not specify race or ethnicity. All participants were recruited while attending a university preschool in California.

Stimuli. Twenty-four pictures of children (12 male, 12 female) were selected from a larger database of photographs and made into 12 same-sex pairs, matched on adult ratings of attractiveness and age. Twenty-four statements were also created such that six involved intentional good events, six involved intentional bad events, six involved random good experiences, and six involved random bad experiences. An object was used to represent each statement (to minimize memory demands), and a photograph of a child was included to represent the target. For example, for the item "[John] helped his parents with the chores," a vacuum cleaner icon was presented along with a unique picture of a boy. Each statement/object/photograph set was paired with another on a page of a flipbook. In total, participants saw three intentional good–intentional bad pairs, three random good–random bad pairs, three intentional good–random good pairs, and three intentional bad–random bad pairs.

In total, we created eight versions of the task to counterbalance for gender of targets, item effects, and the side of the flipbook on which each photograph appeared. The order of mention of targets (e.g., lucky vs. unlucky) varied across items. All subjects completed items in the following order, although the exact items differed across version: IG (intentional good)–IB (intentional bad), RG (random good)–RB (random bad), IG–IB, RG–RB, IG–IB, RG–RB, IG–RG, IB–RB, IG–RG, IB–RB, IG–RG, IB–RB. This order was selected because the first six items were the primary ones of interest, and we were initially concerned that the younger children might not sit through 12 items (although they did). Participants were sequentially assigned to one of the eight versions.

Procedure. Participants were brought to a small room and were seated next to the experimenter. Children were told "We're going to play a game. This game is called the 'who's nicer?' game. I will tell you about some people and then I'll ask you 'who's nicer?' Does that make sense? Are you ready to play?" Once children indicated that they were ready, the experimenter began reading the pairs one at a time until participants completed all 12 items or something caused the participant to finish early (e.g., a fire alarm). Five participants (4%) participated but were excluded because they failed to complete all 12 items. Failure to complete the study was the result of accidents, such as fire drills, or a child needing to use the bathroom during the task.

Results

Data preparation. For each type of comparison, we computed a separate score, giving children one point each time they selected the predicted response (intentional good for the IG–IB comparison, random good for RG–RB comparison, intentional good for IG–RG comparison, and random bad for IB–RB comparison). Each child therefore had a score that ranged from 0 (*never picked the predicted response*) to 3 (*always picked the predicted response*) for each type of comparison. Scores were always compared with chance (1.5) using a one-sample t test.

Overall results. Across all participants, responses for all composites differed from chance in the predicted direction: intentional good versus intentional bad ($M = 2.06$, $SD = 0.88$), $t(114) = 6.82$, $p < .001$; lucky versus unlucky ($M = 1.87$, $SD = 0.88$), $t(114) = 4.48$, $p < .001$; intentional good versus lucky ($M = 1.86$, $SD = 0.94$), $t(114) = 4.10$, $p < .001$; intentional bad versus unlucky ($M = 1.81$, $SD = 0.90$), $t(114) = 3.69$, $p < .001$.

Having a range of ages also allowed us to look for correlations between age and performance. Age was correlated with all of the composites such that older children had higher scores on all composites (intentional good vs. intentional bad, $r = .46$, $p < .001$; lucky vs. unlucky, $r = .31$, $p = .001$; intentional good vs. lucky, $r = .46$, $p < .001$; intentional bad vs. unlucky, $r = .35$, $p < .001$). See Figure 3 for a breakdown of responses by age. We found no significant effect of gender on any of the four composites ($ps > .10$).

2.5-year-olds and 3.0-year-olds. None of the indices differed significantly from chance for 2.5-year-olds ($ps > .35$) or for 3.0-year-olds ($ps > .15$).

3.5-year-olds. Participants who were 3.5 years old judged the intentional good actors to be nicer than the intentional bad actors ($M = 1.93$, $SD = 0.88$), $t(28) = 2.63$, $p = .014$; the lucky targets to be nicer than the unlucky targets ($M = 2.03$, $SD = 0.78$), $t(28) = 3.70$, $p = .001$; the intentional good actors to be nicer than the lucky targets ($M = 1.86$, $SD = 0.88$), $t(28) = 2.23$, $p = .034$; and the unlucky targets to be marginally nicer than the intentional bad actors ($M = 1.79$, $SD = 0.82$), $t(28) = 1.93$, $p = .064$.

4.0-year-olds. Four-year-old participants judged the intentional good actors to be nicer than the intentional bad actors ($M = 2.52$, $SD = 0.75$), $t(26) = 7.03$, $p < .001$; the lucky targets to be nicer than the unlucky targets ($M = 2.15$, $SD = 0.91$), $t(26) = 3.71$, $p = .001$; the intentional good actors to be nicer than the lucky targets ($M = 2.52$, $SD = 0.64$), $t(26) = 8.23$, $p < .001$; and the unlucky targets to be nicer than the intentional bad actors ($M = 2.07$, $SD = 1.00$), $t(26) = 3.40$, $p = .002$.

4.5-year-olds. The 4.5-year-old participants also viewed the intentional good actors as nicer than the intentional bad actors ($M = 2.63$, $SD = 0.72$), $t(15) = 6.26$, $p < .001$; the lucky targets as nicer than the unlucky targets ($M = 2.13$, $SD = 0.81$), $t(15) = 3.10$, $p = .007$; the intentional good actors as nicer than the lucky targets ($M = 2.19$, $SD = 0.91$), $t(15) = 3.02$, $p = .009$; and the unlucky targets as nicer than the intentional bad actors ($M = 2.25$, $SD = 0.77$), $t(15) = 3.87$, $p = .002$.

Discussion

Across ages, a consistent pattern emerged such that around the age of 3.5 years, children were able to make distinctions between those who performed intentional good versus bad actions and between those who experienced lucky versus unlucky events, and they made further distinctions between those involved in intentional versus random actions. In particular, it is interesting that these distinctions seem to emerge at approximately the same age. Of course, one possible explanation remains that the task was simply too difficult for younger children. In Study 6, we addressed this possibility by testing children in an even simpler task.

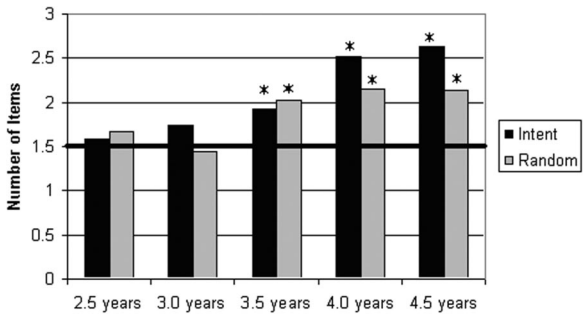

Figure 3. Mean number of times in Study 4 that children at each age selected the lucky or intentional good actor as nicer than the unlucky or intentional bad actor. A score of 1.5 equals chance. Asterisks indicate that the mean differed significantly from chance. Intent = intentional.

Our previous study of attitudes toward the lucky and unlucky looked exclusively at children over the age of 5.0 years. The current study allowed us to see that 4-year-olds do in fact demonstrate this preference and that even 3.5-year-olds do. In addition, this study newly examined the age at which children begin to distinguish between evaluations of intentional actors and random targets. Most of the studies that have compared intentional with accidental events have examined older children (Elkind & Dabek, 1977; Surber, 1982) or collapsed over large age ranges and therefore have not conclusively demonstrated that 3.5-year-olds show this distinction between the intentional and accidental (e.g., Shultz & Wells, 1985; Shultz et al., 1980; Yuill & Perner, 1988). We have demonstrated that the distinction between intentional and random is made reliably around age 3.5 years. At this age, children recognize that an individual is "more good" or "more bad" if he or she acted with intent than if he or she happened to be a mere recipient of such events.

Another explanation for this effect needs to be addressed. It is possible that these studies created a preference for the lucky by forcing such a response. That is, perhaps young children actually preferred the lucky and unlucky targets equally but merely demonstrated this bias because they had to select an answer, a judgment they would not have offered if left alone. Such a result is still interesting, and this possibility is worth testing, so we did so in Study 5.

Study 5: Do Young Children Actually Think the Lucky and Unlucky Are Equally Nice?

In Study 5, we examined the possibility that our findings in Study 4 were the result of an experimental demand. To test this possibility, in Study 5, we presented children with a forced-choice task that included a third alternative: "They're exactly the same." Children were presented with the same stimuli as in Study 4, but were instead asked "Who's nicer, [Johnny], [Jimmy], or they're exactly the same?" If anything, this option should have created a new demand: to employ use of the exactly the same response, given its neutral stance and presence as an option. If children's natural inclination is not to differentiate between lucky and unlucky targets, then we should have seen children providing more exactly the same responses than lucky responses, and we should have seen the difference between lucky and unlucky disappear. In contrast, if children believe that lucky is better than unlucky, we should have continued to see the lucky targets selected more often than the unlucky, in spite of the presence of an exactly the same response.

Method

Participants. Participants included 49 children (33 female) between the ages of 4.0 and 5.5 years ($M = 54.7$ months, $SD = 5.1$ months) attending the same university preschool as those in Study

4. Two subjects were excluded from analyses because they did not understand the task, resulting in 47 children (33 female; $M = 55.0$ months, $SD = 5.1$ months). This study also employed a diverse sample (racial/ethnic breakdown: 19 White, 4 Black, 7 Asian, 7 Hispanic, 5 biracial or multiracial, and 5 did not specify). We included children in this age group because they had most clearly demonstrated the effects in Study 4.

Stimuli and design. The stimuli were identical to those presented in Study 4, although the exact items were randomized. This time, the 12 items included six that compared lucky to unlucky and six that compared intentional good to bad (because these were the primary questions of interest, and we wanted to collect more data on these items from each participant). The items of most interest (lucky vs. unlucky) were presented first. We included the intentional good versus intentional bad items to test whether the new option, "exactly the same," changed performance on the clearest type of comparison and to test whether children understood the task. We reasoned that if a child always responded "exactly the same" for each lucky versus unlucky item, this could be either because he or she thought that random events were not indicative of niceness or because he or she did not understand the task. We therefore included intentional good versus intentional bad to distinguish between these two cases. If a child used the exactly the same response for every random comparison but stopped using the exactly the same response for any of the intentional good versus intentional bad items, as a few children did, then we kept the child in the data set because it seemed clear that he or she understood the task. If a child used the exactly the same response for all 12 items (including intentional and random), we hypothesized that the child did not understand the task, because it seemed unlikely that a child would believe that in all cases an intentional bad actor was just as nice as an intentional good actor. The latter situation occurred only one time, and this child was excluded from the dataset (one of the two excluded above). In total, four versions of the task were created, consisting of two different scripts, each with the order described above. We then counterbalanced the scripts to control for the side of the page on which a given photograph appeared. In all scripts, the order of mention was varied across items.

Procedure. First, children were given three training trials for what we described as the first game, the who's taller game. The experimenter explained that two people would appear and the task would be to say which one was taller: the first one, the second one, or they are exactly the same. In these trials, two stick figures were presented. In the first two trials, one was clearly larger than the other, and the experimenter indicated which one she would select if asked who is taller. In the third trial, two stick figures of the same size were presented, differing in color, and the experimenter indicated that she would say "They're exactly the same." Data were not recorded for this task, but anecdotally, children seemed to understand and often shouted their (always correct) responses before the experimenter had a chance to say her opinion. Finally the experimenter said that the subject would get to play a game but that it was a little different from the who's taller game. Instead, the game would be the who's nicer game, and children could select either person or say "they're exactly the same." All children said they understood, and the experimenter began. Children were read each of the 12 pairs of items and were then asked, "Who's nicer, [Alex], [Andrew], or they're exactly the same?" As a conservative test, we added "exactly the same" as the final response, as anecdotally, we have observed that children have a tendency to pick the last option given. Children indicated their responses by either pointing or stating their response.

Data preparation. For the six items of each type (random or intentional), we computed a score, tallying the number of times the good, bad, or exactly the same response was given. We then compared each score with chance using a one-sample t test.

Results and Discussion

Contrary to a task-demand explanation, we found that children continued to select the lucky targets ($M = 3.14$ out of 6) as nicer more often than chance (2.0), $t(48) = 4.11$, $p < .00l$ (see Figure 4). Because these responses were interdependent, it is not surprising that the unlucky targets were selected less often than chance ($M = 1.14$), $t(48) = -4.83$, $p < .001$, and the exactly the same response did not differ from chance ($M = 1.71$), $t(48) = -0.97$, $p = .34$. It is not surprising that children also selected the intentional good actor most often for the intentional items ($M = 4.59$) and that this was selected more often than chance ($M = 2.0$), $t(48) = 10.48$, $p < .001$ (see Figure 4). The intentional bad actors were selected less often than chance would predict ($M = 0.63$), $t(48) = -10.07$, $p < .001$, and the exactly the same response was also selected less than chance ($M = 0.78$), $t(48) = -5.92$, $p < .001$. A summary of the results can be seen in Figure 4.

One possible explanation for these results is that children were simply reluctant to use the exactly the same response and that this may therefore have been an unfair test. However, 55% of children used this response at least once during the task. For these participants, we computed a preference for the lucky score by subtracting the number of times they selected the unlucky as nice compared with the number of times they selected the lucky as nice. We compared this value with zero using a one-sample t test and found that even those participants who used the exactly the same response at least once selected the lucky more than the unlucky, $t(26) = 2.06$, $p = .05$.

These results suggest that the findings in Study 4 were not simply the result of a forced-choice task. Instead, we found that young children continued to articulate that the lucky target was nicer than the unlucky target. Of course, children did use the exactly the same response from time to time, but they did not do so more often than they selected the lucky target, and the addition

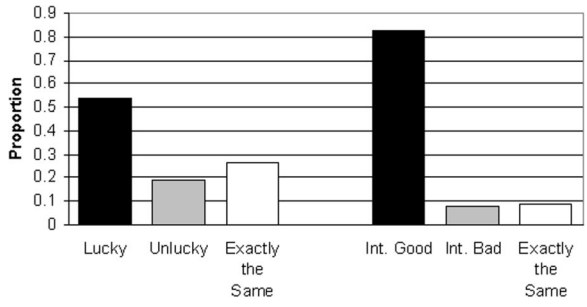

Figure 4. Mean proportion of times in Study 5 that each actor was selected as the nicer one across six lucky versus unlucky items and across six intentional good versus intentional bad items in which the option "exactly the same" was also given. Int. = intentional.

of this option did not undermine the preference for the lucky over the unlucky.

Study 6: Preference for the Lucky in a Simplified Task

A remaining concern from Study 4 is the difficulty of the task for children younger than 3.5 years of age. This possibility is suggested by evidence that 2.5- and 3.0-year-old children were no more likely to select the intentional good actor than the intentional bad actor as nicer. Despite our attempts to make Study 5 simple, perhaps the memory and attention load (learning and then remembering what two different people did before making a response) was simply too great for our youngest participants. Thus, in Study 6, rather than presenting pairs of targets and asking children to remember both before selecting an answer, we presented one target at a time and simply asked children whether each target was nice or not nice. Because Study 4 demonstrated a preference for the lucky in children beginning at age 3.5, in this study, we tested 3.0-year-old children.

Method

Participants. Participants included twenty-five 3.0-year-old children (11 female, aged 36.7–41.8 months, $M = 39.3$, $SD = 1.5$) recruited from either the same campus nursery school in California as the children in Studies 4 and 5 ($n = 12$) or from a lab database in Massachusetts ($n = 13$). Participant race was not recorded, but we estimated that the final sample was approximately 60% White and that the remaining 40% were evenly distributed among Black, Asian and multiracial participants.

Procedure. Participants were brought to a small testing room and were seated next to the experimenter. The experimenter told the child that he or she was going to see some other kids and be asked whether each target was nice or not nice. Participants were presented with a total of 24 targets, six of each type (lucky, unlucky, intentional good, intentional bad) in one of four possible scripts (2 randomized orders $\times$ 2 gender orders).

Results and Discussion

Data preparation and analyses. In general, children were more like to say "nice" than expected by chance (50%), $t(24) = 2.27$, $p = .032$, and this was true for some participants more than others. We were not concerned with this fact, however, given that this bias should have been equally prevalent across item types and that our analyses were within subject. A composite score was created for each type of item such that the total number of nice judgments (out of six possible) was computed for each subject. We then compared these means using paired-sample t tests.

Participants most often designated the intentional good actors as nice ($M = 5.0$, $SD = 2.1$), followed by the lucky targets ($M = 4.2$, $SD = 2.0$), then the unlucky targets ($M = 3.4$, $SD = 2.1$), and then the intentional bad actors ($M = 2.4$, $SD = 2.2$); this pattern was demonstrated by a significant linear trend, $F(1, 24) = 24.12$, $p < .001$. In addition, all paired t tests indicated differences. Most notable, the lucky targets were more often labeled as nice compared with the unlucky targets, $t(24) = 2.16$, $p = .041$, and the intentional good actors were labeled as nice more often than the intentional bad actors, $t(24) = 5.17$, $p < .001$. Children also selected the intentional good actors as nice more often than the lucky targets, $t(24) = 2.22$, $p = .036$, and the unlucky targets as nice more often than the intentional bad actors, $t(24) = 3.69$, $p = .001$. Thus, by simplifying the attentional and memory demands of the task, we demonstrated that even children aged 3.0 years prefer lucky to unlucky individuals.

In a pilot version of this study with 2.5-year-olds, we found that this task was too difficult for them. Children at this age either said "nice" for every item or simply refused to provide an answer, suggesting that to ask whether children younger than 3.0 years show a preference for the lucky, a completely new, perhaps nonverbal task needs to be created.

Across Studies 4–6, our results indicated that even very young preschoolers demonstrate a preference for the lucky over the unlucky. This preference appears when lucky and unlucky individuals are pitted against each other in a forced choice, when children have an explicit option to like lucky and unlucky targets equally, and when the targets are presented serially. Such a finding causes some problems for the fullest just-world explanation. Lerner's (1977) hypotheses about the emergence of just-world thinking suggests that children need to be many months if not years older to show the earliest evidence of just-world thinking. His explanation requires that children move beyond the pleasure principle to the reality principle, which is expected to occur around the age of 6 or 7 years. Even with the most generous definition, 3 years of age is clearly too young for such a transition. It seems highly unlikely, given other results in cognitive development, that 3.5-year-olds have the cognitive capacities and awareness, such as perspective taking and delay of gratification, required for just-world types of reasoning (Kurdek, 1979; Kurdek & Rodgon, 1975; Mischel & Mischel, 1983).

These results provide clear support for the hypothesis that a preference for the lucky is in place by age 3.0 and that it may be present prior to that age. It is possible that in future research with new procedures, such a preference may be detected even earlier. It is also possible that a simpler version of the just-world belief (e.g., a basic belief that good things happen to good people and bad things happen to bad people, without a deeper understanding of the complexity of the world or an ability to inhibit their actions) is held by very young children, although establishing that such a theory is in place would require additional work.

One of the major undertakings of the current article was to investigate how widespread the preference for the lucky is. We have now demonstrated that it is seen in children ranging in age from 3 to 12 years, that older children extend this preference to predictions of the intentional behavior of lucky and unlucky targets, and that they extend the preference to the siblings of the targets. In the final two studies, we investigated whether preference for the lucky and evaluative contagion appear cross culturally.

Study 7: Cross-Cultural Evidence of the Preference for the Lucky

In two final studies, we asked whether the preference for the lucky is constrained to the minds of young children from Western cultures or whether it might instead be a preference held by young children across very different cultures. As our first test of this question, we investigated whether young children who were raised

in a culture that appears to promote fewer trait inferences than that of the United States show this same preference. Research on causal attributions has examined cross-cultural differences in adults' tendency to use situational versus dispositional (trait) explanations of human behavior (Masuda & Kitayama, 2004; Morris & Peng, 1994).[5] Although sometimes the findings have been mixed, when differences have been found, they have tended to fall along Eastern (Japan, India, etc.) versus Western (United States, England, etc.) lines, with Easterners tending to use more situational explanations for behavior and Westerners using more dispositional explanations (Krull et al., 1999; Masuda & Kitayama, 2004; Morris & Peng, 1994). As noted, it is possible that dispositional attributions are at the heart of children's preference for the lucky. That is, perhaps because American children live in a culture that values dispositional attributions, they tend to blame unlucky targets and credit lucky targets, essentially overextending dispositional explanations to random events. Therefore, Japan stands as an interesting test case for examining cultural variability in the preference for the lucky over the unlucky. If children in both cultures show a preference for the lucky over the unlucky, then cultural differences in attributions likely do not explain the preference-for-the-lucky effect.

For this study, we employed a simple test of preference for the lucky in the form of liking judgments of lucky and unlucky targets. Such a test allowed us to examine whether Japanese children differentially evaluated lucky and unlucky targets, rather than asking them to predict behavior (a task that we reasoned required a more elaborated judgment, so if differences occurred, they could be explained by several factors). In addition, by employing the selected method, we could compare the results with published findings with an equivalent American sample (Olson et al., 2006).

Method

Participants. Twenty-six children from rural Japan participated; 3 were excluded because of poor participation (e.g., giving the same response to every item), resulting in 23 participants (10 female; aged 4–7 years; $M = 5$). We selected these ages to approximately match those used in Olson et al. (2006), which employed an identical method. In actuality, this sample was approximately 6 months younger than the Olson et al. sample.

Stimuli. In total, 40 vignettes were created, 10 of each type (intentional good, intentional bad, lucky, unlucky). These items were scrambled and divided into lists of 10 items each. The items were then scrambled again, and four more lists were created, making a total of eight lists. Each list contained at least one item of each type, with the gender of the targets alternating by item. Participants were sequentially assigned to a list. All items were taken from Olson et al. (2006) and were translated into Japanese by Yarrow Dunham and then checked and back translated by two native Japanese speakers to ensure accuracy. The only changes made were those necessary to maintain understanding (e.g., in the American version, the target found $5 on the sidewalk, whereas in the Japanese version, the target found 500 yen, and names were changed from Mike to Minoru).

Procedure. First, children were trained to use a 6-point smiley-to-frowny-face scale that they were to use later in the study. The experimenter gave examples of how he would evaluate different people (e.g., his mother vs. his neighbor) using the scale and asked the child if he or she understood how to use the scale. Children were then read one of the scripts that included 10 items describing the actions of an individual or an event experienced by an individual (e.g., Tarou helped his teacher). After reading each vignette, the experimenter asked children to indicate how much they liked each actor using the 6-point smiley-to-frowny-face scale. These scores were then converted to a 6-point numeric scale.

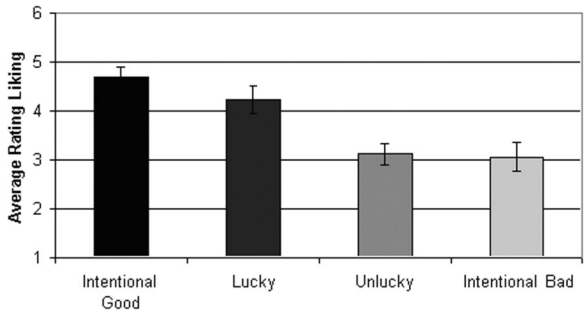

Figure 5. Mean liking rating for intentional good, lucky, unlucky, and intentional bad actors in Study 7, as rated by Japanese children. Higher scores indicate greater liking, and error bars indicate standard error of the mean.

Data preparation. Following the procedure of Olson et al. (2006), the average rating for each type of target (intentional good, intentional bad, lucky, unlucky) for each participant was computed. We used paired t tests to compare ratings of targets.

Results and Discussion

Ratings. Japanese children preferred intentional good targets ($M = 4.68$) to intentional bad targets ($M = 3.06$), $t(22) = 3.61$, $p = .002$, and lucky targets ($M = 4.24$) to unlucky targets ($M = 3.12$), $t(22) = 2.87$, $p = .009$ (see Figure 5). These results support the claim that Japanese children have a preference for the lucky over the unlucky, despite living in a culture that tends to use fewer dispositional attributions and despite our use of a non-forced-choice method. It is interesting that the difference between intentional bad actors and unlucky targets was not significant ($p > .75$) and that the difference between intentional good actors and lucky targets was only marginally significant, $t(22) = 1.85$, $p = .08$. In addition, we computed the difference between evaluations of intentional good and bad actors and the difference between evaluations of lucky and unlucky targets. We then compared these differences and found that there was no significant difference, $t(22) = 1.32$, $p = .20$. That is, Japanese children made almost no

[5] The few studies that have directly examined cross-cultural causal attributions in children have been conducted by Miller (1984, 1986). In those studies, she asked children to spontaneously name examples of intentional good and bad actions from their lives, and she tested whether their explanations for these actions were more situational or dispositional. Her studies differed in several significant ways from the current work: There was no investigation of random events; the events were produced by the subjects, not the experimenters; the children were older than those examined here; and her sample was Indian, not Japanese. She found no significant differences across Indian and American cultures in children's tendency to use situational versus dispositional explanations.

distinction between whether targets engaged in intentional behavior or experienced random events.

It is important to note that the effect size of the preference for the lucky in this sample is very similar to the equivalent effect size in the U.S. sample reported in Olson et al. (2006), which used the same task and a comparable age range ($d = 1.07$ in United States, $d = 0.93$ in Japan). However, the comparison of intentional good and intentional bad actors suggests a large difference between the Japanese and American samples. Although both groups preferred the intentional good to intentional bad targets, the effect size in the American sample is more than twice as large as the effect size in the Japanese sample ($d = 3.04$ in United States, $d = 1.30$ in Japan), a result perhaps related to past findings of differences between American and Japanese people's use of dispositional and situational explanations. In addition, in this sample, participants made no significant distinction between the intentional bad and unlucky targets and only a marginal distinction between the intentional good and lucky targets. In comparison, American children made a large distinction between intentional bad and unlucky targets and also a marginal distinction between intentional good and lucky targets.

These results suggest that young children in cultures that vary in evaluations of intentional acts nonetheless blame victims of bad fortune and reward recipients of good fortune in similar ways. Both show a preference for the lucky. In this result, we have initial evidence of cross-cultural generalizability of the preference for the lucky from a country with a culture that provides a meaningful test. In our final study, we took this initial result one step further and asked whether Japanese children also show evaluative contagion.

Study 8: Cross-Cultural Similarity in Evaluative Contagion

We asked whether Japanese children extend their preference for the lucky to entire social groups. Children were presented with members of two novel groups, one group that contained some members who had experienced lucky events and one group that contained some members who had experienced unlucky events. It is critical to note that both groups had some members who had experienced neither lucky nor unlucky events (see Levy & Dweck, 1999, for a similar procedure). Children were then introduced to these new members of each group and were asked to indicate which group member they preferred.

Method

Participants. Eighty-seven participants (49 female, aged 4–7 years, $M = 5.8$, $SD = 1$) from rural Japan completed the study. One other participant completed the study but had to be removed from the sample because of experimenter error.

Stimuli. An artist drew cartoons of six children, three boys and three girls. The same six pictures were used to represent members of each of the groups; the only difference across groups was the color of their shirts. The lucky and unlucky events were taken from Study 7, and the neutral items were either described as something the actor liked to eat (e.g., Yuko likes oatmeal) or an activity in which the actor engaged (e.g., Ayumi rides her bike).

Procedure. Participants were presented with four trials. On each trial, they were told about members of two groups. The groups were never explicitly labeled and were distinct only because of shirt color and the side of the screen on which they appeared (e.g., cartoons in blue shirts were always on the right side of the screen, and cartoons in green shirts were always on the left side of the screen). Cartoon children appeared on the screen one at a time, alternating groups (e.g., first a child in a blue shirt appeared, followed by a child in a green shirt). As each picture appeared, participants were told one fact about that child. For Group A, three of the five children were described as experiencing lucky events and two were associated with neutral facts. In Group B, three of five children were described as experiencing unlucky events and two were associated with neutral facts. After the 10 group members had appeared on the screen, two final children appeared, one from each group. These two children, the targets, were identical except for shirt color, and each appeared on the same side of the screen as had the other members of their group. Participants were asked which of these two targets they liked better. Two unique trials like the ones described above were created, and two additional trials were created substituting intentional good actions for lucky events and intentional bad actions for unlucky events, resulting in four final trials. The lucky group, the unlucky group, the intentional good group, and the intentional bad group each appeared on the left once and on the right once.

Data preparation. Data preparation and analysis was identical to that used in Study 2 of Olson et al (2006). The two lucky versus unlucky items were combined into a composite, and the two intentional good versus bad items were combined into a separate composite. Each composite was computed by giving the subject one point each time they picked the good or lucky actor, resulting in an index score between 0 (*never picked the good or lucky actor*) to 2 (*always picked the good or lucky actor*). Because only three scores were possible (0, 1, or 2), nonparametric tests were necessary. Overall results were analyzed using chi-square goodness-of-fit tests (chance was computed to be 25% for 0, 50% for 1, and 25% for 2).

Results and Discussion

Findings. Children's preferences differed significantly from chance for both the intentional good versus bad comparison, $\chi^2(2, N = 87) = 6.45$, $p = .040$, and the lucky versus unlucky comparison, $\chi^2(2, N = 87) = 16.22$, $p < .001$ (see Figure 6). Inspec-

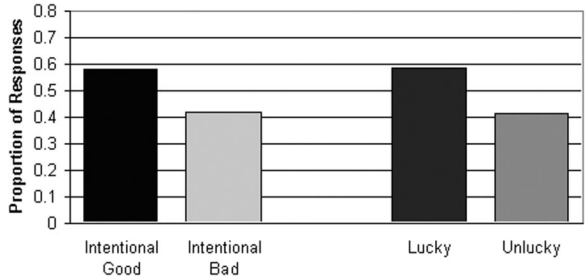

Figure 6. Proportion of Japanese children's responses across items in which they preferred the new member of the intentional good or intentional bad group in the intentional good versus intentional bad comparisons (left side) and the member of the lucky or unlucky group in the lucky versus unlucky comparisons (right side) in Study 8.

tion of the data indicated that children were more likely to prefer the member of the intentional good group than the member of the intentional bad group and, consistent with evaluative contagion, also preferred the new member of the lucky group to the new member of the unlucky group.

These results demonstrate that Japanese children evaluate individuals on the basis of the actions and experiences of others who are socially associated with them. Again, a comparison with the corresponding U.S. sample is in order. As in Study 7, the effect sizes for these two samples are nearly identical for evaluations of people associated with those experiencing random good and bad events ($w = .45$ in United States, from Olson et al., 2006; $w = .43$ in Japan). Also as in Study 7, American children showed three times as large an effect size for intentional good versus bad items compared with Japanese children ($w = .83$ for United States, $w = .27$ for Japan). Once again, we found that Japanese children showed less of a bias against intentional bad groups than did American children, just as they showed less of a bias against intentional bad individuals.

In sum, children growing up in Japan, where dispositional attributions have been observed to be weaker than in Western cultures, showed a preference for the lucky over the unlucky as well as evaluative contagion in the first cross-cultural tests of these phenomena. These results suggest that evaluative contagion is generalizable across cultures. Japanese children performed nearly identically to American children on this task, preferring members of predominantly lucky groups to members of predominantly unlucky groups.

General Discussion

Across eight studies, we have demonstrated that children show a robust tendency to judge the lucky positively. This preference was revealed by a variety of methods and is present in children from a wide range of ethnicities, races, towns, states, countries, and social classes, including predominantly White middle- to upper-middle-class elementary school children in Utah and Massachusetts, low-income Black children in Massachusetts, preschool children from a wide range of ethnicities in California, and rural Japanese children. Across these many samples and tasks, several results emerged clearly. Young children prefer lucky individuals to unlucky ones, children predict that the lucky are more likely to perform intentional good actions and that the unlucky are more likely to perform intentional bad actions, and children extend these predictions and evaluations to the siblings and group members of lucky and unlucky individuals.

Another major finding of these studies was that the preference for the lucky appeared at a very young age. We cannot conclude that children below the age of 3 years do not prefer the lucky, only that they did not do so in our task, which may simply have been too hard for them. Measures such as looking time and reaching behavior have been used successfully with young infants and even nonhuman primates in other cognitive and social cognitive tasks (Baillargeon, Spelke, & Wasserman, 1985; Nurock et al., 2007; Santos & Hauser, 1999), and perhaps creative researchers can design studies to test whether children (or even other species) prefer the lucky. If evidence for this effect in young infants or other primates were found, it would suggest that either this preference is innate or it grows readily out of early cognition, perhaps in conjunction with early socialization.

The current studies also provided initial evidence that the preference for the lucky is not constrained to Western societies by showing the same tendencies in Japanese school children as in their American counterparts. Although our results are suggestive of cultural invariance, this preference should be examined in countries that differ from the United States and Japan in meaningful ways, such as in beliefs about or experience with luck to test further for cultural invariance. For example, do children who live in surroundings in which they have very little control over their environments and therefore experience unlucky events frequently (e.g., children in refugee camps in Sudan) prefer those who experience lucky events to those who experience unlucky events, or does their own experience attenuate or even reverse this preference?

The value of these results is based both on the empirical demonstrations themselves as well as on the theoretical questions they resolve. Two theories stood out as deserving a test alongside the phenomena of preference for the lucky and evaluative contagion: immanent justice and BJW. Despite a similarity in the structure of the test of immanent justice and the present studies, the results demonstrated a clear dissociation between the two. Whereas immanent justice decreased across age, judgments of the lucky did not and, if anything, increased across childhood. In addition, by demonstrating a preference for the lucky in very young children, we minimized the likelihood that just-world beliefs, as they have been previously described (Lerner, 1977), drive the preference for the lucky in young children.

In a set of related studies in progress, we are now investigating the hypothesis that the preference for the lucky is not driven by justice-related concerns at all but, rather, that a simpler mechanism may be responsible for these effects (Olson, Heberlein, Kensinger, Spelke, Dweck, & Banaji, 2008). In particular, we are investigating the possibility that the affect associated with a good or bad event (whether intended or not) rubs off on the individuals experiencing those events, resulting in evaluations of the individuals that are consistent in valence with the events, a process we call *affective tagging*. It is important to note that this hypothesis is more parsimonious than many of the justice theories and makes some differing predictions. For example, whereas just-world theory predicts that a preference for the lucky should primarily occur when the events described are extreme and threaten a person's sense of justice, the affective-tagging hypothesis predicts that lucky individuals will always be associated with some positivity and unlucky individuals will always be associated with some negativity (although in some cases, other factors, such as empathy or impression formation, may work in opposition to these evaluations). This prediction is relevant to the current studies because the items we selected in these studies are trivial events, hardly the events likely to violate one's sense that the world is just. Therefore, the fact that we see a preference for the lucky even for these events provides some initial evidence in favor of the affective-tagging hypothesis.

One may wonder whether children grow out of the preference for the lucky or, alternatively, whether this preference continues across childhood into adulthood, increasing as the trajectory of the data in this article might suggest. One could imagine that after the age of 12 years, the developmental trajectory shifts and adoles-

cents grow out of this belief. Even if this were the case, a dislike of particular unlucky groups may nonetheless become entrenched in childhood and continue into adulthood, long after the mechanism that formed them has ceased to operate. Another possibility is that adults continue to hold these judgments or even increase them, leading to a continuation of prejudice toward unlucky and disadvantaged people and groups. Our research in progress, in which we use a similar paradigm, suggests that these preferences seem to continue through adulthood, although they abate considerably; this apparent abatement may be due to adults becoming more reluctant to express the preference publicly. In a simple replication of Study 1, we found that adults show the same pattern of believing that lucky targets are more likely to perform good actions and that unlucky targets are more likely to perform bad actions. A preference for the lucky was also found in American adults in a conceptual replication of Study 7, showing that they prefer people who experience lucky events to those who experience unlucky events, even when we used a non-forced-choice design.

As discussed above, this liking of the lucky and disliking of the unlucky is similar to many related findings that suggest that people and things are evaluatively tagged on the basis of the valence of other information associated with that individual or thing. For example, research has shown that adults tend to dislike the bearer of information with which they disagree, even when the bearer of the information disagrees with the information being shared (Manis, Cornell, & Moore, 1974), and that adults see an individual as, for example, more angry if that individual has described another person as angry (Skowronski, Carlston, Mae, & Crawford, 1998). In addition, even novel objects elicit rapid evaluation (Duckworth, Bargh, Garcia, & Chaiken, 2002), and it is therefore not unreasonable to think that quick evaluations occur when humans observe other humans, a prediction at the heart of the affective-tagging hypothesis (Olson et al., 2008).

Although the preference for the lucky may seem to be an innocent bias, it is possible that it has important and insidious repercussions, in particular because those expressing it are young children. In the real world, random events are, by definition, out of the control of the individuals experiencing them, but they are not completely random in whom they affect. Rather, some groups (those who are disadvantaged) tend to experience these types of events more than do others. Hurricane Katrina, which hit the United States Gulf Coast in August of 2005, stands as a striking example of the unequal impact of random events on members of advantaged and disadvantaged groups. A disproportionate number of those who were stranded in New Orleans were disadvantaged, a disproportionate number of those who died were disadvantaged, and the impact on the lives of those who survived was greater for the victims who were members of disadvantaged groups. Therefore, what at first appears to be an innocuous belief—that lucky people are better than unlucky people—may actually lead to a systematic bias against disadvantaged people and groups, resulting in both inculcation and perpetuation of prejudice in children.

If it is true that the preference for the lucky and the contagion of these judgments play a role in the development and maintenance of prejudice, then this would suggest that to fight prejudice and its development, it is not enough to censor racist remarks, do sensitivity training in schools, and read politically correct stories. As long as negative outcomes continue to fall disproportionately on some groups, we may be unwittingly providing our children with the evidence they use to infer that group's inferiority. This means that parents, teachers, and society must not only come to understand the preferences young children hold but also must understand that if they wish to change the impact of these preferences, society needs to rectify the injustices that cause disadvantage and/or develop strategies to counteract young children's early preferences.

Thus, these preferences may be one of the origins of or contributing factors to the development of stereotyping, prejudice, and discrimination, perhaps via the development and maintenance of group hierarchies. Such a conclusion is relevant to social psychological discourse on system-justification theory (Jost & Banaji, 1994) and social dominance theory (Sidanius & Pratto, 1999). Both theories suggest that people are motivated to maintain the status quo in which some social groups have a higher status than others; a preference for the lucky may be one such attitude that contributes to the maintenance of group hierarchies. It is possible that the preference for the lucky is a mechanism for the development and maintenance of system-justifying and social dominance beliefs as well as more specific social-group attitudes. We believe this to be a promising avenue of future research.

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