



PAPER

In the absence of conflicting testimony young children trust inaccurate informants

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Abstract

The present research investigated the nature of the inferences and decisions young children make about informants with a prior history of inaccuracies. Across three experiments, 3- and 4-year-olds (total N = 182) reacted to previously inaccurate informants who offered testimony in an object-labeling task. Of central interest was children's willingness to accept information provided by an inaccurate informant in different contexts of being alone, paired with an accurate informant, or paired with a novel (neutral) informant. Experiments 1 and 2 showed that when a previously inaccurate informant was alone and provided testimony that was not in conflict with the testimony of another informant, children systematically accepted the testimony of that informant. Experiment 3 showed that children accepted testimony from a neutral informant over an inaccurate informant when both provided information, but accepted testimony from an inaccurate informant rather than seeking information from an available neutral informant who did not automatically offer information. These results suggest that even though young children use prior history of accuracy to determine the relative reliability of informants, they are quite willing to trust the testimony of a single informant alone, regardless of whether that informant had previously been reliable.

Introduction

As humans, we rely heavily on others for information that would be too time-consuming or difficult to acquire firsthand. Children, especially, learn a great deal of natural and cultural knowledge from others (Gelman, 2009). Although social learning allows children to acquire knowledge quickly, there are obvious drawbacks. Others sometimes provide information that is inaccurate – informants might lack knowledge, have deceptive intentions, or simply make errors. To avoid being misinformed, it is essential for children to learn to critically evaluate both the trustworthiness of informants and the information they provide. Recent research suggests that even young children critically evaluate the trustworthiness of testimony (Koenig & Harris, 2005, Sabbagh & Baldwin, 2001); they preferentially trust individuals with a history of providing accurate testimony over those with a history of providing inaccurate testimony when given a choice (Birch, Vauthier & Bloom, 2008; Koenig, Clément & Harris, 2004; Koenig & Harris, 2005; Pasquini, Corriveau,

Koenig & Harris, 2007; see Harris & Corriveau, 2011, for review). Nevertheless, the reasoning underlying children's decision of whom to trust is not well understood. The present research seeks to help fill this gap by examining what inferences children make when evaluating informants with a history of inaccuracy and the nature of children's decisions about whether to accept inaccurate informants' testimony.

Children's acceptance of an accurate informant's testimony over an inaccurate informant's testimony is consistent with two possible underlying inferences about the inaccurate informant. One possibility is that children infer that someone who has previously provided inaccurate information is *absolutely* unreliable and should be strongly distrusted. Another possibility, however, is that children infer that someone who has previously provided inaccurate information is *relatively* less reliable than someone who has previously provided accurate information, but is still generally trustworthy.

In order to effectively evaluate inaccurate informants, children must first be able to identify inaccuracies and

track them. Prior research suggests that these skills are in place early in life. Infants as young as 16 month of age look longer at, respond differently to, and correct speakers who labeled familiar objects incorrectly (Koenig & Echols, 2003; Koenig & Woodward, 2010; Pea, 1982). Beyond identifying inaccuracies, Corriveau, Meints and Harris (2009) observed that children as young as 3 years of age track informants' inaccuracies. Nevertheless, prior research does not allow for a determination of whether children view inaccurate informants as unreliable only in a relative sense or also in an absolute sense.

Although both hypothesized inferences about the inaccurate informant are consistent with the observed results of children trusting accurate informants over the inaccurate ones (Birch *et al.*, 2008; Koenig *et al.*, 2004; Koenig & Harris, 2005; Pasquini *et al.*, 2007), they predict very different responses when children are deciding whether to trust a single inaccurate informant. If children infer that someone who got a few things wrong is absolutely unreliable, they will distrust testimony from the single inaccurate informant. Conversely, if children infer that someone who got a few things wrong is less reliable than others, but still generally reliable, they will trust testimony from the single inaccurate informant. In Experiment 1, we sought to investigate which of the two hypothesized inferences children make when they are presented with an inaccurate informant by comparing children's responses when presented with a single inaccurate informant alone versus when presented with an inaccurate informant alongside an accurate informant.

Experiment 1

In a between-subjects design, we presented 3- and 4-year-olds with one of three conditions: (1) an accurate informant paired with an inaccurate informant, (2) a single inaccurate informant alone, or (3) a single accurate informant alone (as a control condition). Following previous selective trust studies (Koenig *et al.*, 2004; Koenig & Harris, 2005; Sabbagh & Baldwin, 2001), children in the paired accurate–inaccurate informants condition observed an informant label familiar objects correctly and the other informant label familiar objects incorrectly. Children in the single inaccurate informant condition observed only an informant label familiar objects incorrectly, and children in the single accurate informant condition observed only an informant label familiar objects correctly. Then, importantly, children in all three conditions were tested with the same question with regard to their trust of the informants' labels for novel objects.

Method

Participants

Eighty-six 3- and 4-year-olds participated in Experiment 1; there were 43 3-year-olds (27 females and 16 males; M age = 3.6 years, age range: 3.0 to 3.9 years) and 43 4-year-olds (20 females and 23 males; M age = 4.4 years, age range: 4.0 to 5.0 years). Children were recruited from preschools and museums in southern California. The sample was approximately 68% Caucasian, 14% Asian, and 18% Hispanic.

Materials and procedure

In the familiar objects history phase, children were introduced to two puppets or a single puppet, depending on the condition, and two pairs of familiar objects: a car with an apple and a ball with a crayon. Table 1 shows the types of speakers that were compared in each condition. In the *paired accurate–inaccurate informants* condition ($N = 29$), children were introduced to a boy and a girl puppet; children observed one puppet demonstrate accuracy by correctly calling a car a 'car' and a ball a 'ball' and the other puppet demonstrated inaccuracy by incorrectly calling an apple a 'car' and a crayon a 'ball'. The gender of the accurate and inaccurate informants was counter-balanced between subjects. In the *single inaccurate informant* condition ($N = 26$), children were introduced to either a boy or a girl puppet (counter-balanced between subjects); children observed the one puppet demonstrate inaccuracy by incorrectly calling an apple a 'car' and a crayon a 'ball'. To control for equal attention for the other object in each pair, the puppet also touched the car and the ball while saying, 'There it is! Look at that thing.' In the *single accurate informant* condition ($N = 31$), children were introduced to either a boy or a girl puppet (counter-balanced between subjects); children observed the one puppet demonstrate accuracy by calling a car a 'car' and a ball a 'ball'. To control for equal attention for the other object in each pair, the puppet also touched the apple and the crayon while saying, 'There it is! Look at that thing.'

In the novel objects test phase of the task, children were presented with three test trials; on each trial, children were introduced to a pair of novel objects. For each test trial, in the paired condition, the accurate puppet referred to one of the two objects with a novel label (by touching it and saying, e.g. 'That is a blicket! Look at the blicket.'), whereas the inaccurate puppet referred to the other object with the same novel label (by touching the other object and saying, e.g. 'That is a blicket! Look at the blicket.'). In both the single inaccurate and the single accurate conditions, the puppet

Table 1 Summary of experimental design (number and type of informants) and results

Group	History phase informants		Test phase informants		Percentage trusted inaccurate informant
	Number	Type	Number	Type	
Experiment 1					
Paired accurate-inaccurate	2	A and I	2	A and I	21%
Single inaccurate	1	I	1	I	82%
Single accurate	1	A	1	A	n/a
Experiment 2					
Paired single inaccurate	2	A and I	1	I	92%
Paired single accurate	2	A and I	1	A	n/a
Experiment 3a	1	I	2	I and N	32%
Experiment 3b	1	I	2	I and N ^a	68%

Note: A = accurate informant; I = inaccurate informant; N = neutral informant. All informants actively provided testimony, except as specifically noted for the neutral informant in Experiment 3b. ^aNeutral informant did not actively provide testimony; children were informed at the start of the test phase that the neutral informant was available for them to ask about the test objects.

called one of the two objects a novel label (by touching it and saying, e.g. ‘That is a blicket! Look at the blicket.’) and, to control for equal attention for the other object in each pair, the puppet also touched the unlabeled object while saying, ‘There it is! Look at that thing.’

Next, for each test trial, and for all three conditions, children were asked to select the object associated with the novel label (e.g. ‘Can you put the blicket in this box?’). *Importantly*, children in all three conditions were asked the same question in a two-object situation. Across three test trials, their responses indicated whether they trusted the informants’ labels for novel objects in order to allow for clear comparisons between conditions. Regardless of what they chose, children received no feedback from the experimenter about their choice in any of the conditions.

At the end, we asked children a follow-up question about each informant: ‘If you wanted to know what this new thing was called, would he/she be a good person to ask?’ Children in the paired condition were asked this question for both the accurate and the inaccurate informants separately. Children in the single inaccurate and the single accurate conditions were asked only for informant in their respective condition.

Results

All children completed three test trials, and each child’s trust of a particular informant’s labels was scored from zero to three. Preliminary analyses indicated no significant effects of participant age or gender; analyses also indicated no significant effect of puppet gender. Consequently, these variables were excluded from further analyses. In addition we did not find any changes in children’s performance across trials. (Experiments 2 and 3 also did not show any effects of age, gender, puppet gender, or trial, and thus

these variables were also excluded from the reported analyses of Experiments 2 and 3.)

In a replication of prior research (e.g. Koenig *et al.*, 2004; Koenig & Harris, 2005), in the paired condition, children trusted the accurate informant ($M = 2.38$; 79% of the trials overall) over the inaccurate informant ($M = 0.62$; 21% of the trials overall). Of central theoretical interest is whether children distrust inaccurate informants in an absolute sense, such that they systematically reject the testimony of inaccurate informants. In order to address this issue, we determined that children’s level of trust in the single inaccurate condition ($M = 2.46$; 82% of the trials overall) was significantly greater than would be expected by chance performance, $t(25) = 5.17$, $p < .001$. In addition, we compared the two conditions (paired and single inaccurate) with a previously inaccurate informant. We found that children’s trust of the inaccurate informant was significantly greater in the single inaccurate condition than in the paired condition, $t(53) = 7.37$, $p < .001$. Finally, we compared children’s level of trust in the single inaccurate condition with the single accurate condition ($M = 2.61$; 87% of the trials overall) and found no difference, $t(55) = 0.67$, *ns*. These results showed that children trusted the inaccurate informant when he or she was not paired with an opposing (accurate) informant, and they did so at the same level as their trust of the accurate informant.

On the follow-up question, children overwhelmingly judged that both accurate and inaccurate speakers would be good people to ask about the label of a novel object. Specifically, 85% of the children in the single inaccurate condition and 84% of the children in the single accurate condition reported that the informant in question would be a good person to ask. This same general pattern was also seen in the paired condition where 86% of the children reported that the accurate informant would be a

good person to ask compared to 79% of the children who reported that the inaccurate informant would be a good person to ask, McNemar's $\chi^2(1) = 0.73$, *ns*. In addition, children's explicit judgment of the inaccurate informant did not differ between the paired and single inaccurate conditions, McNemar's $\chi^2(1) = 0.26$, *ns*.

Overall, the results suggest that although children trusted the accurate informant over the inaccurate informant when asked to choose between them, they nevertheless considered the inaccurate informant to still be generally trustworthy. This was evident both in their willingness to accept information provided by the single inaccurate informant and by their explicit judgments that an inaccurate informant would be as good a person to ask about a novel object label as an accurate informant.

Discussion

In Experiment 1 children accepted the novel labels of the inaccurate informant more often when he or she was the only informant than when he or she was paired with an accurate informant. Furthermore, children accepted the novel labels of the single inaccurate informant at a level greater than chance. These findings suggest that children's specific inference about the inaccurate informant is that someone who got a few things wrong is less reliable than an accurate informant, but still generally reliable. That is, it appears that children lower their level of trust in inaccurate informants only slightly. As such, our results suggest that children will tend to trust testimony from a single inaccurate informant alone long after they have acquired the ability to encode and track an informant's previous inaccuracies (Corriveau *et al.*, 2009; Koenig & Echols, 2003; Koenig & Woodward, 2010; Pea, 1982). Indeed, other studies have also found that preschool-age children will continue to trust single inaccurate informants who offer advice (Couillard & Woodward, 1999; Jaswal, Croft, Setia & Cole, 2010; Vanderbilt, Liu & Heyman, 2011), and Krogh-Jespersen and Echols (2012) found that 24-month-olds also accepted labels from single inaccurate and ignorant speakers for novel objects. This decision to accept information from a single inaccurate informant stands in contrast to children's rejection of information from the inaccurate informant in our paired condition, as well as their behavior in previous selective trust studies that have provided participants with contrasting informants on a within-subjects basis (Birch *et al.*, 2008; Koenig *et al.*, 2004; Koenig & Harris, 2005; Pasquini *et al.*, 2007).

One interpretation of our results is that children are generally quite willing to accept information from inaccurate speakers, unless their testimony conflicts with that of accurate (and perhaps neutral) speakers. Specifically,

this account explains the difference between reasoning about inaccurate speakers in the single versus paired conditions during the test phase of the task, when two speakers offer conflicting advice to the child. However, an alternative possibility is that children need to observe the contrast between accurate and inaccurate speakers during the history phase (which occurred in the paired but not the single inaccurate condition) to highlight the inaccurate speaker's deficits. Perhaps children simply need a working comparison of a speaker's past accuracy relative to others to inform trust decisions, rather than conflicting offers of testimony during the test phase. If this second possibility is correct, we would expect to see children reject testimony from a single speaker with a history of inaccuracy, as long as they had also seen another speaker label the same objects correctly during the history phase. Experiment 2 tested this possibility by presenting children with the contrast of accurate and inaccurate informants during the history phase, but then testing children on only one of the informants.

Experiment 2

In a between-subjects design, we presented 3- and 4-year-olds with paired accurate and inaccurate informants during the history phase, but with only one of those informants during the test phase. In one condition, the informant during the test phase was the one who had been accurate, and in the other condition, the informant was the one who had been inaccurate.

Method

Participants

Forty-four 3- and 4-year-olds participated in Experiment 2; there were 22 3-year-olds (7 females and 15 males; *M* age = 3.5 years, age range: 3.0 to 3.9 years) and 22 4-year-olds (10 females and 12 males; *M* age = 4.5 years, age range: 4.0 to 4.9 years). Children were recruited from preschools and museums in southern California. The sample was approximately 77% Caucasian, 9% Asian, and 14% African-American.

Materials and procedure

The materials for Experiment 2 were identical to Experiment 1. The familiar objects history phase of the paired condition in Experiment 1 was combined with the novel objects test phase of either the single inaccurate condition in Experiment 1 (for the Experiment 2 *paired-single inaccurate* condition) or the single accurate condition in

Experiment 1 (for the Experiment 2 *paired-single accurate* condition); see Table 1. Lastly, as in Experiment 1, children were asked an explicit follow-up question about the informant.

Results

Results showed that children systematically accepted the testimony of the inaccurate informant. Children trusted the inaccurate speaker at a rate ($M = 2.76$; 92% of the trials overall) that was significantly greater than chance performance, $t(20) = 10.73$, $p < .001$. In addition, their trust of the informant in the paired-single inaccurate condition was not significantly different from the paired-single accurate condition ($M = 2.35$; 78% of the trials overall), $t(42) = 1.55$, *ns*. As in Experiment 1, on the follow-up question, children in both conditions reported that the informant would be a good person to ask for labels of novel objects; 76% of children in the paired-single inaccurate condition and 78% of children in the paired-single accurate condition judged that the informant would be a good person to ask.

A goal of Experiment 2 was to test the possibility that having the contrast between an accurate and an inaccurate informant highlights the inaccurate informant's inaccuracies compared to only observing the inaccurate informant alone during the history phase. Thus, we compared children's trust of the single inaccurate informant in the paired-single inaccurate condition of Experiment 2 and the single inaccurate condition of Experiment 1. Children's trust of a single inaccurate informant did not differ between the conditions, $t(45) = 1.29$, *ns*. It appears that having the contrast of an accurate informant during the history phase did not impact children's inference about the reliability of the inaccurate informant. Thus, being offered conflicting testimony during the test phase may carry more weight in trust decisions.

Discussion

The results of Experiment 2 showed that the 3- and 4-year-olds accepted the novel labels of the single inaccurate informant as often as the novel labels of the single accurate informant. This was the case even though they observed the contrast between the accurate and the inaccurate informants during the history phase. Also, children accepted the novel labels of the single inaccurate informant as often in the paired-single inaccurate condition of Experiment 2 as in the single inaccurate condition of Experiment 1. That is, children trusted the single inaccurate informant regardless of whether there was an opposing accurate informant during the history phase to highlight the inaccuracies. Lending further

support for these findings are children's explicit judgments on the follow-up questions. Across Experiments 1 and 2, children judged the inaccurate informant as someone who would be good to ask for information regardless of whether there was an opposing accurate informant during the history or the test phase.

Experiment 3a

In Experiments 1 and 2, we demonstrated that young children readily accepted information from an informant with a history of inaccuracy unless they were presented with conflicting information from an accurate informant during test trials. Experiment 2 showed that having the contrast of an accurate informant during the history phase did not impact children's inference about the reliability of the inaccurate informant. Thus, the presence of another informant during the *test phase* appears to play a critical role in trust decisions. In Experiment 3, we examined children's trust decisions about an inaccurate informant's testimony when the alternative informant during the test phase is a novel, neutral informant without any performance history. We examined two ways in which the neutral informant is paired with the inaccurate informant (see Table 1). In Experiment 3a, the neutral informant offers testimony that opposes the inaccurate informant during the test phase. In Experiment 3b, the neutral informant was available for children to seek information from during the test phase, but did not proactively offer testimony.

Of interest in Experiment 3a was whether children would distrust the testimony of an inaccurate informant when conflicting testimony is from a neutral informant with unknown accuracy history. Corriveau *et al.* (2009) provide suggestive evidence that this is the case. This study found that children trusted testimony from a neutral source over testimony from an inaccurate one in cases where the neutral source provided only uninformative statements (e.g. 'let me look at that') during their history phase. Of interest in the present experiment is whether their finding would replicate under the procedures of the present research when no information from the neutral source was provided during the history phase. Thus, the only information children received about the alternative source in our experiment was that they provided alternative testimony to the inaccurate informant.

Method

Participants

Twenty 3- and 4-year-olds participated in Experiment 3a; there were nine 3-year-olds (3 females and 6 males; M

age = 3.63 years, age range: 3.13 to 3.93 years) and 11 4-year-olds (4 females and 7 males; M age = 4.52 years, age range: 4.02 to 5.05 years). Children were recruited from preschools and museums in southern California. The sample was approximately 65% Caucasian, 20% Asian, and 15% Hispanic.

Materials and procedure

The materials for Experiment 3a were identical to Experiment 1. The familiar objects history phase was identical to that phase of the single inaccurate condition in Experiment 1. During the novel objects test phase, a second (neutral) puppet was presented. In each of three test trials, as in Experiment 1, the inaccurate puppet called one of two novel objects a novel label, the novel puppet then gave the same label for the other object, and children were asked to endorse one of the labels provided, by selecting the correct object. Children's responses were coded for whether they accepted the novel labels of the inaccurate informant. Critically, children answered the same test question as in the previous two experiments.

Results and discussion

Consistent with the results of Corriveau *et al.* (2009), children trusted the novel informant at above chance levels $t(19) = 2.15, p = 0.045$ ($M = 2.05$; 68% of the trials overall). These results indicate that when another source offers conflicting testimony alongside an inaccurate source, children will rely on the alternate source, even when that source has no prior history of accuracy or inaccuracy. In line with the results from Experiment 1, these results also suggest that young children are adept at relative trust judgments, and will disregard the testimony of an inaccurate source when alternative testimony is provided.

On the follow-up question, children reported that both the inaccurate and the neutral informant would be good people to ask for labels of novel objects; 80% of children reported that the inaccurate source would be a good person to ask, and 90% of children reported that the neutral informant would be a good person to ask. This suggests that children considered both informants to be generally reliable, despite the lack of evidence to confirm that assumption, or (in the case of the inaccurate informant) direct evidence to the contrary.

Experiment 3b

Experiment 3a showed that as long as children were given alternative testimony to that of the inaccurate

informant, they showed appropriate selective trust. Of interest in Experiment 3b was whether the neutral informant in question had to proactively provide alternative testimony, in order to cue children to distrust the inaccurate informant's testimony, or whether the mere availability of an alternative source was sufficient. We addressed this question by providing children with only the testimony of an inaccurate informant, but in this case we made it clear that there was another source available for additional testimony if children sought that out.

Method

Participants

Thirty-two 3- and 4-year-olds participated in Experiment 3b; there were 18 3-year-olds (6 females and 12 males; M age = 3.60 years, age range: 3.08 to 3.98 years) and 14 4-year-olds (7 females and 7 males; M age = 4.58 years, age range: 4.07 to 5.02 years). Children were recruited from preschools and museums in southern California. The sample was approximately 71.5% Caucasian, 12.5% Asian, and 15% Hispanic.

Materials and procedure

The materials for Experiment 3b were identical to Experiment 1, and the procedure was the same as in Experiment 3a, except that the novel source remained silent during test trials and did not offer information unless asked by the child. All children were informed that the new puppet was there to answer any questions they had during the game, and all children confirmed verbally that they understood this. Children's responses were coded for whether they accepted the novel labels of the inaccurate informant, and for whether or not they chose to solicit advice from the novel source. Again, the test question was identical to that from Experiments 1, 2 and 3a.

Results and discussion

Children in this condition trusted the inaccurate informant the majority of the time ($M = 2.03$; 68% of the trials overall) at a level above that expected by chance $t(31) = 2.83, p = .008$. Because we wanted to understand the effect of a potential alternative neutral source during the test phase versus an alternative neutral source who proactively offers conflicting testimony, we compared children's trust of the inaccurate informant in Experiment 3b with their trust in the inaccurate source in Experiment 3a. Children trusted the inaccurate informant in Experiment 3b (68% of the trials overall) more than the inaccurate informant in Experiment 3a (32% of

the trials overall), $t(50) = 3.47$, $p = .001$. These results suggest that proactively offered conflicting testimony cues children's selective trust, whereas simply having an alternative source present may not. Further, *no* children in this experiment took the opportunity to ask the neutral source for advice about which object to choose. Instead, *all* children relied solely on the testimony provided by the inaccurate informant to make their decision, by either accepting or going against the inaccurate informant's testimony. These results indicate that children did not feel the need to ask another source for advice after receiving the inaccurate informant's testimony.¹

The results of Experiments 3a and 3b suggest that children do not accept testimony from an inaccurate informant simply because that informant is the only source available. Instead, it appears that children are happy to accept an inaccurate informant's testimony unless that source is actively opposed by conflicting testimony. This provides further evidence that children do not infer an inaccurate informant is untrustworthy in an absolute sense.

General discussion

The present research examines young children's inferences about informants who provide testimony, with a focus on informants who have shown a history of inaccuracies. In a series of experiments, the present research is the first to systematically examine the nature of the inferences and decisions young children make about informants with a prior history of inaccuracies. We observed whether children trusted the testimony of speakers who had been accurate or inaccurate in the past. In Experiment 1, children selectively distrusted inaccurate informants when accurate informants provided conflicting information, but they trusted inaccurate informants who were presented alone. In Experiment 2, children who had previously observed the contrast between inaccurate and accurate informants, again systematically trusted inaccurate informants who offered testimony alone. Finally, in Experiment 3, children relied on testimony from a neutral speaker over testimony from an inaccurate speaker when both provided a label, but children accepted

testimony from an inaccurate speaker rather than seeking information from an available source that did not automatically offer a label. Taken together, the present results demonstrate that young children's inferences about inaccurate informants are of their relative reliability, not their *absolute* reliability. Further, these results suggest that preschool children may exercise selective trust only in situations where they must choose between at least two instances of offered testimony. This possibility is also consistent with findings of Krogh-Jespersen and Echols (2012), showing that although 24-month-olds were able to reject labels from single inaccurate and ignorant speakers for familiar objects, they were not able to do so for novel objects. Thus, children appear to exercise selective trust when testimony from an inaccurate informant conflicts with either another informant's offered testimony or their own knowledge.

Explicit judgment data also support our claim that young children generally trust inaccurate informants. In all experiments in which children were asked, more than three-quarters of children responded that the inaccurate source would be a good person to ask for novel object labels (79% and 85% in Experiment 1, 76% in Experiment 2, and 80% in Experiment 3a), and these responses were not significantly different from children's rates of response to accurate informants. This was the case even in the paired condition of Experiment 1, when children were asked about both an accurate and an inaccurate speaker. In this case, 79% of the children reported that the inaccurate informant would be a good person to ask, which was not significantly different from the 86% of the children who reported that the accurate informant would be a good person to ask. These explicit judgments likely differ from what has been observed in prior research on selective trust of paired informants (e.g. Koenig *et al.*, 2004; Koenig & Harris, 2005) because we asked children to rate the absolute reliability of each individual informant, rather than to make a relative comparison between the two informants. However, because follow-up questions were asked in a yes/no format, they are not directly comparable to questions other researchers have asked using different formats, and it is possible that younger participants may have been subject to a yes bias (Fritzley & Lee, 2003).

Our results suggest that young children may not assign a large penalty in response to past inaccuracies and instead lower their level of trust only slightly. Therefore, although children encode and track inaccuracies (Coriveau *et al.*, 2009) and trust inaccurate informants relatively less than accurate informants (Birch *et al.*, 2008; Koenig *et al.*, 2004; Koenig & Harris, 2005; Pasquini *et al.*, 2007), they are generally quite willing to accept testimony from inaccurate informants when that is the only testimony offered to them.

¹We collected data for a control condition ($N = 72$) in which the test question was changed to explicitly remind children of the option to ask the neutral informant. In this version, 45% of children chose the object labeled by the inaccurate informant, 50% chose to ask the neutral informant, and 5% chose the opposite object of the one labeled by the inaccurate informant. These results show that even when explicitly reminded of the option to ask another informant, children still didn't systematically reject the testimony of the inaccurate informant.

Why might children fail to appropriately question what they learn from previously inaccurate individuals when conflicting testimony is not explicitly available to them? One possibility is that children identify the source as inaccurate, but trust their testimony nonetheless because that source's testimony is all that is available. The results of Experiment 3, and children's responses to explicit judgment questions indicate that this is not the case. Children in Experiment 3 accepted testimony from an inaccurate speaker even when another source was present and waiting to answer their questions. This suggests that children consider the inaccurate source to be a completely acceptable source of information, and do not feel the need to verify information they provide. Further, children's responses to explicit judgment questions indicate that they do not consider sources with a history of inaccuracy to be unreliable sources. Thus, it is not the case that children are accepting testimony from these sources against their better judgment. They simply believe that these sources are generally reliable, despite their past inaccuracies.

Another possibility for why children fail to reject testimony from speakers with a history of inaccuracy is that their judgment is part of a broader tendency to view people in a positive light (Boseovski, 2010; Boseovski & Lee, 2008; Heyman & Giles, 2004; Lockhart, Chang & Story, 2002). For example, children require less behavioral evidence to make positive attributions than negative attributions (Boseovski & Lee, 2006). It may be that children are reluctant to view people in negative terms without very strong evidence. A related possibility is that children have learned that people's testimony is usually accurate, and so their default assumption is to accept what they hear in the absence of explicit alternatives.

We believe it is especially important to understand how children evaluate testimony from individual informants, because this is arguably a more common situation than having to resolve simultaneously conflicting testimony between two or more informants. Although young children may have to resolve discrepancies in testimony provided at different times, they probably hear most inaccurate testimony without the concurrent benefit of explicit, conflicting testimony. Of course, as in Experiment 3, children are likely to have opportunities to seek out additional information when an informant has a history of inaccuracy, but our results suggest that they often fail to do so, even in cases where they are specifically reminded that such an option is available. This suggests that in everyday interactions children receiving testimony from inaccurate informants would be even less likely to seek out additional information, because they would have to generate the option of seeking out additional information. Indeed, our results are consistent with other research indicating that

children often rely on single unreliable sources when information is presented in a familiar and conventional way (Couillard & Woodward, 1999; Jaswal *et al.*, 2010; Krogh-Jespersen & Echols, 2012).

Furthermore, in everyday interactions, the actual process of seeking out information can involve multiple cognitive demands that are not required in the present research, such as the ability to formulate appropriate questions (Mills, Legare, Bills & Mejias, 2010). This suggests that young children may be even less likely to seek out alternatives to inaccurate informants in everyday situations.

Future research is needed to examine whether circumstances that can help explain an informant's inaccuracies might affect the inferences young children make about inaccurate informants. One crucial question is how many instances of inaccurate information informants need to provide for children to judge them as being inaccurate. Research by Lee and Cameron (2000) suggests that children require several instances of consistent unreliability before they will reject information provided by a speaker, but further work is needed to address this question directly. In addition, further work is needed to understand how children's knowledge about the reason for inaccuracy might affect the inferences they draw (Nurmsoo & Robinson, 2009). In the critical condition of Nurmsoo and Robinson (2009), 3- to 5-year-olds discounted the past inaccuracies of an informant because the informant had the wrong type of perceptual access to hidden objects (e.g. providing color information after touching, but not seeing the objects). Interestingly, in the other condition of that study, children were asked to reason about an inaccurate informant (who provided inaccuracies but had the correct type of perceptual access) alone, and children did not systematically trust the single inaccurate informant. This finding appears to be inconsistent with the findings of the present research. However, we believe this apparent inconsistency can be explained by the fact that in the test trials presented in Nurmsoo and Robinson (2009), children were asked to guess the feature (e.g. the color) of each object before the inaccurate informant provided testimony that always contradicted the children's guess. That is, the children were instructed to overtly generate, ahead of time, an alternative to the testimony of the inaccurate informant. This interpretation is consistent with our suggestion that children require explicit alternatives to dissuade them from trusting the inaccurate informant. It is also consistent with Krogh-Jespersen and Echols (2012), who found that children accepted labels from inaccurate and ignorant speakers for novel objects but not for familiar objects they already had labels for (and thus had alternatives in their own knowledge). Additional studies

are needed to examine what other forms such explicit alternatives can take.

In the present research, we asked children to reason about informants with reference to learning about object labels. We investigated testimony about object labels because a substantial amount is known about children's selective trust in this domain (Harris & Corriveau, 2011; Koenig & Harris, 2005), and our use of object labels facilitates comparison with this body of work. However, further research is needed to extend this work to other domains, such as learning how things work. In addition, more work is needed to understand the precise circumstances that affect children's willingness to seek out information from others.

In conclusion, our results suggest that young children do assign some consequence to informants' inaccuracies, lowering their relative level of trust in these individuals. However, at least when there is only a single informant present to provide information, children do not appear to consider previously inaccurate sources to be unreliable in an absolute sense. It seems that children are generally trusting of a single informant alone, regardless of the informant's prior history of reliability.

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