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Preschoolers trust particular informants when learning new names and new morphological forms

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Across three studies, we investigated whether 4-year-olds would trust a previously reliable informant when learning novel morphological forms. In Experiment 1, children ($N = 16$) were presented with two informants: one who correctly named familiar objects and another who named them incorrectly. Children were invited to turn to these informants when learning novel labels and morphological forms. The majority of children chose the previously correct labeller when learning novel label and morphology. In Experiment 2, children ($N = 16$) were presented with an informant who used familiar plurals correctly and one who used them incorrectly. Children chose the previously correct morphologist when learning novel labels and past tense forms. Thus, children track both semantic and morphological accuracy. In Experiment 3, some children ($N = 16$) were presented with two informants who differed in naming accuracy, whereas others ($N = 16$) were presented with two informants who differed in morphological accuracy. To forestall any risk of experimenter cuing, one experimenter blind to the training children had received, tested children with novel labels and morphology. The results replicated those of Experiments 1 and 2. Implications for how children's trust in an informant might play a role in their acquisition of morphological forms are discussed.

The manner in which people present themselves to others can quickly reveal pertinent information about their personality and future behaviour. When individuals rate strangers, their ratings agree with the strangers' self-reports (Albright, Kenny, & Malloy, 1988; Passini & Norman, 1966). These accurate ratings can be made after mere seconds of exposure (Ambady & Rosenthal, 1992). Like adults, young children are also able to detect an individual's behavioural characteristics rapidly. In particular, they quickly assess a person's accuracy in providing information, and prefer to seek, and accept new information from a previously accurate, as opposed to a previously inaccurate informant (Clément, Koenig, & Harris, 2004; Corriveau & Harris, 2009a, 2009b; Harris, 2007; Jaswal & Neely, 2006; Koenig, Clément, & Harris, 2004; Koenig & Harris, 2005; Pasquini, Corriveau, Koenig, & Harris, 2007; VanderBorght & Jaswal, 2009). Such rapidly established differential trust is quite long lasting. Preschoolers selectively trust

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information from a previously accurate informant 1 week after initial exposure (Corriveau & Harris, 2009b).

Most studies of selective trust have focused on children's learning of names for novel objects. Very little is known about the extent to which children invest selective trust in particular informants when learning about other aspects of language. Indeed, two recent studies suggest that when children acquire new morphological forms, they ignore the past accuracy of their informant. In an initial study, Jaswal, McKercher, and VanderBorght (2008) introduced preschoolers to two informants: one who accurately labelled familiar objects (e.g., called a *teacup* a *teacup*) and a second who incorrectly labelled familiar objects (e.g., called a *teacup* a *shoe*). The two informants then produced novel labels, novel past tense forms, and novel plural forms. Preschoolers were invited to decide which of the two informants had produced the correct novel label or form. In line with prior research, children preferred the previously accurate informant when learning novel labels. However, they showed no preference for the previously accurate informant when learning either novel past tense forms or novel plural forms, choosing instead the previously inaccurate informant who provided regular forms in each case. In a follow-up study, Jaswal *et al.* (2008) presented preschoolers with two informants who differed in terms of their morphological accuracy. One informant produced the correct plural of a familiar word (e.g., said that the plural of *dog* was *dogs*), whereas the other informant produced an incorrect plural (e.g., said that the plural of *dog* was *dag*). The results were similar to those in Study 1: preschoolers chose the previously accurate informant when learning novel labels, but they showed no preference for the previously accurate informant when learning novel past tense or plural forms. As in Study 1, they chose the previously inaccurate informant who had provided regular forms. Jaswal *et al.* (2008) concluded that, 'whereas an informant's history of reliability can influence the uptake of novel labels, it does not appear to influence the uptake of irregular morphology'.

In the three studies to be described, we question this conclusion. We claim that an informant's history of reliability can influence the uptake of novel morphological forms as well as novel labels. Indeed, the evidence to be presented calls into question the assumption that children learn new morphological forms equally effectively from different speakers. We argue, instead, that children can be rapidly sensitized to the speech characteristics of a potential informant and show a preference for accurate informants, when acquiring information in both the morphological and semantic domains. We elaborate on these broader implications in the general discussion.

In the two studies conducted by Jaswal *et al.* (2008), it is important to note that the previously accurate informant produced an irregular morphological form (e.g., said that the past tense of *bing* was *bung,* or the plural of *cra* was *cray*), whereas the previously inaccurate informant produced a regular morphological form (e.g., said that the past tense of *bing* was *binged,* or the plural of *cra* was *cras*). It is plausible, therefore, that children weighed the options provided by the two informants in light of their own past experience of morphological regularity. The majority of verbs in English take '*ed*' in the past tense form. Similarly, the majority of nouns in English take '*s*' in the plural form. Arguably, children adopted the form provided by the previously inaccurate informant because for both past tense and plural test trials, she produced the regular form, whereas the previously accurate informant produced an irregular form.

Recent findings by Corriveau *et al.* (2009) lend support to this emphasis on children's weighing of regularities in their past experience. Five-year-olds were shown pictures of hybrid animals that were asymmetric: the majority of their features resembled one animal (e.g., a rabbit), whereas the remaining features resembled a different animal

(e.g., a squirrel). A familiar informant – their mother – named the hybrid according to its minority features (e.g., a squirrel), whereas a relative stranger named it according to its majority features (e.g., a rabbit). When children were asked what they thought the hybrid was called, they resisted the name supplied by their mother, preferring the name supplied by the stranger. By implication, children weigh their previous experience alongside their knowledge of the informants. Ordinarily, they prefer information from a familiar, as opposed to an unfamiliar informant (Corriveau & Harris, 2009a) or from their mother as opposed to a stranger (Corriveau *et al.*, 2009), but they are willing to reject information from a familiar informant, or from their mother, if an unfamiliar informant offers information that is more fully consistent with their past experience. Related findings have been reported by Jaswal (2004). When 4-year-olds were shown asymmetric hybrids, they typically resisted the label supplied by an adult, if it was not consistent with most of the hybrid's features. Only if the implausibility of the label was signalled – 'you're not going to believe this . . . ' – did children accept it.

This interpretation of the findings reported by Jaswal *et al.* (2008) opens up the possibility that, under certain circumstances, children will be guided by an informant's past accuracy in acquiring new morphological forms. More specifically, if they are presented with two morphological forms that are equally probable in terms of their past experience, they will use a speaker's past accuracy as a guide. The studies to be presented here test this prediction. In Experiment 1, we presented children with an accurate and inaccurate labeller of familiar objects. We then examined which informant they preferred when learning novel labels and novel past tense forms. Experiment 2 was similar to Experiment 1, but children were first introduced to an accurate and inaccurate morphologist. Importantly, in both Experiments 1 and 2, test trials with respect to both novel labels and novel morphology involved a choice between claims that were equally probable in terms of children's past experience. Finally, in Experiment 3, we sought to replicate the findings observed in Experiments 1 and 2, after making several methodological changes, including blind assessment of children's performance in the test phase.

We anticipated two possible results for Experiment 1. On the one hand, as suggested by Jaswal *et al.* (2008), children might use a speaker's past accuracy only when learning in the semantic domain. According to this hypothesis, children should selectively choose the accurate labeller when learning novel labels, but be at chance when learning novel morphology. Alternatively, children might use a speaker's past labelling accuracy as a more general guide. According to this hypothesis, children should selectively choose the accurate labeller when learning both novel labels and novel morphology.

EXPERIMENT 1

Method

Participants

Sixteen 4-year-old children participated ($M = 4$ years, 9 months; 8 female; range: 4 years, 0 months – 5 years, 2 months). All children spoke English as their first language and were recruited from preschools in Cambridge, MA. Seventy-five percent were White; 19% were Southeast Asian; 6% were Asian American.

Table 1. Stimuli used and vocabulary provided in the training and test trials in Experiments 1–3

	Informant 1	Informant 2
Familiar labels (Experiments 1 and 3)		
Ball	This is a *ball*	This is a *cat*
Shoe	This is a *shoe*	This is a *cup*
Spoon	This is a *spoon*	This is a *duck*
Brush	This is a *brush*	This is a *plate*
Familiar morphology (Experiments 2 &3)		
Two balls	Here are *some balls*	Here are *some ball*
Two shoes	Here are *some shoes*	Here are *some shoe*
One spoon	Here is *a spoon*	Here is *a spoons*
One brush	Here is *a brush*	Here is *a brushes*
Novel labels		
Yellow bottle top	This is a *wug*	This is a *dax*
Silver towel hook	This is a *roke*	This is a *cham*
Black toilet plunger	This is a *mido*	This is a *toma*
White triangle	This is a *blicket*	This is a *dawnoo*
Novel morphology		
Here is a man who is *glinging*	Yesterday he *glang*	Yesterday he *glung*
Here is a man who is *minging*	Yesterday he *mung*	Yesterday he *mang*
Here is a man who is *bliding*	Yesterday he *blid*	Yesterday he *blode*
Here is a man who is *fiding*	Yesterday he *fode*	Yesterday he *fid*

Materials

Two female speakers of English each recorded the stimuli. In all videos, the two speakers were seated at a table with an object or picture in between them. During *familiar label* videos (four in total), one speaker named a familiar object correctly, whereas the other named it incorrectly. During *novel label* videos (four in total), the speakers offered different (but equally plausible) novel labels for an unfamiliar object. During *novel morphology* videos (four in total), the speakers offered different (but equally plausible) past tense forms for a novel action shown in a picture. The familiar and novel objects were obtained from a local hardware store. The four novel pictures were selected from Berko's (1958) *wug* test. The irregular past tense forms were chosen from class V and VI verbs (Bybee & Slobin, 1982). Additional neighbourhood density analyses indicated that both irregular past tense stems were equally probable (Shilson, 2000). Table 1 provides a full list of the objects, pictures, and labels used in Experiments 1–3.

Procedure

Children were tested in a quiet room at their preschool. All children participated in four types of trials: (1) familiar labels; (2) novel labels; (3) novel morphology; and (4) explicit judgment. The order of presentation for the novel label and novel morphology trials was counterbalanced across participants. Each trial type is detailed below.

Familiar labels

Children received four familiar label trials. To introduce the task, the experimenter pointed to the screen with the two informants and said, 'See these two people? This one is wearing a white shirt and this one is wearing a green shirt. They are going

to show you some things and tell you what they are called'. The experimenter then produced a picture of a familiar object and pointed to a still frame of the two informants with the same object positioned between them and asked, 'I wonder what they think this is called'. Children then watched the two informants offer different labels for the familiar object. Throughout the four trials, one informant correctly labelled the familiar object, whereas the other informant labelled it incorrectly (e.g., called a *ball* a *cat*). The informant providing the correct label and the order in which the informants spoke was counterbalanced across participants.

Immediately following each trial, a *Name Check* was administered. The experimenter paused the video, restated the labels provided by the informants, and asked the child what they thought the object was called (e.g., 'The girl wearing the green shirt said it's a ball and the girl wearing the white shirt said it's a cat. What would you say?'). Every child named each object correctly.

Novel labels

Children received four novel label trials. To introduce the task, the experimenter said, 'Now they (the informants) are going to name some things that you have never seen before'. Each trial began with the experimenter showing the child a picture of a novel object and pointing to a still frame of the two informants with the same novel object between them. She then posed an *Ask Question*: 'I wonder what this object is called. I bet one of these people can help. Who would you like to ask, the girl wearing the green shirt or the girl wearing the white shirt?' After the child chose which informant they would like to ask, the experimenter said, 'Let's see what they both think'. Both informants then proceeded to label the novel object. Immediately after watching the informants label the object, an *Endorse Question* was asked in which the experimenter repeated the labels and asked the child what he or she thought it was called, 'The girl wearing the white shirt said it's a *dax* and the girl wearing the green shirt said it's a *wug*. What would you say?' (see Table 1 for a full list of novel objects and labels).

Novel morphology

Children received four novel morphology trials. To introduce the task, the experimenter said, 'Now they (the informants) are going to tell you about what someone is doing'. Each trial began with the experimenter showing a picture of a novel action to the child and labelling the action for them (e.g., 'Here is a picture of a man who is *glinging*'.). She then pointed to a still frame of the two informants with the same picture positioned between them and posed an *Ask Question*: 'Now I wonder what he did yesterday. I bet one of these people can help. Who would you like to ask? The girl wearing the green shirt or the girl wearing the white shirt?' After the child chose which informant they would like to ask the experimenter said, 'Let's see what they both think'. Both informants then produced an equally plausible irregular past tense form of the novel verb (e.g., 'Yesterday he *glang*", or 'Yesterday he *glung*'.). Immediately after watching the two informants produce these novel past tense forms, the experimenter posed an *Endorse Question:* 'The girl wearing the white shirt said yesterday he *glang* and the girl wearing the green shirt said yesterday he *glung*. What would you say?'

Explicit judgment

Immediately following the final novel morphology or novel label trial, children were asked three explicit judgment questions. The experimenter pointed to the still frame of

the two informants and asked, 'Do you remember when they were naming some things that you know about? Was the girl wearing the green shirt very good or not very good at naming these things?' The same question was asked in reference to the girl in the white shirt. The order in which the informants were asked about varied across participants. Finally, the experimenter asked, 'Which girl was better at saying the name of those things?'

Results

Novel labels

Scores on *Ask* and *Endorse* questions represent the number of trials (max = 4 for each) on which children asked for, or endorsed, information provided by the previously accurate informant. As expected, children performed above chance on both Ask (Chance = 2, $M = 2.63$, $SD = 1.02$, $t(15) = 2.44$, $p < .05$, $d = .62$), and Endorse questions (Chance = 2, $M = 2.75$, $SD = 1.29$, $t(15) = 2.32$, $p < .05$, $d = .58$). Thus, when scores on Ask and Endorse questions were combined, children preferred the information provided by the previously accurate informant (Chance = 4, $M = 5.37$, $SD = 2.12$, $t(15) = 2.29$, $p < .05$, $d = .64$).

Novel morphology

Children performed above chance in asking the previously accurate informant (Chance = 2, $M = 2.56$, $SD = 1.03$, $t(15) = 2.18$, $p < .05$, $d = .54$). There was a trend for them to endorse the past tense form provided by the previously accurate informant (Chance = 2, $M = 2.56$, $SD = 1.21$, $t(15) = 1.87$, $p = .08$, $d = .46$). Overall, when scores from the ask and endorse questions were combined, preschoolers selectively trusted the information provided by the previously accurate informant (Chance = 4, $M = 5.12$, $SD = 1.96$, $t(15) = 2.59$, $p < .05$, $d = .57$).

Relative performance on novel label and morphology trials

To assess children's relative performance across novel label and novel morphology trials, a repeated-measures Analysis of Variance (ANOVA) with trial type (novel label, novel morphology) and question type (ask, endorse) as within-subjects variables was conducted. This analysis produced no significant main effects and no interaction ($Fs < 1$). Figure 1 (left panel) displays the proportion of choices that children directed at the previously accurate labeller on novel label and novel morphology trials. Inspection of Figure 1 indicates that the proportion of choices directed at the previously accurate labeller was similar across both types of test trials.

Explicit judgment based on familiar labels

Children received a point each if they correctly identified the accurate/inaccurate informants and were able to choose which was 'better' (max = 3). Overall, 4-year-olds performed considerably better than chance (where chance = 1.5) when explicitly identifying the two informants based on their semantic accuracy ($M = 2.56$, $SD = .72$, $t(15) = 5.84$, $p < .001$, $d = 1.47$).

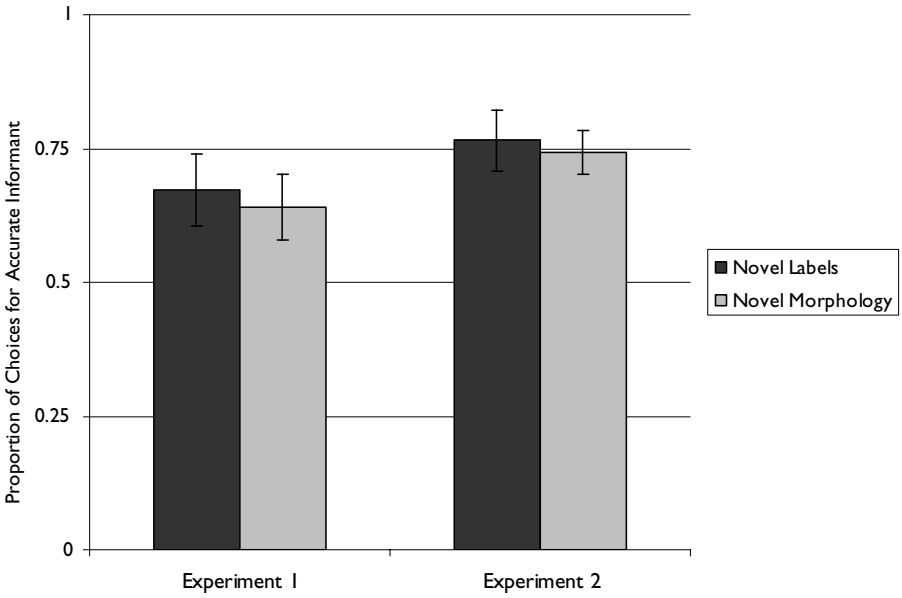

Figure 1. Mean proportion of choices directed at the previously accurate informant by trial type (novel labels, novel morphology) in Experiments 1 and 2.

Discussion

The results of Experiment 1 support the second rather than the first hypothesis. Children used the speakers' past accuracy in labelling familiar objects as a guide when they sought and endorsed information about novel names and also novel morphological forms. Thus, contrary to the conclusion of Jaswal *et al.* (2008), young children are sensitive to a speaker's past accuracy when learning novel morphological forms.

EXPERIMENT 2

Experiment 2 was designed as a further test of children's sensitivity to speaker accuracy when learning novel morphological forms. Whereas the two speakers in Experiment 1 differed in terms of naming accuracy, the two speakers in Experiment 2 differed in terms of morphological accuracy. On two of the four familiarization trials, the accurate speaker produced the correct plural form (e.g., 'some shoes'), whereas the inaccurate speaker produced the incorrect plural form (e.g., 'some shoe'). On the remaining two familiarization trials, the accurate speaker produced the correct singular form (e.g., 'a shoe'), whereas the inaccurate speaker produced the incorrect singular form (e.g., 'a shoes'). Note that both the correct and incorrect forms of the noun were familiar words for the children. The inappropriateness of the incorrect forms (and the appropriateness of the correct forms) could only be registered by taking note of the mismatch between the form of the noun and the preceding verb and article.

In Study 2 reported by Jaswal *et al.* (2008), the accurate morphologist produced the correct plural form (e.g., 'dogs') and the inaccurate morphologist produced an incorrect plural form (e.g., 'dag'). Children subsequently preferred to learn new labels – but not new morphological forms – from the accurate morphologist. Although this result

might suggest that children are alert to a speaker's morphological errors, an alternative interpretation is available. 'Dag' is not only incorrect as a plural form of 'dog' it is also an unfamiliar word for English speakers. Arguably, children showed mistrust because the inaccurate morphologist was naming familiar objects with unknown words and not because he or she was perceived to be making morphological errors. This problem of interpretation was avoided in the present study. As noted above, both the accurate and the inaccurate speaker in Experiment 2 used familiar English words.

Three possible outcomes were anticipated. First, children might be insensitive to variation between speakers in morphological accuracy, particularly when the accurate and the inaccurate morphologist each use familiar English word forms. On this hypothesis, children should be at chance when learning novel labels and also when learning novel morphology. Second – in line with the conclusions of Jaswal *et al.* (2008) – children might be sensitive to a speaker's morphological accuracy but use it only in the semantic as opposed to the morphological domain. On this hypothesis, children should prefer the names proposed by the accurate morphologist but show no preference for her morphological forms. Third, children might use a speaker's past accuracy in a domain general fashion. On this hypothesis, children should prefer to learn both novel labels and novel morphology from an accurate morphologist.

Method

Participants

Sixteen 4-year-old children participated in this study ($M = 4$ years, 7 months; 7 female; range: 4 years, 0 months – 5 years, 2 months). All children spoke English as their first language and were recruited from preschools in Cambridge, MA. Eighty-one percent were White; 12% were Asian American; 6% were African-American.

Materials

The same two female speakers as in Experiment 1 recorded the stimuli. During *familiar morphology* videos (four in total), one speaker produced plural and singular nouns correctly, whereas the other speaker produced them incorrectly. The novel label and novel morphology videos used in Experiment 1 were used during test trials.

Procedure

Children were tested in a quiet room at their preschool. All children participated in four types of trials: (1) familiar morphology; (2) novel label; (3) novel morphology; and (4) explicit judgment. The order of presentation for the novel label and novel morphology trials was counterbalanced across participants. Each trial type is detailed below.

Familiar morphology

Children saw four familiar morphology trials. To introduce the task, the experimenter pointed to the screen with the two informants and said, 'See these two people? This one is wearing a white shirt and this one is wearing a green shirt. They are going to show you some things and tell you how many there are'. On two of the trials (*familiar plurals*), the experimenter showed the child a picture of a single object (e.g., a shoe),

labelled it, and then pointed to a still shot of the informants with two of the target objects. The experimenter said, 'Now they have some more, I wonder what they have'. One informant consistently formed the plural correctly (e.g., 'Here are some shoes'.), whereas the other informant consistently formed the plural incorrectly (e.g., 'Here are some shoe'.).

In the remaining two trials (*familiar singulars*), the experimenter showed the child a picture of two objects (e.g., two spoons), labelled them, and then pointed to a still shot of the informants with a single target object. The experimenter said, 'Now they don't have as many, I wonder what they have'. One informant consistently formed the singular correctly (e.g., 'Here is a spoon'.), whereas the other informant consistently formed the singular incorrectly (e.g., 'Here is a spoons'.). The informant providing the correct morphology, the order of the trials, and the order in which the informants spoke were counterbalanced across participants.

Immediately following each trial, a *Number Check* was administered. The experimenter paused the video, restated the labels provided by the informants, and asked the child what he or she would say (e.g., 'The girl wearing the green shirt said there are some shoes and the girl wearing the white shirt said there are some shoe. What would you say?'). Every child was correctly able to form the plural or singular form of the known object.

Novel labels and novel morphology

As in Experiment 1, children received four novel label and four novel morphology trials. The procedure used in Experiment 1 was used here.

Explicit judgment

Immediately following the final novel morphology or novel label trial, children were asked three explicit judgment questions. The experimenter pointed to a still shot of the two informants and asked, 'Do you remember when they were saying how many things there were? Was the girl wearing the green shirt very good or not very good at saying how many things there were?' The same was asked about the girl in the white shirt. The order in which the informants were asked about varied across participants. Finally, the experimenter asked, 'Which girl was better at saying how many things there were?'

Results

Novel labels

As in Experiment 1, scores on *Ask* and *Endorse* questions represent the number of trials (max = 4 for each type of question) on which children asked for, or endorsed information provided by the previously accurate informant. Children performed above chance in both asking (Chance = 2, $M = 2.94$, $SD = 1.29$, $t(15) = 2.91$, $p < .01$, $d = .72$), and endorsing the label provided by the previously accurate informant (Chance = 2, $M = 3.19$, $SD = .98$, $t(15) = 4.84$, $p < .001$, $d = 1.21$). Overall, when scores from the ask and endorse questions were combined, preschoolers selectively trusted the information provided by the previously accurate informant (Chance = 4, $M = 6.12$, $SD = 1.82$, $t(15) = 4.67$, $p < .001$, $d = 1.16$).

Novel morphology

Children performed above chance in asking (Chance = 2, $M = 2.94$, $SD = .93$, $t(15) = 4.03$, $p < .001$, $d = 1.01$) and endorsing the previously accurate informant. (Chance = 2, $M = 3.00$, $SD = .73$, $t(15) = 5.47$, $p < .001$, $d = 1.36$). Overall, when scores from the ask and endorse questions were combined, preschoolers selectively trusted the information provided by the previously accurate informant (Chance = 4, $M = 5.94$, $SD = 1.34$, $t(15) = 5.78$, $p < .001$, $d = 1.44$).

Relative performance on novel label and morphology trials

To assess children's relative performance across novel label and novel morphology trials, a repeated-measures ANOVA with trial type (novel label, novel morphology) and question type (ask, endorse) as within-subjects variables was conducted. This analysis revealed no significant main effects or interactions ($Fs < 1$). Figure 1 (right panel) displays the proportion of choices that children directed at the previously accurate morphologist on novel label and novel morphology trials. Inspection of Figure 1 indicates that the proportion of choices that children directed at the previously accurate morphologist was similar across novel label and novel morphology trials.

Explicit judgment based on familiar morphology

As in Experiment 1, children received a point each if they correctly identified the accurate/inaccurate informants and were able to choose which was 'better' (max = 3). Overall, 4-year-olds performed significantly greater than chance (where chance = 1.5) when explicitly identifying the two informants based on their semantic accuracy ($M = 2.94$, $SD = .25$, $t(15) = 23.00$, $p < .001$, $d = 5.76$).

Discussion

The results of Experiment 2 extended those of Experiment 1. After being presented with two informants, one who produced accurate morphology and one who produced inaccurate morphology, children selectively chose to learn both novel labels and novel verbs from the previously accurate informant. Thus, children are sensitive to a speaker's morphological accuracy and use that information both when learning about novel labels and novel morphological endings.

However, two methodological concerns warrant further consideration. The first of these relates to experimenter bias. In Experiments 1 and 2, a single experimenter ran both the training and the testing trials. Therefore, this sole experimenter knew which of the two informants had been accurate during the training trials and may have unintentionally cued children to choose the previously correct informant in the later test trials. In previous studies exploring children's selective trust – including the study of Jaswal *et al.* (2008) – the use of a single experimenter has been the norm. Nevertheless, it is important to rule out this 'Clever Hans' cuing hypothesis.

In addition, recall that in both Experiments 1 and 2, children were asked two types of test questions. Prior to watching the two informants interact with the novel item, children were asked which informant they would like to ask when learning the novel labels/morphology (*Ask Question*). After the two informants spoke, children were asked to endorse the information provided by one of the two informants (*Endorse Question*).

However, the Ask Question might have suggested to children that there was only one right answer. In turn, the *Ask Question* could have primed children's subsequent responses to the *Endorse Question*. Indeed, as noted earlier, analysis of the results in both Experiments 1 and 2 revealed no differences between these question types. Thus, children may have been influenced by their response to the Ask question when responding to the Endorse question.

We addressed both of these concerns in Experiment 3. First, to eliminate the possibility of experimenter bias, two female experimenters conducted the testing in Experiment 3. One experimenter presented the training trials (either familiar labels or familiar morphology). A second experimenter, blind to the accuracy of the informants and to the training condition, was responsible for running the novel label and novel morphology test trials. Because the second experimenter was unaware of which informant had been correct in the training trials, and was also unaware of whether the training had consisted of semantics or morphology, there was no possibility for experimenter bias or unintentional cuing. Second, the *Ask Question* was removed from the test trials. Children were asked to endorse one the two informants only after they had either labelled a novel object or produced a novel past tense form. This eliminated the potential for any priming based on response to the Ask question.

EXPERIMENT 3

Method

Participants

Thirty-two 4-year-old children participated in this study (M = 4 years, 8 months; 15 female; range: 3 years, 10 months – 5 years, 3 months). All children spoke English as their first language and were recruited from preschools in Wellesley, MA and Cambridge, MA. Seventeen of the children (M = 4 years, 7 months; range: 3 years, 10 months – 5 years, 3 months) participated in *familiar label* training (as in Experiment 1). The remaining children (M = 4 years, 8 months; range: 3 years, 10 months – 5 years, 5 months) participated in *familiar morphology* training (as in Experiment 2).

Materials

The same four sets of videos from Experiments 1 and 2 were used. During the four *familiar label* videos, one speaker named a familiar object correctly, whereas the other named it incorrectly. In the four *familiar morphology* videos, one speaker gave the correct form of the plural of an object, while the other did not. Finally, in the *novel label* and *novel morphology* videos, the speakers offered different (but equally plausible) novel labels and novel past tense forms for unfamiliar objects and actions.

Procedure

The basic procedure was similar to that used in Experiments 1 and 2. All children participated in four types of trials: (1) either familiar labels (semantic training) or familiar morphology (morphological training); (2) novel labels; (3) novel morphology; and (4) explicit judgment. The order of presentation for the novel label and novel morphology trials was counterbalanced across participants.

We made three modifications to the procedure used in Experiments 1 and 2. First, to ensure that there was no experimental cuing, one experimenter administered the

familiar labels or morphology training. A second experimenter, blind to the training condition, administered the novel labels, novel morphology, and explicit judgment questions. Second, to ensure that children were not biased by the ask question, only *Endorse Questions* were asked during *novel label* and *novel morphology* trials. Third, because the experimenter was blind to the training, we modified the wording of the *Explicit Judgment* questions to make them identical across training conditions.

Immediately following the final test trial, the experimenter asked the participants, 'Do you remember when they (pointing to the two informants) were talking about some things that you know about, like shoes and balls? Was the girl wearing the green shirt very good or not very good at talking about those things?' The same question was then repeated for the girl in the white shirt. Finally, the experimenter asked, 'Which girl was better at talking about those things?'

Results

Novel labels

The *Endorse* questions represent the number of trials (max = 4) in which the child endorsed the label provided by the previously accurate informant. Children's responses were recorded by the second experimenter. Recall that this experimenter was blind as to which informant had proved accurate versus inaccurate in the familiarization period. Children who received semantic training (familiar label trials) selectively chose the label endorsed by the previously accurate informant (Chance = 2, $M = 3.00$, $SD = 0.82$, $t(15) = 4.89$, $p < .001$, $d = 1.21$). Similarly, children who received morphological training (familiar morphology trials) also chose to endorse the previously accurate informant when learning novel labels (Chance = 2, $M = 2.93$, $SD = 0.88$, $t(14) = 4.09$, $p <. 001$, $d = 1.05$). There was no difference in performance between the two training types ($F(1,31) = .05$, *ns*, $d = .08$). Thus, regardless of training type, children were able to use the semantic or morphological accuracy when making judgments about from whom to learn a novel label.

Novel morphology

Again, children selectively endorsed the previously accurate informant significantly more when learning novel past tense forms. This was true for children who received semantic training (Chance = 2, $M = 2.81$, $SD = 0.98$, $t(14) = 3.31$, $p < .01$, $d = .83$) as well as those children who received morphological training (Chance = 2, $M = 3.07$, $SD = 0.79$, $t(14) = 5.17$, $p < .001$, $d = 1.35$). There was no difference in performance between the two training types ($F(1,31) = .91$, *ns*, $d = .29$).

Relative performance following semantic and morphological training on novel label and novel morphology trials

We conducted a two-way ANOVA with test question (novel label, novel morphology) as a within-subjects variable and training type (semantic training, morphological training) as a between-subjects variable. The analysis produced no significant effects of test question or training and no interaction (Fs < 1) suggesting that children's preference for the previously accurate informant was similar across novel semantic and novel morphological learning situations.

Figure 2 displays the proportion of choices that children directed at the previously accurate informant on both novel label and novel morphology trials by training type.

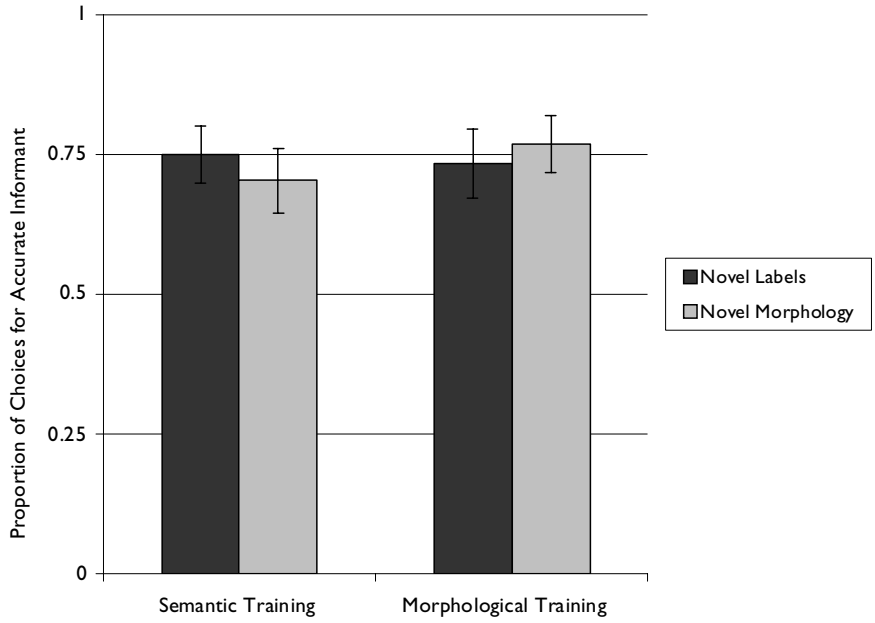

Figure 2. Mean proportion of choices directed at the previously accurate informant by trial type (novel labels, novel morphology) and training type (semantic training, morphological training) in Experiment 3.

Inspection of Figure 2 indicates that children selectively endorsed the previously accurate informant both when learning novel morphology and when learning novel labels, regardless of the training that they received. This selective preference for the information provided by the previously accurate informant was similar across all four training-test question combinations.

Explicit judgment

Children received one point each for being able to correctly identify each informant as 'good' or 'not very good' when discussing the familiar objects, as well as one point for identifying that accurate informant was 'better' (max = 3). Children performed significantly better than chance in identifying that informant had been previously accurate regardless of whether training had been in the semantic domain (Chance = 1.5, $M = 2.35$, $SD = 0.79$, $t(15) = 4.48$, $p < .001$, $d = 1.08$) or the morphological domain (Chance = 1.5, $M = 2.53$, $SD = 0.83$, $t(14) = 4.80$, $p < .001$, $d = .1.24$). There was no difference in explicit judgment scores across the two training types ($F(1,31) = .39$, *ns*, $d = .22$).

GENERAL DISCUSSION

Previous research on young children's selective trust in informants has focused almost exclusively on the semantic accuracy of the informants and the acquisition of new semantic information by the children. The present results extend this body of research in three important ways. First, Experiment 1 showed that children attend to the past

accuracy of an informant not just when learning names for novel objects but also when learning new morphological forms. Thus, children's selective trust in a particular speaker has broad implication for what they are willing to learn from that speaker. Second, Experiment 2 showed that children attend to the past accuracy of a speaker not just in the semantic domain but also in the morphological domain. Moreover, as noted in the introduction to Experiment 2, children could only assess that accuracy by noting the match or mismatch between the particular article that was used ('a' vs. 'some') and the particular form of the noun and verb that was used (singular vs. plural). Morphological errors could not be identified by checking whether the speaker produced an unfamiliar word. Finally, Experiment 3 showed that even when the experimenter was blind to both training type and informant accuracy, children still displayed a selective preference for the previously accurate informant in both the semantic and morphological domains.

An examination of children's individual scores offered further confirmation of the overall pattern of results. Appendix A shows the percentage of children with a low (0–2), medium (3–5), or high (6–8) number of correct responses for ask and endorse questions in Experiments 1 and 2. Inspection of Appendix A indicates that most children's responses fell in the high category (from 44 to 69% across Experiments 1 and 2). Appendix B shows the percentage of children who endorsed the correct informant 0–4 times in Experiments 3. Inspection of Appendix B indicates that the majority of children endorsed the correct informant either 3 or 4 times, and no child endorsed the correct informant 0 times. Taken together, the results from the individual analyses suggest that there is little variability in children's preference for the more semantically or syntactically accurate informant.

We discuss two implications of the results. First, we dwell on the possibility, already mentioned in the introduction, that children can rapidly form an impression of a speaker and do so without having been asked any explicit questions about the speaker's competence. Second, we consider in more detail how children's trust in a given informant might play a role in their acquisition of morphological forms, particularly forms that are irregular.

In the introduction, we noted that a considerable body of research on impression formation by adults has emphasized the notion of 'thin slicing' (Ambady & Rosenthal, 1992). Note that such impressions need not be unconscious or tacit – they can result in explicit attributions. Rather, the key feature of 'thin slicing' is that even within minutes or seconds of meeting an unfamiliar person, adults form an impression of the person's personality traits based upon that thin sample and those rapidly formed impressions prove to be surprisingly accurate. The present results fit into an emerging pattern of findings suggesting that young children also make such rapid appraisals. As noted in the introduction, when preschoolers are exposed to only brief instances of a speaker's semantic accuracy, they draw conclusions about the speaker's trustworthiness as an informant regarding novel labels. The findings of Jaswal *et al.* (2008) had further suggested that preschoolers are also sensitive to a speaker's morphological accuracy. The results of Experiment 2 confirm and extend that conclusion. Not only are preschoolers sensitive to an informant's use of morphologically unfamiliar forms (e.g., 'dag' rather than 'dog') they are also sensitive to a speaker's use of familiar but mismatching morphological forms (e.g., 'a shoes' rather than 'a shoe'). Recent evidence also indicates that toddlers and preschoolers exposed to as little as 10 s of speech are sensitive to whether the person speaks with a native or non-native accent, and prefer to interact with and learn from a native speaker (Kinzler, Corriveau, & Harris, in press; Kinzler, Dupoux, & Spelke, 2007; Kinzler, Shutts, DeJesus, & Spelke, 2009).

It is likely that current research has not yet identified all the speech parameters that children are able to monitor. For example, children might be sensitive to the fact that adults vary in the length and syntactic complexity of their typical utterance. Such individual differences can be gauged from a relatively short sample of the adult's speech (Huttenlocher, Vasilyeva, Waterfall, Vevea, & Hedges, 2007). Faced with a choice between two informants, children might prefer to learn from the informant who speaks with greater syntactic complexity. Alternatively, children might prefer the level of complexity with which they are most familiar. To the extent that kindergarten and grade-school teachers vary in their syntactic complexity, children might be more or less inclined to learn from them – with important implications for their cognitive and language development in the early school years.

Turning to the question of how children acquire morphological forms, Jaswal *et al.* (2008) concluded that a speaker's accuracy had little impact. That conclusion is consistent with the proposal that children are disposed to learn morphological forms with equal facility from a variety of sources. Admittedly, there is a considerable body of research showing that caregivers and older siblings make various adjustments to the length, complexity, and intonation contour of their speech when they address young children (i.e., using 'motherese', Fernald & Mazzie, 1991). However, experimental efforts to show that such adjustments facilitate children's acquisition of syntax and morphology have typically been unsuccessful. Indeed, in communities where such adjustments by caregivers are much less frequent, children show no obvious problems in acquisition (Gathercole & Hoff, 2007).

By contrast, our findings show that, when offered a choice, children are disposed to learn morphological forms from particular speakers. As noted in the introduction, that conclusion is already well established for learning in the semantic domain. The present results indicate that a similar conclusion is plausible for learning in the morphological domain. More specifically, children appear to keep track of a speaker's past history of accuracy – whether in the semantic or the morphological domain – and they are more likely to accept novel morphological forms from a speaker with a history of accuracy. How should we situate these findings in relation to the long tradition of research on children's acquisition of the past tense? It is too early to give a definite answer to this question but the present results bring various findings into focus.

As is well known, children over-regularize the past tense of strong verbs in English. Thus, for a period, they produce forms such as 'breaked' and 'runned'. These findings have often been used to underline the rule-governed and creative aspect of children's language acquisition. However, an ancillary aspect of children's tendency to over-regularize is that they eventually suppress such errors and produce the correct, irregular form of the verb – for example, 'broke' or 'ran'. How do they come to do so? The following observations are pertinent. First, when presented with a new verb and invited to form the past tense, children overwhelmingly produce the regularized form (Berko, 1958). Thus, left to their own devices and offered no model to emulate, children rely on their own intuitions of regularity. Second, when presented with a new form and offered two models to emulate – one who proposes the regular form and one who proposes the irregular form, children select the regular form (Jaswal *et al.*, 2008). Indeed, they will do so even though they know from recent exposure that the informant who offers the irregular form is actually more accurate than the informant who offers the regular form and use that knowledge to guide their learning of equiprobable semantic forms. Both of these results point to the strong disposition on the part of the child to regularize. Nevertheless, the present findings show that when presented with two irregular forms –

but no regular form – children will produce one of them, notably the form offered by the hitherto more accurate speaker. By implication, in the wake of an irregular form produced by an apparently reliable speaker, children are able to emulate that form and suppress their generally strong disposition to regularize. Case studies suggest that this type of production can be observed in the speech of young children. For example, immediately after hearing her father using the irregular past tense of 'read', 4-year-old Heida switched from using the over-regularized 'readed' to using the correct irregular form 'read' (Slobin, 1978).

One important question about the above analysis concerns the role played by selective trust in the adult model. Suppose that we compare children's performance across three conditions. In a control condition, children are presented with a new verb and invited to generate the past tense. They are provided with no model. In a 'trusted' informant condition, children are presented with a new verb and also hear a hitherto reliable informant produce an irregular past tense form of that verb. In a 'mistrusted' informant condition, children are presented with a new verb and hear a hitherto unreliable informant produce an irregular past tense form of that verb. In all three cases, children are asked to produce the past tense. The evidence available so far implies that in the control condition, children will regularize (Berko, 1958), whereas in the 'trusted' informant condition they will emulate production of the irregular form (in line with the findings of the current experiments). What will children do in the 'mistrusted' informant condition? One possibility is that they will also emulate the irregular form, as in the 'trusted' informant condition, implying that so long as the irregular form is the sole option in recent memory, children will emulate it. Previous research indicates that preschoolers are sensitive to recency effects in word learning (e.g., Gathercole & Baddeley, 1989; Slobin, 1978). However, another likely possibility is that, granted their doubts about the mistrusted speaker, children will revert to the regularized form. Indeed, when learning novel labels from ignorant speakers, children encode the response by an ignorant speaker, but choose to ignore it when deciding what they think the object is called (Sabbagh & Baldwin, 2001; Sabbagh & Shafman, 2009). Future research should explore these possibilities.

In conclusion, the present findings advance our understanding of children's selective trust in four ways. First, children use a speaker's past accuracy in the semantic domain to guide their learning not just of new names but also of new morphology. Second, in line with the earlier findings of Jaswal *et al.* (2008) children also monitor and evaluate a speaker's morphological accuracy – and they do so even when the speaker uses familiar English forms more or less correctly. Third, children use the morphological accuracy of a speaker to guide their learning of new morphological forms as well as new names. Finally, the findings of Experiment 3 confirm that children's selective trust of accurate speakers, whether in the semantic or the morphological domain, cannot be explained in terms of experimenter cuing. Overall, the findings suggest that young children rapidly appraise the unfamiliar speakers and prefer to learn from those who conform to rather than deviate from their past linguistic experience.

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Appendix A. Percentage of children with a low (0–3), medium (4–7), or high (8–11) number of correct ask and endorse responses in Experiments 1 and 2

	Total score (0–8)		
	0–2	3–5	6–8
Experiment 1			
Novel labels	12%	38%	50%
Novel morphology	18%	38%	44%
Experiment 2			
Novel labels	0%	31%	69%
Novel morphology	0%	44%	56%

Appendix B. Percentage of children with 0–4 correct endorse responses by training type in Experiment 3

	Total score (0–4)				
	0	1	2	3	4
Semantic training					
Novel labels	0%	6%	12%	59%	23%
Novel morphology	0%	12%	23%	41%	24%
Morphological training					
Novel labels	0%	7%	20%	47%	26%
Novel morphology	0%	7%	7%	60%	26%