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The boss is always right: Preschoolers endorse the testimony of a dominant over that of a subordinate

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ABSTRACT

Recent research has shown that young children rely on social cues to evaluate testimony. For instance, they prefer to endorse testimony provided by a consensual group than by a single dissenter. Given that dominance is pervasive in children's social environment, it can be hypothesized that children also use dominance relations in their selection of testimony. To test this hypothesis, a dominance asymmetry was induced between two characters either by having one repeatedly win in physical contests (physical power; Experiment 1) or by having one repeatedly impose her goals on the other (decisional power; Experiment 2). In two subsequent testimony tasks, 3- to 5-year-old children significantly tended to endorse the testimony of the dominant over that of the subordinate. These results suggest that preschoolers take dominance into account when evaluating testimony. In conclusion, we discuss two potential explanations for these findings.

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Introduction

Young children learn most of their factual knowledge through testimony. Using a paradigm in which children need to choose between two contradictory testimonies, studies have revealed that several cues such as reliability (e.g., Koenig, Clément, & Harris, 2004), emotions (Clément, Bernard, Grandjean, & Sander, 2013), and linguistic markers (Bernard, Mercier, & Clément, 2012) influence the selection of testimony by children. Another set of studies has investigated the influence of social cues in young children's endorsement of testimony such as accent (e.g., Kinzler, Corriveau, & Harris, 2011), and consensus (e.g., Bernard, Proust, & Clément, 2015; Corriveau, Fusaro, & Harris, 2009). This latter research has shown, for instance, that children endorse more strongly information provided by a consensual group than information provided by a single dissenter. The current study explores the influence of another important social cue that has received very little attention: the dominance of one informant over another.

Dominance is often characterized as the competitive ability to prevail in conflicting interactions between two individuals that typically involve resource control (e.g., toys, locations) and decision making (e.g., deciding which game to play, deciding where to go). Dominance relations might be achieved through different conducts such as agonistic physical behavior, verbal command, and persuasion. Ethological studies have established that 2-year-olds form stable and transitive dominance hierarchies and that these hierarchies play an important role in their everyday interactions (e.g., Boyce, 2004; Russon & Waite, 1991). Recent experimental studies have demonstrated that young children (and in some cases even infants) can infer dominance from a variety of relational cues such as physical supremacy, holding resources, and decisional power (Charafeddine et al., 2015; Mascaro & Csibra, 2012; Thomsen, Frankenhuis, Ingold-Smith, & Carey, 2011).

Of particular relevance here is a series of experiments that have shown that 3- to 5-year-olds take a variety of cues into account when inferring dominance. For instance, in one condition of the first experiment of Charafeddine and colleagues (2015), two puppets verbally expressed conflicting goals over which game to play together. The situation occurred twice, and the same puppet successfully imposed its favorite game on both occasions. The children were then asked which puppet was the dominant (dominance inference). They responded significantly above chance that the puppet imposing its goal was the dominant. Other conditions and other experiments in Charafeddine and colleagues' (2015) study have shown that 3- to 5-year-olds can also take physical supremacy, age, and amount of resources held as cues to infer dominance (see also Gulgoz & Gelman, accepted for publication).

These experiments revealed a general increase in the ability to infer dominance with age, with no interaction between age and ability to infer dominance from specific cues (i.e., the ability to infer dominance from various cues increased equally with age). However, observational studies show clear developmental trends in the way that dominance is expressed in young children. In particular, with age dominance moves away from physical agonism toward expressions of verbal and decisional power (Hawley, 1999; La Freniere & Charlesworth, 1983; Roseth, Pellegrini, Bohn, Van Ryzin, & Vance, 2007; Strayer & Trudel, 1984). Therefore, it is possible that some of the inferences drawn from dominance might display an age by type of dominance (e.g., physical supremacy vs. decisional power) interaction.

Several experiments have tested the inferences young children draw from dominance. For instance, 3- to 5-year-olds expect dominants to win competitive games, and to hold more resources, even if dominance was established in an unrelated way (Charafeddine et al., 2015). These inferences seem to be robust within this age range. Given the observed developmental differences in the expression of dominance, it would not be surprising to observe some developmental differences in the inferences drawn from dominance. For instance, in a related task, Charafeddine and colleagues (accepted for publication) have shown that as children grow older—from 3 to 8 years of age—they become increasingly likely to be more generous toward a subordinate than a dominant.

The question raised here is whether young children infer that dominants should be more or less trusted than subordinates in testimony tasks. On the one hand, it is not clear that dominance status provides much ground for epistemic trust. On the other hand, we know that dominance plays a crucial role in young children's social lives and that young children can infer dominance from various cues

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and make various inferences from dominance. Moreover, young children have been shown to take other social cues into account when evaluating testimony even when those cues do not have obvious epistemic value such as gender (Terrier, Bernard, Mercier, & Clément, 2016) and minimal group membership (MacDonald, Schug, Chase, & Barth, 2013).

To our knowledge, only one study has investigated the role of dominance in the evaluation of testimony. In that study, two characters were introduced to 4-, 5-, and 6-year-olds (Castelain, Bernard, Van der Henst, & Mercier, in press). In two short stories, the physical dominance of one character over the other was established; the dominant won a play fight with the subordinate and acquired a toy they both wanted. After this dominance induction phase, the children completed a testimony task in which a third character who had lost an animal was introduced. The dominant and the subordinate then gave contradictory information about the location of the lost animal, and the children needed to say where they thought the animal was (localization task). Children from each of the three age groups tended to endorse the testimony of the dominant individual over that of the subordinate.

Although Castelain and colleagues' (in press) study provides evidence that young children take dominance into account in evaluating testimony, the generality of this finding is debatable. The current research extends this finding in four directions.

The first and most important novelty is that the current study was conducted in a population of Western middle- and upper-middle-class children. By contrast, Castelain and colleagues' (in press) study was conducted in a preliterate traditional population (indigenous Kaqchikel Maya from Guatemala). Compared with this type of traditional populations (i.e., subsistence farmers), Western populations tend to be relatively egalitarian (see, e.g., Morris, 2015). Moreover, parenting in traditional societies often relies on power assertion, significantly more so than parenting in Western cultures (especially in middle- and upper-middle-class children; see, e.g., Tizard, Hughes, Carmichael, & Pinkerton, 1983). In traditional cultures, parents tend to rely on imperatives to address their children, and the children are expected to comply without questioning their parents' decisions (Gauvain, Munroe, & Beebe, 2013; Maratsos, 2007; Nicolaisen, 1988). As a result, the Maya children investigated in Castelain and colleagues' (in press) study likely face a much more hierarchical social structure than the Western middle- and upper-middle-class children usually tested in experimental developmental psychology. This might explain Maya children's tendency to endorse the testimony of the dominant, in which case we might expect different results in Western middle- and upper-middle-class children. In particular, the latter might take dominance into account less than the Maya children. The plausibility of cross-cultural differences in this respect is bolstered by findings of significant differences between adults of different cultures in the processing of dominance (e.g., Freeman, Rule, Adams, & Ambady, 2009; Liew, Ma, Han, & Aziz-Zadeh, 2011).

The second novelty of the current study is that it introduces different cues to dominance. In Experiment 1, dominance was induced in a way that is very similar to that of Castelain and colleagues (in press). By contrast, in Experiment 2, dominance took the shape of an asymmetry in decisional power; two protagonists disagree over which decision to make, and one always gets her way. As mentioned above, we know that 3- to 5-year-olds are able to infer dominance both from physical supremacy and from decisional power (Charafeddine et al., 2015). However, we do not know whether those two ways of establishing dominance elicit selective inferences regarding the trustworthiness of either the dominant or the subordinate. In particular, given the developmental changes in the way that dominance is expressed among young children—from physical toward verbal cues—we might expect developmental differences so that, for instance, individuals whose dominance was established through physical supremacy become less trusted with age.

The third novelty of the current experiments is the inclusion of younger children: 3-year-olds. The inclusion of this age range is relevant for two reasons. First, as mentioned above, it is interesting to test for potential developmental differences in the importance of physical supremacy as an expression of dominance because it is known to be more prevalent in early ages (e.g., Hawley, 1999). Second, several experiments in the trust in testimony literature have revealed significant differences in the way that 3- and 4-year-olds evaluate testimony (see, e.g., Clément, 2010). Moreover, many experiments have shown that 3-year-olds respond well to the type of paradigm used here (e.g., Clément, 2010; Harris, 2012).

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Finally, the fourth novelty involves the introduction of a new testimony task. Besides the localization task used in Castelain and colleagues' (in press) study, our experiments also used a labeling task. In this task, children are presented with a novel object, and they need to name it on the basis of the contradictory suggestions of two informants. This labeling task has been used in many previous experiments on the development of trust in testimony. Moreover, the use of both a localization task and a labeling task allows testing for the effects of dominance on trust in two different domains: episodic (localization task) and semantic (labeling task) (Koenig & Stephens, 2014).

Although the existing literature does not allow for very strong predictions regarding the effects of these novel features, there are grounds to expect that they would have some effects. The current participants might be less likely to trust dominants than the Maya participants, and younger children might put more weight on dominance induced through physical supremacy as compared with older children, who might put more weight on dominance induced through decisional power.

Besides their theoretical import, these novel features have great practical import; they make it much easier for other researchers to build on the results of our experiments. Nearly all the experiments in the development of trust in testimony literature rely on Western middle- and upper-middle-class children, many test 3- to 5-year-olds, and many use a labeling task. The current results provide a crucial step forward before more refined hypotheses about the influence of dominance on testimony can be tested—as they likely will because trust in testimony, on the one hand, and dominance, on the other, are currently the focus of significant efforts in developmental research.

Experiment 1

Method

Participants

This experiment involved 74 children: 25 3-year-olds (13 girls, M_{age} = 43.9 months, SD = 2.36, range = 40–47), 23 4-year-olds (14 girls, M_{age} = 53.6 months, SD = 3.87, range = 48–59), and 26 5-year-olds (10 girls, M_{age} = 65.6 months, SD = 2.84, range = 61–71) from two schools in Lyons, France. All the participants were French, and all the experiments were conducted in French. Most children came from middle- or upper-middle-class families. Each child was seen individually in a quiet room by a single experimenter for about 10 min.

Materials and procedure

Children were tested in two phases: an induction phase and a test phase. In the induction phase, one individual was established as dominant over another individual. In the test phase, two testimony tasks were presented to children in order to test whether they tend to endorse the testimony of the dominant over that of the subordinate.

Induction phase. In the induction phase, the children were told two stories involving two girl characters (Playmobils): Anna and Sophie. One story presented the two characters physically contesting a doll, as depicted in Fig. 1. The second story was identical except that Anna and Sophie fought over a teddy bear. The same character won in the two stories. The order of the stories, the dominant character, and the position of the characters were counterbalanced.

Test phase. In the second phase, all children were presented with two testimony tasks: a localization task and a labeling task (order counterbalanced). In each task, Anna and Sophie gave contradictory testimonies in three consecutive trials.

Localization task. In this task, Anna and Sophie provided contradictory information about the localization of a lost pet. Fig. 1 provides details of some of the vignettes and script. Two vignettes similar to Vignette 2 were then presented, with different backgrounds, for a total of three localization trials. The character's location (left/right) and the order of information presentation were counterbalanced. Each

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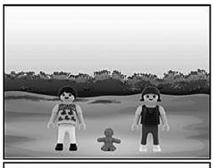
Induction phase – Experiment 1



Here are Anna [point left] and Sophie [point right]. Anna and Sophie are two friends. They just found a Doll. They both want the Doll. In the following images, we will see Anna and Sophie trying to get the Doll. Let's begin…

There, we see Anna [point left] and Sophie [point right] moving towards the Doll to catch it.

There, we see that Anna [point left] has started to take the Doll from Sophie [point right].

There, we see Anna [point left] and Sophie [point right] both touching the Doll.

There, we see that Anna [point left] pulled the Doll harder than Sophie [point right].

There, we see Anna [point left] and Sophie [point right] who both pull the Doll towards them.

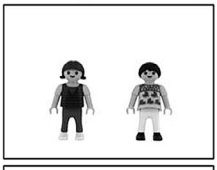
Hey look, it is Anna [point left] who has the Doll.

Localization Task – Experiment 1

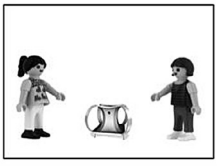
Now, I'm going to tell you the story of Stéphane [point] and his dog [point]. In this story, there will be Sophie and Anna too. Actually, Stéphane's dog [point] often escapes, and Stéphane has to go and look for it. In the game, you will help Stéphane to find his dog. Anna and Sophie will be on the pictures to help Stéphane to find his dog. Let's begin…

For example, one day Stéphane [point] is looking for his dog in front of a church. You see Anna [point right] and Sophie [point left] are both there too. Sophie and Anna say something to Stéphane. We are going to listen to them. Anna [point left] says "the dog went this way" [point to the left]. Sophie [point right] says "the dog went this way" [point to the right]. According to you, which way did Stéphane's dog go?

Labeling Task – Experiment 1



Now we see Sophie [point left] and Anna [point right]. They found strange objects. We will see those objects with them.



You see, Anna [point] and Sophie [point] are here. There is a strange object too [point]. Anna [point] she says that this object is a catif. Sophie [point] she says that this object is a botus. According to you, how is this object called? A catif as Anna says [pointer] or a botus as Sophie says [point]?

Fig. 1. Excerpts from the induction phase (two characters contesting a doll), the localization task, and the labeling task of Experiment 1.

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child could obtain a maximum score of 3 points: 1 point for each story in which the direction supported by the dominant character was chosen.

Labeling task. In this task, Anna and Sophie provided contradictory information about the name of novel objects. Fig. 1 provides details of some of the vignettes and script. Two vignettes similar to Vignette 2 were then presented, with different objects and pseudowords, for a total of three labeling trials. The character's place (left/right), the pseudoword[1] provided by each character, and the order of information presentation were counterbalanced. Each child could obtain a maximum score of 3 points; in each story, 1 point was attributed to the child when she chose the label proposed by the dominant character.

Results

In the localization task, the percentage of choices linked to the dominant was 62.7% for the 3-year-olds, 49.3% for the 4-year-olds, and 60.3% for the 5-year-olds. In the labeling task, the percentage of choices linked to the dominant was 62.7% for the 3-year-olds, 66.7% for the 4-year-olds, and 65.4% for the 5-year-olds.[2]

A mixed model analysis of variance (ANOVA) with age group (3, 4, or 5 years) as a between-participants variable and task (localization or labeling) as a within-participants variable was calculated for the proportion of times (with an arcsin transformation) children followed the dominant. This revealed no significant main effect of age group, $F(2, 71) = 0.25$, $p = .78$, $\eta^2 = .01$, or task, $F(1, 71) = 2.23$, $p = .13$, $\eta^2 = .03$, and no interaction effect between these two factors, $F(2, 71) = 1.85$, $p = .16$, $\eta^2 = .05$. Given that children's scores in the localization task did not differ significantly from those in the labeling task, these data were combined to create a choice of dominant's testimony score (maximum score = 6 points). The choice of dominant's testimony was significantly above chance both for the children as a whole (61.3%, $M = 3.68$, $SD = 1.47$), $t(73) = 3.95$, $p < .001$, $d = 0.92$, and for the 3-year-olds (62.7%, $M = 3.76$, $SD = 1.42$), $t(24) = 2.67$, $p < .05$, $d = 1.09$, and 5-year-olds (62.8%, $M = 3.77$, $SD = 1.53$), $t(25) = 2.56$, $p < .05$, $d = 0.61$. The 4-year-olds were more likely to endorse the dominant's testimony, but this effect reached significance only in the labeling task [both tasks: 58%, $M = 3.48$, $SD = 1.50$, $t(22) = 1.52$, $p = .14$, $d = 0.65$; labeling task: $M = 2.00$, $SD = 0.90$, $t(22) = 2.65$, $p < .05$, $d = 1.13$; localization task: $M = 1.48$, $SD = 0.99$, $t(22) = -0.11$, $p = .92$, $d = -0.05$]. The choice of dominant's testimony was significantly above chance both for the labeling task (64.8%, $M = 1.95$, $SD = 0.79$), $t(73) = 4.84$, $p < .001$, $d = 1.13$, and for the localization task (57.7%, $M = 1.73$, $SD = 0.98$), $t(73) = 2.01$, $p < .05$, $d = 0.47$.

Experiment 1 replicates and extends the results obtained by Castelain and colleagues (in press). Overall, the children—from a modern Western culture, in contrast to a traditional indigenous population—tended to endorse the testimony of the dominant individual. They did so not only in the localization task used by Castelain and colleagues (in press) but also in the new labeling task. Moreover, this was also true of 3-year-olds, an age group not tested by Castelain and colleagues (in press). The robustness of the overall results suggests that 4-year-olds' lack of preference for the dominant's testimony in the localization task was a statistical abnormality. Experiment 2 extended these findings in two different ways: by relying on a different dominance induction phase and by asking children whether they preferred the dominant or the subordinate. In Experiment 2, dominance was induced through decisional power. We might expect children, especially older children, to be more sensitive to this type of dominance induction. The question about preference aims at determining whether children's tendency to endorse the testimony of the dominant is related to a general preference for this character or whether it is a more specific phenomenon.

[1] The pseudowords, classically used in labeling tasks, were created thanks to the *Lexique Toolbox* software (New & Pallier, 2001).

[2] Preliminary analyses revealed no significant effects of gender or order of task presentation (localization task/labeling task or labeling task/localization task) in Experiments 1 and 2. Thus, these two factors were not introduced into the following analyses. All children provided data in all experimental trials in Experiments 1 and 2.

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Experiment 2

Method

Participants

This experiment involved 67 children: 22 3-year-olds (15 girls, M_{age} = 43.77 months, SD = 2.75, range = 39–47), 23 4-year-olds (9 girls, M_{age} = 54.34 months, SD = 3.56, range = 48–59), and 22 5-year-olds (10 girls, M_{age} = 66.50 months, SD = 4.23, range = 60–73) from two schools in Lyons. The demographics were similar to those of Experiment 1. Most children came from middle- or upper-middle-class families. Each child was seen individually in a quiet room by a single experimenter for about 10 min.

Materials and procedure

As in Experiment 1, the children were tested in two phases: an induction phase and a test phase. In the induction phase, one individual was established as dominant over another thanks to her decisional power. In the test phase, children were presented with the same testimony tasks as those used in Experiment 1.

Induction phase. As in Experiment 1, in the induction phase, the children were told stories involving two girl characters (Playmobils), Anna and Sophie, who were friends but who ended up competing. In this case, they competed over the placement of furniture in a new house they were moving into. Fig. 2 provides an example of the vignettes and script used in Experiment 2. For children who failed to answer the memory question at the third vignette, Vignette 2 was repeated. There were two other induction stories (kitchen and living room stories) built on the model of the bedroom story.

In each of these three stories, it was specified that (a) the two characters needed to make a decision regarding where to put a piece of furniture, (b) the characters had conflicting goals over where to put the piece of furniture, and (c) a decision was made, resulting in the two characters putting the piece of furniture in one of the two locations. In each story, the same character—the one induced as dominant—imposed her goal. Which character was dominant, the character's location (left/right),and the order of information presentation were counterbalanced. The experimenter did not explicitly mention the dominance of one character over the other.

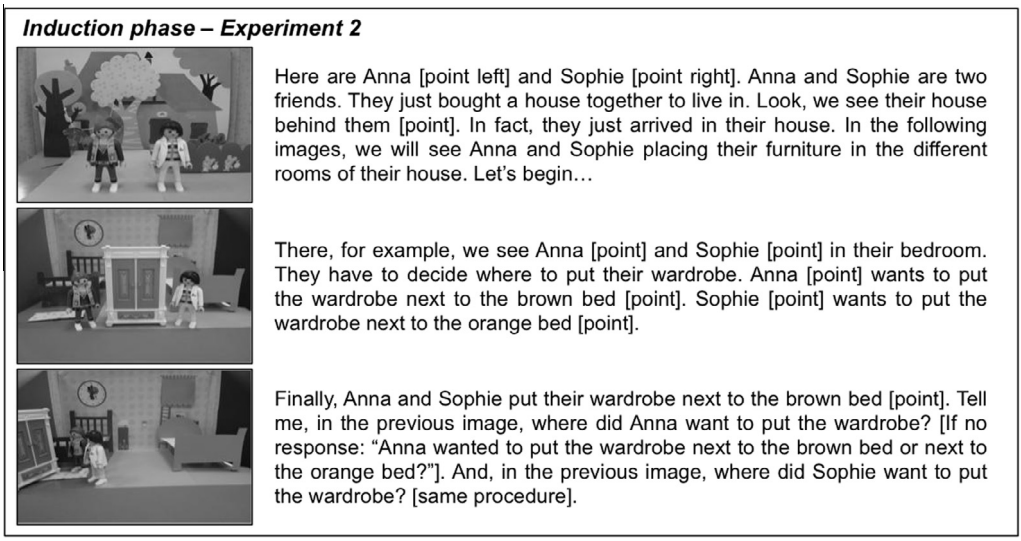

Fig. 2. Excerpts from the induction phase (the bedroom story) of Experiment 2.

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Test phase. In the second phase, all children were presented with the same two testimony tasks used in Experiment 1, namely a localization task and a labeling task (order counterbalanced). Only the localization task differed from the one used in Experiment 1 because it involved a young Playmobil girl instead of a boy in Experiment 1.

Preference question. After the last testimony task, the experimenter asked each child, "Do you prefer Sophie or Anna [order counterbalanced]?" Children's preferences were evaluated to test whether their choices could be explained by a general preference for one of the characters.

Results

Regarding the success in the memory questions, all children correctly attributed the goals to the appropriate characters in either the first presentation or the second presentation of these questions.

In the localization task, the percentage of choices linked to the dominant was 66.6% for the 3-year-olds, 65.2% for the 4-year-olds, and 68.2% for the 5-year-olds. In the labeling task, the percentage of choices linked to the dominant was 65.2% for the 3-year-olds, 63.8% for the 4-year-olds, and 72.7% for the 5-year-olds.

A mixed model ANOVA with age group (3, 4, or 5 years) as a between-participants variable and task (localization or labeling) as a within-participants variable was performed for the proportion of times (with an arcsin transformation) children endorsed the testimony of the dominant character. This revealed no significant main effect of age group, $F(2, 64) = 0.99$, $p = .37$, $\eta^2 = .03$, or task, $F(1, 64) = 0.02$, $p = .88$, $\eta^2 = 0$, and no interaction effect between these two factors, $F(2, 64) = 0.47$, $p = .63$, $\eta^2 = .01$. Given that children's scores in the localization task did not differ significantly from those in the labeling task, these data were combined to create a choice of dominant's testimony score (maximum score = 6 points). The choice of the dominant's testimony was significantly above chance both for the children as a whole (66.9%, $M = 4.01$, $SD = 1.25$), $t(66) = 6.46$, $p < .001$, $d = 1.59$, and within each age group [3-year-olds: 65.8%, $M = 3.95$, $SD = 1.09$, $t(21) = 4.43$, $p < .001$, $d = 1.93$; 4-year-olds: 64.5%, $M = 3.87$, $SD = 1.22$, $t(22) = 3.22$, $p < .01$, $d = 1.37$; 5-year-olds: 70.5%, $M = 4.23$, $SD = 1.44$, $t(21) = 4.01$, $p < .01$, $d = 1.75$]. As in Experiment 1, the choice of dominant's testimony was significantly above chance both for the labeling task (67.2%, $M = 2.01$, $SD = 0.76$), $t(66) = 5.48$, $p < .001$, $d = 1.35$, and for the localization task (66.7%, $M = 2.00$, $SD = 0.82$), $t(66) = 5.01$, $p < .001$, $d = 1.23$.

To investigate the possible effect of the type of induction phase on children's testimony choices, a mixed model ANOVA with age group (3, 4, or 5 years) and experiment (1 or 2) as between-participants variables, and task (localization or labeling) as a within-participants variable was performed for the proportion of times (with an arcsin transformation) children endorsed the testimony of the dominant character. This revealed no significant main effects [age group: $F(2, 135) = 0.96$, $p = .38$, $\eta^2 = .01$; experiment: $F(1, 135) = 1.43$, $p = .23$, $\eta^2 = .01$; task: $F(1, 135) = 1.19$, $p = .28$, $\eta^2 = .01$] or interaction effects [Age Group × Task: $F(2, 135) = 0.80$, $p = .45$, $\eta^2 = .01$; Age Group × Experiment: $F(2, 135) = 0.24$, $p = .79$, $\eta^2 = .003$; Task × Experiment: $F(1, 135) = 0.765$, $p = .38$, $\eta^2 = .006$; Age Group × Task × Experiment: $F(2, 135) = 1.40$, $p = .25$, $\eta^2 = .02$].

Finally, comparisons with chance level (binomial test) were made for all age groups regarding the preference for the dominant character. These choices did not differ significantly from chance in any age group (3-year-olds: 8 preferences for the dominant, 14 preferences for the subordinate, $p = .29$; 4-year-olds: 15 and 8 preferences, respectively, $p = .21$; 5-year-olds: 14 and 8 preferences, respectively, $p = .29$). Moreover, the contingency table showed no effect of the age group factor regarding the preference choices, $\chi^2(2) = 4.72$, $p = .094$. The lack of effects of the induction phase on the preference question might be due to the relatively lengthy test phase that separated the induction phase from the preference question.

Experiment 2 replicates and extends the results obtained in Experiment 1. As in Experiment 1, children tended to endorse the testimony of the dominant. They did so even though the dominance was induced using different means, that is, using decisional power. Indeed, our results do not suggest that the children were more or less sensitive to one way of inducing dominance over another. Finally, the fact that the 4-year-olds were more likely to endorse the testimony of the dominant in Experiment 2

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suggests that their failure to do so in the localization task of Experiment 1 was indeed a statistical fluke.

Discussion

Like infants, who are shown to infer dominance from physical size (Thomsen et al., 2011) and from the capacity to prevail in a situation where there is a conflict between agents' goals (Mascaro & Csibra, 2012), preschoolers have been shown to infer dominance from a variety of relational cues such as physical competition and decisional power (Charafeddine et al., 2015). Preschoolers have also been shown to draw a variety of inferences from attributions of dominance (Charafeddine et al., 2015). A study suggested that 4- to 6-year-olds were more likely to endorse the testimony of a dominant than that of a subordinate (Castelain et al., in press). The goal of the current experiments was to extend this finding.

In two experiments, preschoolers were shown that one character was dominant over another character. The children then needed to decide which character's testimony to endorse in two testimony tasks. Children were more likely to endorse the testimony of the dominant character. This was true whether dominance had been induced through physical power (Experiment 1) or decisional power (Experiment 2), whether the testimony task was a labeling task or a localization task (both experiments), and at all age groups (with a likely insignificant exception for one age group in one experiment).

These findings extend those of Castelain and colleagues (in press) in several ways: use of a new dominance induction phase, a new testimony task, a new age group, and a different population. This latter variable is particularly relevant. The children tested in Castelain and colleagues' (in press) study belonged to a traditional population and likely faced an environment in which hierarchy played a primordial role. By contrast, the middle- and upper-middle-class French children tested in the current experiments live in a relatively more egalitarian society and are in a more egalitarian relation with their parents. Thus, it is significant that even such children tend to favor the testimony of dominants over that of subordinates.

In the remainder of the Discussion, we discuss two potential hypotheses for children's use of dominance to select testimony. The first hypothesis is *social;* children might seek to ingratiate with the dominant. In general, it is more important to be seen in a positive light by dominants than by subordinates. If agreeing with an individual makes her more inclined to like us, then we might have a greater propensity to agree with dominants than with subordinates. Recent data could support this interpretation. It has indeed been shown that children defer to the majority consensus, even when this consensus runs against their own accurate perception (e.g., Bernard, Harris, Terrier, & Clément, 2015; Corriveau & Harris, 2010; Haun & Tomasello, 2011). This deferential behavior might also be present with a dominant source.

Although this social interpretation could account for part of the results, the outcome of the preference question suggests that children do not rely only on a social heuristic. If the goal of the children was to ingratiate with the dominant, then they should also want to ingratiate with the dominant when they answer the preference question and, thus, say that they prefer her, which they did not do significantly. Thus, further research is needed to better evaluate the strength of the social heuristic leading children to endorse the testimony of the dominant and to translate this selective endorsement into social preference.

Besides the social interpretation mentioned above, recent results suggest a second interpretation, in this case linked to competence, to explain why preschoolers might take dominance into account when evaluating testimony. In their third experiment, Charafeddine and colleagues (2015) presented 3- to 5-year-olds with two characters marked as being a dominant and a subordinate by their bodily postures and by the actions of giving orders and complying with orders, respectively. When asked which of these two characters would win in a nondescript game of skills, children were significantly more likely to select the dominant (Charafeddine et al., 2015). These results suggest that preschoolers consider dominants to be more competent than subordinates even in domains that do not directly involve dominance such as a game of skills.

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Suggesting competence as a second inferential route leading to the selective endorsement of the dominant's testimony is consistent with research showing that adults tend to attribute more competence to individuals high in trait dominance (Anderson & Kilduff, 2009). Interestingly, this research revealed that dominant individuals are perceived as competent even when they are not especially competent. For instance, in one of Anderson and Kilduff's (2009) experiments, participants needed to solve mathematical problems in groups. Post-discussion ratings of competence by group members and outside observers were correlated with dominance. And yet, dominance did not correlate with actual competence as measured by the chances of suggesting the correct answer during the discussion. Admittedly, in the current experiment, the dominance induction phase did not provide any direct clue of competence relevant for the testimony tasks (location of pieces of furniture vs. labeling objects or finding a pet). But children might nevertheless use a heuristic similar to that used by adults and attribute, by default, competence to dominants irrespective of their actual competence.

In the current experiments, competence and dominance could interact in at least two ways. As described above, in the induction phase, children could infer that a character is dominant and then infer that she is also competent, assuming that dominants are more competent across the board. But the induction phase could also lead children to infer both that one character is dominant and that she is competent in one area—better at fighting or at knowing where to put furniture. Children would then generalize from this attribution of a specific competence to the attribution of a broader type of competence, explaining the results in the testimony questions. Whether and how children's dominance-based inferences are mediated by competence are interesting questions that need further research. But the question of whether dominance processing goes with competence attribution does not change the fact that young children did endorse the testimony of dominants over that of subordinates, thereby confirming previous experiments showing that children reliably infer dominance from this type of induction phases.

The two broad inferential paths leading to the selective endorsement of the dominant's testimony that we suggested here, going through deference and competence, are not incompatible. They might both work together in a way that further developmental studies need to investigate. Such studies are all the more important because research on the inferential potential of dominance recognition remains, for the time being, relatively scarce.

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