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Understanding Attention: 12- and 18-Month-Olds Know What Is New for Other Persons

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Infants at 12 and 18 months of age played with 2 adults and 2 new toys. For a 3rd toy, however, 1 of the adults left the room while the child and the other adult played with it. This adult then returned, looked at all 3 toys aligned on a tray, showed great excitement ("Wow! Cool!"), and then asked, "Can you give it to me?" To retrieve the toy the adult wanted, infants had to (a) know that people attend to and get excited about new things and (b) identify what was new for the adult even though it was not new for them. Infants at both ages did this successfully, lending support to the hypothesis that 1-year-old infants possess a genuine understanding of other persons as intentional and attentional agents.

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Human beings possess a suite of social–cognitive skills not possessed by other animal species. These begin to emerge in human ontogeny at around 9 to 12 months of age and concern children's understanding of both the behavior and the perception of other persons (Tomasello, 1999).

In terms of the understanding of behavior, human infants' unique skill is their understanding of intentional action. This understanding has been investigated from a variety of theoretical perspectives using a variety of research methodologies. For example, in preferential looking and habituation paradigms, human infants show some sensitivity to the particular properties of goal-directed action by the second half of the 1st year of life (Baldwin & Baird, 2001; Gergely, Nádasdy, Csibra, & Biró, 1995; Kuhlmeier, Wynn, & Bloom, in press; Woodward, 1998). Consistent with this, when they attempt to imitate the goal-directed actions of others in overt behavior, infants at around 1 year of age reenact the action and simultaneously look in anticipation to the goal (Carpenter, Nagell, & Tomasello, 1998), and they even have some knowledge of why an adult chose the behavioral means he or she did and what this implies for their own goal-directed attempts (Gergely, Bekkering, & Kiraly, 2002). Also, when 18-month-olds (but not 12-month-olds) see an adult trying to do something, they reproduce what he or she was trying to do and not what he or she actually did, implying an ability to infer the goal of the action even if it was not actually consummated in perceptible behavior (Bellagamba & Tomasello, 1999; Meltzoff, 1995). Finally, 16-month-old infants preferentially imitate purposeful over accidental actions (Carpenter, Akhtar, & Tomasello, 1998), suggesting that they can interpret basically the same behavior in different ways (i.e., as a goal-directed action or as an accident).

In terms of the understanding of perception, infants begin to reliably follow the gaze direction of other people in this same general age range. In child-friendly circumstances, they show the first signs of gaze following in the second half of the 1st year of life (e.g., D'Entremont, Hains, & Muir, 1997), and this skill becomes more reliable and robust by around the first birthday (Carpenter, Nagell, & Tomasello, 1998; Corkum & Moore, 1995). Between 12 and 18 months of age, infants begin to do additional things like follow adult gazes past a distracting stimulus and also to the space behind their bodies (Butterworth & Jarrett, 1991). It is at this age that they also start checking adult gaze direction relatively systematically when, and sometimes even before, they produce a pointing gesture (Franco & Butterworth, 1996), and they also come to appreciate that barriers block the visual access of others to potential visual targets (Brooks & Meltzoff, 2002; Butler, Caron, & Brooks, 2000; Caron, Butler, & Brooks, 2002; Caron, Kiel, Dayton, & Butler, 2002).

However, many primate species follow the gaze direction of conspecifics (Tomasello, Call, & Hare, 1998), some even around barriers and past distractors (Tomasello, Hare, & Agnetta, 1999). Chimpanzees even understand something of the contents of another chimpanzee's perceptual experience, in the sense that they know whether the other can or cannot see a hidden piece of food and even whether the other has or has not seen this food in the immediate past (Hare, Call, Bryan, & Tomasello, 2000; Hare, Call, & Tomasello, 2001). Arguably, then, the species-unique aspect for human infants is an understanding not of perception in general but of perceptual attention more specifically. Understanding another person's attention means understanding that that person has intentional control over his or her perception and that in particular cases, that person can choose to focus on one aspect of a situation rather than on others. In a communicative situation, understanding the referential intentions of another person means understanding which entity in the world the other person is attending to (and wants another to jointly attend to; Tomasello, 1998).

One fundamental property of human attention is that it is drawn to things that are new to a situation; indeed, this attention to novelty is the basis for a number of experimental paradigms used

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with human infants, such as dishabituation and preferential looking (e.g., Fantz, 1963). There is some evidence that children as young as 24 months of age understand that other people get excited about and attend to things that are new to a situation. For example, Tomasello and Akhtar (1995) introduced 24-month-old children to a curved pipe, down which objects could be thrown to great effect. In one condition, an experimenter first threw one object down, and then another, and then announced, "Now, modi," as she threw another object down. In this condition, children thought "modi" was the name of that object. In another condition, the adult took out an object and first did one thing with it, and then another thing, and then announced, "Now, modi," as she threw it down the pipe. In this condition, children thought "modi" was the name of the action of throwing objects down a pipe. The result was thus that for exactly the same referential situation—an object going down a pipe—children thought that the adult was using the word *modi* to refer to the object when that was the new element in the situation but to the action when that was the new element in the situation. They thought this, presumably, because of the assumption that people attend to and talk about entities that are new to the communicative situation.

But how skillful are children of this age at determining exactly what is new from the adult's perspective, that is, when some entity is new to the situation for the adult only (not the child)? O'Neill (1996) placed a desired object in one of two opaque containers high on a shelf, out of reach of a young child. To obtain the desired object, the child had to request adult help, specifically that of the mother. There were two experimental conditions. In one condition, the mother witnessed the hiding and thus knew the location of the hidden object (and the child witnessed her witnessing). In the other condition, the mother left the room during the hiding process and thus was ignorant of the object's location when she returned (and the child witnessed her absence). The question was whether children would communicate differently depending on the mother's different knowledge state, for example, by pointing to the location of the hidden object more often when the mother was ignorant (i.e., when this would be new information for her, even though the children themselves were never ignorant). The general finding was that children at 2 years 6 months of age communicated with their mothers more often and in much more explicit ways, including pointing, when the mothers were ignorant of the object's location and needed the new information (with children at 2 years of age tending in this same direction). Two-year-old children are thus in some circumstances able to determine what is new for an adult, even if it is not new for them. Relatedly, Moore and D'Entremont (2001) found that children at about 2 years of age (but not at 1 year of age) pointed more for an adult who had not seen a novel object than for one who was already looking at it.

Akhtar, Carpenter, and Tomasello (1996) combined both of these elements together in one study, that is, they investigated whether 2-year-old children knew that adults get excited about and attend to new things and also whether these children could determine what was new for an adult in a situation in which the adult had and had not witnessed some previous event. Children at around their second birthdays played with an experimenter and their mother with three toys—each in turn and each for long enough that all participants became mildly bored with these toys. The mother then left the room. At that point, a fourth object was brought out and the experimenter and the child played with it for the same length of time as the first three (thus becoming bored with it as well). Then the mother returned and looked at all four objects arranged in a row on a shelf and exclaimed, "Oh, a gazzer! Wow, a gazzer! Look at the gazzer!" From this experience, children inferred that the mother wanted the object that she was seeing now for the first time, even though they themselves had had the same amount of experience with all four objects (and a control condition ruled out that they were simply choosing the last object experienced). Infants demonstrated this understanding a few minutes later by picking out the object new to the mother from among the four objects when asked by the experimenter to "Go get me the gazzer" (the measure was thus whether they learned the new word). To be successful in this task, the child had to know (a) that people get excited about things that are new, not old, for them and (b) that there was one particular object that was new to the mother (though not to the child) because she was out of the room when it was introduced. This study has been interpreted as showing that 24-month-old children know something about the seeing–knowing connection because they were able to infer different knowledge states of the mother on the basis of their knowledge of what she had and had not experienced.

In the current study, we followed the basic design of Akhtar et al.'s (1996) study, but we attempted to make it more child friendly and less dependent on language so that we could try it with younger children. The basic idea was as follows: (a) Two adults and the child first played with each of two objects, (b) then one of the adults left the room, (c) the child and the other adult played with a third object, and finally (d) the first adult returned and—looking at the three objects together—exclaimed something like "Wow! Cool! Look at that one!" which was followed immediately by the request "Can you get it for me?" This last step—asking immediately for the object while still showing excitement and surprise (rather than a few minutes later)—is the crucial difference from Akhtar et al.'s study (i.e., in addition to the dropped word-learning component). This greater immediacy of the request relative to the emotional reaction to the new object and the naturalness of the response (retrieving a requested object) made the task potentially appropriate for younger children, specifically 18- and 12-month-old infants. Still, in this task, as in Akhtar et al.'s study, to be successful, children had (a) to know that people attend to and get excited about new things and (b) to identify what was new for the adult even though it was not new for them.

The question of age in the current study becomes especially important in the case of the 12-month-olds. Infants at this age begin to show a number of new social behaviors such as gaze following, pointing, imitation of actions on objects, and so forth—often called collectively *joint attention* (Tomasello, 1995). There is currently controversy over whether the joint attention behaviors of 12-month-old infants reflect a genuine understanding of the experiential lives of other people—as argued by, for example, Carpenter, Nagell, and Tomasello (1998) and Tomasello (1999)—or whether they simply reflect a new sensitivity to external social contingencies—as argued by, for example, Moore (1998). If the 12-month-olds in the current study were successful in identifying what was new for the adult, then this would lend support to the more generous view of 12-month-olds' social–cognitive abilities.

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Study 1

Method

Participants. Participants were 72 children from a medium-sized German city. There were two ages: 24 children (11 girls and 13 boys) were 18 months old (range = 16 months 26 days to 18 months 27 days), and 48 children (25 girls and 23 boys) were 12 months old (range = 12 months 0 days to 13 months 10 days). Seven additional 18-month-olds failed to complete the study (3 were not cooperative, and there were 4 experimenter errors). Thirteen additional 12-month-olds failed to complete the study (8 failed the warm-up task or were uncooperative, and there were 5 experimenter errors). About two thirds of the 18-month-olds were seen in a day-care center, with the other third visiting a child laboratory with a parent. Because very few 12-month-olds in this city attend day care on a regular basis, all of these younger children were seen at the child laboratory.

Materials and design. All children were first given a warm-up task to see whether they understood the kind of question that would be asked of them in the final test. The warm-up task thus consisted of one experimenter placing three familiar objects in a tray and then another experimenter asking for them one by one by name. The objects were a ball, a toy car, and a teddy bear. Pilot testing had previously determined that children in this age range mostly knew the names of these objects (in comprehension) and that they could succeed in this task. To pass the warm-up task, the child had to correctly retrieve either the first or the second object requested.

For the experiment itself, children were exposed to three novel objects. These were toys or hardware items that children of this age were very unlikely to know, and this was confirmed in pilot testing. The objects were unusual instances of a garden tool, a kitchen utensil, and a pet toy. Each made a distinctive sound when manipulated in a particular way. One object was designated ahead of time as the target for a given child on the basis of a perfectly counterbalanced schedule. None of the novel objects was labeled during the time it was being played with but rather was referred to with a pronoun (the German equivalent for *it*, *this*, or *that*).

Each child was randomly assigned to one of the two experimental conditions (see below). For the 18-month-olds, this meant 12 children per condition, and for the 12-month-olds, this meant 24 children per condition.

Procedure. Each child was seen for one 15–20-min session, either in a quiet room at the day-care center or in a child laboratory. After a few moments of acclimatizing, the child was given the warm-up task (see above); then came the experimental procedure. For all children, the initial phase involved two female experimenters (E1 and E2) and the child playing together, first with one novel object and then with a second—each in succession for about 60 s (with no verbal labeling of the objects)—while seated at a table. After finishing with each object, the experimenter put it away onto a tray on the floor beneath the table; throughout, the tray was visible to the child on the floor but was not reachable. Then, at this point, came the experimental manipulation.

For the experimental condition, E1 then announced some errand and got up and left the room—closing the door emphatically behind her—while E2 stayed with the child seated at the table. E2 then said the German equivalent of "Oh, she's gone. She can't see, but it doesn't matter. We'll keep playing anyway." She then brought out a third object, the target object, and she and the child played with that for 60 s (the same length of time as for the other objects; again, there was no labeling). E2 then put the third object (target) on the tray on the floor, as she did for the first two, saying the German equivalent of "OK, now we just place this here." E1 then returned, at which point E2 picked up the tray from the floor and placed it on the table near to the child. E1 then looked at the tray, which was out of her reach across the table (but now in reach of the child), and said excitedly the German equivalent of "Wow! Look! Look at that! So look at that! Just give it to me, please." This request for the object was repeated up to three times if necessary.

For the control condition, everything was basically identical except that E1 did not actually leave the room. She simply announced that she would go adjust the camera and then walked to the camera (2–3 m away) and stood there watching E2 and the child while they played with the third (target) object. At this time, E2 commented (parallel to, but different from, her comment in the experimental conditions) the German equivalent of "Oh, she's over there. But she still can see us. So we'll just keep playing." E1's exclamations and requests for the object upon her return were the same as in the experimental condition.

All 18-month-old children picked up an object and gave it to E1 in response to her request(s). The majority of 12-month-old children did this as well (56%), but some of them only touched an object or else took one for themselves only, without giving it to E1. On the basis of a live judgment made together by the two experimenters, the child was given credit for having chosen the object that he or she handed over to E1, if this is what he or she did, and for the first object touched if he or she did not hand one over to E1. An independent research assistant (unaware of the hypotheses of the study) also coded 100% of the tapes for the 18-month-olds using these same criteria. She agreed with the experimenters' designation of the child's choice 96% of the time, for a Cohen's kappa of .81. She also scored 100% of the 12-month-olds' performances and achieved 100% agreement with the live coder on which object was chosen.

Results

The experiment was done first with 18-month-olds and produced clear results with 12 children in each condition. It was then done with 12-month-olds. However, because there was only a tendency in the same direction with 12 children in each condition for the younger group, the sample size was doubled to 24 in each condition for the 12-month-olds. The results are thus reported separately for each of the two age groups.

Results for the 18-month-old children are presented in Figure 1. Two types of analysis were conducted. First, the experimental condition was compared with the control condition with a Fisher's exact test (in which all children who were wrong were grouped together and compared with all who were correct). With this comparison, the experimental condition yielded more target re-

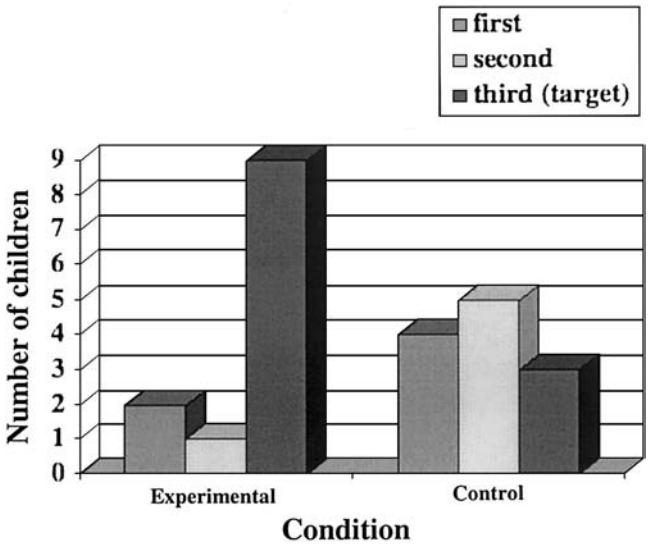

Figure 1. Number of 18-month-old children choosing each of the three objects in Study 1 as a function of condition.

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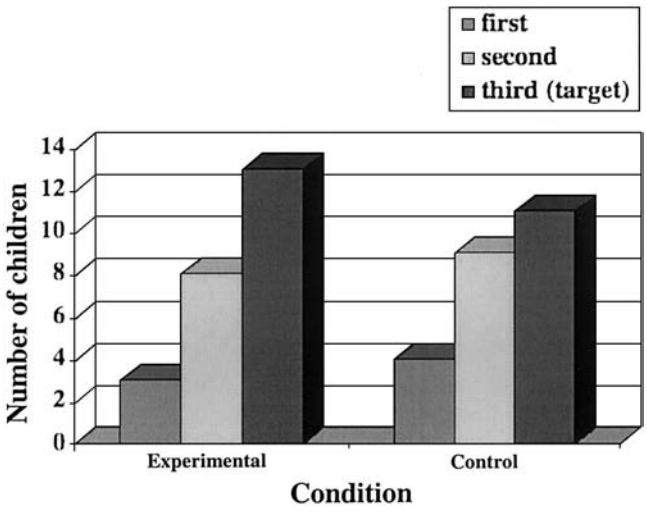

Figure 2. Number of 12-month-old children choosing each of the three objects in Study 1 as a function of condition.

sponses than the control condition ($p < .04$). Second, we compared each of the two conditions individually with chance using both a chi-square goodness-of-fit procedure (examining the distribution of responses across the three objects) and a binomial procedure in which the number of children who chose the target object was compared with the chance value of .33. Both of these procedures yielded the same results. The experimental condition was different from chance, $\chi^2(2, N = 12) = 9.50$, $p < .02$ (binomial test, $p < .01$), but the control condition was not. Thus, the clear result of both analytic procedures is that only in the experimental condition did children reliably choose the target object.

Results for the 12-month-old children are presented in Figure 2. Neither the experimental nor the control children reliably chose the target object at greater-than-chance levels, and these conditions did not differ from one another when they were compared using a chi-square test. However, it is interesting to note that in the experimental condition, the 12-month-olds did choose the target at greater-than-chance levels, $\chi^2(2, N = 24) = 6.25$, $p < .05$ (binomial test, $p < .06$). The problem was that children tended to choose the target object also in the control condition, although not quite at greater-than-chance levels.

Discussion

In this study, 18-month-old children were able to determine the target of an adult's attention when making a request on the basis of some general knowledge about human behavior and on their assessment of the adult's immediate past experience. More specifically, they demonstrated an understanding of which of three objects an adult was focused on based on their knowledge that (a) people tend to get excited about and pay attention to and request things that are new to the current context (not things that have been present in the context continuously for some time) and (b) in the current situation, one of the objects was new to the adult because she was out of the room when it was introduced. It is important to note that the direction of E1's gaze was not diagnostic in this situation, as she was simply looking in the general direction of the group of three objects.

The behavior of 12-month-olds was not as clear. Their performance in the experimental condition was above chance, which might seem to indicate an understanding of where the adult's attention was focused. The problem was that in the control condition, they tended to choose the third object also (although not at above-chance levels), and thus the experimental and control conditions did not differ from one another. Therefore, it is possible that the 12-month-olds simply thought that E1 was most likely to be excited about the latest object seen, which would always be the target because even in the control conditions the target object was the last one that E1 saw before making her request. Or perhaps the children's attention was drawn to this last object for some other reason having nothing to do with the adult's focus of attention at all. From the current results, we simply cannot tell.

Study 2

One possible approach to this ambiguity in the performance of 12-month-olds in Study 1 would be to create a situation in which E1 either leaves the room or goes to the door for the first object. If that first object was hidden from sight before E1 returned, then the experiment could be conducted very much like in Study 1 but in a way that would not be confounded by children's tendency to choose the last object in the control condition. This was the rationale for Study 2.

Method

Participants and design. Participants were a new group of 48 twelve-month-old children from the same sources as those of Study 1. There were 26 girls and 22 boys, with a mean age of 12 months 18 days (range = 11 months 25 days to 13 months 11 days). Children were randomly assigned to one of the two conditions: 24 to the experimental condition and 24 to the control condition.

Procedure. The procedures and materials for this study were identical to those of Study 1 with one crucial difference: The target object was always the first object to which the children were exposed. This meant that a session went as follows: (a) E1, E2, and the child first played with the warm-up objects; (b) then E1 either left the room or walked to the door and stood and watched (depending on the condition), at which time E2 and the child played with the first object for 60 s; (c) this object was then put away on a tray on the floor beneath the table and covered with a cloth; (d) E1 then returned to her seat, and each of the other two objects, in turn, was brought out, played with by all three people for 60 s, and put away in the same tray on the ground; (e) after all objects had been played with and put away, E2 then produced the tray, uncovered, and placed it on the table away from E1, near to the child; and (f) E1 then reacted as in Study 1 ("Wow! Look! Look at that! So look at that! Just give it to me, please.").

Again, subjects' choice of object was scored live by agreement between the two experimenters, according to the same criteria used in Study 1 (the object the child handed over or, if none was handed over, the first object touched). An independent research assistant also coded 25% of the tapes and agreed with the experimenters' designation of the child's choice 100% of the time.

Results

Results are presented in Figure 3. Again, as in Study 1, two types of analysis were conducted. First, the experimental condition was compared with the control condition using a Fisher's exact

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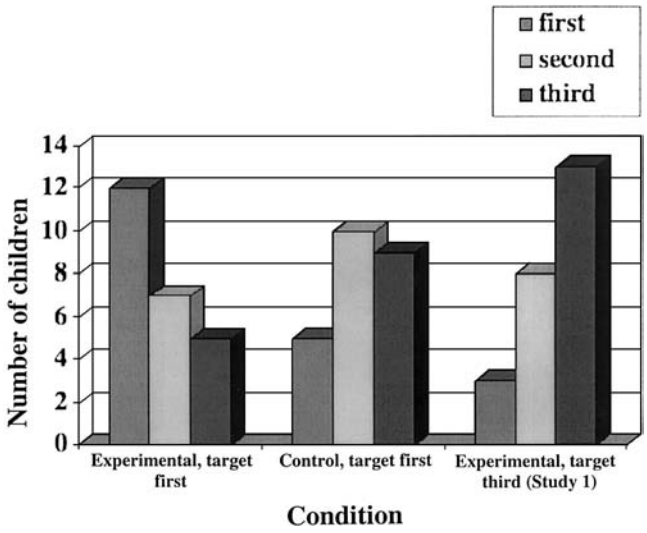

Figure 3. Number of 12-month-old children choosing each of the three objects in Study 2 (left and middle trios) and in Study 1 (rightmost trio) as a function of condition.

test. In this analysis, the experimental condition yielded more target responses than the control condition ($p < .04$, one-tailed). Second, each of the two conditions was compared with chance using both a chi-square goodness-of-fit procedure (examining the distribution of responses across the three objects) and a binomial procedure, in which the frequency with which children chose the target object was compared with the chance value of .33. In neither of these analyses was the control condition different from chance. The experimental condition did not differ from chance according to the goodness-of fit-procedure, but according to the binomial test the difference between the experimental condition and chance approached significance ($p < .07$).

Because the procedures of the two studies were so similar, we can also compare across the two studies in an especially powerful way. Specifically, in the experimental condition of Study 1, the manipulation encouraged children to choose the third object, whereas in the experimental condition of Study 2, the manipulation encouraged children to choose the first object. We may therefore compare these two conditions directly. As can be seen in Figure 3, the two manipulations produce almost mirror opposite patterns of results. When these two distributions are compared using a chi-square test of independence, the result is significant, $\chi^2(2, N = 48) = 9.02$, $p < .02$. We can also pool the experimental and control conditions of the two studies and compare them (i.e., 12-month-olds from Study 1). When this is done, the result is significant, $\chi^2(2, N = 72) = 3.45$, $p < .05$, one-tailed.

Discussion

The results of Study 1 were ambiguous for 12-month-olds. Although they were above chance in the experimental condition, these infants were not different from the control group because the control children also tended to take the last object they experienced (which was the target). In Study 2, we made the first object the target, and because children in the control condition again chose the last or the middle object quite often (and the first object least often), we now found a significant difference between the experimental and control groups. Moreover, when the experimental children were compared across the two studies—so that those who experienced the target last and those who experienced it first were directly compared—the influence of the experimental manipulation was especially clear. Apparently, in some situations, 12-month-old children, like 18-month-old children, are able to determine the target of an adult's attention when making a request, on the basis of some general knowledge about human behavior and of their assessment of the adult's immediate past experience. Again, it is important to emphasize that the direction of E1's gaze was not diagnostic in this situation, because she was simply looking in the general direction of the group of three objects.

General Discussion

The current studies are the first to investigate what children as young as 12 and 18 months of age understand about what other people attend to and how this is affected by their personal experiences. Children at both of these ages were able to determine which of three objects an adult was focused on when she made a request—even though the adult was simply looking in the overall direction of those three objects together. They were able to do this on the basis of a general understanding that people do not tend to become excited about and attend to objects that have been continuously present for some time; rather, people tend to become excited about and attend to objects that are new to the situation. However, in addition, in the current study, these infants also had to know which object was new for the other person—because they were all old for the infants. This required them to do something in the direction of understanding the seeing–knowing connection, that is, they had to be able to determine that when an adult was out of the room, she did not experience an object that they themselves did experience.

It is perhaps not so surprising to find this ability in 18-month-olds. The current study was modeled on a language study that demonstrated the same skills in 24-month-olds, and this language study required children not just to retrieve a requested object but also to learn a new word for an object (Akhtar et al., 1996). Eighteen-month-olds have also demonstrated a clear understanding of intention—a psychological state with an intimate relation to attention—in at least two different imitation paradigms (Carpenter, Akhtar, & Tomasello, 1998; Meltzoff, 1995), as well as one word-learning paradigm (Tomasello, Strosberg, & Akhtar, 1996). In addition, 18-month-olds have also shown some understanding that when people express positive emotions toward a food item, that is the one they want (and the reverse for negative emotions toward food items; Repacholi & Gopnik, 1997). It is noteworthy that in all of these studies, as well as the present study, the child had to make an active decision and express that in overt behavior to demonstrate his or her knowledge (i.e., over and above simple dishabituation or looking responses), because this is evidence that the child understands at a level sufficient to justify adaptive behavioral decision making.

However, the successful performance of the 12-month-olds is very surprising. There are no language studies involving an understanding of attention in children this young, and, indeed, most 12-month-olds produce basically no language at all and only comprehend a little. Twelve-month-olds have demonstrated some

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sensitivity to goal-directed action in a number of different studies, although it is not always clear that these involve an understanding of an intentional choice. In terms of perception and attention (with attention conceptualized as intentional perception—involving choice, as in selective or perspectival attention), previous studies have found that young infants can follow gaze direction geometrically and that they understand how barriers work, with perhaps some evidence that they understand that the other is having a visual experience (see especially, Caron, Kiel, et al., 2002). However, no studies, to our knowledge, have suggested that children this young can determine whether another person has or has not experienced a particular object or event previously and how this affects what that person attends to. The current results thus seem to lend support to the theoretical position that children at around 9–12 months of age possess a genuine understanding of other persons as intentional and attentional agents like themselves and understand that other persons voluntarily control both their perception and their behavior (Carpenter, Nagell, & Tomasello, 1998; Tomasello, 1999). Opposing theories that claim that 12-month-old children engage in various joint attentional activities without a true understanding of others as intentional agents—that they are only learning to respond to social contingencies (e.g., Moore, 1998)—will have a difficult time explaining the current results.

That having been said, we must admit that the findings for the 12-month-olds were perhaps not quite as strong as those for the 18-month-olds. All of the individual comparisons were not significantly different from chance. However, the critical comparison between experimental and control conditions in Study 2 was statistically reliable, as was the comparison between the experimental conditions of Study 1 (target last) and Study 2 (target first)—and these are the two most critical comparisons. One potential reason for the slightly less consistent behavior of the 12-month-olds (as compared with 18-month-olds) is that selecting a requested object and handing it to an adult is a behavioral response they are just beginning to master and thus perhaps may capture some of their information-processing resources. We must also acknowledge (following a suggestion of a reviewer) that infants' behavior in this experiment could be interpreted in a somewhat leaner fashion. It might be that infants are simply sensitive to the fact that people are more motivated to explore objects that they have not previously seen than ones that they have. However, this still means that infants know what others have and have not seen and how this previous perceptual experience does and does not affect their actions—an only slightly leaner interpretation than our preferred interpretation in which infants know what others are attending to (based partly on what is new for them experientially in the current situation) and how this affects their actions.

In any case, the current findings suggest that the social–cognitive revolution that occurs at around 9 to 12 months of age in human infants includes as an important component the ability to infer what people have and have not experienced and how this affects their emotional reactions and attention in at least some situations. The current study thus adds to a growing body of evidence that infants of this age are beginning to understand others as intentional agents like themselves who have at least some intentional control over what they do and over what they perceive (Tomasello, 1999). This understanding represents an important first step in the ontogenetic development of uniquely human social cognition.

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