REPORT
Young children’s use of range-of-reference information in word learning
D. Geoffrey Hall and Julie Bélanger
University of British Columbia, Canada

Abstract
An important source of information about a new word’s meaning (and its associated lexical class) is its range of reference: the number of objects to which it is extended. Ninety toddlers (mean age = 37 months) participated in a study to determine whether young children can use this information in word learning. When a novel word was presented with unambiguous lexical class cues as either a proper name (i.e. ‘His name is DAXY’) or an adjective (i.e. ‘He is very DAXY’), toddlers interpreted it appropriately, regardless of whether it was applied to one or both members of a pair of identical-looking stuffed animals. They restricted a proper name to the designated animal(s); but they generalized an adjective from the labeled animal(s) to a new animal bearing the same property. However, when the word was presented with no specific lexical class cues (i.e. ‘DAXY’), toddlers made significantly different interpretations, depending on the number of referents. When the word was applied to one animal, they restricted it to that animal (consistent with a proper name interpretation); when the word was applied to two animals, they generalized it to a new animal with the property (consistent with an adjective or a restricted count noun interpretation). Range-of-reference information thus provided toddlers with a default cue to the meaning (and associated lexical class) of a novel word.

A fundamental question in the study of language acquisition concerns how young children learn the meaning and associated lexical class of new words (see Bloom, 2000; Macnamara, 1986; Pinker, 1996; Woodward & Markman, 1998). For example, how do they come to determine that ‘dog’ designates an object category and is a count noun; that ‘furry’ marks an object property and is an adjective; and that ‘Fido’ labels an individual object and is a proper name? Some scholars have proposed that children approach the task of language learning with advance knowledge of the existence of words from different lexical classes, along with knowledge of links between these lexical classes and particular types of meanings (e.g. Bloom, 2000; Pinker, 1996). Yet even with this prior understanding, children would be at a loss unless they had some way of discovering how different lexical classes are expressed in their own language (e.g. Fodor, 1966).

One well-studied cue to meaning and lexical class is the linguistic context surrounding a word. For example, upon hearing a new word, ‘DAXY’, modeled in a sentence like ‘He is a DAXY’, children learning English infer the word marks an object category, consistent with a count noun interpretation. Yet if they hear it presented in sentences like ‘He is very DAXY’ or ‘He is named DAXY’, they draw different inferences: that it designates, respectively, an object property (consistent with an adjective interpretation) or an individual object (consistent with a proper name interpretation) (see Gelman & Taylor, 1984; Hall, Lee & Bélanger, 2001; Hall, Quantz & Persoage, 2000; Hall, Waxman & Hurwitz, 1993; Hall, Waxman, Brédart & Nicolay, 2003; Imai & Haryu, 2001; Jaswal & Markman, 2001; Katz, Baker & Macnamara, 1974; Landau, Smith & Jones, 1992; Macnamara, 1982; Mintz & Gleitman, 2002; Smith, Jones & Landau, 1992; Sorrentino, 2001; Taylor & Gelman, 1988; Waxman, 1990; Waxman & Booth, 2001).

Yet children cannot use linguistic cues at the outset of word learning, because these cues are language-specific and must themselves be learned (see Waxman, 2002, for an important discussion of this issue). Therefore, children need some other, non-linguistic cues to help them learn a novel word’s meaning and associated lexical class (e.g. Baldwin & Tomasello, 1998; Gelman & Taylor, 1984; Markman & Wachtel, 1988; Soja, Carey & Spelke, 1991; Tomasello, 2001). One potentially important non-linguistic cue to a word’s meaning and lexical class is its range of reference. For example, if children see two identical-looking stuffed animals and hear the word ‘DAXY’ presented with no specific lexical class cues, they are likely to generalize it to both animals (Hall, Lee & Bélanger, 2001). However, if they hear it presented with a specific lexical class cue, such as ‘He is very DAXY’, they will interpret it as referring to one animal (Hall, Quantz & Persoage, 2000).
animals of the same kind and hear a label used for only one, they may assume that the word designates that object and is a proper name, because proper names are words that designate individual objects. In contrast, if children hear the label used for both animals, they may assume that the word is more likely to label a common property shared by the objects and be an adjective, because adjectives are words that label object properties. Of course, range-of-reference information would not always lead children to the appropriate inferences, because children undoubtedly encounter both proper names and adjectives for any number of individuals. For instance, they may run into two girls both having the proper name ‘Samantha’ (see Hall, 1999; Macnamara, 1982), or they may hear only one girl ever described with the adjective ‘blonde’. Yet despite this fact, it remains possible that young children use range-of-reference information as a revisable default in determining a word’s meaning (e.g. individual object word or object property word) and in discovering its associated lexical class (e.g. proper name or adjective; see also Markman & Jaswal, 2004; Merriman, Marazita, Jarvis, Evey-Burkey & Biggins, 1995).

One piece of evidence supporting the preceding proposal is that caregivers behave differently when they teach children proper names as opposed to adjectives, depending on the number of referents. For example, Hall, Burns and Pawluski (2003) gave caregivers line drawings of familiar kinds of animals and asked them to teach their 3-year-olds novel words modeled either as proper names (e.g. ‘This cat is named DAXY’) or as adjectives (e.g. ‘This cat is very DAXY’). Hall, Burns and Pawluski (2003) found that caregivers’ strategies for teaching the two types of words differed, depending on whether the words had one or two referents. When asked to teach that two cats were both ‘named DAXY’, parents typically flagged this usage for their preschoolers, telling them that it was ‘odd’ or ‘weird’ or drawing their attention to the usage in some way; but parents made no such comments when asked to teach that only one cat was ‘named DAXY’. In contrast, when asked to teach that two cats were both ‘very DAXY’, or that only one cat was ‘very DAXY’, parents drew no attention to the usage. In other words, caregivers were sensitive to the range of a word’s reference when they taught a novel proper name or as an adjective, and they conveyed this sensitivity in the strategies they used for teaching the word.

But do children use a word’s range of reference to draw inferences about its meaning and associated lexical class? Macnamara (1986) and Hall (1999) reported anecdotal evidence consistent with this idea: they found that young children initially refused to accept two people as referents of the same proper name. In addition, Hall (1996) provided experimental evidence bearing on this question. In that experiment, 4- to 5-year-olds were tested in a yes/no procedure in which they heard a novel word applied to either one or two drawn target animals. The target(s) always carried a novel salient pattern, like colorful spots. Children were then asked whether the word could be extended to other object drawings. These other objects included some from the same category but lacking the property, and others from a different category but having the property. If children answered ‘yes’ only to the target(s), this behavior was taken as evidence of a proper name interpretation. If children answered ‘yes’ to the target(s) and to the different category member having the same property, this was treated as consistent with an adjective interpretation.

Hall (1996) first established that children had no general tendency to interpret a novel word for one object as a proper name, or a word for two objects as an adjective. Children interpreted the word appropriately as a proper name or as an adjective, regardless of its range of reference, in conditions where the linguistic cues clearly signaled a proper name interpretation (e.g. ‘This dog is named ZAVY’ for one or two dogs) or an adjective interpretation (e.g. ‘This dog is very ZAVY’ for one or two dogs). However, in a neutral condition involving no clarifying linguistic cues (e.g. ‘This dog is ZAVY’ for one or two dogs), children relied on the range of reference to interpret the word. When the word was applied to one object, children typically made a proper name interpretation; but when the same word was applied to two, children were more likely to make an adjective interpretation. In other words, in the absence of linguistic information, children seemed to assume that a word used in conjunction with one animal was a proper name, whereas the same word used in conjunction with two animals was more likely to be an adjective.

The results of Hall (1996) suggest that as a default children do use the range of a word’s reference to draw inferences about its meaning and associated lexical class. However, the study also raises two serious issues that motivated the present study. First, the children in Hall (1996) were on average 4.5 years old, and some were over 5 years old. This fact raises the question of whether children use range-of-reference information earlier in the task of acquiring words. It also raises the question of whether younger word learners rely on linguistic cues when novel words are modeled clearly as either proper names or adjectives, regardless of the number of referents.

More critically, the results of Hall (1996) failed to establish that children who restricted the novel word to the named animal or animals really did make a proper name interpretation. Several researchers (e.g. Hall et al.,
have noted that establishing that children interpret a novel word as a proper name requires demonstrating that they map it to a particular individual rather than to any other individual, even one that looks outwardly identical. In Hall (1996), the same category match always looked different from the target(s). As a result, when children restricted the word to the target(s), it is possible that they interpreted the word as an adjective naming a property of the labeled object(s), one that distinguished it or them from the same category match (e.g. some distinctive marking on the target(s)). It is also possible that children took the word as a count noun for a restricted category of objects organized around the target(s)' idiosyncratic properties. In order to rule out these alternative interpretations, it is essential to use distinct objects that look identical. Using stuffed animals rather than drawings would also help avoid confusing children about whether the objects were physically distinct rather than multiple depictions of a single animal.

To address these concerns, we developed a new method. First, we focused on much younger children than in Hall (1996): 2.5- to 3.5-year-olds. Second, we used a procedure that, unlike Hall (1996), involved identical-looking stuffed animals rather than drawings of animals that contrasted in terms of their properties. Because of our focus on younger children, we also developed a forced-choice task to replace the more demanding yes/no task used in Hall (1996). Making these changes enabled us to assess whether young children rely on range-of-reference cues in the task of learning a word's meaning and associated lexical class.

**Method**

**Participants**

Ninety children between 32 and 40 months of age took part. An additional 11 were tested but excluded from the final sample for failing to complete the task (n = 5) or for failing to follow instructions (i.e. by selecting both objects or the third object at test; see below) (n = 6). There were 59 girls. Children were tested individually in their preschool classroom or in the laboratory. Roughly equal numbers of boys and girls were assigned to each condition, and roughly equal numbers in each condition were tested in preschools and in the laboratory.

Fifteen children were assigned to each of six conditions: One Object–Proper Name (1-PN; M = 37.3 months, SD = 1.6); Two Objects–Proper Name (2-PN; M = 36.5 months, SD = 2.6); One Object–Adjective (1-ADJ; M = 37.4 months, SD = 2.8); Two Objects–Adjective (2-ADJ; M = 37.7 months, SD = 1.7); One Object–Neutral (1-NEUT; M = 37.3 months, SD = 2.6); and Two Objects–Neutral (2-NEUT; M = 37.5 months, SD = 2.0).

**Stimuli**

The stimuli consisted of three identical-looking yellow stuffed rabbits (approximately 15 cm tall), and two puppets (a frog and a giraffe). We selected familiar animate toys as our stimuli because we wanted our novel word to afford either a proper name or an adjective interpretation. Previous results suggest that preschoolers are less successful in learning proper names for unfamiliar (Hall, 1991; Imai & Haryu, 2001) or inanimate (Gelman & Taylor, 1984; Hall, 1994) objects. We also used stickers as rewards.

**Procedure**

The experimenter told the child they were going to play a game. The child was given about 30 seconds to play with the rabbits and puppets. The experimenter then said that the puppets were sleepy and were going to take a nap but would be back later. The puppets were then placed out of sight.

The task then began. The steps were the same for all participants in all conditions.

**Step 1: positioning the rabbits**

Rabbit 1 and Rabbit 2 were placed beside each other on the experimenter’s right side, facing the child, about 15 cm apart. Rabbit 3 was placed on the experimenter’s left side, also facing the child. See Figure 1, Step 1.

**Step 2: labeling Rabbit 1**

Rabbit 1 was moved forward towards the child and labeled twice with a novel label, ‘DAXY’, modeled either as a proper name, as an adjective, or neutrally. In the Proper Name condition, the child heard, ‘Look! His name is DAXY.’ In the Adjective condition, the child heard, ‘Look! He is very DAXY.’ In the Neutral condition, the child heard, ‘Look! DAXY.’ We presented the word bare in this condition because we wanted to remove all possible linguistic cues to interpretation. The rabbit was then brought back to its original position. See Figure 1, Step 2.

**Step 3: labeling (or not labeling) Rabbit 2**

Rabbit 2 was moved forward towards the child. In the One Object conditions, the experimenter twice said, ‘Look!’ In the Two Objects conditions, the experimenter labeled it twice with a novel label, ‘DAXY’, again modeled either as a proper name, as an adjective, or...
neutrally, as in Step 2. This rabbit was then brought back to its original position. See Figure 1, Step 3.

We then repeated Steps 2 and 3.

Step 4: testing children’s interpretation
The experimenter moved Rabbit 1 and Rabbit 3 forward towards the child simultaneously, keeping them about a foot apart. Rabbit 2 remained in place on the experimenter’s side of the table, out of the child’s reach. The experimenter said, “Now look! Which one is DAXY?” See Figure 1, Step 4. After the child chose one of the two, the experimenter thanked the child, and the objects were repositioned as at the beginning of Step 4.

We then repeated Step 4 twice more, in order to increase the reliability of our measure. To keep the questioning pragmatically natural, the experimenter did not ask the test question on the two repetitions of Step 4. Instead, we used the two puppets that had been asleep and not spoken to or heard the child’s first choice. First, one puppet came back from his nap and, feigning ignorance, asked the child, “Which one is DAXY?” Then the other puppet came back from her nap and, also feigning ignorance, asked the child, “Which one is DAXY?” We recorded children’s choice (Rabbit 1 or Rabbit 3) on each of the three trials. We varied across trials whether Rabbit 1 was moved to the left or right of the child, and we duplicated the pattern exactly in all conditions. Because each child received an odd number of trials (three), we partially counterbalanced the left–right position of Rabbit 1 within participants. We then alternated the use of a left–right–left or right–left–right ordering of Rabbit 1’s position between participants.

The entire procedure lasted about 10 minutes. Children received stickers for their cooperation.

Results
To determine children’s interpretations when they received clear lexical class cues, we first analyzed the findings from the Proper Name and Adjective conditions together. In these conditions, we predicted that children would use the linguistic information to interpret the word according to its lexical class, regardless of whether it was applied to one or two objects (cf. Hall, 1996). Thus, in both the 1-PN and the 2-PN conditions, we expected children would prefer Rabbit 1, the rabbit for which they had already learned a proper name. However, in the 1-ADJ and 2-ADJ conditions, we expected children would select Rabbit 1 at chance levels. We made this prediction because Rabbits 1 and 3 looked identical, with the same visible properties that were candidate meanings for the adjective.

1 In the One Object conditions, children heard the novel label a total of four times for Rabbit 1 and simply had their attention drawn four times to Rabbit 2. In the Two Objects conditions, children heard the novel label four times for Rabbit 1 and four times for Rabbit 2. We thus matched the One Object and Two Objects conditions in terms of the number of repetitions of the novel word given per object. However, note that our procedure ensured that children in the Two Objects conditions heard the label twice as often as those in the One Object conditions. It is worth noting that we also ran a second version of one of the Two Objects conditions (the Two Objects–Neutral condition), in which we matched it to the One Object–Neutral condition in terms of the total number of repetitions of the novel label. In other words, in this second version of the Two Objects–Neutral condition (n = 8; M = 37.8 months), children heard Rabbit 1 labeled twice and Rabbit 2 labeled twice. The results (M = 0.50 labeled object choices, SD = 0.36) were very similar to those in the original Two Objects–Neutral condition, suggesting that the difference in total number of repetitions of the novel word cannot account for the observed difference between the One Object and Two Objects conditions.
We then turned to the results from the Neutral condition in which no lexical class cues were provided. In this condition, we predicted that children would use the range of the word’s reference to direct their interpretation, since there was no clarifying linguistic information. In the 1-NEUT condition, we predicted that they would prefer Rabbit 1, treating the word as a proper name. But in the 2-NEUT condition, we predicted that they would choose Rabbit 1 at chance, treating the word as an adjective (like ‘yellow’) or possibly as a restricted count noun (like ‘yellow rabbit’).

Proper Name and Adjective conditions

The mean proportions of choices of the labeled rabbit (Rabbit 1) appear in Figure 2. The results matched our predictions. In both the 1-PN condition and the 2-PN condition, children preferred the labeled rabbit. Both numbers were significantly higher than chance, by one-sample $t$-tests against a mean of 0.50: $t(14) = 5.01$, $p < .0005$, in the 1-PN condition; $t(14) = 2.68$, $p < .05$, in the 2-PN condition. In contrast, in both the 1-ADJ and 2-ADJ conditions, children showed no preference for the labeled rabbit. Both means were no different than chance: $t(14) = 1.28$, $p > .20$, in the 1-ADJ condition; $t(14) = 0.17$, $p > .75$, in the 2-ADJ condition.

Further support for our predictions came from submitting these proportions to a 2 (Linguistic Information: Proper Name, Adjective) × 2 (Number of Referents: One, Two) between-subjects ANOVA. There was a main effect of Linguistic Information, $F(1, 56) = 9.66$, $p < .005$, with children picking the labeled rabbit more often in the Proper Name than in the Adjective condition. There was no significant main effect of Number of Referents and no interaction.

Our predictions received additional support from an analysis of children’s pattern of choices across the three trials. We considered children who chose the labeled rabbit on two or three out of the three trials to be ‘labeled rabbit choosers’. In the Proper Name condition, there were significantly more labeled rabbit choosers than would be expected by chance alone ($n = 14/15$ in the 1-PN condition; $n = 12/15$ in the 2-PN condition; both $p < .05$). In the Adjective condition, these numbers fell at chance ($n = 9/15$ in the 1-ADJ condition; $n = 7/15$ in the 2-ADJ condition). Moreover, there were significantly more labeled rabbit choosers in the combined Proper Name condition ($n = 26/30$) than in the combined Adjective condition ($n = 16/30$), $\chi^2(1, n = 60) = 7.94$, $p < .005$.

These results reveal that young children can use linguistic cues to interpret words appropriately as proper names or as adjectives, regardless of whether the words are applied to one or two animals. The findings offer evidence that these linguistic cues are potent enough to override competing cues from the range of a word’s reference in children as young as 2.5 to 3.5 years.

Neutral condition

The mean proportions of choices of the labeled rabbit (Rabbit 1) in this crucial condition also appear in Figure 2. Again, the results matched our predictions. In the 1-NEUT condition, children preferred the labeled rabbit. This proportion was significantly greater than chance, $t(14) = 3.33$, $p < .01$. However, in the 2-NEUT condition, children selected the labeled rabbit at chance, $t(14) = .13$, $p > .75$.

A one-way ANOVA (Number of Referents: One, Two) provided additional support for our prediction: $F(1, 28) = 5.81$, $p < .05$.

Again we obtained further support for our claim by focusing on children’s pattern of choices across the three trials. We coded children as ‘labeled rabbit choosers’ as in the previous analysis. There were significantly more labeled rabbit choosers than would be expected by chance alone in the 1-NEUT condition ($n = 12/15$) but not in the 2-NEUT condition ($n = 7/15$). Moreover, the difference between these two numbers approached significance, $\chi^2(1, n = 30) = 3.59$, $p = .058$.

Toddlers thus treated a neutral word applied to one object as a term for that individual object (consistent with a proper name), but they treated the same word applied to two objects differently, as a label for an object property or perhaps a restricted object category (consistent with an adjective or a count noun). The findings

---

Figure 2 Results.

Note: * = significantly greater than chance, $p < .05$. Error bars represent 1 standard error.

© Blackwell Publishing Ltd. 2005
offer evidence that in the absence of clarifying linguistic cues to interpretation, children as young as 2.5 to 3.5 years can use a word’s range of reference as a default to constrain their inferences about its meaning as well as its associated lexical class.

Discussion

When a novel word was presented along with unambiguous linguistic cues signaling that it was a proper name or an adjective, 3-year-olds interpreted it according to the lexical class information, regardless of whether it was applied to one or both members of a pair of identical-looking animals. However, when the same word was presented neutrally, children interpreted it like a proper name if it was given to one animal; but they treated it as an adjective (or a restricted count noun) if it was applied to both. By the age of three years, children thus used linguistic cues to guide their interpretation of a novel word regardless of the word’s range of reference; but when these linguistic cues were absent, children used the range-of-reference information to direct their construal.

These findings advance our understanding of early word learning in two primary ways. First, the results establish that by the age of 3 years, children can use a word’s range of reference as a cue to interpretation in the absence of clear linguistic information. This age is about 18 months younger than the age of children previously shown to have this ability (Hall, 1996). The findings suggest that children can exploit range-of-reference information early in the process of word learning. In addition, the findings reveal that by 3 years of age, children will use lexical class cues to direct their word interpretations – even if these cues run counter to the cues provided by a word’s range of reference. These results highlight the robustness of linguistic cue sensitivity, once acquired, as a tool for learning new words. Further research will now be required to determine whether range-of-reference information provides a cue to word interpretation in younger children, a cue whose weight decreases when other cues (e.g. linguistic information) become available. The study of younger children will enable us to determine whether range-of-reference information is an initial cue to interpretation or one that is derived from what children learn about how proper names, adjectives, and count nouns are used to label objects.

Second, the results provide the first clear demonstration that children who restrict a novel neutral word to a labeled object(s) interpret it in the manner of a proper name – as mapping to a particular individual(s), rather than to any of its (their) visible properties or to a restricted category of objects containing the object(s). We can be more secure about this interpretation in the current work than in previous work (Hall, 1996) because we used identical-looking animals in our task. Of course, the stringency of our test of making a proper name interpretation led to a trade-off: by generalizing the word to the third object, children may have been making an adjective interpretation (as they plausibly did in the Adjective conditions, where the sentence frame was appropriate for an adjective), but they may also have been making a restricted count noun interpretation. This possibility seems unlikely, given that none of the sentence frames were consistent with a count noun interpretation, and given Hall’s (1996) finding that children who generalized a neutral word in a related task often made an adjective interpretation. We cannot, however, rule it out. Yet despite the difficulty in distinguishing an object property from an object category interpretation in this task, these results (unlike those of Hall, 1996) offer clear evidence that toddlers who generalized the word made a different kind of interpretation (i.e. object property or restricted object category) than those who restricted it (i.e. individual object). Moreover, the fact that an adjective and a count noun interpretation are difficult to distinguish in this task does not imply that children of this age fail to differentiate between adjectives and count nouns. Extensive work by Waxman and her colleagues (e.g. Booth & Waxman, 2003; Waxman & Booth, 2001; Waxman, 2002) indicates that infants as young as 14 months of age can use linguistic cues to interpret these two lexical classes in distinct ways.

Finally, it is worth considering precisely what information led to the observed range-of-reference effect. In the Two Objects conditions, the tendency to make an adjective (or restricted count noun) interpretation appears to have been driven by the direct evidence that the word applied to both members of a pair of identical-looking animals. In contrast, in the One Object conditions, the tendency to make a proper name interpretation seems to have been driven at least partly by the direct evidence that the word extended to only one of the two objects. However, a proper name interpretation may also have been fostered by the indirect evidence that the word did not extend to the second object, which the experimenter singled out but did not label. To recognize this indirect evidence, children would have had to draw a pragmatic inference that the experimenter’s failure to label the second identical-looking object with the new word meant that the word did not apply to that object, and so the word was unlikely to label an object property or category (for discussion, see Markman & Jaswal, 2004; for a related discussion, see Merriman et al., 1995). It is not clear that evidence about what is not in a word’s
extension is essential for promoting a proper name interpretation. For example, in a previous experiment using a similar design (Hall, 1996), children in the One Object Neutral condition received no information about what was not in the word’s extension, yet they still made a proper name interpretation. However, the children in Hall (1996) were considerably older than those in the current work. Thus it will be important for future research to explore whether young children use information both about what is and about what is not in a word’s range of reference when learning proper names.3

In sum, our findings provide the first experimental evidence that toddlers use range-of-reference information in the absence of any other cue to help specify the meaning and conceivably to help determine the associated lexical class of words in speech. It remains to be discovered whether children can use this cue at an earlier age, as a way to learn words prior to acquiring sensitivity to linguistic cues to lexical class. Answering this question will illuminate how children first come to use range-of-reference information as a word-learning cue, and it will shed light on the origins of the relation between children’s use of range-of-reference information and caregivers’ strategies documented in Hall, Burns and Pawluski (2003). Given that children can use linguistic cues to interpret words (e.g. adjectives and count nouns) appropriately as young as 14 months of age (e.g. Booth & Waxman, 2003; Waxman & Booth, 2001; Waxman, 2002), finding this answer will require moving the focus of future inquiry down to the second year of life.

Acknowledgements

This research was supported by an operating grant from the NSERC of Canada. We are indebted to the staff, parents and especially children at the following Vancouver-area centers and schools for their invaluable help: Acorn-Eight Oaks Day Care, Beach YMCA Day Care, Centennial Community Center, City Hall Child Care, Creative Zone Day Care, Creekview Tiny Tot Society, False Creek YMCA Child Care, Kitsilano Area Childcare Society, Little Rascals Preschool, My Little Preschool, St. James Day Care, Shaughnessy Heights Day Care, Little Orchard Day Care, UBC Acadia Day Care, UBC Tillicum Day Care, Wee Care Day Care, YMCA Citygate Child Care. We thank Nabilla Juma and Nicole Witton for their assistance with this research.

References


3 It is worth noting that in this task, the test object (Rabbit 3) was present throughout the labeling of the objects but was never labeled. It is possible that children also used the failure to label this object as indirect evidence in interpreting the word, but it seems less likely, given that it sat apart from the other two objects, and given that the experimenter never drew any attention to it during the labeling, as she did with both Rabbit 1 and Rabbit 2.


Received: 11 November 2003
Accepted: 19 March 2004