

## **The effect of previously learned words on children's acquisition of similar word forms**

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To what extent is children's word learning influenced by the words they already know? Tomasello and colleagues (Tomasello, Mannle & Werdenschlag 1988) examined the influence of previously learned referents on children's acquisition of new words. Two-year-old children were taught the name of a novel object. In a subsequent session, they were taught the names for two new objects, one of which was highly similar to the referent learned in the previous session. Children showed better comprehension for the similar referent than the dissimilar referent, suggesting that young children find it easier to learn a word when they already have a contrastive referent in memory.

This suggests that children's learning of word meanings is influenced by the meanings they already know. Yet learning words involves not only learning a semantic concept, but also learning a particular word form. Presumably, children's learning of the forms of words could also be influenced by prior learning.

The present study examines whether already-learned word forms might influence children's acquisition of new words. Twenty-four children, aged two years, were taught the name of an object. In a subsequent session, they were taught the names of two new objects, one of which had a similar word form to (or was a neighbor of) the original word. We investigated whether children were more (or less) likely to learn the name-object link for the similar word than for the dissimilar word.

### *Methods*

#### *Participants*

Thirty-two children, aged approximately 2 years (12 males, 20 females) participated in this experiment. Twenty-four were recruited from letters sent to parents, and were visited in their homes; an additional 8 were recruited from local daycares and were tested there. None had been identified as having language or cognitive difficulties, and all were native speakers of English. An additional 12 children were dropped from analysis for not completing all four sessions (6) or for experimenter error (naming an object incorrectly; n=4) or equipment failure (1) or parental interference (1).

#### *Procedure*

The procedure was modeled after that of Tomasello et al. (1988). Children were visited in their homes or daycares on four separate occasions. The experimenter brought a bag of toys with her on each day. Most toys were ones with which children would already be familiar (for example, a matchbox car, a plastic dinosaur, etc.); one object (the target object) was expected to be unknown to the child.

At the start of the first session, the experimenter pulled each toy from the bag one at a time; after each object, she asked the child whether he or she knew the name of the object. If the child successfully named it, the experimenter said, "That's right! It's a \_\_\_\_\_" and repeated the name. If the child did not name it or named it incorrectly, the experimenter named the object. Children were then allowed to play with the objects.

During the play period, the experimenter modeled labels for various objects. The name of the target object was modeled 10 times over the course of the session. Twice during the session (after the 5th and 10th models), the experimenter tried to elicit production of the target word by asking, "What is this?" At the end of the session, the experimenter arranged 6 objects (including the target item) in front of the child and ask him or her to hand over particular objects. After the child responded, that item was replaced in the row, and the child was asked for another object. This continued until all six objects were tested, and serves as a test of the child's comprehension of the target word.

During visit two, the experimenter introduced two new objects. The session began with the experimenter pulling all of the items from the bag one at a time asking the child if he or she knows the object's name. If the child knew the name, the item name was repeated; if not, the experimenter modeled the name for the child. This was followed with a play session, during which the experimenter modeled the two new words eight times each, and the original word 4 times, randomly interspersed during the session. The experimenter attempted to elicit productions of each of the three target items twice each. The final comprehension test included all three test objects.

During the third visit, three new (nontarget) objects were added; these were objects we expected children to already have names for. The experimenter modeled the names of all three test objects when pulling them out of the bag, but did not continue to model the names during the course of the session. The experimenter elicited productions of each object twice. The final comprehension test included all three test objects.

On the final session, children were asked the names of each object as the experimenter pulled them from the bag, and again after a few minutes of free play. The experimenter never named the test objects during this session. Thus, this session was simply an additional opportunity to examine children's comprehension and non-imitated naming of the target items.

All sessions were videotaped, and children's spontaneous naming, imitated naming (naming which occurred immediately after the experimenter's labeling, but without prompting), and prompted naming of all three novel objects were recorded.

### *Stimuli*

*Objects.* It was necessary that the target objects in this study be ones for which children were unlikely to already have names. To that end, we selected three toys intended for cats as the novel objects. The first object consisted of a ball enclosing a bell, attached to a cord. This could be bounced or wrapped around objects. The second and third objects were both latex toys which squeeked; one was shaped roughly like a dumbbell, and the other like a covered wagon. Pictures of these items are shown in Figure 1.

*Words.* The initial object was labeled as either a "goish" /goɪʃ/ or a "voosh" /vuʃ/; half of the children received each label. The second third objects were labeled a "goip" /goɪp/ and a "voog" /vug/. Thus, one of these latter two names was a lexical neighbor to the first object, and the other was phonologically dissimilar. None of these four words have any lexical neighbors existing in two-year-old lexicons, according to a search of the lexical database from the Macarthur Communicative Development Inventory (Dale & Fenson, 1996) and the Ratner and Bloom corpora in the CHILDES database (Bernstein Ratner, 1984; Bloom, 1973).

## Results and Discussion

We tallied the number of times children correctly identified the three target items during the comprehension tests. We ignored results from day 1, since only the initial item was tested on that day; this left a possible three times total for each object. We also tallied the number of times children named the three objects. Spontaneous naming was quite rare, so we collapsed across types of naming (elicited, spontaneous, and imitated).

Across the three words, there were significant differences in both comprehension ( $F(2,62)=4.49, p<.02$ ) and naming ( $F(2,62)=5.70, p<.01$ ). For the comprehension results, children identified the initial target item 1.94 times on average (out of a possible three times, for the three different test days). With 6 possible choices, chance performance would be expected to be 0.17 per day, or 0.5 times total. The average of 1.94 times is significantly different than this ( $t(31)=8.02, p<.0001$ ), suggesting that children had learned the name for this target item.

Children also learned the name for the other two target items, correctly choosing them 1.34 times for the item with the similar name, and 1.66 times for the item with the dissimilar name. Both of these are at above chance levels (for the similar item,  $t(31)=4.36, p<.0001$ ; for the dissimilar item,  $t(31)=6.32, p<.0001$ ). Children learned the target word better than the similar item ( $t(31)=2.71, p<.05$ ), but not better than the dissimilar item ( $t(31)=1.39, p>.10$ ). Most critically, however, there was only a marginal difference between the levels of correct responding for these two items ( $t(31)=1.83, p<.10$ ).

Children named the initial target item 3.59 times, on average; they named the similar item 1.84 times, and the dissimilar item 1.97 times. Although there appears to be a trend towards greater naming for the item learned initially, there is no evidence for greater naming for the item with the dissimilar name than for that with the similar name ( $t(31)=0.34, p>.10$ ). Instead, the significant overall effect appears to be the result of children naming the initially-learned item more times than the latter 2 items ( $t(31)=2.60$  for the similar item, and  $t(31)=2.52$  for the dissimilar item, both  $p <.05$ ).

There appears to be a trend towards better learning (comprehension) with the item with the dissimilar name than for the item with the similar name. However, this trend does not reach significance. Nor is there any evidence of a trend for the naming results. One possible reason for this null result was the general trend towards few naming attempts for all items. Even for the initially-learned item, children only named the item an average of 3 times across the three test days. There was a great deal of variability across participants, with a range of 0 times to 15 times. But for most children, naming was relatively infrequent, even for the best-learned item. If the task had encouraged children to perform more naming attempts, it is possible that trends would have emerged more strongly.

Despite the low number of production attempts, the present data suggest that previously learned word-forms do not play a large role in determining what words a child is likely to learn next. Although there was a trend towards an effect, it was quite small. This is in direct contrast to recent work suggesting that lexical neighborhoods can

influence word learning (Hollich, Jusczyk & Luce, 2002). One possibility is that while priming with neighborhood information can influence word learning, words already existing in the lexicon do not have this same effect. Future work will be needed to explore this issue in more depth.

## References

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Figure 1: Objects used as novel objects in this study.

