

Infants' Associations of Words and Sounds to Animals and Vehicles

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In a recent study, Woodward and Hoyne (1999) showed that 13-month-olds readily associate both words coming from the experimenter's mouth and non-linguistic sounds coming from a hand-held noisemaker with object categories. In contrast, 20-month-olds associate words but not non-linguistic sounds with object categories. Woodward and Hoyne suggest that words become privileged as possible names; that the forms a name can take are open at the beginning and become more restricted with development. Are children learning what forms count as words? If so, just what defining features are they learning?

In the research presented here, we attempt to answer these questions. In our account, words become privileged as names because of the special way they correlate with categories.

By our account, there are two parts to this specialness. First, there is one name (more or less) that goes with each category (more or less). So, the name of the category is a feature that all members of the category have in common while at the same time the name is a feature that distinguishes instances from members of other categories. Second, words *as a domain* have this special function of pointing to categories. The fact that there are many words that point to categories is what helps children generalize this expectation to novel words. Thus, our account makes two predictions:

1. Any strongly correlated feature of a name will become an integral part of what is a name. Words emanating from mouths is a highly systematic property of names. Thus, we predict that if a word comes out of a place other than a mouth, young children will not take it as a name.

2. Any event domain that systematically predicts category membership will be taken as a name as well. For example, animal category correlates with animal sound: dogs bark, cats meow, elephants trumpet and so on. Thus animal sounds should be taken as names for animals.

In Experiment 1 we test this predictions by looking at children's associations of words, animal sounds and motor sounds to animal categories. In Experiment we look at their associations with vehicle categories.

Experiment 1

Thirty-six 20-26 month-old children participated in a 3x3 mixed design with three different sound sources (mouth, animal, noisemaker) as between-subject variable and three different sounds (word, animal sound, motor sound) as within-subject variable. Thus, each child heard three different

kinds of names for three different animal categories. In the Mouth condition, children heard the three kinds of label coming from the experimenter's mouth. The experimenter named the animal "Look at this toma" in the Word condition, "Look at this <frog clucking>" in the Animal Sound condition, and "Look at this <motor>" in the Motor Sound condition. In the Animal condition the three kinds of label came from recorders concealed in the toy animal. In the Noisemaker condition the labels emanated from hand-held recorders. The carrier phrase was always said by the experimenter.

During the test phase, children were presented with the target object and a distracter on a tray. The child was asked to "Get the <label>". The results show that 20-26 month-olds 1) associate both words and motor sounds to animal categories only when the words emanate from the mouth and 2) associate animal sounds with animal categories regardless of the source of the sound. In other words, the three kinds of labels coming from the mouth are taken as names, and animal sounds coming from any of the three sources are taken as names.

Experiment 2

The results of Experiment 1 match our predictions. However, an alternative explanation is that there is something inherently word-like about animal sounds. In Experiment 2 we explore this possibility by looking at children's learning of labels for vehicle categories. If babies in Experiment 1 linked the animal sound to the animal toy because of some perceptual property of the sound, we would expect them to link animal sounds to vehicle categories as well. However, if our account is correct, they will reject the animal sound as a label for a vehicle but accept the motor sound.

We used the same design but the stimuli used were novel vehicles. Our results show that, as predicted, 20-26 month-olds take motor sounds as labels for vehicle categories, but reject animal sounds as labels for vehicle categories.

Why this pattern? Because this pattern reflects the systematicity with which events correlate with categories in the world. Sounds from mouths typically name things; animal sounds correlate with animal categories in much the same way as words correlate with object categories. In conclusion, we suggest that it is the systematicity of prior learned pairings that determines what counts as a name.