Infant sensitivity to lexical neighborhoods during word learning

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INTRODUCTION
Studies of adults’ recognition of words in fluent speech suggests that lexical competition plays an important role in this process. But what of infants who are just beginning to learn words?

How specific are infants’ representations of words?
Are infants even sensitive to similar sounding words?

Is it easier to learn a word that sounds like many other words, or a word that sounds like very few words?

STUDY 1

Are infants sensitive to lexical neighbors?

1) The headturn preference procedure was used to familiarize 15-month-olds with a dense lexical neighborhood that was constructed of CVC non-words that differed in the initial consonant, the vowel, or the final consonant of a target word (see high density condition in Table 1).

2) Infants were tested on their preference for the target word or an unrelated, non-target word. All lists were controlled for word phonotactics, frequency, and their relation to English lexical neighborhoods.

Results
Infants showed a novelty preference away from the target word. This effect was observed whether or not the target was contained in the familiarization set. Thus, by 15 months, infants appear capable of detecting the neighborhood similarity among words. They also appear to be demonstrating what Sommers (1999) has called “phonological false memories.”

STUDY 2

Does lexical competition effect word learning?

1) The headturn preference procedure was used to familiarize 17-month-olds with a dense neighborhood (the high-density condition, consisting of twelve neighbors) and a sparse neighborhood (the low density condition consisting of three neighbors plus nine filler items).

2) The split-screen preferential looking paradigm was used to teach infants two new words, one was the target from the dense neighborhood, the other the target of the sparse neighborhood.

3) Three groups were tested on their comprehension of the newly learned words; one had heard the lists one time through, another group had heard the lists six times through (with the order randomized), while a final, control group, had heard only filler items.

Results
• Word learning was significantly better in the high density condition, when infants were exposed to the lists once.
• However, when the infants heard the lists repeated six times, this effect was reversed.

CONCLUSIONS
• Infants are sensitive to lexical neighborhoods.
• Brief exposure to dense lexical neighborhoods produces benefits at the segmental level, facilitating the learning of new words.
• More prolonged exposure to dense lexical neighborhoods induces lexical competition, inhibiting the learning of new words.

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Figure 1. Mean looking to non-target and target by target presence during familiarization.

Figure 2. Mean looking times to the target and non-target for each of the groups.

Figure 3. Mean percentage of subjects looking to the target in the high density and low density conditions by time with one repetition of the lists.

Figure 4. Mean percentage of subjects looking to the target in the high density and low density conditions by time with six repetitions of the lists.

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