



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.

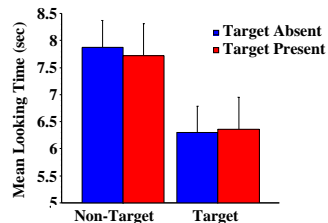


Figure 1. Mean looking to non-target and target by target presence during familiarization.

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."

TABLE 1: Sample list of lexical neighbors.

High Density		Low Density	
Tirb	Pawch	Tirb	Pawch
thirb	puch	hoqv	tav
tib	pawth	deeve	weem
tahb	pawng	** tahb	pawng
tirsh	paych	koys	fahsh
lirb	thawch	laze	cheth
tirth	pawsh	nith	soyng
tuhb	nawch	** tuhb	nawch
shirb	pawv	rauch	thich
tirng	rawch	shawg	muhl
toyb	pech	** toyb	pech
mirb	poych	zope	bauch
tirch	sawch	girj	koeth

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.

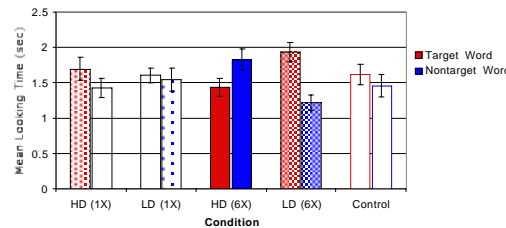


Figure 2. Mean looking times to the target and non-target for each of the groups.

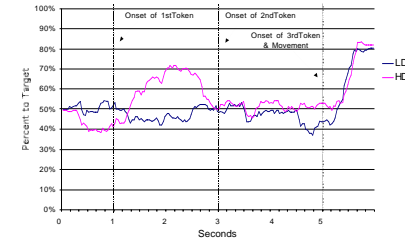


Figure 3. Mean percentage of subjects looking to the target in the high density and low density conditions by time with one repetition of the lists.

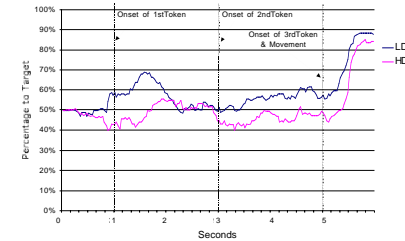


Figure 4. Mean percentage of subjects looking to the target in the high density and low density conditions by time with six repetitions of the lists.

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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