**Background**

Many researchers have suggested that increasing phonological neighborhood density (ND) may lead to more adult-like phonological representations.

- Few words in memory: more holistic representations are sufficient for word recognition.
- Many words in memory: more phonetic details are needed to tell words apart.

(e.g. Jusczyk, 1993; Nittouer, 1996; Storkel, 2002)

Previous examinations of ND in children's lexicons have

- provided only a snapshot of ND at one point in time
- looked at large groups of children in the aggregate
- used adult pronunciations as lexical representations

(Charles-Luce & Luce, 1995; Coady & Aslin, 2003)

**Research Questions**

1) How does children's average ND change over time? Are new words added to sparser or denser neighborhoods?

2) Does average ND based on child pronunciations differ from an adult pronunciation-based calculation?

**Methodology**

- Trevor corpus: 13,351 utterances, phonetically transcribed over a period of ~ 2.5 years by Trevor’s mother, a speech pathologist
- Trevor’s production lexicon.
- Ease of maintaining lexical contrasts in production and/or ease of distinguishing novel forms in perception may be contributing factors.

**Conclusion**

- ND may play a role in lexical acquisition: new vocabulary items and pronunciation variants are consistently added to relatively sparse areas of Trevor's production lexicon.
- Ease of maintaining lexical contrasts in production and/or ease of distinguishing novel forms in perception may be contributing factors.

**Results and Discussion**

**Token-Based Analysis**

- When we look at all unique pronunciations in the corpus, new forms are consistently added to relatively sparser neighborhoods, at every time point. (N.B. There is very little data for month 14.)
- The proportional analysis reveals that this is because new forms are overwhelmingly added to neighborhoods with only 1 existing phonological form. Also, no new forms are added to neighborhoods with more than 17 neighbors.
- Does including all unique forms skew the data in some way? I next hand-coded the data to perform a type-based analysis.

**Type-Based Analysis**

- When we include only the most common pronunciation for each word, new forms are still consistently added to sparser phonological neighborhoods.
- A higher proportion of new forms (as compared to old forms) have 1, 2, or 3 phonological neighbors. Old forms are more likely than new forms to have 4 or more phonological neighbors.
- Production or perception? Does Trevor attempt new words that he can more easily make distinct from words already in his production repertoire, or does he more easily acquire new words that sound different from words he already knows?

**Perception-Based Analysis**

- When we calculate ND based on the most common adult pronunciation for each word in Trevor’s vocabulary, new words still tend to be added to sparser neighborhoods.
- New words are more likely to have just 1 neighbor, while old words are more likely to have 2 or more neighbors.
- Trevor tends to produce new forms that he can more easily make distinct from the forms already in his repertoire, and that also sound more different from the words he can already produce.