Prosodic Structure and the emergence of Coda segments in EP: A case study

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1. Introduction

This study investigates the relation between prosodic structure and the emergence of segments in the speech of one European Portuguese (EP) child (aged between 1;0 and 3;0). Specifically, the role of **prosodic phrasing** and **prominence** on the emergence of target coda segments is examined. This study has 3 goals:

i. to test the hypothesis (based on literature showing that prosodic properties are the first to be acquired - e.g. Gerken 1994, 1996, Morgan & Demuth 1996, Christophe et al 2003, Peperkamp 2003) that prosodic phrasing may play an active role on the emergence of targets;

ii. to review previous results on coda acquisition in EP (Frota 1997, Correia 2004) in the new light of the emergence of segments and prosodic phrasing effects;

iii. to assess whether frequency may play a role (segment frequency in the input, word frequency in child speech - e.g. repeated old words and emerging new words)

2. Background

**Corpus**


- A linguistic diary database of spontaneous production data, complemented by a database of audio recordings ranging the same period of time (LumaDialH).[1]
- Phonetic transcription in SAMPA.

- The 179 utterances stored in the database provided over 60 coda /s/ in the target.

3. Methodology

- **Prosodic annotation and variables analysis**

  - For each target child utterance, prosodic phrasing is annotated on the basis of the description of prosodic structure in EP for the PW, PIP and IP. All occurrences of coda segments in the target are marked and their actual production by the child analysed. The occurrence of the same segments as onsets is also marked in the database. Prosodic annotation is the basis for establishing (1) segment position, as initial, internal, final of PW, PIP and IP (2) stress and prominence.

- **Analysis Procedure**

  - The **Frequency Effects**
    - Old versus new frequent words (resorting to FreP: http://www.fl.ul.pt/laboratoriofonetica/frep/)

4. Bird’s eye view of child speech and the Target

- 86.7% of the child utterances consist of more than one PW; CP represents 2.44%, CL 80.2% and RS 17.31%.

5. Results

- **Stress and Prominence**

  - Data from a tiny sample shows:
    - Codas emerge last in most frequent words
    - RS appear more in less frequent words
    - Timing of entry in the child lexicon doesn’t affect Coda Production, but influences Repair Strategies

- **Prosodic phrasing: final position**

  - Coda present in all constituents

- **Prosodic structure in EP**

  - Coda presence in PW, CP and RS.

6. Conclusions

A. Prominence plays a role on the emergence of coda segments: especially seen in the presence of RS (vs codasless) in prominent position vs non-prominent/less prominent position at all levels of prosodic structure (well beyond the word stress). B. Final positions are crucial: PW final for the emergence of the coda, phrase-final (PW and mainly IP) for the presence of RS vs codasless. C. Frequency: a pilot analysis reveals that it has relevant effects. D. Syllables and/or segments: Coda /S/ > /N/ > /d/ > /l/ (same order but different timing as onset and coda: interplay segment & syllabic status).

7. Further research

- Extend the time span of the analysis to capture the order and conditions of emergence of coda liquids
- Include glides and nasals in the analysis and contribute to the debate on the syllabic status of segments in the rhyme
- Elaborate on and further inspect potential frequency effects.