Bob or Bop? A Phonological Investigation into the Markedness Differential Hypothesis and Subset Principle

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Contextualizing the study

- The field of second language acquisition (SLA) is
  - “the attempt to understand the processes underlying the learning and use of a second language” (Gass, Behney, & Plonsky, 2013, p. 4)
  - Guided by several major approaches

- Universal Grammar (UG)
  - “The theory underlying UG assumes that language consists of a set of abstract principles that characterize core grammars of all natural languages” (Gass, Behney, & Plonsky, 2013, p. 160).
  - Invariable principles, variable parameters
Two approaches to parameter resetting

- The Markedness Differential Hypothesis (MDH) and Subset Principle (SP) offer two conflicting perspectives.
- Interestingly, few studies have compared MDH and SP directly.
Two approaches, continued

- Briefly, MDH, proposed by Fred Eckman in 1977, predicts that parameter resetting will be easier for learners who are moving from a more marked to less marked form.

- SP, however, predicts that learners resetting from a subset (less marked) to superset (more marked) parameter will encounter less difficulty than superset to subset (O’Grady, Dobrovolsky, & Aronoff, 1997).
My guiding question

- Of these two conflicting predictions, which can best account for the directionality of difficulty learners encounter when resetting their parameters?

- To examine this question, production of word-final voiced obstruent stops /b, d, g/ and fricatives /v, z/ by Indonesian learners of English was examined.
  - Indonesian does not have voice contrasts in word-final positions (Andi-Pallawa & Alam, 2013); according to the Voice Contrast Hierarchy (VCH) (Eckman, 1977), English is more marked in this regard.
Prediction

- Based on previous studies of VCH and a deficit of research on SP and phonology, I hypothesized that MDH would be better able to explain the acquisition pattern of my subjects
Methodology

- **Participants**
  - Eight adult Indonesian learners of English
  - Three men, five women
  - Unspecified proficiency levels
    - Age of onset: between 7 and 14 years
    - English learning environment: academic

- **Procedure**
  - Participants read a short passage in English
  - Speakers recorded individually in a quiet room
  - My focus: word-final voiced obstruent stops /b, d, g/ and fricatives /v, z/
<table>
<thead>
<tr>
<th>Word</th>
<th>[+voice]</th>
<th>[-voice]</th>
<th>Deleted</th>
</tr>
</thead>
<tbody>
<tr>
<td>please</td>
<td>1 (12.5%)</td>
<td>7 (87.5%)</td>
<td>0</td>
</tr>
<tr>
<td>these</td>
<td>1 (12.5%)</td>
<td>7 (87.5%)</td>
<td>0</td>
</tr>
<tr>
<td>things (a)</td>
<td>1 (12.5%)</td>
<td>5 (62.5%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td>things (b)</td>
<td>2 (25%)</td>
<td>4 (50%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td>spoons</td>
<td>2 (25%)</td>
<td>5 (62.5%)</td>
<td>1 (12.5%)</td>
</tr>
<tr>
<td>peas</td>
<td>1 (12.5%)</td>
<td>7 (87.5%)</td>
<td>0</td>
</tr>
<tr>
<td>five</td>
<td>2 (25%)</td>
<td>6 (75%)</td>
<td>0</td>
</tr>
<tr>
<td>slabs</td>
<td>2 (25%)</td>
<td>5 (62.5%)</td>
<td>1 (12.5%)</td>
</tr>
<tr>
<td>cheese</td>
<td>4 (50%)</td>
<td>4 (50%)</td>
<td>0</td>
</tr>
<tr>
<td>Bob</td>
<td>4 (50%)</td>
<td>2 (25%)</td>
<td>2 (25%)</td>
</tr>
<tr>
<td>5</td>
<td>7 (87.5%)</td>
<td>1 (12.5%)</td>
<td>0</td>
</tr>
</tbody>
</table>
Results

- **Voicing**
  - Correct production the majority of the time in words with voiced obstruent stops /b/, /d/, /g/ in words *Bob, need, red, frog*
  - Correct production half the time with fricative /z/ in word *cheese* and stop /g/ in *big*

- **Devoicing**
  - Fricative /z/ most difficult
  - When located in consonant cluster, penultimate consonant also devoiced (*slabs* → *slaps*)
  - Fricative /v/ produced as devoiced /f/ 75% of the time

- **Deletion**
  - Deletion of word-final voiced consonants occurred in half of words analyzed
  - All but two instances occurred with plural –s
Discussion

- Results mixed, but suggest that learners did have difficulty resetting their parameters since target-like production was only achieved some of the time
- Consistent with predictions put forth by MDH, at least on the surface
- Phonological nature of study adds further considerations
  - Influence of surrounding phones (devoicing of final consonant cluster in *slabs*)
  - Perception versus production
Conclusion

- Though the initial prediction seemed to be borne out in many ways, questions still remain
  - Study only examined one phonological parameter
    - Some of the strongest evidence for SP is the pro-drop parameter, which requires resetting of syntactic rather than phonological parameters
    - Could these two hypotheses be domain-specific?
  - Further research into perception and production may clarify why participant responses were so varied
  - Replicating the study with NES learners of Indonesian could further confirm (or weaken) the results
References


