On developments in the vowel systems of two Even dialects

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Even: background

- Northern Tungusic
- High dialectal diversity
- Endangered language
- The dialect of Ola served as the basis for the standard language
Even vowel system

- Novikova (1960): vowels are divided in two vowel sets opposed by pharyngealization (in Ola Even)
  
- The opposition is realized as root-controlled vowel harmony: /mɔːle/ ‘in the water’ - /mɔːːla/ ‘in the tree’

- Later studies re-interpreted the opposition as ATR/RTR (Ard 1980) which is now broadly accepted for Tungusic languages (Li 1996, Kim 2011, Ko 2012).
Sebian Even & Bystraia Even

- **Bystraia dialect:**
  - ~150-200 speakers
  - no speakers younger than 45
- **Sebian dialect:**
  - ~300-350 speakers
  - threat of shift to Sakha due to mixed marriages
Research question

• What are the vowel oppositions and the nature of the feature underlying vowel harmony in the dialects under investigation?
Methods

• Acoustic study
  – The overall configuration of vowel space
  – Parameters responsible for ATR/RTR vowel opposition

• Perception study
  – Minimal and quasi-minimal pairs presented to the speakers
Acoustic study: parameters investigated & settings

• F1, F2, F3, spectral slope (A1-A2), duration

• Two male and two female speakers for each dialect
• 63 words for the Bystraia dialect and 76 words for the Sebian dialect
• recorded in isolation and within a carrier phrase (3 times in each context)
• 3367 tokens in total (only monophthongs)
Acoustic study: results

Male speakers

\(e, i, u, o\) stand for “+ATR” vowels; \(a, I, U, O\) stand for “-ATR” vowels
Acoustic study: results

• Vowels overlap a lot in the acoustic space

• However, both in the Bystraia dialect and in the Sebian dialect F1 turned out to be significantly different for vowels of the opposed sets (with one exception, see next)

• Acoustic merger of the high front vowels /i/ and /ɨ/ in the Sebian dialect

• Acoustic measurements do not provide evidence for a consistent +/- ATR feature across dialects (Aralova et al. 2011)
Acoustic study: results

<table>
<thead>
<tr>
<th></th>
<th>Bystraia dialect</th>
<th></th>
<th>Sebian dialect</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>front</td>
<td>mid</td>
<td>back</td>
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Perception study

• Basic principle
  – Set of minimal and quasi-minimal pairs
  – Each subject was presented with the recording of one member of the pair and two translations
  – Forced choice

• 18 subjects in Bystraia and 9 subjects in Sebian
Perception study

• Example of the stimulus

• to reach
• to tear off

the correct answer is:
Tear off
Perception study: results

• Different results for words containing a/e and not containing them
• In both dialects, recognition of words with only high vowel is problematic

<table>
<thead>
<tr>
<th></th>
<th>Set 1</th>
<th>Set 2</th>
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</thead>
<tbody>
<tr>
<td>correct</td>
<td>79.1%</td>
<td>86.9%</td>
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<tr>
<td>incorrect</td>
<td>20.9%</td>
<td>13.1%</td>
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<tr>
<td>correct</td>
<td>65.6%</td>
<td>52.5%</td>
</tr>
<tr>
<td>incorrect</td>
<td>34.4%</td>
<td>47.5%</td>
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</table>
Perception study: results

• Bystraia:
  – words containing only high vowels not recognized
  – some consonantal cues enable better recognition:

ire 'being cooked' vs. iri 'dragging'   iʃʃi 'tearing off' vs. iʃʃi 'reaching'
Perception study: results

- Sebian:
  - words containing only high vowels not recognized
  - no consonantonal cues
Perception study: results

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Contradiction

• Despite the consistent difference in F1, perceptual data provide evidence for the merger of of high vowels of different sets in $i/ɨ$ and $u/ʉ$
Solution

• The phenomenon of a near-merger
• Labov et al. (1972) : words perceived as the same showed a statistically significant difference in the pronunciation of their vowels
  – minimal pair test (acoustic measurements + speaker’s intuition)
  – commutation test (perception test)
• Near-mergers might develop into full mergers
Applying Labov’s methodology to Even data

F1/F2 distribution for the first vowel /ujun/ ‘nine’ and /ụjụn/ ‘ford a river’
Applying Labov’s methodology to Even data

<table>
<thead>
<tr>
<th>EIA’s responses to his own stimuli</th>
<th>VIA’s responses to her own stimuli</th>
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<tbody>
<tr>
<td></td>
<td>correct</td>
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<tr>
<td>set 1 ujun</td>
<td>0</td>
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<tr>
<td>set 2 ụjụn</td>
<td>1</td>
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<tr>
<td>responses of the others to EIA’s</td>
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<tr>
<td>stimuli</td>
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Applying Labov’s methodology to Even data

- Strong variation between the speakers, both with respect to production (some speakers have acoustic mergers) and to the level of perception
- The disagreement in my acoustic results and the results of the perception study can be explained in terms of a near-merger
Further remarks: Bystraia

• Tendency for the loss of vowel harmony
  – reduction of vowel oppositions
  – strong vowel reduction in non-first syllables → no opposition in affixes
  – confusion of the diphthongs [ɨe/iaː] [iakə] ~ [iekə] ‘pot’
  – consonantal cues play an important role for the discrimination between words

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Further remarks: Sebian

- Fronted set 1 /o/
- Supported by this opposition in Sakha?

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Conclusions

• Restructuring of the vowel harmony systems in both dialects:
  – Clear opposition is kept only for e/a, o/ọ and ie/ịa in Sebian
  – Tendency towards loss of the vowel harmony and development of consonantal cues in Bystraia
  – In both dialects the suffix alternation is partly lexically specified
References


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