Vowels of Korean dialects

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Monophthongs of Korean

\begin{itemize}
\item i (y)
\item i (u)
\item e \wedge o
\item \varepsilon \alpha
\end{itemize}

- Divergent diachronic trends in Northern vs. Southern dialects
- /\i:/ and /\u:/ are unstable or diphthongized in many dialects.

Northern dialects

- Merger of back unrounded/rounded contrast
- More advanced in NorthWest (Phyeongan) than in NorthEast (Hamkyeong)

Southern dialects

- Merger of height contrast
  - Central (Seoul, Chungcheong) (Kang to appear, Yoon et al. to appear, Han & Kang 2013, Cho 2013)

Chinese Korean

- Varieties of Northern dialects of Korean as spoken by Ethnic Koreans in China.
- Observed to show a similar trend of merger found in Homeland cognate dialects (Kwak 2000).
- Limited instrumental studies, especially for vowels (cf. \textsuperscript{2} Kim 2009, \textsuperscript{2} Jin 2012).

Current study

Speakers
- Chinese Korean
  - Seoul Korean
    - Older: M17, F14 (Year of birth: 1943~1966)

Speech material
- Eight monophthongs in isolation, presented in Hangul, 3 repetitions

Data collection
- Qingdao & Dandong, China; Summer 2011

Acoustic Analysis
- Formant measurements averaged over mid 20\% of vowel duration

Statistical Analyses
- Normalization of formant measurements: Lobanov
- Repeated Measures Multivariate Analysis of Variance: F1&F2
- Followup Univariate linear mixed-effects analyses: F1, F2
- Alpha=0.05

Phyeongan

- RM-MANOVA: All vowel pairs are distinct.
- Back vowels: Back vowel pairs /i/-/u/ and /a/-/o/ are distinct in F2.
- Back vowels and height interaction: F2 difference is smaller for the mid back vowel pair than the high back vowel pair.
- No sign of back vowel merger yet: Hamkyeong vowels retain a clear 3-way height contrast in both front and back vowels and also retain a clear rounding contrast in non-low back vowels. More "conservative" than reported for homeland cognate dialects.

Hamkyeong

- RM-MANOVA: All vowel pairs are distinct.
- Back vowels merger: /i/-/u/ pair is distinct in F2. /a/-/o/ pair is distinct in F2 for males but not for females. These pairs show a F1 difference.
- Back vowels and height interaction: F2 contrast reduction in back vowels is more advanced for the mid vowel pair than the high vowel pair.
- Back vowels and gender interaction: F2 contrast reduction in back vowels is more advanced for female speakers than for male speakers.
- Horizontal (F2) compression: In Phyeongan, F2 contrast in back vowel pairs is reduced or lost but the pairs are distinct in F1 and are not "merged" (yet).
- F2 contrast is converted to F1 contrast.
- Confirms that Phyeongan leads this change ahead of Hamkyeong.

Seoul Korean

- RM-MANOVA: All vowel pairs are distinct except for /e/ and /o/.
- Front vowels merger: /e/-/o/ pair does not differ in F1 or F2 in all speaker groups (young & old, male & female). Merger is complete.
- Back vowel shift:
  - /a/ is low and back (and rounded) and is distinct from all other back vowels both in F1 and F2.
  - /o/ is raised and backed toward /u/, more so for Younger than Older Seoul speakers. But, /o/-/e/ remains distinct and not merged (yet).
  - /e/ is more fronted/centralized in Younger Seoul speakers.
- Fronting of /o/ reported in Kang (to appear) is not observed.
- Vertical compression: Similar to SouthEastern dialects, Seoul Korean shows height compression but the pattern of merger is different.

Summary

- Chinese Korean vowels show signs of horizontal compression—merger/approximation of back rounded and unrounded vowels.
- The change is less advanced than in the homeland varieties.
- This may be due to the nature of stimuli (vowels in isolation) and/or the relatively older age of the speakers.
- Seoul Korean vowels show signs of vertical compression—complete merger of /e/-/o/ and approximation of /i/-/o/.
- The results replicate previous studies.
- Chain shift of back vowels observed in Kang (to appear) replicated except for no /o/ fronting.