

Another emergence of tonal contrast in Seoul Korean: the case of /i/



Introduction

- Korean prosody**
 - Jun 1993: the basic pattern of Korean prosody – LHLH or HHLH when the initial consonant of an Accentual Phrase (AP) is tense or aspirated
 - Therefore, an expected tonal pattern of vowel-initial APs: LHLH
- High-on [i]: a new sound change**
 - An AP starting with [i] is sometimes found to be realized as HHLH (Jun & Cha 2011).
 - Jun & Cha's findings on the phenomenon:
 - Where:** in Seoul Korean (SK)
 - Who:** younger than mid 40s; The younger, the more frequent (no gender difference).
 - When:** most often when it means *one* (1) and less often when it means *work*
 - Two possible causes for this phenomenon:
 - To enhance the perceptual salience of *No. 1* meaning in contrast to [i:] *two* (2)
 - Due to the influence of Kyungsang Korean (KK), a tonal dialect in Korean
- The questions examined here:**
 - Has KK influenced the emergence of High-on [i] in SK?
 - Do we find high /i/ in phonetic environments other than when it is before /l/?

Methods

- Subjects: 7 Seoul Koreans (F: 4 / M: 3) & 5 Kyungsang Koreans (F: 3 / M: 2) in their 20s
- # of target words: 63 (presented in sentences)

Four different meanings of [i]: 35 words

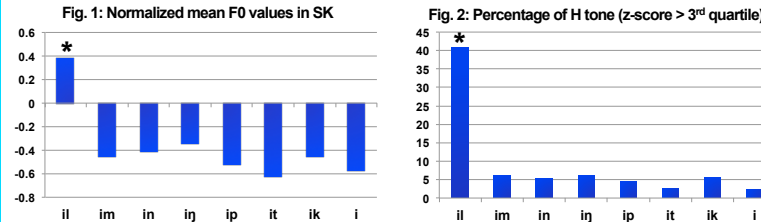
One	Day	Work	others
12	8	8	7

/i(C): 27 words

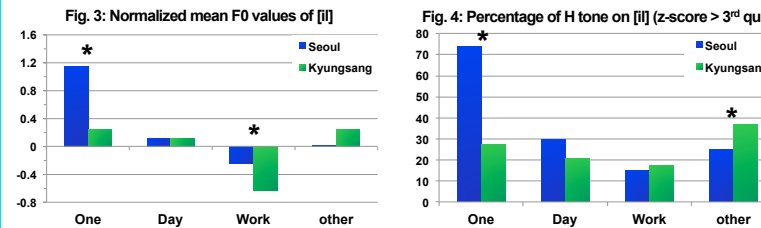
[i]	[ip]	[it]	[ik]	[im]	[in]	[inj]
4	4	4	4	4	4	4

- Subjects were asked to read non-carrier sentences and a carrier sentence with the target words inserted.
- Obtained data were normalized into z-score.

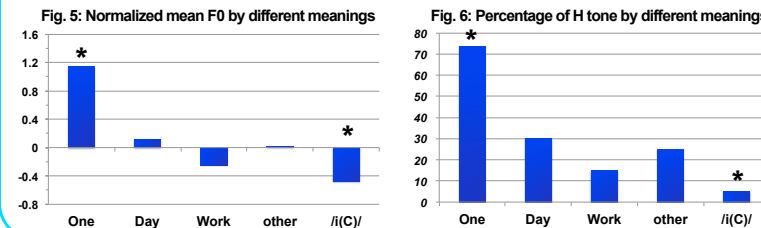
Result 1: The effect of the following segment



Result 2: The effect of dialect



Result 3: The effect of different meanings of [i]



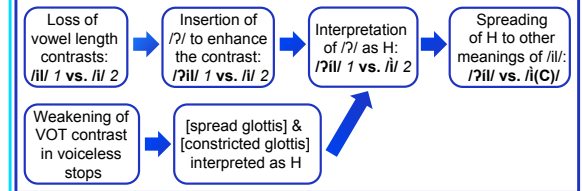
Summary of the results

- Result 1: Only AP-initial /i/ followed by /l/ is realized as H in Seoul Korean.
- Result 2: Kyungsang Korean doesn't seem to have influenced the emergence of High-on [i].
- Result 3: [i] *one* is the highest, and all four meanings of [i] are significantly higher than /i(C)/.

Discussion

- My proposal for the emergence of a tonal contrast in /i/**
 - SK: developing another tonal contrast in /i/ as in voiceless stops
 - The tonal contrast in voiceless stops: The [spread glottis] and [constricted glottis] features in voiceless stops are considered redundant and interpreted as a tonal contrast by learners (Silva 2006, Kingston 2011).
 - I propose the following process for the emergence of the tonal contrast in /i/ (Fig. 7).

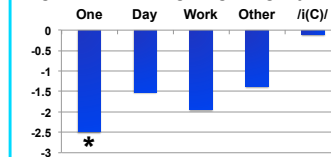
Fig.7: Proposed process of the emergence of High-on [i]



- Concurrent occurrence of tonal contrasts in both voiceless stops and /i/**
 - Kang & Guion (2008): Those born after 1970 used F0 more to distinguish stops, but those born before 1970 used VOT more.
 - Jun & Cha (2011): "High-on [i] must have started in 1980s when those born in 1970 were a teenager."
 - Both phenomena are led by the same generation! (born in 1970s)

Evidence of the insertion of a glottal stop

Fig. 8: H1-H2 at the beginning of target syllables



- If /ʔ/ were not inserted, we'd expect to see the same degree of creak for both [i] and /i(C)/.
- However, H1-H2 was the lowest in [i] *one*, suggesting a partial glottal stop is inserted.

- Extension:** A future study will investigate the phenomenon further by conducting a perception study and including teenage speakers.

References

[1] Jun, S.-A. 1993. *The Phonetics and Phonology of Korean Prosody*. Ph.D. dissertation, The Ohio State University. [2] Jun, S.-A. & J. Cha. 2011. High-toned [i] in Seoul Korean. *Proceedings of the 17th CPhS*, Hong Kong, China. [3] Kang, K.-H. & S. G. Guion. 2008. Clear speech production of Korean stops: Changing phonetic targets and enhancement strategy. *Journal of Acoustic Society of America* 124 (6), 3909-3917. [4] Kingston, J. 2011. Tonogenesis. In M. van Oostendorp, C. J. Ewen, E. Hume, & K. Rice (Eds.), *The Blackwell Companion to Phonology*. Blackwell Publishing. [5] Silva, D. 2006. Acoustic evidence for the emergence of tonal contrast in contemporary Korean. *Phonology* 23, 287-308.