

# **Dialectal variation in sibilant place of articulation in Korean**

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# Dialects of Korean



- Instrumental phonetic studies on dialects other than Seoul Korean (central dialect) are limited. Particularly for Northern dialects.
- We examined Northern dialects as spoken by ethnic Koreans in China in comparison with Seoul Korean.

# Place of Articulation of Sibilants

- Diachronic and synchronic (cross-dialectal) variation
  - Affricates were anterior (dental) in Middle Korean but has become posterior (alveopalatal, palatal) in all current Southern dialects but remains dental in Northern dialects (PA and Yukjin).
- The change was an impetus for further divergence of the Northern and Southern dialects
  - Assibilation (T -> C /\_\_i/j) and Yod-dropping (cj > c) only affected the dialects with posterior affricates. (Martin, 1992; Lee & Ramsey, 2011)
    - e.g., Middle.Korean: /tjoh-ta/ > /coh-ta/ 'good'
  - Loanwords: Posterior affricates > C (South), Cj (North)

# However...

- Some recent instrumental studies have shown that the POA of affricates of Seoul Korean is denti-alveolar rather than postalveolar (Kim, H., 2001; Anderson, et al., 2004, Kang and Kochetov 2010)
- There are conflicting reports of trends of younger Seoul Korean speakers producing affricates with more anterior POA (Cook et al. ) or more posterior POA (Chung 2002).
- Some field studies on North Korean dialects report postalveolar variants of affricates (Han, Y., 1956; Chung, I., 2003; Han, S., 2005).
- Few instrumental studies on North Korean dialects (a notable exception being Chung, E., 2011) and no controlled comparative phonetic studies of South and North Korean dialects exists.

# Subjects

- 101 subjects analyzed for this talk (young: <40, old: >40)
  - SY (Younger Seoul): 26 (15M, 11F, age: 19~30)
  - SO (Older Seoul): 32 (17M, 15F, age: 45~68)
  - HK (Older Hamkyeng): 21 (11M, 10F, 45~75)
  - PK (Older Phyenggan): 24 (13M, 11F, age: 42~74)
- Screened for the duration of stay in other dialect areas or foreign countries

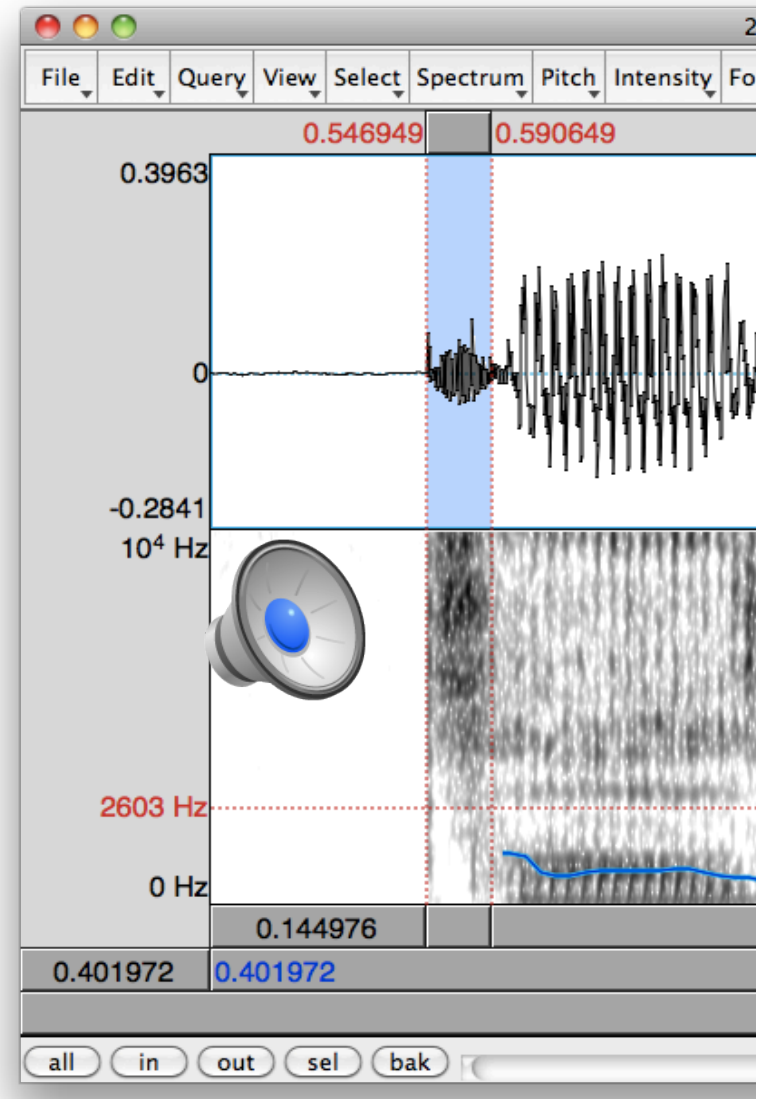
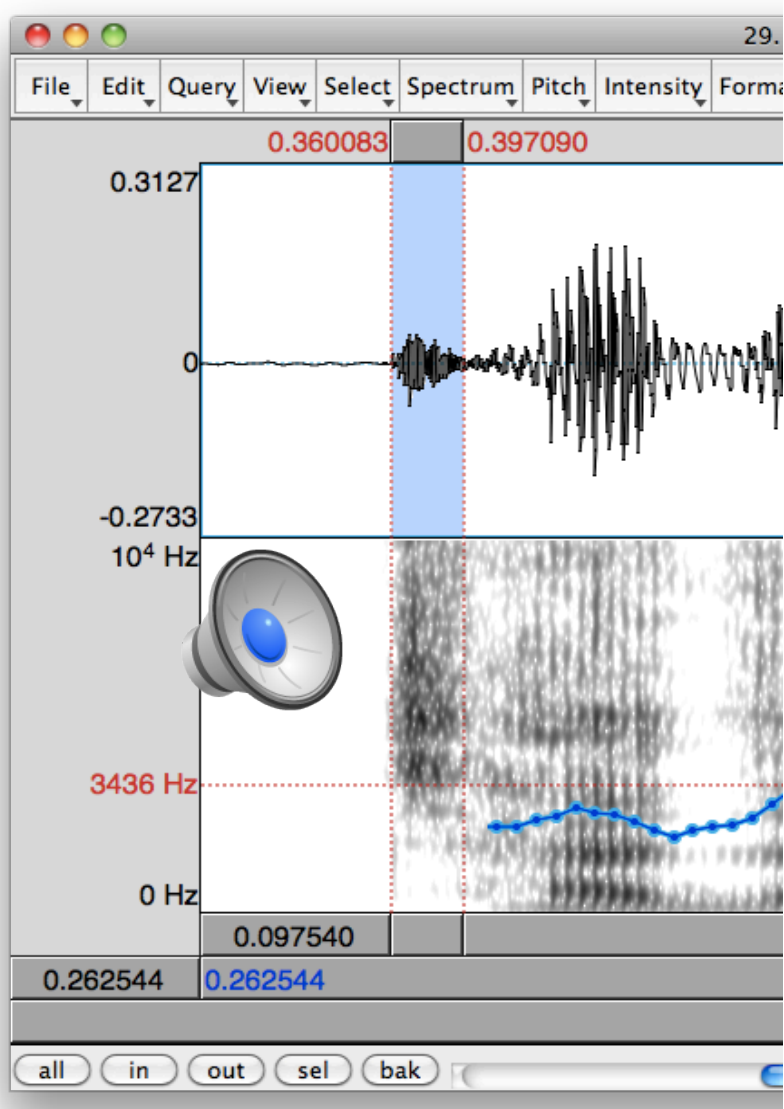
# Speech Material

- /c/ and /s/ before /a/  
/cacaŋka/ 'lullaby' vs. /salam/ 'person'
- Embedded in a sentence, embedded in a phrase, & **in isolation**
- 599 tokens (2 consonants \* 3 repetitions \* 103 speakers - omitted tokens)

# Acoustic analysis

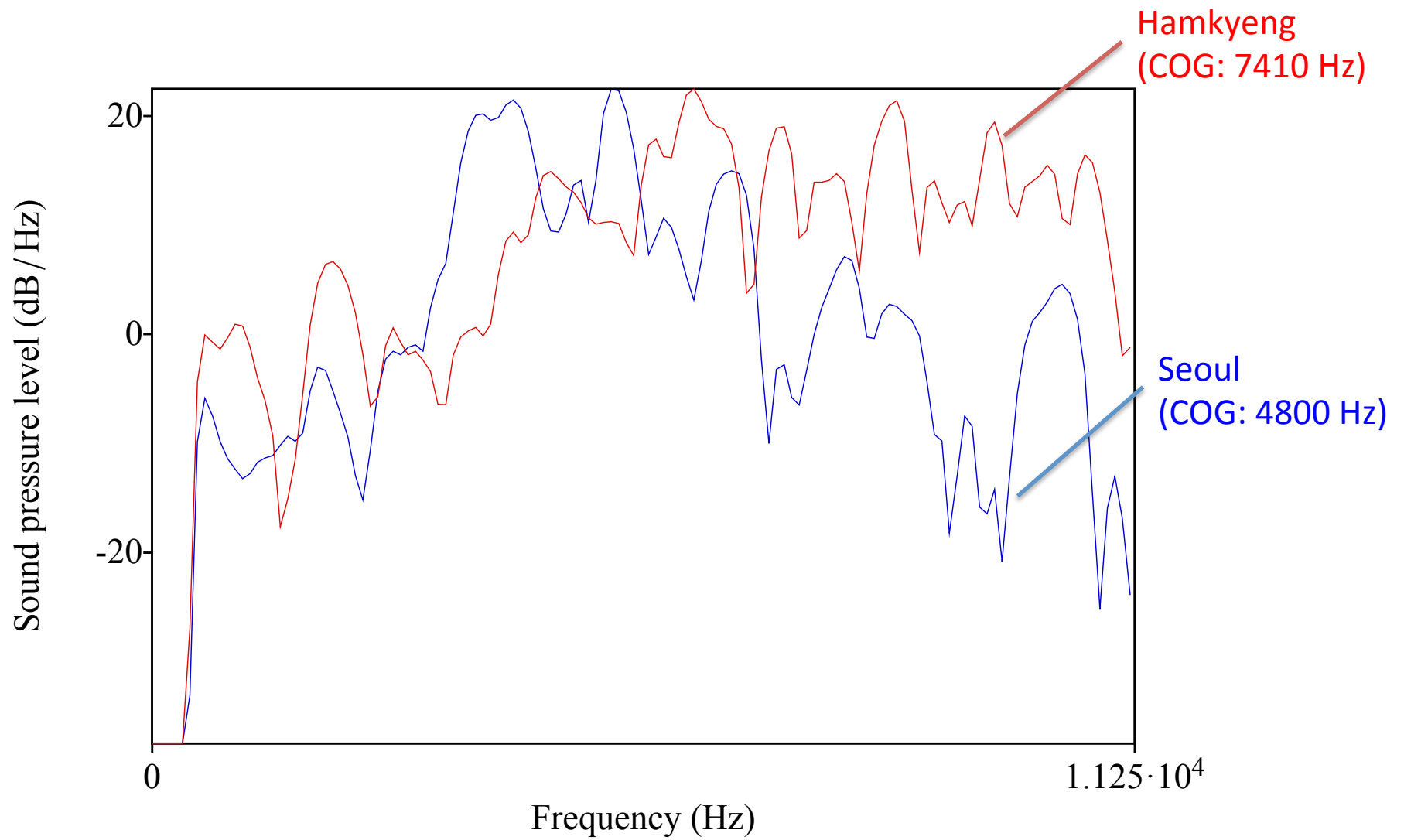
- Burst, frication, aspiration, and the following vowel were manually identified.
- The spectral Centre of Gravity (COG) of the frication: (mid 5.8 ms of frication noise, Filter: 500~11025Hz)
  - The COG of frication noise negatively correlates with the length of the front resonating cavity and posterior sibilants have a lower COG than anterior sibilants.(Forrest, et al., 1988; Jongman, et al., 2000; Kochetov & Lobanova, 2007).

# Seoul vs. Hamkyeng Male (YOB 1950) /cacangka/ 'lullaby'

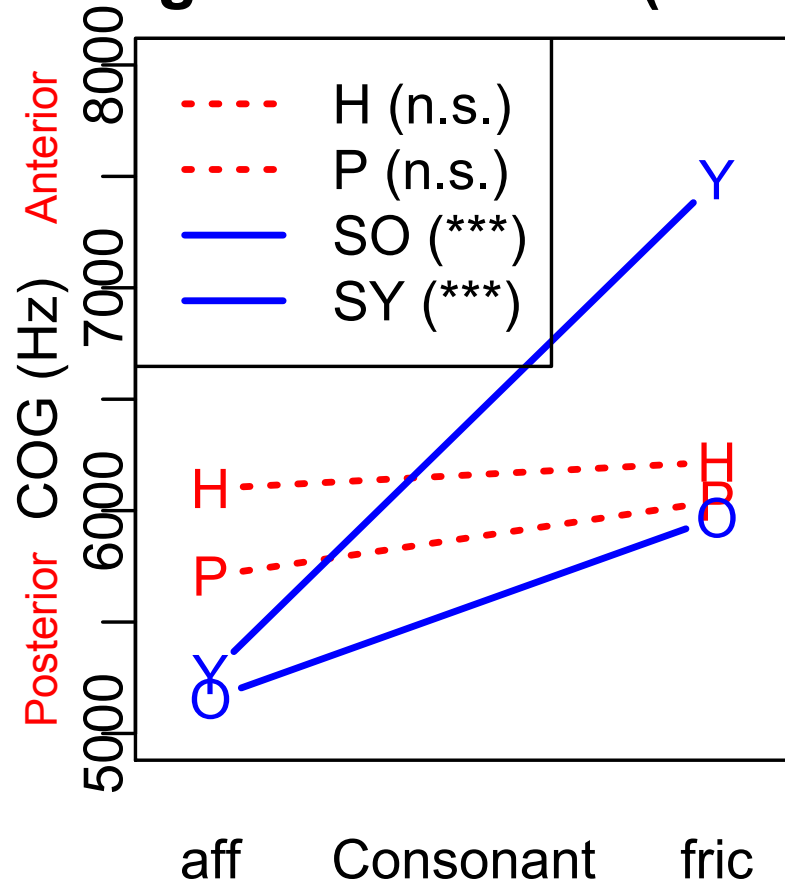




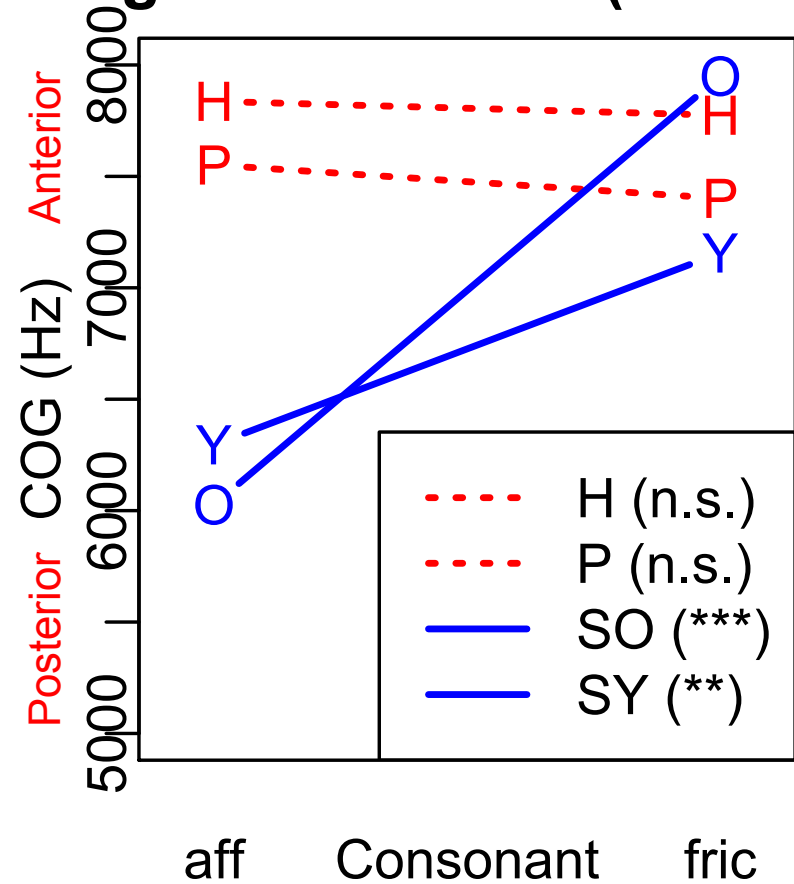
# Spectra



**Fig 1:/ca/ vs. /sa/ (Male)**



**Fig 2:/ca/ vs. /sa/ (Female)**



## *POA of affricate (/ca/ vs. /sa/)*

- All four Seoul groups (young and old, male and female) show a substantially higher COG for /sa/ than for /ca/
- The North Korean groups show no difference and the male speakers even show a statistically non-significant difference in the opposite direction, i.e., /c/ has a *higher* COG (more anterior POA) than /s/.

# Individual variation

- In 4 out of the 8 groups (SY Male, H Female, P Female, SO Female), there was a significant inter-speaker variation on how affricate and fricative differ (or not differ) in their frication COG (i.e., significant random slope for the factor of consonant by speaker).

# Conclusion

- The result is compatible with the dialect difference impressionistically observed in the literature: that the affricates in North Korean dialects are anterior while the affricates in Seoul Korean are more posterior and contrast in POA with coronal fricatives.
- At the same time, there is substantial individual variation and hence the contradicting reports found in the literature.
- Sibilants are salient and the differences in affricates are "noticed" (gender, generation, dialectal etc.).
- Future study: sociolinguistic underpinnings of the variation.

# Thanks to...

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