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Timing patterns of voiceless and voiced singleton and geminate plosives of Yanagawa Japanese



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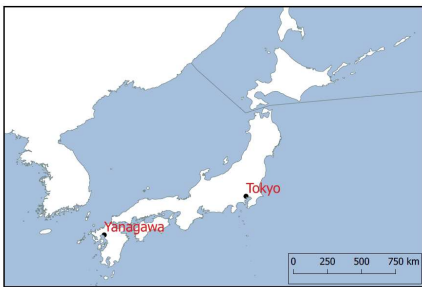
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Background

- o Voiced geminates are typologically rarer compared to voiced singletons.
- o The phonetic realization of voiced geminates vary across Japanese dialects.
- o Current study: voicing contrast in word-medial singleton and geminate plosives of Yanagawa Japanese (YJ), compared to Tokyo Japanese (TJ).



- o Unlike TJ, YJ is characterized by frequent gemination of any types of consonants:
 - sijobbai/ [eɔbbai] ‘X does.’
 - oddoN/ [oddoN] ‘we’
 - kuzzoko/ [kuddzoko] ‘sole, the fish’
 - mirogge/ [mirogge] ‘ark shell’

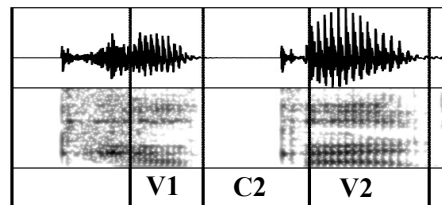
- o Previous cross-linguistic studies
 - CCs are longer than Cs (Lahiri & Hankamer, 1988).
 - Variability in durations of flanking Vs (short before CCs: Ohala, 2007).
 - Vs lengthen before CCs in Japanese (Han, 1994).
 - Vs constant before CCs or Cs: (Khattab & Al-Tamimi, 2015).
 - Effect of voicing on the preceding vowels (Chen, 1970).

Methods

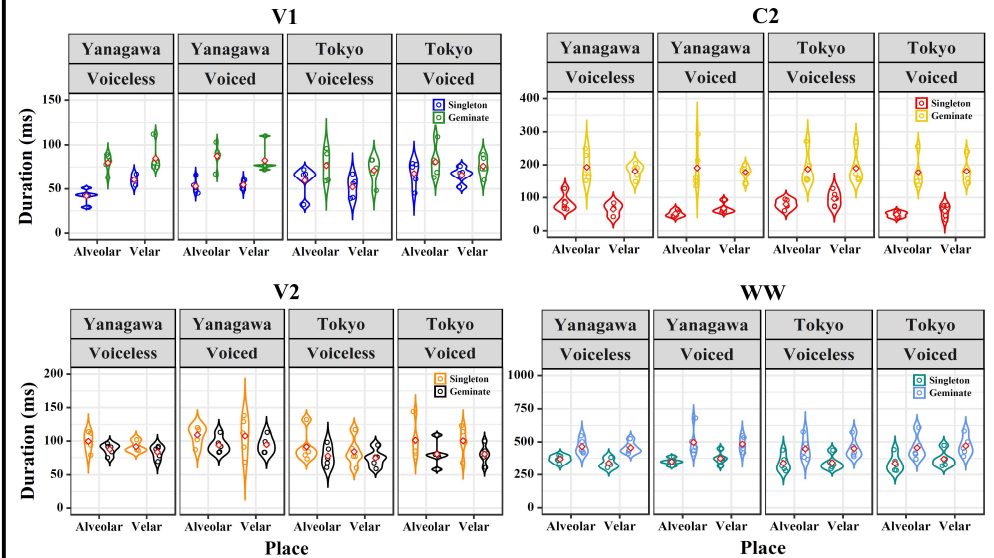
- o Ten speakers: five YJ and five TJ.
- o Produced nonsense words in a carrier phrase:
 - YJ: *Daken _____ gena* ‘So, it is said _____.’
 - TJ: *Dakara _____ desu* ‘So, it is _____.’
- o Task: read a wordlist written in *katakana*.
- o Tokyo speakers recorded in Tokyo.
- o Yanagawa speakers recorded in Yanagawa.
- o Analysis: **V1C(C)2V2** and WW durations.

/kaka/ →
- o Total tokens: 215 (YJ) and 246 (TJ).
- o Statistical analysis: R-M ANOVAs.

Pl.	Cons.	Voiceless	Voiced
Alv.	Sing.	/tata/ タタ	/tada/ タダ
	Gem	/tatta/ タツタ	/tadda/ タツダ
Vel.	Sing.	/kaka/ カカ	/kaga/ カガ
	Gem.	/kakka/ カツカ	/kagga/ カツガ



Results



- o **V1 duration is longer before geminates than before singletons in YJ and TJ.**
- o However, the magnitude of influence of geminates to adjacent vowels was dialect specific: **V1 duration in YJ was consistently longer than TJ** when followed by a geminate.
- o **No V1 duration difference before voiceless and voiced geminates in YJ** (while TJ lengthened more before voiced geminates).
- o Place difference: **V1s are slightly longer before voiced alveolar geminates than before voiced velar geminates.**
- o Longer V2s in voiceless/voiced singletons/geminates in YJ than TJ.
- o In both dialects, whole word (WW) duration of CVCCV was 1.32 times longer than CVCV.

Discussion & Remaining Issues

- o If YJ geminates are fully voiced during closure, it may be enough for the voicing contrast.
- o Whereas voicing is not enough to distinguish voicing in geminates in TJ.
- o WW: The same moraic timing patterns in YJ and TJ. 1 (two moras) : 1.32 (three moras) at word level.
- o **References:** Al-Tamimi, J., and Khattab, G. (2015). *JASA* 138, 344–60; Chen, M. (1970). *Phonetica* 22, 129–159; Han, M. (1994). *JASA* 96, 73–82; Lahiri, A., and Hankamer, H. (1988). *J. Phon.* 16, 327–338; Ohala, M. (2007). In M. J. Sole, P. Beddor, & M. Ohala (eds.).
- o **Funding:** Endeavour Postgraduate Scholarship, Australian Government, SOLIFIC, Sophia University.