

# Toward a more accurate typology: Defining constituent order flexibility in WALS, AUTOTYP, and beyond

Alex Kramer (arkram@umich.edu), Savithry Namboodiripad (savithry@umich.edu)

Department of Linguistics, University of Michigan, Ann Arbor, MI, USA

## Title

Header

[n-]→[l-]	腦 ‘brain’	<i>nou5</i> → <i>lou5</i>	(老 ‘old’ <i>lou5</i> )
[ŋ]→[m]	五 ‘five’	<i>ng5</i> → <i>m5</i>	(唔 ‘not’ <i>m4</i> )
[ŋ-]↔[∅-]	牛 ‘cow’	<i>ngau4</i> → <i>au4</i>	
	嘔 ‘vomit’	<i>au2</i> → <i>ngau2</i>	

## Research Question

Sample text.

## Research Aims

Sample text.

## Methods

## Auditory Analysis

Header: Sample text

- Sample small text

Header: Sample box text.

## Native Listener Coding Results

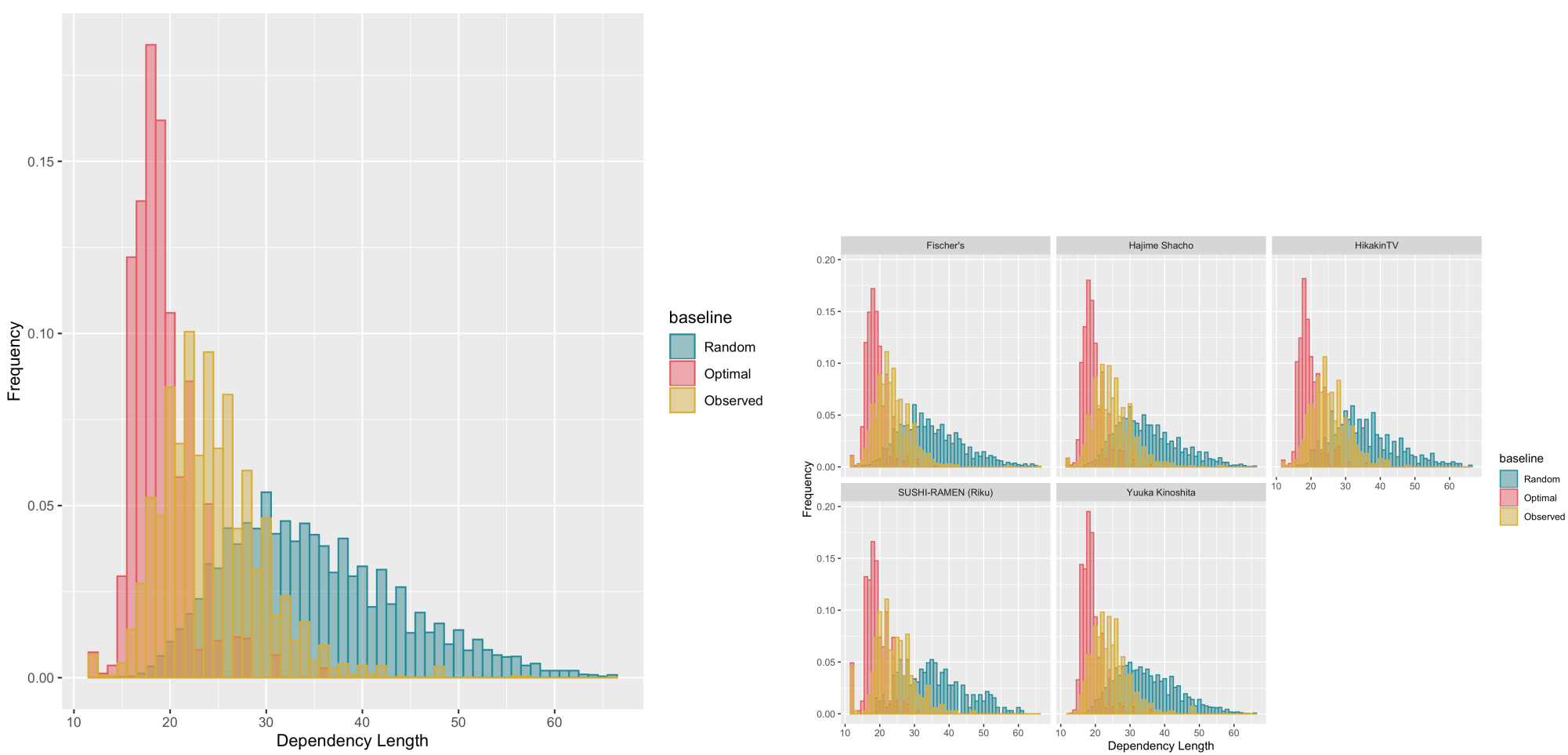


Figure 1:Proportions of [l], [n], [m], [ŋ], vowel or "other" coded by a native listener for each historical category. All data are shown in these stacked barplots, while statistical analysis directly compares the pairs of sounds each engaged in a change-in-progress.

## Acoustic Analysis

- Acoustic analysis potentially offers a more gradient window into these changes-in-progress.

## Acknowledgements

Thanks to Yao Yao and Chang Liu (The Hong Kong Polytechnic University); the Speech in Context Lab, especially Sophie Bishop, Cassandra Savage, Shannon Briggs and Zoe Lam; and our research participants.

## Discussion & Conclusion

- None of the three sound changes are fully complete in production in either city. This aligns with perception results in the same participants (Cheng, 2017), though subgroups vary and some appear to merge certain pairs substantially (i.e., [m]/[l]).