The Role of Musical Aptitude in the L2 Acquisition of Tonal Words: Evidence from **Cross-situational Statistical Learning** Lancaster 28 University Xia Wang¹, Yuxin Ge¹, Patrick Rebuschat^{1,2} & Padraic Monaghan¹

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Introduction

- Cross-situational word learning (CSWL) is a learning paradigm in natural environments (Yu & Smith, 2007).
- > Learning tonal words is difficult for non-tonal adults.
- > Ge et al. (2024): Some non-tonal adults can learn tonal words in a CSWL paradigm, while others cannot.

So, what causes this learning variation?

Musical aptitude



- Cross-domain transfer (Ong et al., 2016)
- Overlapping domains: tonal cues
- Pitch perception aptitude; duration perception aptitude

What we have known so far

• The role of musical aptitude in CSWL of Native-like language (Smit et al., 2022).

> Aim

- Whether musical aptitude can influence non-tonal adults' tonal word learning in natural environments.
- Whether the higher musical aptitude can compensate for the weakness of learners' tone perception ability in CSWL of tonal words.



Conclusion The findings from the CSWL task

An overall cross-situational learning effect for English participants.

Melody score

Non-native sounds pose a challenge to native English • speakers. (Ge et al., 2024)

How does musical aptitude influence learners' CSWL performance?



Reference

Ge, Y., Monaghan, P., & Rebuschat, P. (2024). The role of phonology in non-native word learning: Evidence from cross-situational statistical learning. Bilingualism: Language and Cognition, 1–16. https://doi:10.1017/S1366728923000986; Ong, J. H., Burnham, D., Stevens, C. J., & Escudero, P. (2016). Naïve learners show cross-domain transfer after distributional learning: The case of lexical and musical pitch. Frontiers in psychology, 7, 1189. https://doi.org/10.1111/j.1467-9280.2006.01765.x; Yoko, O., Esther, M. H. S., Mei-Ling, L. "A comparative study of music aptitude test for elementary school children in Japan, Taiwan and Hong Kong." The 8th Asia-Pacific Symposium on Music Education Research. CD-ROM (2011); Yoko, O., Tadahiro, M. H. S., "Developing a music aptitude test for school children in Asia." The 10th International Conference for Music Perception and Cognition, CD-ROM (2008); Yu, C., & Smith, L. B. (2007). Rapid Word Learning Under Uncertainty via Cross-Situational Statistics. *Psychological Science*, 18(5), 414–420. https://doi.org/10.1111/j.1467-9280.2007.01915.x