Development of Sensitivity to Prosodic Phrasal Boundaries in a Second Language

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1. INTRODUCTION

- This study examines whether Cantonese-speaking learners of English can develop a native-like mechanism for identifying prosodic phrasal boundaries.
- Phrasal stress is the most reliable prosodic cue for marking phrasal boundaries in English [1][2].
- Cantonese does not use phrasal stress as a boundary marker.
- Unclear whether Cantonese speakers can ultimately learn to use phrasal stress for recognizing prosodic boundaries in English.

2. Research Question

- Can Cantonese-speaking learners of English develop native-like sensitivity to phrasal stress?

3. METHOD

Participants

- Native English speakers (n = 30)
- L1-Cantonese L2-English speakers
  - High proficiency: DSE 5 (top 3–10%; n = 30)
  - Moderate proficiency: DSE 4 (top 10–30%; n = 27)

Design (see Table 1)

- Condition 1: Lexical condition
  - Normalized for amplitude and length.
  - Phrasal stress was superimposed as an 8 dB intensity boost.
- Muffled condition
  - Low-pass filtered the lexical sentences at 800 Hz [3].

Table 1. *Experiment Design*

				With Phrasal Stress Condition						
Lexical Condition	**Kate**	found	that	the	**spies**	fell	on	the	**ground.**	
				Without Phrasal Stress Condition						
	Kate	found	that	the	spy's	**gun**	fell	on	the	**ground.**
				With Phrasal Stress Condition						
Muffled Condition	~~**Kate**~~	~~found~~	~~that~~	~~the~~	~~**spies**~~	~~fell~~	~~on~~	~~the~~	~~**ground**~~	
				Without Phrasal Stress Condition						
	~~**Kate**~~	~~found~~	~~that~~	~~the~~	~~spy's~~	~~**gun**~~	~~fell~~	~~on~~	~~the~~	~~**ground**~~

Note. Words with phrasal stress are in boldface, and critical regions are shaded grey. Words with strikethrough indicate that they are muffled.

ERP investigation

- Measured Closure Positive Shift (CPS)
  - Neural measure of prosodic phrasal boundary perception [4]
- Time window of interest: 2120–2320 ms post sentence onset
- Statistical analysis:
  - 2 × 2 × 3 mixed-design ANOVA
    - Stress: with vs. without phrasal stress
    - Lexicality: lexical vs. Muffled
    - Group (L1 vs. L2-high proficiency vs. L2 moderate proficiency)
  - Subsequent pairwise comparisons: conducted as needed

4. RESULTS

Figure 1. *CPS Effects across Experimental Conditions for Each Language Group*

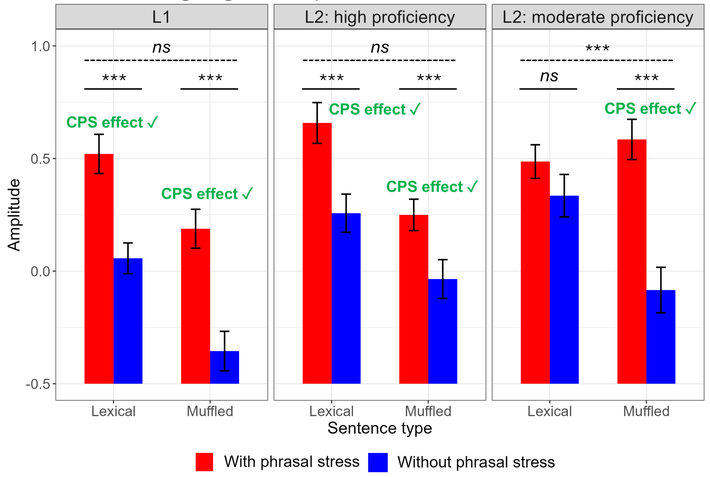
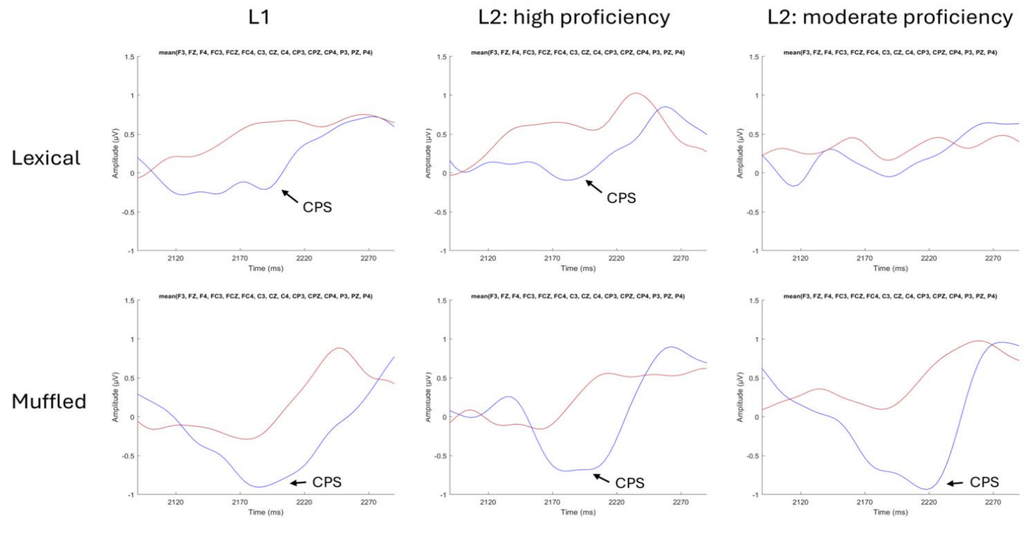


Table 2. *ANOVA Results*

	F	*p*
Sentence type	140.80	***
Phrasal stress	279.60	***
Group	30.71	***
Sentence type × Group	7.03	***
Phrasal stress × Group	3.53	*
Phrasal stress × Sentence type	9.24	**
Phrasal stress × Sentence type × Group	13.68	***

* = ; ** = ; *** =

Figure 2. *CPS Waveforms across Experimental Conditions for Each Language Group*



5. DISCUSSION

- Native English speakers:
  - Showed the CPS effect in both Lexical and Muffled conditions
  - Indicates reliance on phrasal stress for prosodic boundary detection.
- Moderately proficient learners:
  - Showed the CPS effect only in Muffled condition
  - Suggests an L2 prosodic transfer effect.
- Highly proficient learners:
  - Showed the CPS effect in both conditions
  - Increased proficiency led to a native-like mechanism for detecting prosodic boundaries using phrasal stress.

6. CONCLUSION

- Cross-linguistic differences in prosodic boundary marking can lead to negative transfer.
- However, increased L2 proficiency can mitigate this effect.

7. ACKNOWLEDGEMENT

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