The Segment Status of the Mandarin Glide: A Language Game Experiment

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The Question

Big picture question:

- What can speakers learn from ambiguous phonological input?
- Are speakers consistent in what they learn?

Case study: Mandarin prenuclear palatal glide /j/

/j/ contrastive after non-palatal onsets	lja	la	*/j/ obligatory after palatal onsets*	ɕja	*ɕa

Research question:

How do Mandarin speakers analyze palatal onset-glide?

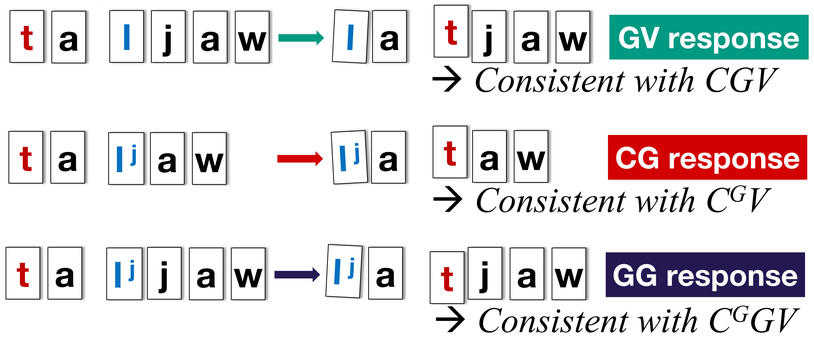
Independent segment (Lin 1989)	lja	ɕja	CGV
Secondary articulation of the onset (Duanmu 2000)	l^{j}a	ɕ^{j}a	C^{G}V
Dual status	l^{j}ja	ɕ^{j}ja	C^{G}GV
Natural Palatal CV transition (Ladefoged & Maddieson 1996)	lja	ɕa	CGV/CV

Codeword Language Game

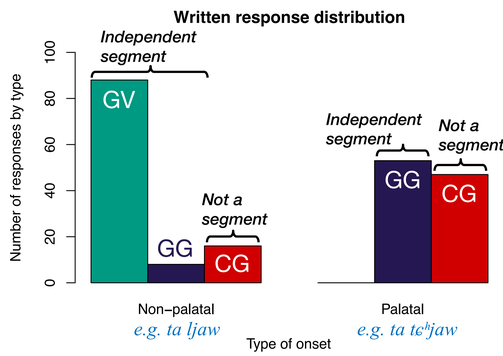
- Mandarin speakers are invited to take apart syllables in an artificial codeword language game setting.
- The task: swap the onsets of a disyllabic word.

Original word: 'coffee' *Codeword*

- What speakers choose to do with the prenuclear glide can inform us of its segmentation.
- Example: *ta ljaw* 'star anise': 3 choices for codeword.



Experiment 1: Online

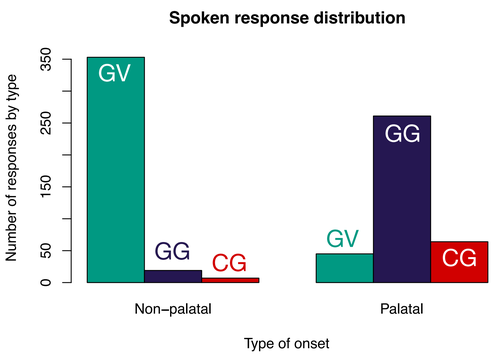


- 24 test items containing /j/:
- Non-palatal vs. palatal onset
- Stimuli & responses in Chinese character text form.
- Sample size: 10 speakers.

Problem!
Palatal GV not available:
[ta tɕʰjaw] 'bridge' → [*tɕʰa tjaw]
No character for unattested *tɕʰa

Finding: /j/ is more likely to be treated as an independent segment after non-palatal onsets, compared to palatal onsets.

Experiment 2: In-person



Solution:

- Stimuli presented in audio form.
- Oral responses collected.
- Sample size: 33 speakers.

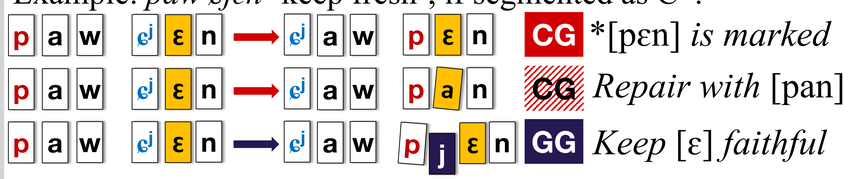
→ Palatal GV now available:
[tɕʰa tjaw] *12 tokens*
[tʂʰa tjaw] *33 tokens*

Question:
Why more palatal GG in oral responses?

Vowel Faithfulness Effect?

Vowel raising rule: /a/ → [ɛ]/j__n

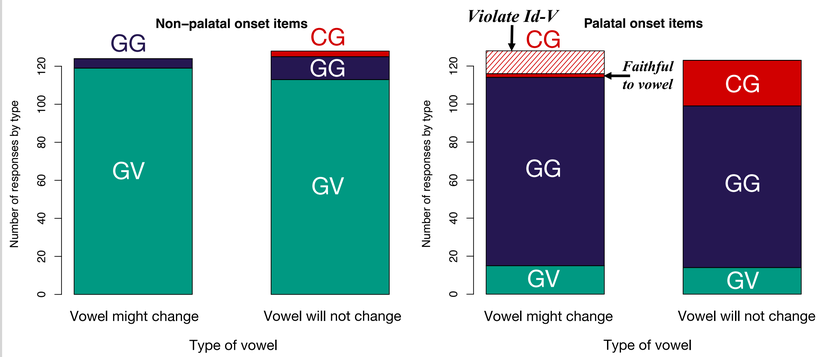
Example: *paw ɕjɛn* 'keep fresh', if segmented as C^{G}:



Test item: [paw ɕ^{j}ɛn]	*ɕV	*Cɛn	ID-V	DEP
a. GV: [ɕaw pjɛn]	*!			*
b. CG: [ɕ^{j}aw pɛn]		*!		
c. CG': [ɕ^{j}aw pan]			*!	
☞d. GG: [ɕ^{j}aw pjɛn]				*

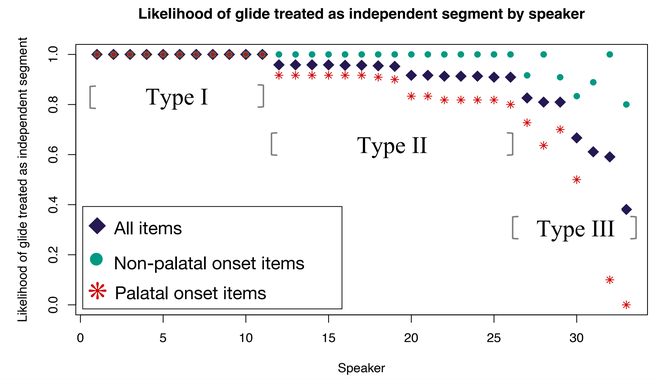
Prediction:
If the vowel might change when the glide leaves, GG preferred.

Vowel Faithfulness Effect?



Finding:
Vowel faithfulness might explain the preference for GG over CG in oral responses to palatal items, but only partially.

Speaker by Speaker



Conclusion

- Mandarin speakers' preferred /j/ glide segmentation:
  non-palatal onset: CGV *palatal onset*: C^{G}GV
- Vowel faithfulness plays a partial role in how speaker chooses between types of responses.
- There is much speaker variation, but 3 types of speakers emerge. Type I & II show consistent glide segmentation.

Next step:
How do speakers learn glide segmentation?

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Selected References:
Duanmu, San. 2000. The phonology of Standard Chinese.
Ladefoged, Peter & Ian Maddieson. 1996. The sounds of the world's languages.
Lin, Yin-Hwei. 1989. Autosegmental treatment of segmental processes in Chinese phonology.