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

Boer Fu

Massachusetts Institute of Technology

The Question:

What is the Mandarin glide?

- Prenuclear glides: /j, w, ɥ/ between onset and vowel
- Structural position and segment status are debated:

Hypothesis and transcription	Independent target?
Independent segment	CGV
lja, ɕja, kwan, ɕɥe (Lin 1989)	✓
Secondary articulation of onset	$C^{G}V$
$l^{j}a$, $ɕ^{j}a$, $k^{w}an$, $ɕ^{ɥ}e$ (Duanmu 2000)	✗
Dual status of glide	$C^{G}GV$
$l^{j}ja$, $ɕ^{j}ja$, $k^{w}wan$, $ɕ^{ɥ}ɥe$	✓
Natural CV transition (for palatals)	CGV, CV
lja, ɕa, kwan, ɕe (Ladefoged & Maddieson 1996)	✗

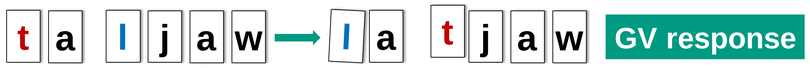
Research question:
For Mandarin speakers, is the glide an articulatory target that is independent of the onset?

Codeword Language Game

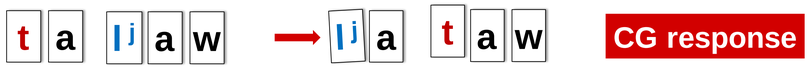
- Mandarin speakers are invited to take apart syllables in an artificial codeword language game setting.
- The task: swap the onsets of a disyllabic word.

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.



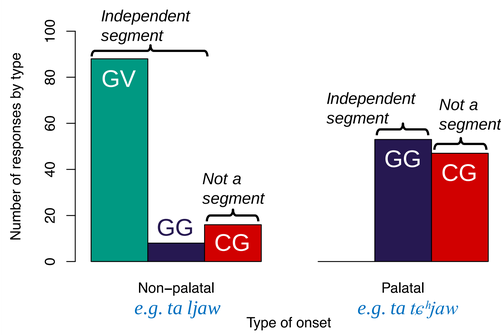
→ */j/ is treated as an independent segment.*



→ */j/ is not treated as an independent segment.*

→ */j/ is treated as an independent segment.*

Experiment 1: Online



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

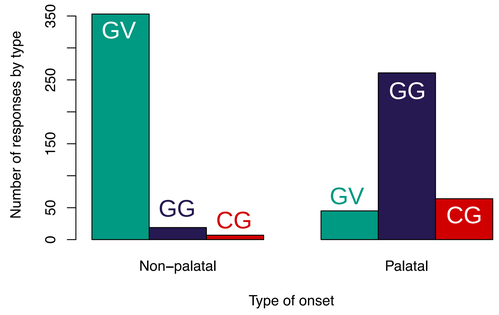
Problem:

- Palatal GV response not available to speakers.

  [ta tɕʰjaw] → GV: [*tɕʰa tjaw] *'big bridge'*
- Unattested *tɕʰa cannot be written as a Chinese character.

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 response now available to speakers.

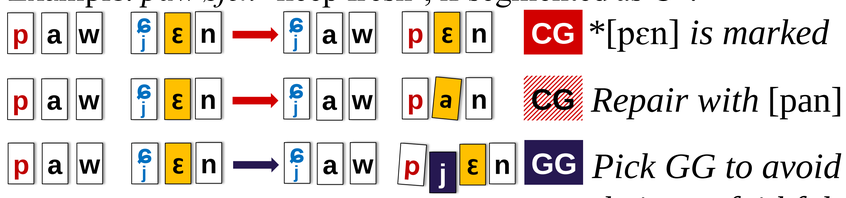
Choice A: [tɕʰa tjaw] *12 tokens*
Choice B: [tʂʰa tjaw] *33 tokens*

Finding repeated:
onset place matters.

Vowel Faithfulness Effect?

Vowel raising rule: /a/ → [ɛ]/j__n

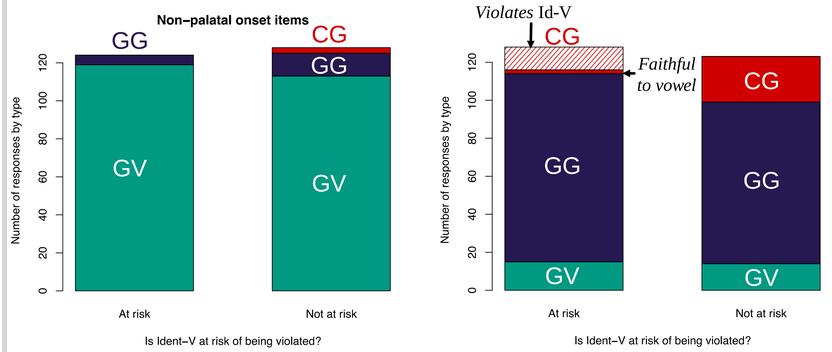
Example: *paw ɕjɛn* 'keep fresh', if segmented as C^{G}:



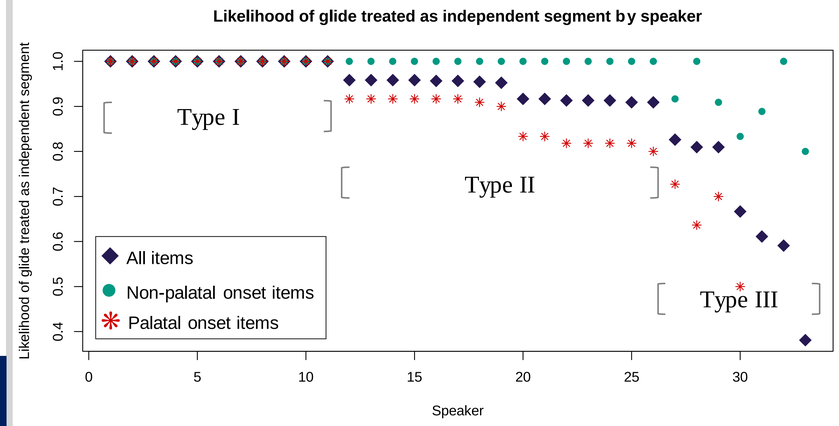
Test item: [paw ɕʲɛn]	*ɛV	*Cɛn	ID-V	DEP
a. GV: [ɕaw pjɛn]	*!			*
b. CG: [ɕʲaw pɛn]		*!		
c. CG': [ɕʲaw pan]			*!	
☞d. GG: [ɕʲaw pjɛn]				*

Vowel Faithfulness Effect?

Prediction: If Ident-V >> DEP, then speakers will produce more GG responses compared to CG responses, for test items that contain an alternating vowel that risk violating Ident-V.



Speaker by Speaker



Conclusion

- The palatal glide /j/ is more likely to be treated as an independent glide after non-palatal onsets, compared to palatal ones.
- Vowel faithfulness plays a 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.

Many thanks to Adam Albright, Edward Flemming, Michael Kenstowicz, and Donca Steriade for discussion and feedback. All remaining mistakes are my own.

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.