



How targetless is Schwa in pretonic /CəC/ sequences?

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Motivation

The term and concept "police" is unknown to the majority of the magical community. In order to make sense of the word, officers are commonly referred to as please-men (some of which are said to carry firelegs or arms or whatever). (Rowling 2000)

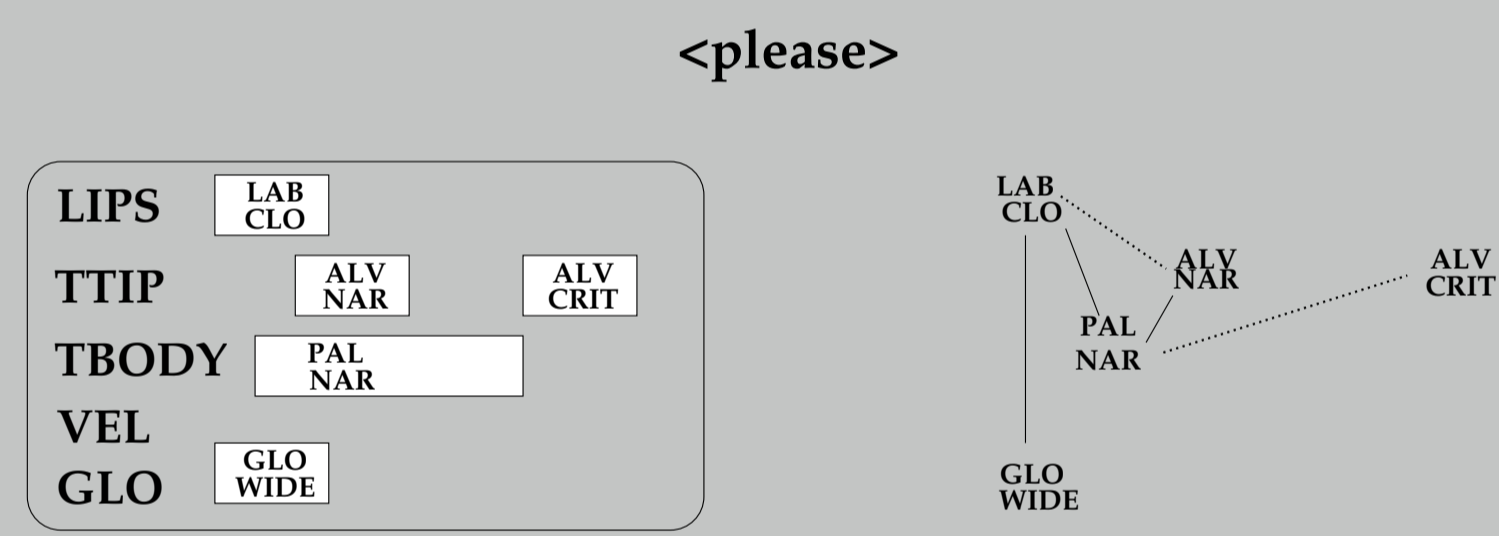


Questions I: Constriction Overlap

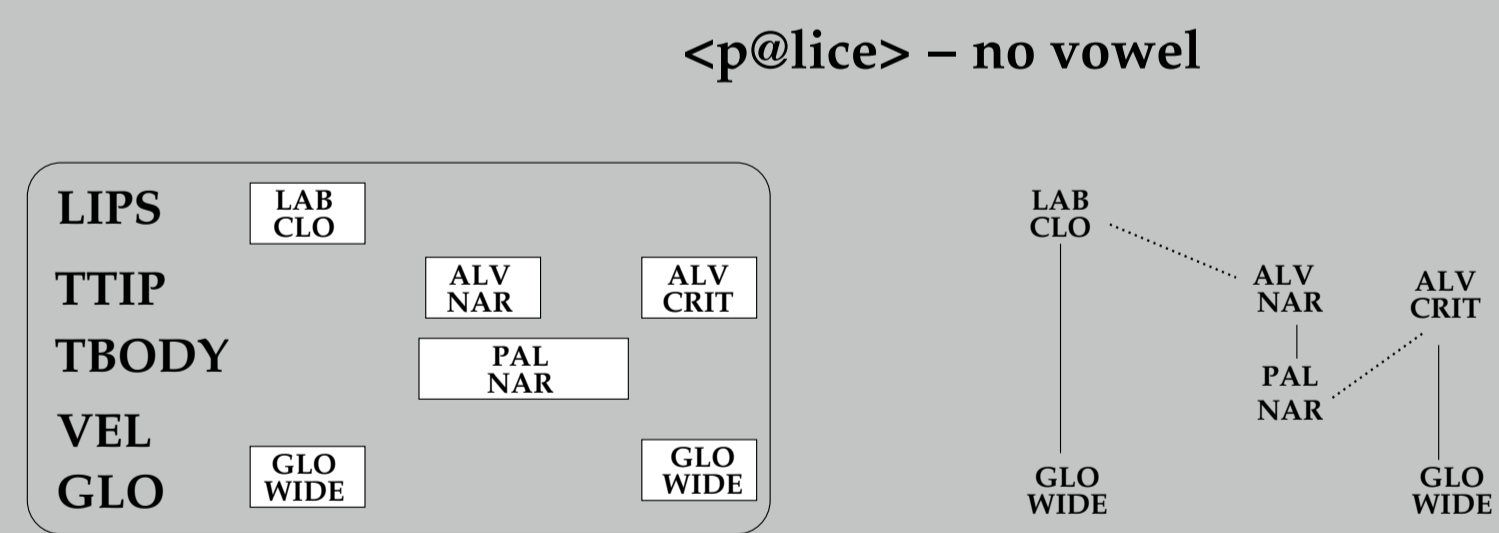
- Can accent manipulation trigger schwa deletion?

Theories: AP

(A) Cluster



(B) C@.CVC - no vowel gesture



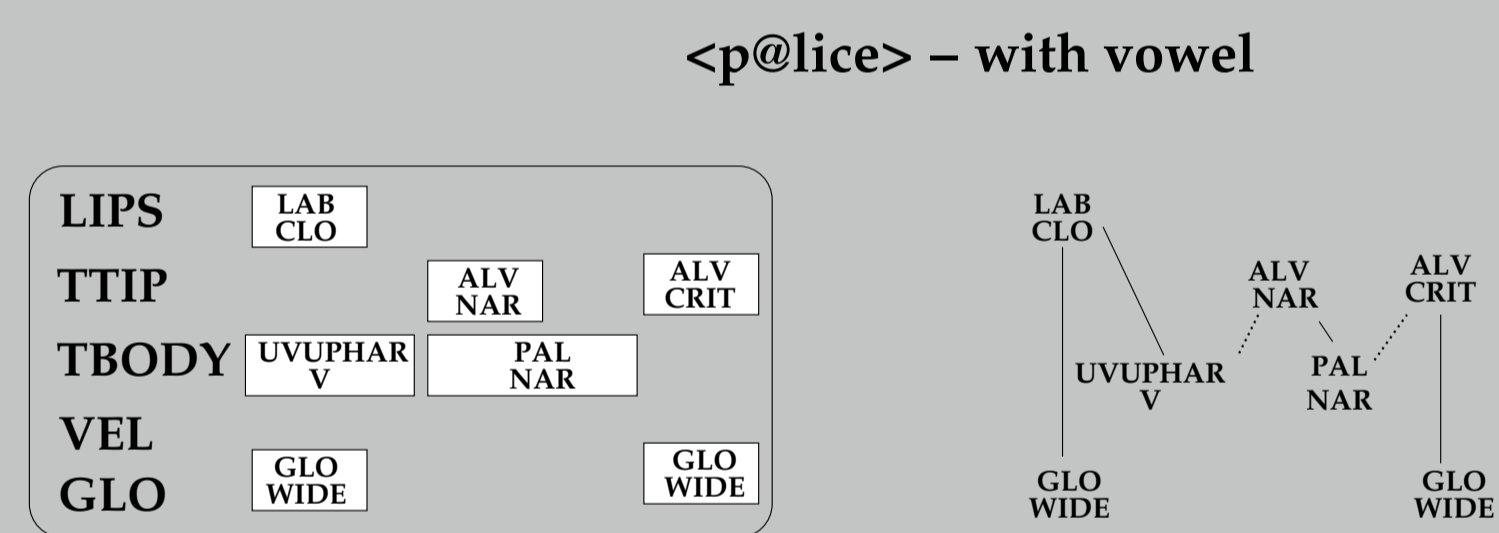
Questions II: C-Centre

- Alignment of a consonantal anchor
 - Strong version: Temporal stability of consonant center.
 - Weak version: Leftward shift of C₁ and rightward shift of C₂ (Goldstein et al. 2010). "multiply linked onset"

Questions III: Spatial Organization:

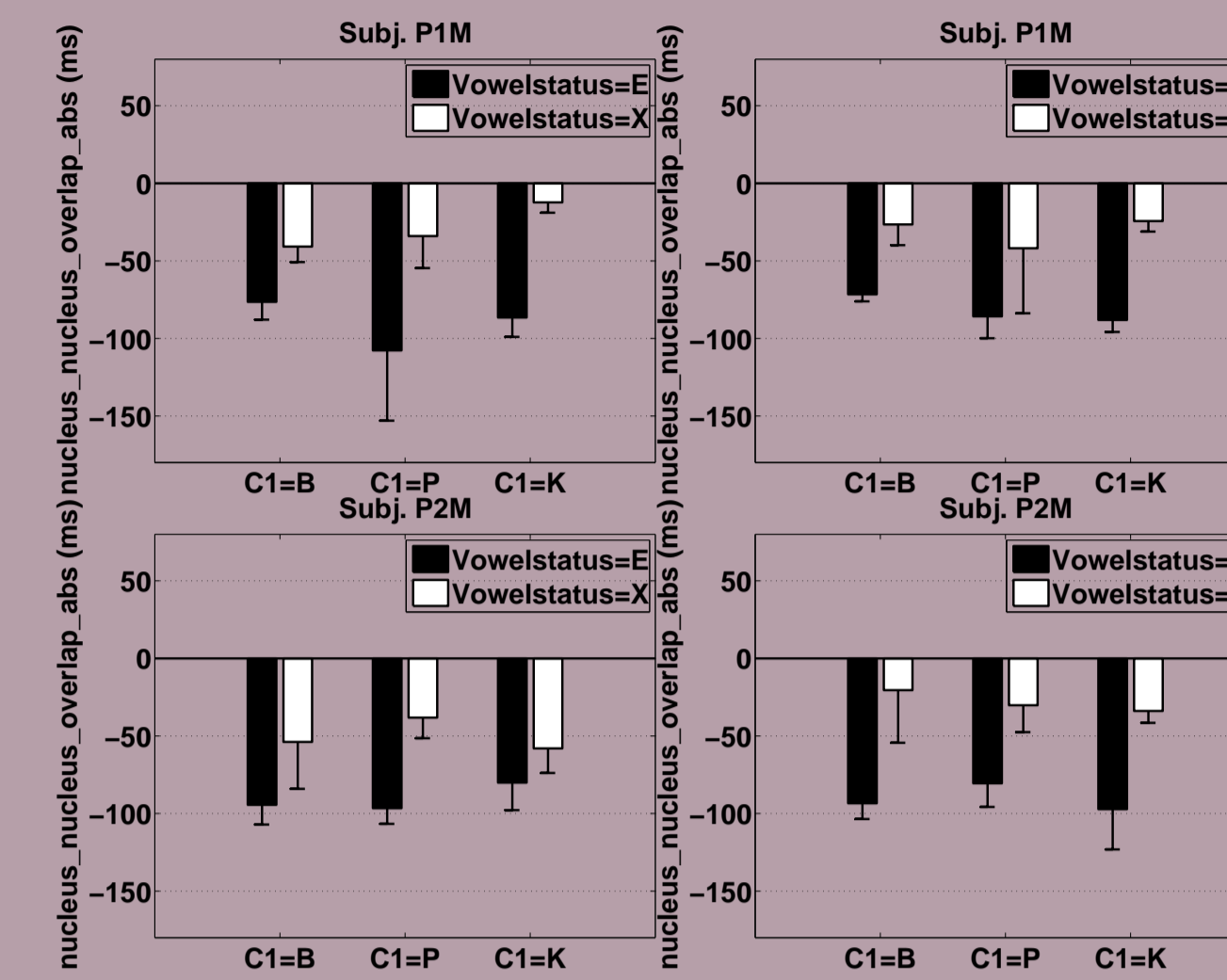
- Targetlessness of the schwa.
 - Does schwa in pretonic position have a specified vowel target?
 - Or is schwa just transitional?

(C) C@.CVC - with schwa



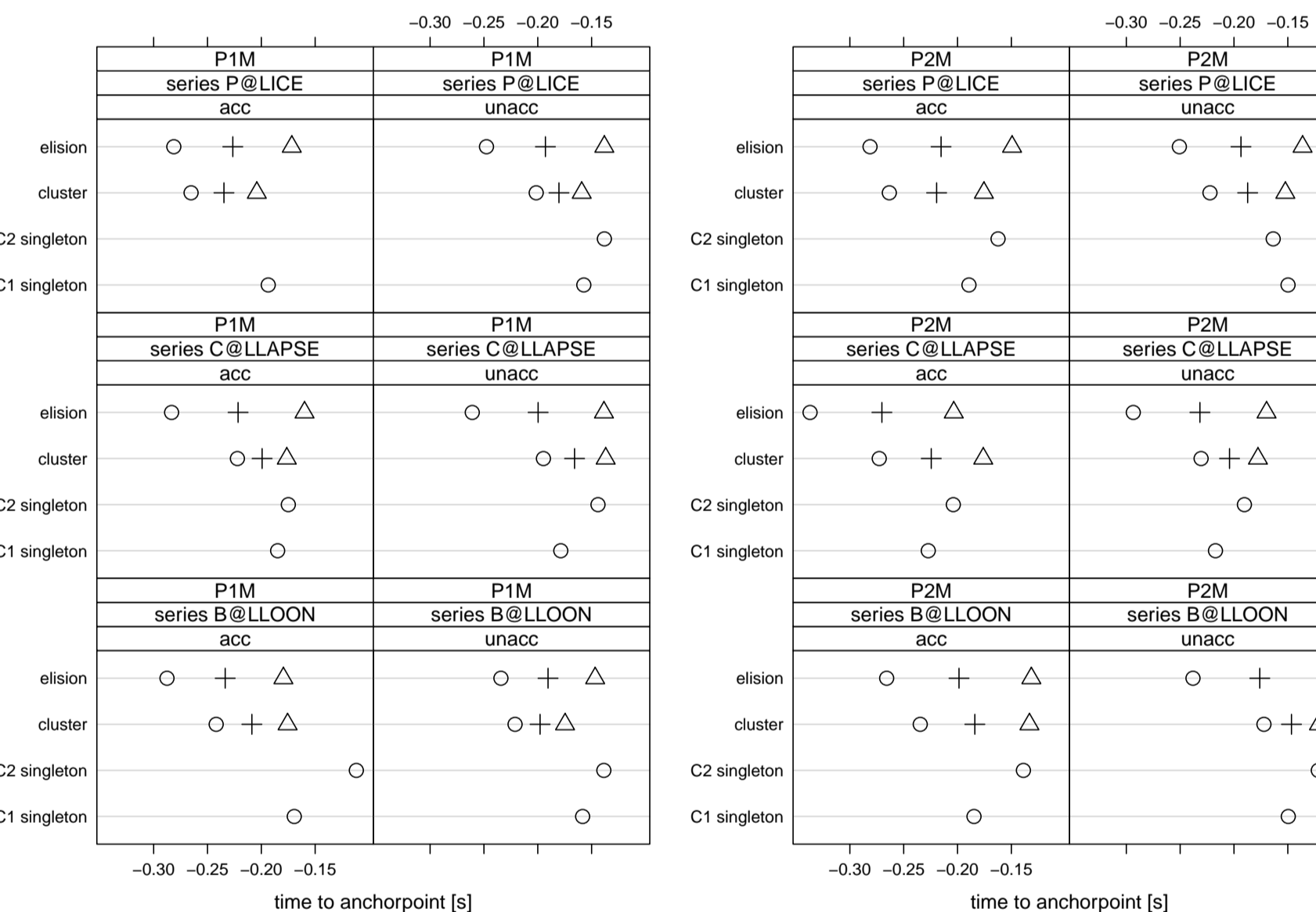
Cluster
Schwa targetless - no underlying vowel
Schwa targetful - with vowel representation

Results I: Constriction Overlap



- No consistent accentuation effect.
 - Lag longer when schwa is lexically present.
 - No consistent difference in variability between cluster and lexical schwa contexts.
- Accentuation manipulation only partially successful.

Results II: Intrasyllable Timing



"strong" versus versions of C-Centre ↓
"weak" version C-centre-Hypothesis

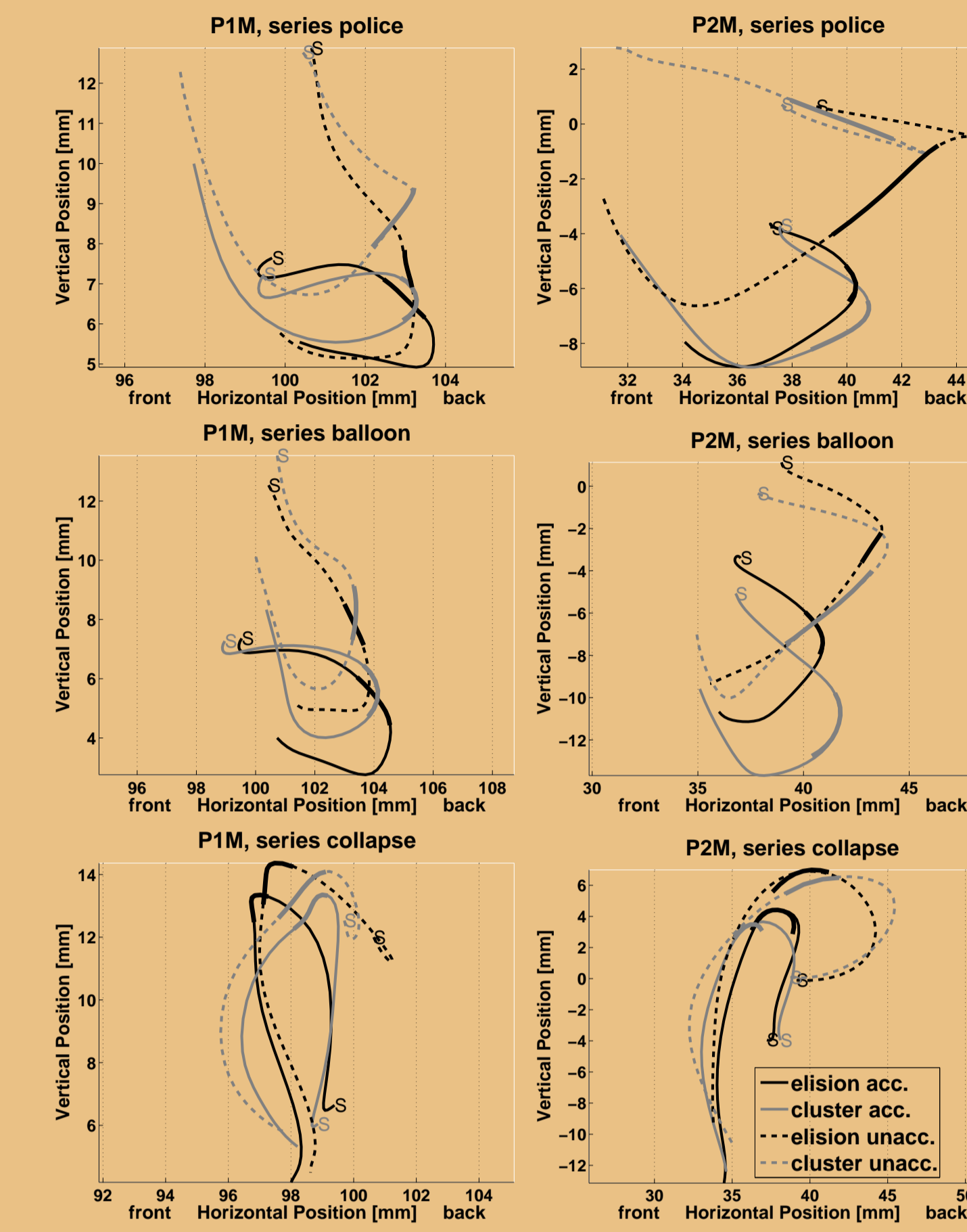
- Left-shift of C₁: yes
- Only partial right-shift of C₂

Experimental Materials

Series	Condition	Item
b/l	Elision	balloon
	Cluster	bloom
	C ₁	boon
p/l	Elision	police
	Cluster	please
	C ₂	lease
p/l	Elision	collapse
	Cluster	claps
	C ₂	laps

Method 5-dimensional Electromagnetic Articulography.
Target sensor placement Three tongue sensors (tb,tm,tt), two lip sensors (ul,il)
Participants 2 speakers of British English with no pronounced dialectal background.
Example Sentences
ACC: What did you say? I said a POLICE again
DEACC: Was it the NICER police?
No, it was the NICER police again.

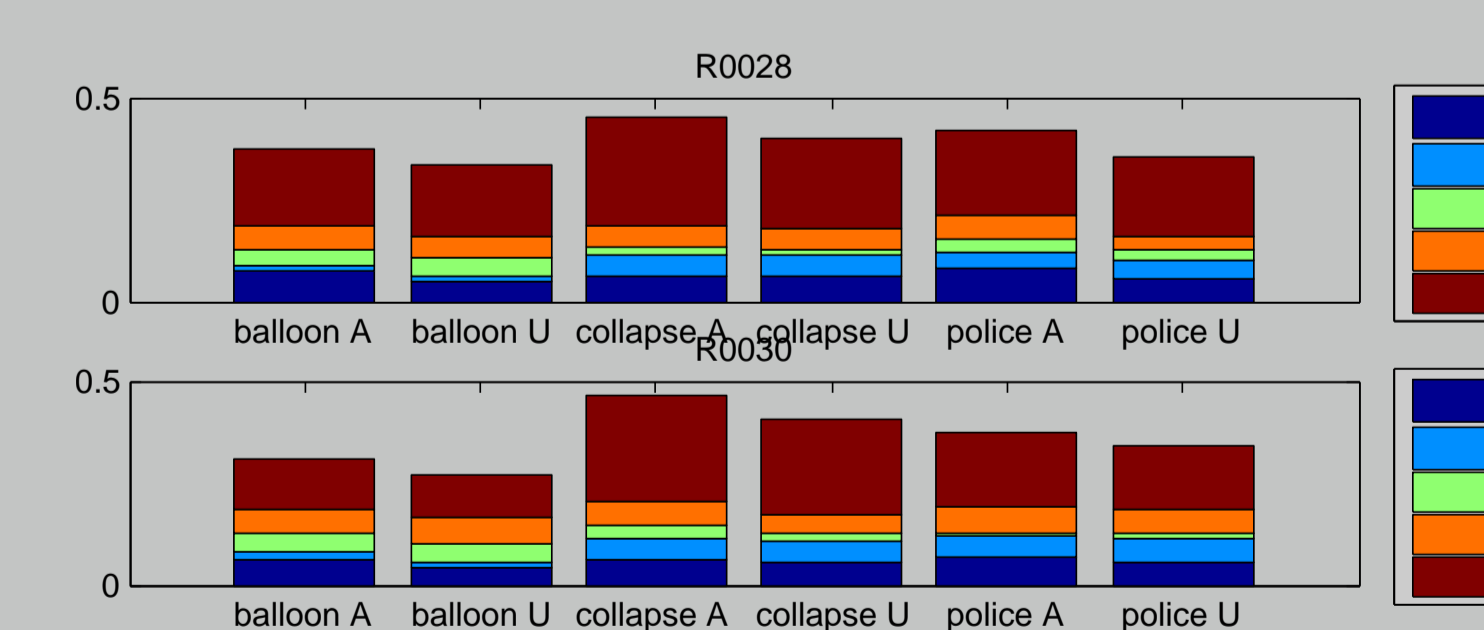
Results III: Spatial Patterns



Targetless of the Schwa: Trajectory shape is mainly controlled by accentuation condition and consonantal environment.

- more evidence for targetlessness → confirms results by Browman and Goldstein (1990) on /ə/ in pretonic condition.
- BUT: Idiosyncrasies for P1M (left).
- Most interesting: Regrouping for the collapse series (bottom left).

Additional Acoustic Durations



- Consistent accentual lengthening of VC-part (red).
- Pretonic syllable: Neither C₁ (dark blue), aspiration (light blue), schwa (green) or C₂ consistently affected. → "left-right" asymmetries of accentual lengthening (e.g Cambier-Langeveld and Turk 1999)

General Discussion - Future Directions

- (A): Redesign of the current study to better control for the effect of coda voicing (Chen 1970) and onset cluster composition ("/-idiosyncrasies") which could have caused inconsistencies in C-Centre results.
- (B): Extension to glottal behavior: Glottal timing relationships as in e.g support (CVC. syllable with C voiceless.)
- (C): Simultaneous variation of speech rate and prosodic parameters: "shift" in grouping from "by accent" to "by elision condition" in spatial patterning.
- (D): This should go hand in hand with a less artificial elicitation procedure. → dialog?

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Acknowledgments:

This research was funded by grants to the EPSRC (EP/E01609X/1, EP/E016359/1), the NIH (NIDCD DC008780) and the German Research Council (HO3271/3-2). We also wish to thank Pascal Perrier and Susanne Fuchs for invaluable comments on this work.

Labelling Procedure

- Elementary temporal landmarks
 - CLOSING MOV ON (I) Movement onset towards constriction (20% crit.).
 - CONSTR ON (II) Begin constriction phase.
 - MAX CONSTR (III) Maximum constriction (max. vert. displacement).
 - CONSTR OFF (IV) End constriction phase.
- Temporal Features:
 - C1MID/C2MID: Timepoint temporally equidistant to CONSTR ON and CONSTR OFF
 - C-centre Midpoint of [C1MID to C2MID] to anchor point.
 - ANCHOR: Alias for CONSTR ON

