

Speech physiology or more? Vowel duration and tongue height in Northwestern Italian

 stefanocoretta/vow-height

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The vowel (/a, e, i, o, u/) from which F1 and duration are taken.

The height of the predicted curve differs depending on vowel. Compare the position of the curves relative to the red horizontal dashed line. **Compatible with H.b.**

MATERIALS CVC₀ words, with C = /p, t, k/ in all permutations and V = /a, e, i, o, u/. 5 frame sentences.

The coloured ticks on the y-axis are raw duration measurements of each vowel.

ANALYSIS

Bayesian model fitted to duration with vowel as a linear predictor and F1 as a non-linear smooth.

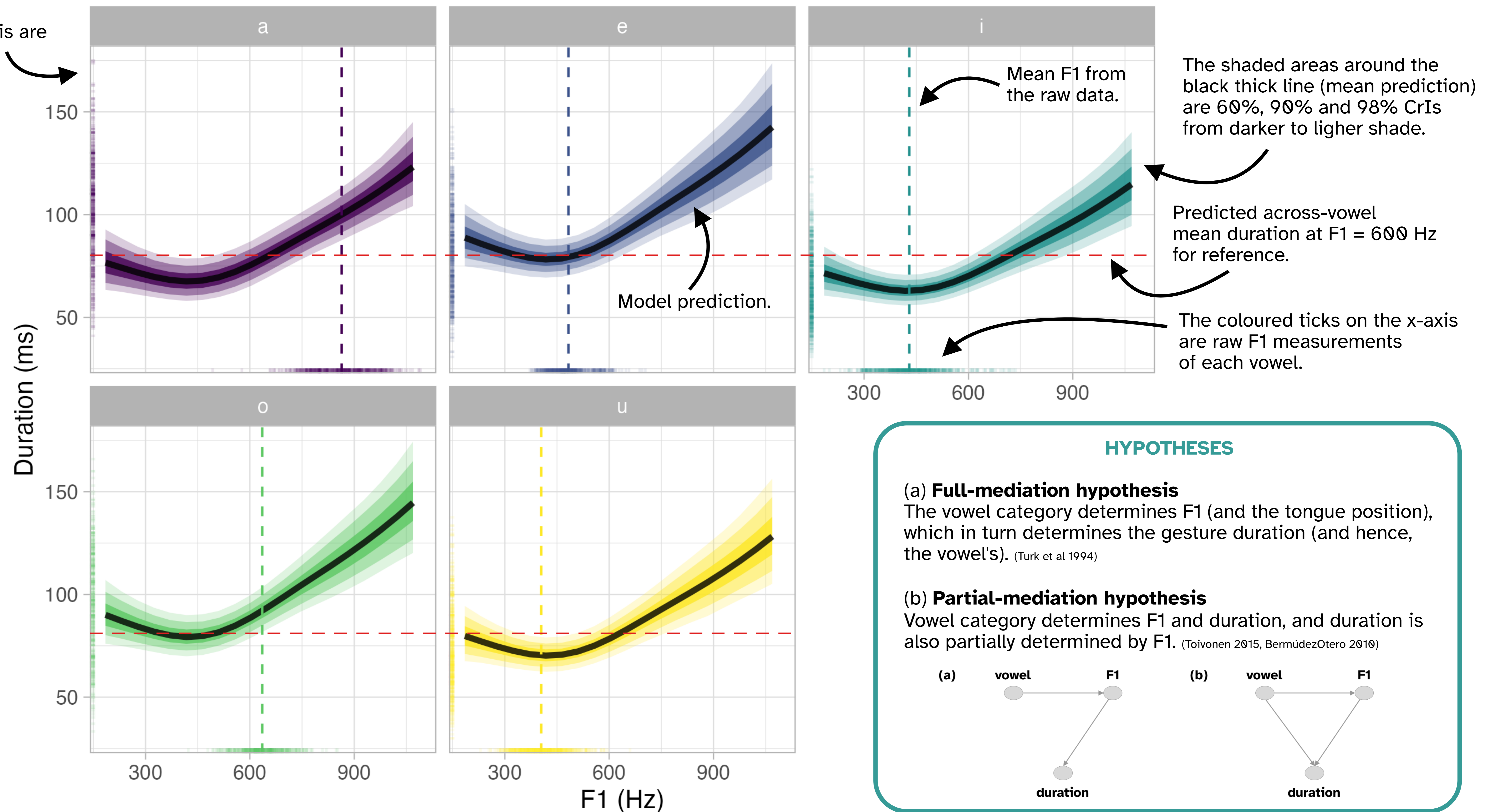
H.a: coefs of vowel are 0

H.b: coefs of vowel are far from 0

RESULTS

95%	CrI-lo	CrI-hi
/a/	-0.38	+0.02
/e/	+0.21	+0.37
/i/	-0.48	-0.32
/o/	+0.26	+0.41
/u/	-0.12	+0.02

CrIs generally far from 0.



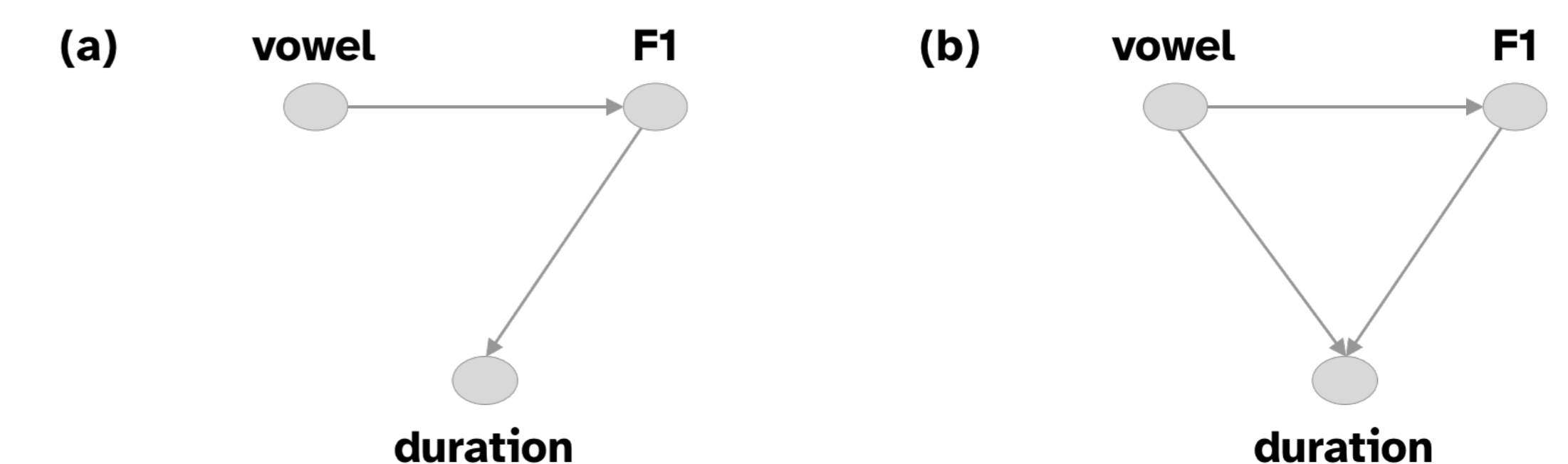
HYPOTHESES

(a) Full-mediation hypothesis

The vowel category determines F1 (and the tongue position), which in turn determines the gesture duration (and hence, the vowel's). (Turk et al 1994)

(b) Partial-mediation hypothesis

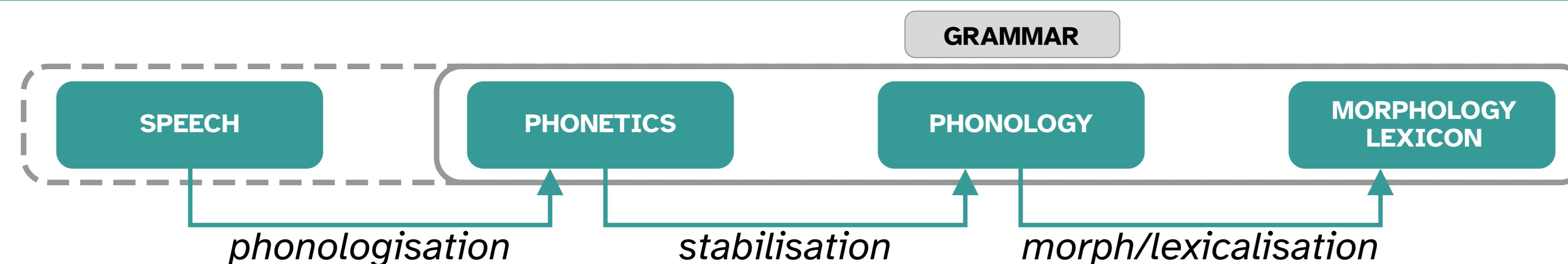
Vowel category determines F1 and duration, and duration is also partially determined by F1. (Toivonen 2015, BermúdezOtero 2010)



LIFE-CYCLE

Bermúdez-Otero and Trousdale 2012

Rule-scattering between speech and phonetics?



The results are compatible with the **partial-mediation hypothesis**