

Vowel duration and tongue root advancement in Italian and Polish

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- tongue root advancement (TRA)
 - voicing (Westbury 1983)
 - VOT (Ahn 2015)
 - also *vowel duration*?
- **voicing effect**
 - House & Fairbanks (1953), Chen (1970), Klatt (1973), Lisker (1973)
 - no consensus

- **Italian**

- voicing effect (Farnetani & Kori 1986)

- **Polish**

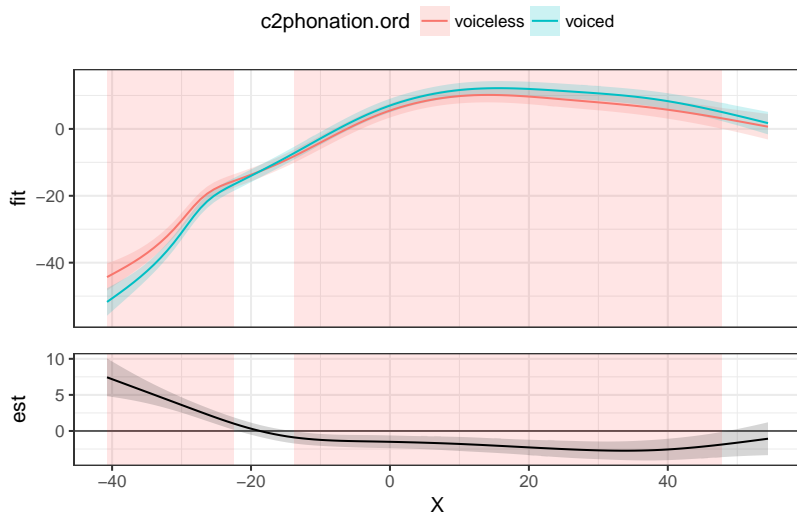
- no voicing effect (Keating 1984)

→ Assessment of tongue contour using ultrasonography (part of a broader research project)

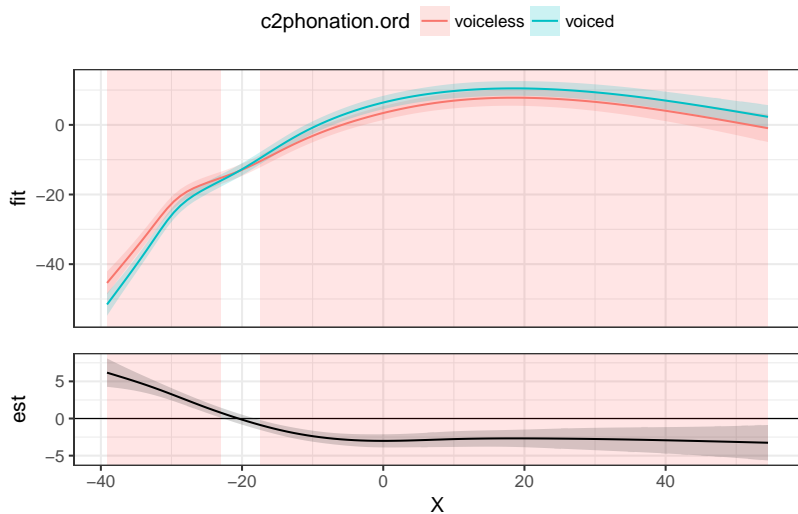
- **pilot** study (work in progress)
- Italian (2 *males*), Polish (1 *female*, 1 *male*)
- $C_1V_1C_2V_2$
 - $C_1 = /p/, V_1 = /a, o, u/, C_2 = /t, d, k, g/$
- frame sentence
 - *Dico X lentamente*, 'I say X slowly'
 - *Mówię X teraz*, 'I say X now'

- Articulate Instruments set-up with probe stabilisation headset (Articulate Instruments Ltd 2011)
- data
 - tongue contours at maximum tongue displacement (Strycharczuk & Scobbie 2015) and acoustic closure
 - vowel, closure and consonant duration
- analysis
 - linear mixed effects models (Bates et al. 2015)
 - generalised additive mixed effects models (Wood 2006)

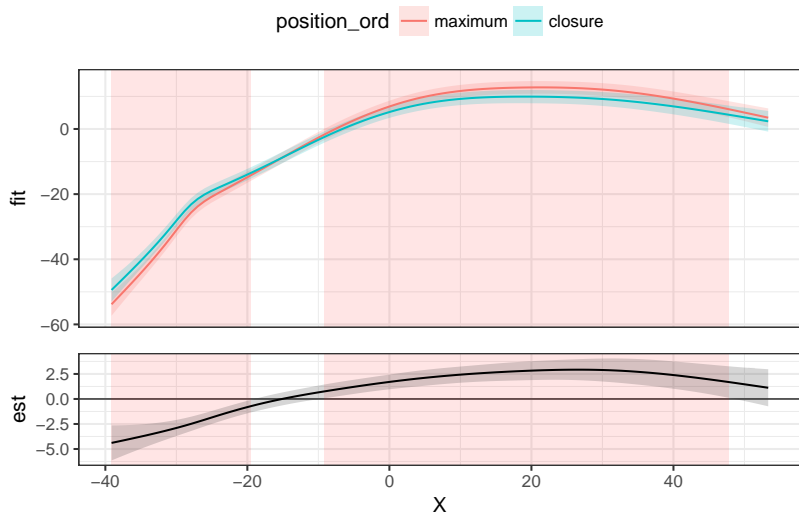
Results: Italian (maximum displacement)



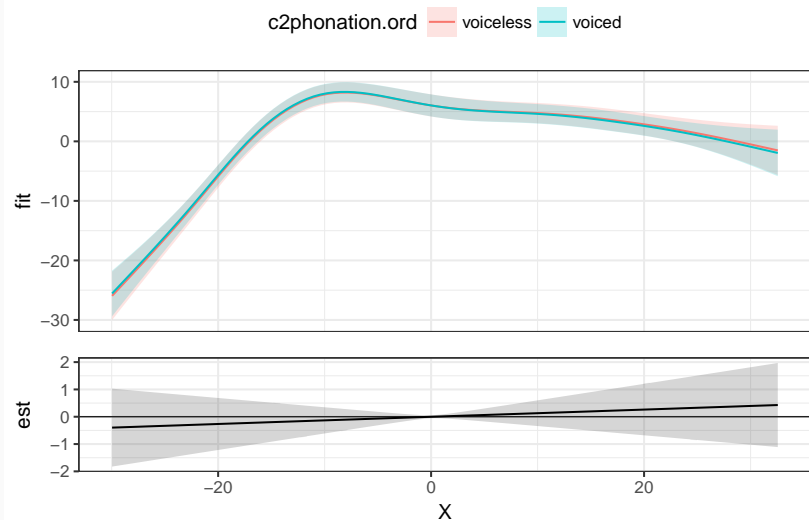
Results: Italian (closure)



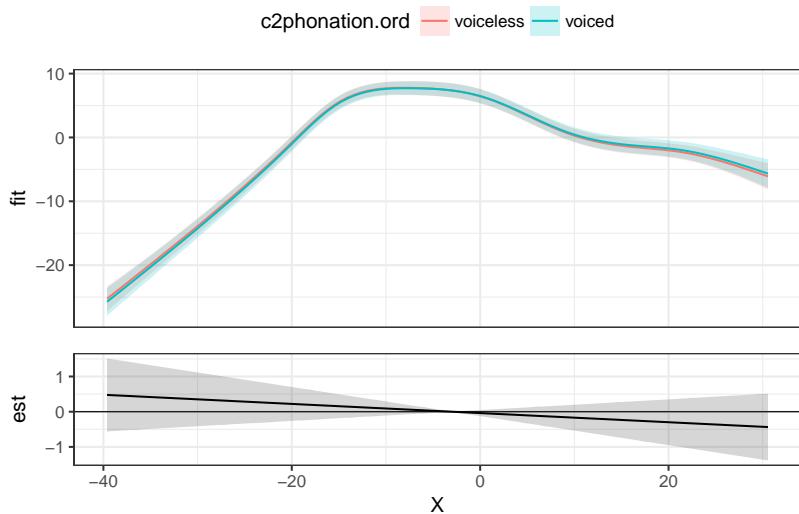
Results: Italian (closure vs. maximum displacement)



Results: Polish (maximum displacement)



Results: Polish (closure)



- no TRA in Polish
- TRA in Italian (at closure and maximum displacement)
- TRA in Italian increases from closure to maximum displacement

→ TRA is initiated **before closure** in voiced stops

- time to allow TRA → longer vowel
- cf. Halle & Stevens (1967)

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