Secondary /æ/-lengthening: historical reports

- 20th-century scholars comment on particular /æ/ (tap) words being lengthened
  - Jones (1918)
  - ‘short’ lad, pad, cat, lamp
  - ‘long’ bad, sad
  - variable glad, bag, man, jam, back, that
- Wells (1982): “marginally contrastive long /æ/”
  - ‘short’ lad, pad, cad, dad, fad
  - ‘long’ bad, glad, clad, mad, sad, jam, jazz
  - rare to find contrastive length in environments other than that of a following /d/”, especially adjectives
- Fudge (1977) recorded own (very complex) lexical split
  - Minimal pairs included ‘short’ verbs jab, drag, flag, way vs. ‘long’ noun equivalents; can (modal) vs. can (noun)

What we already know (Kettig 2016)

- Some native speakers intuit ‘long’ vs. ‘short’ words
- Phonetic measurements show no minimal pairs consistently differentiated by vowel length alone
- Observed lengthening deviates from expected co-articulatory hierarchy (Peterson & Lehiste 1960)

Improvement of dataset

- When preaspiration is present, vowel measurement should include modal and breathy portions of the vowel, excluding true preaspiration (Heijns 2016)
- Dataset recoded to separate preaspiration out
- Vowel duration = modal + breathy voicing
- F1 and F2 measurements also extracted for each token
- Measured at F1 contour maximum within modal section of vowel

Methodology

- Speakers: native SSBE-speaking students at the University of Cambridge (n=21)
- Read sentences containing 101 monosyllabic and 53 disyllabic words with stressed /æ/
- Analysis here: 73 monosyllabic words (token n=1,790)
- Vowel lengths measured in Praat (Boersma & Weenink 2016)

Referenced works:


Results

- Does secondary /æ/-lengthening correlate with F1/F2?
  - Trap-strut rotation (Fabricius 2007) is an ongoing lowering and backing of TRAP and raising of STRUT in SSBE
  - This sample only included young adults, so apparent-time data cannot be discerned
  - Correlation between F1 and F2 and lengthening coefficients tested
  - Formula: F1 or F2 = coel_freq + voicing + manner + place + [Word] + [Word:Subject] + [Subject]
  - Result: the more lengthened, the lower the F1 (Est. = -0.27; std err = 0.126; p = 0.039); no F2 effect (p = 0.46)
  - Result not found when Jones’ (1918) categorizations are coded as categorical variable
  - This means that longer /æ/ words may also tend to be slightly more centralized
  - No general frequency effect observed for either F1 or F2

Formal formula

- Duration = voicing + manner + place + freq.
- Word:Subject = [Word] + [Word:Subject] + [Subject]

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