Devoicing of /v/ in Dutch: linking perception and production

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Issue

What is the relationship between:

- Regional variation in speech perception
- Regional variation in speech production

Method

A cross-sectional panel study:

- Series of production and perception experiments of the same individuals
- Different regions: representing different stages of this sound change in progress

Participants

- 100 native speakers of Dutch
  - Origin: 5 regions -> chosen to represent the different stages of the sound change (Van de Velde et al. 2003)
  - Young adults (18-28 years)
  - Highly educated

Phonetic variables

- /f/-/v/ 2 dimensions
  - Periodicity/voicing
  - Duration

Production

Aim: Collect phonetic realizations of the variable to establish a speech production profile of each speaker

Speech styles: (1) word reading, (2) carrier sentences, (3) sentence reading, (4) semi-spontaneous speech, (5) spontaneous speech

Perception

Speeded identification task: Identify phonetic realizations under time pressure (binary choice /v/-/f/)

Mixed model effect logistic regression: region= fixed factor; participant, sound and slope per participants = random factors

Regional differences in slopes for periodicity, no effect of duration

For each participant: calculation of slope and cut-off point between /v/ and /f/ category.

Link between perception & production

Cross-sectional panel study

- Link between perception and production: Perception: Slope per participants (the more negative, the steeper the slope, the more categorical the perception)
  - Production: Difference in voicing between /v/ and /f/ (the bigger the difference, the more contrast in production)
  - Range in voicing of /v/ realisations (the bigger the range, the wider the /v/ category in production)

Correlation:

- difference & perception:  r = -0.306 (t = -3.189, df = 98, p = 0.002)
  - range & perception:  r = -0.322 (t = -3.370, df = 98, p = 0.001)

References: