The Longitudinal UCU Corpus of English Accents

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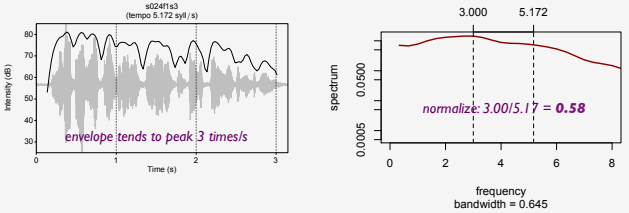
Convergence in production

reduction of unstressed syllables strong syllables are relatively ...

L1: drastically *chairman* ['ʧɛ˗mən] frequent

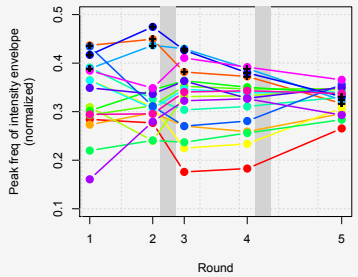
L2: mildly (e.g. Braun et al, 2011) *chairman* ['ʧɛ˗mˌæn] rare

rhythm assessed from modulation of intensity contour (e.g. Tilsen & Arvaniti, 2013)



in prosody sentences

read by 18 talkers (3 L1, 15 L2) who completed all 5 sessions



- L2'ers: no change
- L1'ers: initially higher
- then convergence towards L2 values
- decreasing variance between talkers (but n.s. with 18 talkers)

phonetic convergence in produced speech rhythm:

- native L1'ers converge towards nonnative L2'ers (majority)
- decreasing between-speaker variance in rhythm

University College Utrecht

interdisciplinary, undergraduate

competitive, intense

~750+ students

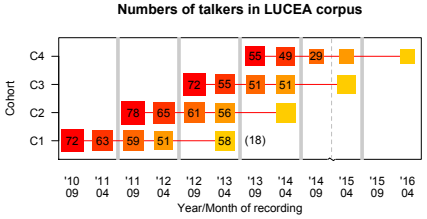
English lingua franca, no pronunciation training

L1: 60% Dutch, 10% English, 30% other e.g. German, Hungarian, Mandarin, Spanish, Lithuanian...

Hyp: **emergent UCU English Accent** due to phonetic convergence (e.g. Pardo 2006)

longitudinal corpus

- 5 interviews over 3 years
- 4 cohorts
- metadata: entry & exit questionnaires, audiometry
- EN read texts: *Rainbow Passage* (Fairbanks, 1960), *Wolf Story* (Deterding, 2006), prosody sentences (White & Mattys, 2007), intelligibility sentences (Van Wijngaarden et al, 2002), *UN Declaration of Human Rights* (Bradlow et al, 2011)
- L1 read text: *UN Decl of Human Rights*
- L1 and EN unscripted monologues, EN dialogue



~850 interviews

~3.5 TB speech data

speech technology tools

Convergence in perception

H: converged speech (R2, R3) is more intelligible than unconverged speech (R1), for 'trained' listeners

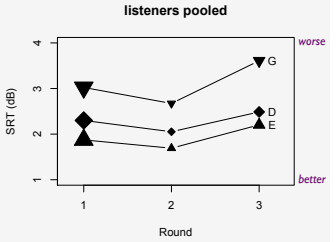
intelligibility assessed as Speech Reception Threshold of recorded intelligibility sentences from corpus

Speech/Noise Ratio in dB yielding 50% accuracy; assessed by adaptive procedure (2 dB steps); average SNR over last 10 presentations (Van Wijngaarden et al 2002)

- talkers' L1: 9 English, 15 Dutch, 6 German
- listeners' L1: 5 English, 33 Dutch, 7 Eng+Dutch
- Round: R1, R2, R3

listeners never heard a list which they themselves had spoken, and listeners never heard their own voice.

- at R2: $\beta = -0.5$ (p=.045), more intelligible
- at R3: $\beta = +0.2$ (n.s.), same as at R1
- German talkers: $\beta = +0.7$ (p=.044), worse
- smallest variance at R2



phonetic convergence in speech intelligibility:

- same talkers have become more intelligible after convergence (at R2) than before (at R1)
  lower SRT; less variance in SRT between talkers and between listeners
- summer break (between R2 and R3) annihilates talkers' (perceptual advantage of) phonetic convergence
- plasticity remains after 9 months of convergence
- no interlanguage benefits (talker:listener interaction)
  all talkers and listeners highly proficient in English (cf. Bent & Bradlow, 2003; Hays-Harb et al, 2008)