The Speech Rhythm and Phonology of Standard Indian English

Workshop on Norms and Standards in Indian English and Other South Asian Englishes

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1. The Concept of Speech Rhythm
2. The Speech Rhythm of IndE
3. The Phonology of Standard IndE
What is speech rhythm?

- Stress-timed languages (English, German) vs. syllable-timed languages (Spanish, French) (Abercrombie 1967; Pike 1945)
- Also: varieties - British/American English vs. Indian, Singapore, Nigerian English
- Definition of speech rhythm is controversial
- Two most recent definitions:
  - Duration (Low 1998; Low et al. 2000; Ramus et al. 1999)
  - Prominence
Rhythm and variability

- Syllable-timing
- Stress-timing

- Syllable-timing: Durations of syllables and vowels more similar to each other
- Stress-timing: Durations less similar to each other
- How can durational variability be measured?
  - Standard deviation of durations of vocalic intervals/syllables (normalised for speech rate)
- Stress-timed languages have more/longer consonant clusters
  -> less time taken up by vowels (percentage of vowel duration over total utterance duration)
Beyond vowels and syllables

- Distinction between vowels and consonants not very salient (e.g. /w/ vs. /a/ and /w/ vs. /p/)
- Better: Sonorant vs. obstruent durations
- Voiced vs. unvoiced durations (Dellwo et al. 2007)
- For each of these, measures of durational variability and of percentage of utterance duration can be derived
Prominence and rhythm

- Correlates of prominence: Duration, intensity/loudness, f₀/pitch, sonority
  - Syllable-timing
  - Stress-timing

- Also: Variability in intensity, loudness, f₀, variation in sonority

- Rate of pre-vocalic glottal stop insertion (e.g. <town is> pronounced as [taʊnɪz])

- Speech rate (Dellwo 2008)
Data

- Read and spontaneous speech
- 20 speakers of educated IndE (L1 Hindi, Bengali, Telugu, Malayalam), 10 speakers of BrE (Fuchs 2013)
- Representative of standard IndE and BrE
Results

▶ Is IndE more syllable-timed than BrE?
▶ Acoustic correlates of speech rhythm that suggest IndE is more stress-timed than BrE
▶ Acoustic correlates of speech rhythm that suggest IndE has a similar rhythm to BrE
▶ Acoustic correlates of speech rhythm that suggest IndE is more syllable-timed than BrE
IndE more stress-timed than BrE

- Speech rate: lower in IndE
Similar rhythm in IndE and BrE

- Percentage of vocalic and sonorant durations over total utterance duration
- Variability of syllable durations: sometimes equal in both varieties
- Variability of voiced and sonorant durations
- Variation in sonority: similar in both varieties in spont. speech
IndE more syllable-timed than BrE

- Variability of vocalic durations: smaller in IndE
- Influence of differences in $f_0$ on perceived duration (Fuchs 2014/submitted)
- Variability of syllable durations: sometimes smaller in IndE
- Percentage of voiced durations over total utterance duration: higher in IndE
- Variation in sonority: less in IndE read speech
- Variability in intensity and loudness: smaller in IndE
- Simultaneous variability in duration and loudness reinforcing each other: less frequent in IndE (Fuchs 2014/submitted)
- Prevocalic glottal stop insertion at word boundaries: more frequent in IndE
Summary

- Very good evidence that Standard IndE is more syllable-timed than BrE.
- Difference is perceptually relevant: Speakers of both varieties assign talkers to an Indian or British group on the basis of rhythm differences (Fuchs 2014/to appear).
- Difference between Standard IndE and BrE not greater than that between some dialects of BrE (Ferragne 2008).
Supra-segmental characteristics

- More syllable-timed rhythm
- Pre-vocalic glottal stop insertion at word boundaries (absence of linking)
- Frequent use of L* and L*H phrase accents (for references for this and the following points, see Fuchs 2013)
Segmental characteristics (acoustic studies)

- Variable rhoticity
- Variable realisation of /r/ as \([u \sim r \sim r \sim ɹ]\)
- FACE vowel realised as \([e]\)
- GOAT vowel realised as \([o]\)
- Variable merger of the STRUT, COMMA and NURSE vowels, realised as \([ʌ \sim ə \sim ə]\)
- Tense - lax distinction not consistently maintained
- Variable /v/ - /w/ merger, realised as \([u \sim w]\)
Segmental characteristics (no acoustic studies)

- Retroflex consonants in the place of /t/ and /d/
- No aspiration in pre-vocalic plosives
- Pronunciation of the BrE dental fricatives /ð/ and /θ/ as dental plosives [d̆] and [t̆ʰ]
Crucial distinction between acro-, meso- and basilectal speakers

Acrolectal speakers = Attended English-medium schools + university education

Lectal differences might explain conflicting findings of previous studies (e.g. lax-tense distinction)

Acrolectal speakers are relatively homogeneous in phonology (Sirs and Redford 2013) and (at least some features of) syntax (Lange 2012)

Homogeneity of acrolectal/standard IndE is commensurate with placing IndE in phase 3 (nativisation) of Schneider’s Dynamic Model of Postcolonial Varieties of English (Schneider 2007)
Mukherjee (2007) argues that IndE entered phase 4 (endonormative stabilisation) in the 1960s - this would imply regional differentiation.

If differences are found between educated L1 Hindi speakers of IndE vs. L1 Telugu speakers - are they due to L1 influence or regional differentiation within IndE? (cf. Sirsa and Redford 2013)

Comparison of L1 Hindi speakers of IndE from, for example, Delhi and Hyderabad might answer this question.


References II


References III


