Do rhythm measures separate languages or speakers?
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Data
• 5 languages: British English (Southern England), Modern Greek (Athens),
  Russian (Moscow/St. Petersburg), French (Paris), Taiwanese Mandarin
  (Taipei)
• 45 short texts in each language (extracts from “Harry Potter”, Aesop’s
  fables, Cinderella)
• 50 speakers: 20-28 years old. All non-English speakers lived outside their
  home country <4 years.
• Total size of the corpus: 2265 texts

Automatic segmentation
• Language independent
• A specialized speech recognition system, based on the HTK toolkit
  using acoustic description vector
• Produces sequence of C, V and S
• In the training data, all vowels and sonorants were mapped into V and
  all other phonemes into C

Classifiers
• 12 splits into training set/test set
• 20 classifiers for each split
• Data from one speaker always in the same set

Separating languages
• 45 classifiers based on single RM
• 315 classifiers based on pairs of RM
• 1365 classifiers based on three measures
• 3 classifiers based on 15 RM
• 1 classifier based on 45 RM

Separating people
How well can a linear classifier identify the speaker of an utterance?

Conclusions
• Rhythm is a multidimensional phenomenon

  • Substantial variation within languages makes it impossible to
    reliably separate languages based on the rhythm of a single
  paragraph

  • The differences between speakers of the same language can
    be more consistent than the differences between different
    languages

References
P. Wagner and V. Dolkas, “Introducing VARD (yet another rhythm detector) and re-introducing isochrony in rhythm
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