ACOUSTICS2008/2814
Influences of language typical speech rate on the perception of speech rhythm

Volker Dellwo
UCL, Wolfson House, 4, Stephenson Way, NW1 2HE London, UK

Human listeners can distinguish languages of different rhythmic classes (e.g. stress- and syllable-timed languages). The present study investigated the role of speech rate in this process. In experiment I, speech rate measurements (syllables/second) of read speech were performed in two stress-timed (English, German) and two syllable-timed languages (French, Italian). The results revealed that speech rate distinguishes as reliable between rhythmic class as previously proposed correlates of speech rhythm (%V, VarcoC and nPVI). For a perceptual task (experiment II) sentences from French and German were delexicalized by turning consonantal intervals into white noise and vocalic intervals into complex periodic tones. 18 listeners rated the regularity of the noise-tone sequences on a 13 point scale. The results revealed that listeners rated French stimuli as significantly more regular than English stimuli. It was further shown that the rate of noise-tone sequences was the best predictor for the regularity rating (faster sequences were perceived as more regular) compared to standard rhythm measures (%V, VarcoC and nPVI). Both experiments together show that a) syllable-timed languages are produced faster than stress-timed languages and b) listeners' perception of speech rhythm is highly influenced by these rate differences.