

The aim of this work is to determine in French, through an analysis of the rate sensitivity of vowels and consonants, how the speech rate is related to the prosodic structure at the infra-syllabic level. We present an analysis of the phonemic duration of a one thousand word speech corpus produced at three rates by one speaker with two repetitions. Results show that in French consonants as well as vowels are more rate-sensitive when stressed than when unstressed. This stronger rate sensitivity bears on all syllabic constituents. Still, consonants are less rate-sensitive than vowels and this is especially true for the stressed phonemes. We will account for the rate sensitivity of phonemes with a morphodynamic conception of phonology: where the acoustic substrate controls the phonemic form. We will see that the perception of speech rate is controlled by the same parameter which controls the features +/- stressed.

PS4-13

Wednesday 14:00 – 15:30

Phoneme Dedicated ANN Improves Segmental Duration Model

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The Phoneme Dedicated Artificial Neural Network (PDANN) segmental duration model consists of a set of ANNs trained specifically for each phoneme segment in order to avoid miscellaneous influence of different types of phoneme segments. Therefore, each ANN is dedicated to predict the duration of a specific phoneme segment. Objective and subjective measurements of the performance of the PDANN model were compared with those of a typical ANN model using the same input features and database. The results indicate a slight, but clear, perceptually perceived preference towards the PDANN.

PS4-14

Wednesday 14:00 – 15:30

The role of speech rate in perceiving speech rhythm

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Human listeners can distinguish between languages of different rhythmic classes (e.g. stress- and syllable-timed languages). The present study investigated the role of speech rate in this process. Acoustic data suggests (experiment I) that speech rate can distinguish as reliable between stress- and syllable-timed languages as previously proposed correlates of speech rhythm (%V, VarcoC and nPVI). Behavioral data showed (experiment II) that listeners make use of rate differences when asked to assess rhythmic characteristics of stress- and syllable-timed languages in delexicalized speech. Results imply that speech rate is an important acoustic correlate for cross-language speech rhythm.

PS4-15

Wednesday 14:00 – 15:30

Size of rhythm-groups affects the memory trace of heard words in utterances: Results from a pilot study using evoked potentials

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