

# An empirical study of the perception of language rhythm

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Linguists have traditionally classified languages into three rhythm classes, namely stress-timed, syllable-timed and mora-timed languages. However, this classification has remained controversial for various reasons : the search for reliable acoustic cues to the different rhythm types has long remained elusive ; some languages are claimed to belong to none of the three classes ; and no perceptual study has bolstered the notion. However, Ramus, Nespor & Mehler (1999), *Cognition* 73, 265-292, have recently proposed an acoustic/phonetic model of the different types of linguistic rhythm, and of their categorization as such by listeners. Their simulations make predictions as to which languages can be discriminated on the basis of their rhythm. Here, we present perceptual experiments that directly test the notion of rhythm classes, the simulations' predictions and the question of intermediate languages. Language discrimination experiments were run using a speech resynthesis technique to ensure that only rhythmical cues are available to the subjects. Languages investigated are English, Spanish, Catalan and Polish. Discrimination results are compatible with the rhythm class hypothesis, but Polish rhythm seems to be different from any other language studied and thus may constitute a new rhythm class. A revised version of the rhythm perception model is proposed to accommodate these findings and more simulations are run to generate new predictions.

**Key-words :** speech rhythm, prosody, language discrimination, speech perception, stresstiming, syllable-timing.