

Rate variation in speech and other motor activities

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This study addresses the question of whether and how the dynamic control of speech movements differs from that of non-speech movements. This question is highly relevant in clinical phonetics where non-speech tasks are often used to access speech motor control impairments.

In a first study, a non-speech articulatory diadochokinetic task was run on 40 healthy French speakers. Non-sense homorganic CV sequences were repeated for 5 seconds as quickly as possible in a clear manner. Alternating motion rates (repetition of the same CV syllable, /bababa/) were slower than sequential motion rate (sequence of CV syllables, /badego/). Interestingly, alternating CVs showed a regular motion rate, while the /badego/ sequences have been spontaneously reinterpreted rhythmically as a French word with regular final lengthening on the last syllable /go/. This suggests that rhythmical organization of movements – typically required for fluent speech – may, by it-self, affect the temporal unwinding of motor skills.

In a second study, we will therefore explore to what extent additional factors, such as preferred tempo, the capacity to modulate rate and the meaningfulness of speech shape the dynamics of non-speech and speech motor coordination. A second aim is to find potential links between non-speech and speech movements. A pilot testing will be run with 10 French speakers. Motor skills in three different modalities will be compared: non-verbal motor (i.e., rhythmic finger tapping), articulatory motor (i.e., nonsense syllable productions; alternating and sequential, see above) and speech motor skills (i.e., production of meaningful sentences). Particular attention to speaker specific patterns will be drawn.