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Captured by music, less by speech

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Rhythmical auditory stimuli (e.g. a metronome) tend to attract movement more than visual stimuli (e.g. Repp & Penel, 2004). Furthermore, it is a common observation that people often move in synchrony with musical beats whereas synchronization of movement with speech accents is rare. Hence, there may be differences between domains within the auditory modality. In one experiment we investigated the possibility that movement is more strongly attracted by music than by speech asking 33 nonmusicians to tap their hand in synchrony with an isochronous auditory Target sequence (i.e. tones with 600 ms IOI) while a Distractor sequence was presented, namely music or speech. Musical distractors were 3 excerpts from highly familiar musical pieces (i.e. Circus music, Sleighride, Bee Gees' Stayin' Alive). Speech distractors were 3 well-known excerpts from Polish children poetry read by an actor instructed to synchronize speech accents with an external metronome (IOI = 600 ms). Distractors were presented at one of various phase relationships with respect to the target. Analysis of asynchronies and their variability showed that musical distractors attracted movement more strongly than speech distractors. This attraction was more evident when distractors preceded the target tones than when they followed them. Further experiments were performed in order to assess the effect of potentially confounding variables which may account for the differences between music and speech. Musical and speech distractors were equalized with respect to their average pitch (to control for streaming effects) and temporal variability. In addition, non-musical target sounds (i.e. noise bursts) were used instead of repeating tones. Differences between speech and music in attracting participants' taps were attenuated by these manipulations, but still significant. In sum, these findings converge in indicating that musical rhythms attract movement more than stress structure in speech. This is consistent with the idea that music, because of the complexity and regularity of its metrical structure, is particularly well-suited for capturing our attention and favorizing spontaneous motor entrainment.

Key words: Synchronization, Tapping, Music and speech

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