Cross-modal effects of rhythmic entrainment in bilingualism on musical rhythms and visual processing

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Investigations on the perception of rhythmic patterns in language may provide a window into basic questions of the language faculty, such as where to draw the line between innateness and acquisition. On the one hand, perceiving rhythms is an ability that humans are born with. The presence of rhythm discrimination within days of birth suggests that this perceptual mechanism may be innately specified, or learned through prenatal exposure (Mehler et al., 1996). Human new-borns can discriminate languages from different rhythmic classes and fail to discriminate language from the same rhythmic class (Ramus, 2002). Rhythm is also an ability that transcends the division of the species. Astonishingly, non-human primates (cotton-top tamarins) can distinguish Dutch from Japanese, based on the different rhythmic classes that these languages belong to, which suggests that rhythm did not evolve specifically for humans or uniquely for language (Tincoff et al., 2005). On the other hand, since native speakers are normally specialised in one language of out of several potential rhythmic classes, some aspect of rhythmic understanding must be acquired. However, to what extent? Studies on bilingualism have to date never been carried out in this context. I propose that cross-modal investigations of bilingual speakers from different rhythm classes, may give an answer to whether these speakers have an advantage in understanding and processing rhythm, and therefore identify what learning-effect adds to this innate and cross-species ability.

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