The Melodic Mind: Neural bases of intonation in speech and music

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Melody and pitch play a key role in our society and culture: Not only do they influence language comprehension and music-aesthetic appreciation; they also guide interpersonal relationships and interactive behaviour. The present talk sheds light on the most important linguistic and social functions of melody and pitch in speech and music and explores their neural bases. It shows that (A) melody in both domains is processed along multiple dorsal and ventral fronto-temporal pathways in the (right) hemisphere, that (B) these networks interact with (non-melodic) linguistic and sociocognitive neural networks to (C) guide the conventionalized use of melody and pitch within and between (inter)actors. These matters are addressed by gathering behavioural evidence of how healthy individuals, patient populations, and professional musicians process pitch in speech and music, and by investigating the underlying neural substrates using structural, functional and diffusion-weighted magnetic resonance imaging (MRI), electroencephalography (EEG), and transcranial magnetic stimulation (TMS). Altogether, the talk introduces concepts of neural connectivity and social connectedness into the study of melody in speech and music and, hence, pays tribute to the socio-biological complexity of a seemingly easy, interpersonal channel of communication that influences social harmony and intellectual experience to equal extent.

Selected publications

Hellbernd N, Sammler D. (2016) Prosody convey's speaker's intentions: Acoustic cues for speech act perception. J Mem Lang, 88: 70-86.

Sammler D, Grosbras MH, Anwander A, Bestelmeyer PEG, Belin P. (2015) Dorsal and ventral pathways for prosody. Curr Biol, 25(23): 3079-3085.

Sammler, D*, Novembre, G*, Koelsch, S, Keller, PE (2013). Syntax in a pianist's hand: ERP signatures of "embodied" syntax processing in music. Cortex, 49, 1325-1339. *equal contribution