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**Paper abstract:**

**Emotional Contagion via Physical Synchronization with External Rhythms  
Transmitted by Voice and Speech Prosody: Artistic Applications**

**Branka Zei Pollermann,  
Vox Institute, Geneva, Switzerland**

*Purpose* : To describe (a) the links between speech prosody and music performance (different channels - same code) ; (b) the mechanism of entrainment and its role in emotional contagion ; (c) some practical ways of enhancing expressive performance in singing.

*Content*: Jean Piaget's theory of knowledge [1] provides a powerful epistemological framework for modelling the links between the production (internal milieu) and the perception of the human voice (external milieu). More specifically the concept of embodied cognition will be applied to the perception of speech and music. Acoustic features of the speaking voice related to 3 dimensions of emotions (pleasantness, arousal and potency) will be presented and compared with those found in singing. Entrainment - in terms of synchronization of bodily rhythms with external musical rhythms will be described at 3 levels: the motor level, the autonomic physiological level, and the attentional level. Neurological basis of entrainment (including mirror neurons' activations) and their relation to emotional contagion will be developed with reference to the Component Process Model of emotion. The idea that a number of different components are synchronized in the arousal dimension of an emotion will be discussed and linked to the perception of emotion in the singing voice. To enhance their expressive performance singers can use these different components in quite practical ways. Audio examples of emotional crescendos in speech and singing will be presented.

*Keywords*: embodied cognition, prosody, emotional contagion, entrainment, music, singing.