Form and function of multimodal prosody in verbal interaction

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Recent years have considerably increased our knowledge of the interactive functions of various co-verbal phenomona. Gestures help highlighting information structure and grounding, are used for floor management, indicate feedback, signal (joint) attention, and express a speaker‘s attitudinal stance. Interestingly, gestures share many properties with another co-verbal communicative signal, namely a message‘s suprasegmental structure or prosody. Previously, we have formulated the tentative hypothesis that both gesture and prosody can be seen as a unified and richly expressive mechanism that fulfills various communicative functions, while finely adjusting the invested effort to communicative needs (Wagner et al., 2014). Along a similar line, Ní Chasaide et al. (2013) proposed *voice quality* as an additional dimension of prosodic expression, together with more traditional prosodic features such as the intonational dynamics or speech rhythm. Interestingly, voice quality appears to serve a similar set of communicative functions as co-speech gesture, and likely adds yet another dimension to the multimodal communicative mechanism sketched above. However, studies both on co-speech gesture and voice quality are typically confined to either in-depth qualitative analyses of small datasets that forbid generalization (Ogden, 2001), or to highly controlled laboratory speech, which cannot contribute to our understanding of its potential role in communicative interaction.

In our contribution, we will provide a comprehensive overview of the communicative functions of co-speech gesticulation, and their relationship to prosody and voice quality features of speech.
Given the difficulty to measure and assess both voice quality and co-speech gesturing, our contribution will also discuss the need for novel methods allowing for the combinatory, robust, and least invasive measurement of prosody (including voice quality) and co-speech gesture in spontaneous interactions.

Ogden, R. (2001). Turn transition, creak and glottal stop in Finnish talk-in-interaction. *Journal of the International Phonetic Association*, 31(01).

Wagner, P., Z. Malisz, Z. & S. Kopp (2014): Gesture and Speech in Interaction: An Overview. *Speech Communication* 57, 209-232.

Ní Chasaide, A., Yanushevskaya, I., Kane, J., & C. Gobl (2013). The voice prominence hypothesis: the interplay of F0 and voice source features in accentuation. *Proceedings of Interspeech 2013,* Lyon, France, 3527-3531.