How gestures tune meaning of multimodal utterances: Analyses of modifying functions

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In natural communication, the propositional content of the verbal utterance is usually seen as the main part of what is intended to be communicated. However, utterance givers – in addition – may convey information about their viewpoint, certainty, conviction or attitude. This 'analogue' information is not only communicated via speech, but by means of other non-verbal modalities like gesture and body movements, since "the non-verbal phenomena [...] affect the way the utterance is understood" (Wharton, 2009, p. 12).

We assume that gestures can contribute to the meaning of an utterance not only by *adding* semantic information, but also by *modifying* verbally or gesturally signified content. In line with Kendon's (2004) and Payrató and Teßendorf's (2014) *modal* pragmatic function, we define a *modifying function* of gesture to act upon and to carry meaning beyond mere propositional content. These functions are not as clearly signified, but are nevertheless communicatively efficient and significant for how recipients interpret the multimodal utterance as a whole.

As a basis for our empirical analyses, we conducted a rating study in which participants had to rate 36 video snippets of natural utterances, comprising speech along with interactive (i.e., clearly not representational) gestures. Ratings were done in terms of 14 adjectives selected to be intuitively understandable and to correspond to the range of possible combined meanings that can be mapped onto our classes of modifying functions. We explored the rating data by means of a cluster analysis (Freigang & Kopp, 2015) and a factor analysis (Freigang & Kopp, still in prep.), in order to gain insights from different angles. The results from both analyses revealed a comprehensive picture of the dimensions of this meta-communicative behaviour and yielded three distinct groups of modifying functions: (1) the positive focusing or highlighting function, (2) the negative focusing or de-emphasising or downtoning function and (3) the negative epistemic ('I don't know') function. The results further implied a pattern between the functions and the forms of the gestures. Comparing the multimodal (speech and gesture) and the gesture-only condition (with cropped head of the speaker) gave insights into which elements of communication are conveyed by which modality. The negative focusing function, e.g., contains attitudinal tones in speech, which cannot be conveyed by gestures.

To further elucidate the perceived modifying functions, we conduct a rating study of artificially re-combined audio and video material from different functions. One goal is to validate the functions and thus to get a clearer taxonomy. The second goal is to investigate whether modifying functions of gestures are (context-)independent of the co-occurring semantic utterance in order to clarify

the autonomous contribution of speech and gesture to the overall pragmatic interpretation of a multimodal utterance.

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