Multimodal strategies for affirmations and rejections:
Evidence from co-speech gesture in German.

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Polar response particles like *yes* and *no* may express the affirmation and rejection of a previous utterance and thus serve a speech-act-signaling function. The particles may also express the polarity of the response clause. In responses to negative antecedents, the two functions come apart, so that ambiguity may arise:

(1) *Antecedent*: Peter hat die Wette **nicht** gewonnen. ‚Pete has **not** won the bet.'

Response: a. **Ja**/**Nein**, hat er nicht. *ja* =affirmation, *nein* = negative polarity

b. **Ja**/**Nein**, hat er. *nein* = rejection, *ja* = positive polarity

In view of recent studies on multi-modal communication, the issue arises if co-speech gestures might be exploited for disambiguation. Head movements have been claimed to be equivalent to spoken response particles in that they encode affirmation and rejection [2], and absolute polarity [3]. Data from Mandarin [4], Catalan and Russian [5] suggest that head nods can encode positive absolute polarity. Brow movements are another multimodal strategy observed in rejections. Brow raising occurs with increased frequency in rejections of negative antecedents [4,5,6], brow furrowing in rejections in general [6]. This study investigates the interplay of co-speech gesture and response elements in signaling affirmation/ rejection and polarity in German. We conducted a discourse completion task with 24 speakers who watched 48 dialogues between two characters that ended in a positive/negative assertion. Speakers completed the dialogues by affirming or rejecting the assertion. All data have been annotated for movement/position of head, brows, hands, shoulder, torso and nose. Statistical analyses are ongoing; we expect head movements to align with the particles *ja/nein*, which in German preferentially express the speech act [1]. We also expect alignment for unambiguous speech-act-signaling response elements; in rejections with *doch*, head nods might occur. For brow movements we expect furrowing in rejections.

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