
Gestures are not just seen, but also felt: The kinesiology of gesture production

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Viewing gesture through the lens of phonetics brings with it consideration of not only the visual equivalent of acoustic phonetics (how gestures are perceived) but also articulatory phonetics (how they are produced). We argue that the kinesiological system described by the late Dominique Boutet (2010, 2018; Boutet & Cienki 2024) provides an important means for characterization of the latter. Based on biophysics, the system concerns the bodily segment(s) being moved; the possible ways any joint can move in terms of flexion, extension, abduction, adduction, supination, pronation, or rotation; and the direction (or flow) of movement propagation along multiple segments (proximal-distal vs. distal-proximal). It considers gestures from the inside (1st-person perspective), as opposed to viewing them from the outside (3rd-person perspective), illuminating the bases for how they feel when produced, e.g. in terms of the kind and amount of effort involved.

The system has been applied to demonstrate, for example, differences between gestures similar in appearance ('sweeping away' gestures) that are used with different functions (expressing negation vs. totality) corresponding to different patterns of movement flow (Boutet et al. 2018a), and between gestures with different movement contours (acceleration with a pulse of movement vs. steady velocity) that correlate with descriptions of events involving differing aspectual forms in a language (e.g. different past tense forms in French) (Boutet et al. 2018b).

Addition or subtraction of movement of segments as described in the kinesiological system can also explain how a given 'recurrent gesture' type (Bressem & Müller 2014) can have variant forms (e.g., for presenting an idea) (Cienki 2021), due to individual differences and/or developmental factors (e.g. use of different features comprising a shrug (Beupoil-Hourdel & Morgenstern 2021).

We close with discussion of some theoretical concerns with applying the linguistic category of phonetics to speakers' gestures.

Abbreviated references: • Beupoil-Hourdel, P. & A. Morgenstern (2021). *French and British children's shrugs*. • Boutet, D. (2010). *Structuration physiologique de la gestuelle*. • Boutet, D. (2018). *Pour une approche kinésiologique de la gestualité*. • Boutet, D. & A. Cienki (2024). *A kinesiological approach to gesture analysis*. • Boutet, D., Morgenstern, A., & A. Cienki (2018a). *Looking ahead: Kinesiological analysis*. • Boutet, D., Morgenstern, A., & A. Cienki (2018b). *Speakers' gestural expression of event construal*. • Bressem, J., & C. Müller (2014). *A repertoire of recurrent gestures of German*. • Cienki, A. (2021). *From the finger lift to the palm-up open hand when presenting a point*.