

## Prosody allies with body gestures to express meaning in speech

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Speakers use prosody to mark speech act type (eg. question vs. statement), the status of information in the discourse (topic vs. focus), epistemic and politeness stance, and affective or emotional meanings (Gussenhoven, 2004; Ladd, 1996; Pierrehumbert & Hirschberg, 1990; Prieto, 2015). Regardless of cross-linguistic differences, speech prosody is now acknowledged as a relevant tool for the expression of linguistic meaning. In recent years, a growing body of evidence shows that prosody often serves these functions in close connection with another communicative cue: body gestures. Body gestures may complement prosodic information (conveying the same linguistic functions that are already expressed through prosody) or they may supplement it (adding linguistic information that is not expressed through prosody) (see Wagner, Malisz, & Kopp, 2014, for an overview). The supplementary function of body gestures is especially relevant in development, since infants and children are found to use the linguistic and communicative information expressed by body gestures to access phonological, lexical, syntactic or pragmatic patterns (see Esteve-Gibert & Guellaï, 2018, for an overview).

In this talk I will review several studies I have conducted showing that body movements are timely aligned with tonal movements in adult speech (Esteve-Gibert & Prieto, 2013; Esteve-Gibert, Borràs-Comes, Asor, Swerts, & Prieto, 2017), and that this tight temporal connection develops very early in infants (Esteve-Gibert & Prieto, 2014; Esteve-Gibert, Prieto, & Pons, 2015). Also I will show how body gestures are used by young infants and children to express several pragmatic meanings (speech act, epistemic stance, information status) when other linguistic (phonological, lexical or syntactic) tools for that purpose are still not mastered (Esteve-Gibert, Prieto, & Liszkowski, 2017; Esteve-Gibert, Loevenbruck, Dohen, D'Imperio, submitted).

I would like to show that body gestures and speech prosody are so connected at the temporal and at the meaning levels that they may be seen as two sides of the same coin (one side being visual information and the other side being acoustic information). In language development, body gestures and speech prosody seem to emerge in a dynamic nonlinear fashion, sometimes being allies and sometimes being triggers for each other (Iverson & Fagan, 2004).

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