




## Co-speech gestures under Contrastive Focus: Evidence from an acceptability judgement task

**Background** Some recent studies (Ebert & Ebert 2014; Schlenker to appear) argue that co-speech gestures (gestural modifiers co-occurring with the verbal expressions they modify) by default make non-at-issue (NAI) contributions:

- (1) John might order [a beer]<sup>LARGE</sup> .<sup>1</sup> → If John orders a beer, it will be large. ( $\neq$  John might order a large beer.)

Tieu et al. (2017a; 2017b) show experimental evidence for a preference for NAI interpretations of co-speech gestures, although they also obtain plenty of at-issue (AI) interpretations, despite the lack of any obvious pressure. Co-speech gestures have also been observed to sometimes obligatorily make at-issue contributions under Contrastive Focus (CF) (Esipova 2017).

In my study I looked at examples with CF like (2a), where the gestures are the only locus of contrast so the AI interpretation is forced, and compared their acceptability to that of control examples like (2b), with contrastive verbal but non-contrastive gestural content, where the gestures can have a NAI interpretation.

- (2) a. John might order [a **beer**]<sup>SMALL</sup>  or [a **beer**]<sup>LARGE</sup>   
 ↗ If John orders a beer, it will be small/large. ( $\approx$  John might order a small beer or a large beer.)  
 b. John might order [a **beer**]<sup>SMALL</sup> or [a **cocktail**]<sup>SMALL</sup>.

**Hypotheses tested** *Hypothesis A (Type of contrast)* Co-speech gestures are by default NAI, and making them AI incurs cost. Prediction: gestural contrast examples like (2a) are less acceptable than verbal contrast examples like (2b).

*Hypothesis B (Type of content)* Scalarity of the content of a co-speech gesture under CF makes the other alternatives on the scale salient, and, thus, likely to be the target of the contrast. Prediction: gestural contrast examples with size gestures (scalar) are more acceptable than those with shape gestures (non-scalar).

*Hypothesis C (Emphasis)* Kinetic emphasis on a co-speech gesture makes it easier for CF to associate with it, thus facilitating the AI interpretation. Prediction: with vocal prosody constant, gestural contrast examples with emphatic gestures (produced with accelerated movement) are more acceptable than those with non-emphatic gestures (no movement).

**Experimental design** Participants were recruited via MTurk ( $N = 104$ ). In each trial they watched two videos starting with the same unfinished English sentence, followed by a gestural or a verbal contrast continuation after a brief black screen. Participants were instructed to rate the naturalness of each continuation by dragging a slider on a scale from ‘Totally unnatural’ to ‘Totally natural’. Each slider position was mapped to a point on a 0–100 scale. Each participant saw 16 video pairs (4 with size gestures and 4 with shape gestures, each in two versions: with emphatic and with non-emphatic gestures).

**Results and discussion** In line with Hypothesis A, gestural contrast examples were less acceptable than verbal contrast ones (Fig. 1;  $p < 2e - 16$ ). This supports the view that co-speech gestures are by default NAI and making them AI incurs cost. Yet, the large amount of individual variation (Fig. 3) suggests a gradient and variable nature of this cost and raises the question of whether the same variability occurs with other types of NAI content (e.g., in local accommodation of presuppositions).

There was no difference between size and shape gestures overall (Fig. 1;  $p = 0.31$ ), nor for gestural contrast examples, contra Hypothesis B (Fig. 2;  $p = 0.35$ ). Verbal contrast examples with size gestures were slightly less acceptable than those with shape gestures (Fig. 2;  $p = 0.017$ ). Yet, these results are inconclusive due to the variation across individual examples.

There was no main effect of Emphasis (Fig. 1;  $p = 0.73$ ), nor interaction with Type of contrast ( $p = 0.93$ ), contra Hypothesis C. Either speakers aren’t sensitive to gestural prosody, or it doesn’t affect how easily CF associates with gestures.

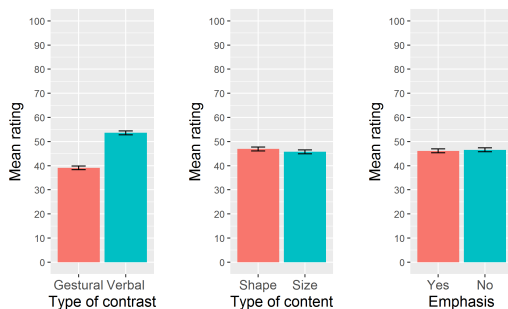


Fig. 1: Main effects of the three conditions.

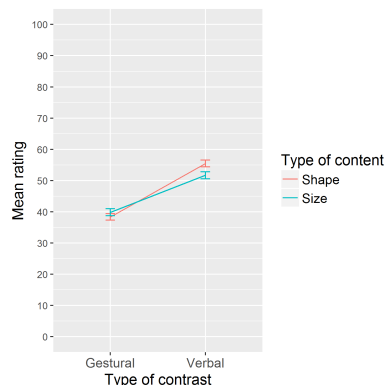


Fig. 2: Interaction of Type of contrast and Type of Content.

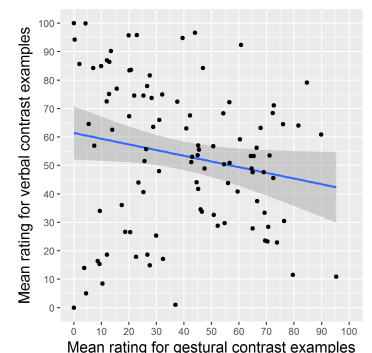


Fig. 3: Individual mean ratings for gestural (X axis) and verbal (Y axis) contrast examples.

**Selected references** Ebert & Ebert. 2014. Gestures, demonstratives, and the attributive/referential distinction. Esipova. 2017. Presuppositions under contrastive focus: Standard triggers and co-speech gestures. Schlenker. to appear. Gesture projections and cosuppositions. Tieu et al. 2017a. Co-speech gesture projection: Evidence from truth-value judgment and picture selection tasks. Tieu et al. 2017b. Co-speech gesture projection: Evidence from inferential judgments.

<sup>1</sup> In [verbal expression]<sup>GESTURE</sup> the gesture co-occurs with the verbal expression. Illustrations come after .. **Bold** indicates prosodic CF marking.