

## Bidirectionality in multimodal interaction

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Face-to-face interaction requires speakers and their utterances to be geared to one another in multiple ways so as to facilitate fluent conversation. This interactive coordination process requires alignment between the speakers in the different modalities of interaction, from the linguistic level to bodily semiotics, including gesture and posture. Recent work in (psycho)linguistics and gesture research has started to explicitly incorporate dialogicity - from a multimodal perspective - in cognitive discourse models (Pickering & Garrod 2004; Du Bois 2007, Kimbara 2006). In embracing *shared cognition*, these models aim to bridge the traditional gap between cognitively oriented accounts of language and interactional approaches.

In order to allow for a fine-grained view on the multimodal and multifocal aspects of language use, discourse models need to resort to new multimodal methods. In this paper, we introduce one such method that tracks speakers' perspectives and behaviour using head-mounted eye trackers. By recording two interlocutors' perspectives and eye movements during online face-to-face interaction, we obtain a 3-D landscape of the conversation, including production (scene camera, sound) and processing (eye movements) information.

In two experiments, we applied the bidirectional method to inquire into the multimodal aspects of interactive alignment. In a first experiment, the co-participants jointly described animations depicting spatial scenarios running along image schematic lines. In the second experiment, participants were asked to jointly construe a narrative on the basis of a single image depicting a real-life scene. The experiments reveal a gradual process of interactive routine building during the description and narrative tasks, both at the level of linguistic choice and gestures. The eye-tracking data of the individual participants offer a window on which behavioural features are processed and picked up in the alignment process on the one hand, and which eye-movement patterns emerge when producing a co-ordinated utterance.

Since conversation can be regarded as a joint action (Clark, 1996) rather than a linear series of utterances, it would only seem obvious to maximally embrace the interlocutors' perspectives in an empirical study of conversation. The two conducted experiments serve to illustrate that the bidirectional approach yields a fine-grained view of the interactive co-ordination of different modalities in face-to-face interaction.

**Geert Brône** is a postdoctoral researcher in cognitive discourse analysis and German linguistics at Lessius University College Antwerp and an affiliate researcher at KU Leuven. In 2007, he obtained a PhD in linguistics with a dissertation that developed a cognitive-linguistic and discourse-semantic approach to verbal humor. Since 2007, he has been a postdoctoral researcher and is mainly focusing on the interface between cognitive grammar and (interactional) discourse, and empirical methods for discourse analysis.



**Bert Oben** is a doctoral student working on a PhD project on multimodal alignment phenomena in dialogic interaction (supervisors Kurt Feyaerts and Geert Brône). In 2007 he started working on a two year project that developed a student-centred learning environment for disclosing creative language use and a corpus of interactional humour. Since 2009 he has been working on a project that focuses on multimodal data collection and corpus annotation.