Eye gaze as a predictor for multimodal alignment
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Interactive language use inherently involves a process of coordination, which often leads to matching behaviour between interlocutors at different semiotic channels: speakers align in terms of lexical choice (Garrod & Anderson 1987, Brennan & Clark 1996), prosodic features (Giles & Powesland 1975, Lewandowski 2012, Szcepek Reed 2010) or syntax (Branigan et al. 2007, Gries 2005). Also at many non-verbal levels alignment has been demonstrated: mannerisms such as nose rubbing and foot shaking (Chartrand & Bargh 1999); headshakes, nods, laughter and eyebrow raising (Louwerse et al. 2012), posture (Shokley et al. 2003), and even heart rates (Konvalinka et al. 2011). Which factors, now, might enhance how often and when interlocutors copy each other’s behaviour? In two case studies we demonstrate the role of eye gaze in enhancing lexical and gestural alignment.

Studies by Postma et al. (2013) and Wang et al. (2011, 2014) show that eye contact between interlocutors increases or speeds up alignment in terms of (resp.) intonation and hand gestures. In this paper, we take these observations from ‘clean’ lab conditions to the ‘messiness’ of spontaneous face-to-face interaction. Moreover, we not only study the role of eye contact (viz. fixating the face of the conversational partner), but also the role of gesture fixations.

Using data from head-mounted eye-trackers in a corpus of face-to-face conversations (Brône & Oben, in press), we measure the effect of gaze on alignment. For lexical alignment, we found that if addressees are being looked at, they align more than when they are not being looked at. At the gestural level, there was no such effect, but gaze still played a significant role in explaining alignment: if addressees fixate on a gesture by the speaker, they significantly align more often to that gesture in subsequent gesture production, compared to if they don’t fixate on the initial gesture. Mixed effects models with alignment as dependent variable, gaze behaviour as independent variables and speakers as random factor, confirmed these effects are significant.

Our results are relevant, because they show that even in face-to-face conversation, where gaze serves many different functions at the same time, it still systematically correlates with higher alignment rates. Furthermore, the results indicate that both social aspects of gaze (‘being looked at’) as well as perception-tied, cognitive aspects (fixating on a gesture) shape interactional alignment. From a methodological point of view, we show how mixing techniques from corpus linguistics and experimental psycholinguistics can be useful in accounting for complex phenomena such as alignment.

References


