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Seeing turn transitions from the perspective of the non-addressed participant: an eye-tracking study in Flemish Sign Language interactions

In their seminal work on the turn-taking machinery, Sacks, Schegloff and Jefferson (1974) describe how interlocutors collaborate systematically to negotiate speakership, thereby minimizing the occurrences of gaps and overlaps. Speakers use syntactic, prosodic and pragmatic resources to project the end of their turn (e.g. Ford and Thompson 1996) and through online processing the turns-at-talk, interlocutors can not only recognize, but also anticipate (possible) turn endings (e.g. Auer 2015).

Evidence for this online processing can, for example, be found in several experimental studies on the gaze behavior of a non-involved viewer (e.g. Foulsham et al. 2010, Casillas and Frank 2012, 2017). When looking at a recorded conversation, the viewer anticipates turn endings by shifting his gaze from the current to the next speaker around 150 ms. before the latter starts talking (Foulsham et al. 2010). Holler and Kendrick (2015) conducted an eye-tracking study in face-to-face interaction between three interlocutors and also found that non-addressed participants in question-answer sequences shift their gaze before turn endings. However, if a question contains multiple possible completions, gaze shifts are planned only 40 ms. before the first possible completion. Holler and Kendrick (2015) therefore conclude that unaddressed participants do not anticipate, but rather orient to turn endings and as such "optimize recipiency" for both the current and the next speakers' turn.

To date there hasn't been a study on non-addressed participants' gaze behavior in signed languages, but Casillas et al. (2015) did conduct an experimental study on the online processing of Sign Language of the Netherlands dialogues. In their study non-involved viewers were asked to press a button at the end of the current speakers' turn. Results show that signers anticipate turn endings, which were defined by the stroke of the last sign. Therefore, Casillas and colleagues suggest that signers orient to stroke-to-stroke boundaries, rather than sign-naïve turn-boundaries, i.e. boundaries including the preparation and retraction phase of signs.

In the current study we want to provide a first analysis of the gaze behavior of non-addressed participants in Flemish Sign Language (VGT) interactions. The dataset for this study consists of question-answer sequences out of three triadic 15-minute brainstorm sessions. The interactions were recorded with an external camera and participants were equipped with mobile eye-tracking devices.

If questions consist of one TCU, non-addressed participants tend to shift their gaze only after turn ending, i.e. after the stroke of the last sign in this question, but in most cases still before the current speaker returns to rest position. If non-addressed participants do anticipate turn endings, gaze shifts occur around syntactic completion, i.e. prior to a pointing sign or palm-up at the end of a question that is used to allocate the turn. Meaningful, however, is that humans need 200 ms. to plan their gaze shifts (e.g. Griffin and Bock 2000). When including this preparation time in our analysis, results reveal that non-addressed participants tend to plan these gaze shifts before turn endings.

In the category of question consisting of multiple TCU's, gaze shifts occurred prior to the end of the question. However, in most cases non-addressed participants only plan and shift their gaze after the first possible completion.

These results show that non-addressed participants tend to plan their gaze shifts prior to turn endings, but that does not always result in anticipatory gaze behavior. As turn endings were defined by the stroke of the last sign, our results also seem to support findings from Casillas et al. (2015), who suggest that signers orient to stroke-to-stroke boundaries. Further analysis will provide more insights in the (linguistic) cues affecting the timing of non-addressed participants' gaze shifts.

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