Eye blinking as listener feedback in face-to-face communication

In face-to-face human communication, the listener is not a passive receiver but an active collaborator (Sacks, Schegloff, & Jefferson, 1974; Goodwin, 1981; Clark, 1996). While the speaker is speaking, the listener provides vocal feedback like *mm-hm* and visual feedback like nods and smiles (Yngve, 1970; Schegloff, 1982; Bavelas, Coates, & Johnson, 2000). Does blinking – a facial behaviour that may appear to be a pure physiological necessity at first sight – also serve a communicative function?

To address this question, we built a corpus consisting of 10 dyads engaged in spontaneous Dutch face-to-face conversations for 1 hour each. All participants were native Dutch speakers (18–68 years; mean age = 30.7), they knew each other prior to the recording, and each participant participated only in one dyad. Then we identified short listener blinks (<410 ms; n = 350) and long listener blinks (≥410 ms; n = 61) during extended turns, and measured their occurrence relative to the end of turn constructional units (TCUs, Sacks et al., 1974), the location where feedback typically occurs. This analysis showed that listener blinks, too, were timed to the end of TCUs. Also, long blinks were more likely than short blinks to occur (1) during mutual gaze, (2) with nods or continuers, and (3) their occurrence was restricted to communicative contexts in which signalling understanding was particularly relevant, suggesting a special signalling capacity of long blinks. But are speakers really sensitive to listeners' blinking behaviour as a social signal? And is there a causal influence of listener blink behaviour on speakers' linguistic behaviour in face-to-face communication?

In order to address these questions, we carried out a second study, based on a novel virtual reality-based experimental paradigm to enable us to selectively manipulate blinking in a virtual listener, crucially distinguishing between short and long blinks. A within-subject design was used with three blocks, i.e., one block per feedback condition and avatar (N=36). The order of feedback conditions as well as the assignment of avatars to the listener feedback conditions was counterbalanced across participants and the order of items within each block was randomized. It was found that speakers unconsciously took into account subtle differences in listener blink duration (in the ballpark of milliseconds), producing substantially shorter answers in the context of long listener blinks.

The findings demonstrate that, in addition to physiological, perceptual and

possible cognitive functions, listener blinks can serve as a social "move on" signal of understanding in face-to-face communication – playing a critical role in shaping how we speak. The different functions of listener blinking are, of course, not mutually exclusive. The cognitive and perceptual functions very likely underlie and precede the communicative signalling function, phylogenetically as well as ontogenetically (Darwin, 1872; Eibl-Eibesfeldt, 1972; Tomasello & Call, 2007). In the same way in which squinting (as if trying to see more clearly) seems to signal a lack of understanding, closing the eyes by blinking may signal "no need to'see' anymore" because sufficient understanding has been reached. Taken together, these findings potentially shed new light on the visual origins of mental-state signalling, a crucial ingredient for achieving mutual understanding and intersubjectivity in communication.

References

Bavelas, J. B., Coates, L., & Johnson, T. (2002). Listener responses as a collaborative process: The role of gaze. *Journal of Communication*, 52(3), 566–580.

Clark, H. H. (1996). *Using language*. Cambridge University Press.

Darwin, C. 1872. The *expression of the emotions in man and animals*. New York: Philosophical Library, 1955.

Eibl-Eibesfeldt, I. (1972). Similarities and differences between cultures in expressive movements. in *Non-Verbal Communication*, R.A. Hinde, Ed., pp. 209-237, Cambridge University Press, Cambridge.

Goodwin, C. (1981). *Conversational organization: Interaction between speakers and hearers*. New York, NY: Academic Press.

Sacks, H., Schegloff, E. A., & Jefferson, G. (1974). A simplest systematics for the organization of turn-taking for conversation. Language, 50(4), 696–735.

Schegloff, E. A. (1982). Discourse as an interactional achievement: Some uses of "uh huh" and other things that come between sentences. In D. Tannen (Ed.), *Analyzing discourse: Text and talk* (pp. 71–93). Georgetown University Press.

Tomasello, M, Call, J. (2007). *The gestural communication of apes and monkeys*. Lawrence Erlbaum Associates, New York.

Yngve, V. H. (1970). On getting a word in edgewise. In M. A. Campbell (Ed.), *Papers from the sixth regional meeting, Chicago Linguistics Society* (pp. 567–578). Chicago, IL: Department of Linguistics, University of Chicago.