

EEG RESPONSES TO TURN-TAKING ANTICIPATION IN COMMUNICATION

S. Jansen, H. Wesselmeier, H.M. Müller

*SFB 673 "Alignment in Communication", Experimental Neurolinguistic Group,
Bielefeld University, Germany*

For an efficient verbal communication between two dialogue partners anticipation of the predicted end of the interlocutors turn is necessary in order to avoid gaps and overlapping speech during the conversation. Deficits in this ability lead to impaired conversation, especially in aphasic patients (Ferguson, 1998) as well as demented patients (Bucks et al., 2000). Previous EEG power analysis identified the neuronal processes accompanying anticipation of turn-ending in the beta-band (Magyari et al., 2011).

To investigate the accuracy and time frame of this phenomenon in healthy subjects we analyzed EEG signatures related to turn-anticipation in 30 healthy, right-handed participants (age 21-35) during listening to spoken sentences. The results show, that dialogue partners already anticipate the end of a speakers turn 800 to 1000 ms before it occurs. The observed readiness potential indicates the predicted end of the turn and may be used for testing patients with a disturbed communicative behavior, especially to which extent this time frame is delayed.

R.S. Bucks, R.S., Singh, S., Cuerden, J.M. & Wilcock, G.K. (2000). Analysis of spontaneous, conversational speech in dementia of Alzheimer type: Evaluation of an objective technique for analysing lexical performance. Aphasiology, 14: 71-91

Ferguson, A. (1998). Conversational turn-taking and repair in fluent aphasia. Aphasiology, 12:1007-1031

Magyari, L., Bastiaansen, M. C. M., De Ruiter, J.P., & Levinson, S.C. (2011) Neuronal correlates of anticipation related to turn-taking in conversations AMLaP, 2011, Sept 1st-3rd, Paris, France