Psycholinguistics: Real-Time Language Processing in Context

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Research focus of the Psycholinguistics Group:
The research focus of the group is on real-time context effects in language comprehension across the lifespan in children, young, and older adults. We examine the cognitive and brain mechanisms underlying language processing and learning, also across different languages. We are interested in how rapidly comprehenders can exploit different linguistic and non-linguistic contextual cues while processing language in real time but also in protracted context effects.

Specific research foci are: language processing in relation to
• (past, present, and future) events
• the emotional, spatial, social, and linguistic context
• visual perception, including perception of objects, action events and speakers (e.g., visual gender cues, eye gaze, facial expressions)

Methods used:
• To examine real-time effects of (non-)linguistic context on language processing we use Reaction Time measures (see Panel A), Eye tracking while reading (see Panel B), Eye tracking while listening (see Panel C) and Event-Related Brain Potentials.
• To measure off-line effects of (non-)linguistic context and effects of cognitive differences between age groups on language processing we use post-sentence comprehension questions, memory tests and cognitive tests (e.g., on fluid and crystallized intelligence and verbal fluency).

Data processing and analysis:
• We prepare our data by first carefully inspecting the raw data, removing outliers, defining time windows and (if necessary) transforming it from a categorical into a continuous outcome variable.
• We use IBM'S SPSS and the free programming language R for (descriptive and inferential) data analysis.
• Depending on the type of data and the assumptions met by the data, we analyze the data using repeated measures ANOVAs, Mixed Effects Models or non-parametric tests.

Ethics approval and participant information:
• Our lab has an ethics approval from the DFG for testing participants between 18 and 65 years.
• For studies testing children and participants above 65 years of age, we have to apply for ethics approvals (DGfS) separately for each new line of studies.
• Before taking part in an experiment, participants are required to read an information sheet about the procedure of the experiment, data protection, their rights and potential risks involved in taking part in the experiment. They are in addition required to read and sign an informed consent form, stating that they have understood the provided information regarding their rights as participants and agree with our data handling policy.

Data protection:
• In addition to the ethics approval, we have a data protection concept approved by HU's data protection officer.
• All our data is anonymized and information which could be used to identify the participants (e.g., name/signature) are kept separately from the participant’s data.
• The anonymized data is encrypted and saved in a password-protected folder on our HU server.
• Only people involved in the specific project are granted access to this data.
• We are allowed to store the data for 10 years, then it has to be deleted.

Open Questions regarding (psycholinguistic) data handling:
• data publication?
• the (dis)advantages of pre-registering studies