



FENS Forum 2010 - Amsterdam

- Posters: to be on display from 8:00 to 13:15 in the morning and from 13:30 to 18:45 in the afternoon. Poster sessions run from 09:30 to 13:15 in the morning and from 13:30 to 17:30 in the afternoon. A one hour time block is dedicated to discussion with the authors (authors should be in attendance at their posters as from the time indicated.)
 - For other sessions, time indicates the beginning and end of the sessions.
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Poster board F46 - Sun 04/07/2010, 11:15 - Hall 1

Session 023 - Human cognition 1

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Title Mood affects semantic anticipation, but not syntactic parsing, in real-time reading

Text Research on attention, memory, decision making, and social judgement has shown that mood can substantially modulate how the brain processes information. For example, in a sad mood people have a narrower focus of attention and they rely less on heuristics in reasoning and recall (e. g., Bar, TICS 2009; Clore & Huntsinger, TICS 2007; Rowe, Hirsch, & Anderson, PNAS 2007). Although possibly related to the evolutionarily relevant regulation of exploratory behavior, the exact mechanisms are under debate. In two studies, we exploit the richness of language comprehension to explore the role of mood in brain function. In particular, we examined how experimentally-induced mood affects two radically different aspects of sentence comprehension: algorithmic syntactic parsing and heuristic semantic anticipation.

In a two-session EEG experiment, we used film clips to manipulate the mood of 32 female participants just before they read texts that respected or violated a syntactic agreement rule (e. g., "The boys turns"), or that confirmed or disconfirmed verb-based semantic expectations (e. g., that "David praised Linda because. . ." would continue about Linda, not David; see Van Berkum et al., *BrainRes* 2007). ERPs showed that mood had no effect on syntactic parsing, but did affect heuristic semantic anticipation: whereas readers anticipated information about a specific person when they were in a happy mood, a sad mood completely abolished such anticipation. A behavioral follow-up experiment suggested that mood did not prevent access to the information per se, but modulated the ability to use it rapidly enough to anticipate upcoming information on the fly, as the sentence unfolds.

Within language comprehension, the processing consequences of mood are interestingly selective: whereas at least some heuristics-based semantic anticipation can be abolished in a sad mood, more algorithmic syntactic parsing mechanisms continue to do their job. We suspect that this reflects an impact of mood on the breadth of associative memory retrieval (cf Bar 2009): whereas syntactic features can be easily accessed regardless of whether retrieval is narrow or broad, the more remote associations needed for heuristic semantic anticipation suffer from the narrow retrieval focus that comes with a sad mood.

Theme F - Cognition and behaviour
Human cognition and behaviour - Emotion