Introduction

Inference Generation during Comprehension

Laurie left early for the birthday party. She spent an hour shopping at the mall.

Motivated readers use background knowledge to infer that Laurie shopped for a gift.

Once generated, the inferred information can become part of the long-term memory representation.

Semantic Processes Involved

- **Diffuse activation** of concepts semantically related to the input text early (e.g., "bug" => insect & listening device) (Swinyer, 1979).
- **Selective inhibition** of nondominant or contextually less likely concepts (e.g., listening device) later in the LH (Burgess & Simpson, 1988; Swinyer, 1979).

Inferences in Familiar Scenarios:

- Rely on activation of typical meanings associated with the input text; meanings that are not affected by whether selective inhibition occurs (Kundim, et al., in press).

Inferences in Less-Familiar Scenarios:

- Rely on less familiar/stylistic meanings associated with the input text; meanings that are suppressed when selective inhibition occurs (Kundim, et al., in press).

Main Question:

Does alcohol intoxication impair the selective inhibition process (but not diffuse activation)? i.e., Are inferences in less-familiar scenarios made less readily when sober than when intoxicated (because selective inhibition is impaired by alcohol)?

**ERP Correlate of Inference Generation**

Attenuation of N400 (Kutas & Hillyard, 1980) is found when reading words that explicitly state information that had been generated in a preceding bridging inference (Swinyer, et al., 1997).

Attenuation of N400 used as a marker of semantic activation relevant to generating a preceding inference.

Methods

**Participants**

55 social drinkers

- Placebo Group (15 males, 10 females)
- Alcohol Group (15 males, 15 females)

Mean blood alcohol level = .092 (sd=.014)

Inference generation when comprehending less-familiar scenarios (but not inference generation when comprehending familiar scenarios)

**References**


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Conclusions

- Alcohol intoxication impairs the selective inhibition process (but not preceding diffuse activation) in semantic processing during comprehension.
- Thus, somewhat paradoxically, alcohol intoxication facilitates inference generation when comprehending less-familiar scenario (but not inference generation when comprehending familiar scenarios).

**Key Words**

- Alcohol intoxication
- Inference generation
- Semantic processing
- ERP correlates

**Image**

- A figure illustrating the ERP correlates of inference generation with N400 and N400 attenuation shown.

**Figure Caption**

Does Alcohol Intoxication Affect Comprehension? An Event-Related Potential Investigation

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