A priority list of factors for syntactic encoding (in German)
Xiaogang WU & Johannes Gerwien
Heidelberg University Language and Cognition Lab

Introduction

Syntactic encoding in language production is affected by factors, such as animacy, visual saliency, thematic roles, or the discourse status of the referents to be encoded (Bock & Levelt 1994).

Our aim here is to determine which information is prioritized for syntactic function assignment, or the linearization of referents mentioned in a sentence, respectively.

In a picture description task, we manipulated the discourse status of the agent and patient in transitive scenes (Prat-Sala & Branigan 2000), as well as the sequence of fixation directed to the event participants by means of an attention-capture procedure (Gleitman et al. 2007).

Method

Two picture description experiments with eye-tracking: participants (N=16/N=32) were native speakers of German, all students at Heidelberg University.

Materials

Pictures (Exp 1/Exp 2):
- 28 lead-in pictures + 28 target pictures showing transitive events (Exp 1/Exp 2)

Lead-in discourse (Exp 1):
- In this picture, you see (Referent 1) and (Referent 2). Please tell me what happens in the next picture.

Lead-in discourse (Exp 2):
- In this picture, you see (Referent 1) and (Referent 2). In the next picture you will see (Referent 1) again, please tell me what happens to (Referent 2).
- In half of the trials, (Referent 1) was the agent in the target picture and (Referent 2) was the patient, in the other half this was reversed.

Visual cues:
- 0.5° x 0.5°, black square, displayed for 80 ms (stimulus pictures 15.4° x 11°)
- Exp 1: half in the agent region, other half in the patient region
- Exp 2: only in the patient region

Task

Look at the pictures, listen to discourses, answer the question by describing the target picture

Results

First fixation locations - effectiveness of the visual cue

Second fixation locations - top-down effects on starting points

Syntactic choices - order of mention of referents

Discussion

In Experiment 1, the location of the visual cue had a reliable effect on the placement of the first fixation. However, no visual-attentive effects on sentence structures (word order) were observed. Both second saccades and syntactic choices were influenced by event structure (thematic roles).

In Experiment 2, we found a significant effect of topicality on the placement of the first fixation. Effects of event structure on second saccades and syntactic choices were largely replaced by effects of topicality.

The factors manipulated in the current study differ in strength to impact syntactic function assignment and the linearization of referents. In German native speakers, the priority list of factors that influences syntactic choices is as follows: 1. discourse status of the referents, 2. event structure (thematic roles), 3. attentional starting point. This may be different in other languages.

References


wu@hulc.de