

THE TIME COURSE OF MESSAGE GENERATION AND LINGUISTIC ENCODING: EXPLORING THE LANGUAGE-VISION INTERFACE

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The time course of message generation and of linguistic encoding is a topic of debate in psycholinguistic research (Bock et al., 2004; Konopka & Brown-Schmidt, 2014). There are two main positions concerning message planning from visual inputs: the “wholistic” view, according to which the process of linguistic formulation of a sentence starts only after a rudimentary message has been planned (Griffin & Bock, 2000), and the incremental view, which assumes that linguistic formulation begins as soon as the visual input becomes available (Gleitman et al., 2007).

In this work we explore, experimentally, the communication between the visual and the linguistic domains in order to investigate the starting point of sentence formulation in language production. We report two eye tracking experiments with a scene description task conducted with thirty-six Brazilian Portuguese speakers. The images depicted two human characters engaged in an activity that could be described using transitive verbs either in the active or in the passive form.

In **Experiment 1**, speakers described scenes concomitantly with the presentation of the visual input. In **Experiment 2**, subjects realized the same task, but they had their attentional focus drawn to a particular character (either the agent, in one condition, or the patient, in the other condition) by way of an attention-capture resource similar to the one used by Gleitman et al. (2007).

The results of the first experiment revealed a clear preference for active structures. No relationship between first fixated character and syntactic structure chosen (active/passive) was observed. The onset of the verbal response occurred, on average, 1.7 s after the presentation of the visual stimuli, approximately the same amount of time that a control group took to identify the patient of the event depicted in the scenes, in a silent *patient-detection* task. In the second experiment, the same verbal and eye-tracking patterns were obtained. It was observed, however, a marginal decrease in the number of active sentences ($p < .06$) and a significant increase in the number of passive sentences ($p < .02$) when the patient favoring condition was compared to the agent favoring condition.

Taken together these findings are consistent with the hypothesis that the generation of a message precedes formulation. The absence of correlation between first fixations and type of structure chosen seems to suggest, as did previous findings (Griffin & Bock, 2000), that before committing to a starting point speakers generate a rudimentary message to express the propositional content apprehended from the scene. Attention-capture resources as the one used in the second experiment can act favoring a particular interpretation of the scene. As a consequence, the favored interpretation of the scene may be occasionally reflected in the linguistic structure, but, as observed, with no strict relation between initial fixation and chosen subject. Instead, in the circumstances of this experiment, the sentence formulation process seemed to be guided by cost related issues, since active structures were preferred in both conditions. In order to further investigate the time course of message plan and sentence generation, a third experiment is currently being conducted. Scenes are incrementally shown in a scene description task. Subjects are instructed to start the description as soon as one of the characters is presented. The idea is to force the formulation of a sentence concomitantly with the visual apprehension of a scene in order to verify whether the production situation can influence the amount of information necessary to start the linguistic encoding of the sentence.

References

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