

EYE MOVEMENTS IN PROCESSING TEMPORAL EVENT DESCRIPTIONS

ORAL PRESENTATION ONLY

ABSTRACT

Mental representations of the abstract concept of time are assumed to be grounded on spatial relations. Hence, people use their perceptual knowledge about space when referring to temporal expressions. Several studies provide evidence that time is represented on a one-dimensional *mental timeline* according to the direction of a culture's predominant writing system. Thus, in our western culture the mental timeline seems to run horizontal from left to right (e.g., Santiago et al., 2007).

Spivey & Geng (2001) found that even in the absence of any visual input the description of spatial scenes evoked eye movements according to their spatial dynamics. In other words, eye movements were closely related to the real time perceptual and cognitive mechanisms underlying mental representations of spatial scene descriptions. This was interpreted as embodiment of cognition: The construction of a mental image is "acted out" by the eyes.

Our study was inspired by this finding with regard to eye tracking as a sophisticated way to investigate embodied cognition of *temporal* event descriptions. While facing a blank screen, participants were presented with auditory event sequences differing in their temporal direction (future-oriented vs. past-oriented) by using temporal adverbs. Participants were instructed to rate the imageability of each event on a vertical rating scale. Considering time is represented on a spatial dimension, linguistic descriptions of temporal event sequences should produce eye movements on the horizontal time axis (Santiago et al., 2007): Future-oriented descriptions should produce rightward, whereas past-oriented descriptions should produce leftward eye movements.

In our study, we did not find the expected eye-movements on the horizontal axis. Instead, temporal characteristics of event descriptions influenced the extent of eye movements on a vertical axis with future-related events on its top and past-related events on its bottom. We assume that the influence of the vertical alignment of the imageability rating scale provides a visual reference frame which might explain our present results. In line with Torralbo, Santiago & Lupiáñez (2006), our results support the idea of a task-dependent flexibility of the mental timeline depending on a person's very recent perceptual experience.

Our present follow-up study now traces the question of spatial representations of time without any given visual reference frame. First results will be presented at the conference.

REFERENCES

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