



Does language guide event perception? Evidence from eye movements

Anna Papafragou^{a,*}, Justin Hulbert^b, John Trueswell^c

^a *Department of Psychology, University of Delaware, 108 Wolf Hall, Newark, DE 19716, USA*

^b *School of Psychology, University of St. Andrews, St. Mary's College,
South Street, St. Andrews, Fife, KY16 9JP, Scotland, UK*

^c *Department of Psychology, University of Pennsylvania, 3401 Walnut St., Philadelphia, PA 19104, USA*

Received 13 November 2006; revised 18 January 2008; accepted 17 February 2008

Abstract

Languages differ in how they encode motion. When describing bounded motion, English speakers typically use verbs that convey information about manner (e.g., *slide*, *skip*, *walk*) rather than path (e.g., *approach*, *ascend*), whereas Greek speakers do the opposite. We investigated whether this strong cross-language difference influences how people allocate attention during motion perception. We compared eye movements from Greek and English speakers as they viewed motion events while (a) preparing verbal descriptions or (b) memorizing the events. During the verbal description task, speakers' eyes rapidly focused on the event components typically encoded in their native language, generating significant cross-language differences even during the first second of motion onset. However, when freely inspecting ongoing events, as in the memorization task, people allocated attention similarly regardless of the language they speak. Differences between language groups arose only after the motion stopped, such that participants spontaneously studied those aspects of the scene that their language does not routinely encode in verbs. These findings offer a novel perspective on the relation between language and perceptual/cognitive processes. They indicate that attention allocation during event perception is not affected by the perceiver's native language; effects of language arise only when linguistic forms are recruited to achieve the task, such as when committing facts to memory.

* Corresponding author. Tel.: +1 302 831 2752.

E-mail address: papafragou@psych.udel.edu (A. Papafragou).

© 2008 Elsevier B.V. All rights reserved.

Keywords: Spatial language; Language and thought; Visual world; Eye-tracking; Motion; Greek; Cross-linguistic differences

1. Introduction

How do humans talk about the visual world? In an obvious sense, what we talk about is limited by constraints on how we see the world, including basic biases affecting how we conceptualize objects and events. Most theories of cognition and language assume that core aspects of the human perceptual and cognitive machinery are universal: given innate maturational properties of the human brain and typical experiential input, our perception and conception of objects and events is expected to be largely the same across individuals regardless of the language (or languages) learned during childhood. Under this view, these core systems generate nonlinguistic event and object representations that are shared by members of different linguistic communities and form the starting point for the generation of event and object descriptions in language (Gleitman & Papafragou, 2005; Jackendoff, 1996; Levelt, 1989; Miller & Johnson-Laird, 1976; Pinker, 1989).

Despite the broad appeal of this position, the transition from event conceptualization (the nonlinguistic apprehension of the main aspects of an event) to sentence planning (the mobilization of structural/lexical resources for event encoding) to speech execution has remained a mystery, largely because the particulars of nonlinguistic event representations have been notoriously hard to specify (Bock, Irwin, & Davidson, 2004; cf. Jackendoff, 1996; Lashley, 1951; Paul, 1886/1970; Wundt, 1900/1970).¹ It is only recently that researchers have begun to get an experimental foothold into exploring the relationship between event apprehension and event description, with these findings showing a surprisingly tight temporal coupling between these two interrelated processes. In the first experiment to explore the temporal interface between language production and event comprehension, Griffin and Bock (2000) recorded speaker's direction of gaze as they visually inspected and described static line drawings of simple actions (e.g., a picture of a girl spraying a boy with a garden hose) that could be described with either an active or a passive sentence. Analysis of the eye movements in relation to active/passive linguistic choices led to the conclusion that there exists an initial rapid-event/gist extraction stage (event apprehension) that is temporally dissociable from any linguistic planning stage. However, further eye-tracking studies using picture description tasks have shown that these apprehension and linguistic formulation processes overlap temporally to a considerable extent: initial shifts of attention to event participants predict which participant will be mentioned first in the sentence (Gleitman, Janu-

¹ One exception has been the successful investigation of the cognitive and neurological underpinnings of the production of single words (Dell, Schwarz, Martin, Saffran, & Gagnon, 1997; Garrett, 1988; Levelt, 1989; Levelt, Roelofs, & Meyer, 1999).

Download English Version:

<https://daneshyari.com/en/article/926684>

Download Persian Version:

<https://daneshyari.com/article/926684>

[Daneshyari.com](https://daneshyari.com)