Available online at www.sciencedirect.com

ScienceDirect

Lingua xxx (2018) xxx–xxx

Lingua

www.elsevier.com/locate/lingua

Is perception of placement universal? A mixed methods perspective on linguistic relativity

Dietha Koster [a,*], Teresa Cadierno [b]

[a] Institut für Niederländische Philologie, Westfälische Wilhelms-Universität Münster, Alter Steinweg 6/7, 48145 Münster, Germany

[b] Institut for Sprog og Kommunikation, University of Southern Denmark, Campusvej 55, 5230 Odense, Denmark

Received 8 December 2017; received in revised form 14 February 2018; accepted 15 February 2018

Abstract

This paper aims to advance theory on how speakers of different languages perceive the act of placement. German and Spanish verbs for example, differ in the specification of object position (e.g., *He stands/lays-puts the binoculars on the shelf*). Do speakers of these languages *perceive* placement events differently? This question relates to the notion of linguistic relativity. We report empirical data obtained with methods not yet applied to placement. These methods stem from three popular theoretical paradigms on language and thought. We examine whether placement verbs affect how speakers categorize (Experiment 1); memorize (Experiment 2) and mentally simulate (Experiment 3) object orientation. For three behavioral tasks, we compare accuracy and reaction time data of native speakers of German ($N = 80$) and Spanish ($N = 50$). Results suggest that German speakers do not categorize object position differently or make mental simulations of object orientation. They do show that German speakers have better recognition memory for object position than Spanish speakers. These findings suggest that language-specific effects may occur for some but not all mental processes. Future work should fine-tune reported methods to advance theory on perception of placement and should strive to combine methods to gain a multifaceted perspective on linguistic relativity.

Keywords: Sapir-Whorf hypothesis; Thinking for Speaking; Grounded Cognition; Placement events; Object orientation

1. Introduction

A classic debate within cognitive science is whether human thought is shaped by language (Gardner, 1985). The idea that speakers of different languages perceive the world differently is usually traced back to Benjamin Whorf (Whorf and Bissel Carroll, 1956). The works of the latter, together with those of Edward Sapir (1929) led to the formulation of the Sapir-Whorf (SW) hypothesis. This hypothesis states that (1) languages vary in their semantic partitioning of the world; (2) the structure of one's language influences the way one perceives the world; and therefore (3) speakers of different languages will perceive the world differently (Hoijer, 1954). In the 1950s and 1960s, the Whorfian position was supported by Brown and Lenneberg's (1954) studies on categorization of color terms, but unsupportive findings by Rosch (1973) introduced a period of skepticism about linguistic influence on thought. In the last decades however, the language-and-cognition area

* Corresponding author.
E-mail addresses: dikoster@uni-muenster.de (D. Koster), cadierno@sdu.dk (T. Cadierno).

https://doi.org/10.1016/j.lingua.2018.02.006
0024-3841/

has become an area of increased investigation (Gentner and Goldin-Meadow, 2003; Filipović, 2011; Pavlenko, 2016). The area has also been referred to as the study of ''linguistic relativity'' (Wolff and Holmes, 2010). The literature is unresolved about if and in which contexts language affects thought (Trueswell and Papafragou, 2010; Fausey and Boroditsky, 2011). Whether language may affect perception depends on several factors, such as the degree to which the experimental task promotes or inhibits strategic use of linguistic categories or the nature of the linguistic feature and conceptual domain under study (Bylund and Athanasopoulos, 2014; Regier and Xu, 2017).

The initial focus on color in linguistic relativity research has moved to investigation of domains such as motion events and spatial relations. Spatial relations are central to the understanding of our surroundings, yet are highly variable cross-linguistically (Bowerman, 1980; Casad and Langacker, 1985; Talmy, 1975; Talmy, 1985; Talmy, 2000). In recent years, placement events have caught interest as Whorfian testing domain. A placement event is an event where an agent moves an object to a certain location, as in: *He puts the books on the shelf*. This may seem a rather narrow and specialized area of interest, but there are several reasons for this choice (Levinson, 2012). The most important reason is that simple actions of putting and taking things from places are a ubiquitous part of everyday human experience. Thus, it is not surprising that verbs of putting and taking are amongst the most frequent, basic verbs in a language and that they are amongst the earliest verbs learned by children. However, different languages display a large amount of variation in the use of placement verbs, varying from a tight closed obligatory set of 3–5 verbs, to a much wider set of 12–20 or more verbs (Ameka and Levinson, 2007; Kopecka and Narasimhan, 2012). German and Spanish placement verbs for example, differ as to whether they encode the end position of the object being placed. German speakers express whether the object ends up in a vertical (*legen* [lay]) or horizontal (*stellen* [stand]) position with respect to the Ground ((Fagan, 1991; Lemmens, 2006). In Spanish, object orientation is not expressed through placement verbs (*poner* [put]; *dejar* [leave in a place]) (Ibarretxe-Antuñano, 2012; Cadierno et al., 2016). In order to express object orientation for placement events in Spanish, one needs to add an adverb like *horizontalmente* [horizontal] or *verticalmente* [vertical]) to a given placement verb. The variation between German and Spanish offers an interesting laboratory to study the interaction between linguistic descriptions of placement actions and non-linguistic cognition.

Several theories have been developed to examine linguistic relativity questions with their own dominant methods of study. This paper aims to advance three of these theories, and the overarching linguistic relativity question, by investigating how speakers of different languages perceive object position in placement events. We do so by applying methods that are dominant within three theoretical paradigms: the Sapir-Whorf (SW) hypothesis (Whorf and Bissel Carroll, 1956; Hoijer, 1954); the Thinking-for-Speaking (TFS) hypothesis (Slobin, 1996, 2003, 2006); and Grounded Cognition theory (Barsalou, 1999; Barsalou, 2008). We investigate if and how German and Spanish speakers understand placement events through language in three exploratory experiments. First, we investigate whether placement verbs affect how German and Spanish speakers categorize object position in placement events without overt language use (Experiment 1). Second, we examine German and Spanish speakers' recognition memory of object position in placement events after reading placement verbs (Experiment 2). The general hypothesis is that speakers of these languages will behave differently on these tasks due to language differences. Finally, we employ a sentence-picture verification task to examine whether German speakers use mental simulations as a route to language comprehension when reading placement verbs (Experiment 3). Through this three-fold operationalization of perception we aim to gain a multifaceted perspective on linguistic relativity for the domain of placement.

2. Theoretical background

2.1. Semantics of placement verbs

Placement events form a subcategory of the domain ''motion events'' that has received much attention in cross-linguistic studies. Talmy's typology of motion events (1975, 1985, 2000) has greatly contributed to this attention. He showed that different aspects of motion are expressed in all languages, yet different languages show preferences to describe motion in a certain way, which are ''colloquial, frequent and pervasive'' (Talmy, 2000:166). Talmy (2000) distinguished ''verb-framed'' languages, like Turkish and Spanish, that rely on monomorphemic path verbs, such as Spanish *entrar* [enter] and *subir* [ascend], to encode direction of movement. In contrast, English and German are ''satellite-framed'', using verb particles to encode direction. Compare, for example, German *geh rein* [go in] and *geh runter* [go down], with Spanish *entrar* [enter] and *subir* [ascend]. A subtype of a (caused) motion event is a placement event (e.g. *He puts the book on the shelf*). A placement event occurs when someone moves an object to another location. Research suggests that the basic components of a placement events are: Figure (what is moved); Agent (the causer of the movement); Ground (the location where a Figure is placed); Causation (what triggers the placement), Motion (the act of moving), and Path (the trajectory followed by the Figure) (Talmy, 1985; Jackendoff, 1990). In a volume edited by Kopecka and Narasimhan (2012) researchers report linguistic descriptions of placement for eighteen areally, genetically and

Please cite this article in press as: Koster, D., Cadierno, T., Is perception of placement universal? A mixed methods perspective on linguistic relativity. Lingua (2018), https://doi.org/10.1016/j.lingua.2018.02.006