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# The Cognitive Perspective: Language and Cognition in Event Construal

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How speakers of different languages talk about things happening in the world around them has been a productive area of research for many decades. Studying this from a cognitive perspective became a thriving research tradition following the work of (amongst others) Leonard Talmy (e.g., Talmy, 2000) and Dan Slobin (e.g., Slobin, 1985), who focused specifically on events involving motion, i.e., humans, animals or vehicles moving from one place to another. Motion events represent a particularly interesting test case for the study of event construal in language, given crosslinguistic differences in how speakers describe the path of motion (and other information, such as the manner of motion) in such events. Following from Talmy's 'cognitive semantics', researchers in linguistics investigated the lexical means and grammatical structures used across languages to describe motion, under the assumption that language systems reflect the conceptual structures that exist in a speaker's mind. Christiane von Stutterheim and colleagues at Heidelberg University took this as a starting point in proposing that we use these conceptual structures to make sense of the world by default. As such, they represent readily available 'scaffolds' for guiding our interpretation of activity happening in the world around us. In other words, language can be considered a window into cognition. The work by Christiane von Stutterheim, Mary Carroll, and colleagues at Heidelberg University takes a broad crosslinguistic perspective, gathering empirical data on event construal in a wide variety of languages, to investigate the extent to which crosslinguistic differences apparent in event description reflect different patterns of conceptualization. Data from speakers of different languages thus allows us to investigate the extent to which there exists diversity in linguistic encoding patterns and cognitive processes.

Von Stutterheim and colleagues' work follows a psycholinguistic framework, closely connected to the early work of Willem Levelt and colleagues (e.g., Levelt, 1989), shedding light on the processing stages that speakers go through when engaged in the act of speaking. Von Stutterheim and colleagues

took a particular interest in the cognitive processes of speakers who are planning to describe events, requiring the production of entire sentences, always with a focus on potential crosslinguistic differences during any of the processing stages involved in this task. The Heidelberg team specialized in studying the cognitive side of language production, in particular the exact (temporal) relationship between processing and the eventual speech produced, thus, the real-time link between cognitive processes during language planning and language output. In addition, cognitive processing is studied not only during language production, but also during tasks that require processing not necessarily in the realm of overt language use, with the aim of shedding light on the extent to which our speaking habits may be reflected in thinking habits, even when not using language in the moment.

The Heidelberg team advanced the research on language differences in event construal by actually studying conceptualization processes *online*, in a systematic, large-scale crosslinguistic approach. The innovation of the team's approach concerned the use of methodologies and experimental paradigms that allowed tapping into cognitive processing in real-time, in innovative and clever ways, for example, using eye-tracking methodology. The rationale behind this method lies in the fact that people's eye movements towards specific elements of a visual stimulus displaying an event reflect different stages in the conceptualization and linguistic planning process over time, starting with the initial apprehension of a scene, to the retrieval of linguistic forms from the mental lexicon in case of an event description task. Von Stutterheim et al. (2012a) is one of the first studies reporting analyses of eye movements towards elements of dynamic scenes, short video clips, especially designed for the purpose of capturing language and cognitive processing, and crosslinguistic differences therein, in motion event conceptualization. Video clips are more appropriate than hitherto used still images to study event conceptualization, as they actually depict change and dynamic activity unfolding over time, and through space, the core element distinguishing events from states, for example. These and other sets of video clips designed and shot in Heidelberg have been used extensively in follow-up research, also by other labs in the world. To date, eye-tracking studies of language production in the context of events – that is, in the realm of the production of entire sentences rather than words in isolation – are still scarce. Further, von Stutterheim and colleagues developed innovative experimental paradigms to study crosslinguistic differences in the cognitive processing of events, not necessarily in a speaking or listening mode (e.g., Flecken et al., 2014; Gerwien & von Stutterheim, 2018).

Also on the linguistic side, the Heidelberg team's focus was unique, in studying grammatical categories relevant to the expression of the temporal and spatial dimensions of an event (in particular, tense and aspect).

Grammaticalized linguistic categories are particularly important in event construal as speakers must obligatorily attend to and encode the concepts and event dimensions they denote – leading to enhanced cognitive saliency of these concepts during language production, and potentially beyond, in event processing in general. The crosslinguistic work also extended beyond looking at the construal of events in isolation to the description of entire narratives (e.g., sequences of activities unfolding over time, with a particular narrative structure, e.g., von Stutterheim & Lambert, 2005) and expository texts (von Stutterheim et al., 2012b), as well as to studying route descriptions and task instructions (von Stutterheim, 1997).

Von Stutterheim's work is particularly influential in the research areas of second language acquisition and bilingualism (see von Stutterheim & Carroll, 2011). Taking into account crosslinguistic differences for complex linguistic tasks, such as describing events or narratives in a second language, is very important, as L2 speakers often need to engage in such tasks (see von Stutterheim et al., 2013). Further, the cognitive perspective taken in this research, and the accompanying measures of cognitive processing such as the analysis of eye movements, is considered innovative and fruitful for shedding light on well-known issues such as transfer / crosslinguistic influence that can be found even in highly advanced and experienced L2 users (see overview in Lambert et al., 2022). A particularly valuable aspect of von Stutterheim and colleagues' L2 research is the focus on the 'un-usual suspects', speakers with language combinations not frequently studied in psycholinguistic research of bilingualism, such as Arabic and German (e.g., Gerwien & von Stutterheim, 2022). The research has implications also for second language teaching and didactics, as can also be seen in the contributions to this volume.

In more recent years, work in event processing in the Heidelberg lab has been extended to other areas, such as the study of clinical populations, e.g., ageing individuals with cognitive decline (early Alzheimer's; Kokje et al., 2021), patients diagnosed with schizophrenia or anorexia nervosa, in collaboration with colleagues from Heidelberg University Hospital and beyond. The interdisciplinary potential and relevance of the von Stutterheim approach for many disciplines within the cognitive sciences can be seen through the setup of numerous collaborations, involving clinicians, neuroscientists, computer scientists, artificial intelligence experts, psychologists and more.

In sum, key contributions of the work by Christiane von Stutterheim and her Heidelberg colleagues lie in investigating language and cognition, focusing on how language interacts with other cognitive processes (memory, attention, etc.), in a methodologically advanced way. In her research, various aspects of this relationship are explored, such as how language structures our thoughts, influences memory, shapes our perception of the world around us, and the accompanying constraints for second language acquisition. The

broad crosslinguistic approach taken allows for a comparison of event representations in speakers of different languages, providing valuable insights into the universal and language-specific aspects of event cognition. The present anthology illustrates the broad spectrum of research domains that Christiane von Stutterheim inspired with her work over the last 40 years.

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