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Authors

Lee, Sarah Hye-yeon
Papafragou, Anna
Zacks, Jeffrey M.
et al.

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Advances in the Study of Event Cognition

Organizers & Contributors
Sarah Hye-yeon Lee (sarahhl@sas.upenn.edu)
Anna Papafragou (anna4@sas.upenn.edu)
Department of Linguistics, University of Pennsylvania, Philadelphia, Pennsylvania, USA

Contributors
Jeffrey M. Zacks (jzacks@wustl.edu)
Department of Psychological and Brain Sciences, Washington University in St. Louis, St. Louis, Missouri, USA

Dare A. Baldwin (baldwin@uoregon.edu)
Department of Psychology, University of Oregon, Eugene, Oregon, USA

Eva Wittenberg (WittenbergE@ceu.edu)
Department of Cognitive Science, Central European University, Vienna, Austria

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Events are a fundamental part of human experience. Research on event cognition is rapidly developing and is revealing central aspects of how humans perceive, conceptualize, communicate about, and remember events. This symposium offers an interdisciplinary look at recent advances in the study of event cognition. The symposium brings together cognitive scientists from across continents, who are experts on the subject. The symposium contributors come from a variety of backgrounds and disciplines in developmental psychology, cognitive psychology, neuro-computational psychology, and linguistics. They combine a variety of innovative and integrative approaches and methodologies and study diverse populations across the lifespan and across languages. The overall goal of this symposium is to foster an interdisciplinary conversation on different aspects of event cognition.

Scaling up event cognition: Behavior, brain, and computational model

***Jeffrey M. Zacks**, Tan Nguyen, Matthew A. Bezdek, Samuel L. Gershman, Aaron F. Bobick, & Todd S. Braver*

Event comprehension unfolds on human spatial and temporal timescales—the mesoscopic scales of chairs and chickens, raking and baking. For this reason, experiments and theories in event cognition have been at the forefront of new efforts to push beyond highly simplified laboratory paradigms for studying cognition. However, a major challenge has been to develop experimental and computational platforms to directly test mechanistic event cognition models against human behavior and neurophysiology. In this talk, I will give an overview of new research that deploys a large, highly instrumented human activity corpus and a large-scale computational model to directly compare the performance of human observers with that of the computational model. Initial results have prompted us to reconsider core mechanisms of event segmentation.

Event Perception Research Offers a New Lens on Learning

***Dare A. Baldwin** & Jessica E. Kosie*

Events are constructed experiences; they aren't what actually occurs. What occurs is ongoing dynamic, multidimensional, sensory flow. In question is the nature of the processes that produce event experiences out of the dynamic sensory flow. My colleagues and I propose that the mind transforms the ongoing storm of sensory data via implicit mechanisms of information optimization – both pro-active and reactive – into structured, potentially describable, memorable units of experience. Our domain-general information-optimization account extends other available accounts, such as Zacks and colleagues' Event Segmentation Theory (e.g., Zacks, 2020). Our research (Hard et al., 2018; Kosie & Baldwin, 2019) showcases how processing reorganizes as experience unfolds in time. In accounting for such reorganization, the information-optimization framework readily captures learning processes as they are underway. As well, information-optimization holds potential to account for unique forms of developmental change, such as the changes observed as critical/sensitive periods open and close during development.

Although in some respects our information-optimization account is speculative, considerable confirmatory evidence speaks to its value. The advent of non-invasive methods for probing cognitive engagement such as dwell time and pupillometry, which are well suited to investigating processing of streaming information, herald an era of potentially explosive progress regarding these fundamental issues lying at the heart of the science of learning and development.

Events as cognitive objects

***Sarah Hye-yeon Lee** & Anna Papafragou*

Theories of language production assume that segmenting and construing an event offer a starting point for speaking about

the event. That is, language production is taken to begin with conceptualization (deciding what to say), and later move onto formulation (deciding how to say it), and articulation (saying it; Levelt, 1989). However, little work has addressed the inner workings of conceptualization (Konopka & Brown-Schmidt, 2018). Here, inspired by a long logico-philosophical tradition (Bach, 1986; Jackendoff, 1991; Taylor, 1977), we propose that conceptualizing events is similar in crucial respects to conceptualizing objects. We show that notions of boundaries and structure underlie the mental units in both of these domains, and that currently unanticipated similarities in cross-domain correspondences are entirely predicted by abstract theories of the quantificational structure of spatial and temporal entities. Therefore, an analysis of natural language can reveal meaning distinctions that characterize the way events are conceptualized beyond language.

Impact of event dynamicity on language comprehension

Eva Wittenberg, Elena Marx, & Natalia Jardon

One aspect that has been of central both within the fields of event cognition and linguistics is the distinction between stative and dynamic situations. For instance, static situations tend to serve as a background to dynamic events, which are segmented into units based on the degree of change (e.g., Gibson, 1975; Zacks et al., 2009; Zacks et al., 2001). Likewise, linguistic analyses have argued for a distinction between events and states based on differences in grammatical behavior (e.g., Dowty, 1991; Katz, 2003). Here, I ask: How do properties of dynamicity impact complex event construal? And how does tense influence how we think of event-internal dynamicity?

I present data from two recent series of studies aimed to answer these questions. First, using video-sentence matching (Marx & Wittenberg, 2022, under review), temporal judgment tasks (Marx & Wittenberg, accepted), and act-out tasks (Marx & Wittenberg, in preparation), we show that dynamicity is the single most reliable predictor for how people order situations in time: Situations that are framed as states consistently serve as temporal background to situations that are described as dynamic events. The second series of studies (Jardon et al., under review) tests the proposal that describing a past event in perfect tense turns its mental representation into that of a state, based on a past event: the perfect-as-state hypothesis (e.g., Kamp & Reyle, 1993; Moens, 1987; Parsons, 1990). This subtle distinction is notoriously difficult to trace, and has only been shown using linguistic tests. We operationalize stativity through event individuation and show that compared to the past tense, the perfect tense leads to event construals that have more in common with states, both in English and in Spanish. These data constitute the first documentation of tense affecting the construal of dynamicity features.

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