

A cognitive model of online event segmentation

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Abstract: People automatically segment online perceptual and conceptual experiences into events (Newston, 1973). A new model-based theory explains how people construct temporal markers and prioritize those changes to build representations of events (Khemlani et al., 2015). The theory is implemented within an embodied extension of the ACT-R cognitive architecture (Anderson, 2007) called ACT-R/E (Trafton et al., 2013). Its principal parameter is the prioritization scheme by which certain detectable changes (e.g., in a perceived location) are preferred over others (e.g., in perceived states of an object). We tested the predictions of the theory and its computational model against an experiment on narrative event segmentation. Participants in the study read an excerpt of text and were asked to assess whether certain lines marked the start of a new event. The computational model readily accounted for their segmentation behavior. We conclude by discussing event segmentation and its relation to embodied cognition and cognitive robotics.