

## **Plans, Affordances, and Temporal Semantics**

Mark Steedman, University of Edinburgh

The paper discusses some resources from logic and artificial intelligence research that can be used to build knowledge representations that support common sense reasoning about events and times, so as to support a semantics for verbs, temporal adverbials and other natural language categories like tense, mood, and aspect. While these categories are commonly talked of as "temporal", and treated semantically in terms of quantification over ordered sets of instants and/or intervals, the paper argues that they are primarily causal and teleological, and can be captured in a dynamic and linear logic-based variant of the McCarthy/Hayes/Kowalski situation or event calculi called the Linear Dynamic Event Calculus. The paper discusses various criticisms of such calculi that have been mounted in the AI literature, based on supposed inability to handle various extensions of the AI "Frame Problem," including Ramification and Qualification Problems. When properly drawn up in the way that the natural language problem demands, such systems provide natural solutions to both the problem of representing knowledge about events and plans and the semantics of temporality in natural language.