

# Mapping from Surface to Abstract Event Structures in Language

James Pustejovsky  
Brandeis University

In this talk, I discuss the trade-off between surface and abstract event semantic models. For decades, linguistics and AI have explored ways to build richer and more expressive event structures for sentences in natural language, in order to facilitate semantic interpretation, inference, and causal reasoning. This has resulted in a fairly sophisticated model of events. My own work has focused on a multimodal dynamic logic for events (DITL, Pustejovsky and Moszkowicz, 2011).

This model treats events as an interpreted Labeled Transition System (LTS), providing a graph-based representation for performing inference and reasoning. However, a major stumbling block to deploying such models over linguistic datasets of any significant size has been the creation of these graphs from a parsed representation of the sentences in the corpus. Recently, we have developed a procedure for generating event graphs directly off of a dependency parse structure for linguistic input. The resulting structure is what we call an Event Dependency Graph (EDG). This graph generation technique is potentially exciting for two reasons.

Computing causal graphs from linguistic expressions is both computationally expensive and typically ignores subevent properties associate with the causing and resulting events in the sentences. Encoding event structures directly as graphs (as with the Dynamic Event Models) provides a native data structure for algorithms that perform probabilistic causal reasoning over graphs. To this end, providing a robust event graph generation algorithm from dependency parse structures facilitates the use of such graphs in reasoning.