Causal relationships are everywhere. They underpin our very understanding of our world, and we often want to know what causes, enables, or prevents some phenomenon (e.g., medical symptoms, political events, or interpersonal actions). It is unsurprising, then, that causation is also ubiquitous in language. Recognizing these relations would thus be invaluable for many kinds of natural language semantics applications.

Identifying and interpreting these relationships, however, is not easy for traditional computational approaches to semantic analysis. Causal relations take a wide variety of linguistic realizations, ranging from individual words (including verbs, conjunctions, adjectives, and prepositions) to much more complex patterns, some of which involve words and syntactic relationships from multiple parts of the sentence.

In this talk, I will present an approach to annotating and automatically labeling instances of causal language. We base our approach on the emerging linguistic paradigm known as Construction Grammar (CxG). CxG places form/function pairings called constructions at the heart of both syntax and semantics, allowing the semantics to be anchored to an enormous variety of forms. Drawing on these principles, I will first present a scheme for annotating causal constructions in text. I will then describe two supervised methods, both combining automatically induced rules with statistical classifiers, for automatically recognizing these constructions and identifying their arguments.

This talk is based on joint work with Jaime Carbonell and Lori Levin.