Title: What Can Computers Do for Us? Grammar Engineering for Linguistic Hypothesis Testing, Linguistic Typology, and Language Documentation  
  
  
Abstract:  
Grammar engineering is the process of encoding formal grammars in   
machine-readable form, so that the computer can do the tedious work of   
verifying analyses against data. In this talk, I will give an overview   
of two long-standing projects which aim to facilitate the use of grammar   
engineering for linguistic research: The Grammar Matrix and AGGREGATION   
Projects. The Grammar Matrix (Bender et al 2002, 2010) is an open-source   
toolkit for helping create implemented precision grammars based on a   
shared core grammar and a series of typologically informed 'libraries'.   
The Grammar Matrix itself provides an interesting test-bed for   
typological generalizations, as each new library must be interoperable   
with existing ones. The Grammar Matrix solicits a linguistic description   
through a web questionnaire and then outputs a grammar to spec. The   
AGGREGATION project (Bender et al 2013, Howell et al 2017, Zamaraeva et   
al 2019, Howell forthcoming) is exploring methods for automatically   
answering the Grammar Matrix questionnaire on the basis of collections   
of interlinear glossed text produced by linguists working in the field.   
In the short-term this project provides useful feedback to the linguist   
about patterns in their data, facilitating the language documentation   
effort. In the long-term, our goal is to be able to create implemented   
grammars which can be used to parse interestingly large fragments of the   
languages at hand. These grammars should be useful for both linguistic   
research and ultimately language technology.