Distributional Phrasal and Sentential Semantics: pushing the boundaries

Abstract: Research in distributional semantics has made good progress in capturing individual word meanings. However, the same methods cannot be applied directly to model the semantics of phrases or sentences mainly due to data sparsity. While vocabulary of a language is limited, its generative power is combinatorial and non-restrictive, and so distributional methods may fail to model phrasal or sentential semantics from corpus instances. To address this challenge, a new field called compositional distributional models emerged, aiming to model the meaning of an expression from the distributional representation of its parts. In this talk, I will present three different evaluation criteria for compositional models, and evaluate computational models for compositionality. In the first part of the talk, I will present an empirical study on human compositionality judgements collected using Mechanical Turk, and build computational models based on the inferences from the study. In the second part, I will present our work on context-sensitive representation of words, also called Dynamic Prototypes, to study the effect of polysemy in compositional models. I conclude the talk with a discussion on our ongoing work on modeling sentential semantics and the challenges involved.

Bio: Siva Reddy has dual Masters in Computer Science from the University of York, UK and IIIT Hyderabad, India. He is currently working as a research engineer for Lexical Computing Ltd, UK mainly on enhancing Sketch Engine. His research interests include distributional semantics particularly vector-space and graph-based models, cross language research and web as corpus. His paper on "Dynamic and Static Prototypes for Semantic Composition" has been awarded best-paper award at IJCNLP 2011. Siva has been the lead participant and author in two shared task evaluations: the Domain Specific WSD task in SemEval 2010, where his team came second, and more recently in the Compositionality Detection Shared task of DisCo'2011, where his team won first in two evaluation categories. He is expecting to start a PhD in the fall of 2012 (still in confusion to decide where to go and need your opinions). Outside his work, you can find him at a badminton court. For more details, please visit http://sivareddy.in