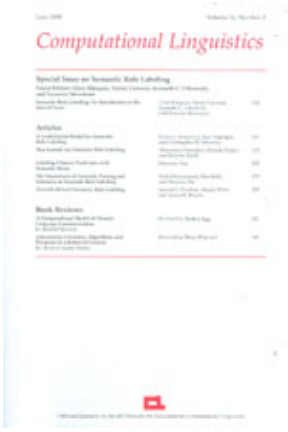

The Importance of Syntactic Parsing and Inference in Semantic Role Labeling

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Abstract Authors

We present a general framework for semantic role labeling. The framework combines a machine-learning technique with an integer linear programming-based inference procedure, which incorporates linguistic and structural constraints into a global decision process. Within this framework, we study the role of syntactic parsing

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information in semantic role labeling. We show that full syntactic parsing information is, by far, most relevant in identifying the argument, especially, in the very first stage – the pruning stage. Surprisingly, the quality of the pruning stage cannot be solely determined based on its recall and precision. Instead, it depends on the characteristics of the output candidates that determine the difficulty of the downstream problems. Motivated by this observation, we propose an effective and simple approach of combining different semantic role labeling systems through joint inference, which significantly improves its performance.

Our system has been evaluated in the CoNLL-2005 shared task on semantic role labeling, and achieves the highest F_1 score among 19 participants.

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