

**Title:** Better k-best Parsing

**Authors:** Liang Huang (Penn/CIS) and David Chiang (UMD/UMIACS)

**Abstract:**

We discuss the relevance of k-best parsing to recent applications in natural language parsing, and develop algorithms that substantially improve on previously-used algorithms with respect to efficiency, scalability, and accuracy. We demonstrate these algorithms in experiments on Bikel's implementation of Collins' lexicalized PCFG model, and on a synchronous CFG based decoder for statistical machine translation. We show in particular how the improved output of our algorithms has the potential to improve results from parse reranking systems and other applications. We formalise parsing into hypergraph searching and further generate our results into a general framework of k-best Dynamic Programming.

**Key Terms:**

parsing, k-best, hypergraph, weighted deduction, algorithms

**Type:**

Finished work.