Abstract

Prediction with One Lookahead Character in Parsing Expression Grammars

KIMIO KURAMITSU[1]

This presentation proposes a predictive parsing with one lookahead character in Parsing Expression Grammars. The idea is simple; by looking one character ahead, we allow more selective matching of subexpressions in a choice. The total removal of backtracking such as in LL(k) grammars is not expected due to the limited hint for the prediction. Instead, we highlight the improved performance by reduced choice non-determinism. In this presentation, we newly develop an left-to-right inference algorithm of possible character acceptance. Due to this inference, we make a practical transformation of any choice expressions into reduced ones to be determined with one lookahead character. Our experiment studies on JavaScript and Java grammars demonstrate that generated parsers are still practical in size, and then parse more 2 times as fast as non-predictive parsers.

---

[1]   Yokohama National University, Yokohama, Kanagawa 240–8501, Japan