

Algorithm 19.7.1

Deterministic Parser for a Strong $LL(k)$ grammar

input: strong $LL(k)$ grammar $G = (V, \Sigma, P, S)$
string $p \in \Sigma^*$
lookahead sets $LA_k(A \rightarrow w)$ for each rule in P

private: q : the sentential form to be expanded

1. $q := S$
2. **repeat**
 - Let $q = uAv$ where A is the leftmost variable in q and
let $p = uyz$ where $\text{length}(y) = k$.
 - 2.1 **if** $y \in LA_k(A \rightarrow w)$ for some A rule **then** $q := uwv$**until** $q = p$ **or** $y \notin LA_k(A \rightarrow w)$ for all A rules
3. **if** $q = p$ **then** accept **else** reject