CKY: The Fundamental Rule

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Abstract

The key part of any parsing algorithm.
function CKY-PARSE(words, grammar) returns table

for j ← from 1 to LENGTH(words) do
    for all \{A \mid A \rightarrow \text{words}[j] \in \text{grammar}\}
        table[j - 1, j] ← table[j - 1, j] \cup A
    for i ← from j - 2 downto 0 do
        for k ← i + 1 to j - 1 do
            for all \{A \mid A \rightarrow BC \in \text{grammar} \text{ and } B \in \text{table}[i, k] \text{ and } C \in \text{table}[k, j]\}
                table[i, j] ← table[i, j] \cup A

Figure 12.5 The CKY algorithm.

Figure 12.6 All the ways to fill the [i, j]th cell in the CKY table.