11/21(수) 21/21강 Dijkstra's Mini Language.

guarded command set

if $B_1 \to SL_1 \,[]\, B_2 \to SL_2 \,[]\, \cdots \,[]\, B_n \to SL_n$ fi

do $B_1 \to SL_1 \,[]\, B_2 \to SL_2 \,[]\, \cdots \,[]\, B_n \to SL_n$ od.

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if $x \geq y \to m := x$
[] $x \leq y \to m := y$
fi

$g_1, g_2, g_3, g_4 := Q_1, Q_2, Q_3, Q_4$;
do $g_1 > g_2 \to g_1, g_2 := g_2, g_1$
[] $g_2 < g_3 \to g_2, g_3 := g_3, g_2$
[] $g_3 < g_4 \to g_3, g_4 := g_4, g_3$
od

CYK algorithm

Give G in Chomsky Normal form, $W = a_1 a_2 \cdots a_n \in T^*$.

Test if $W \in L(G)$ or not!

Compute $X_{ij} = \{A \in N \mid A \Rightarrow^* a_i a_{i+1} \cdots a_j\}$ $1 \leq i \leq j \leq n$.

$O(n^2)$

If $S \in X_{1n}$ then $W \in L(G)$
else $W \notin L(G)$

CYK $O(n^3)$ — ~~linear~~ Tractable — n^k

Left/Right Parser ... NP.. intractable — k^n