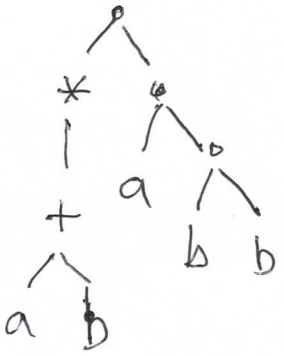
제9강 - 1 Pushdown Automata

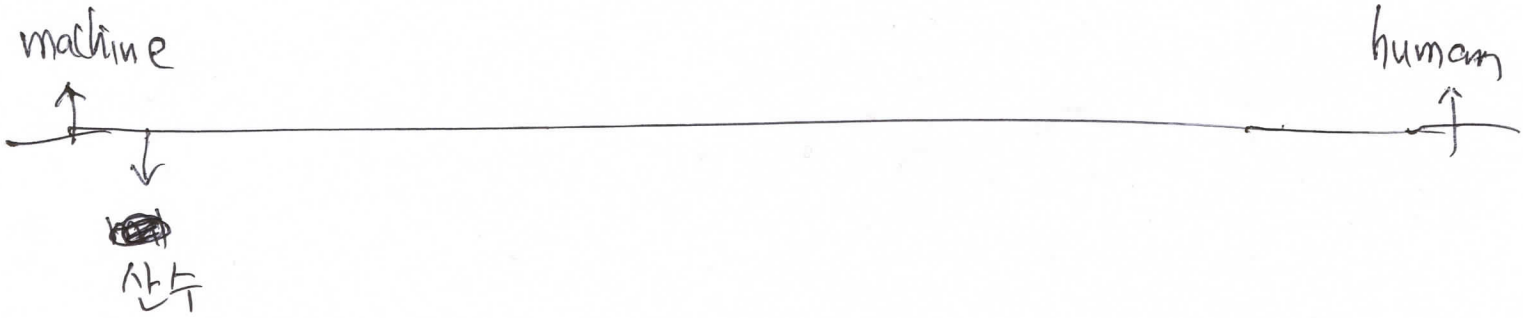
AST (abstract syntax tree)

$(a+b)^*abb$



Dijkstra

Programing for human being



Pushdown automata : F.A + stack

PDA $P = (Q, \Sigma, \Gamma, \delta, q_0, Z_0, F)$

Σ^* Γ^* gamma → PDA의 확장.

$\delta : Q \times (\Sigma) \times (\Gamma) \to 2^{Q \times \Gamma^*}$

$(\Sigma \cup \{\varepsilon\})$

현재상태 stack pop $\in \Gamma$ 다음상태 stack push.

$(p, \varepsilon) \in \delta(q, a, X)$ ... pop. X

$(p, YX) \in \delta(q, a, X)$ ... push Y

p: stack top.

Instantenous description of PDA

현재 상황

$Q \times \Sigma^* \times \Gamma^*$

- Q: 현재 상태
- Σ^*: 현재 남아있는 입력 문자열 (왼쪽)
- Γ^*: 현재 스택 문자열 (top)

$(q, \hat{\alpha}) \in \delta(p, x, \beta)$ 라면 $x \in \Sigma^*, \alpha, \beta \in \Gamma^*$

$(p, xy, \beta\gamma) \vdash (q, y, \alpha\gamma)$

확장

$L(P) = \{w \in \Sigma^* \mid (q_0, w, Z_0) \vdash^* (f, \varepsilon, \alpha), f \in F\}$

Def. of PDA. $P = (Q, \Sigma, \Gamma, \delta, q_0, Z_0, F)$

$\delta : Q \times \Sigma^* \times \Gamma^* \to 2^{Q \times \Gamma^*}$

$\gamma_0 \in \Gamma^*$, $F \subseteq \Gamma^*$ → 최종스택 상태 집합.

초기스택상태