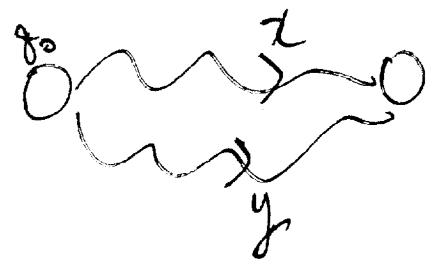
1) 7주-2차(10/16) Minimum DFA 와 Context-Free Grammar (1
chap5

Skip Sec. 4.2 & ~~4.3~~ in ~~the~~ text.

Let $\underline{M} = \underline{(Q, \Sigma, \delta, q_0, F)}$ be a DFA.

We define $\underline{R_{\underline{M}} \subseteq \Sigma^* \times \Sigma^*}$ ~~is~~ right invariant equiv. rel.

$(x, y) \in R_M$ if $\delta(q_0, x) = \delta(q_0, y) \in Q$. ref. symm. tran.



R_M is equivalent!

Partition on $\Sigma^* = |Q|$. index of R.

집합 A의 partition

$\mathrm{Part}(A) = \{\{a\} \mid a \in A\}$, $\rightarrow |A|$

$= \{A\}$. $\quad 1$.

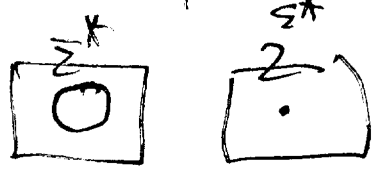
Ex) $A = \{a, b, c\}$.

$|\{\{a\}, \{b\}, \{c\}\}| = 3$

$\{\{a, b\}, \{c\}\}$ ....

$|\{\{a, b, c\}\}|$

$= 2^{\Sigma^*}$



Let $L \subseteq \Sigma^*$ be a language over Σ.

$(L \in 2^{\Sigma^*})$

We define $R_L \subseteq \Sigma^* \times \Sigma^*$

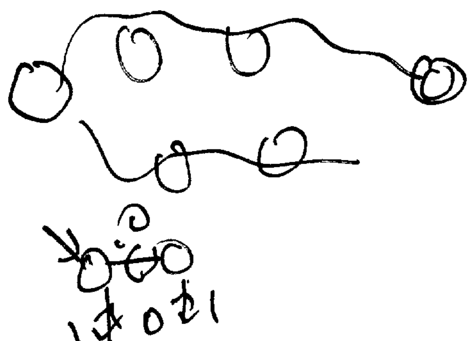
$(x, y) \in R_L$, if $\forall z \in \Sigma^*$: $(xz \in L \wedge yz \in L) \vee (xz \notin L \wedge yz \notin L)$

$xz \in L \Leftrightarrow yz \in L$

right inv. equi.

$R_M \quad R_L$

Myhill-Nerode Theorem.



Chap. 5 Context-free Grammar (Language)

$G = (N, \Sigma, P, S)$

1) N : set of nonterminal symbols.

2) Σ : set of terminal (input) symbols

3) $P \subseteq N \times (N \cup \Sigma)^*$.

$(A, \alpha) \in P$ $\quad A \in N, \ \alpha \in (N \cup \Sigma)^*$

$A \to \alpha \in P$

Context-free grammar.

4) $S \in N$: 시작심볼

$$L(G) = \{ x \in \Sigma^* \mid S \stackrel{*}{\Rightarrow} x \}$$

$\stackrel{0}{\Rightarrow}$: $\quad \alpha \stackrel{0}{\Rightarrow} \alpha \quad \alpha \in (N \cup \Sigma)^*$. Basis

$\stackrel{n+1}{\Rightarrow}$: $\quad \stackrel{n}{\Rightarrow} \quad A \to \alpha \in P$ $\quad$ recursion

$P \subseteq N \times \Sigma^* (N \cup \{\varepsilon\})$

$A, B \in N$

$x \in \Sigma^*$

(A, xB)

$A \to xB$.

right linear gram.

left linear "

$A \to Bx$

Ex) $P \to \varepsilon \mid 0 \mid 1 \mid 0P0 \mid 1P1$