4/6 (木) 3.3 Regular Grammar.

$G=(V,P)$ rewriting system.

$V=N\cup\Sigma,\ N\cap\Sigma=\emptyset,\ S\in N,$

$G=(N,\Sigma,P,S)$ vs $M=(Q,\Sigma,P,q_s,F)$

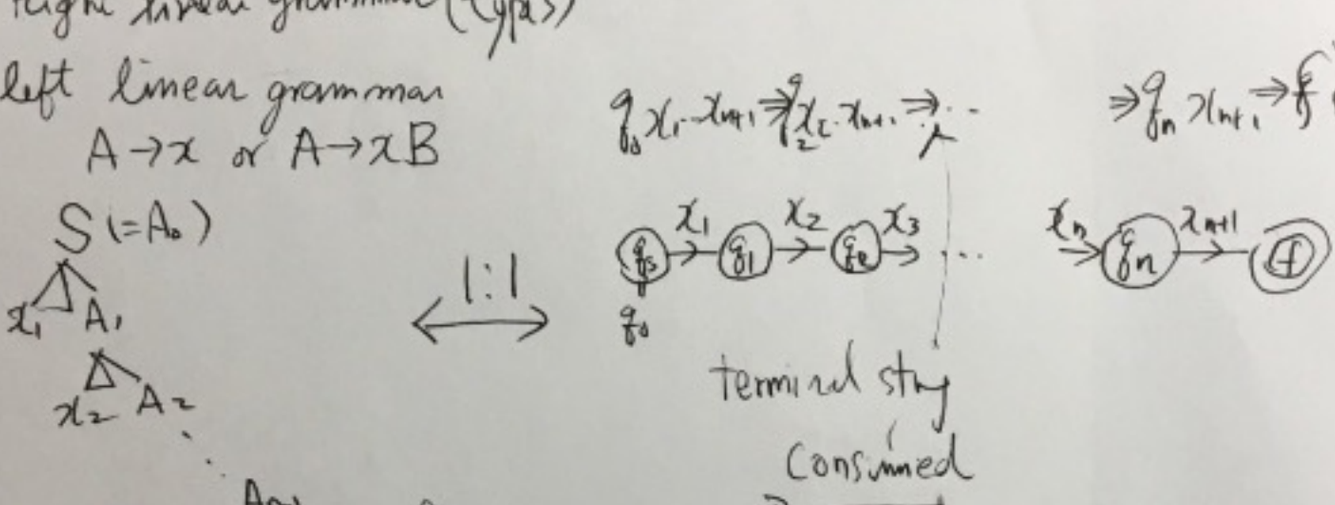
P: $A\to x$ or $A\to xB$ P: $q\cdot x\to p\in P$ vs $p\in\delta(q,x)$

$A,B\in N,\ x\in\Sigma^*$ $p,q\in Q,\ x\in\Sigma^*$

right linear grammar (type3)

left linear grammar

$A\to x$ or $A\to xB$



skewed tree ≡ linear list.

vs context-free grammar (type2)

hierarchical structure

$S\Rightarrow x_1A_1\Rightarrow x_1x_2A_2\Rightarrow\cdots\Rightarrow x_1\cdots x_nA_{n+1}\Rightarrow x_1\cdots x_nx_{n+1}.$

A_0

generating

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

$L(M)=\{x\in\Sigma^*\mid q_s x\Rightarrow f,\ f\in F\}$

3.4 Deterministic FA

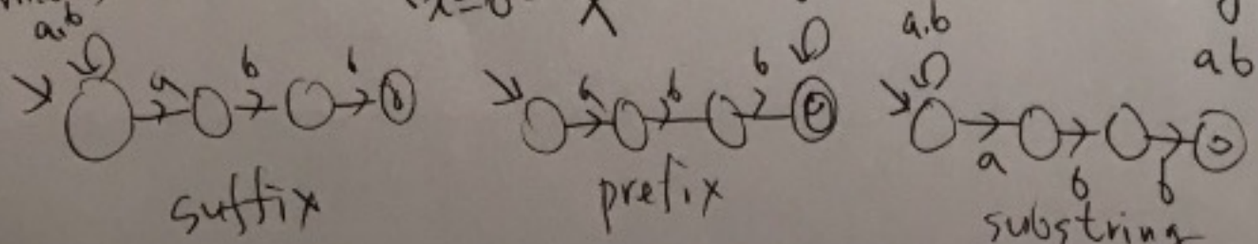
$qw\Rightarrow^{r_1} q_1w_1$ nondeterministic

$qw\Rightarrow^{r_2} q_2w_2$

$r_1\neq r_2$

normal form $|x|=1$ $|x|=1$ → unique transition

$x=0$ — X



suffix prefix substring

* program

non-hierarchical structure

— multiple inheritance

vs single " (tree)

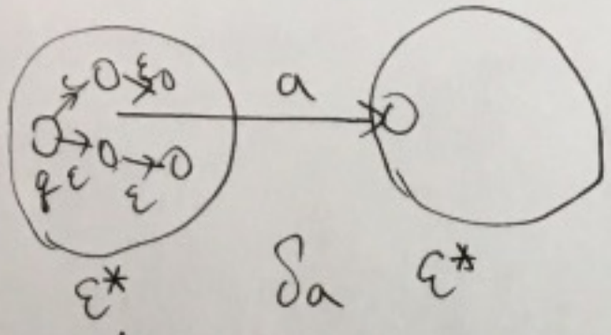
graph

global variable considered harmful!

* 関数の出力 — return value

multiple-value returning function!

③ ε-NFA ⇒ DFA

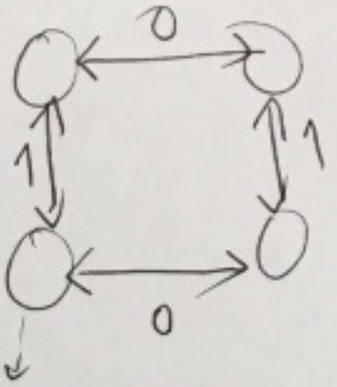


ε-closure

$\delta_a^* \equiv \delta_\varepsilon^* \cdot \delta_a \cdot \delta_\varepsilon^*$

$\hat{\delta}_a \equiv \delta_\varepsilon^* \cdot \delta_a$

DFA



$[0110111] = [01] = [0^{\text{짝}} 1^{\text{홀}}] =$

$[001] = [10D] = [01]$

① NFA → DFA : subset construction