UTS TBO 2018/2019 FARIDI YR

1. P: $A \to aaAbb \mid \lambda$

$S \to aAb \mid \lambda$

Iterasi 0 $S \to \lambda$

" 1 $S \to aAb$

$\to ab$

" 2 $S \to aAb$

$\to aaaAbbb$

$\to aaabbb$

" 3 $S \to aAb$

$\to aaaAbbb$

$\to aaaaaAbbbbb$

$\to aaaaaabbbbb$

" 4 $S \to aAb$

$\to aaaAbbb$

$\to aaaaaAbbbbb$

$\to aaaaaaAbbbbbb$

$\to aaaaaaabbbbbbb$

bahasa:

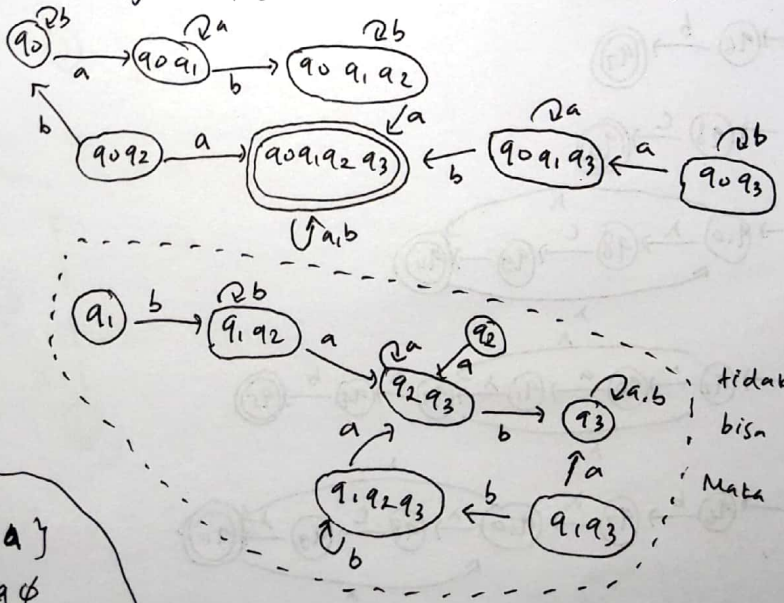
$\lambda$, ab, aaabbb, aaaaabbbbb, aaaaaaabbbbbbb, .....

$L(G) = \{ a^n b^n \mid n \geq 0, n \text{ bilangan genap} \}$

Tabel DFA

| $\delta$ | A | B |
|---|---|---|
| $q_0$ | $\{q_0 q_1\}$ | $\{q_0\}$ |
| $q_1$ | $\phi$ | $\{q_1 q_2\}$ |
| $q_2$ | $\{q_2 q_3\}$ | $\phi$ |
| $q_3$ | $\{q_3\}$ | $\{q_3\}$ |
| $q_0 q_1$ | $\{q_0 q_1\}$ | $\{q_0 q_1 q_2\}$ |
| $q_0 q_2$ | $\{q_0 q_1 q_2 q_3\}$ | $\{q_0\}$ |
| $q_0 q_3$ | $\{q_0 q_1 q_3\}$ | $\{q_0 q_3\}$ |
| $q_1 q_2$ | $\{q_2 q_3\}$ | $\{q_1 q_2\}$ |
| $q_1 q_3$ | $\{q_3\}$ | $\{q_1 q_2 q_3\}$ |
| $q_2 q_3$ | $\{q_2 q_3\}$ | $\{q_3\}$ |
| $q_0 q_1 q_2$ | $\{q_0 q_1 q_2 q_3\}$ | $\{q_0 q_1 q_2\}$ |
| $q_0 q_1 q_3$ | $\{q_0 q_1 q_3\}$ | $\{q_0 q_1 q_2 q_3\}$ |
| $q_1 q_2 q_3$ | $\{q_2 q_3\}$ | $\{q_1 q_2 q_3\}$ |
| $q_0 q_1 q_2 q_3$ | $\{q_0 q_1 q_2 q_3\}$ | $\{q_0 q_1 q_2 q_3\}$ |

DFA yg dibentuk




2.

Tabel NFA

| $\delta$ | A | B |
|---|---|---|
| $q_0$ | $\{q_0 q_1\}$ | $\{q_0\}$ |
| $q_1$ | $\phi$ | $\{q_1 q_2\}$ |
| $q_2$ | $\{q_2 q_3\}$ | $\phi$ |
| $q_3$ | $\{q_3\}$ | $\{q_3\}$ |

- $\delta(\{q_0 q_1\}, a) = \delta\{q_0, a\} \in \delta\{q_1, a\}$
  $= \{q_0 q_1\} \in \phi$
  $= \{q_0 q_1\}$
- $\delta(\{q_0 q_1\}, b) = \delta\{q_0, b\} \in \delta\{q_1, b\}$
  $= \{q_0\} \in \{q_1 q_2\} = \{q_0 q_1 q_2\}$

dst.

3. $a^* b + (bc^*) = (\epsilon + a + aa + \ldots)b + (b(\epsilon + c + cc + \ldots))$

$= \epsilon b + ab + aab + \ldots + (b\epsilon + bc + bcc + \ldots)$

$= \epsilon b + b\epsilon + ab + bc + aab + bcc + \ldots$

$L = \{ b, ab, bc, aab, bcc, \ldots \}$

4. $r = a^* b + (bc^*)$

$r = r_1 + r_2$

$r_1 = r_3 r_4$

$r_2 = r_8 r_5$

$r_3 = r_6^*$

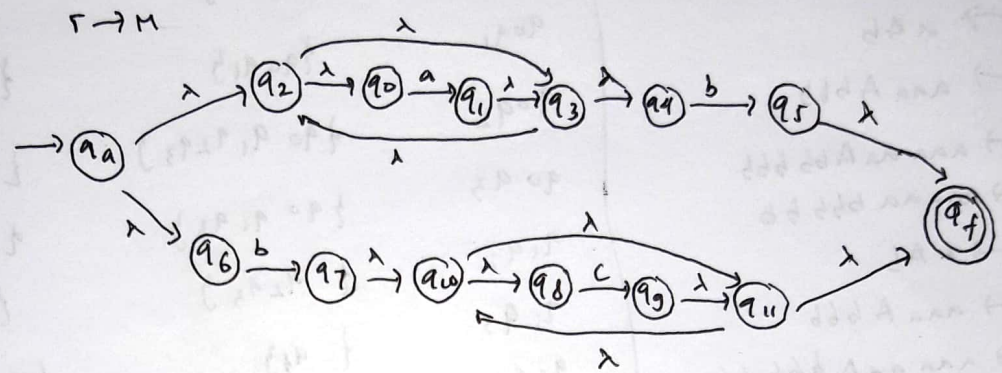
$r_8 = r_4 = b$

$r_5 = r_7^*$

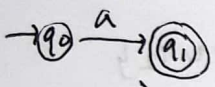
$r_6 = a$

$r_7 = c$

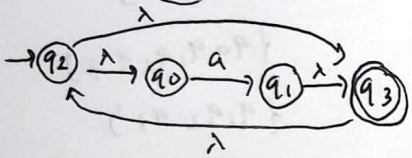
$r \to M$



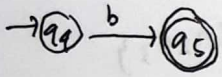

$r_6 \to M_6$



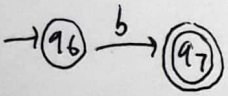

$r_3 \to M_3$



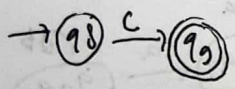

$r_4 \to M_4$



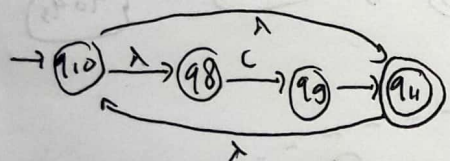

$r_8 \to M_8$



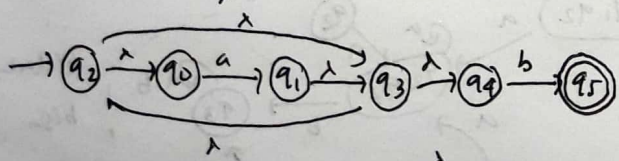

$r_7 \to M_7$




$r_5 \to M_5$




$r_1 \to M_1$




$r_2 \to M_2$