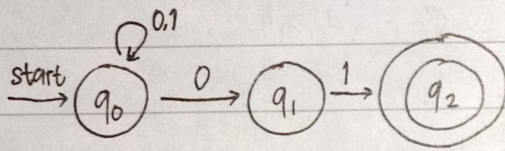Ferza Reyaldi 09021281924060

Teori Bahasa & Otomata 4REGA

Tugas — Non Deterministic Automata

$L = \{ w \mid w$ berakhiran substring $01 \}$

$Q = \{ q_0, q_1, q_2 \}$

$\Sigma = \{ 0, 1 \}$

Start state $= q_0$

$F = \{ q_2 \}$

Tabel transisi

δ	0	1
$\rightarrow q_0$	$\{ q_0, q_1 \}$	$\{ q_0 \}$
q_1	$\emptyset$	$\{ q_2 \}$
$* q_2$	$\emptyset$	$\emptyset$

(Symbols / States)

* $w = 1101$

$$\hat{\delta}(q_0, \varepsilon) = \{ q_0 \}$$

$$\hat{\delta}(q_0, 1) = \delta(q_0, 1) = \{ q_0 \}$$

$$\hat{\delta}(q_0, 11) = \delta(q_0, 1) = \{ q_0 \}$$

$$\hat{\delta}(q_0, 110) = \delta(q_0, 0) = \{ q_0, q_1 \}$$

$$\hat{\delta}(q_0, 1101) = \delta(q_0, 1) \cup \delta(q_1, 1) = \{ q_0 \} \cup \{ q_2 \} = \{ q_0, q_2 \}$$

$$\{ q_0, q_2 \} \cap \{ q_2 \} = \{ q_2 \}.$$

Karena terdapat salah satu jalur sampai di final state, maka $1101 \in L$.

* w = 1010

$\hat{\delta}(q_0, \varepsilon) = \{q_0\}$

$\hat{\delta}(q_0, 1) = \delta(q_0, 1) = \{q_0\}$

$\hat{\delta}(q_0, 10) = \delta(q_0, 0) = \{q_0, q_1\}$

$\hat{\delta}(q_0, 101) = \delta(q_0, 1) \cup \delta(q_1, 1) = \{q_0\} \cup \{q_2\} = \{q_0, q_2\}$

$\hat{\delta}(q_0, 1010) = \delta(q_0, 0) \cup \delta(q_2, 0) = \{q_0, q_1\} \cup \varnothing = \{q_0, q_1\}$

$\{q_0, q_1\} \cap \{q_2\} = \varnothing.$

w = 1010 tidak diterima oleh bahasa L.

* w = 001001

$\hat{\delta}(q_0, \varepsilon) = \{q_0\}$

$\hat{\delta}(q_0, 0) = \delta(q_0, 0) = \{q_0, q_1\}$

$\hat{\delta}(q_0, 00) = \delta(q_0, 0) \cup \delta(q_1, 0) = \{q_0, q_1\} \cup \varnothing = \{q_0, q_1\}$

$\hat{\delta}(q_0, 001) = \delta(q_0, 1) \cup \delta(q_1, 1) = \{q_0\} \cup \{q_2\} = \{q_0, q_2\}$

$\hat{\delta}(q_0, 0010) = \delta(q_0, 0) \cup \delta(q_2, 0) = \{q_0, q_1\} \cup \varnothing = \{q_0, q_1\}$

$\hat{\delta}(q_0, 00100) = \delta(q_0, 0) \cup \delta(q_1, 0) = \{q_0, q_1\} \cup \varnothing = \{q_0, q_1\}$

$\hat{\delta}(q_0, 001001) = \delta(q_0, 1) \cup \delta(q_1, 1) = \{q_0\} \cup \{q_2\} = \{q_0, q_2\}$

$\{q_0, q_2\} \cap \{q_2\} = q_2.$

w = 001001 diterima oleh bahasa L.