

Acceptance by stack empty

$$M = (Q, \Sigma, \Gamma, \delta, q_0, z_0, F)$$

(i)  $L(M) =$  acceptance by final state

$$\left\{ w \in \Sigma^* \mid (q_0, w, z_0) \vdash^* (p, \epsilon, \gamma) \right\}$$

[  $\hookrightarrow$  one  $\neq$  final state ]

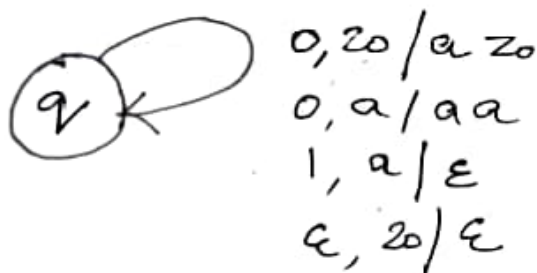
(ii)  $N(M) =$  acceptance by empty stack

$$\left\{ w \in \Sigma^* \mid (q_0, w, z_0) \vdash^* (p, \epsilon, \epsilon) \right\}$$

[  $\hookrightarrow$  any state in  $Q$  ( $p \in Q$ ) ]

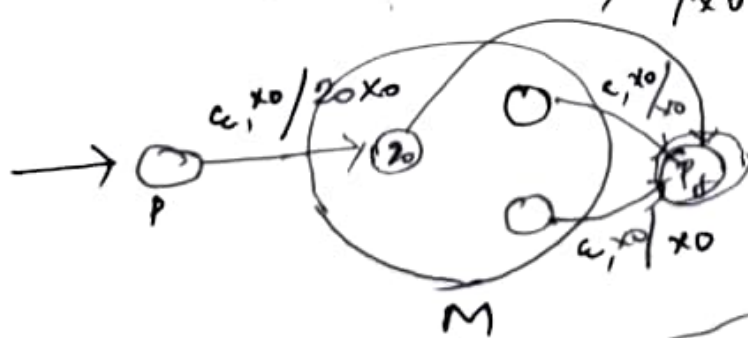
Language

$$L = \{ 0^n 1^n \mid n \geq 0 \}$$



$$M = \{ \{q_0\}, \{0, 1\}, \{A, z_0\}, \delta, q_0, z_0, \emptyset \}$$

$N(M)$   
From Empty stack acceptance to final state

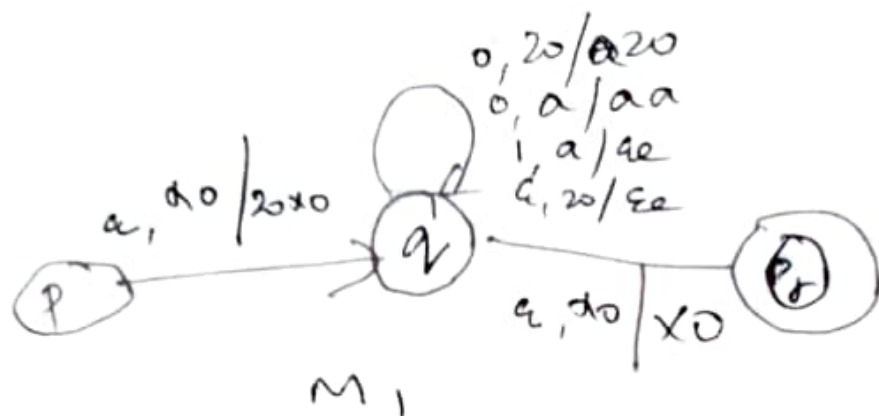


$$M = \{Q, \Sigma, \Gamma, \delta, q_0, z_0, \emptyset\}$$

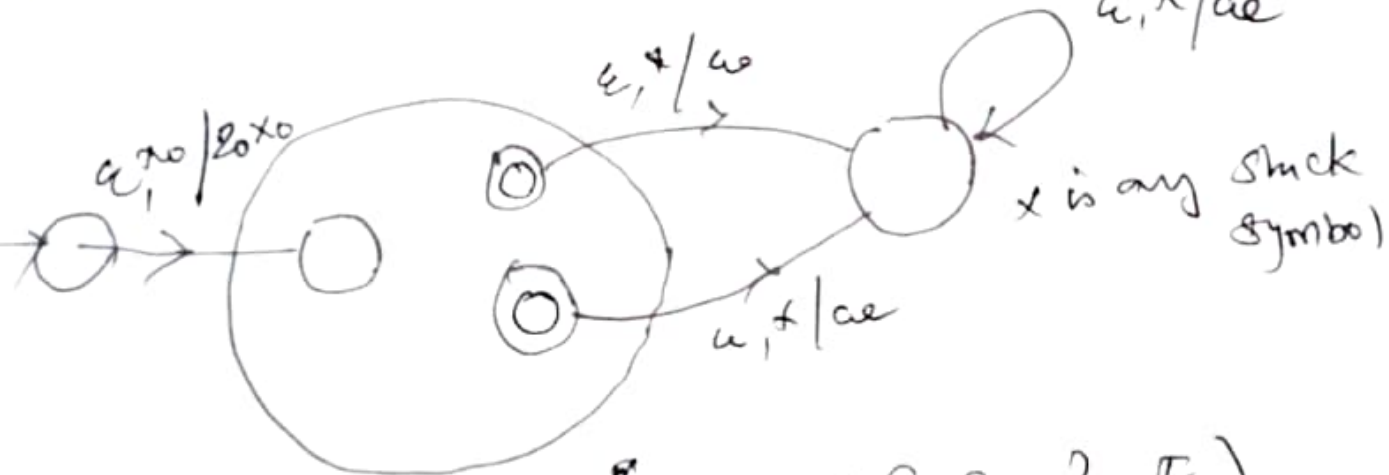
$$M_1 = \{Q \cup \{p, p_f\}, \Sigma, \Gamma \cup \{x_0\}, \delta, p, p_f\}$$

$$M_1 = \{Q \cup \{p, p_f\}, \Sigma, \Gamma \cup \{x_0\}, \delta, p, p_f\}$$

$$L(M_1) = N(M) \quad \text{Proved.}$$



From Final state acceptance to Stack empty



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

$$(q_0, w, Z_0) \vdash^* (p, \epsilon, \epsilon)$$

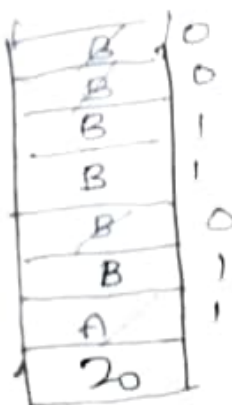
$\vdash^*$  a final state

$$L = \{w \in \{0,1\}^* \mid w \text{ is equal no. of } 0^s \text{ \& } 1^s\}$$

i/o symbol  $\rightarrow$  stack symbol

0  $\rightarrow$  A

1  $\rightarrow$  B



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