$$L_E(P)=\{w\in \{a,b\}^*\mid N_a(w)=N_b(w)\}$$
 Word  $w=$  a a b b b a a a b b Stack  $\alpha=$ 

 $a [Z \rightarrow AZ]$  $a [A \rightarrow AA]$  $a [B \rightarrow \epsilon]$ 

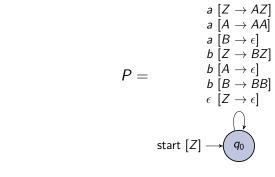
$$P=egin{array}{c} b \ [Z
ightarrow BZ] \ b \ [A
ightarrow \epsilon] \ b \ [B
ightarrow BB] \ \epsilon \ [Z
ightarrow \epsilon] \ \end{array}$$
start  $[Z]$ 

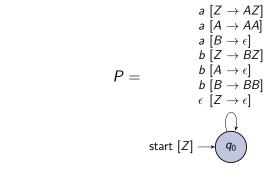
$$P = \begin{cases}
a & [Z \to AZ] \\
a & [A \to AA] \\
a & [B \to \epsilon] \\
b & [Z \to BZ] \\
b & [A \to \epsilon] \\
b & [B \to BB] \\
\epsilon & [Z \to \epsilon]
\end{cases}$$
start  $[Z] \longrightarrow \boxed{q_0}$ 

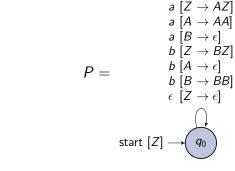
$$P = \begin{cases} a & [Z \to AZ] \\ a & [A \to AA] \\ a & [B \to \epsilon] \\ b & [Z \to BZ] \\ b & [A \to \epsilon] \\ b & [B \to BB] \\ \epsilon & [Z \to \epsilon] \end{cases}$$

a  $[Z \rightarrow AZ]$ 

$$P = \begin{pmatrix} a & [A \rightarrow AA] \\ a & [B \rightarrow \epsilon] \\ b & [Z \rightarrow BZ] \\ b & [A \rightarrow \epsilon] \\ b & [B \rightarrow BB] \\ \epsilon & [Z \rightarrow \epsilon] \end{pmatrix}$$

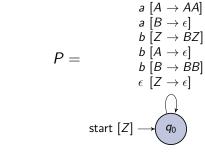






$$L_E(P) = \{w \in \{a,b\}^* \mid N_a(w) = N_b(w)\}$$
 Word  $w = \begin{bmatrix} a & a & b & b & b & a & a & a & b \\ \hline & B & B & Z \end{bmatrix}$  Stack  $\alpha = \begin{bmatrix} B & B & Z \end{bmatrix}$ 

a  $[Z \rightarrow AZ]$ 



a  $[Z \rightarrow AZ]$ 

$$P=egin{array}{c} a & [A
ightarrow AA] \ a & [B
ightarrow \epsilon] \ b & [Z
ightarrow BZ] \ b & [A
ightarrow \epsilon] \ b & [B
ightarrow BB] \ \epsilon & [Z
ightarrow \epsilon] \ \end{array}$$

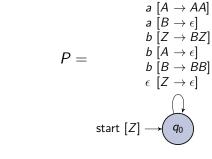
$$L_E(P) = \{w \in \{a,b\}^* \mid N_a(w) = N_b(w)\}$$
 Word  $w = a$  a b b b b a a a Stack  $\alpha = A$ 

$$P = \begin{cases} a & [Z \to AZ] \\ a & [A \to AA] \\ a & [B \to \epsilon] \\ b & [Z \to BZ] \\ b & [A \to \epsilon] \\ b & [B \to BB] \\ \epsilon & [Z \to \epsilon] \end{cases}$$
start  $[Z] \longrightarrow q_0$ 

$$L_E(P) = \{w \in \{a, b\}^* \mid N_a(w) = N_b(w)\}$$
Word  $w =$ a a b b b b a a b b
Stack  $\alpha =$ 

$$A \mid Z$$

$$a \mid Z \rightarrow AZ \mid$$



$$L_E(P) = \{w \in \{a,b\}^* \mid N_a(w) = N_b(w)\}$$
 Word  $w = a$  a b b b b a a a a Stack  $\alpha = \square$ 

$$P = \begin{cases} a & [Z \to AZ] \\ a & [A \to AA] \\ a & [B \to \epsilon] \\ b & [Z \to BZ] \\ b & [A \to \epsilon] \\ b & [B \to BB] \\ \epsilon & [Z \to \epsilon] \end{cases}$$

aabbbbaaab  $\in L_E(P)!$