

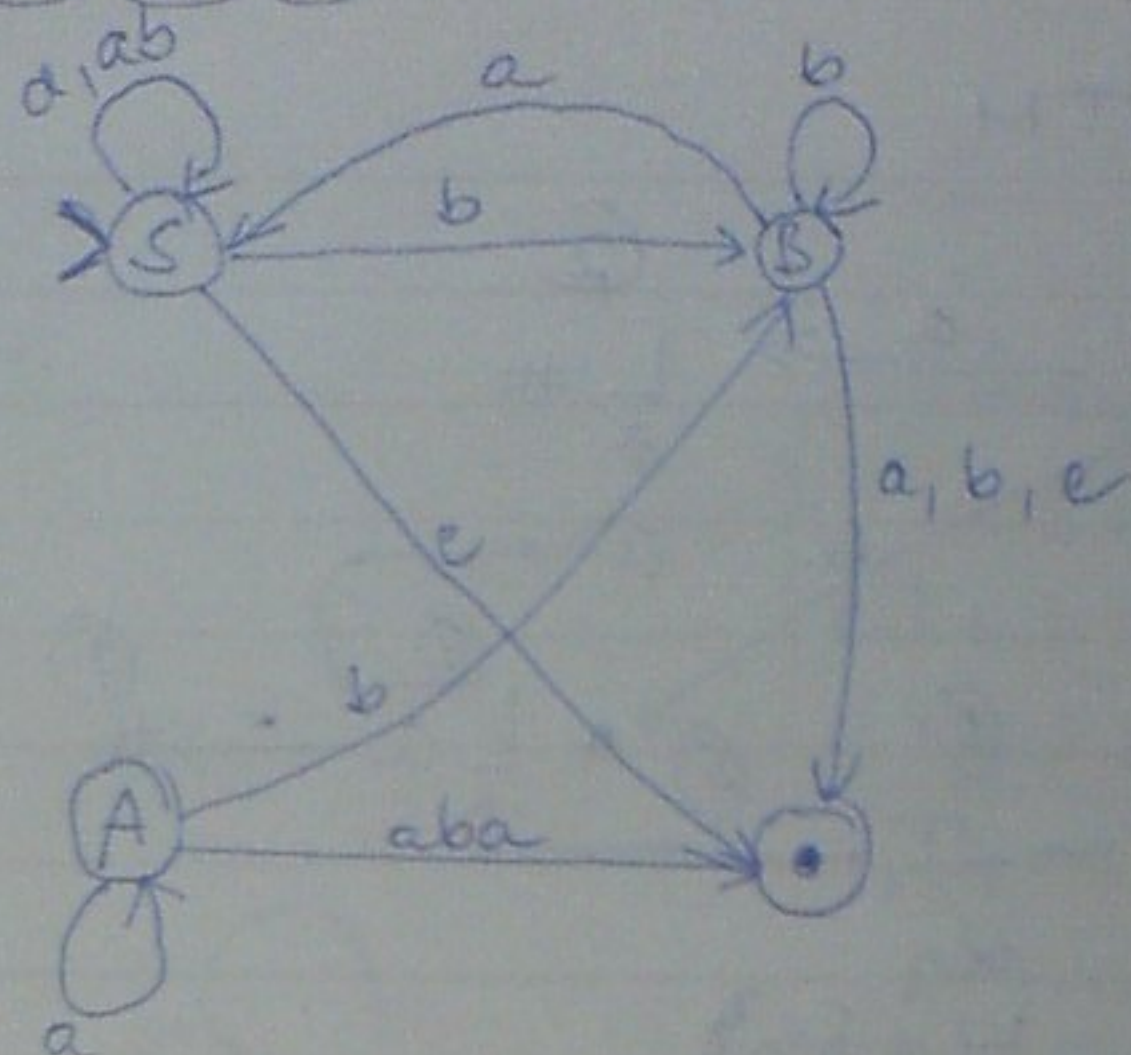
Dígszám konzultáció

REG \rightarrow NFA

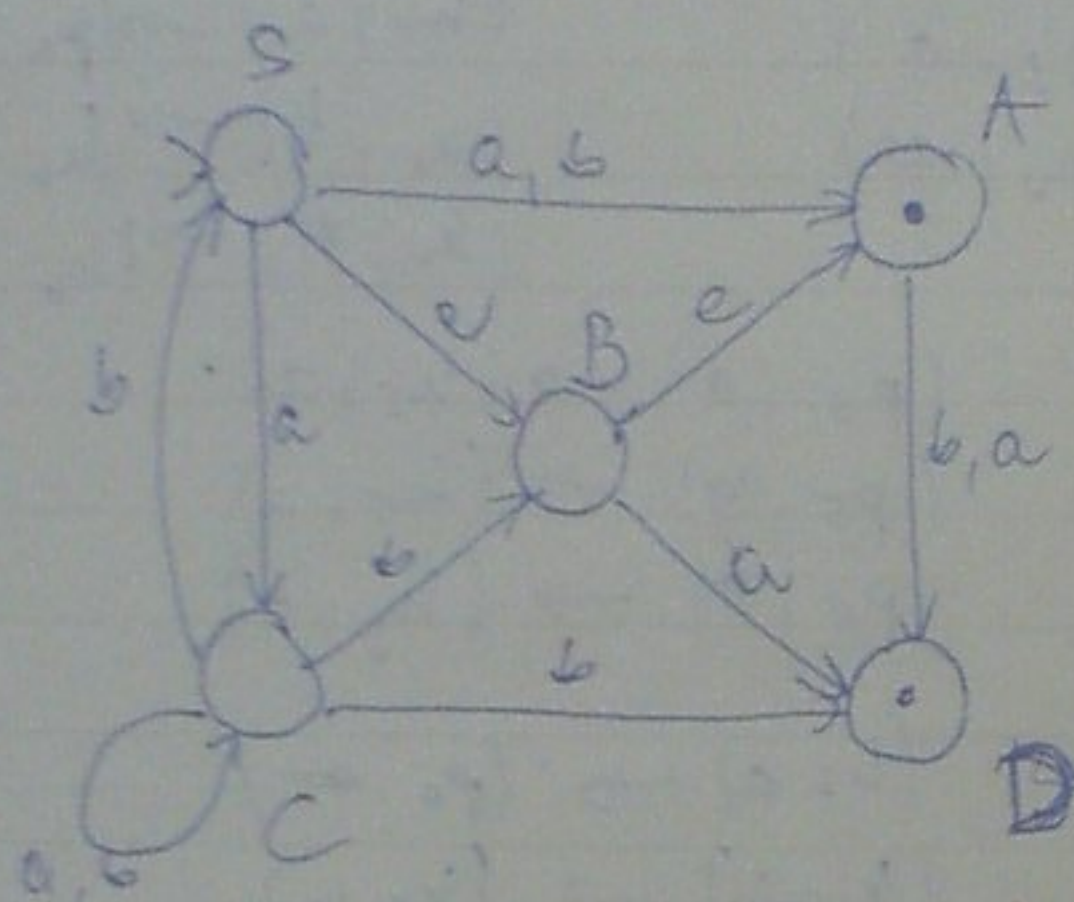
$$S \rightarrow abS \mid aS \mid bB \mid e$$

$$A \rightarrow aA \mid bB \mid aba$$

$$B \rightarrow bB \mid aS \mid a \mid b \mid e$$



NFA \rightarrow REG



kezdő

$$S \rightarrow abA \mid B \mid aC$$

$$A \rightarrow bD \mid aD \mid e$$

$$B \rightarrow aA \mid aD$$

$$C \rightarrow bS \mid bB \mid bD \mid abC$$

$$D \rightarrow e$$

RE \rightarrow CFG

$$\underbrace{((a \cup b)^* ac \cup bd^* a)^*}_{S_1} \cup \underbrace{ba(c \cup d)^*}_{S_2}$$

$$S \rightarrow S_1 \mid S_2$$

$$S_2 \rightarrow ba S_3$$

$$S_3 \rightarrow S_4 S_5 \mid e$$

$$S_4 \rightarrow c \mid d$$

$$S_1 \rightarrow S_6 S_7 \mid e$$

$$S_5 \rightarrow S_6 \mid S_7$$

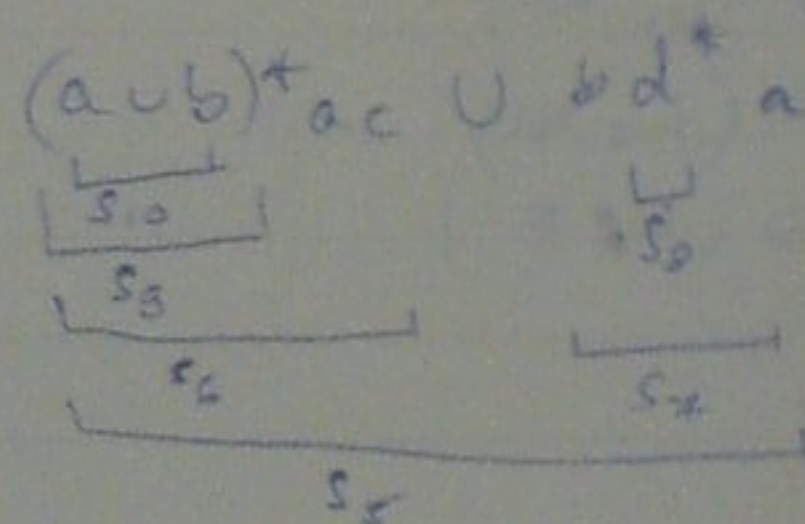
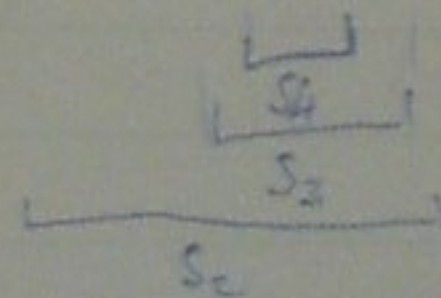
$$S_7 \rightarrow b S_8 a$$

$$S_8 \rightarrow d S_8 \mid e$$

$$S_6 \rightarrow S_9 a c$$

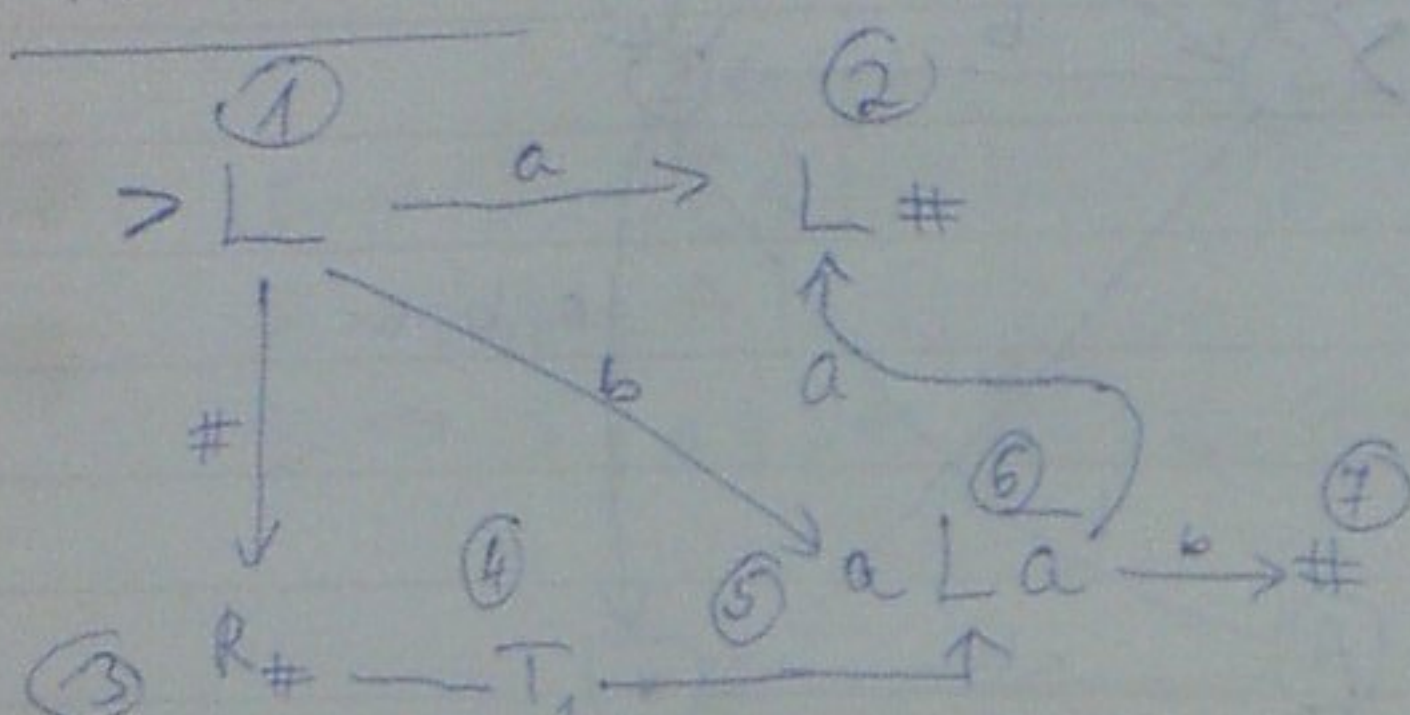
$$S_9 \rightarrow S_{10} S_3 \mid e$$

$$S_{10} \rightarrow a \mid b$$



S a kezdőállapot

$M \rightarrow TM$



kezdo $s = p_1$
veg $H = \{h_7\}$

T_1 $s = p$ $H = \{h\}$

$(p_0, a) \rightarrow (p_1, \leftarrow)$
 $(q_1, b) \rightarrow (q_1, \rightarrow)$
 $(p_1, \#) \rightarrow (h, a)$
 $(q_1, a) \rightarrow (q_1, \rightarrow)$
 $(q_1, b) \rightarrow (h, \#)$
 $(q_1, \#) \rightarrow (p_1, \leftarrow)$

① $(p_1, a) \rightarrow (h_1, \leftarrow)$ $(h_1, a) \rightarrow (p_2, \leftarrow)$
 $(p_1, b) \rightarrow (h_1, \leftarrow)$ $(h_1, b) \rightarrow (h_5, a)$
 $(p_1, \#) \rightarrow (h_1, \leftarrow)$ $(h_1, \#) \rightarrow (h_5, \#)$
 $(h_1, a) \rightarrow (p_0, \leftarrow)$
 $(h_1, b) \rightarrow (h_6, b)$
 $(h_1, \#) \rightarrow (h_6, \#)$

② $(p_2, a) \rightarrow (p_2, \leftarrow)$ $(h_2, a) \rightarrow (h, a)$ ⑤ $(p_5, a) \rightarrow (h_5, a)$
 $(p_2, b) \rightarrow (p_2, \leftarrow)$ $(h_2, b) \rightarrow (h, b)$ $(p_5, b) \rightarrow (h_5, a)$
 $(p_2, \#) \rightarrow (h_2, \#)$ $(h_2, \#) \rightarrow (h, \#)$ $(p_5, \#) \rightarrow (h_5, a)$

③ $(p_3, a) \rightarrow (p_3, \rightarrow)$
 $(p_3, b) \rightarrow (p_3, \rightarrow)$
 $(p_3, \#) \rightarrow (h_3, \#)$
 $(h_3, a) \rightarrow (p_4, \leftarrow)$
 $(h_3, b) \rightarrow (q_4, \rightarrow)$
 $(h_3, \#) \rightarrow (h_4, a)$
 $(h_5, a) \rightarrow (p_0, \leftarrow)$
 $(h_6, b) \rightarrow (h_6, b)$
 $(h_5, \#) \rightarrow (h_6, \#)$

⑥ $(p_6, a) \rightarrow (p_6, \leftarrow)$
 $(p_6, b) \rightarrow (h_6, b)$
 $(p_6, \#) \rightarrow (h_6, \#)$

$(h_6, a) \rightarrow (p_2, \leftarrow)$
 $(h_6, b) \rightarrow (h_7, \#)$
 $(h_6, \#) \rightarrow (h_7, \#)$

⑦ $(p_7, a) \rightarrow (h_7, \#)$
 $(p_7, b) \rightarrow (h_7, \#)$
 $(p_7, \#) \rightarrow (h_7, \#)$

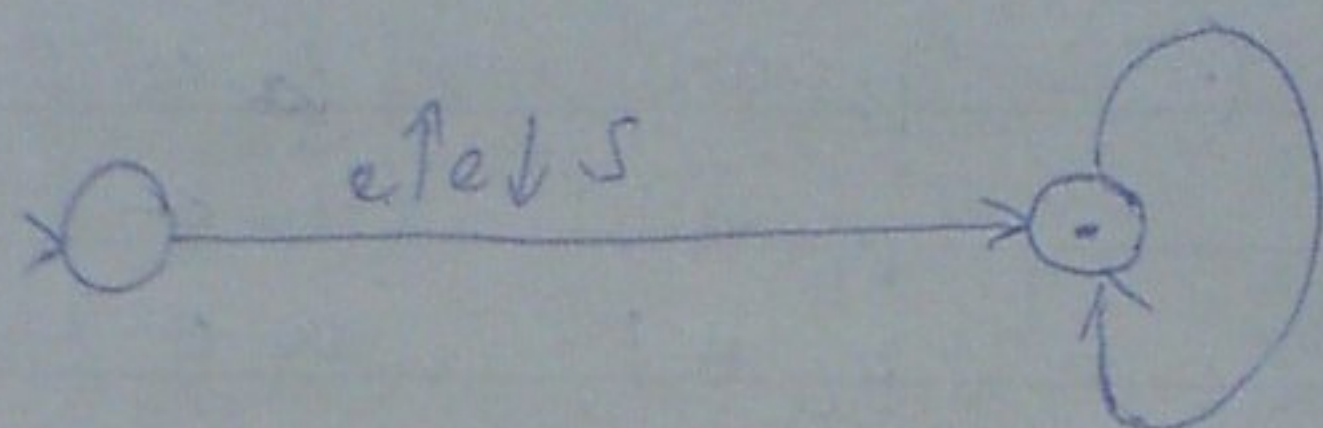
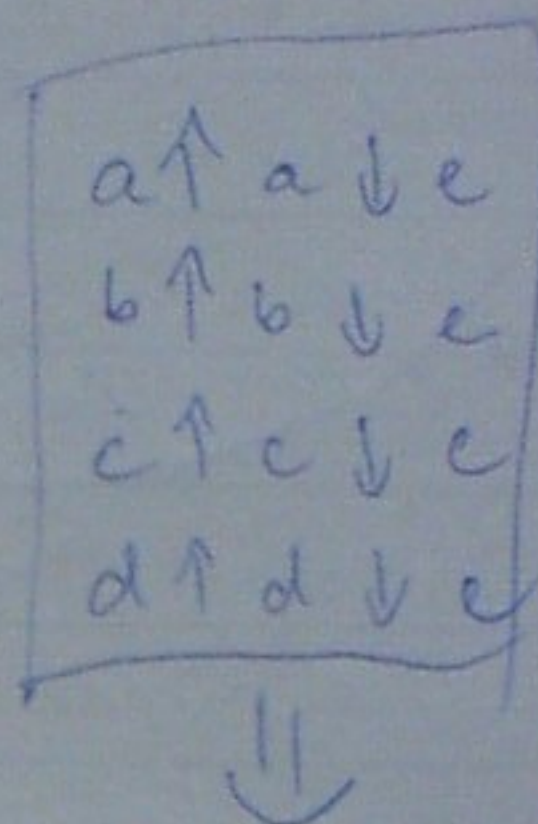
$(h_7, a) \rightarrow (h, a)$
 $(h_7, b) \rightarrow (h, b)$
 $(h_7, \#) \rightarrow (h, \#)$

CFG \rightarrow PDA

$S \rightarrow SaBcd \mid A \mid ccBBc \mid e$

$A \rightarrow AaA \mid aB \mid abc$

$B \rightarrow S \mid A \mid SAS \mid Sbc \mid b$



$e \uparrow S \downarrow SaBcd$

$e \uparrow S \downarrow A$

$e \uparrow S \downarrow ccBc$

$e \uparrow A \downarrow AaA$

$e \uparrow S \downarrow e$

$e \uparrow A \downarrow aB$

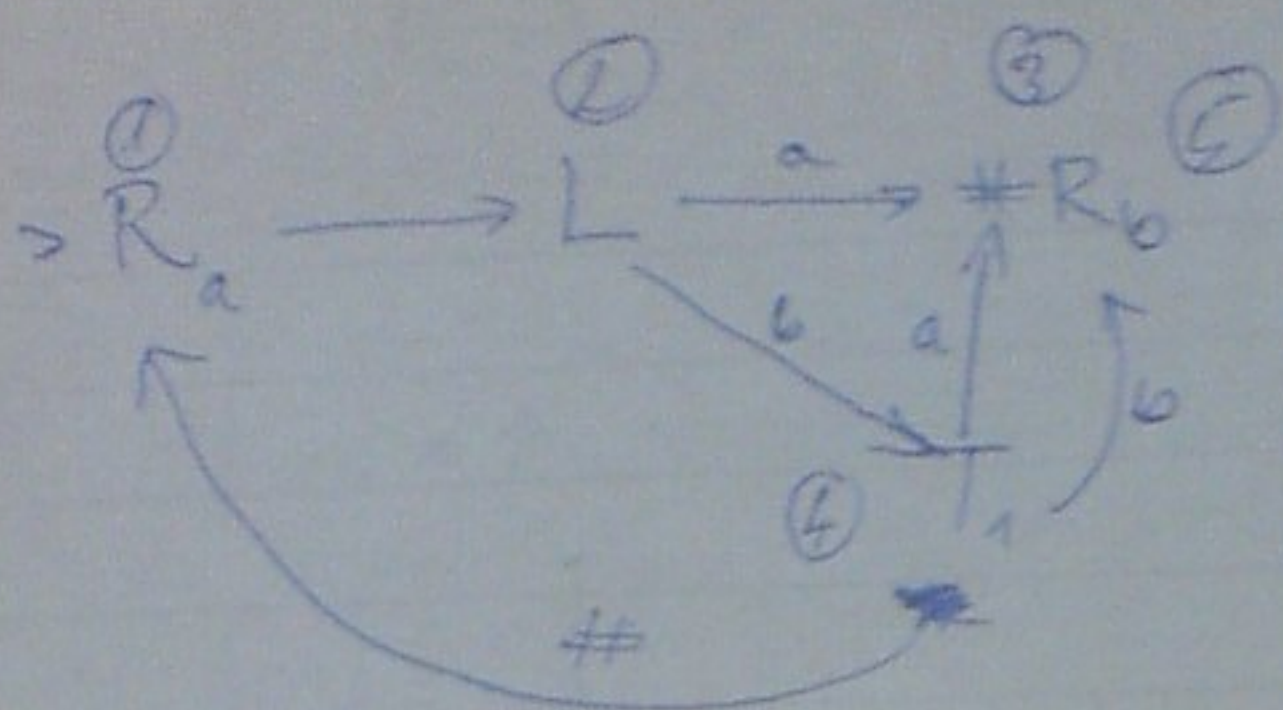
$e \uparrow B \downarrow S$

$e \uparrow A \downarrow abc$

$e \uparrow B \downarrow A$

e

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$$T, s=q \quad H = \{u\}$$

$$\begin{array}{ll} (p_1, a) \rightarrow (p_1 \leftarrow) & (q_1, a) \rightarrow (q \rightarrow) \\ (p_1, b) \rightarrow (q, b) & \text{or } b \quad u \rightarrow \\ p \# & u a \quad q \# \quad p \leftarrow \end{array}$$

$$\begin{array}{l} \textcircled{1} (p_1, a) \rightarrow (p_1 \rightarrow) \\ (p_1, b) \rightarrow (u_1, b) \\ (p_1, \#) \rightarrow (u_1, \#) \end{array}$$

$$\begin{array}{l} \textcircled{2} (p_2, a) \rightarrow (p_2 \leftarrow) \\ (p_2, b) \rightarrow (u \leftarrow) \\ (p_2, \#) \rightarrow (u \leftarrow) \end{array}$$

$$\begin{array}{l} (u_1, a) \rightarrow (u_2 \leftarrow) \\ (u_1, b) \rightarrow (u_2 \leftarrow) \\ (u_1, \#) \rightarrow (u_2 \leftarrow) \end{array}$$

$$\begin{array}{l} (u_2, a) \rightarrow (u_3, \#) \\ (u_2, b) \rightarrow (u_4 \rightarrow) \\ (u_2, \#) \rightarrow (u_1, \#) \end{array}$$

$$\begin{array}{l} \textcircled{3} (p_3, a) \rightarrow (u_2, \#) \\ (p_3, b) \rightarrow (u_3, \#) \\ (p_3, \#) \rightarrow (u_3, \#) \end{array}$$

$$\begin{array}{l} \textcircled{5} (p_5, a) \rightarrow (p_5 \rightarrow) \\ (p_5, b) \rightarrow (u_5, b) \\ (p_5, \#) \rightarrow (p_5 \rightarrow) \end{array}$$

$$\begin{array}{l} (u_3, a) \rightarrow (p_5 \rightarrow) \\ (u_3, b) \rightarrow (p_5, b) \\ (u_3, \#) \rightarrow (p_5 \rightarrow) \end{array}$$