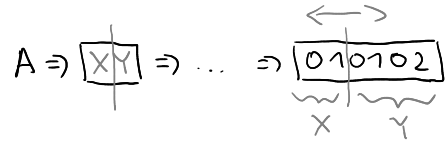
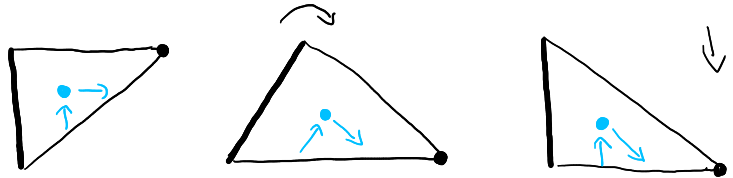
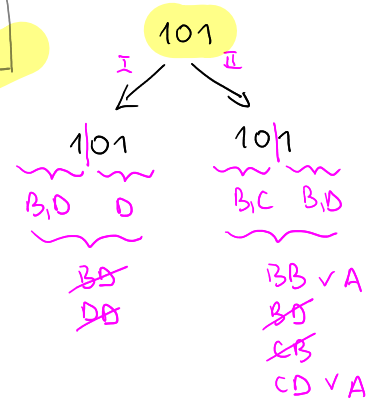
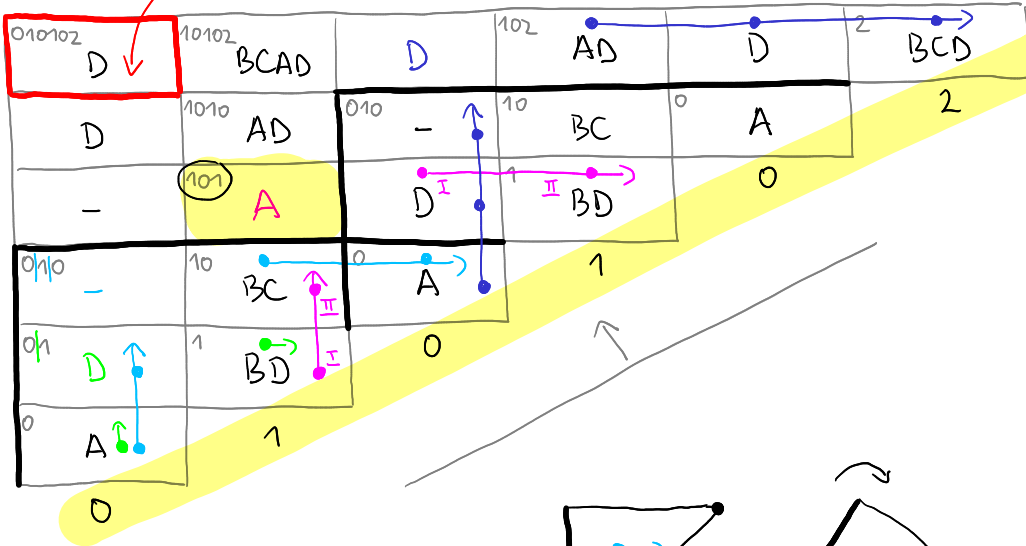


- ① $\rightarrow A \rightarrow CD|BB|0$
 $B \rightarrow BA|1|2$
 $C \rightarrow BA|2$
 $D \rightarrow AD|BC|1|2$

010102



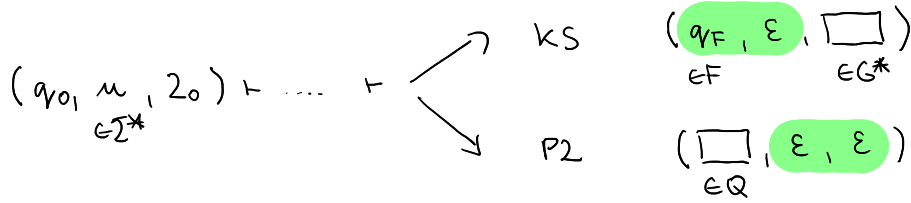
$A? \Rightarrow 010102 \notin L(G)$



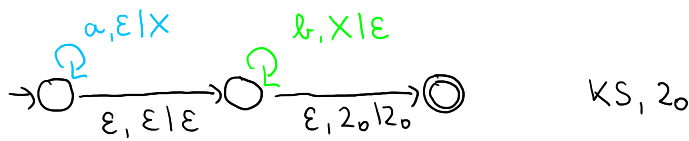
2A: $(Q, \Sigma, G, \delta, q_0, z_0, F)$

$\delta: Q \times (\Sigma \cup \{\epsilon\}) \times G^* \rightarrow \mathcal{P}(Q \times G^*)$

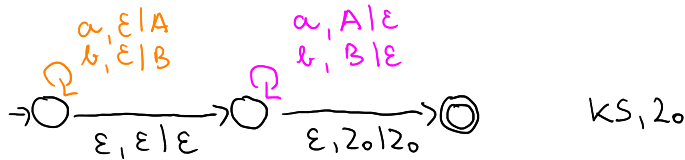
(q, u, v)
 $q \in Q, u \in \Sigma^*, v \in G^*$



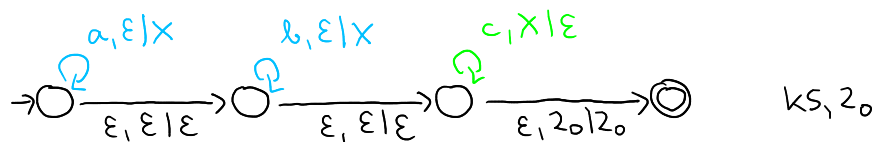
① $a^i b^i$



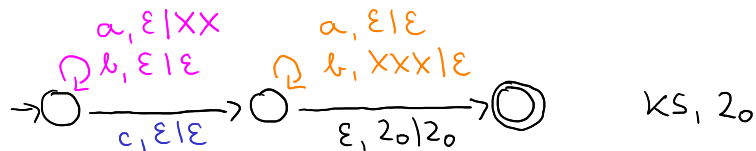
② $w w^R$



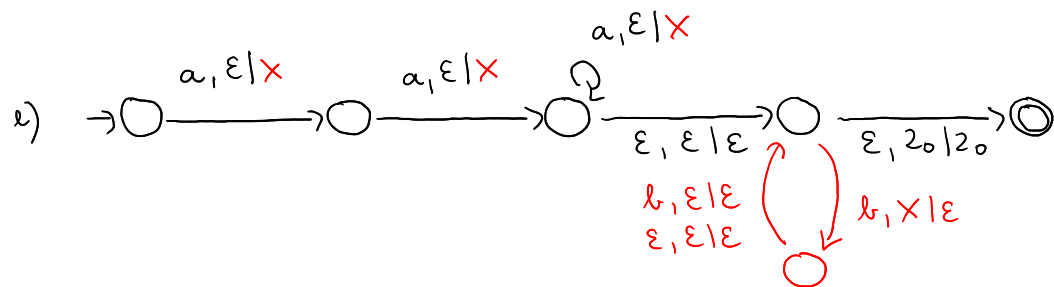
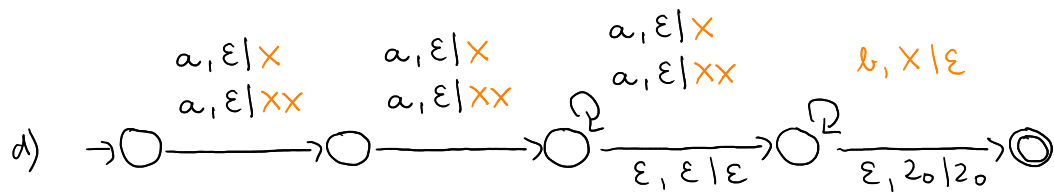
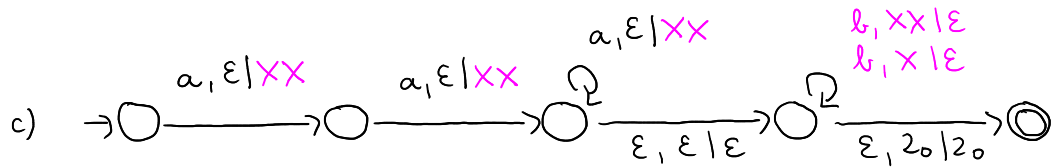
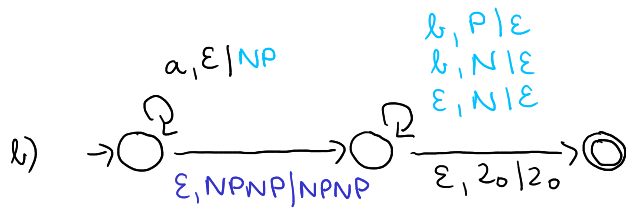
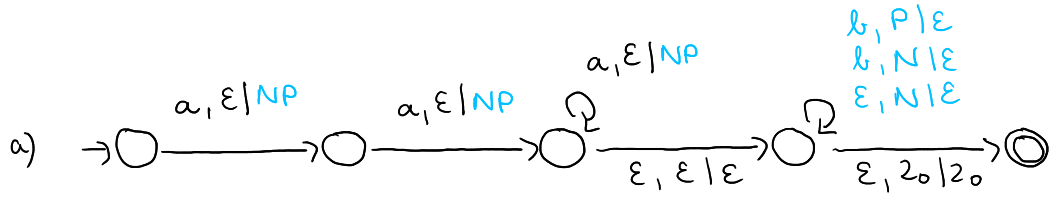
③ $a^i b^j c^k : i+j=k$



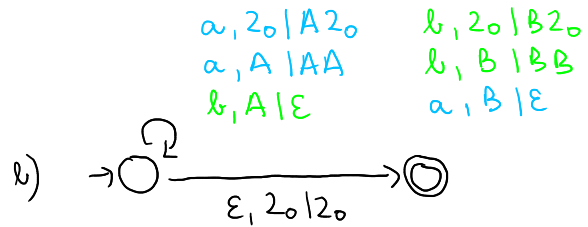
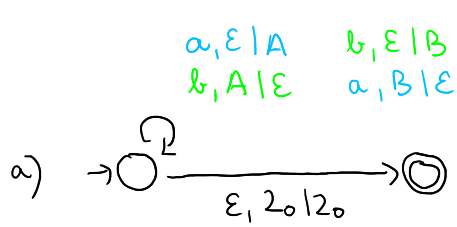
④ $u c v : 2|u|_a = 3|v|_b$



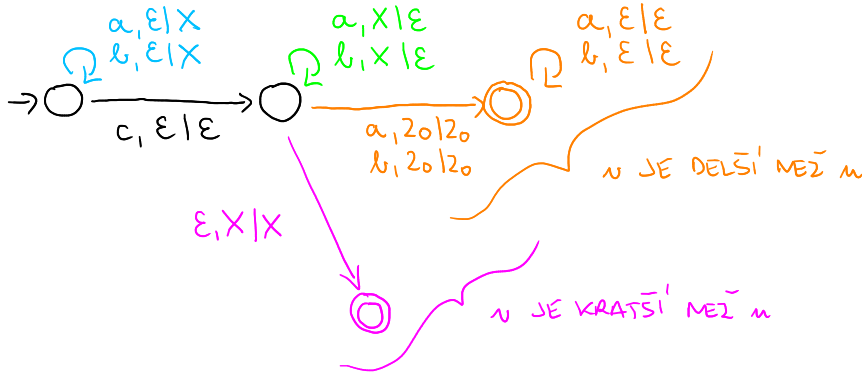
⑥ $a^i b^j : 2 \leq i \leq j \leq 2i$



7) $w: |w|_a = |w|_b$



8) $w \in v: |w| \neq |v|$



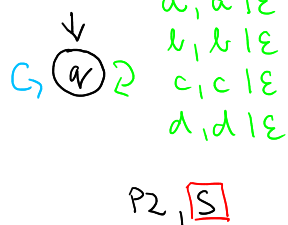
SA TD

- $\boxed{S} \rightarrow XY$ 1
- $X \rightarrow aXb$ 2
- $X \rightarrow ab$ 3
- $Y \rightarrow cYd$ 4
- $Y \rightarrow cd$ 5

EXPANZE

- $\epsilon, S | XY$
- $\epsilon, X | aXb$
- $\epsilon, X | ab$
- $\epsilon, Y | cYd$
- $\epsilon, Y | cd$

SROVNANI



$aabbbcd$

- $(q, aabbbcd, S)$
- $(q, aabbbcd, XY)$ 1
- $(q, aabbbcd, aXbY)$ 2
- $(q, aabbbcd, XbY)$
- $(q, aabbbcd, abbY)$ 3
- (q, cd, Y)
- (q, cd, cd) 5
- $(q, \epsilon, \epsilon) \Rightarrow aabbbcd \in L(G)$

LEVI ROZKLAD
1, 2, 3, 5

$S \xrightarrow{1} XY \xrightarrow{2} aXbY \xrightarrow{3} aabbbY \xrightarrow{5} aabbbcd$