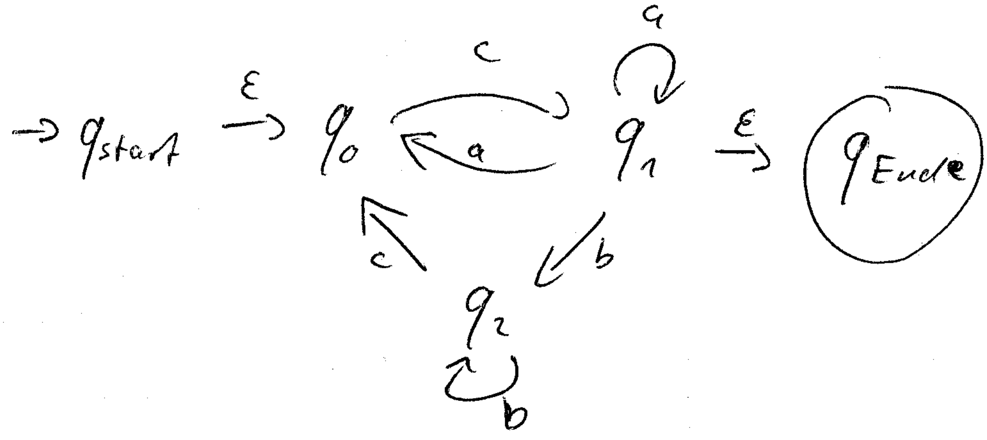
ASK Ü4

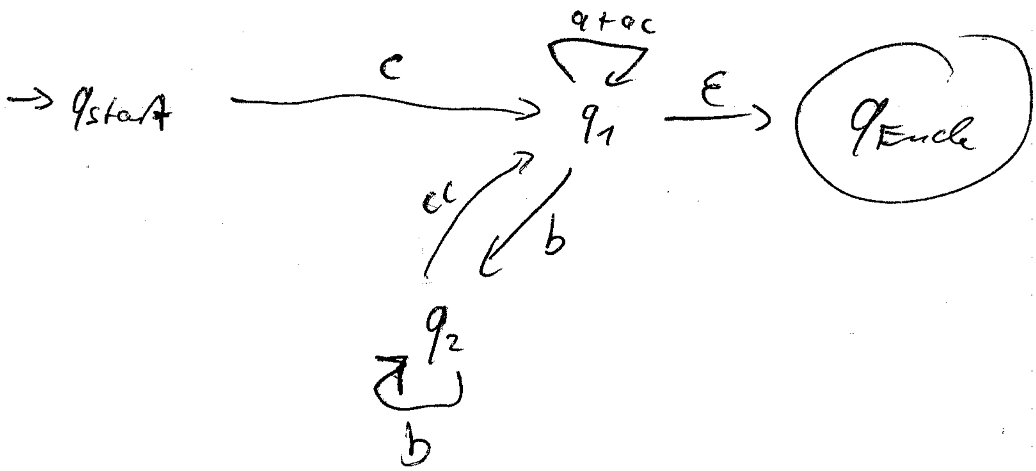
17. MAI 2010

14.) Vorbemerkung: $bc^* \neq (bc)^*$

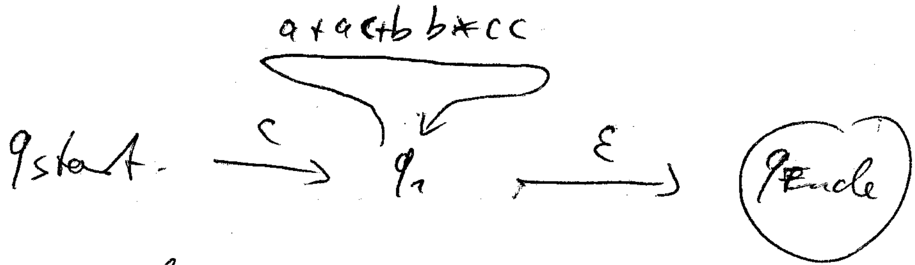
a.) NEAs ⇝ reguläre Ausdrücke



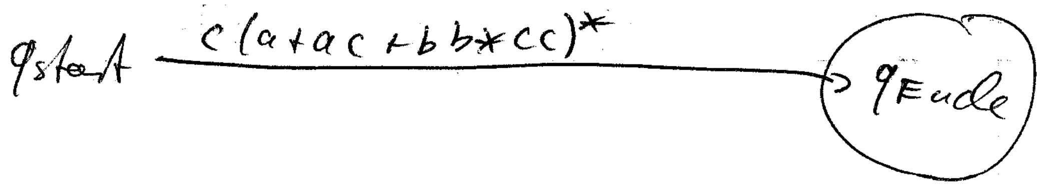
2.) q_0 eliminieren VZ: q_{start}, q_1, q_2
NZ: q_1



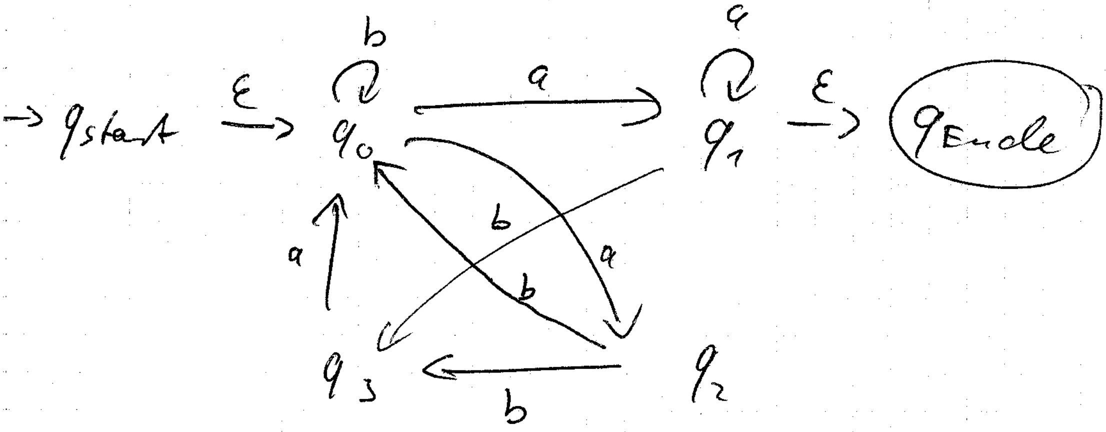
3.) q_2 eliminieren: VZ: q_1 NZ: q_1



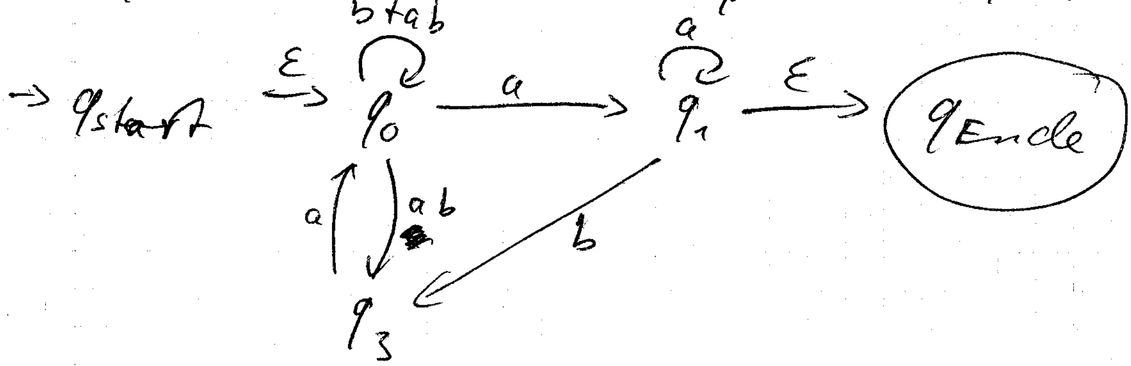
4.) q_1 eliminieren: VZ: q_{start} NZ: q_{Ende}



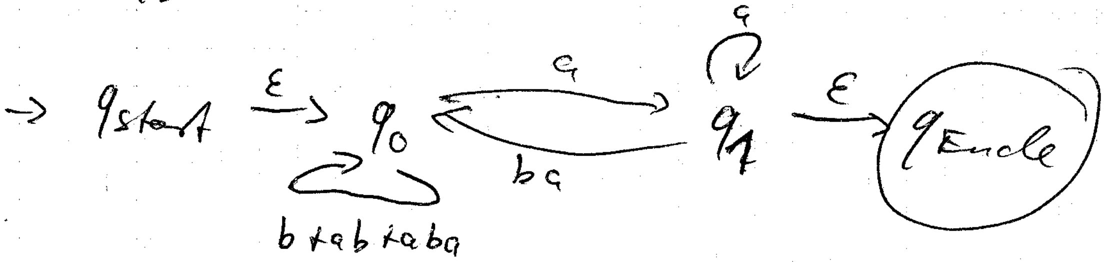
b.) 1.)



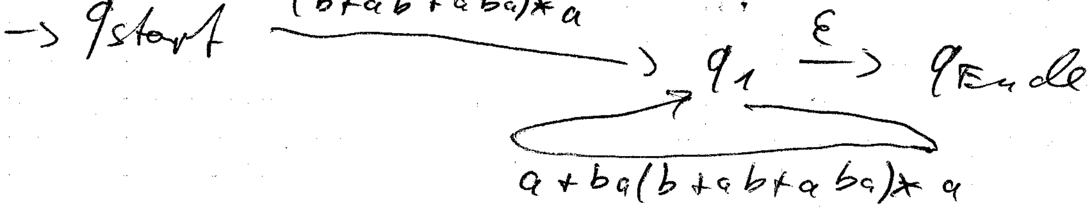
2.) q_2 eliminieren VZ: q_0 NZ: q_0, q_3



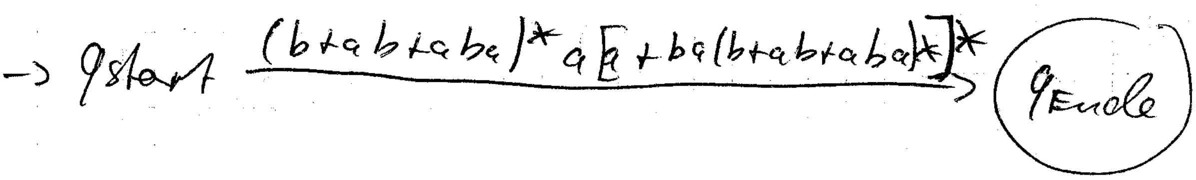
3.) q_3 eliminieren VZ: q_0, q_1 NZ: q_0



4.) q_0 eliminieren VZ: q_{start}, q_1 NZ: q_1



5.) q_1 eliminieren VZ: q_{start} NZ: q_{End}

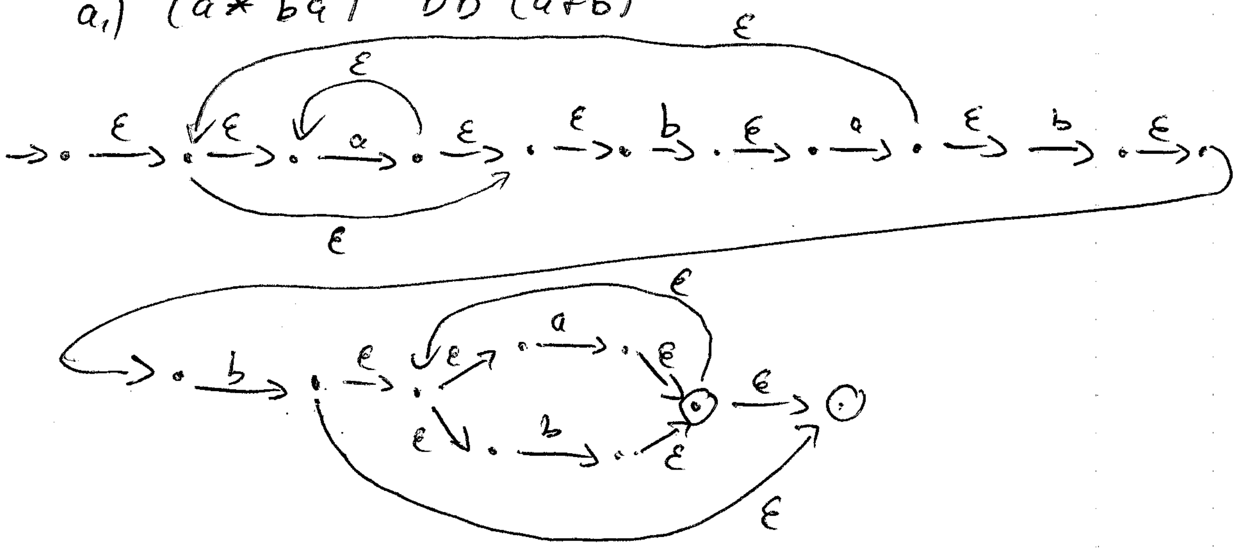


Ask Ü4

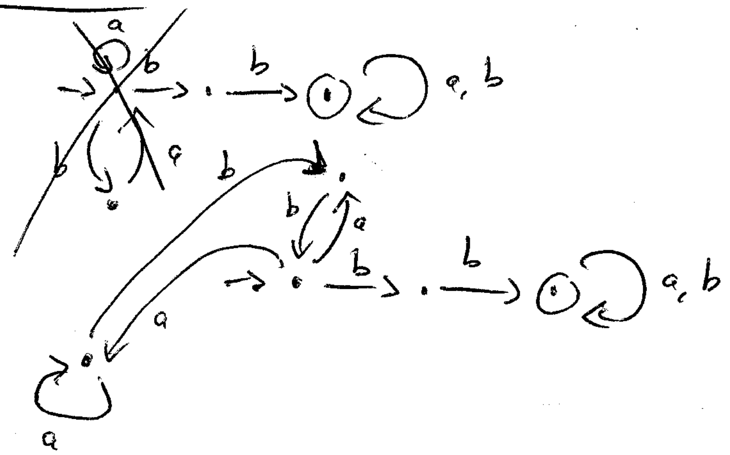
17. MAI 2010

15.)

a.) $(a^* ba)^* bb (a+b)^*$

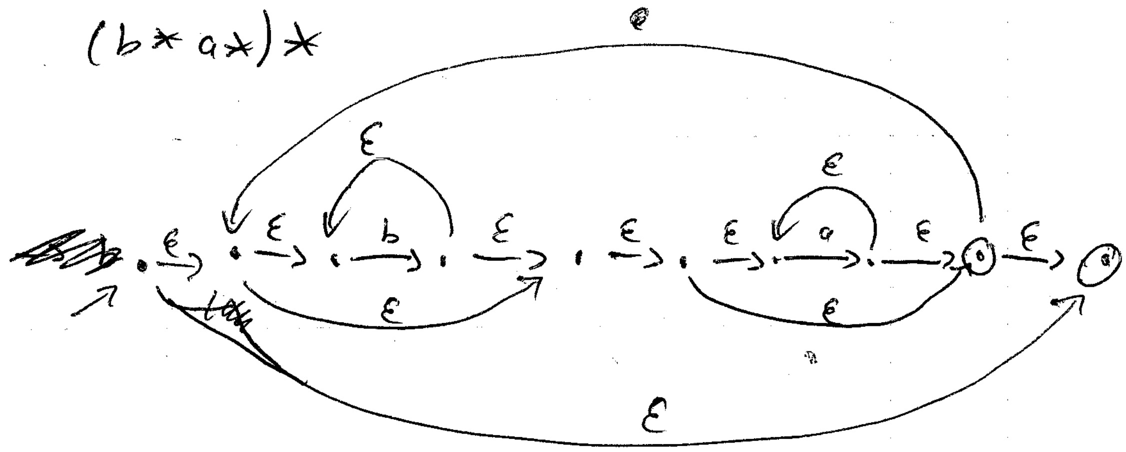


kürzer:



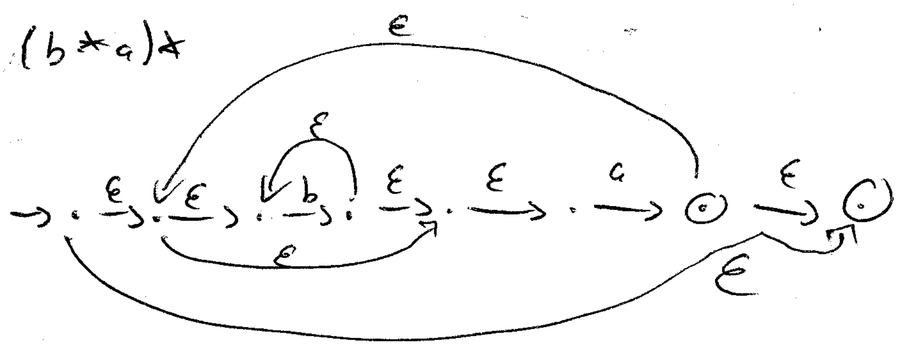
b.) (i.) $(b^* a^*)^*$

A_1:



(ii.) $(b^* a)^*$

A_2:



Äquivalent zu A_3: $\rightarrow q_0$ a,b ?

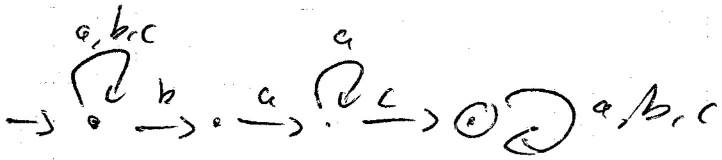
A_1: Ja, da durch die ε-Trans. alle möglichen Kombinationen aus „a"s und „b"s in bel. Reihenfolge zusammengesetzt werden können.

A_2: Nein. Sofern das akzeptierte Wort nicht leer ist, muss so ein Wort ein a enthalten und somit z.B. $b \in L(A_3)$ aber $b \notin L(A_2)$

16) a.) NEA mit 4 Zuständen

$\Sigma = \{a, b, c\}$ $P = baa^*c$

$\Sigma^* baa^* c \Sigma^*$



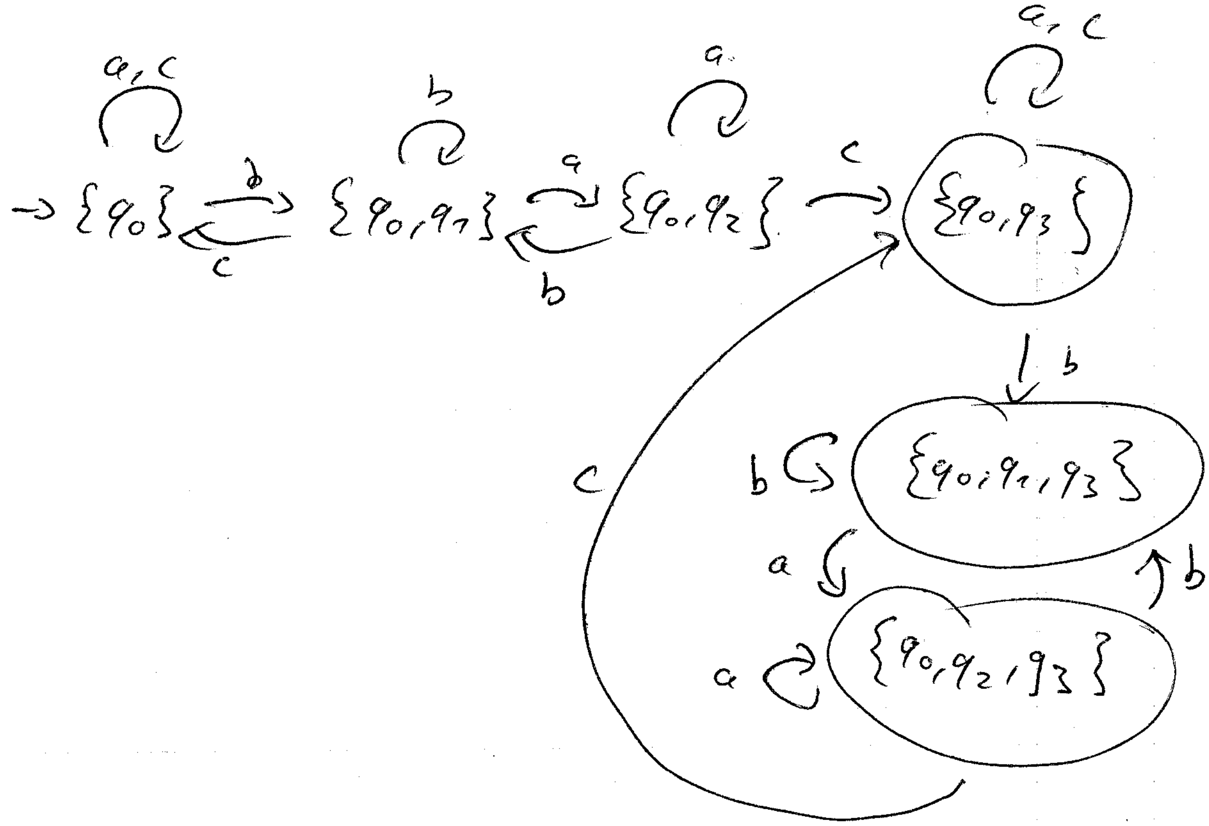
b.)

	a	b	c
q_0	q_0	q_0, q_1	q_0
q_0, q_1	q_0, q_2	q_0, q_1	q_0
q_0, q_2	q_0, q_2	q_0, q_1	q_0, q_3
q_0, q_3	q_0, q_3	q_0, q_1, q_3	q_0, q_3
q_0, q_1, q_3	q_0, q_2, q_3	q_0, q_1, q_3	q_0, q_3
q_0, q_2, q_3	q_0, q_2, q_3	q_0, q_1, q_3	q_0, q_3

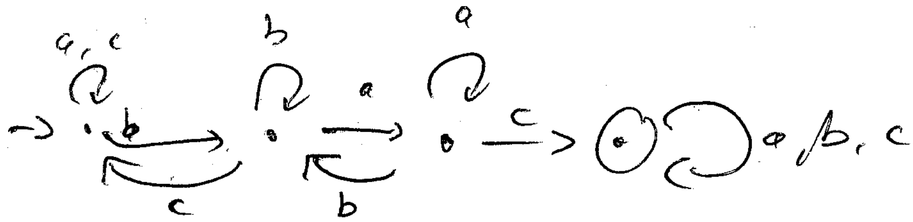
$A' = (Q', \Sigma, \{q_0\}, \delta', F')$

Q', δ' siehe Tabelle

$F' = \{ P \in Q' \mid q_3 \in P \}$



c)



Äquivalenz: sobald in A' im Endzustand angekommen, wurde das Pattern erkannt, was danach gelesen wird, ist egal

→ Selbstschleife

17.) a) $w \in L_1 \square L_2$

$\Leftrightarrow w = u_1 v_1 \dots u_n v_n$, $n \geq 0$ und

$u = u_1 \dots u_n \in L_1$

$v = v_1 \dots v_n \in L_2$

$u_i, v_i \in \underline{\underline{\Sigma^*}}$

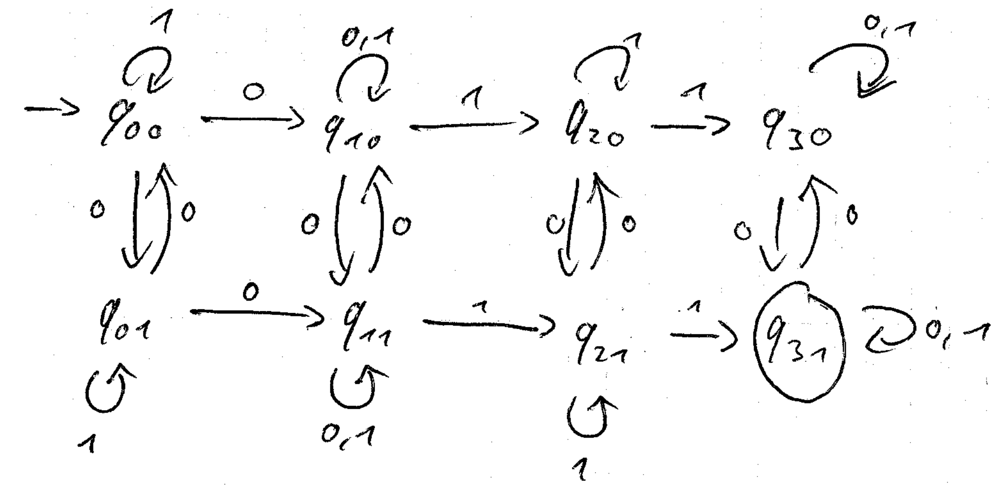
A_1, A_2 gegeben

NEA für $L(A_1) \square L(A_2)$

Idee: „Entweder der eine oder der andere"

hier: erster Index für A_1, zweiter für A_2

A:



b.) allgemeine Konstruktion:

geg.: $A_1 = (Q_1, \Sigma, q_0^1, \Delta_1, F_1)$

$A_2 = (Q_2, \Sigma, q_0^2, \Delta_2, F_2)$

$\rightsquigarrow$ Konstruiere

$A = (Q, \Sigma, q_0, \Delta, F)$ wie folgt:

$Q = Q_1 \times Q_2$, $q_0 = (q_0^1, q_0^2)$ $F = F_1 \times F_2$

$\Delta = \{ ((q,q'), a, (p,p')) \mid [(q,a,p) \in \Delta_1 \wedge q' = p'] \vee [(q',a,p') \in \Delta_2 \wedge q = p] \}$ $\square$