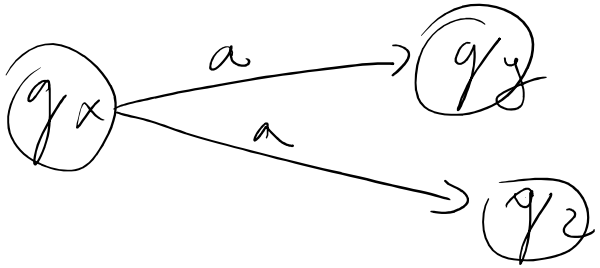
DFA:

NFA:

a)

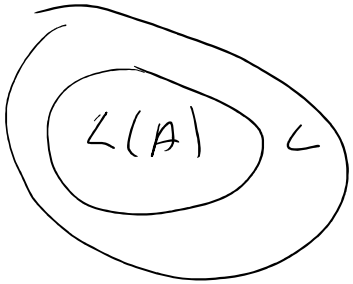
b)

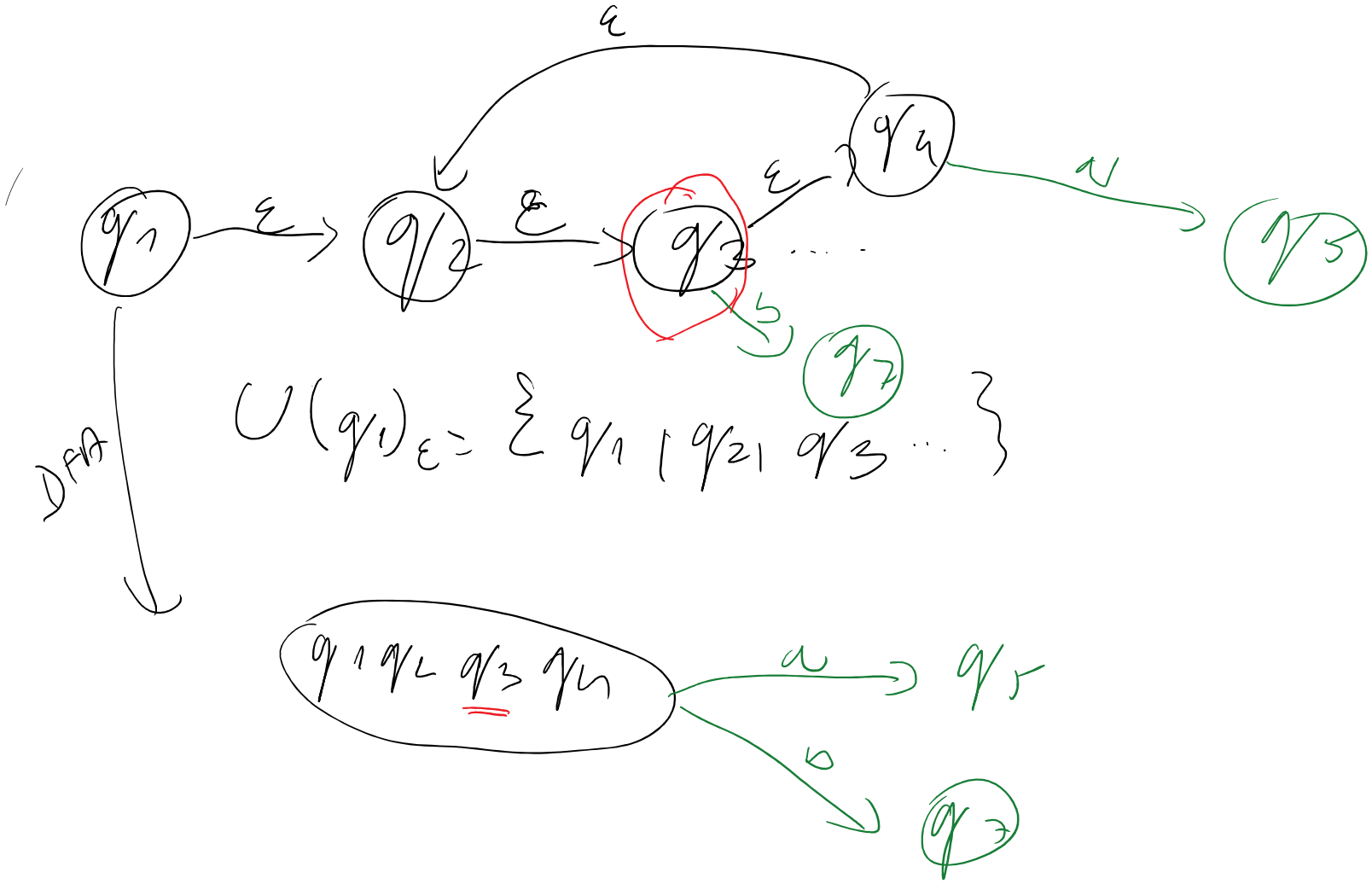


$L = L(A)$

$\Downarrow$

$L \subseteq L(A) \wedge L \supseteq L(A)$




ε
q1
ε
q2
ε
q3
ε
q4
a
q5
b
q2
DFA
∪(q1)ε = { q1 , q2 , q3 ... }
q1 q2 q3 q4
a
q5
b
q3

$G = (N, T, P, A)$

$N = \{A, B\}$

$T = \{a, b\}$

$P = \{ A \to aA \mid B$
$B \to bB \mid \varepsilon \}$

$L(G) = \{a^i b^j \mid i, j \in \mathbb{N}\}$

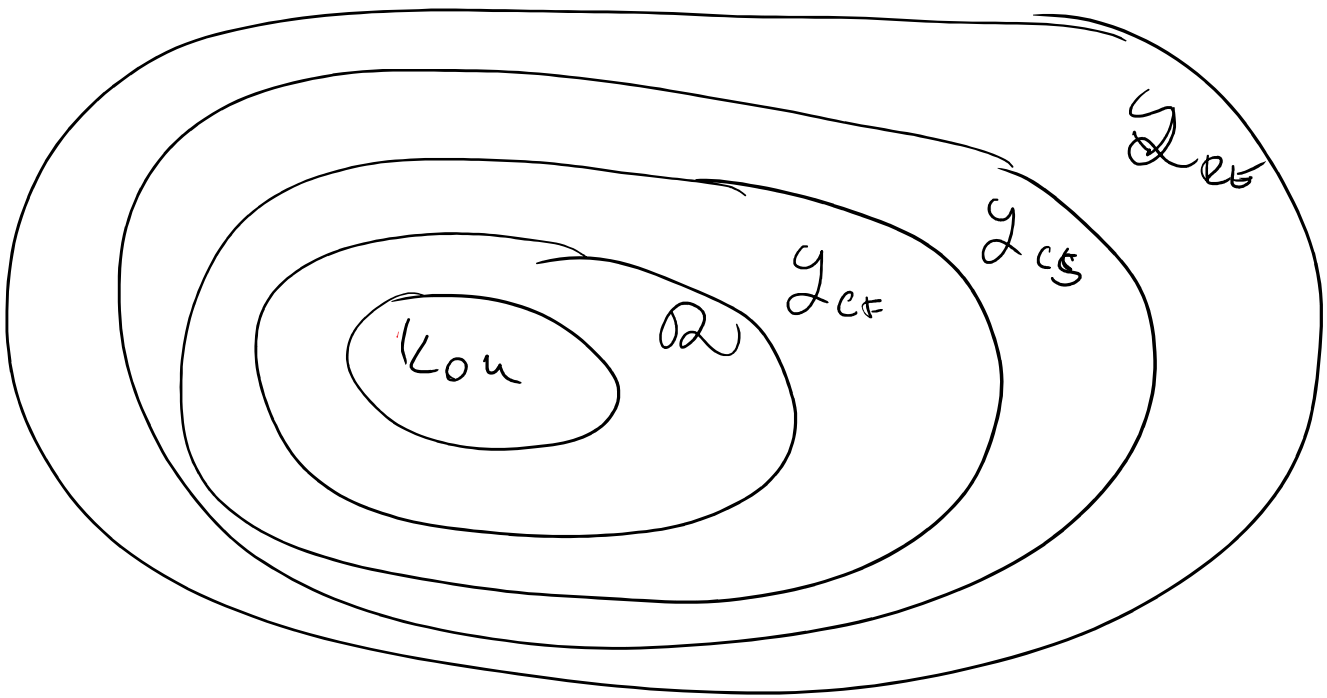
$aba \in L(G)$

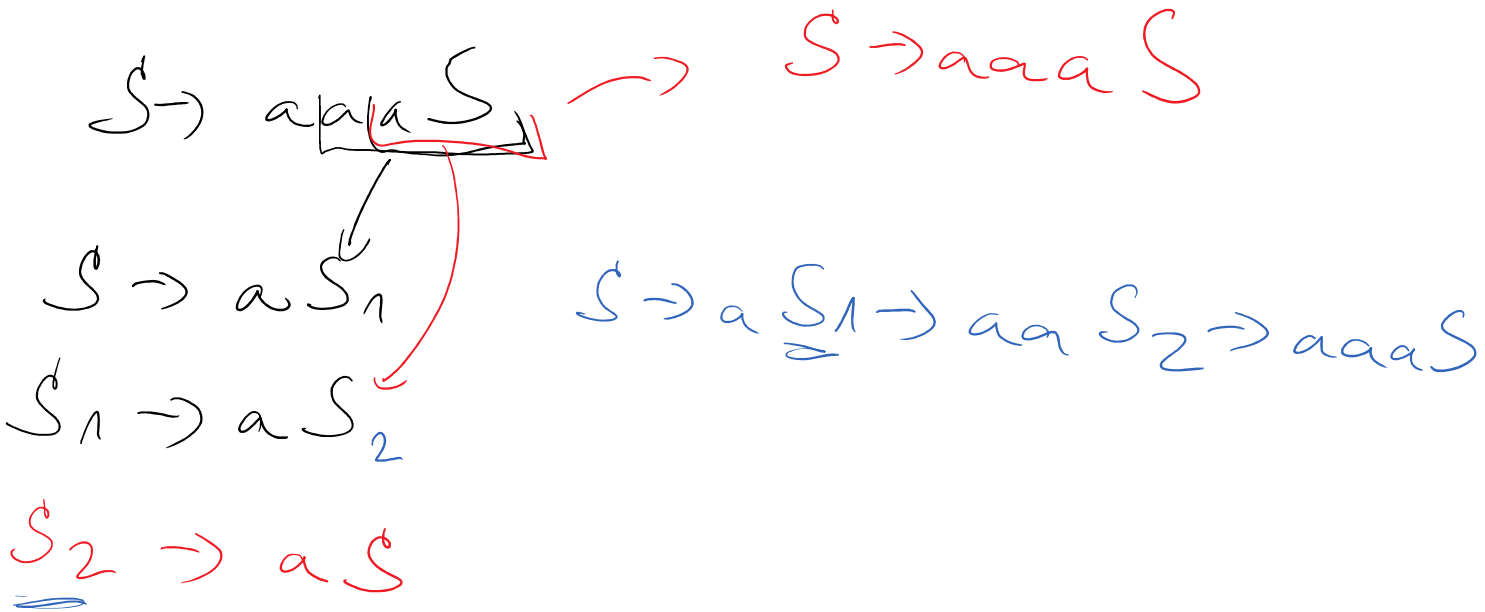
odwodzenie

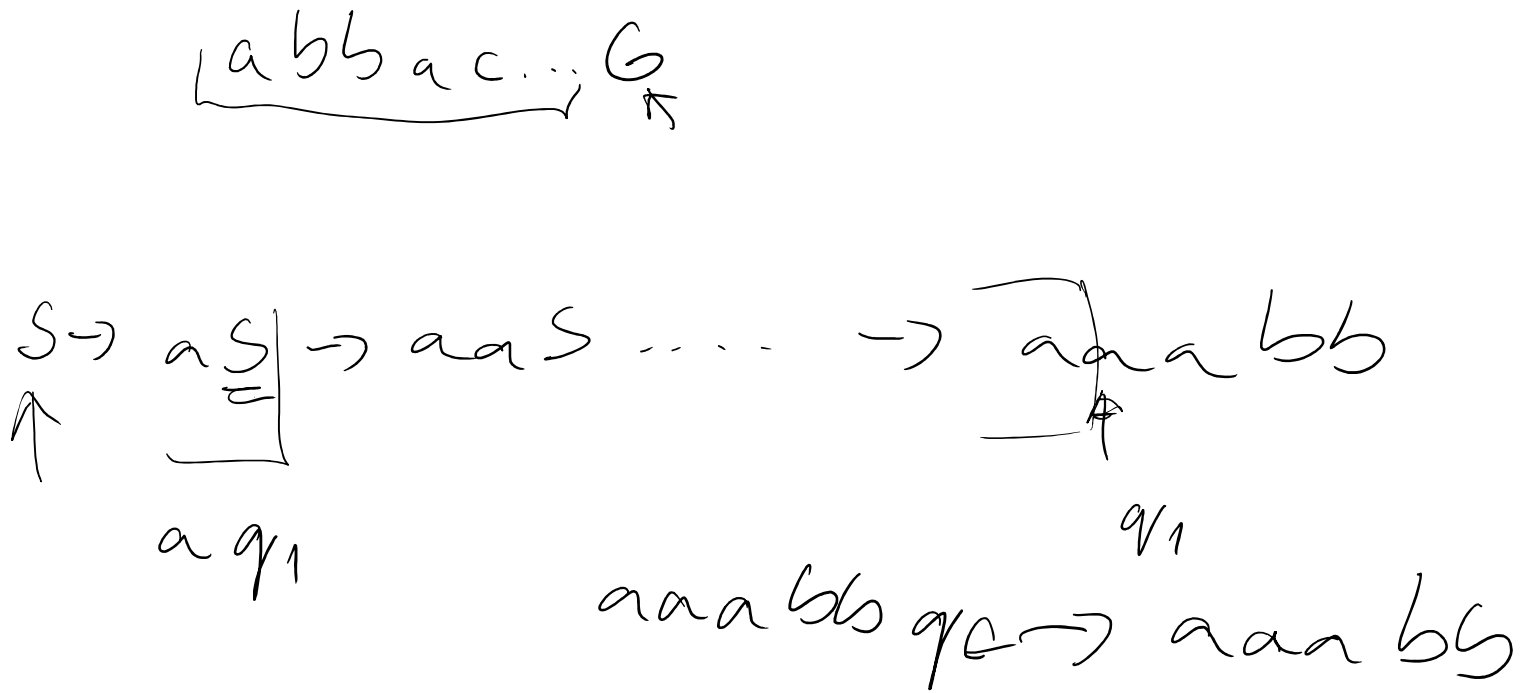
$A \to aA \to aaA \to aaaA \to aaaB \to aaabB \to$

$\Rightarrow aaabbB \to aaabb \to w \in L(G)$

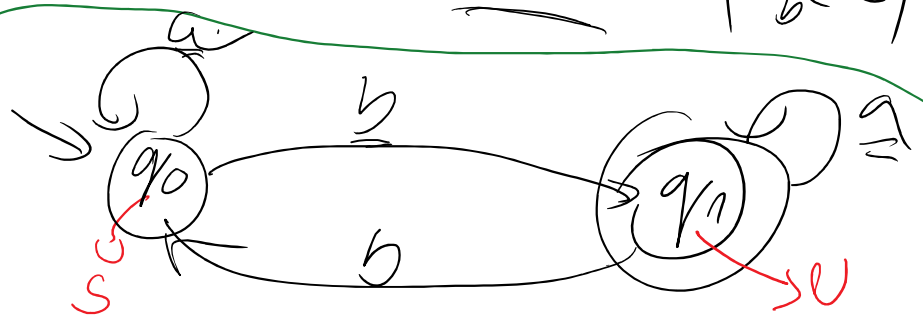
$N \cup T = \{A, B, a, b\}^* = \{\alpha,$


$\mathcal{L}_{ES}$
$\mathcal{L}_{CS}$
$\mathcal{L}_{CF}$
Ω
K_{OM}


S → aaaS
S → aS1
S1 → aS2
S2 → aS
S → aS1 → aaS2 → aaaS


labbac...G
S → aS → aaS .... → aaabb
aq1
q1
aaabbq → aaabb

$$L = \{ w \in \{a,b\}^* \mid \#_b(w) = 2k+1 \}$$



$A \to U$

$G = (N, T, P, S)$

$N = \{U, S\}$

$\Sigma = \{a, b\}$

$P = \{ S \to aS \mid bU$

$U \to aU \mid bS \mid \varepsilon \}$

$G = (N, T, P, A)$

$N = \{A, B, C\}$

$T = \{a, b\}$

$P = \{$

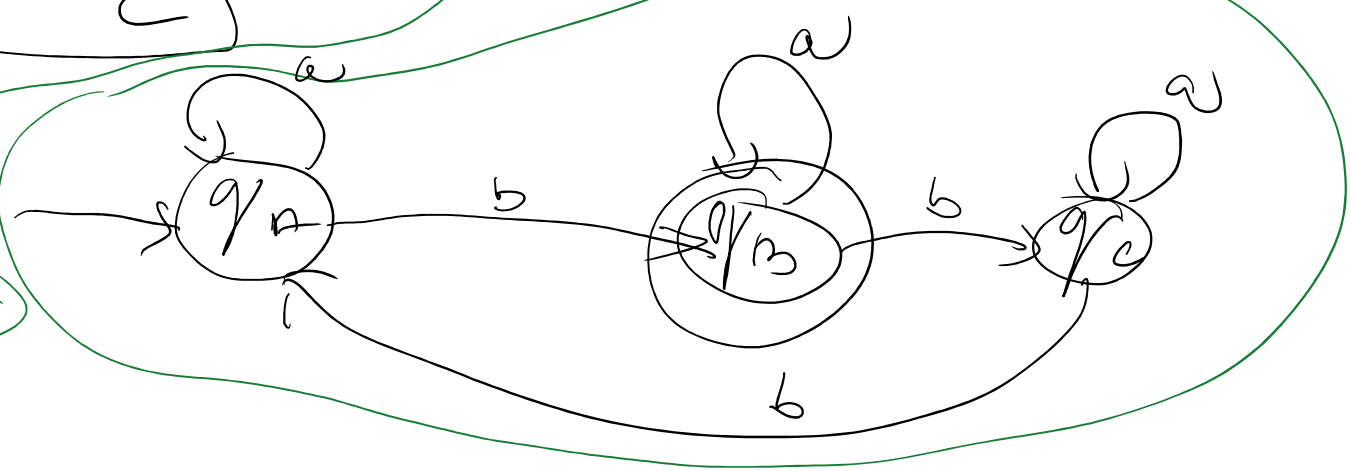
$A \rightarrow aA \mid bB$

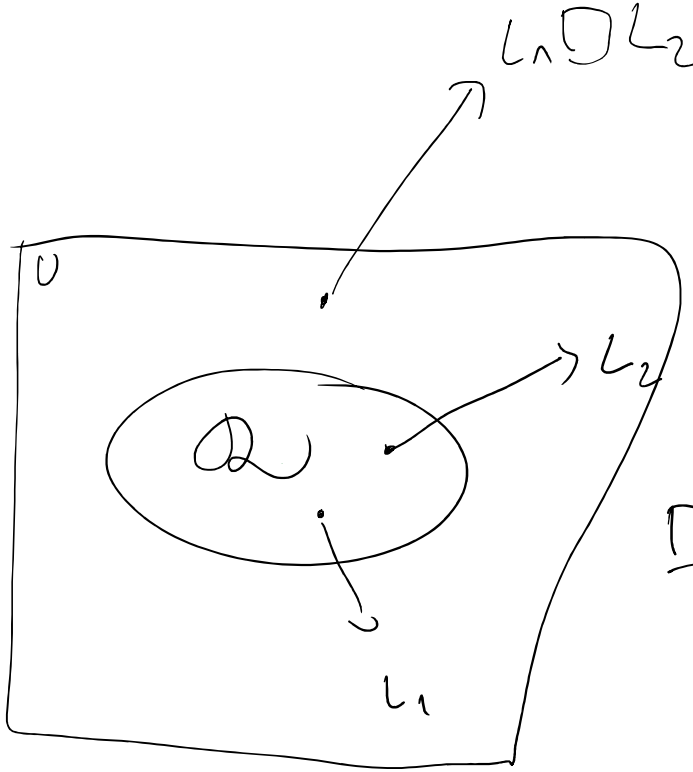
$B \rightarrow aB \mid bC$

$C \rightarrow aC \mid bA$

$B \rightarrow \varepsilon$

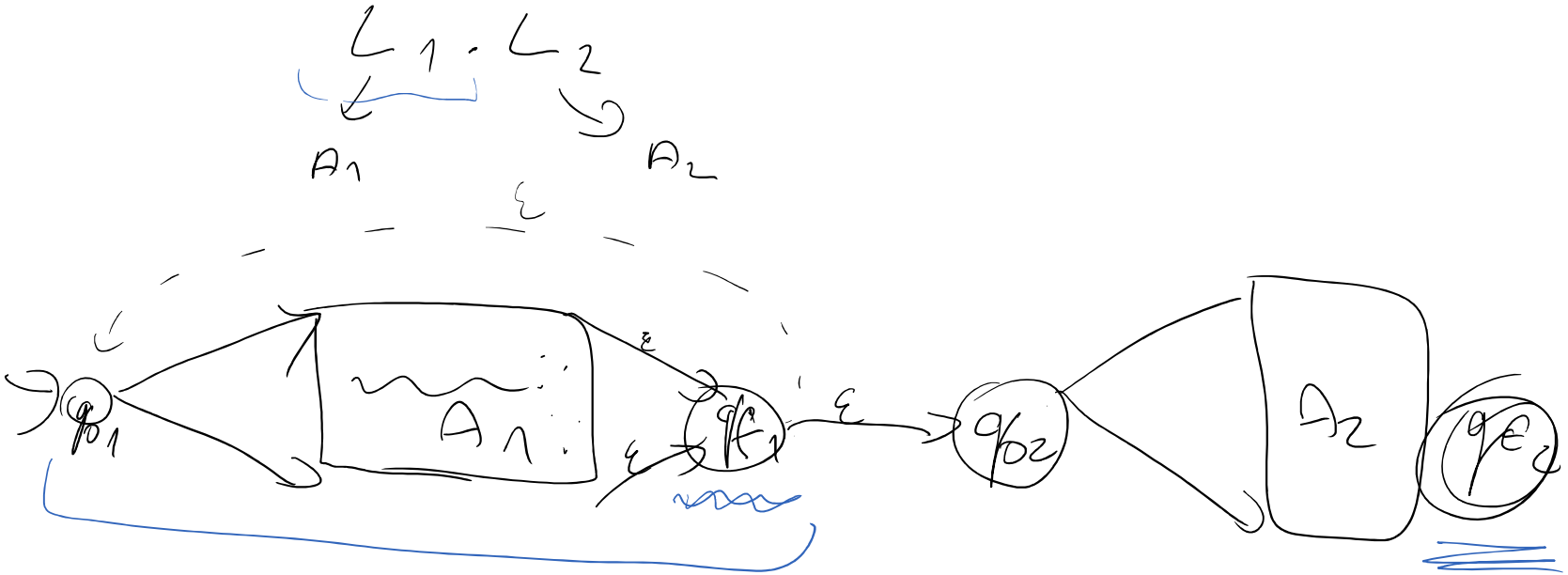
G → A





$L_3 \overset{?}{\in} Q$

$\square$: $L_1 \square L_2 = L_3$



$A_1 \rightsquigarrow L(A_1) = L_1$

$(q_{01}, a a b) \leftrightarrow (q_1, a b) \leftrightarrow (q_2, b)$

(q_f, ε)

$S \to cc \mid bbbS$

$S \to cc$

$S \to bbbS \to bbbcc$

$S \to bbbS \to bbbbbbS \to b^6cc$