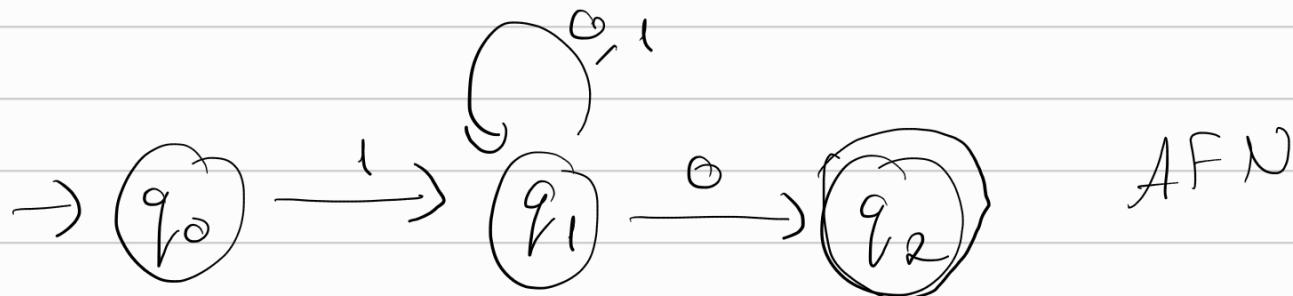
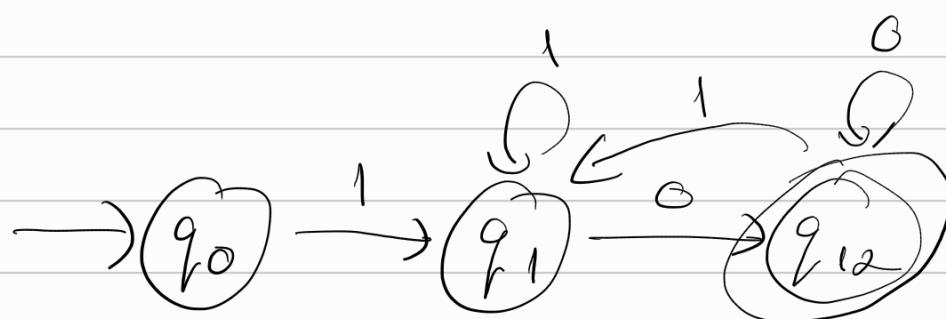


Ex 1:

$L_1 = \{w \in \{0,1\}^* \mid w \text{ incepe cu } 1 \text{ si se termina cu } 0\}$



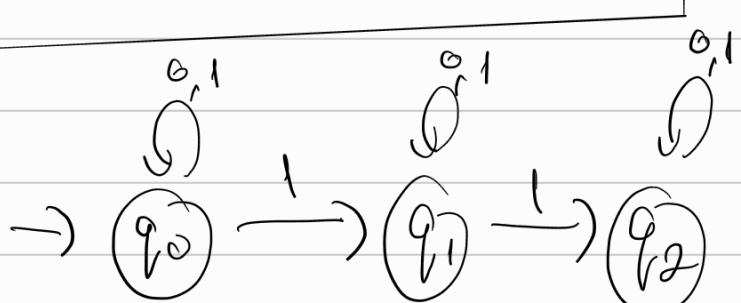
	0	1
q_0	\emptyset	q_1
q_1	$\{q_1, q_2\}$	q_1



AFD

	0	1
q_0	\emptyset	q_1
q_1	q_{12}	q_1

$L_2 = \{w \in \{0,1\}^* \mid w \text{ conține cel puțin } 3 \text{ de } 1\}$

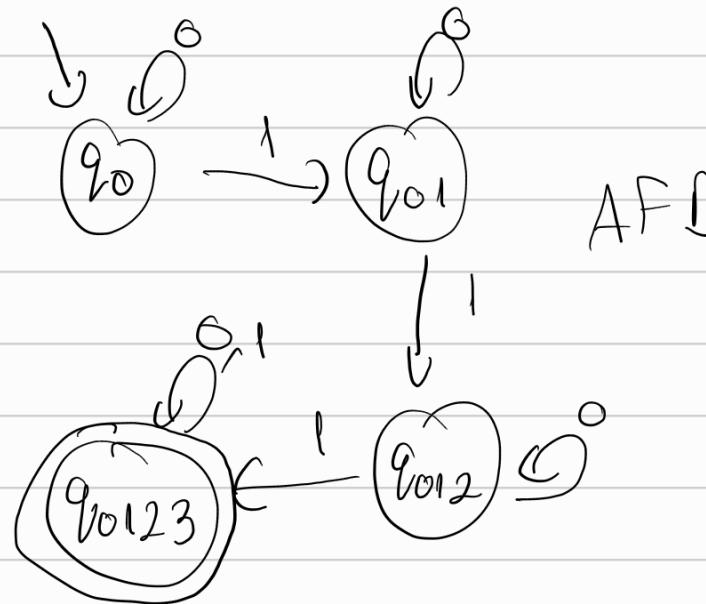


AFN

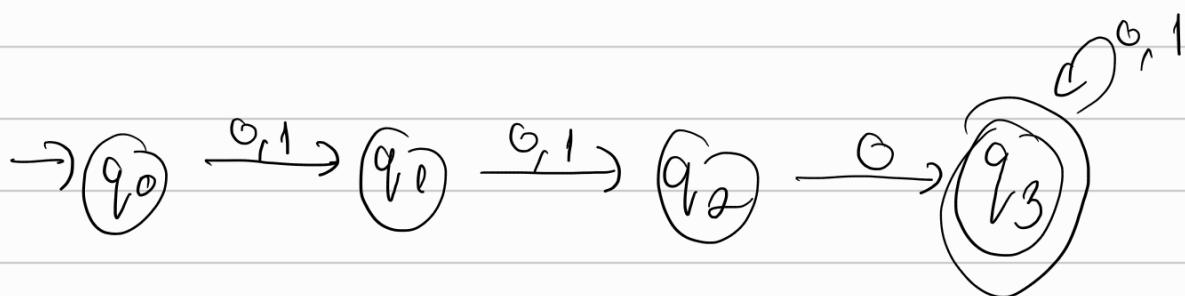
	0	1
q_0	q_0	q_{01}
q_1	q_1	q_{12}

	0	1
q_2	q_2	q_{23}
q_3	q_3	q_3

	0	1
q_0	q_0	q_{01}
q_{01}	q_{01}	q_{012}
q_{012}	q_{012}	q_{0123}
q_{0123}	q_{0123}	q_{0123}

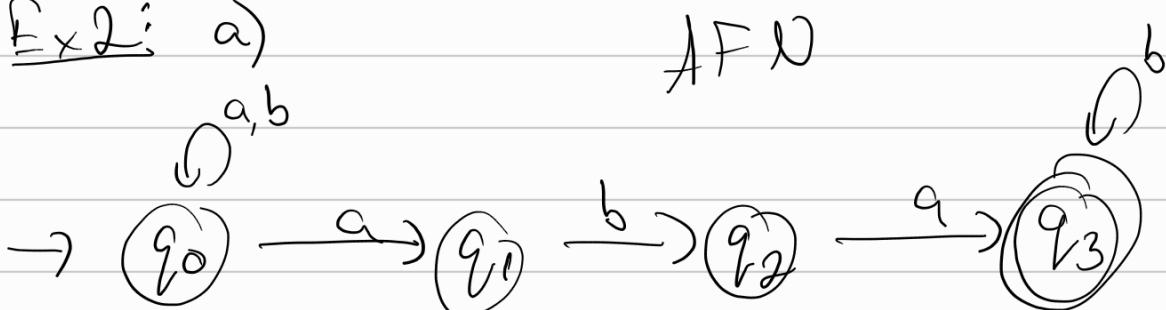


$L_3 = \{ w \in \{0,1\}^* \mid |w| \geq 3 \text{ și al treilea simbol din } w \text{ este un } 0 \}$



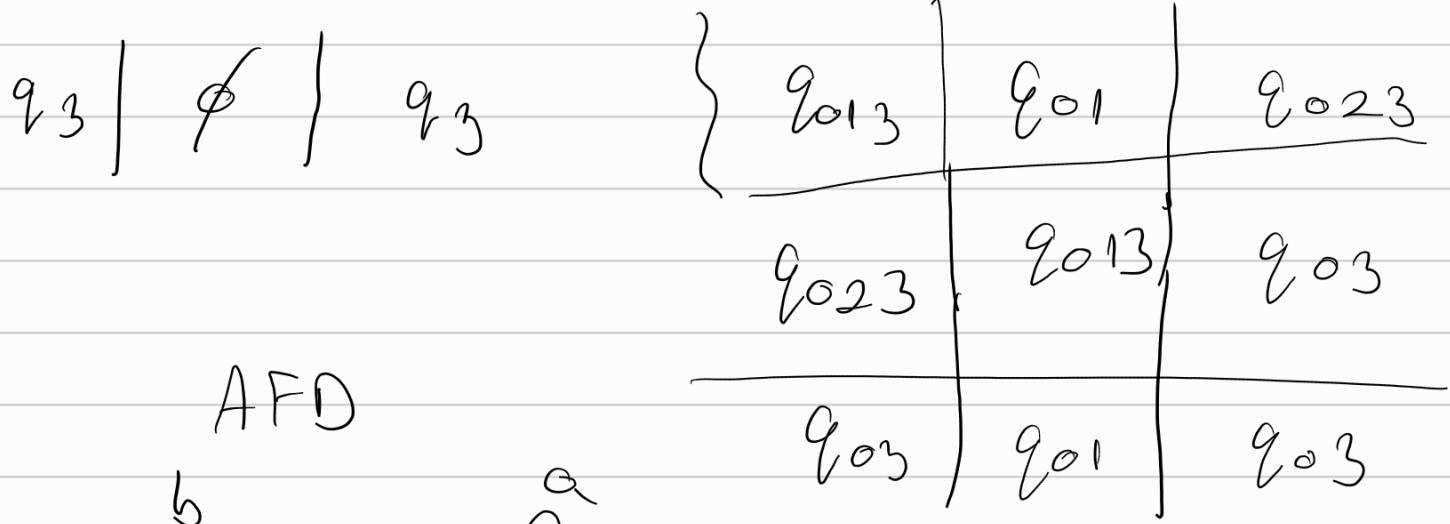
Ex 2: a)

AFD

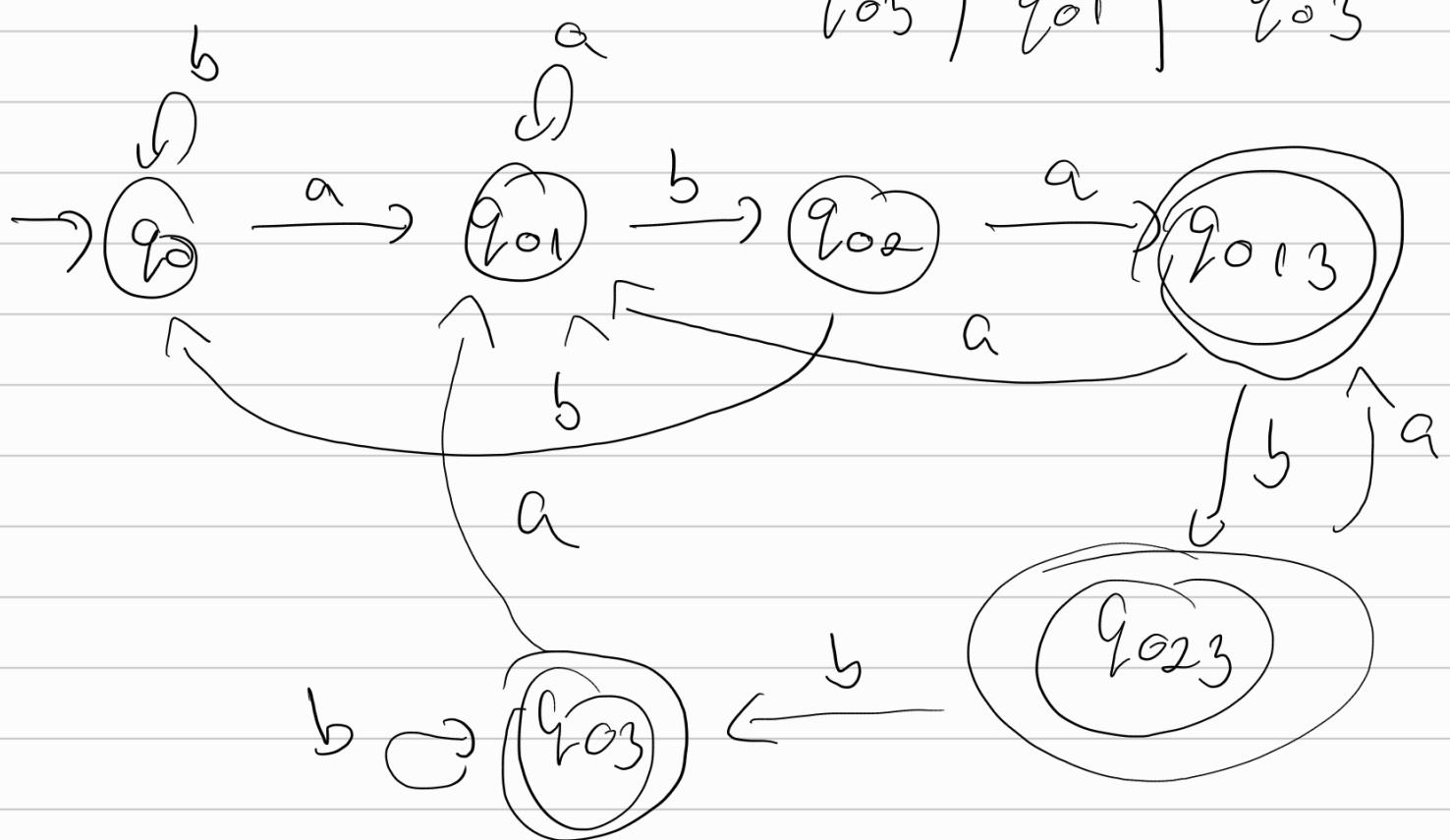


	a	b
q_0	q_{01}	q_0
q_1	\emptyset	q_2
q_2	q_3	\emptyset

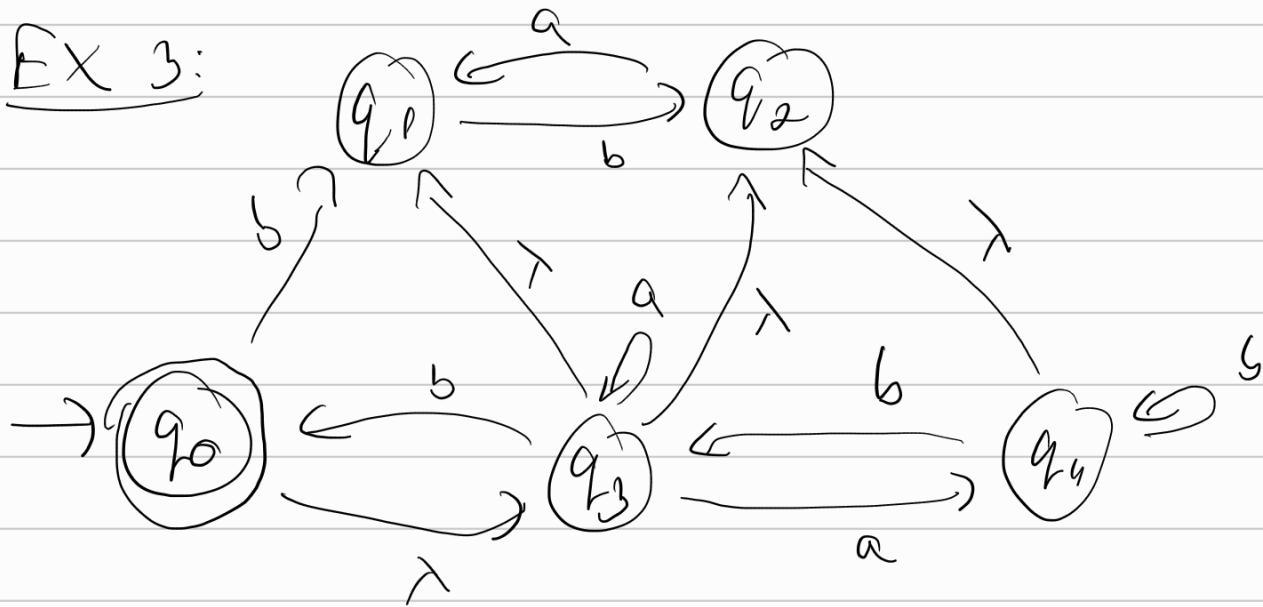
	a	b
q_0	q_{01}	q_0
q_{01}	q_{01}	q_{02}
q_{02}	q_{013}	q_0



AFD



Ex 3:



a) λ -Inzidenz:

$$q_0 = \{ q_0, q_1, q_2, q_3 \}$$

$$q_1 = \{ q_1 \}$$

$$q_2 = \{ q_2 \}$$

$$q_3 = \{ q_1, q_2, q_3 \}$$

$$q_4 = \{ q_2, q_3 \}$$

b) aababb ?

$$(q_0, aababb) \xrightarrow{\lambda^*} (q_{0123}, aababb) \vdash^a$$

$$(q_{123}, ababb) \xrightarrow{\lambda^*} (q_{123}, ababb) \vdash^a (q_{13}, babb) \vdash^*$$

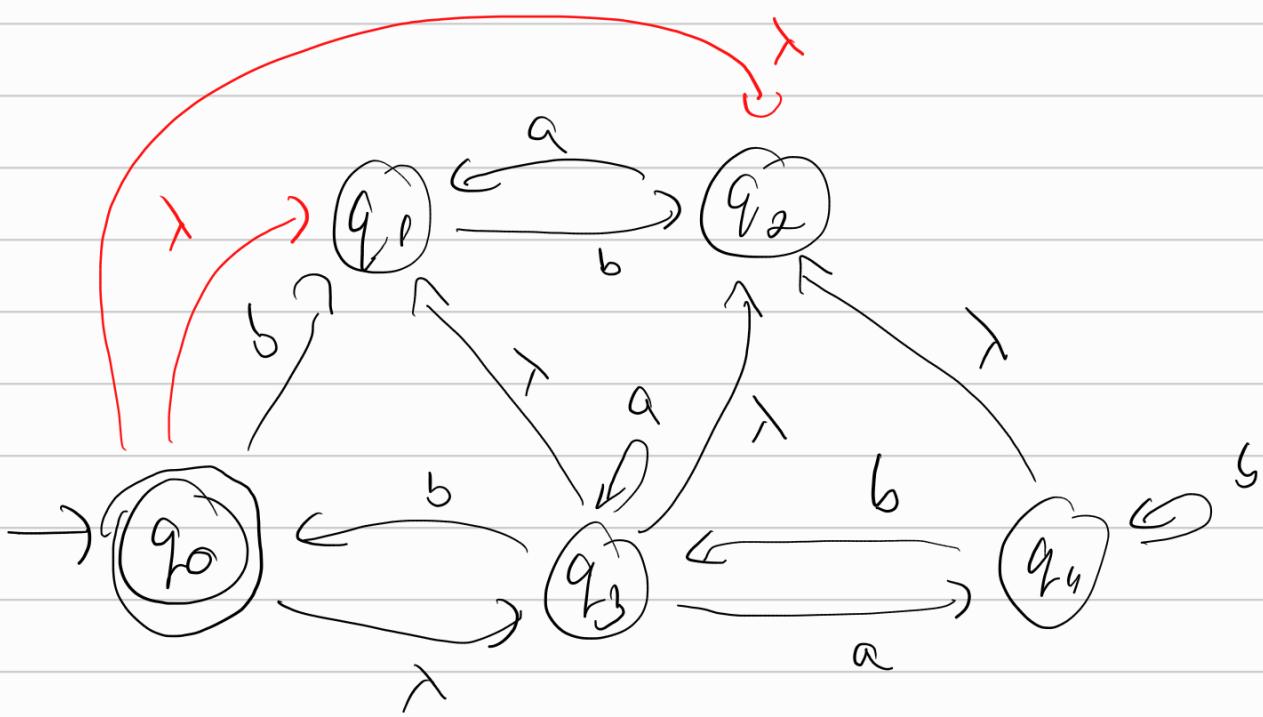
$$(q_{123}, babb) \vdash^b (q_{023}, abb) \xrightarrow{\lambda^*} (q_{0123}, abb) \vdash^a$$

$$(q_{123}, bb) \xrightarrow{\lambda^*} (q_{123}, bb) \vdash^b (q_{023}, b) \xrightarrow{\lambda^*} (q_{0123}, b) \vdash^b$$

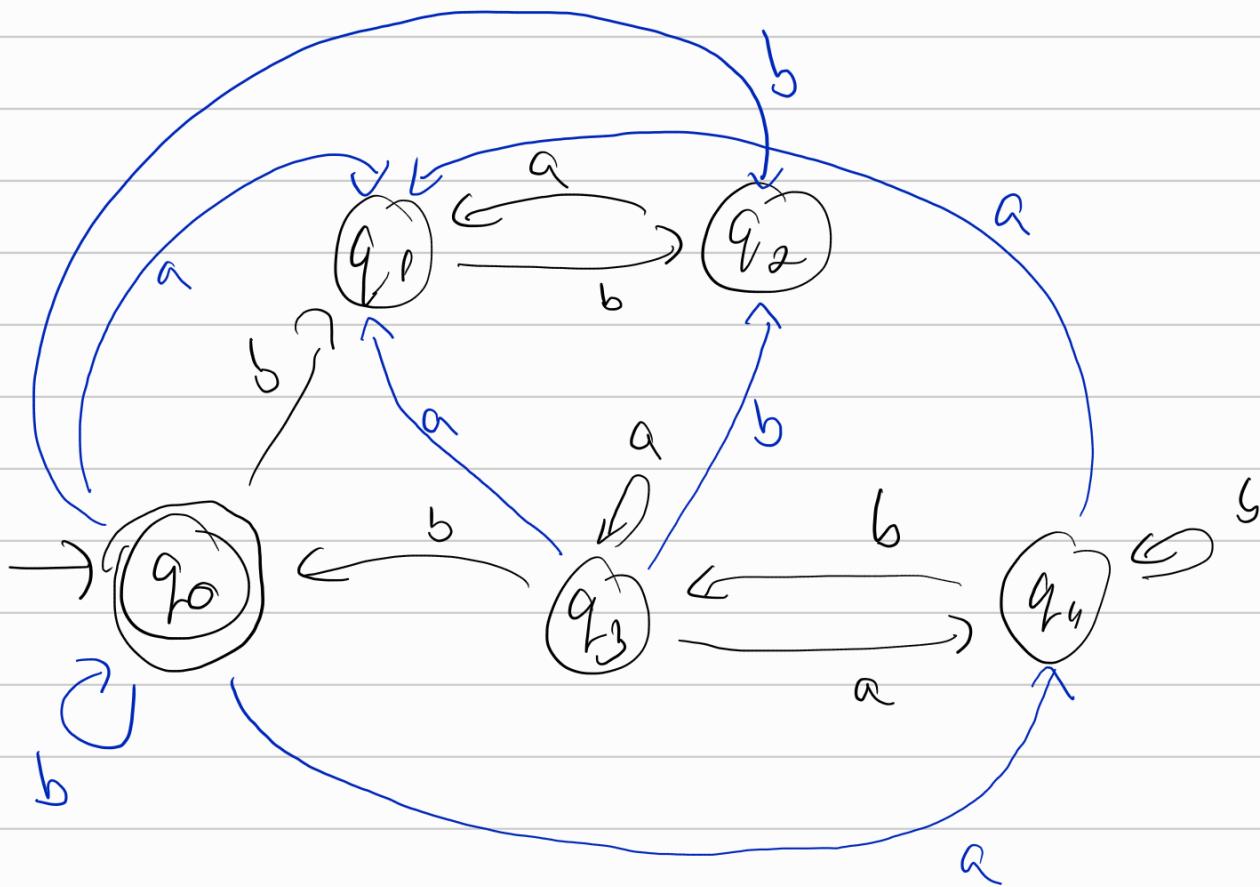
$$(q_{012}, \lambda) \xrightarrow{\lambda^*} (q_{0123}, \lambda)$$

$$\{q_0, q_1, q_2, q_3\} \cap F = \{q_0\} \neq \emptyset \Rightarrow aababb \text{ accepted}$$

c) λ -completion

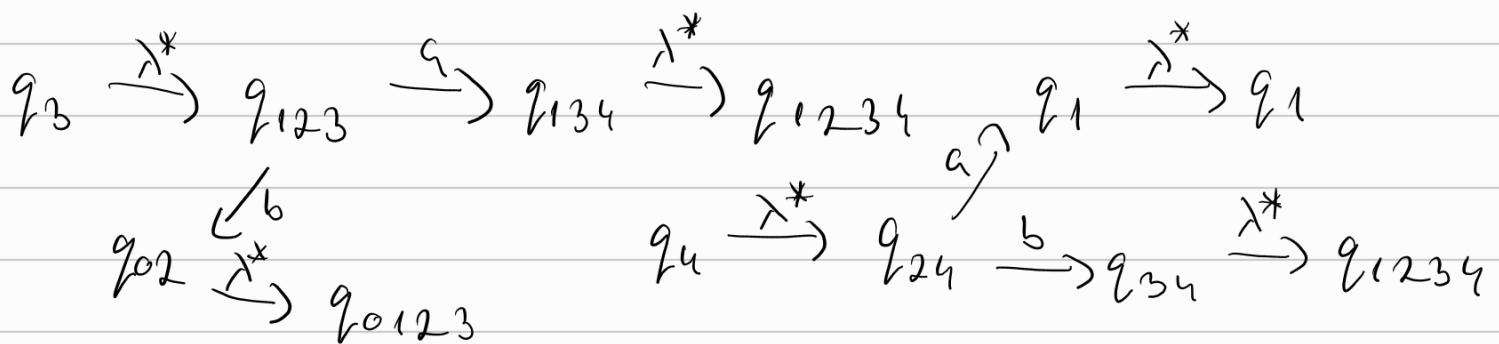
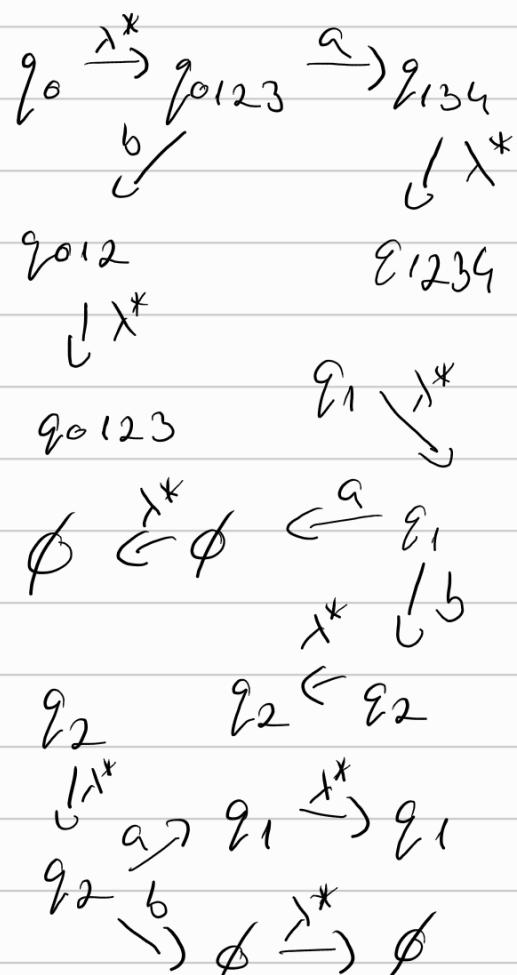


λ -transition removal

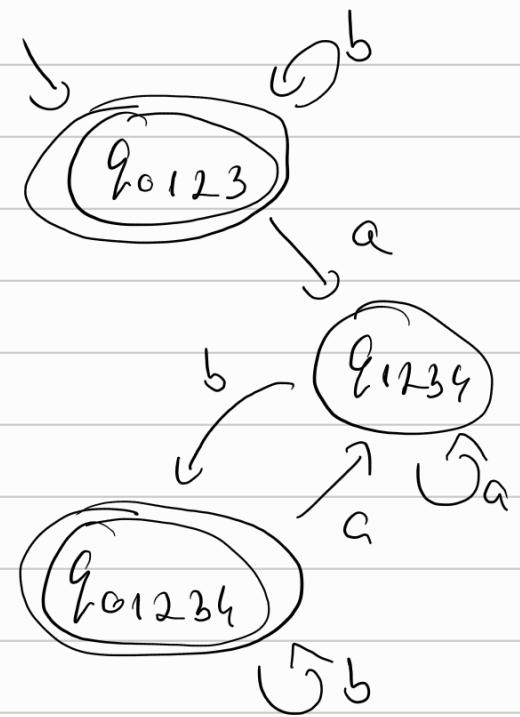


d) Dfin λ -AFN \rightarrow AFD

	$\lambda^* a \lambda^*$	$\lambda^* b \lambda^*$
q_0	q_{1234}	q_{0123}
q_1	\emptyset	q_2
q_2	q_1	\emptyset
q_3	q_{1234}	q_{0123}
q_4	q_1	q_{1234}



S AFD	a	b
q_{0123}	q_{1234}	q_{0123}
q_{1234}	q_{1234}	q_{01234}
q_{01234}	q_{1234}	q_{01234}



e) $b^* a (a^* b b^* a)^*$