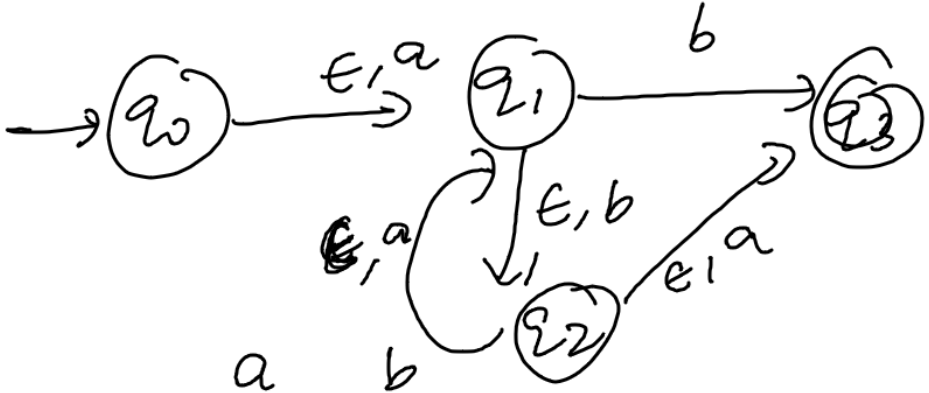
NFA-ϵ to NFA

(Q)



	a	b
→ q_0	$\{q_1\}$	$\{\phi\}$
q_1	$\{\phi\}$	$\{q_3, q_2\}$
q_2	$\{q_1, q_3\}$	$\{\phi\}$
* q_3	$\{\phi\}$	$\{\phi\}$

Step 1:- ϵ-closure(q_0) = $\{q_0, q_1, q_2, q_3\}$

ϵ-closure(q_1) = $\{q_1, q_2, q_3\}$

ϵ-closure(q_2) = $\{q_2, q_1, q_3\}$

ϵ-closure(q_3) = $\{q_3\}$

Step 2:- ϵ-closure(q_0, a) = $\{q_1, q_2, q_3\}$

q_0	a	*
q_0	q_1	q_1
q_1	q_3	q_2
q_2		q_3
q_3		

ϵ-closure $(q_0, b) = \{q_1, q_2, q_3\}$

q_0	a	b	a
	q_0	q_2	q_1
	q_1	q_3	q_2
	q_2		q_3
	q_3		

ϵ-closure $(q_1, a) = \{q_1, q_2, q_3\}$

q_1	a	a	a
	q_1	q_1	q_1
	q_2	q_3	q_2
	q_3		q_3

ϵ-closure $(q_1, b) = \{q_1, q_2, q_3\}$

q_1	a	b	a
	q_1	q_2	q_1
	q_2	q_3	q_2
	q_3		q_3

ϵ-closure $(q_2, a) = \{q_1, q_2, q_3\}$

q_2	a	a	a
	q_1	q_1	q_1
	q_2	q_3	q_2
	q_3		q_3

ϵ-clos (q_2, b) $= \{q_1, q_2, q_3\}$

q_2	a	b	a
	q_1	q_2	q_1
	q_2	q_3	q_2
	q_3		q_3

ϵ-closure $(q_3, a) = \{\phi\}$

	a	b
q_3	q_3	ϕ	ϕ

ϵ-closure $(q_3, b) = \{\phi\}$

	a	b
q_3	q_3	ϕ	ϕ

	a	b
→ q_0	$\{q_1, q_2, q_3\}$	$\{q_1, q_2, q_3\}$
q_1	$\{q_1, q_2, q_3\}$	$\{q_1, q_2, q_3\}$
q_2	$\{q_1, q_2, q_3\}$	$\{q_1, q_2, q_3\}$
* q_3	$\{\phi\}$	$\{\phi\}$