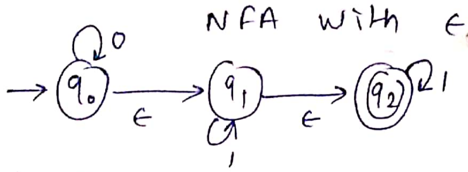
NFA with ϵ to NFA without ϵ



step I – ϵ closure $(q_0) = \{q_0, q_1, q_2\}$
ϵ closure $(q_1) = \{q_1, q_2\}$
ϵ closure $(q_2) = \{q_2\}$

step II Given NFA with ϵ

$M = (Q, \Sigma, \delta, q_0, F)$ $Q = \{q_0, q_1, q_2\}$
$\Sigma = \{0, 1\}$ $q_0 = q_0$ $F = \{q_2\}$
$\delta : Q \times \Sigma \rightarrow 2^Q$
$(\Sigma \cup \{\epsilon\})$

step III equivalent NFA without ϵ

$m' = (Q'\ \Sigma'\ \delta'\ q_0'\ F')$ $Q' = Q$
$F' = F \cup \{q\}$ such that ϵ closure of q contain state from F. $\Sigma' = \Sigma$
$q_0' = q_0$
$\delta' = \epsilon$ closure($\delta(\epsilon$ closure$(q), a))$

step IV

$Q \backslash \Sigma$	0	$\delta(\epsilon(q),0)$	$\epsilon()$	1	$\delta(\epsilon(q),1)$	$\epsilon()$
q_0	$\{q_0\}$	$\delta(\{q_0 q_1 q_2\},0) = \{q_0\}$	$\{q_0 q_1 q_2\}$	–	$\delta(\{q_0 q_1 q_2\},1)$ $\{q_1, q_2\}$	$\{q_1, q_2\}$
q_1	–	$\delta(\{q_1, q_2\},0) = -$	ϕ	q_1	$\delta(\{q_1, q_2\},1) = \{q_1, q_2\}$	$\{q_1, q_2\}$
q_2	–	$\delta(q_2,0) = -$	ϕ	q_2	$\delta(\{q_2\},1) = \{q_2\}$	$\{q_2\}$

step V