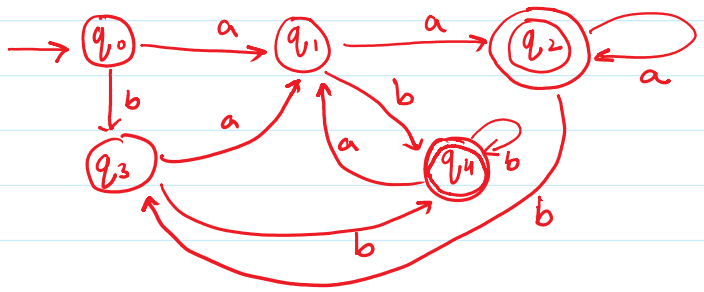
lecture 10:- Kleene Theorem III

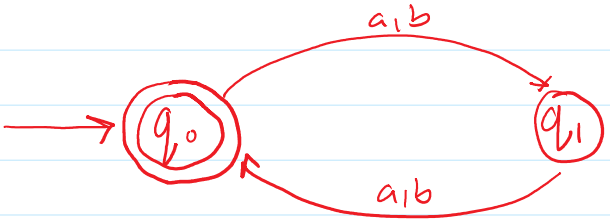
Closures:- γ_1 FA $\quad \gamma_1^*$ FA*.

→ When the final state is encountered it will be combined with initial.

→ For the first time, the initial will also be considered as final.



old states	Transition at 'a'	Transition at 'b'
$^+Z_1^- \equiv q_0$	$Z_2 \equiv q_1$	$Z_3 \equiv q_3$
$Z_2 \equiv q_1$	$Z_4^+ \equiv (q_2, q_0)$	$Z_5^+ \equiv (q_4, q_0)$
$Z_3 \equiv q_3$	$Z_2 \equiv q_1$	$Z_5^+ \equiv (q_4, q_0)$.
$Z_4^+ \equiv (q_2, q_0)$.	$Z_6^+ \equiv (q_2, q_0, q_1)$	$Z_3 \equiv (q_3, \cancel{q_3})$
$Z_5^+ \equiv (q_4, q_0)$.	$Z_2 \equiv (q_1, \cancel{q_1})$	$Z_7^+ \equiv (q_4, q_0, q_3)$.
$Z_6^+ \equiv (q_2, q_0, q_1)$.	$Z_6^+ \equiv (q_2, q_0, q_1, \cancel{q_2}, \cancel{q_0})$	$Z_7^+ \equiv (q_3, \cancel{q_3}, q_4, q_0)$
$Z_7^+ \equiv (q_4, q_0, q_3)$	$Z_2 \equiv (q_1, \cancel{q_1}, \cancel{q_1})$	$Z_7^+ \equiv (q_4, q_0, q_3, \cancel{q_4}, \cancel{q_0})$.

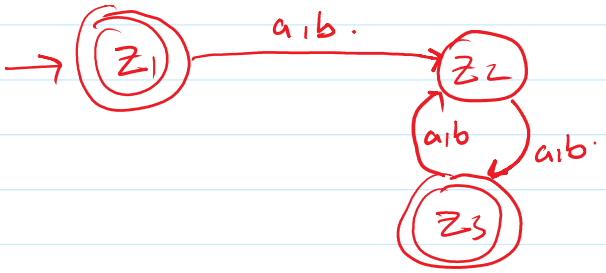


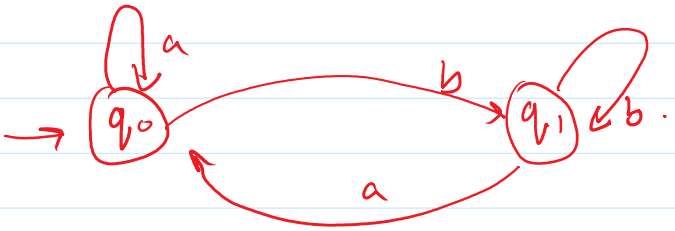
old state	Transition at 'a'	Transition at 'b'.
$^-Z_1^+ \equiv q_0$	$Z_2 \equiv q_1$	$Z_2 \equiv q_1$
$Z_2 \equiv q_1$	$Z_3^+ \equiv q_0, \cancel{q_0}$	$Z_3^+ \equiv q_0, \cancel{q_0}$
$Z_3^+ = q_0$	$Z_2 \equiv q_1$	$Z_2 \equiv q_1$

$z_2 \equiv q_1$
$z_3^+ \equiv q_0$

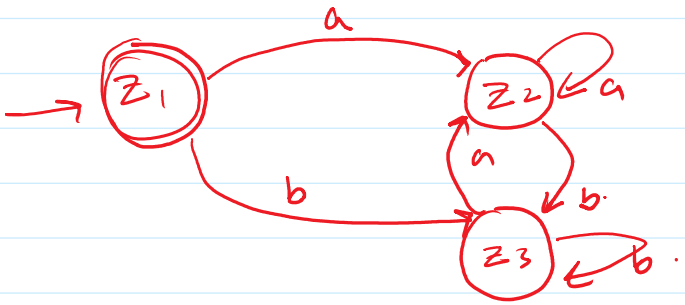
$z_3^+ \equiv q_0, q_0$
$z_2 \equiv q_2$

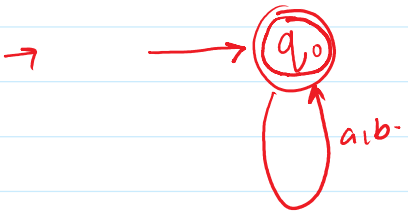
$z_3^+ \equiv q_0, q_0$
$z_2 \equiv q_1$



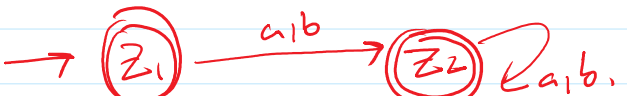


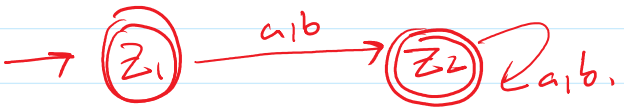
old State	Transition at 'a'	Transition at b.
$\pm z_1^- \equiv q_0$	$z_2 \equiv q_0$	$z_3 \equiv q_1$
$z_2 \equiv q_0$	$z_2 \equiv q_0$	$z_3 \equiv q_1$
$z_3 \equiv q_1$	$z_2 \equiv q_0$	$z_3 \equiv q_1$

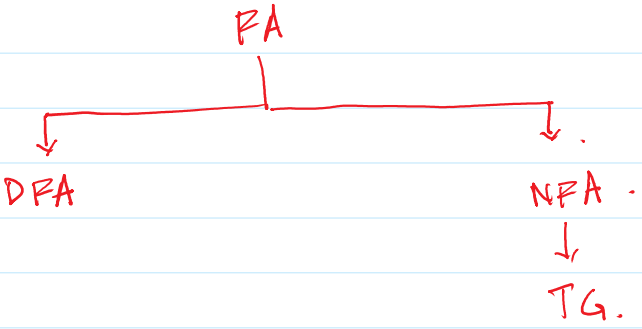




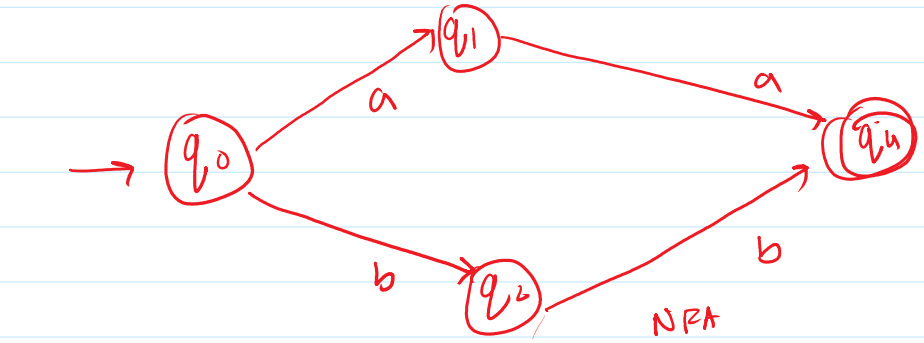
old State	Transition at 'a'	Transition at 'b'
$\pm z_1^+ \equiv q_0$	$z_2^+ \equiv (q_0, q_0)$	$z_2^+ \equiv (q_0, q_0)$
$z_2^+ = q_0$	$z_2^+ \equiv (q_0, q_0)$	$z^+ z \equiv (q_0, q_0)$

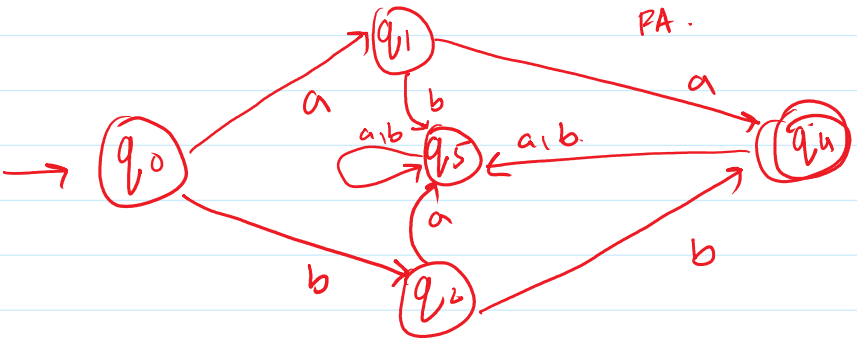




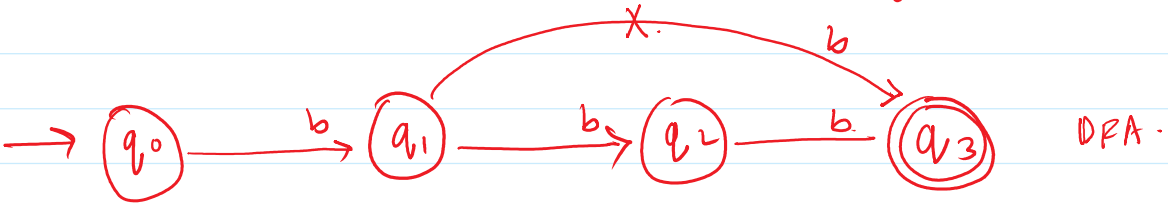


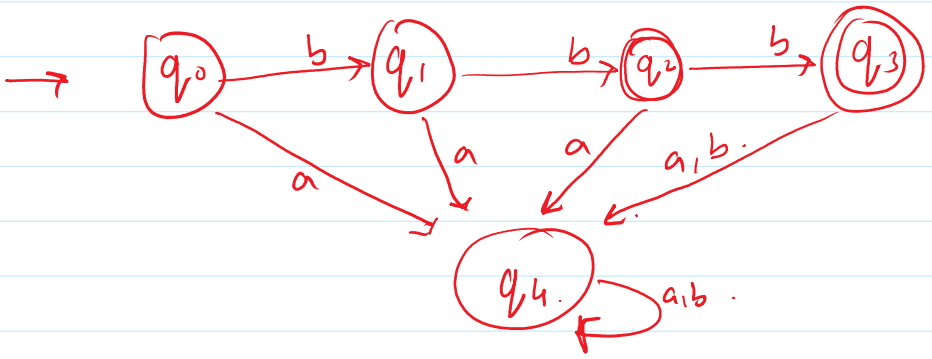
NFA To DFA(FA).





To avoid Nondeterminism.




q0
q1
q2
q3
q4
b
b
b
a
a
a
a,b
a,b