

1) step 1 → Remove all non-reachable states.

2nd state

Q1	X				
Q2	X				
Q3	X	X	X		
Q4	X	X	X		
Q5	X	X	X	X	X

1st state

Pass 1

last state

2nd last state

final states = Q1, Q2, Q5

non-final states = Q0, Q3, Q4

for cell (Q0, Q3)

$\delta(Q0, 0) = Q1$ } unmarked
 $\delta(Q3, 0) = Q5$ }

$\delta(Q0, 1) = Q2$ } unmarked
 $\delta(Q3, 1) = Q5$ }

so unmarked

for cell (Q0, Q4)

$\delta(Q0, 0) = Q1$ } unmarked
 $\delta(Q4, 0) = Q5$ }

$\delta(Q0, 1) = Q2$ } unmarked
 $\delta(Q4, 1) = Q5$ }

so unmarked

for cell (Q1, Q5)

$\delta(Q1, 0) = Q3$ } marked
 $\delta(Q5, 0) = Q5$ }

so mark it

for cell (Q1, Q2)

$\delta(Q1, 0) = Q3$ } unmarked
 $\delta(Q2, 0) = Q4$ }

$\delta(Q1, 1) = Q4$ } no decision

for cell (Q2, Q5)

$\delta(Q2, 0) = Q4$ } marked
 $\delta(Q5, 0) = Q5$ }

so mark it

for cell (Q3, Q4)

$\delta(Q3, 0) = Q5$ } No decision
 $\delta(Q4, 0) = Q5$ }

$\delta(Q3, 1) = Q5$ } No decision
 $\delta(Q4, 1) = Q5$ }

Pass 2

for cell (Q0, Q3)
 marked as (Q1, Q5) is marked now

for cell (Q0, Q4)

$\delta(Q0, Q4)$ gets marked as (Q1, Q5) is now marked

Merge (Q1, Q2) and (Q3, Q4)

$\{Q1, Q2\}$ → Two new composite states
 $\{Q3, Q4\}$

0

1

 $\rightarrow q_0 \quad \{q_1, q_2\}$
 $\{q_1, q_2\}$
 $\{q_1, q_2\} \quad \{q_3, q_4\}$
 $\{q_3, q_4\}$
 $\{q_3, q_4\} \quad q_5$
 q_5
 $q_5 \quad q_5$
 q_5

no new state new

