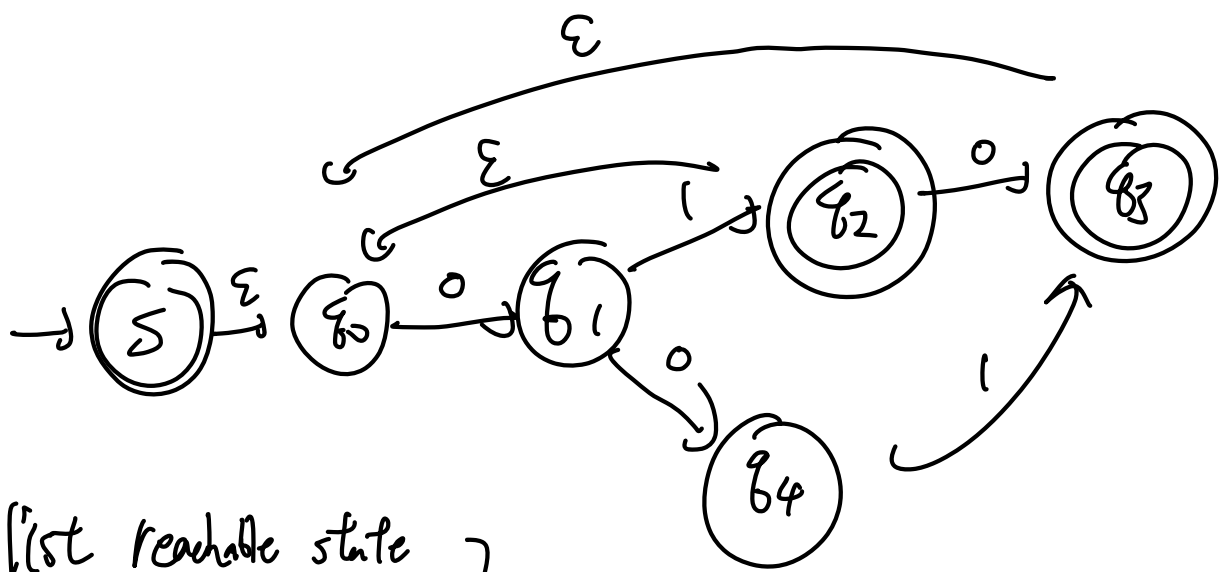


1.17



only list reachable state ↴

	0	1
$\{q_0\}$	$\{q_1\}$	$\emptyset$
$\{q_1\}$	$\{q_4\}$	$\{q_0, q_2\}$
$\{q_0, q_1\}$	$\{q_0, q_1, q_3\}$	$\{q_2\}$
$\{q_4\}$	$\emptyset$	$\{q_0, q_3\}$
$\{q_0, q_1, q_3\}$	$\{q_1, q_4\}$	$\{q_2\}$
$\{q_0, q_3\}$	$\{q_1\}$	$\emptyset$
$\{q_1, q_4\}$	$\{q_4\}$	$\{q_2, q_3\}$
$\{q_2\}$	$\{q_1, q_3\}$	$\emptyset$
$\{q_2, q_3\}$	$\{q_1, q_3\}$	$\emptyset$
$\{q_1, q_3\}$	$\{q_1, q_4\}$	$\{q_0, q_2\}$
$\emptyset$	$\emptyset$	$\emptyset$

minimize

$$0: \{ \{5q_0\}, \{q_1\}, \{q_4\}, \{q_1, q_4\} \},$$

$$2: \{ \{q_0, q_2\}, \{q_0, q_1, q_3\}, \{q_0, q_3\}, \{q_2\}, \{q_2, q_1\}, \{q_1, q_3\} \},$$

$$\phi \{ \emptyset \}$$

new name in  
minimized DFA

$$1: \{ \{5q_0\}, \{q_1, \{q_1, q_4\}\}, \{q_4\},$$

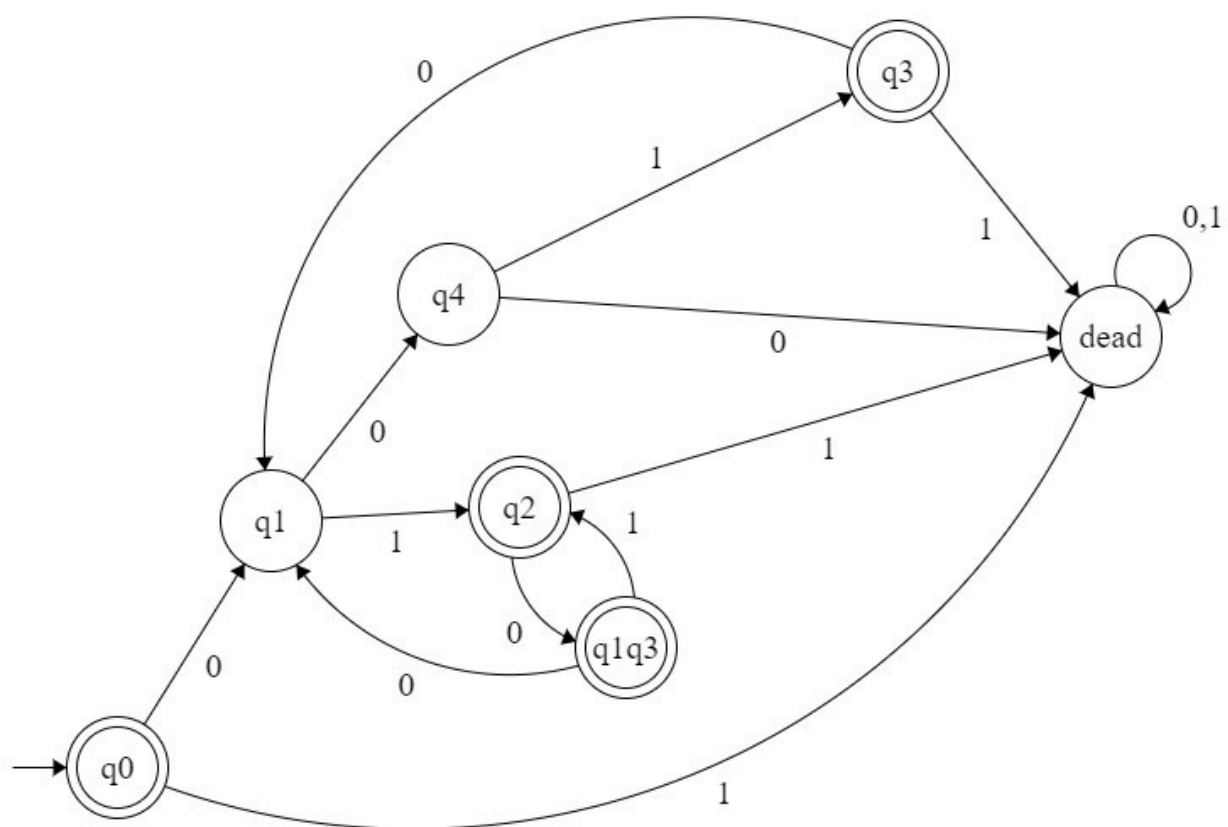
$$q_2 \rightarrow \{ \{q_1, q_2\}, \{q_2\}, \{q_2, q_3\}, \}, \quad 2 \phi$$

$$q_1 q_3 \rightarrow \{ \{q_0, q_1, q_3\}, \{q_1, q_3\} \} \quad 12$$

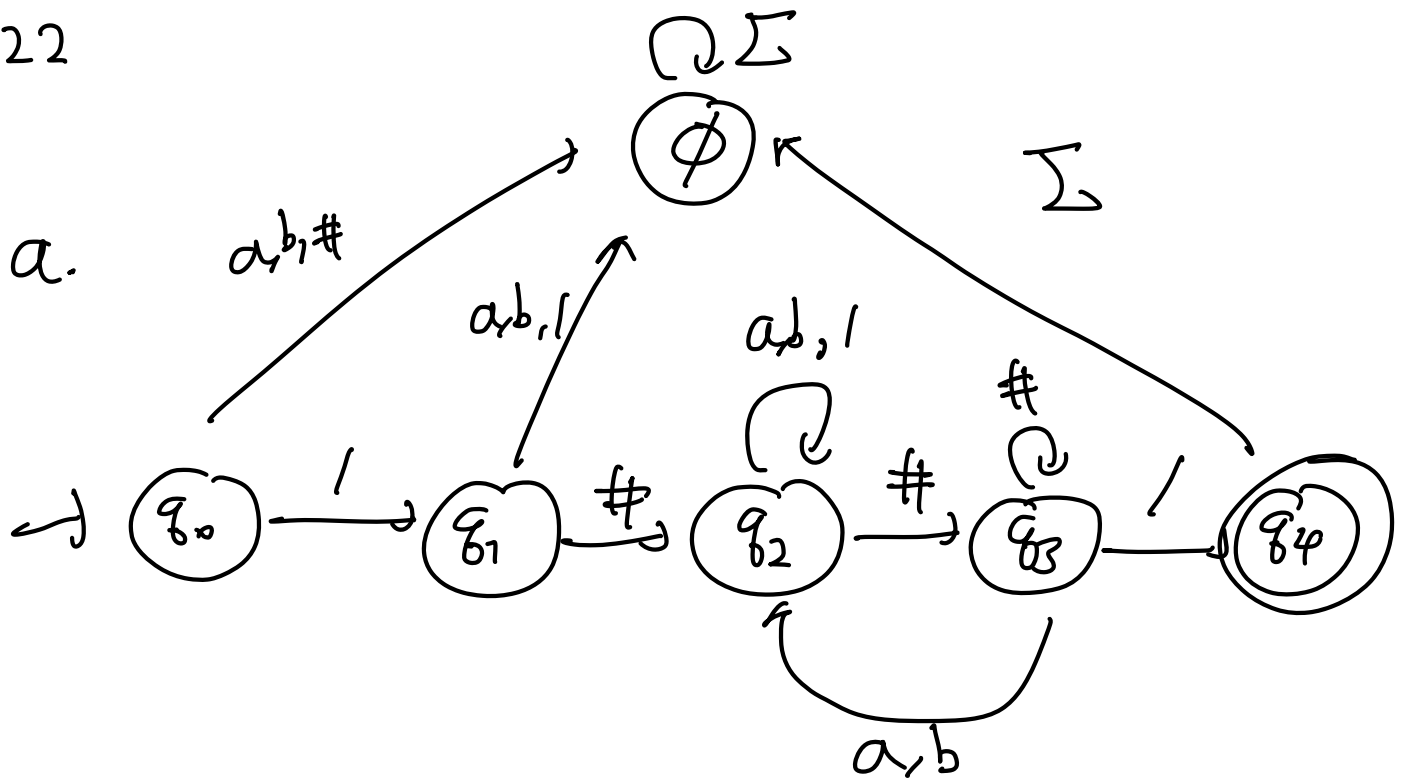
$$q_3 \rightarrow \{ \{q_0, q_3\} \}, \quad \{ \emptyset \} \leftarrow \phi$$

$$1 \phi$$

	0	1
$q_0$	$q_1$	$\phi$
$q_1$	$q_4$	$q_2$
$q_2$	$q_1 q_3$	$\phi$
$q_4$	$\phi$	$q_3$
$q_3$	$q_1$	$\phi$
$q_1 q_3$	$q_1$	$q_2$

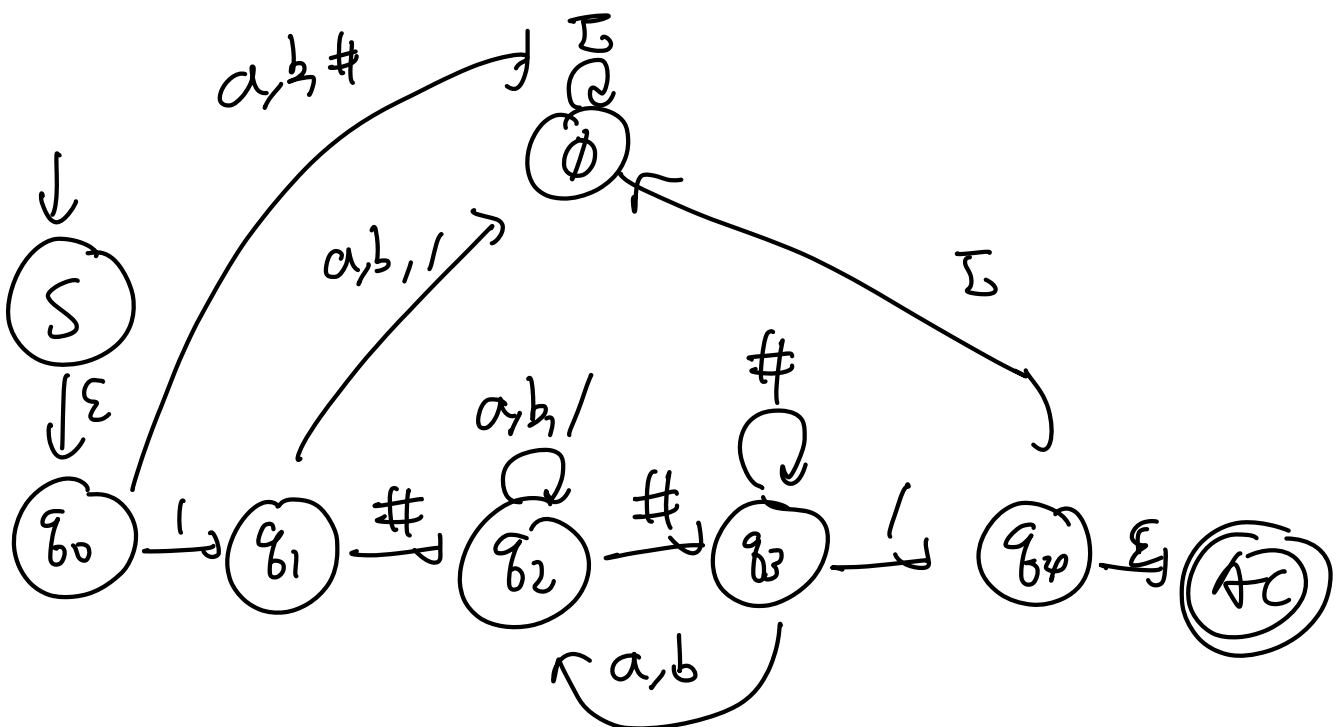


1,22

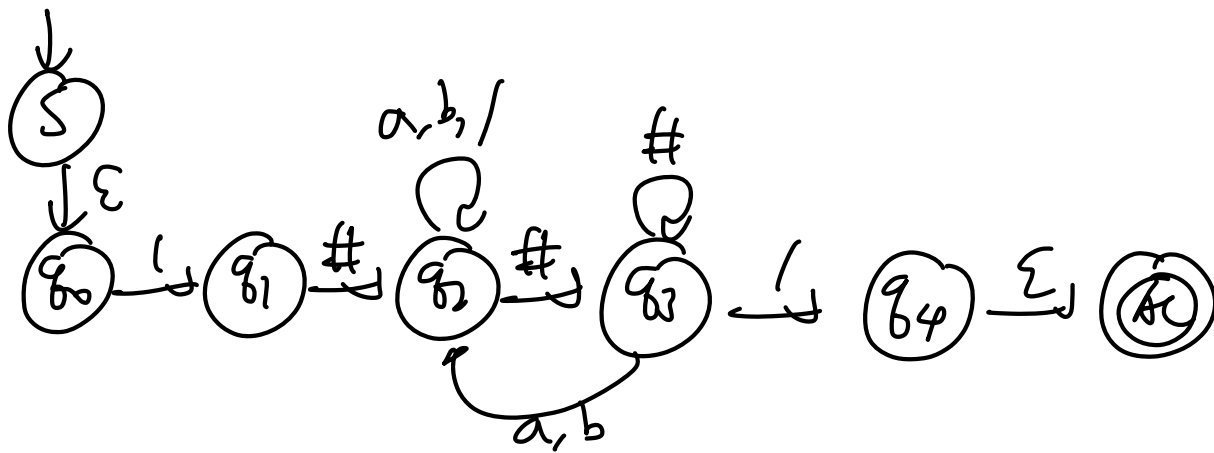


b.

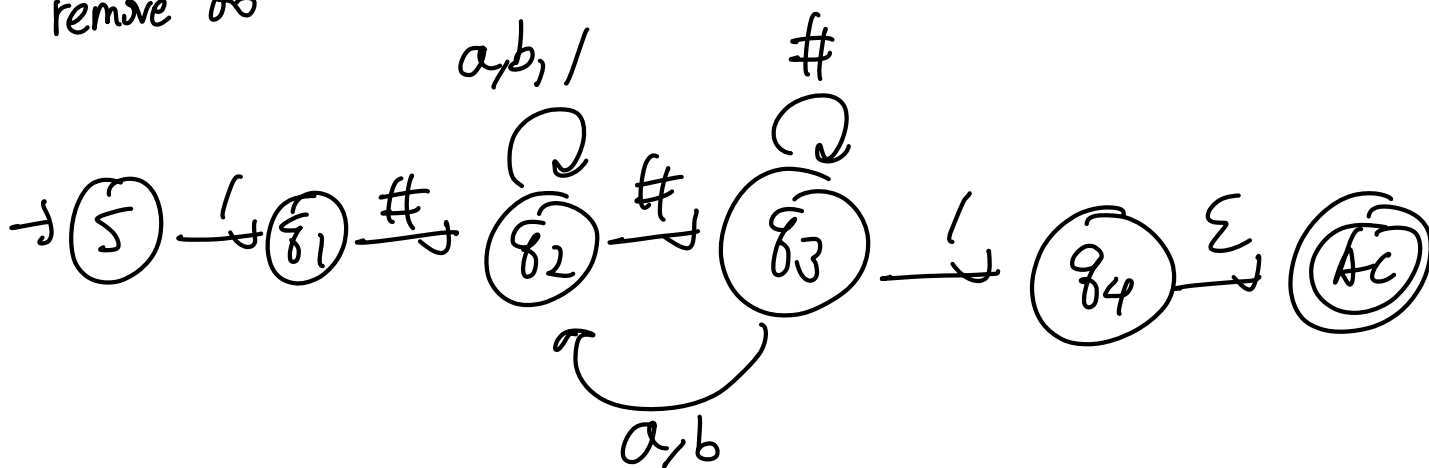
GNFA



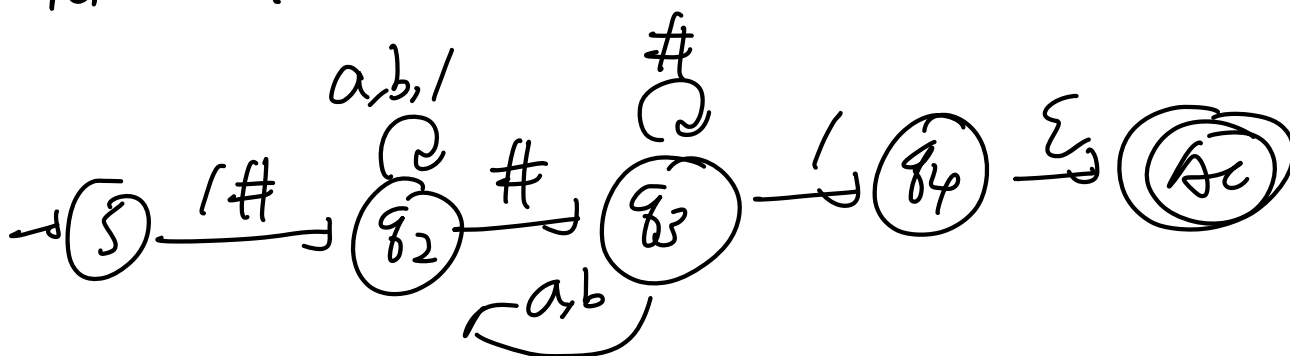
remove  $\phi$



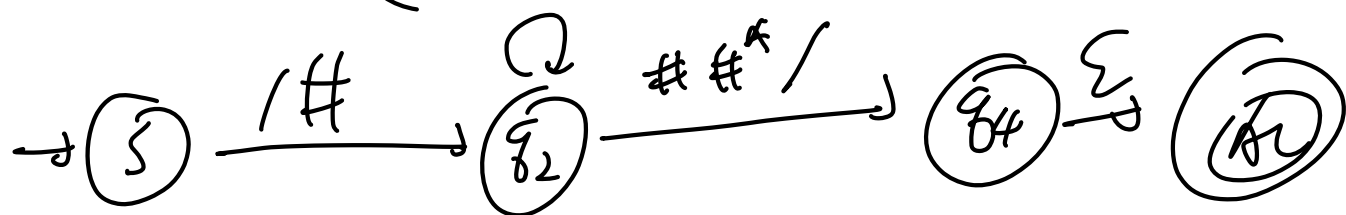
remove  $q_0$



remove  $q_1$



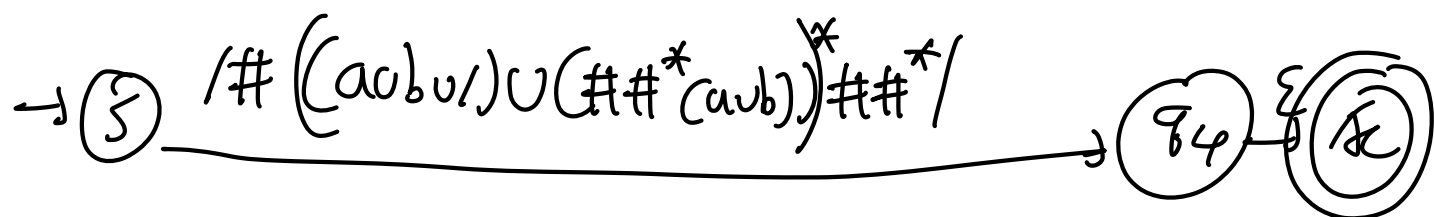
remove  $q_3$   $(a \cup b \cup /) \cup (\# \#^* (a \cup b))$



remove  $q_3 \Rightarrow$  it would affect

$q_2 \rightarrow q_3 \rightarrow q_2$  and  $q_2 \rightarrow q_3 \rightarrow q_4$

remove  $q_2$



remove  $q_4$



Ans:

$/ \# ((a \cup b \cup /) \cup (\# \#^* (a \cup b)))^* \# \#^* /$   ~~$\times$~~