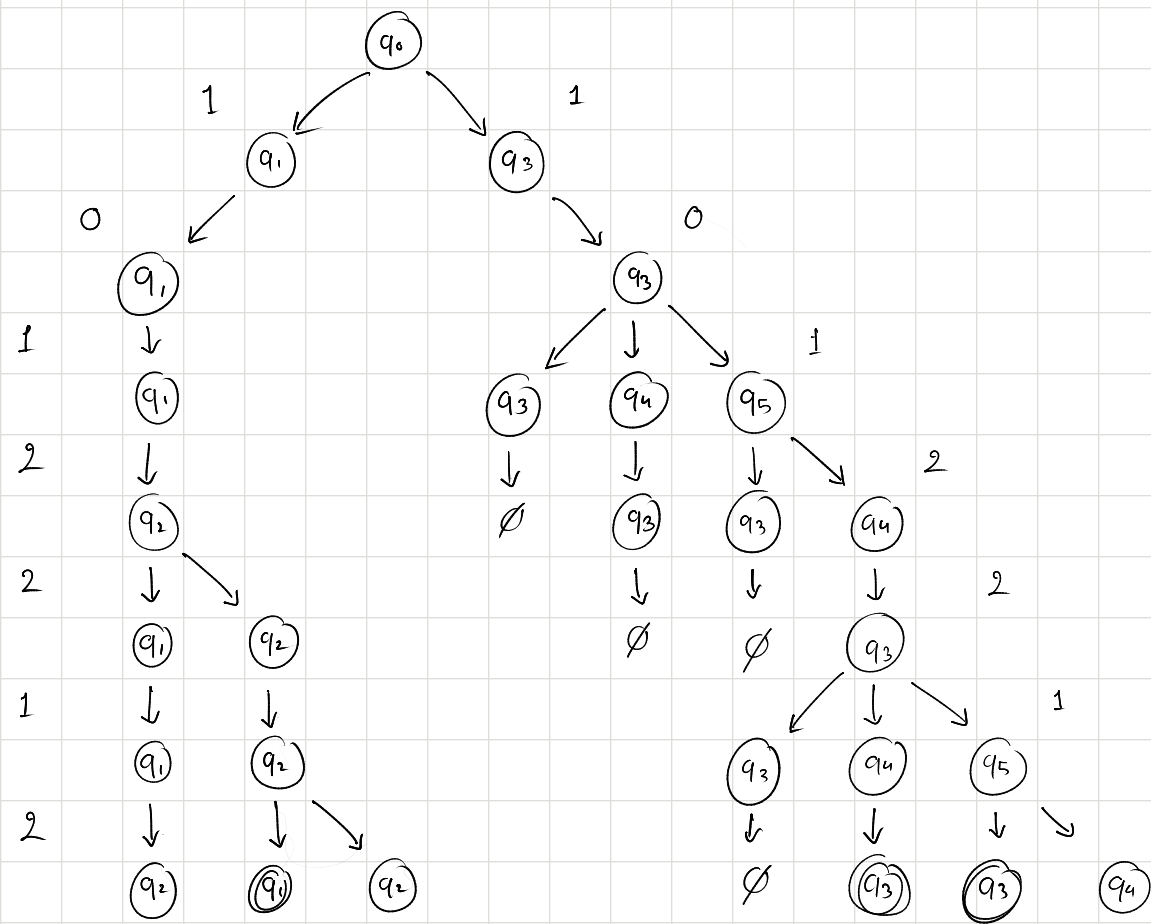


3.



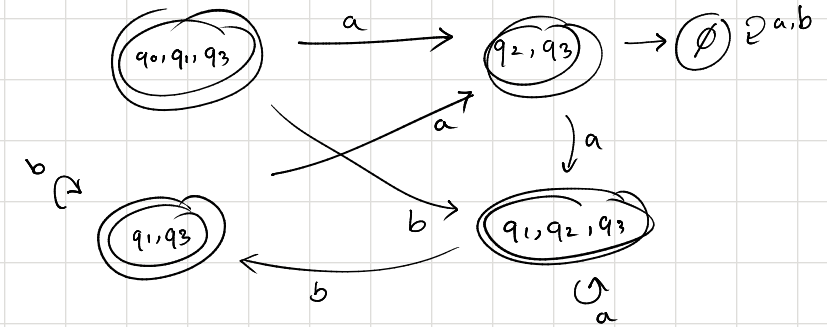
the string is accepted because q_1 is a final state.

4.

NFA transition table

	a	b	ε
$\rightarrow q_0$	\emptyset	$\{q_2\}$	$\{q_0, q_1, q_3\}$
q_1	$\{q_3\}$	$\{q_1\}$	$\{q_1, q_3\}$
q_2	$\{q_1\}$	\emptyset	$\{q_2, q_3\}$
$* q_3$	$\{q_2\}$	\emptyset	$\{q_3\}$

	a	b
$\rightarrow \{q_0, q_1, q_3\} *$	$\{q_2, q_3\}$	$\{q_1, q_2, q_3\}$
$\{q_2, q_3\} *$	$\{q_1, q_2, q_3\}$	\emptyset
$\{q_1, q_2, q_3\} *$	$\{q_1, q_2, q_3\}$	$\{q_1, q_3\}$
$\{q_1, q_3\} *$	$\{q_2, q_3\}$	$\{q_1, q_3\}$
\emptyset	\emptyset	\emptyset



5

1. $(b|ab)^*(aa)?(ba|b)^*$
2. $.?|.*(aa|ba|bb)$
3. $b|b.*b$

1

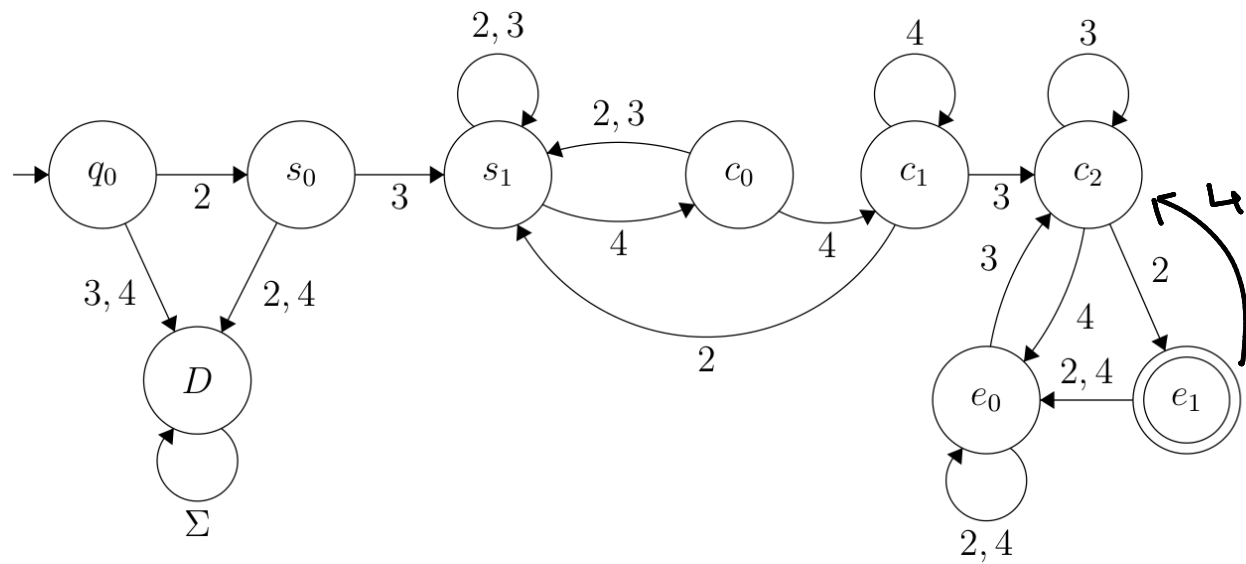


Figure 1: (a)

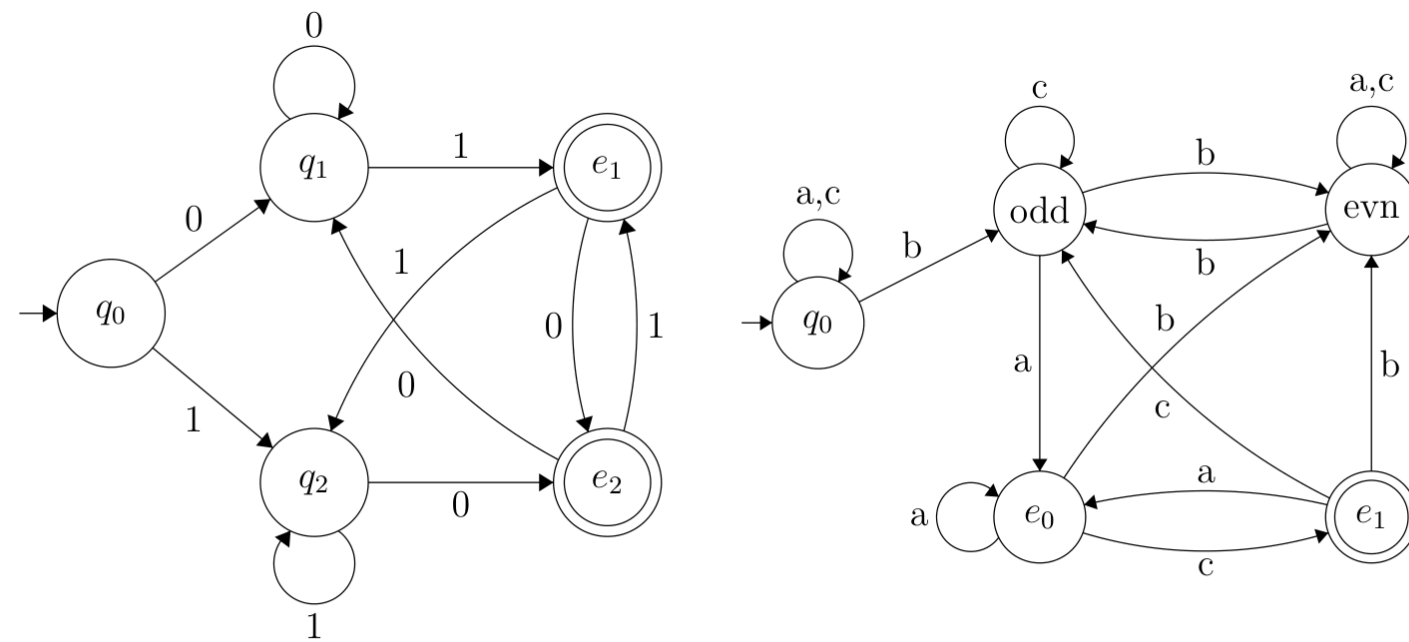


Figure 2: (b) and (c)

2

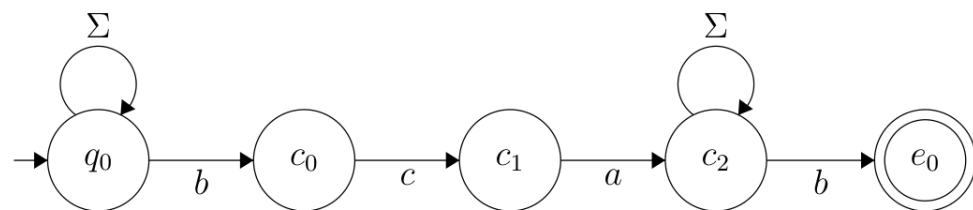


Figure 3: (a)

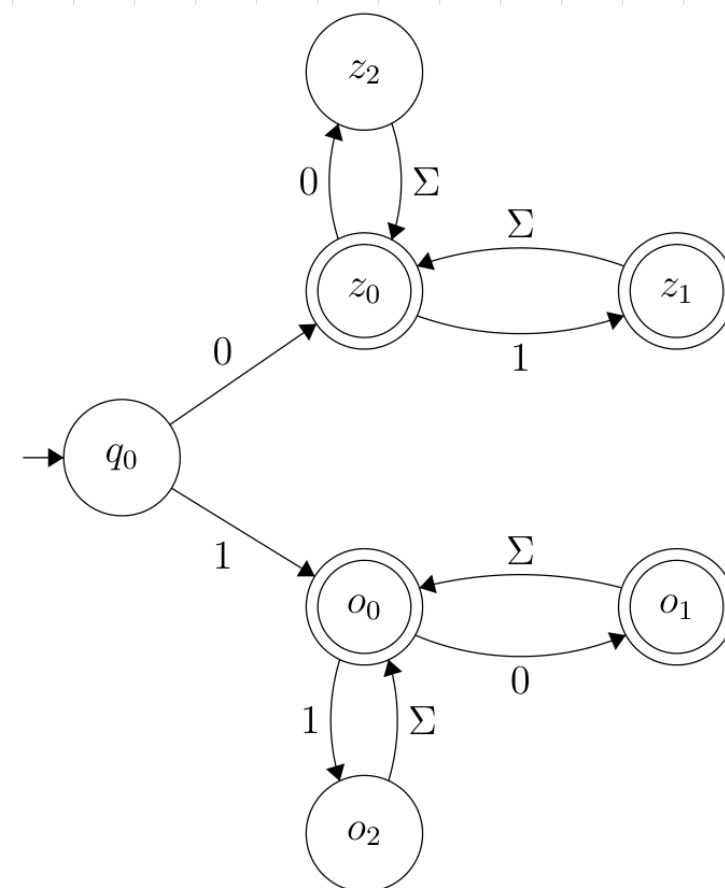


Figure 4: (b)