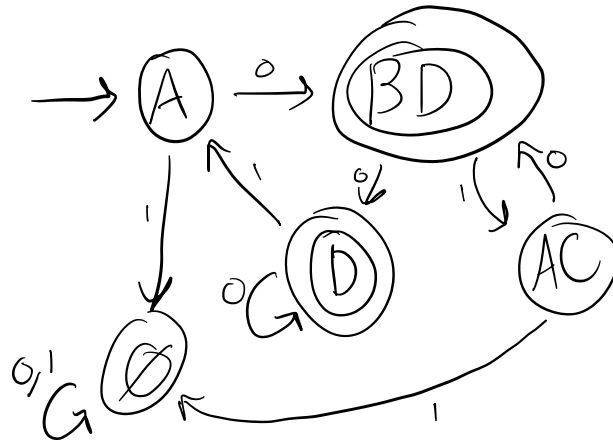


1.

DFA

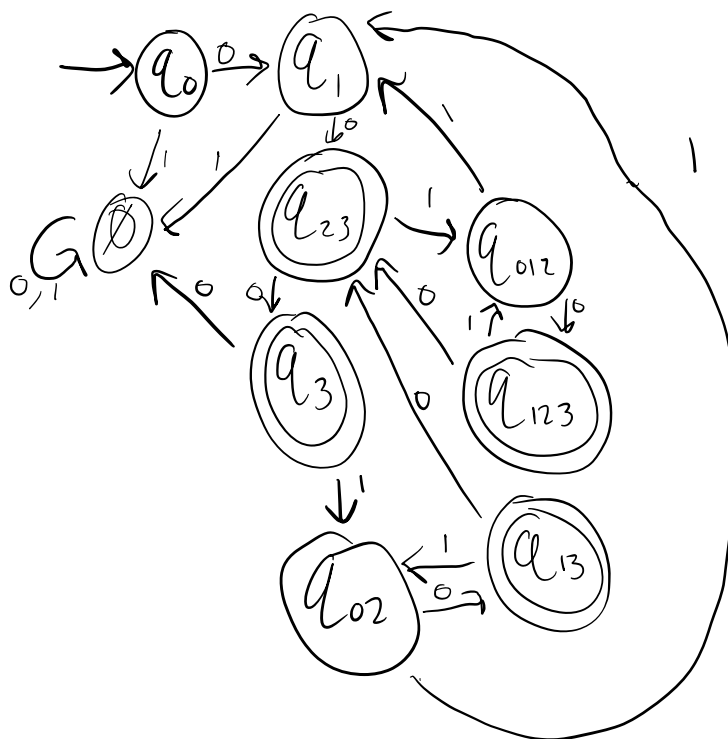
	0	1
→ A	BD	∅
*BD	D	AC
AC	BD	∅
B	∅	AC
C	B	∅
*D	D	A
∅	∅	∅



2.

DFA

	0	1
$\rightarrow q_0$	q_1	\emptyset
q_1	q_{23}	\emptyset
$\star q_{23}$	q_3	q_{012}
q_{012}	q_{123}	q_1
$\star q_{123}$	q_{23}	q_{012}
q_2	q_3	q_1
$\star q_3$	\emptyset	q_{02}
q_{02}	q_{13}	q_1
$\star q_{13}$	q_{23}	q_{02}
\emptyset	\emptyset	\emptyset



3. closure

$q_0: \{q_0\}$
 $q_1: \{q_1, q_2\}$
 $q_2: \{q_2\}$
 $q_3: \{q_3, q_4\}$
 $q_4: \{q_4\}$

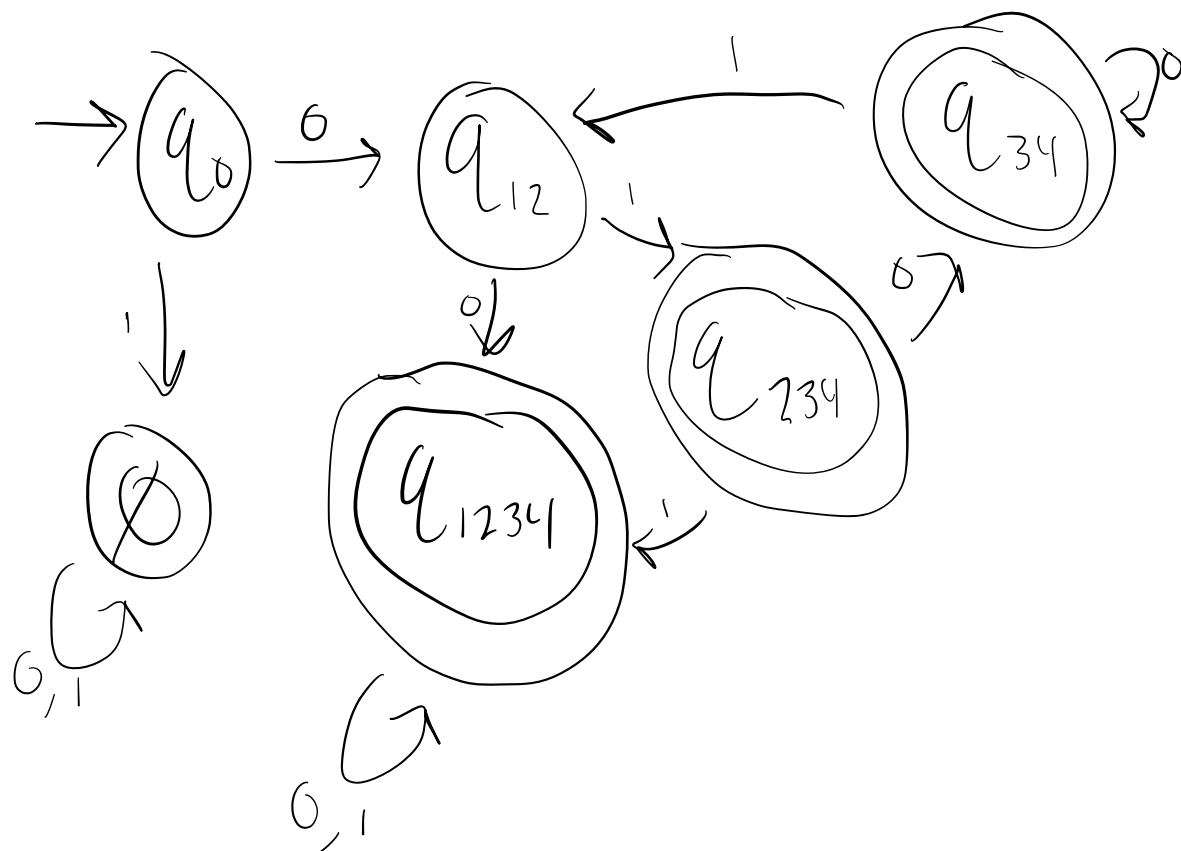
	ϵ^*	a	ϵ^*
q_0	q_0	q_1	$\{q_1, q_2\}$
q_1	q_1 q_2	q_1 q_3	$\{q_1, q_2\}$ $\{q_3, q_4\}$
q_2	q_2	q_3	$\{q_3, q_4\}$
q_3	q_3 q_4	q_3 \emptyset	$\{q_3, q_4\}$
q_4	q_4	\emptyset	\emptyset

	ϵ^*	b	ϵ^*
q_0	q_0	\emptyset	\emptyset
q_1	q_1 q_2	\emptyset q_2 q_3	q_2 $\{q_3, q_4\}$
q_2	q_2	q_2 q_3	q_2 $\{q_3, q_4\}$
q_3	q_3 q_4	q_1 \emptyset	$\{q_1, q_2\}$ \emptyset
q_4	q_4	\emptyset	\emptyset

<u>NFA</u>	a	b
$\rightarrow q_0$	$\{q_1, q_2\}$	\emptyset
q_1	$\{q_1, q_2, q_3, q_4\}$	$\{q_2, q_3, q_4\}$
q_2	$\{q_3, q_4\}$	$\{q_2, q_3, q_4\}$
q_3	$\{q_3, q_4\}$	$\{q_1, q_2\}$
$\star q_4$	\emptyset	\emptyset

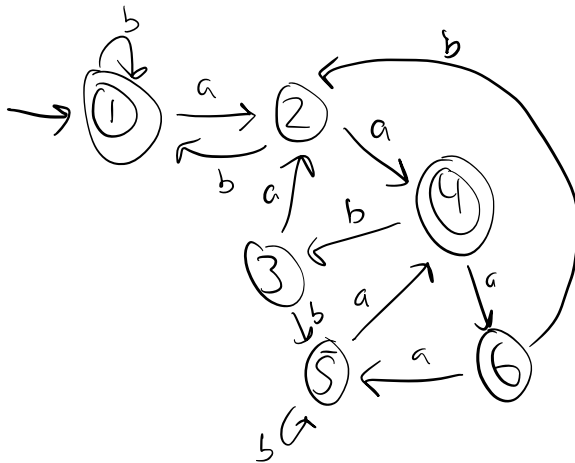
DFA

	a	b
$\rightarrow q_0$	q_{12}	\emptyset
q_{12}	q_{1234}	q_{234}
$\star q_{1234}$	q_{1234}	q_{1234}
$\star q_{234}$	q_{34}	q_{1234}
$\star q_{34}$	q_{34}	q_{12}
q_1	q_{1234}	q_{234}
q_2	q_{34}	q_{234}
q_3	q_{34}	q_{12}
q_4	\emptyset	\emptyset
\emptyset	\emptyset	\emptyset



4.

	a	b
* → 1	2	1
2	4	1
3	2	5
* 4	6	3
5	4	5
6	5	2



0 equiv.

$\{2,3,5,6\} \{1,4\}$

1 equiv.

$\{2\} \{3,6\} \{5\} \{1\} \{4\}$

2 equiv.

$\{2\} \{3\} \{6\} \{5\} \{1\} \{4\}$