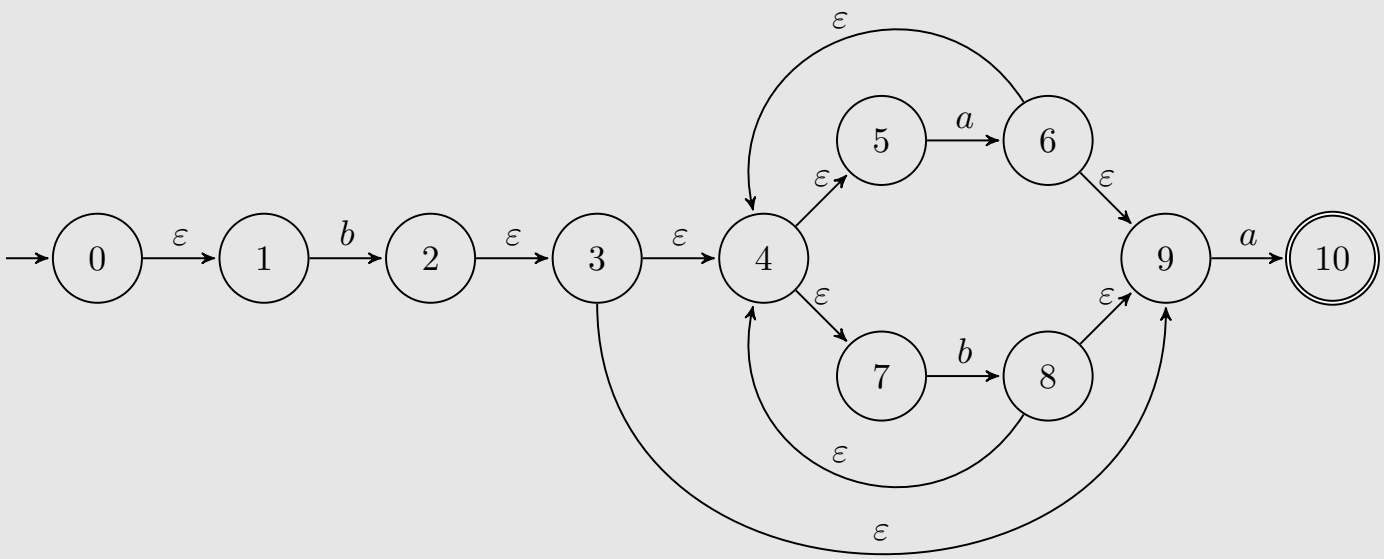
CSEN 1002

Task 2: Non-Deterministic Finite Automata to Deterministic Finite Automata

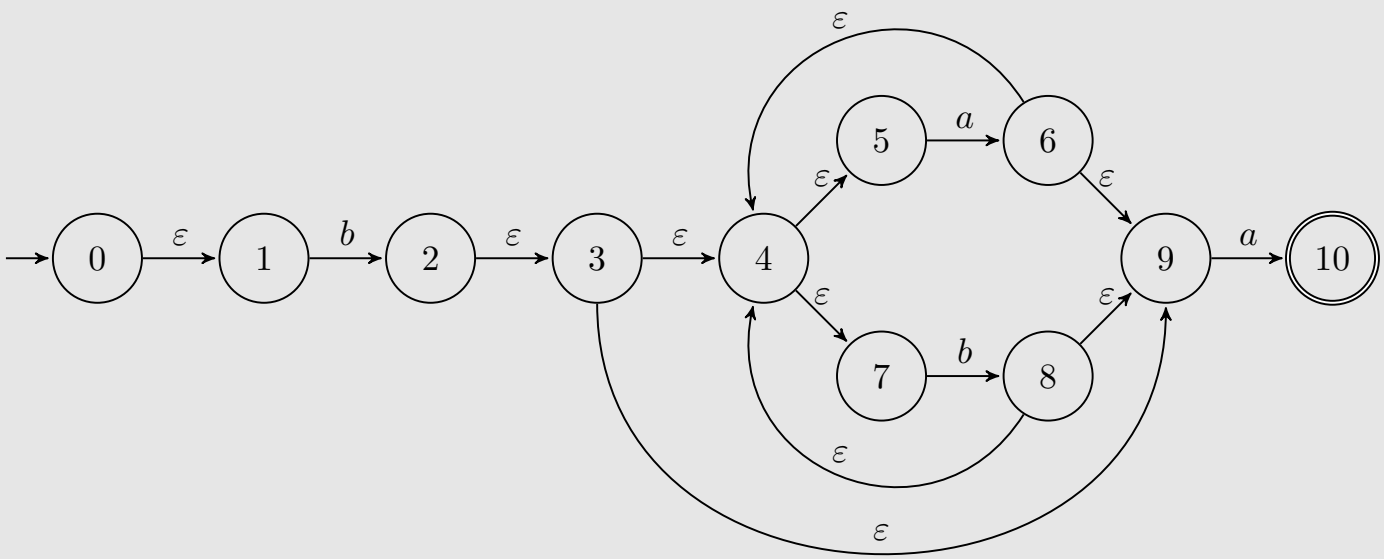
NFA String Representation

NFA



NFA String Representation

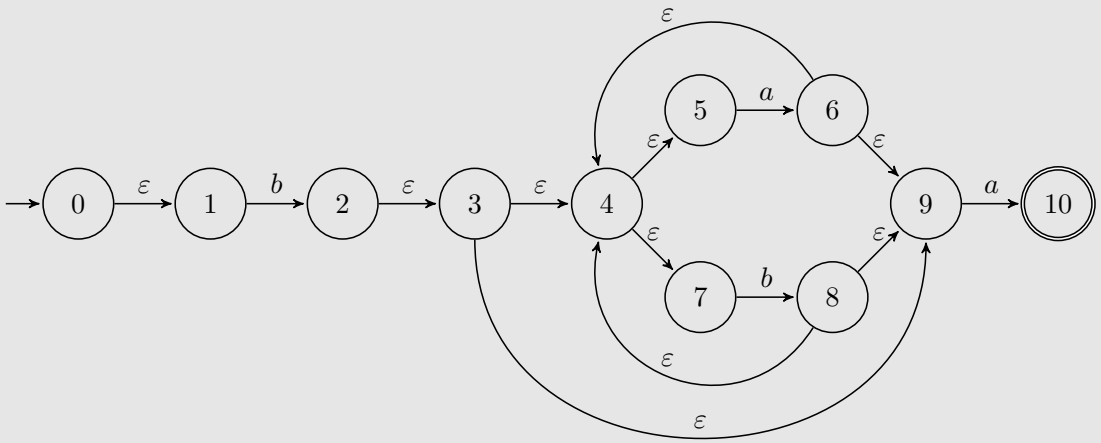
NFA



String Representation

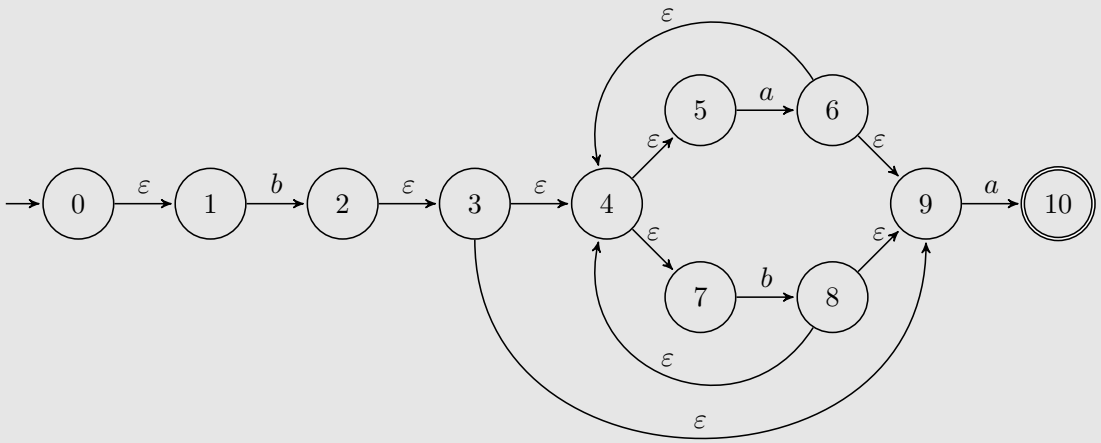
```
0;1;2;3;4;5;6;7;8;9;10#a;b#0,e,1;1,b,2;2,e,3;3,e,4;3,e,9;
4,e,5;4,e,7;5,a,6;6,e,4;6,e,9;7,b,8;8,e,4;8,e,9;9,a,10#0#10
```

NFA to DFA



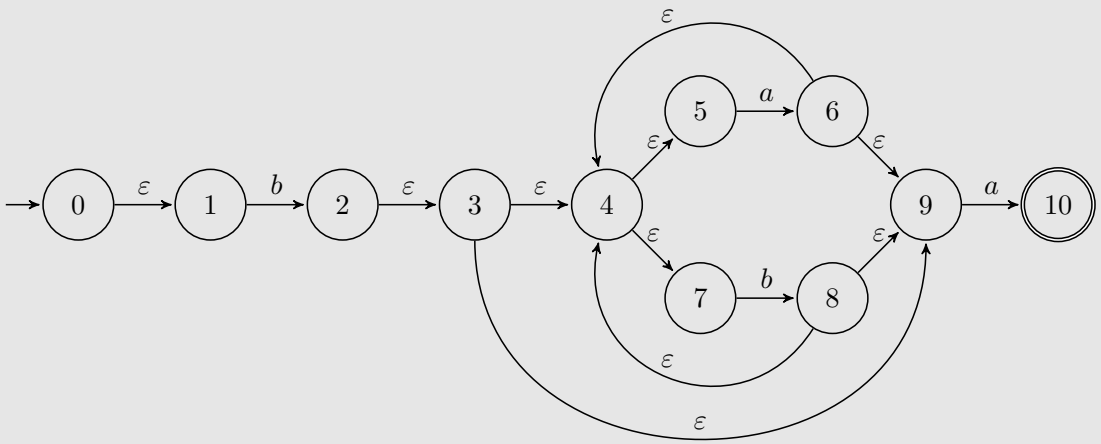
State	ε-closure
0	0
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10

NFA to DFA



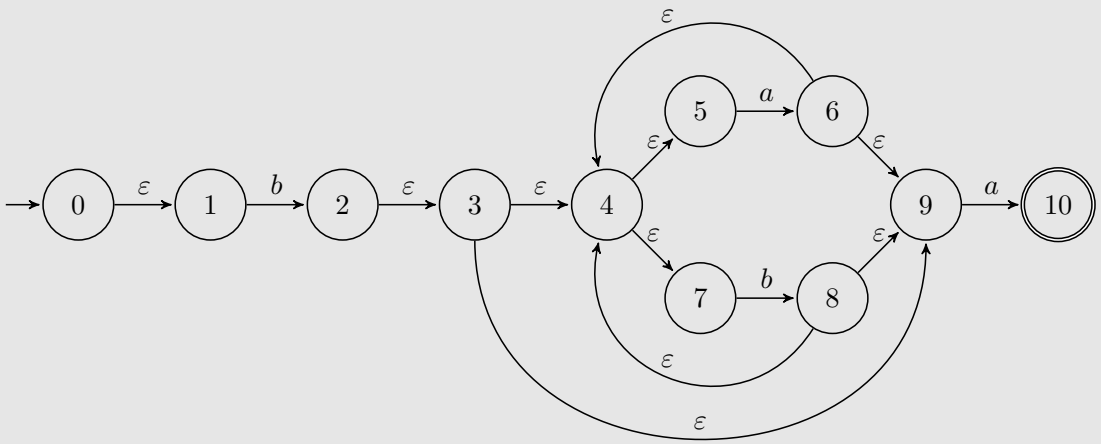
State	ε-closure
0	0,1
1	1
2	2,3
3	3,4,9
4	4,5,7
5	5
6	4,6,9
7	7
8	4,8,9
9	9
10	10

NFA to DFA



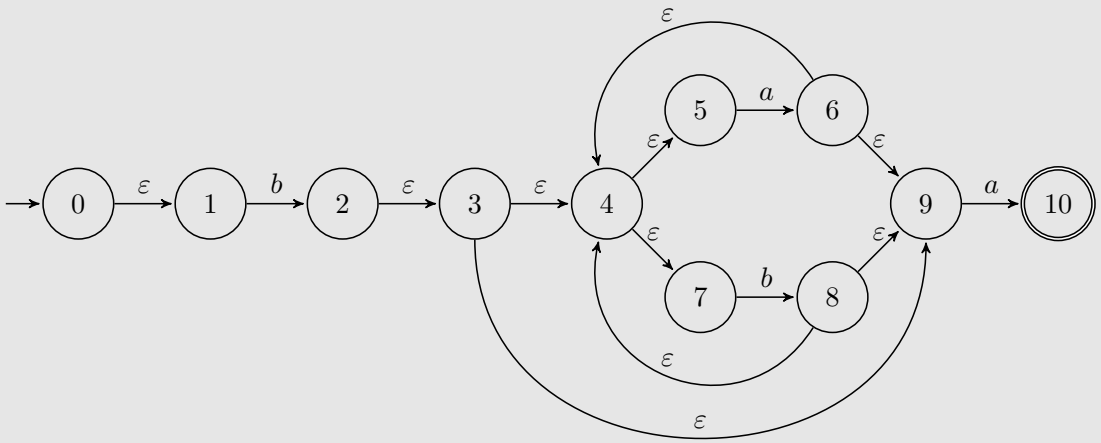
State	ε-closure
0	0,1
1	1
2	2,3,4,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10

NFA to DFA



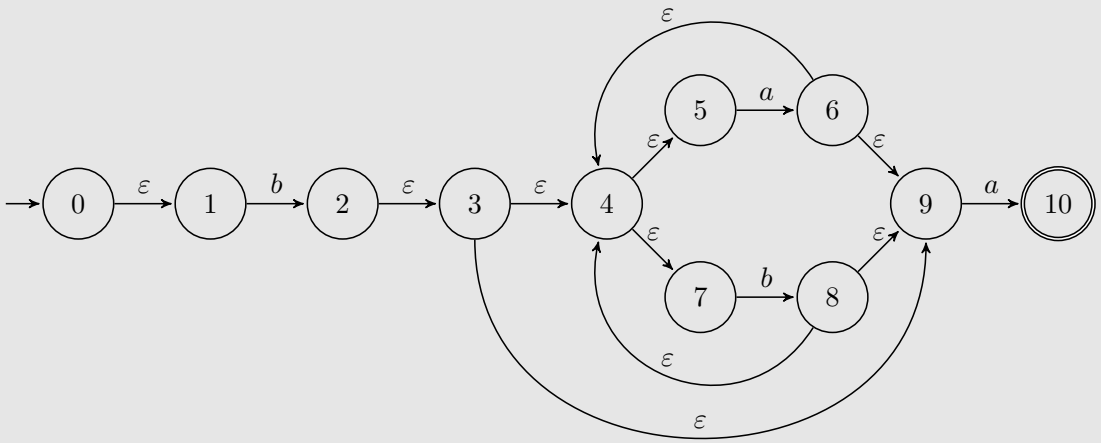
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10

NFA to DFA

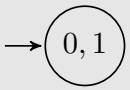


State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10

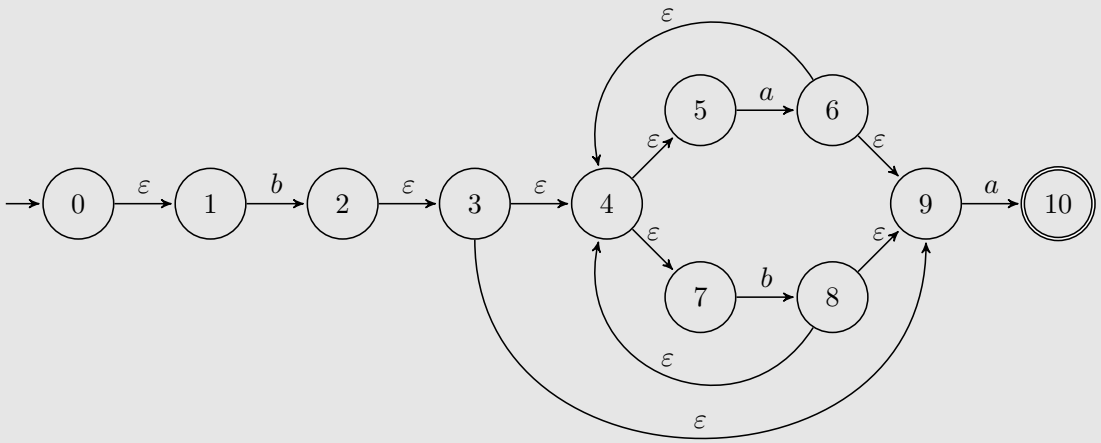
NFA to DFA



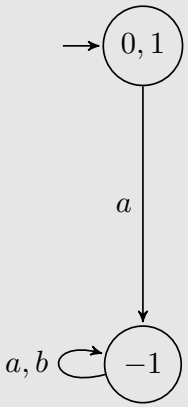
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



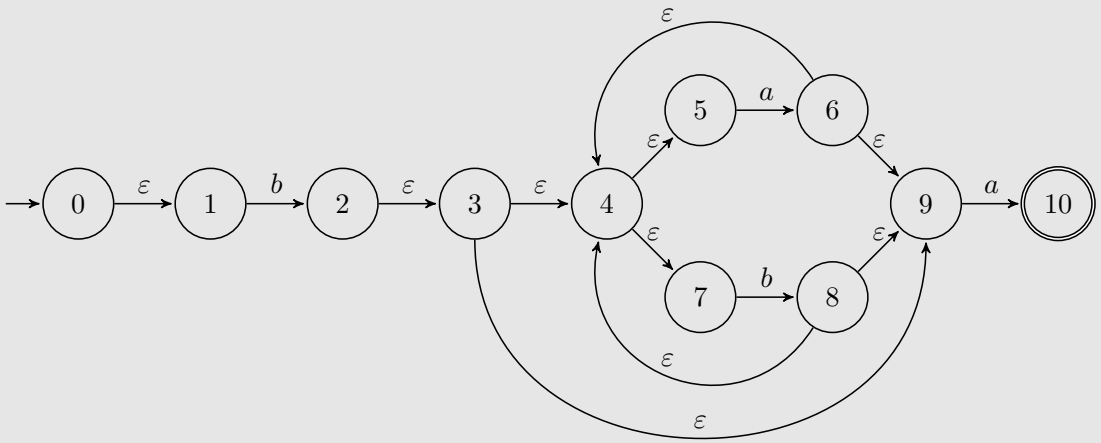
NFA to DFA



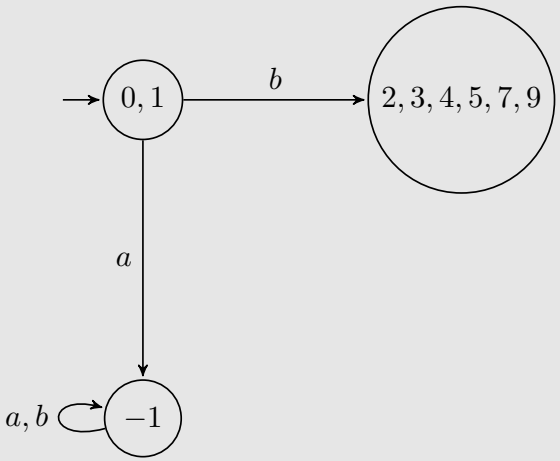
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



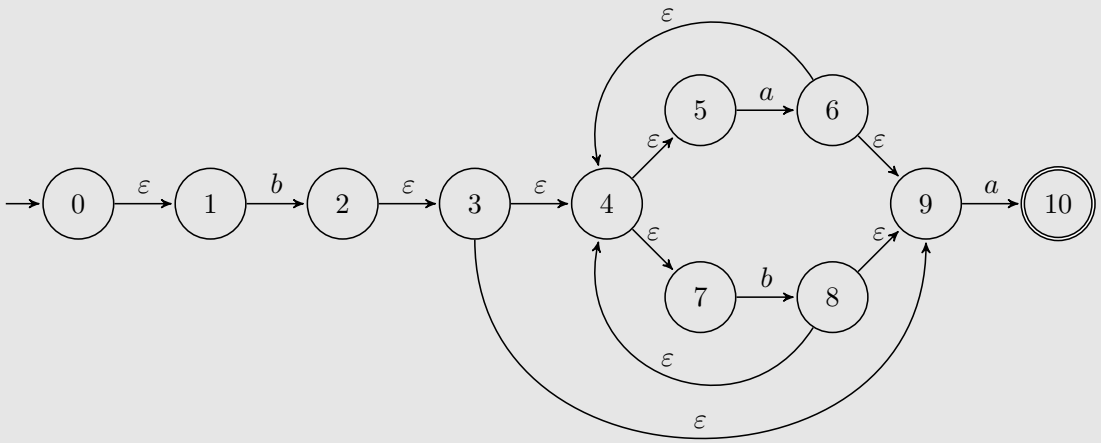
NFA to DFA



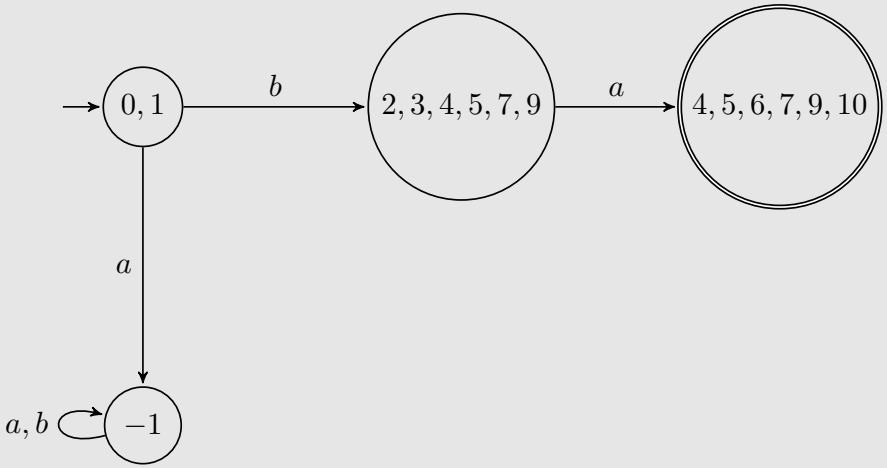
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



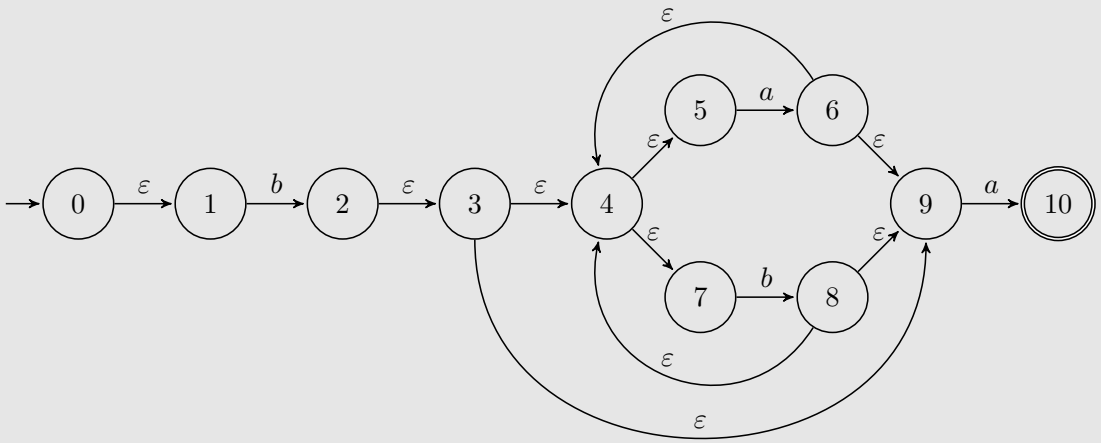
NFA to DFA



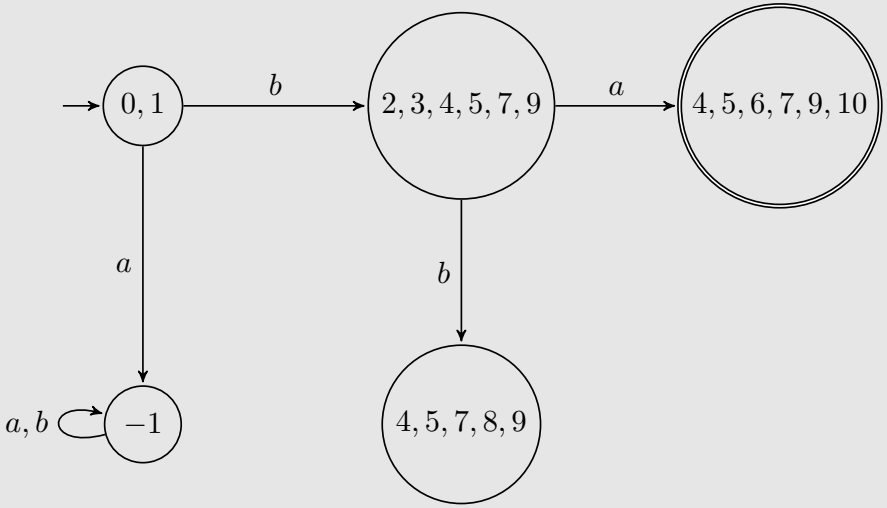
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



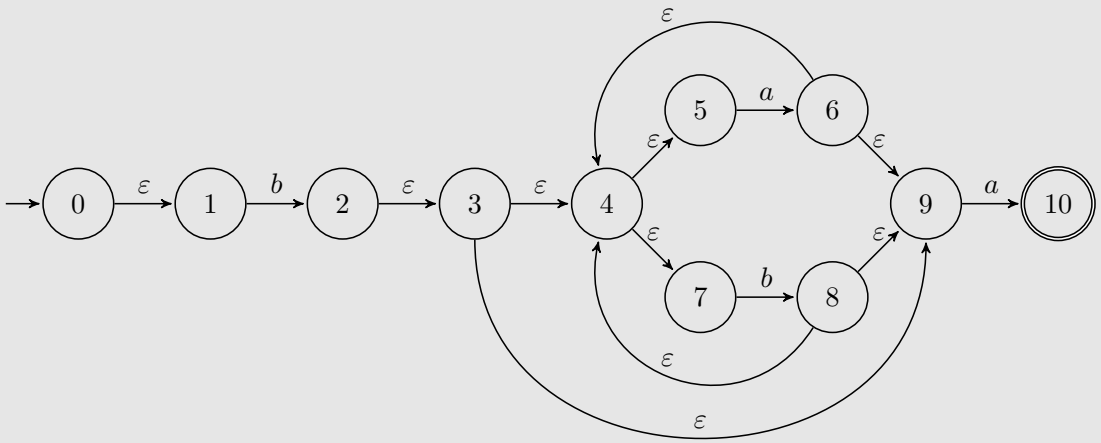
NFA to DFA



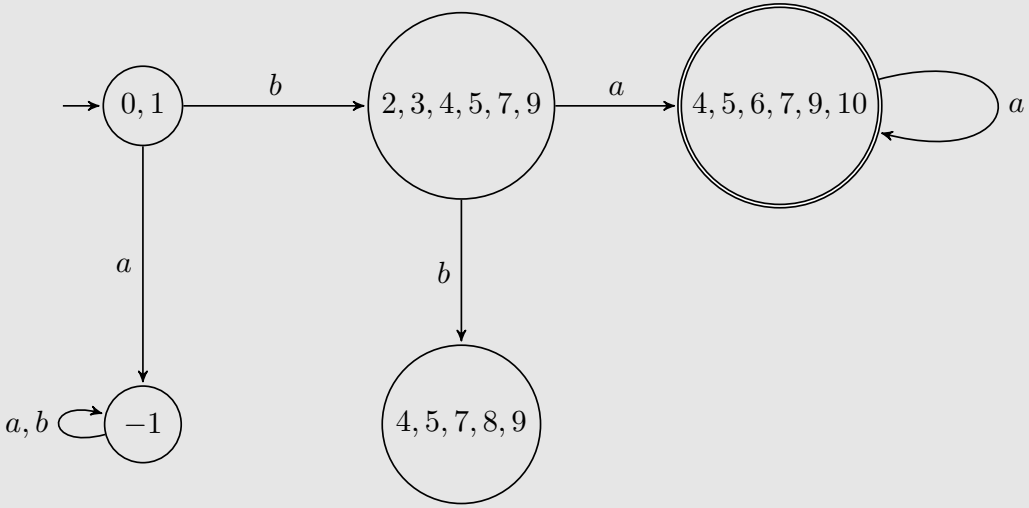
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



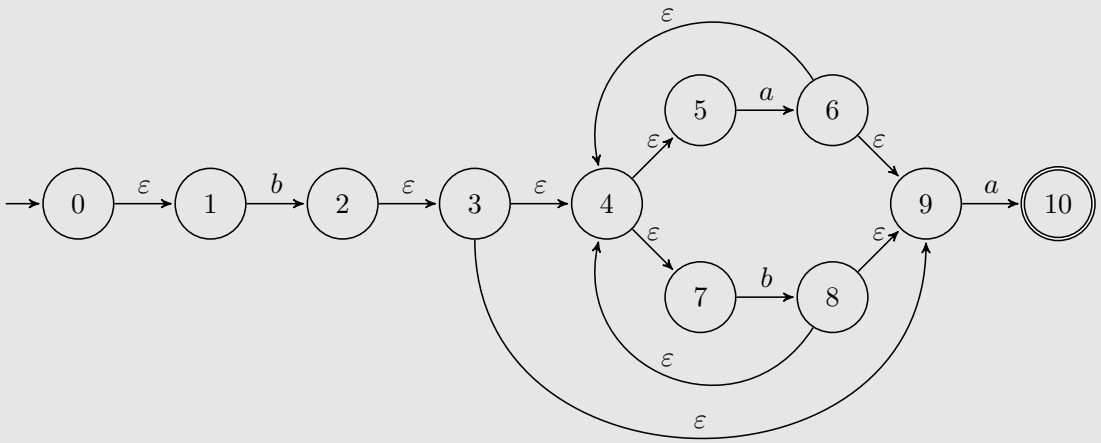
NFA to DFA



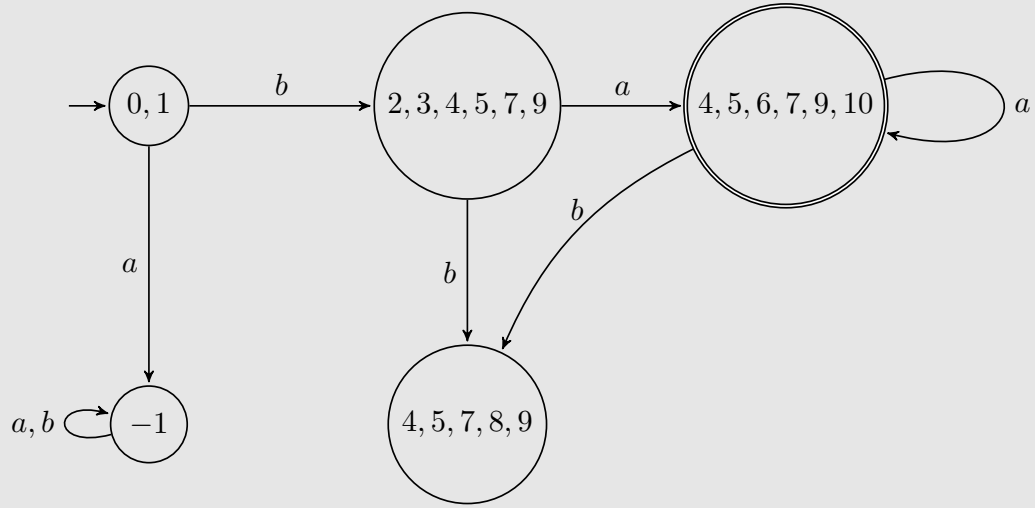
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



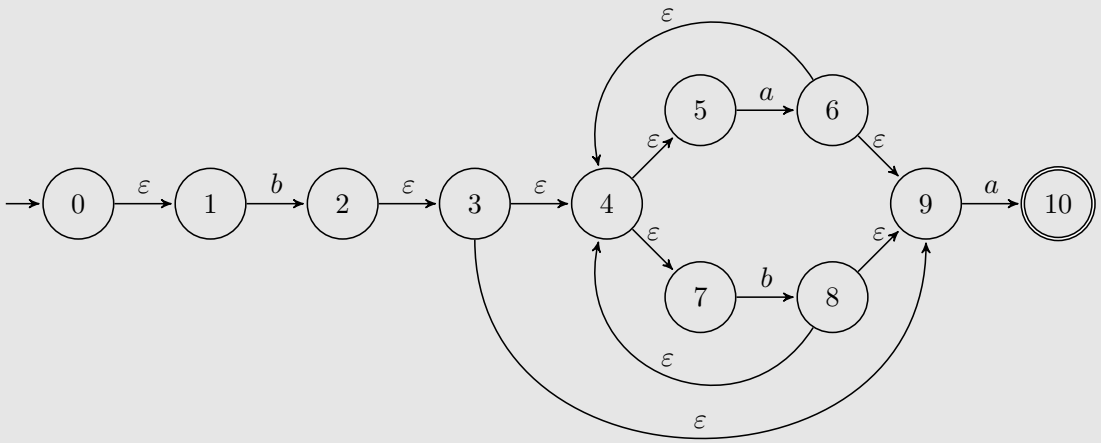
NFA to DFA



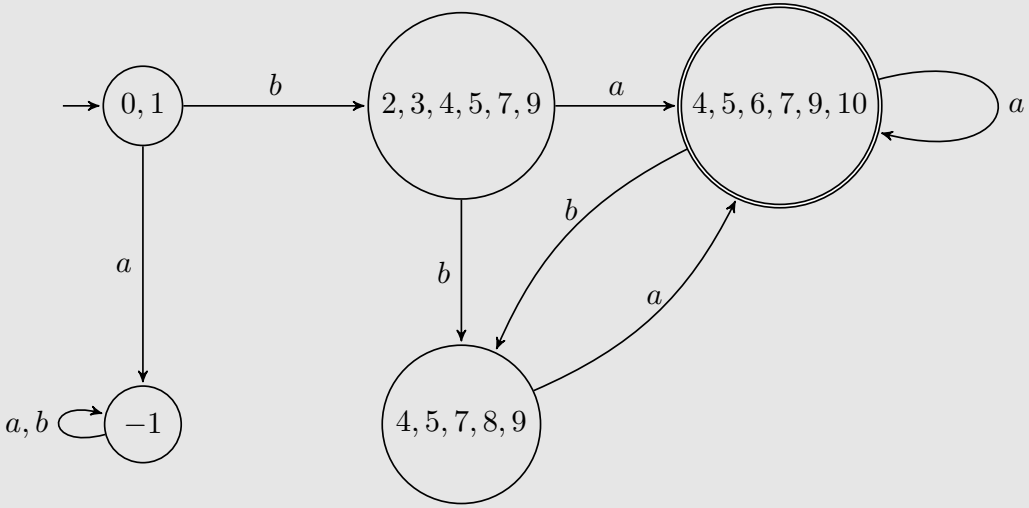
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



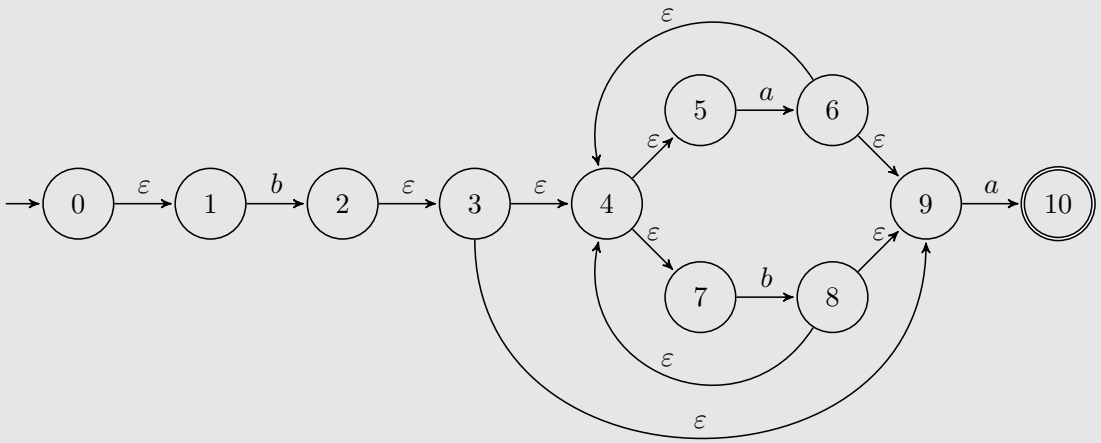
NFA to DFA



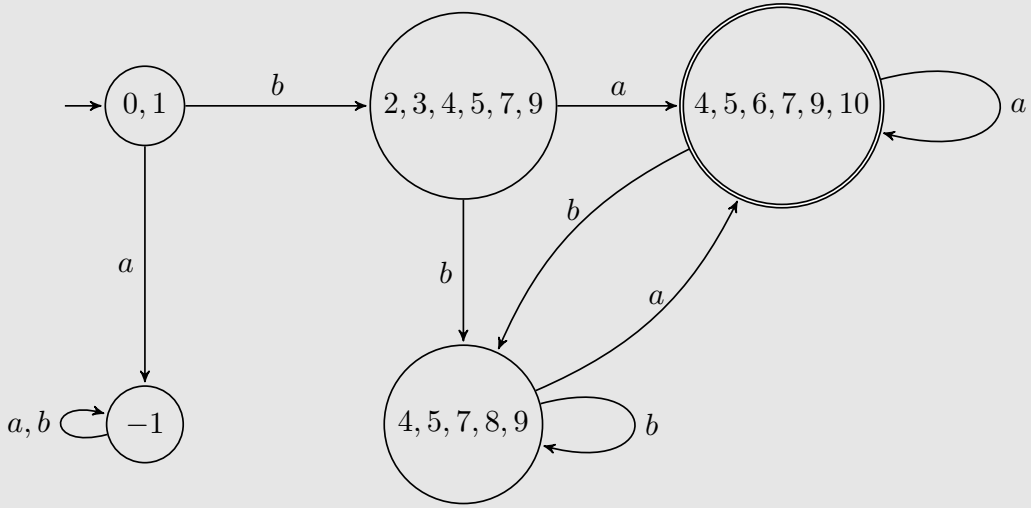
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



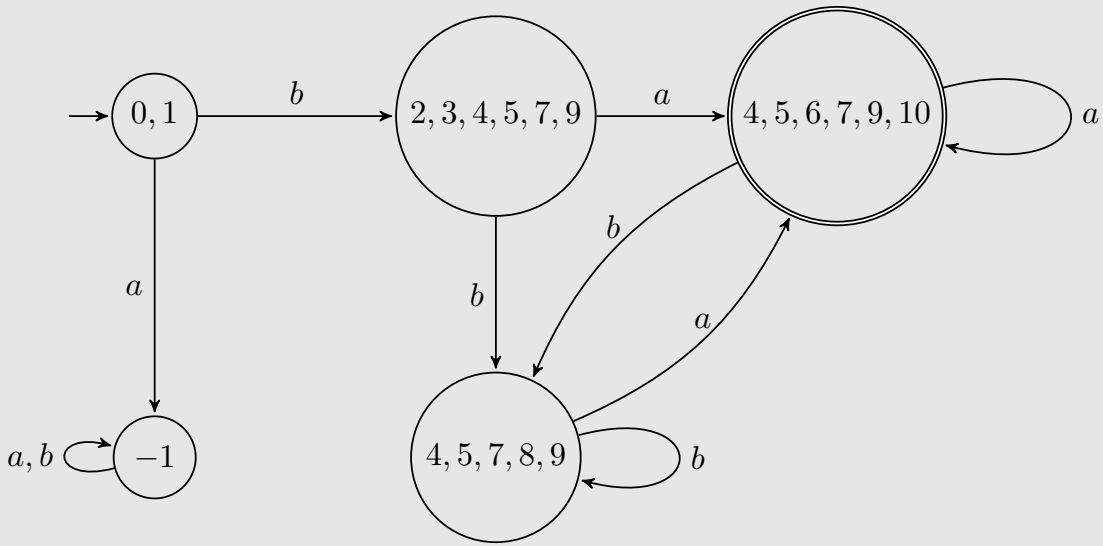
NFA to DFA



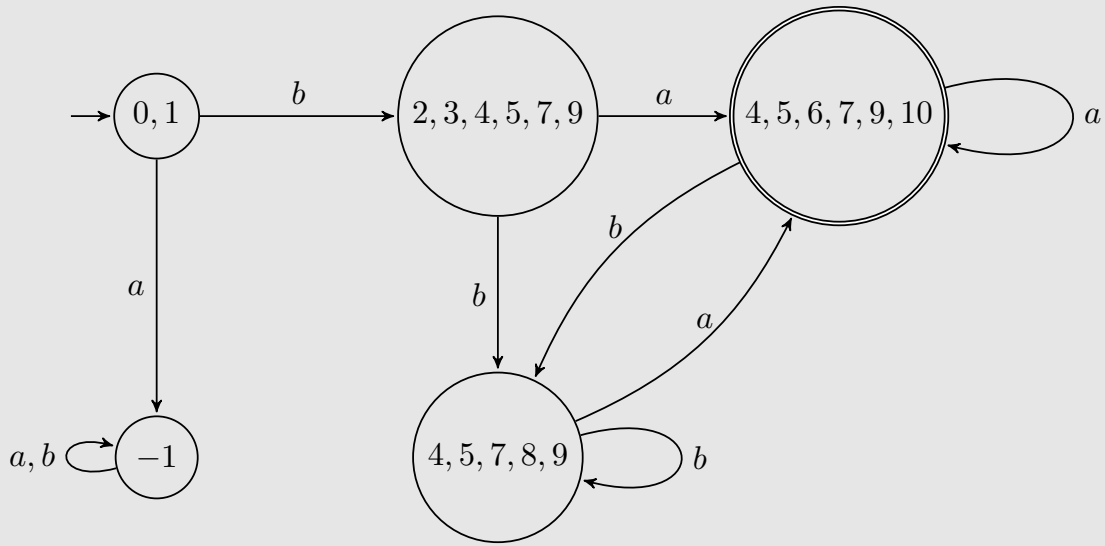
State	ε-closure
0	0,1
1	1
2	2,3,4,5,7,9
3	3,4,5,7,9
4	4,5,7
5	5
6	4,5,6,7,9
7	7
8	4,5,7,8,9
9	9
10	10



DFA String Representation



DFA String Representation



String Representation

```
-1;0/1;2/3/4/5/7/9;4/5/6/7/9/10;4/5/7/8/9#a;b#-1,a,-1;-1,b,-1;
0/1,a,-1;0/1,b,2/3/4/5/7/9;2/3/4/5/7/9,a,4/5/6/7/9/10;
2/3/4/5/7/9,b,4/5/7/8/9;4/5/6/7/9/10,a,4/5/6/7/9/10;
4/5/6/7/9/10,b,4/5/7/8/9;4/5/7/8/9,a,4/5/6/7/9/10;
4/5/7/8/9,b,4/5/7/8/9#0/1#4/5/6/7/9/10
```