Assignment1

Qinyun Song 5120309059

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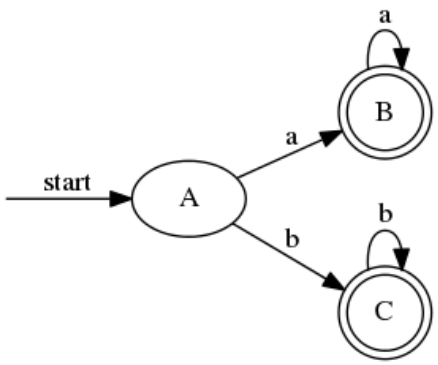
1 Convert the NFAs to DFAs

1.1 Figure 3.26

Transition Table

NFA State	DFA State	a	b
{0, 1, 3}	A	B	C
{2}	B	B	∅
{4}	C	∅	C

DFA

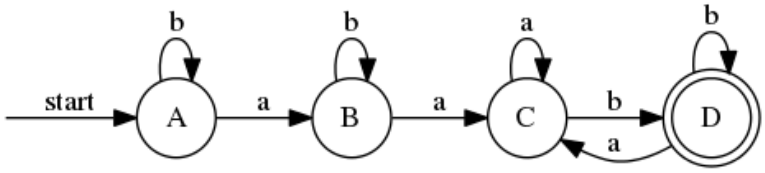


1.2 Figure 3.29

Transition Table

NFA State	DFA State	a	b
{0}	A	B	A
{0, 1}	B	C	B
{0, 1, 2}	C	C	D
{0, 1, 2, 3}	D	C	D

DFA

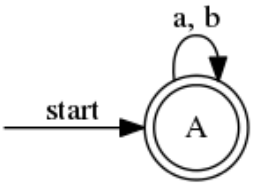


1.3 Figure 3.30

Transition Table

NFA State	DFA State	a	b
{0, 1, 2, 3}	A	A	A

DFA



2 Use Algorithm 3.22 to Simulate the NFAs on Input "aabb"

Figure 3.29

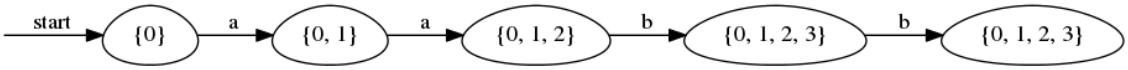
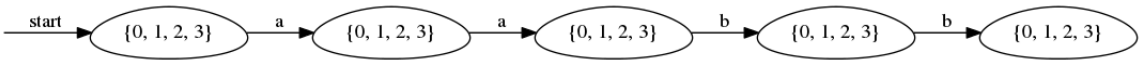


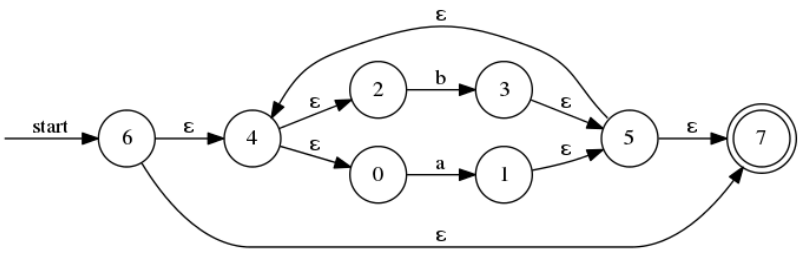
Figure 3.30



3 Convert the Regular Expressions to DFA

3.1 (a | b)*

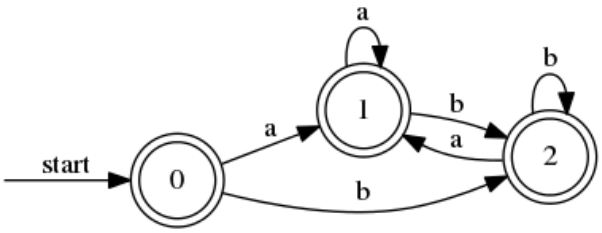
NFA



Transition Table

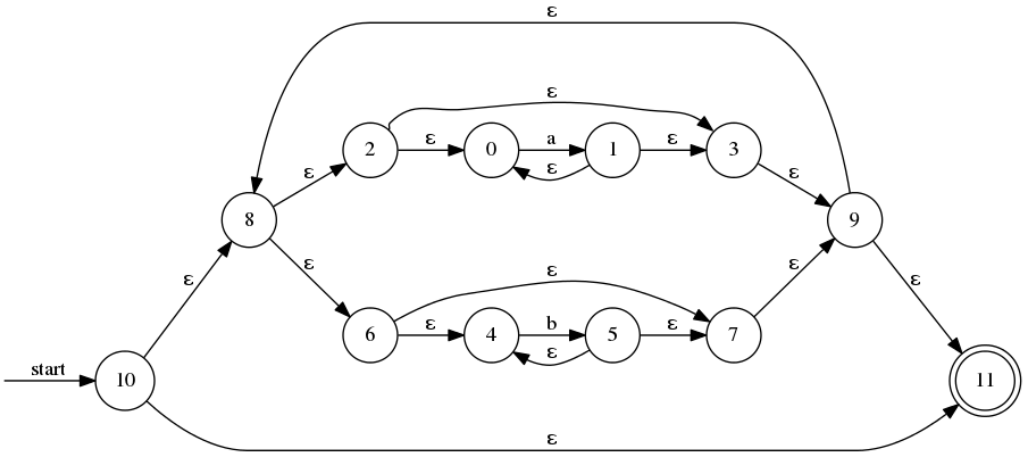
NFA State	DFA State	a	b
{0, 2, 4, 6, 7}	A	B	C
{0, 1, 2, 4, 5, 7}	B	B	C
{0, 2, 3, 4, 5, 7}	C	B	C

DFA



3.2 (A*|B*)*

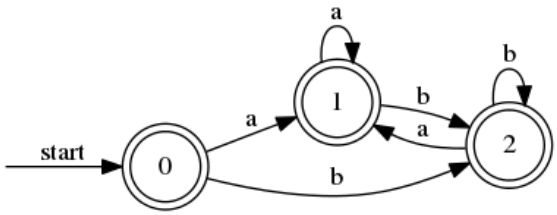
NFA



Transition Table

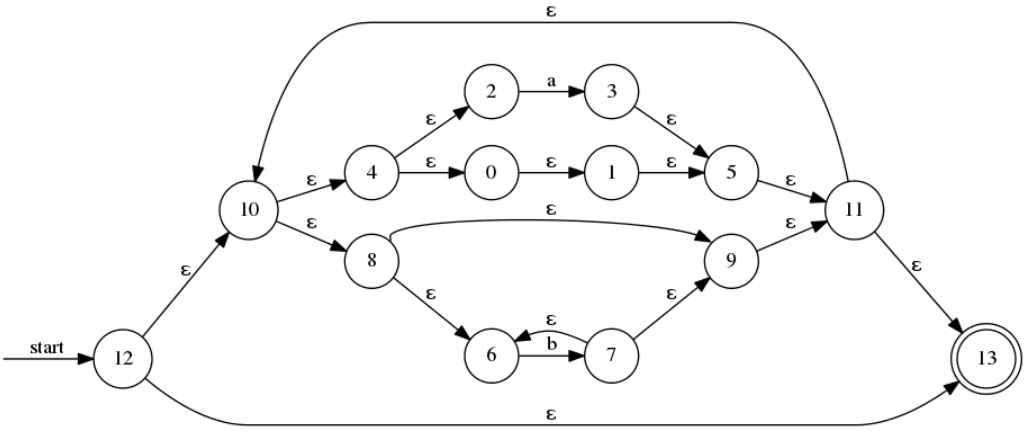
NFA State	DFA State	a	b
{0, 2, 3, 4, 6, 7, 8, 9, 10, 11}	A	B	C
{0, 1, 2, 3, 4, 6, 7, 8, 9, 11}	B	B	C
{0, 2, 3, 4, 5, 6, 7, 8, 9, 11}	C	B	C

DFA



3.3 ((Î|A)|B*)*

NFA



Transition Table

NFA State	DFA State	a	b
{0, 1, 2, 4, 5, 6, 8, 9, 10, 11, 12, 13}	A	B	C
{0, 1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 13}	B	B	C
{0, 1, 2, 4, 5, 6, 7, 8, 9, 10, 11, 13}	C	B	C

DFA