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Homework chapter 3
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3.6.3:

$(0) \rightarrow a \rightarrow (1) \rightarrow a \rightarrow (2) \rightarrow b \rightarrow (2) \rightarrow b \rightarrow ((3))$ * this is the accepted path

$(0) \rightarrow a \rightarrow (1) \rightarrow a \rightarrow (2) \rightarrow b \rightarrow (2) \rightarrow b \rightarrow (2)$

$(0) \rightarrow a \rightarrow (1) \rightarrow a \rightarrow (1) \rightarrow b \rightarrow (1) \rightarrow b \rightarrow (1)$

$(0) \rightarrow a \rightarrow (0) \rightarrow a \rightarrow (1) \rightarrow b \rightarrow (1) \rightarrow b \rightarrow (1)$

$(0) \rightarrow a \rightarrow (0) \rightarrow a \rightarrow (0) \rightarrow b \rightarrow (0) \rightarrow b \rightarrow (0)$

$(0) \rightarrow a \rightarrow (1) \rightarrow a \rightarrow (2) \rightarrow \epsilon \rightarrow (0) \rightarrow b \rightarrow (0) \rightarrow b \rightarrow (0)$

$(0) \rightarrow a \rightarrow (1) \rightarrow a \rightarrow (2) \rightarrow b \rightarrow (2) \rightarrow \epsilon \rightarrow (0) \rightarrow b \rightarrow (0)$

3.6.4:

There are infinite number of paths because of all of the epsilon transitions

Accepted Paths:

$(0) \rightarrow a \rightarrow (1) \rightarrow \epsilon \rightarrow (0) \rightarrow a \rightarrow (1) \rightarrow b \rightarrow (2) \rightarrow b \rightarrow ((3))$

$(0) \rightarrow \epsilon \rightarrow ((3)) \rightarrow a \rightarrow (0) \rightarrow a \rightarrow (1) \rightarrow b \rightarrow (2) \rightarrow b \rightarrow ((3))$

3.6.5:

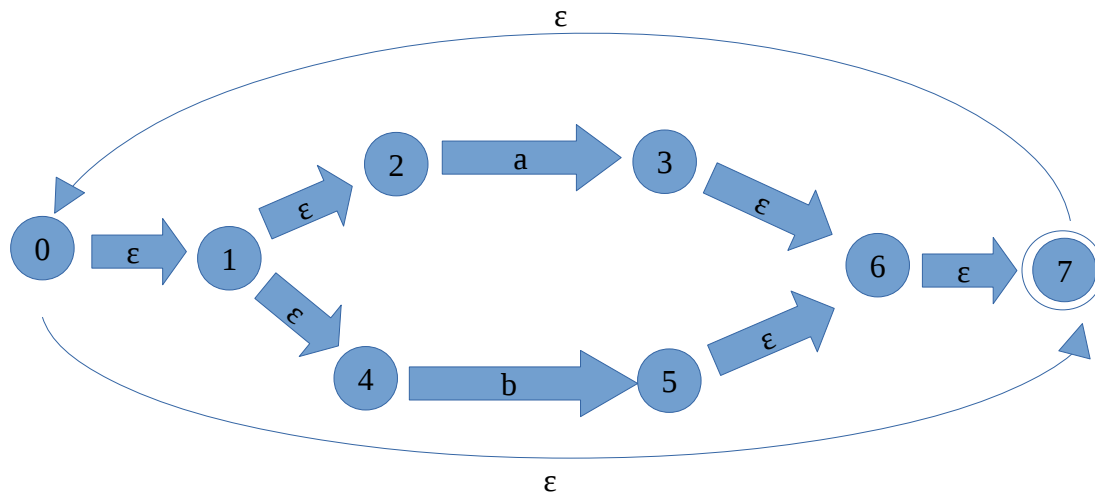
a)

State	a	b	ϵ
0	{0,1}	{0}	-----
1	{1,2}	{1}	-----
2	{2}	{2,3}	{0}
3	-----	-----	-----

b)

State	a	b	ϵ
0	{1}	-----	{3}
1	-----	{2}	{0}
2	-----	{3}	{1}
3	{1}	-----	{2}

3.7.3:



New State	a	b	a-ε	b-ε
{0,1,2,4,7} A	{3}	{5}	{1,2,3,4,6,7} B	{1,2,4,5,6,7} C
{1,2,3,4,6,7} B	{3}	{5}	{1,2,3,4,6,7} B	{1,2,4,5,6,7} C
{1,2,4,5,6,7} C	{3}	{5}	{1,2,3,4,6,7} B	{1,2,4,5,6,7} C

