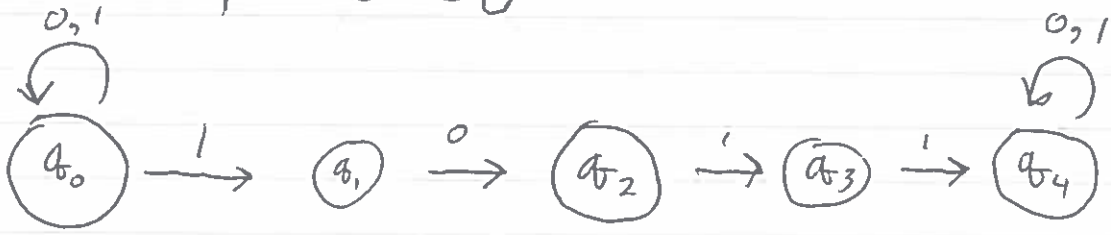
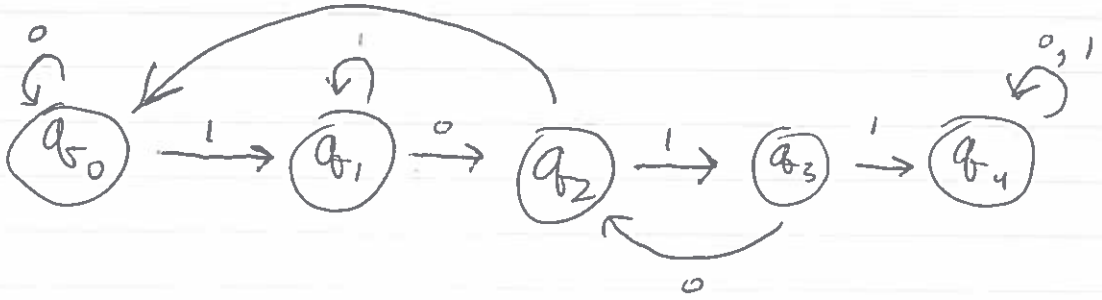
Sean Carter
9/21/16

FOCS

1.



2.

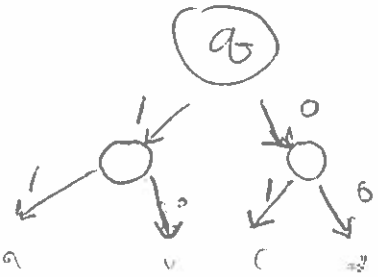


Transition Table:

	1	0
q_0	q_1	q_0
q_1	q_1	q_2
q_2	q_3	q_0
q_3	q_4	q_2
q_4	q_4	q_4

3. A larger alphabet is not more powerful. The larger the alphabet, the more choices can be made at each state in the state machine, connecting to a larger number of alternate states. However, any number of letters in an alphabet may be simulated with a binary alphabet, using larger binary strings.

For example, take the alphabet $\{a, b, c, d\}$. We need to be able to connect any states with binary. Since every state must connect to 4 other states, with two binary characters, we can replicate those links (using 11, 10, 01, 00)

So  becomes 

For an alphabet of size n, you just need $\log_2 n$ digits in a binary string, with the corresponding addition of that # of states to follow each existing state, & split up the decision.

6. [redacted] 0^*10^*