

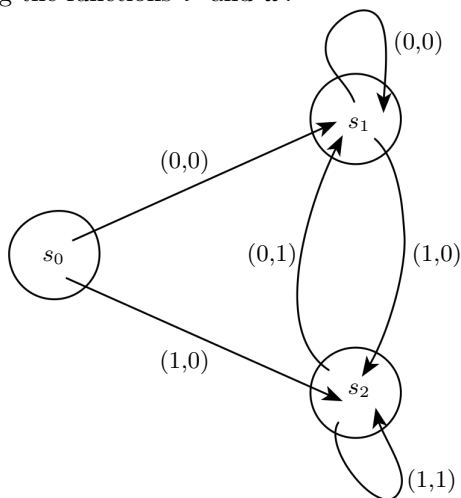
Summary on Lecture 4, April 1st 2016

Finite State Machines: More examples.

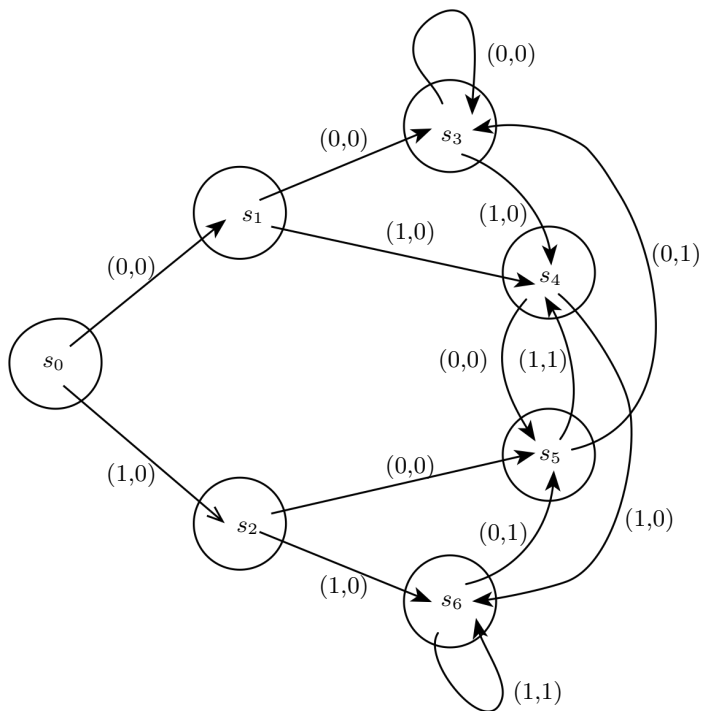
(7) Delay machine. Now we describe a finite state machine which delays the sequence by putting first k zeros. For example, if $k = 1$, the input sequence $11110111110111010110\dots$ gives the following output

11110111110111010110...
 011110111110111010110...

Here is the diagram describing the functions ν and ω :



The case $k = 2$ is essentially more complicated since the machine has to remember two previous digits. Here the input sequence $11110111110111010110\dots$ gives the output $0011110111110111010110\dots$. Here is the diagram describing the functions ν and ω :



We notice that the states s_0, s_1, s_2 have only 0 as an output, and the states s_3, s_4, s_5, s_6 “remember” the prior inputs 00, 10, 10, 11 respectively.

Exercise. Construct a delay machine with $k = 3$.