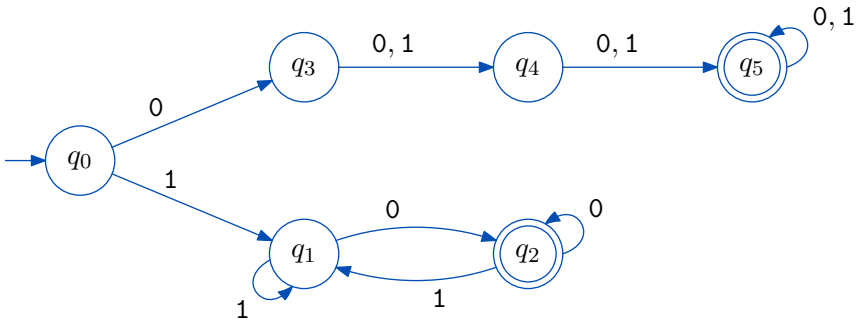
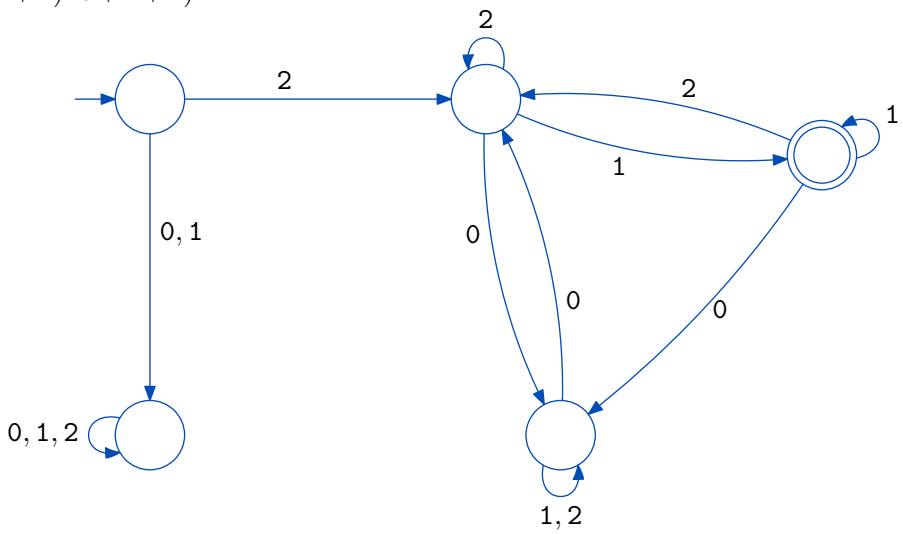
Some Answers on: Finite Automata

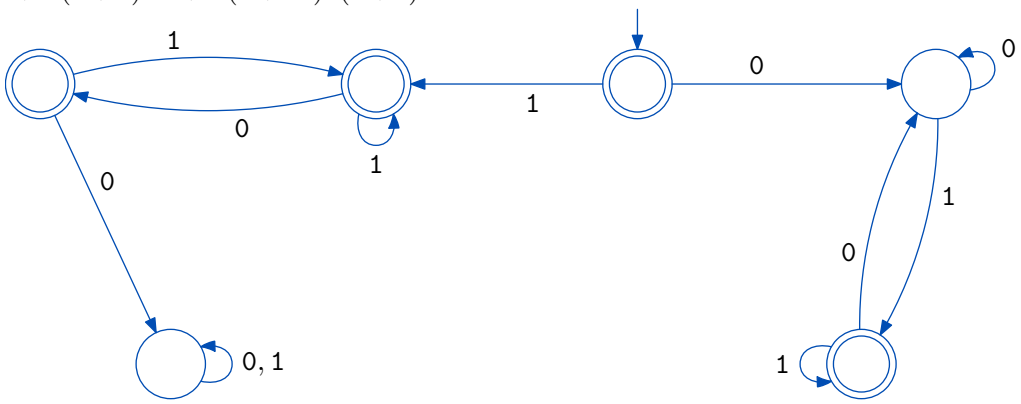
A1:



A2: $2\,(0(1+2)^*0+1+2)^*\,1$



A3: $\varepsilon + 0(0+1)^*1 + 1(1+01)^*(0+\varepsilon)$



A4: (a) All binary strings ending in 10
(b) All strings with an even number of each of 0's, 1's and 2's

A5: $0^*(11^*000^*)^*(1^*+11^*0)$

A6: (a) 000, 010, 011, 001
(b) All binary strings with a 0 in the third-to-last position

A7: (a) `0000`, `0011`, `0110`, `1001`, `1100`, `1111`

(b) $(0 + 1(01^*0)^*1)^*$

(c) The empty string and all strings when interpreted as binary numbers that are a multiple of 3.

A8: (a) `aaaa`, `baaa`, `abaa`, `aaba`, `baba`