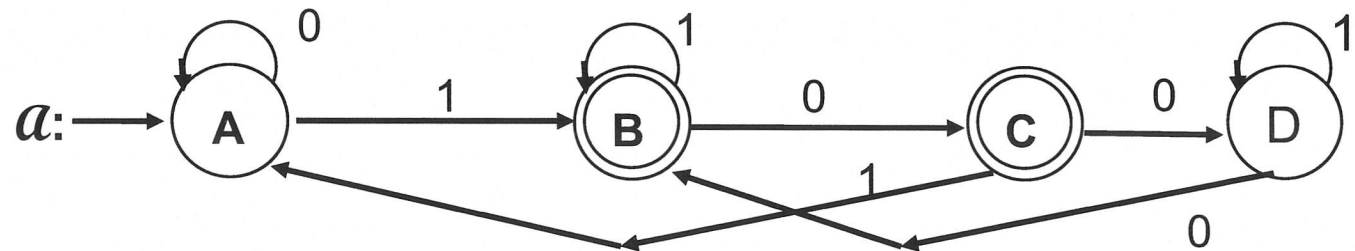
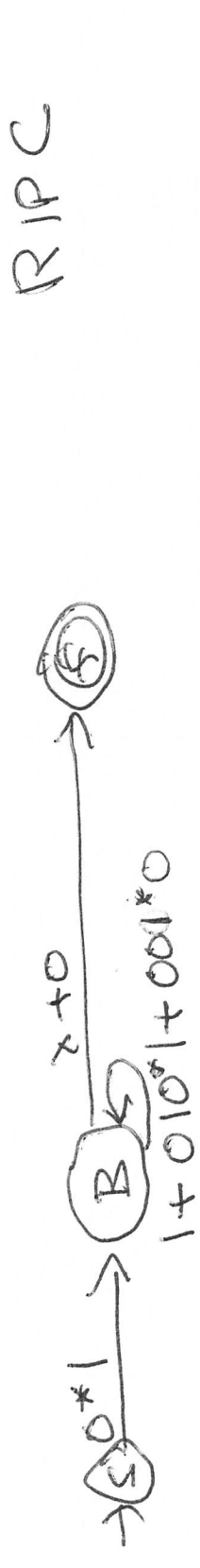
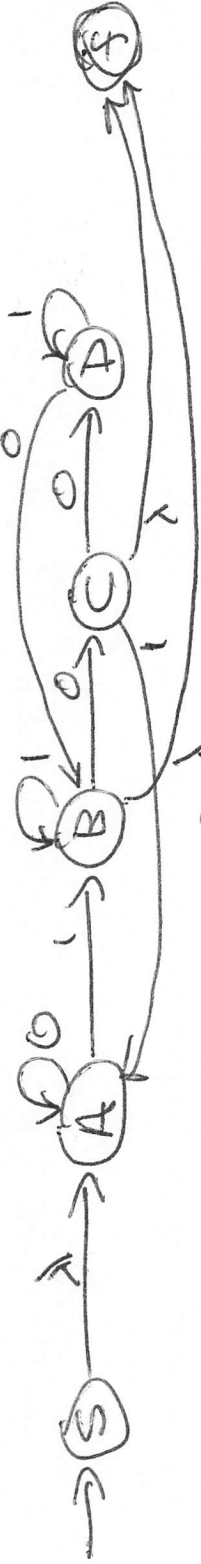


Assignment # 4.1 Key

1. Convert the DFA below to a regular expression, first by using either the GNFA (or state ripping) or the R_{ij}^k approach, and then by using regular equations. You must show all steps in each part of this solution.



Assignment # 4.1 Key (Rip)



$$L = 0^*1 (1 + 010^*1 + 001^*0)^* (0 + 1)$$

Assignment # 4.1 Key (R EQ)

$$A = \lambda + C1 + A0$$

$$B = A1 + D0 + B1$$

$$C = B0$$

$$D = C0 + D1$$

$$A = \lambda + C1 + A0 = \lambda + B01 + A0 = (\lambda + B01) 0^*$$

$$D = C0 + D1 = B00 + D1 = B001^*$$

$$B = A1 + D0 + B1 = (\lambda + B01) 0^*1 + B0010^* + B1 = 0^*1 + B(010^*1 + 001^*0 + 1) \\ = 0^*1(010^*1 + 001^*0 + 1)^*$$

$$C = 0^*1(010^*1 + 001^*0 + 1)^*0$$

$$L = 0^*1(010^*1 + 001^*0 + 1)^*(0 + \lambda)$$

Pretty ugly