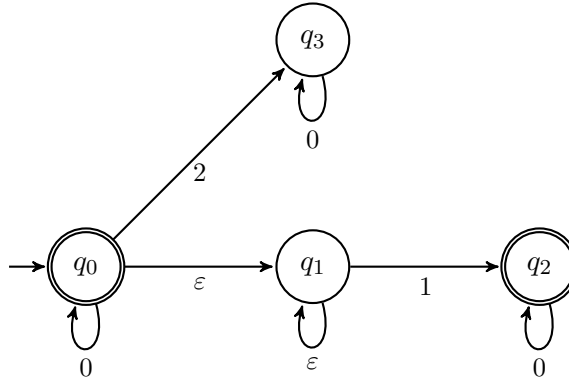


CSE 311: Foundations of Computing I

Section : Minimization, NFAs, Subset Construction, Irregularity

1. NFAs

(a) What language does the following NFA accept?

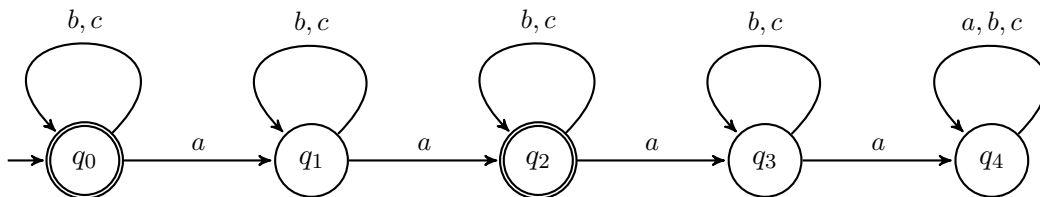


(b) Create an NFA for the language “all binary strings that have a 1 as one of the last three digits”.

2. DFAs & Minimization

(a) Convert the NFA from 1a to a DFA, then minimize it.

(b) Minimize the following DFA:



3. Irregularity

(a) Let $\Sigma = \{0, 1\}$. Prove that $\{0^n 1^n 0^n : n \geq 0\}$ is not regular.

(b) Let $\Sigma = \{0, 1, 2\}$. Prove that $\{0^n (12)^m : n \geq m \geq 0\}$ is not regular.