Worksheet # 23 Solution

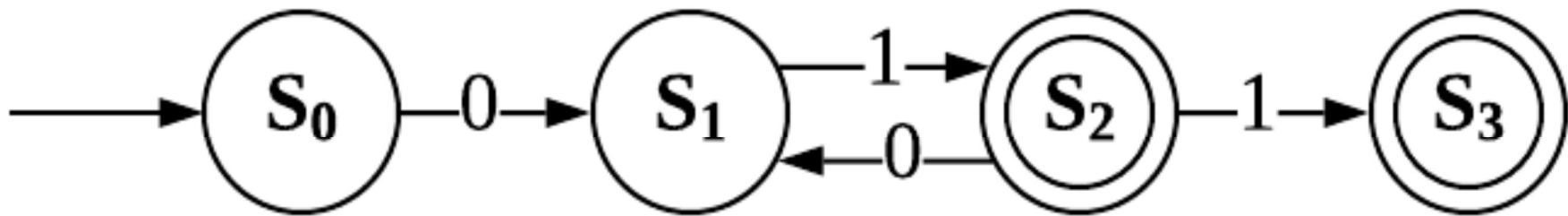(From Lecture #23 given on 4/15/2019)

(Recap)

DFAs:

- ▶ *at most* one outgoing transition per $a \in \Sigma$

- ▶ decide acceptance directly
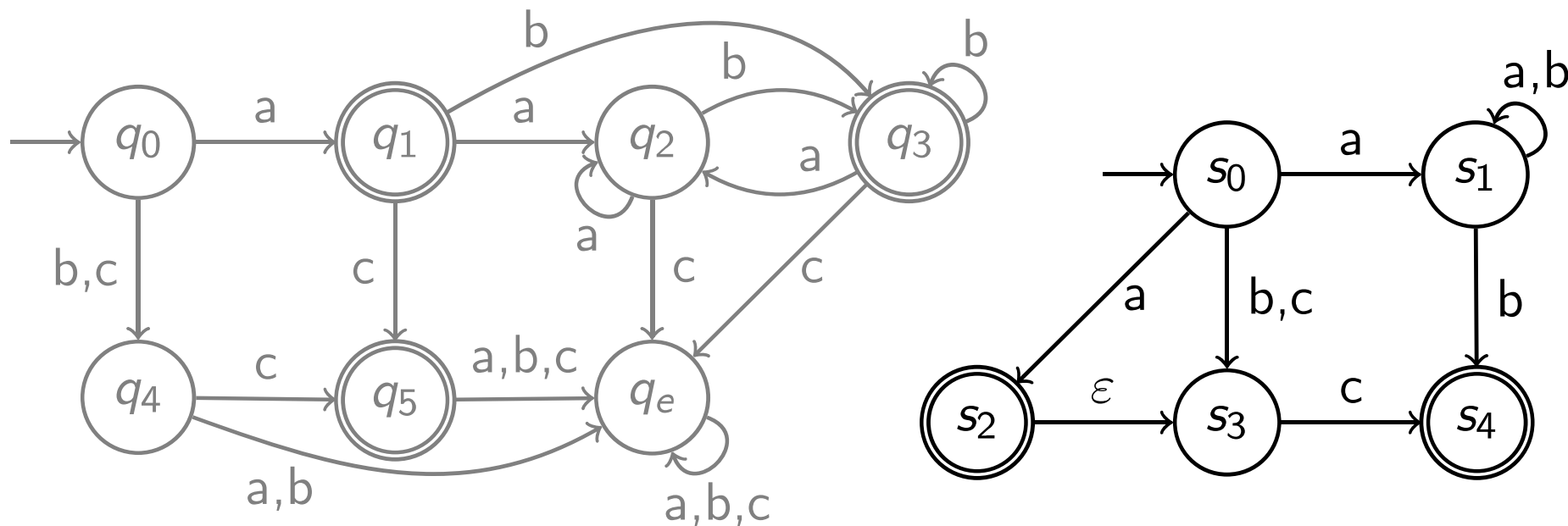
NFAs:

- ▶ *zero or more* transitions per $a \in \Sigma \cup \{\varepsilon\}$

- ▶ acceptance: exists an accepting run

- ▶ rejection: all possible runs reject

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- Draw a DFA which accepts the same strings as the following regular expression : **(01)+(1?)**

- The most popular answer from students was the DFA above. There can be other possible answers.
- **One of the differences between NFA & DFA :**
  For every state,
  - **DFA : at most one outgoing transition per**
  - **NFA : zero or more transitions per**

- Draw a DFA for the following language or explain why no such DFA exists: **The language of binary strings of length 3k for k>=0 such that every third bit is the value yielded by performing a logical 'or' on the preceding two bits.**