Test Tikz

January 10, 2022

1 Example tikz state machines

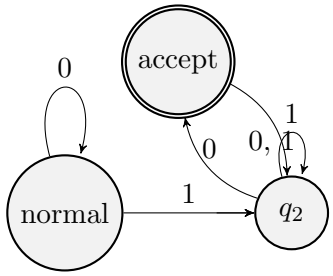

Figure 1: Example

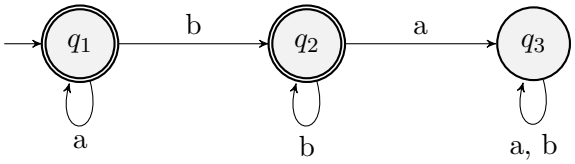

Figure 2: FSM for $\{a^n b^m | n \geq 0, m \geq 0\}$

Hello 2.

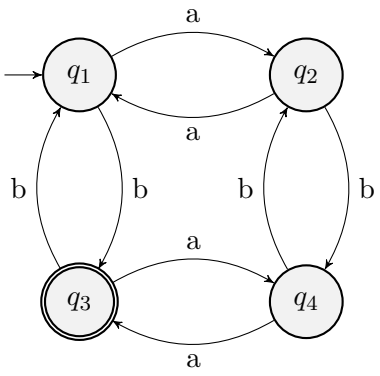

Figure 3: FSM for $\{w|w \quad \text{has} \quad \text{even} \quad a'\text{s} \quad \text{and} \quad \text{odd} \quad b'\text{s}\}$

2 Finite Automata

A finite automata is a 5-tuple $(Q, \Sigma, \delta, s_0, F)$ where Q is a finite set of states, Σ is the input alphabet, δ is the transition function, $s_0 \in Q$ is the start state, $F \subseteq Q$ is the set of accept states.

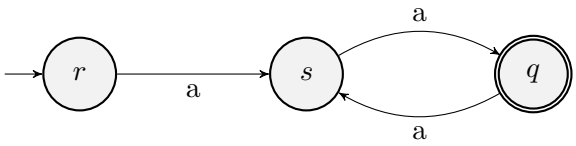

Figure 4: FSM for $\{a^n|n = 2m, m > 0, m \in \mathbb{N}\}$

For the FSM in *Figure 4*:

- $Q = \{r, s, q\}$
- $\Sigma = \{a\}$
- $\delta : Q \times \Sigma \to Q$
- $s_0 = r$
- $F = \{q\}$

The combination of a state and a string is a configuration.

A configuration is a pair: $(q, w) \in Q \times \Sigma*, (q \in Q, w \in \Sigma*)$

With an original string of $aaaa$ the list of configurations for the FSM in *Figure 4* is:

- $(r, aaaa)$
- (s, aaa)
- (q, aa)
- (s, a)
- (q, ε)