

Homework 2

Aaron Rosen

Thursday, February 21

Problem 1 (Kozen HW2 #1)

$$\delta(\{s\}, a) = \{s, t\}$$

$$\delta(\{s\}, b) = \{s\}$$

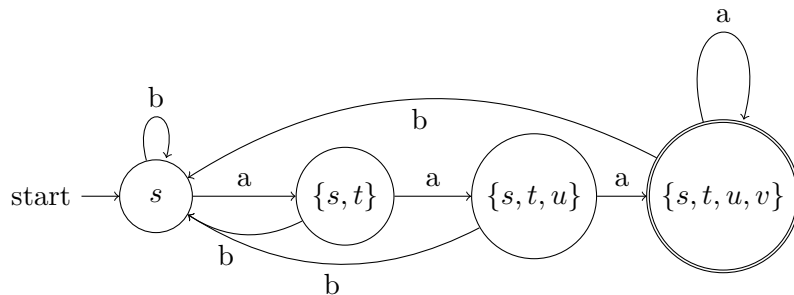
$$\delta(\{s, t\}, a) = \{s, t, u\}$$

$$\delta(\{s, t\}, b) = \{s, \}$$

$$\delta(\{s, t, u\}, a) = \{s, t, u, v\}$$

$$\delta(\{s, t, u\}, b) = \{s\}$$

$$\delta(\{s, t, u, v\}, a) = \{s, t, u, v\}$$



Problem 2 (Kozen HW2 #2)

Problem 3 (Kozen HW3 #1)

(a)

$$(b^*(aa)^*)^*$$

(b)

$$(a^*(bb)^*)^*$$

(c)

$$(b^*(aa)^*)^* + (a^*(bb)^*)^*b$$

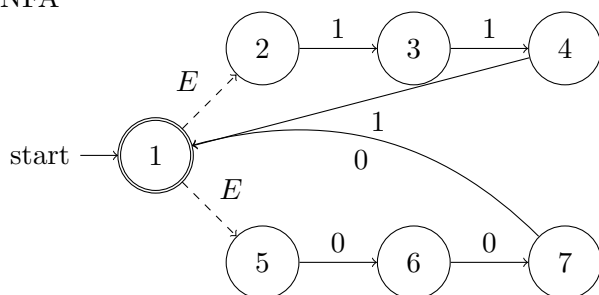
(d)

$((aa)^*(bb)^*)^*b$

Problem 4 (Kozen HW3 #2)

(a)

NFA



Delta Function

$$\Delta(\{1\}, E) = \{2, 5\}$$

$$\Delta(\{2, 5\}, 1) = \{3\}$$

$$\Delta(\{2, 5\}, 0) = \{6\}$$

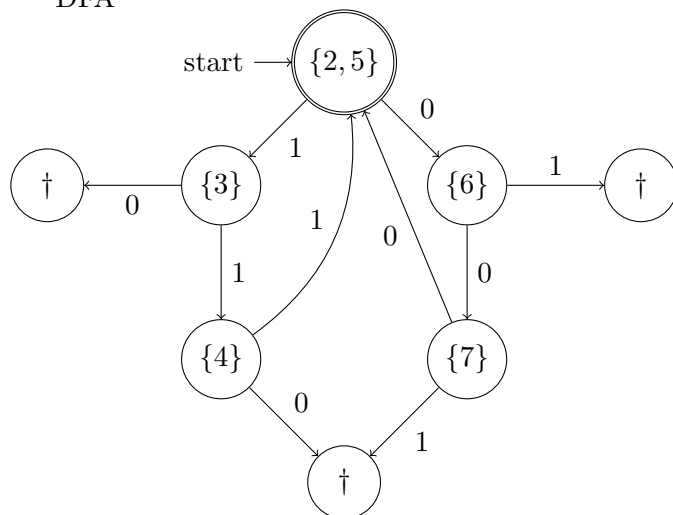
$$\Delta(\{3\}, 1) = \{4\}$$

$$\Delta(\{6\}, 0) = \{7\}$$

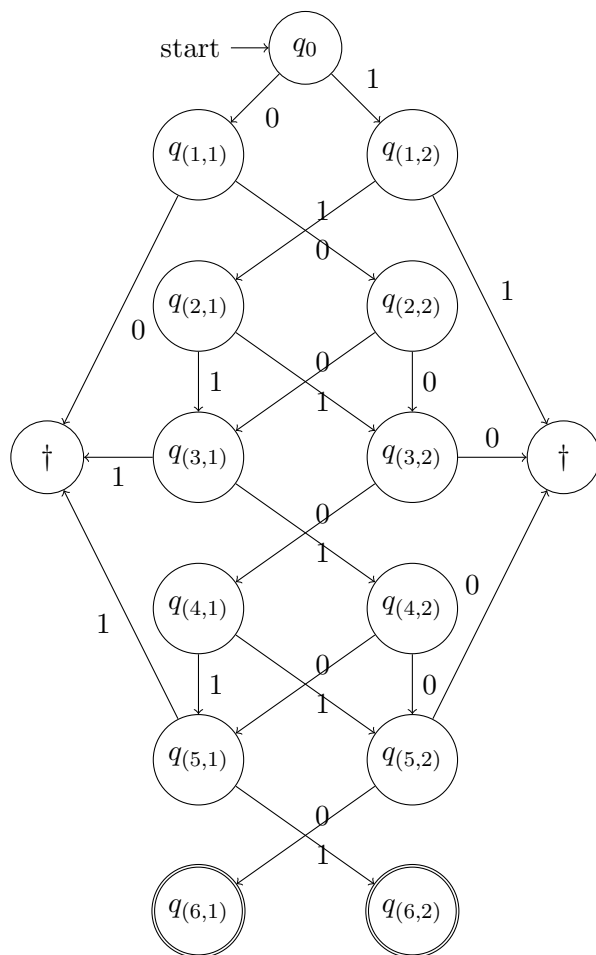
$$\Delta(\{4\}, 1) = \{1\}$$

$$\Delta(\{7\}, 0) = \{1\}$$

DFA



(b)



(c)

Problem 5 (Kozen HW3 #3)