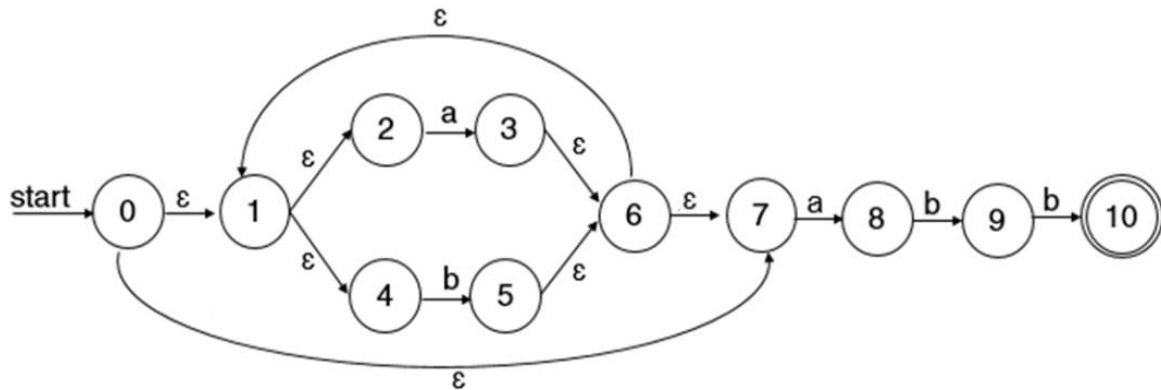


Xây dựng DFA từ NFA

Hãy xây dựng DFA tương ứng với NFA được cho bởi:



Bước 1: Tính ϵ - closure(0)

$$\epsilon - \text{closure}(0) = \{0, 1, 2, 4, 7\} = A$$

Trạng thái bắt đầu của D là A

Bước 2: Xây dựng các hàm chuyển của D

2.1. Xét $A = \{0, 1, 2, 4, 7\}$

- $D_{\text{tran}}[A, a] = \epsilon - \text{closure}(\text{move}(A, a))$

$$\text{Ta có } \text{move}(A, a) = \text{move}(\{0, 1, 2, 4, 7\}, a) = \{3, 8\}$$

$$\epsilon - \text{closure}(\{3, 8\}) = \epsilon - \text{closure}(3) \cup \epsilon - \text{closure}(8) = \{1, 2, 3, 4, 6, 7, 8\} = B$$

$$D_{\text{tran}}[A, a] = B$$

- $D_{\text{tran}}[A, b] = \epsilon - \text{closure}(\text{move}(A, b))$

$$\text{Ta có } \text{move}(A, b) = \text{move}(\{0, 1, 2, 4, 7\}, b) = \{5\}$$

$$\epsilon - \text{closure}(\{5\}) = \{1, 2, 4, 5, 6, 7\} = C$$

$$D_{\text{tran}}[A, b] = C$$

2.2. Xét $B = \{1, 2, 3, 4, 6, 7, 8\}$

- $Dtran[B, a] = \varepsilon - \text{closure}(\text{move}(B, a))$

Ta có $\text{move}(B, a) = \text{move}(\{1, 2, 3, 4, 6, 7, 8\}, a) = \{3, 8\}$

$\varepsilon - \text{closure}(\{3, 8\}) = \varepsilon - \text{closure}(3) \cup \varepsilon - \text{closure}(8) = B$

$Dtran[B, a] = B$

- $Dtran[B, b] = \varepsilon - \text{closure}(\text{move}(B, b))$

Ta có $\text{move}(B, b) = \text{move}(\{1, 2, 3, 4, 6, 7, 8\}, b) = \{5, 9\}$

$\varepsilon - \text{closure}(\{5, 9\}) = \varepsilon - \text{closure}(5) \cup \varepsilon - \text{closure}(9) = \{1, 2, 4, 5, 6, 7, 9\} = D$

$Dtran[B, b] = D$

2.3. Xét $C = \{1, 2, 4, 5, 6, 7\}$

- $Dtran[C, a] = \varepsilon - \text{closure}(\text{move}(C, a))$

Ta có $\text{move}(C, a) = \text{move}(\{1, 2, 4, 5, 6, 7\}, a) = \{3, 8\}$

$\varepsilon - \text{closure}(\{3, 8\}) = \varepsilon - \text{closure}(3) \cup \varepsilon - \text{closure}(8) = B$

$Dtran[C, a] = B$

- $Dtran[C, b] = \varepsilon - \text{closure}(\text{move}(C, b))$

Ta có $\text{move}(C, b) = \text{move}(\{1, 2, 4, 5, 6, 7\}, b) = \{5\}$

$\varepsilon - \text{closure}(\{5\}) = C$

$Dtran[C, b] = C$

2.4. Xét $D = \{1, 2, 4, 5, 6, 7, 9\}$

- $Dtran[D, a] = \varepsilon - \text{closure}(\text{move}(D, a))$

Ta có $\text{move}(D, a) = \text{move}(\{1, 2, 4, 5, 6, 7, 9\}, a) = \{3, 8\}$

$\varepsilon - \text{closure}(\{3, 8\}) = B$

$$Dtran[D, a] = B$$

- $Dtran[D, b] = \varepsilon - \text{closure}(\text{move}(D, b))$

Ta có $\text{move}(D, b) = \text{move}(\{1, 2, 4, 5, 6, 7, 9\}, b) = \{5, 10\}$

$\varepsilon - \text{closure}(\{5, 10\}) = \varepsilon - \text{closure}(5) \cup \varepsilon - \text{closure}(10) = \{1, 2, 4, 5, 6, 7, 10\} = E$

$$Dtran[D, b] = E$$

2.5. Xét $E = \{1, 2, 4, 5, 6, 7, 10\}$

- $Dtran[E, a] = \varepsilon - \text{closure}(\text{move}(E, a))$

Ta có $\text{move}(E, a) = \text{move}(\{1, 2, 4, 5, 6, 7, 10\}, a) = \{3, 8\}$

$\varepsilon - \text{closure}(\{3, 8\}) = B$

$$Dtran[E, a] = B$$

- $Dtran[E, b] = \varepsilon - \text{closure}(\text{move}(E, b))$

Ta có $\text{move}(E, b) = \text{move}(\{1, 2, 4, 5, 6, 7, 10\}, b) = \{5\}$

$\varepsilon - \text{closure}(\{5\}) = C$

$$Dtran[E, b] = C$$

Bước 3: Xây dựng DFA

Bảng chuyển:

Trạng thái	Ký tự đọc vào	
	a	b
A	B	C
B	B	D
C	B	C
D	B	E
E	B	C

Đồ thị:

