

CP HW02

2025-10-27

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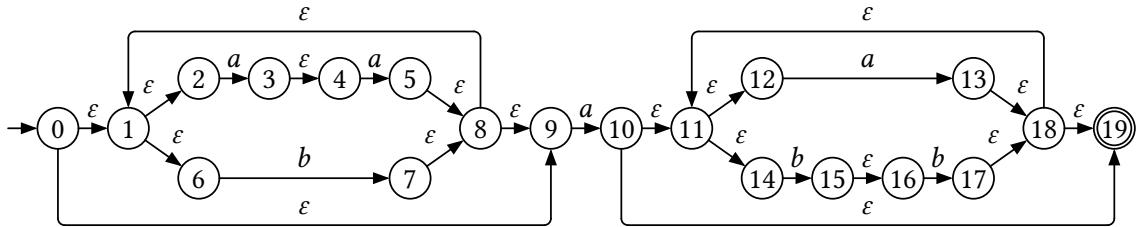
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1.

考虑正则表达式：

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

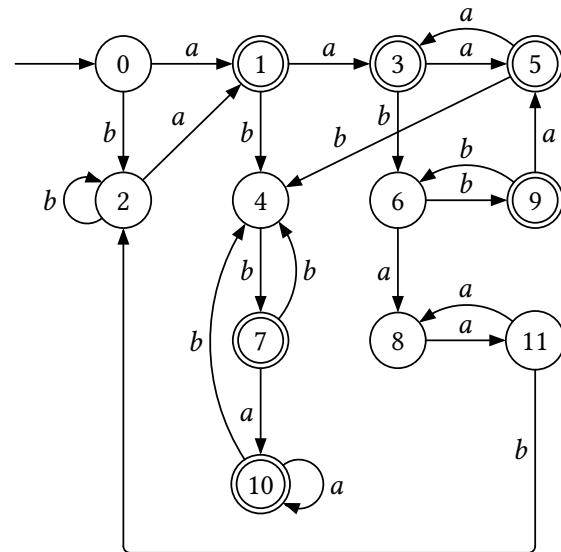
(1) 构造该正则表达式对应的 NFA。



(2) 将得到的 NFA 转为等价的 DFA。

$$\begin{aligned}\bar{s}_0 &= \{s_0, s_1, s_2, s_6, s_9\}, \\ \bar{s}_1 &= \{s_1, s_2, s_6\}, \\ \bar{s}_2 &= \{s_2\}, \\ \bar{s}_3 &= \{s_3, s_4\}, \\ \bar{s}_4 &= \{s_4\}, \\ \bar{s}_5 &= \{s_1, s_2, s_5, s_6, s_8, s_9\}, \\ \bar{s}_6 &= \{s_6\}, \\ \bar{s}_7 &= \{s_1, s_2, s_6, s_7, s_8, s_9\}, \\ \bar{s}_8 &= \{s_1, s_2, s_6, s_8, s_9\}, \\ \bar{s}_9 &= \{s_9\},\end{aligned}$$

$$\begin{aligned}\bar{s}_{10} &= \{s_{10}, s_{11}, s_{12}, s_{14}, s_{19}\}, \\ \bar{s}_{11} &= \{s_{11}, s_{12}, s_{14}\}, \\ \bar{s}_{12} &= \{s_{12}\}, \\ \bar{s}_{13} &= \{s_{11}, s_{12}, s_{13}, s_{14}, s_{18}, s_{19}\}, \\ \bar{s}_{14} &= \{s_{14}\}, \\ \bar{s}_{15} &= \{s_{15}, s_{16}\}, \\ \bar{s}_{16} &= \{s_{16}\}, \\ \bar{s}_{17} &= \{s_{11}, s_{12}, s_{14}, s_{17}, s_{18}, s_{19}\}, \\ \bar{s}_{18} &= \{s_{11}, s_{12}, s_{14}, s_{18}, s_{19}\}, \\ \bar{s}_{19} &= \{s_{19}\}.\end{aligned}$$



(3) 将得到的 DFA 最小化。

