编译原理第三章(二)

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1. 为下面语言设计一个DFA或NFA

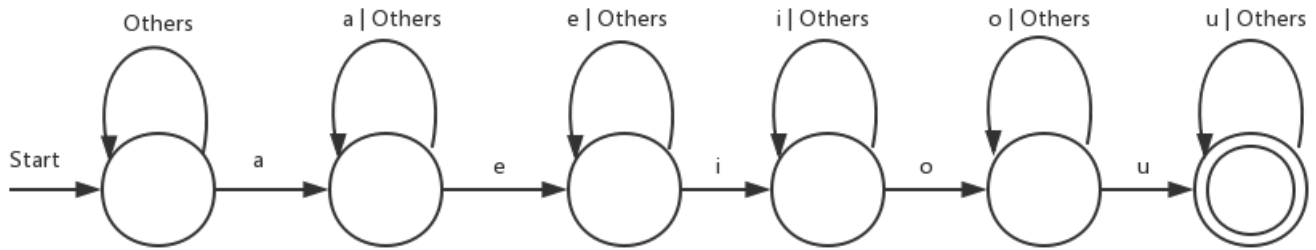1) 包含5个元音的所有小写字母串，这些串中元音按照顺序出现

Figure 1: $Others = \{b|c|d|f|g|h|j|k|l|m|n|p|q|r|s|t|v|w|x|y|z\}$
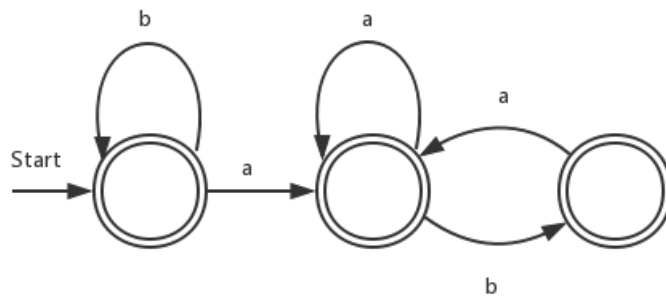
2) 所有由a,b组成得且不含子串abb的串

Figure 2: 由a,b组成得且不含子串abb的串

2. 用算法3.22模拟图3-29中得NFA在处理输入aabb时得过程.

1)$S = 0; c = nextChar() = a;$

2)$c! = EOF \rightarrow S = \varepsilon - closure(move(S, a)) = \{0, 1\}, c = nextChar() = a$

3) $c! = EOF \rightarrow S = \varepsilon - closure(move(S, a)) = \{0, 1, 2\}, c = nextChar() = b$

4) $c! = EOF \rightarrow S = \varepsilon - closure(move(s, b)) = \{0, 1, 2, 3\}, c = nextChar() = b$

5) $c! = EOF \rightarrow S = \varepsilon - closure(move(s, b)) = \{0, 1, 2, 3\}, c = nextChar() = EOF$

6) $c == EOF \rightarrow S \cap F! = \emptyset \; return \; yes$

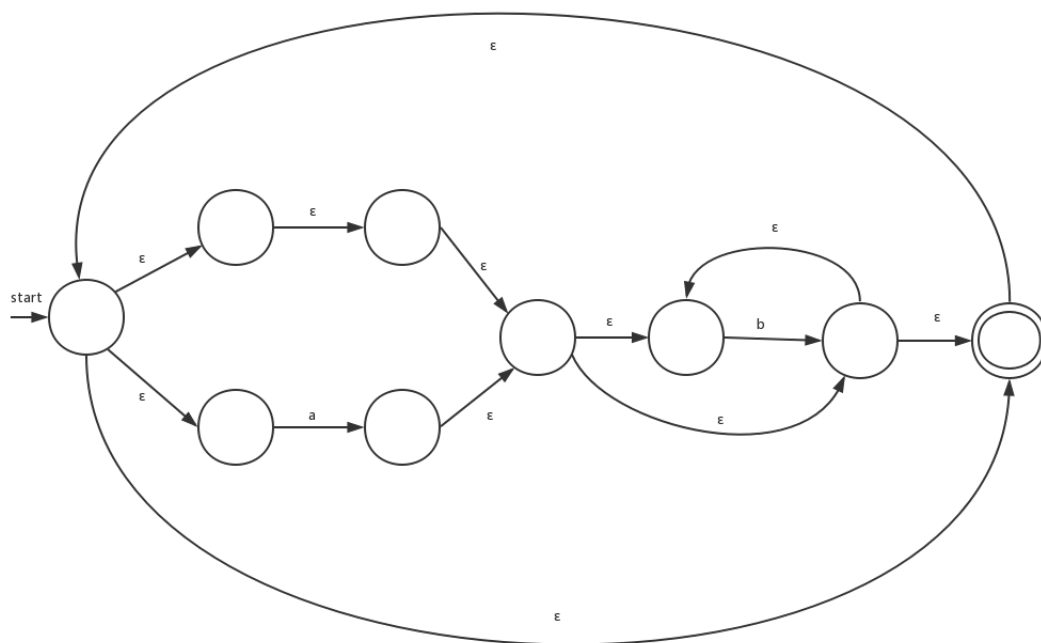3. 使用算法3.23和3.20将下述正则表达式转换为DFA,并尝试化简该DFA

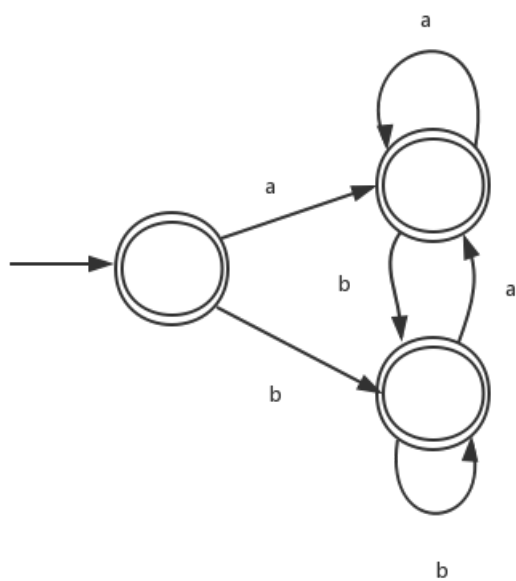1) $((\varepsilon|a)b^*)^*$

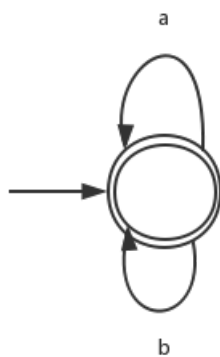Figure 3: NFA$((\varepsilon|a)b^*)^*$

Figure 4: DFA$((\varepsilon|a)b^*)^*$

Figure 5: DFA化简$((\varepsilon|a)b^*)^*$
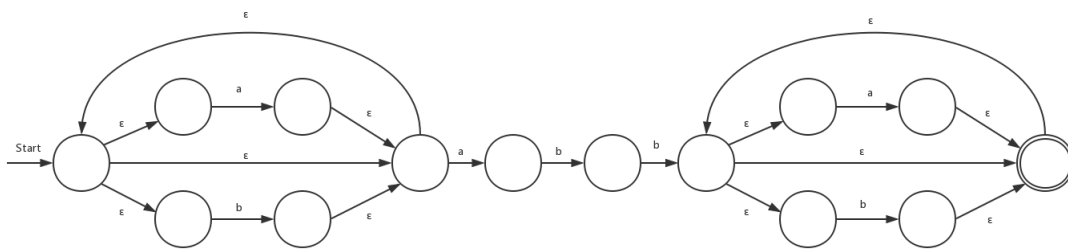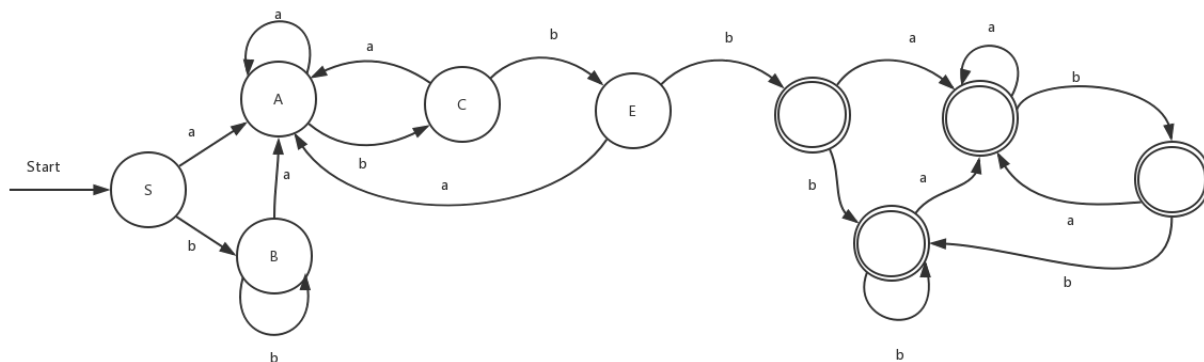
2) $(a|b)^*abb(a|b)^*$
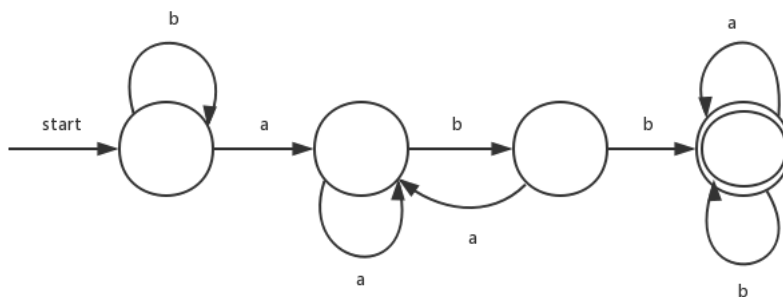
Figure 6: NFA$(a|b)^*abb(a|b)^*$

Figure 7: DFA$(a|b)^*abb(a|b)^*$

Figure 8: DFA化简$(a|b)^*abb(a|b)^*$