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班级: 计算机科学与技术 1 班

复习题 1

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1. L1: $G(S)$:
 $S \rightarrow AB$
 $A \rightarrow aAb|ab$
 $B \rightarrow cB|E$

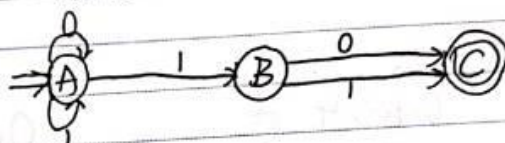
L2: $G(S)$:
 $S \rightarrow AB$
 $A \rightarrow AA|E$
 $B \rightarrow bBc|bc$

L3: $G(S)$:
 $S \rightarrow AB$
 $A \rightarrow aAb|E$
 $B \rightarrow aBb|E$

L4: $G(S)$:
 $S \rightarrow |S0|A$
 $A \rightarrow 0A||E$

2. 正则表达式: $(011)^*11011$

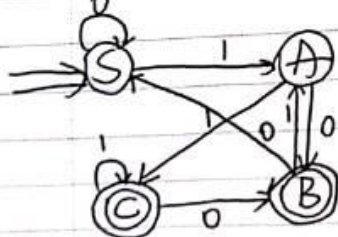
NFA:



确定化:

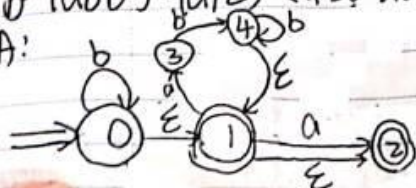
I		I_0		I_1
A	S	A	S	A, B
A, B	A	A, C	B	A, B, C
A, C	B	A	S	A, B
A, B, C	C	A, C	B	A, B, C

DFA:



3. 由 $b^*lab b^*(a|E)$ 定义的语法是字母表 $\{a, b\}$ 上不含子串 aa 的所有串的集合

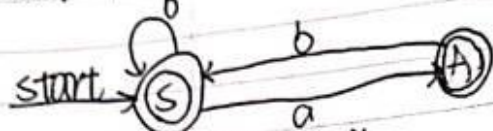
NFA:



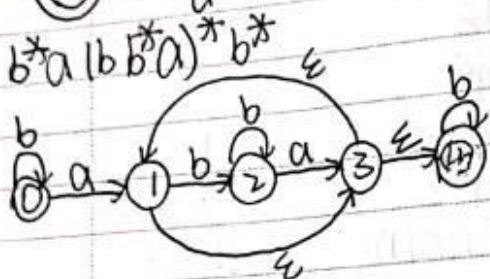
I
0, 1, 2 S
2, 3
1, 3, 2, 4

Ia
2, 3
2, 3

Ib
0, 2, 1 S
1, 2, 3, 4
1, 2, 3, 4



4. 正规式 $b^*a(b b^*a)^*b^*$
NFA:

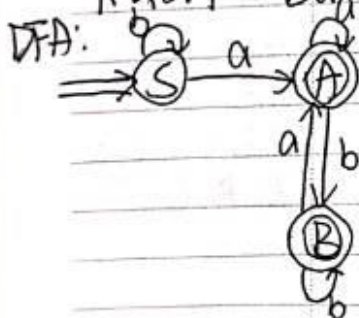


不确定化:

I
0 S
1, 3, 4 A
1, 2, 3, 4 B

Ia
1, 3, 4 A
1, 3, 4 A
1, 3, 4 A

Ib
0 S
1, 2, 3, 4 B
1, 2, 3, 4 B



图a:
5. 不确定化:

I
0
0, 1
1

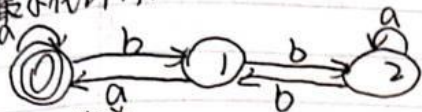
Ia
0, 1
0, 1
0

Ib
1
1

图b:

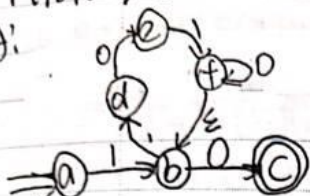
首先划分为两组: 终态组 $\{0, 1\}$ 非终态组 $\{2, 3, 4, 5\}$
然后, 由 $\{2, 4\} \cap \{0, 1\} = \emptyset$ 和 $\{3, 5\} \cap \{2, 3, 4, 5\} = \{3, 5\}$ 因此, 划分
 $\{0, 1\}$ $\{2, 4\}$ $\{3, 5\}$

图b的最小化DFA:



b. 111010*0

NFA:



确定化:

I
a A
b B
d D

e E
c C

f, b F

f, b, c A

DFA:

I₀

c C
e E

f, b, c A

f, b, c A

I₁

b B
d D

f, b F

d D

d D

