P65. 15

给定右线性文法G:

$S \to 0S|1S|1A|0B$

$A \to 1C|1$

$B \to 0C|0$

$C \to 0C|1C|0|1$

解: 生成 $M=(\{S,A,B,C,f\},\{0,1\},\delta,S,\{f\})$

其中δ有:

$\delta(S,0)=\{S,B\}$

$\delta(S,1)=\{S,A\}$

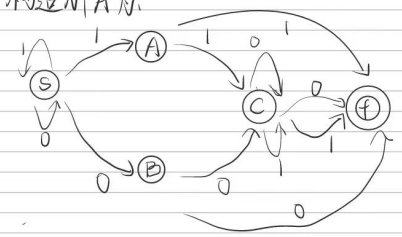
$\delta(A,1)=\{C,f\}$

$\delta(B,0)=\{C,f\}$

$\delta(C,0)=\{C,f\}$

$\delta(C,1)=\{C,f\}$

构造NFA为:



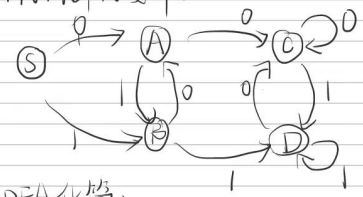
得状态转换矩阵

I	I_0	I_1
$\{S\}$	$\{S,B\}$	$\{S,A\}$
$\{S,B\}$	$\{S,B,C,f\}$	$\{S,A\}$
$\{S,A\}$	$\{S,B\}$	$\{S,A,C,f\}$
$\{S,B,C,f\}$	$\{S,B,C,f\}$	$\{S,A,C,f\}$
$\{S,A,C,f\}$	$\{S,B,C,f\}$	$\{S,A,C,f\}$

对状态编号得新的状态转换矩阵

I	I_0	I_1
0	1	2
1	3	2
2	1	4
3	3	4
4	3	4

则得到DFA如下：



将DFA化简：

$\pi_0=\{\{S,A,B\},\{C,D\}\}$

考虑 $I_0^{(0)}=\{A,C\}$，

$I_1^{(0)}=\{B,D\}$.

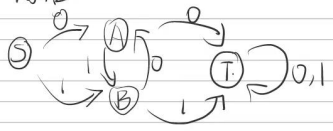
将$\{S,A,B\}$划分为$\{S\},\{A\},\{B\}$

考虑 $I_0^{(1)}=\{C\}\subseteq\{C,D\}$

$I_1^{(1)}=\{D\}\subseteq\{C,D\}$

故 $\pi_1=\{\{S\},\{A\},\{B\},\{C,D\}\}$

化简后：



则左线性文法为

G': $T\to A0\mid B1\mid T0\mid T1$

$A\to B0\mid 0$

$B\to A1\mid 1$