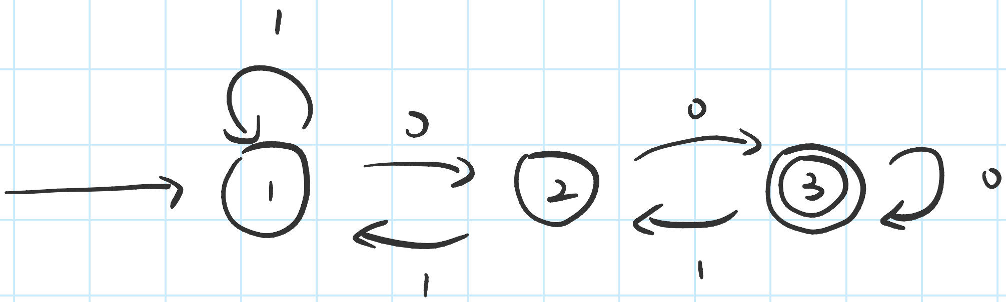
Week 8

Thursday, April 18, 2019 8:03 AM



$R_{11}^{(0)} = \varepsilon + 1$ $\quad R_{12}^{(0)} = 0$ $\quad R_{13}^{(0)} = \phi$

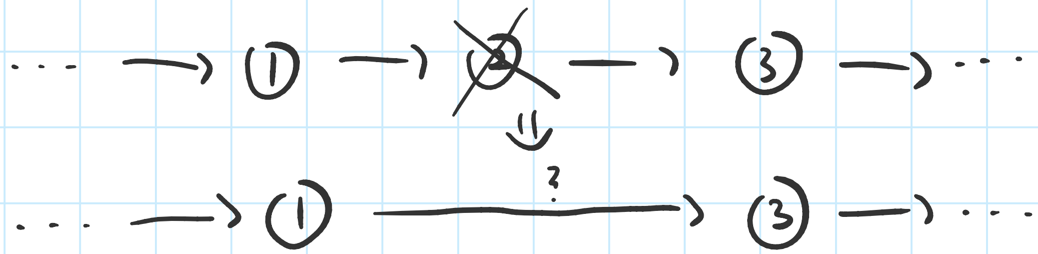
$R_{21}^{(0)} = 1$ $\quad R_{22}^{(0)} = \varepsilon$ $\quad R_{23}^{(0)} = 0$

$R_{31}^{(0)} = \phi$ $\quad R_{32}^{(0)} = 1$ $\quad R_{33}^{(0)} = \varepsilon + 0$

$$R_{ij}^{(k)} = R_{ij}^{(k-1)} + R_{ik}^{(k-1)} \left(R_{kk}^{(k-1)} \right)^* R_{kj}^{(k-1)}$$

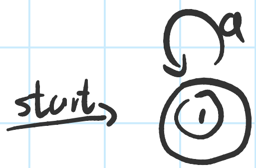
$$R_{11}^{(1)} = R_{11}^{(0)} + R_{11}^{(0)} \left(R_{11}^{(0)} \right)^* R_{11}^{(0)} = (\varepsilon + 1) + (\varepsilon + 1)(\varepsilon + 1)^* (\varepsilon + 1) = 1^*$$

$$R_{12}^{(1)} = 0 + (\varepsilon + 1)(\varepsilon + 1)^* 0 = 1^* 0$$

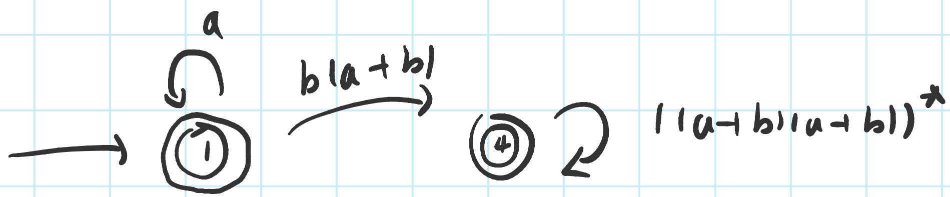


正则题

一、对于状态1

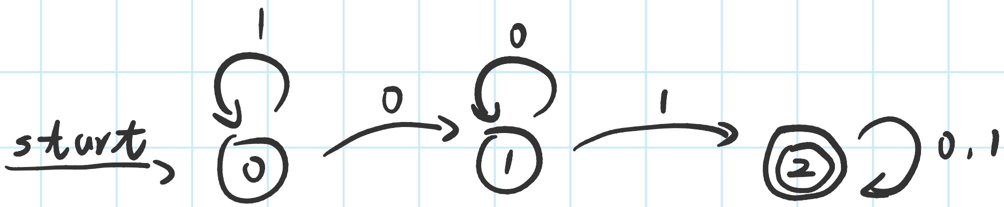


对于状态4



$$a^* + a^* b(a+b)((a+b)(a+b))^*$$

一.



$1^* 0 0^* 1 (0+1)^*$

$w = 101$

$q_0 \xrightarrow{1} q_0 \xrightarrow{0} q_1 \xrightarrow{1} q_2$

$w = 001$

$q_0 \xrightarrow{0} q_1 \xrightarrow{0} q_1 \xrightarrow{1} q_2$

$w_1 = 101$

$x = \varepsilon \quad y = 1 \quad z = 01$, $1^k 0 1 \in L$

①证明只由1构成且长度为素数的所有串构成的语言L不是正规语言

① 证明只由1构成且长度为素数的所有串构成的语言不是正规语言

11
111
11111

证：假设 L 是正规语言，则存在满足泵引理条件的常数 n

考虑某素数 $p \geq n+2$，设 $w = 1^p$，将 w 拆分为 $w = xyz$

且满足 $y \neq \varepsilon$ 和 $|xy| \leq n$。设 $|y| = m \neq 0$，则 $|xz| = p-m$

考虑字符串 $xy^{p-m}z$（即 $k=p-m$）

$|xy^{p-m}z| = |xz| + (p-m)|y| = \underset{>1}{(m+1)}\underset{>1}{(p-m)}$ 不是素数，矛盾

② 证明 $L = \{0^m \mid m$ 是完全平方数$\}$ 不是正规语言

$n \quad w = 0^{n^2} \quad w = xyz$，$y \neq \varepsilon$，$|xy| \leq n$

$1 \leq |y| \leq n \qquad xyyz$（即 $k=2$），由于 $|xyz| = n^2$

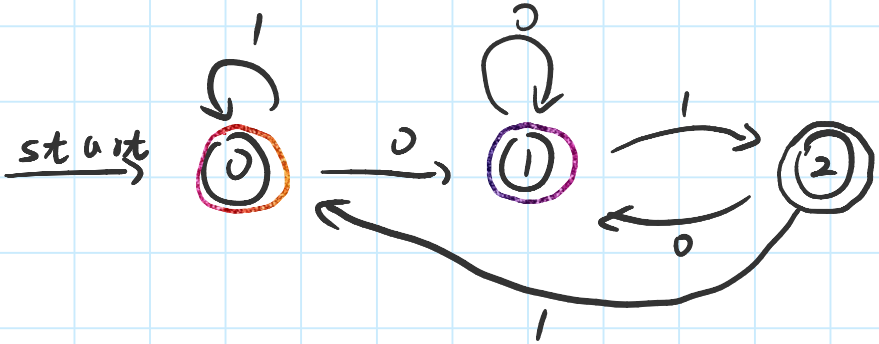
$n^2+1 \leq |xyyz| \leq n^2+n$ 矛盾

所有不以01结尾的字符串的集合，$\Sigma = \{0,1\}$

Brian

所有不以01结尾的字符串的集合, $\Sigma = \{0, 1\}$

$(0+1)^* 01$



		0	1
→	p	q	p
*	q	q	q

L

		0	1
→	r	r	s
*	s	s	s

M

	0	1
→ pr	qr	ps
ps	qs	ps
qr	qr	qs
* qs	qs	qs

LNM