計算理論 第7回ミニレポート課題3-3 09B19025 小林 亮太

(1)

	0	1
→ P	q	p
q	r	q
* r	q	r

$$\begin{cases} P = 0Q + 1P \\ Q = 0R + 1Q \\ R = 0Q + 1R + \varepsilon \end{cases}$$

$Q = 0R + 1Q \Leftrightarrow Q = 1^*0R$

$R = 01^*0R + 1R + \varepsilon$

$\Leftrightarrow R = (01^*0 + 1)R + \varepsilon$

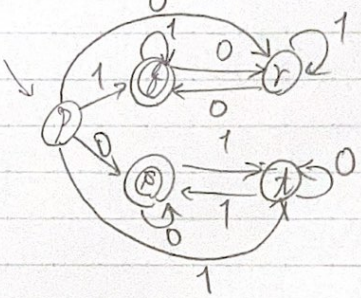
$\Leftrightarrow R = (01^*0 + 1)^*$

$Q = 1^*0(01^*0 + 1)^*$

$P = 01^*0(01^*0 + 1)^* + 1P \Leftrightarrow P = 1^*01^*0(01^*0 + 1)^*$ //

(2)

	0	1
→ P	S	q
* q	r	q
r	q	r
* s	s	t
t	t	s



$$\begin{cases} P = 0S + 1Q \\ Q = 0R + 1Q + \varepsilon \\ R = 0Q + 1R \\ S = 0S + 1T + \varepsilon \\ T = 0T + 1S \end{cases}$$

$T = 0T + 1S$

$\Leftrightarrow T = 0^*1S$

$S = 0S + 10^*1S + \varepsilon$

$\Leftrightarrow S = (0 + 10^*1)S + \varepsilon$

$\Leftrightarrow S = (0 + 10^*1)^* \cdots ①$

$R = 0Q + 1R$

$\Leftrightarrow R = 1^*0Q$

$Q = 01^*0Q + 1Q + \varepsilon$

$\Leftrightarrow Q = (01^*0 + 1)Q + \varepsilon$

$\Leftrightarrow Q = (01^*0 + 1)^* \cdots ②$

①, ②より,

$P = 0(0 + 10^*1)^* + 1(01^*0 + 1)^*$ //