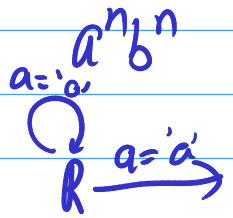
$(a^n b^n)$



$(b \sqcup^1, q \rightarrow)$
$(q\ a^1, q\ a^2)$
n $\begin{cases} (q\ b^1 \sqcup^2, h\ b^1 \sqcup^2) \\ (q\ \sqcup^1 a^2, h\ \sqcup^1 a^2) \\ (q\ b^1 a^2, q\ b^1 \leftarrow) \end{cases}$
y $\{(q\ \sqcup^1 \sqcup^2, h\ \sqcup^1 \sqcup^2)$

(2014)

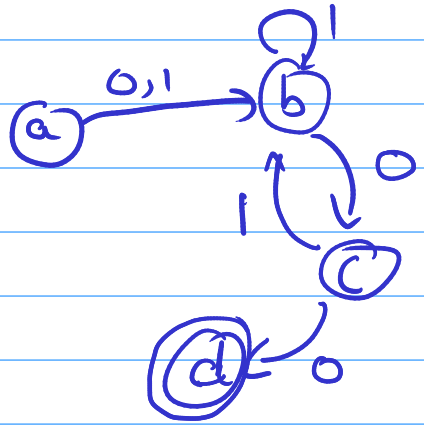
(1) $((bbac)^* (ba \cup a)^*)^*$

(2) $(a \cup b)^* aa (a \cup b)^* bb (a \cup b)^*$

(3)

	0	1
q_1	$q_1 q_2$	$q_1 q_2$
~~q_2~~	~~$q_2 q_3$~~	~~q_1~~
~~q_3~~	~~q_4~~	~~$q_1 q_2$~~
~~q_4~~	~~$q_1 q_2$~~	~~$q_1 q_2$~~

$(q_1 q_2 q_3)\ (q_1 q_2 q_3 q_4)\ (q_1 q_2)$
~~$(q_1 q_4 q_2)\ (q_1 q_2 q_3 q_4)\ (q_1 q_4 q_2)$~~
$(q_1 q_2)\ (q_1 q_2 q_3)\ (q_1 q_2)$



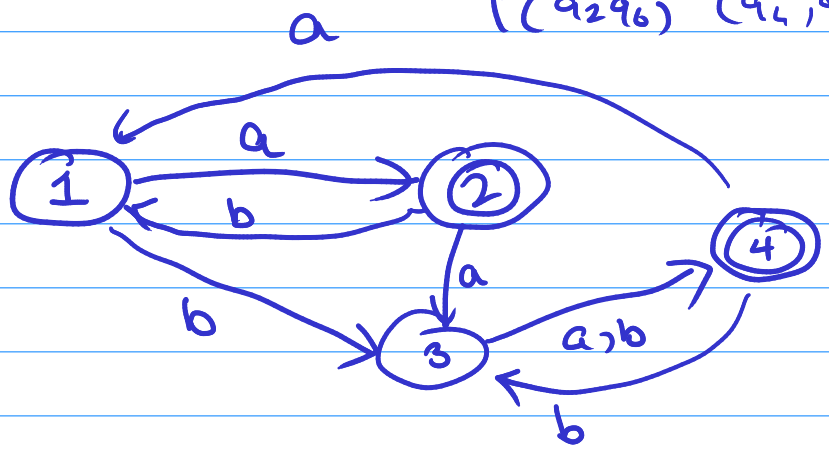
	a	b
q_1	q_2	q_7
q_2	q_5	q_3 →
q_3	q_6	q_5
q_4	q_1	q_5
q_5	q_8	q_3
q_6	q_7	q_1 →
q_7	q_8	q_4
q_8	q_3	q_7

$\Pi_0 \begin{bmatrix} \{q_1, q_3, q_5, q_7\} \\ \{q_2, q_6, q_4, q_8\} \end{bmatrix}$

$\Pi_1 \begin{bmatrix} (q_1 q_3)\ (q_5 q_7) \\ \{q_2 q_4 q_6 q_8) \end{bmatrix}$

$\Pi_2 \begin{bmatrix} (q_1 q_3)\ (q_5 q_7) \\ (q_2 q_6)\ (q_4 q_8) \end{bmatrix}$

$\Pi_3 \begin{bmatrix} (q_1 q_3)\ (q_5 q_7) \\ (q_2 q_6)\ (q_4 q_8) \end{bmatrix}$



$0^i 1^j 2^k$

00011222

S → 0A
A → 1B2C | 0A1B | ε | 0A | 1B
B → 1B | ε
C → 2C | ε

S → abSc

$uv^i w x^{n-2i} y^i$

$S \rightarrow S_1 \mid S_2$

$S_1 (i \neq j) \Rightarrow xc$

$x \rightarrow axb \mid aA \mid Bb$

$A \rightarrow aA \mid \varepsilon$

$B \rightarrow bB \mid \varepsilon$

$S_2 (j \neq k) \rightarrow Ay$

$y \rightarrow byc \mid b\beta \mid cc$

$C \rightarrow Cc \mid \varepsilon$

$E \rightarrow E+T$

$E \rightarrow T$

$T \rightarrow T*f$

$T \rightarrow F$

$F \rightarrow (E)$

$F \rightarrow id$

$id*(id)$

$E \rightarrow T$

$\rightarrow T*F$

$\rightarrow T*(E)$

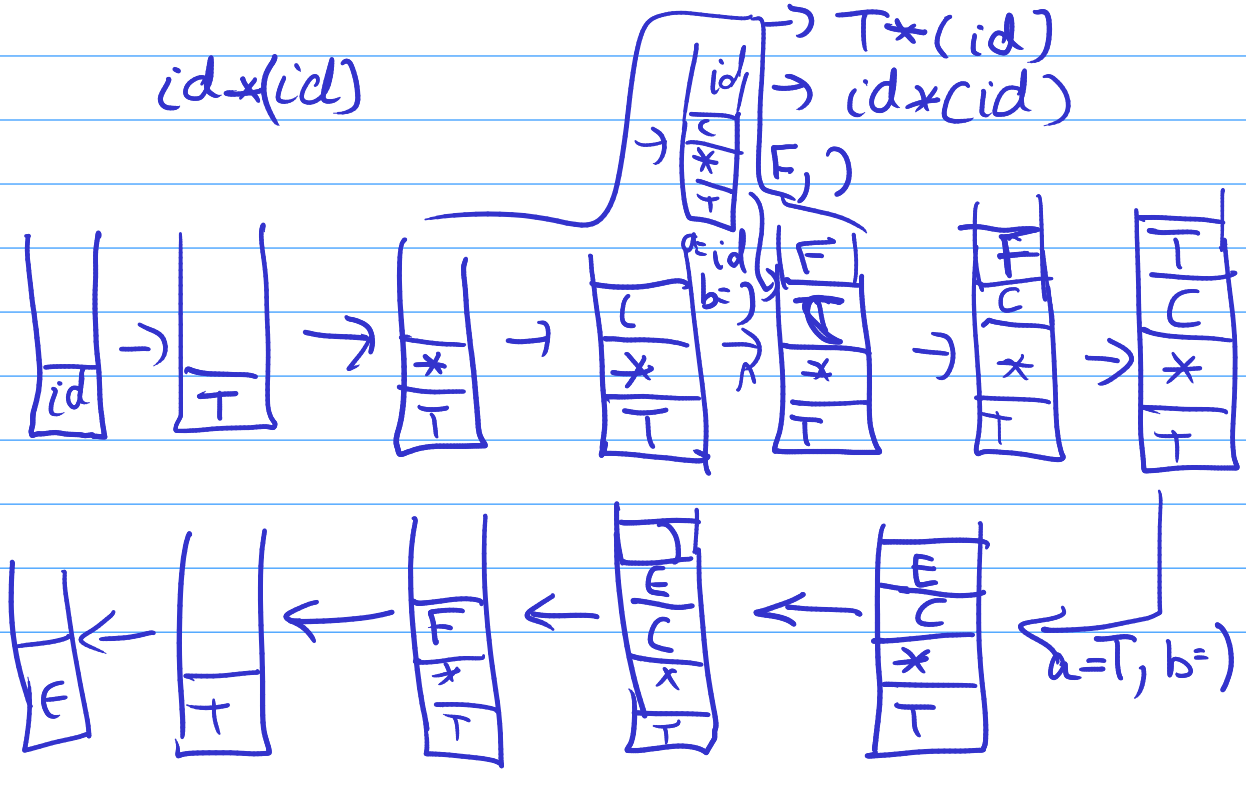
$\rightarrow T*(T)$

$\rightarrow T*(F)$

$\rightarrow T*(id)$

$\rightarrow id*(id)$

$id*(id)$



$$\begin{cases} \omega \in \{a,b,c\}^* \\ \omega = a^n b^n c^n \quad n \geq 1 \end{cases}$$

(a) $G = \{ S \to aB \mid bA \mid bAA;$
$A \to a \mid aS;\ B \to b \mid bS \mid aBB \}$

$S \to aB \mid bA \mid bAA$
$A \to a \mid aS$
$B \to b \mid bS \mid aBB$

Union, concatenation, Kleene*

$\{a,b,c\}^*$

$\omega = a^n b^n c^{2n} \quad n \geq 0$

aabbcccc

$S \to aBScc \mid \varepsilon$
$Ba \to aB$
$Bb \to bB$

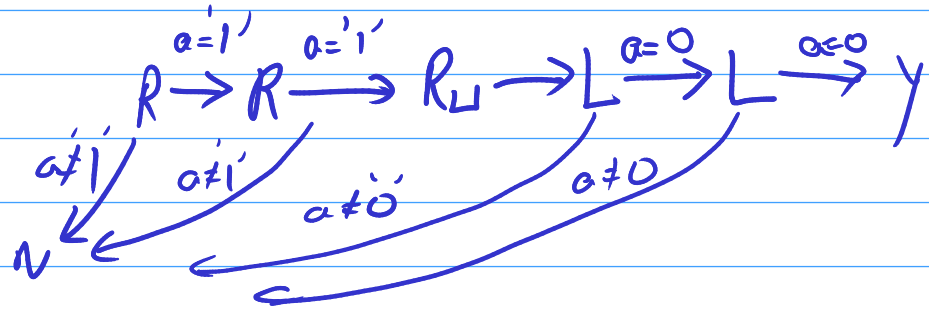
$\triangleright \sqcup \omega \sqcup \omega^{te} \sqcup \parallel \triangleright \sqcup \omega$

$R_\sqcup \to L^{a\sqcup} \sqcup \to R^2_\sqcup \to a \to L^2_\sqcup \to a$

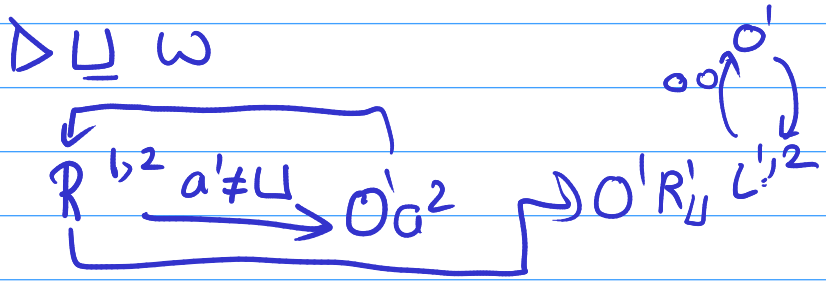
$a = \omega$
h

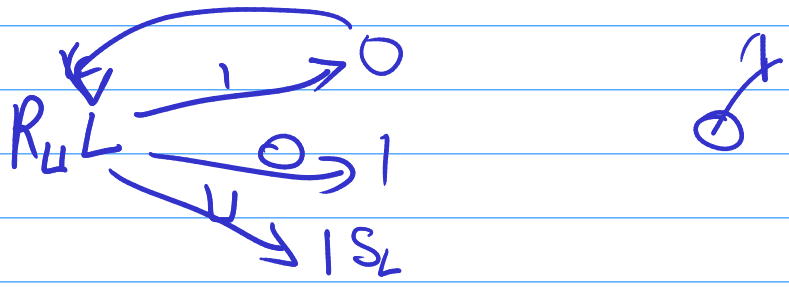
abbc⊔c

$\{0,1\}$



$\Delta \sqcup \omega$





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