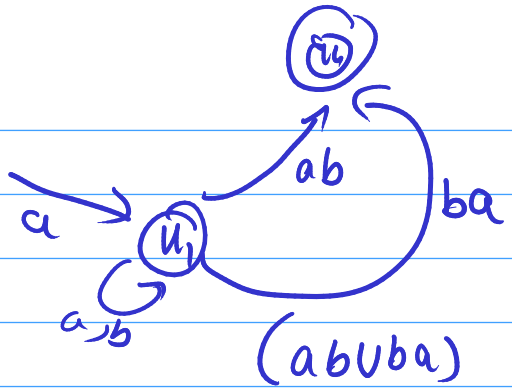
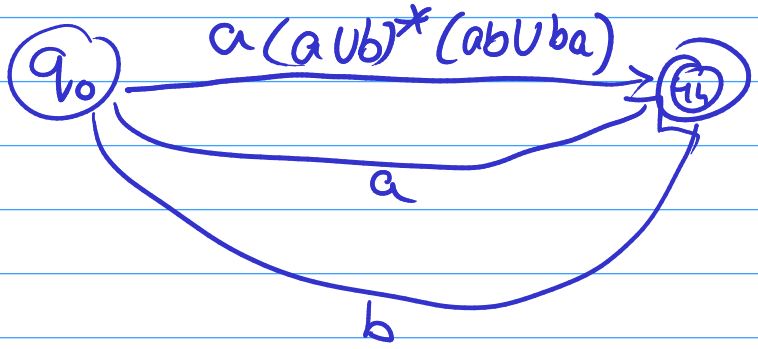
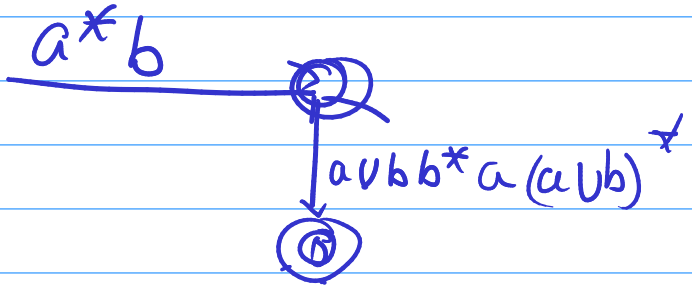




$a \cup b \cup a(a \cup b)^*(ab \vee ba)$



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

	a	b
q_0	(q_0, q_3)	(q_0, q_1)
q_1	$\emptyset$	q_2
q_3	q_4	$\emptyset$
q_2	q_2	q_2
q_4	q_4	q_4

(q_0, q_3) $(q_0 q_3 q_4)$ (q_0, q_1)

(q_0, q_1) (q_0, q_3) $(q_0 q_1 q_2)$

$(q_0 q_1 q_2)$ (q_0, q_3, q_2) $(q_0 q_1 q_2)$

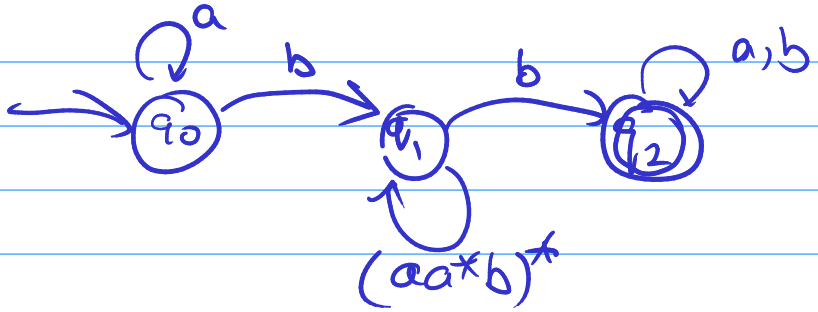
$(q_0 q_3 q_4)$ $(q_0 q_3 q_4)$ (q_0, q_1, q_4)

$(q_0 q_1 q_4)$ $(q_0 q_3 q_4)$ $(q_0 q_1 q_2 q_4)$

$(q_0 q_1 q_2 q_4)$ $(q_0 q_3 q_2 q_4)$ $(q_0 q_1 q_2 q_4)$

$(q_0 q_3 q_2 q_4)$ (

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

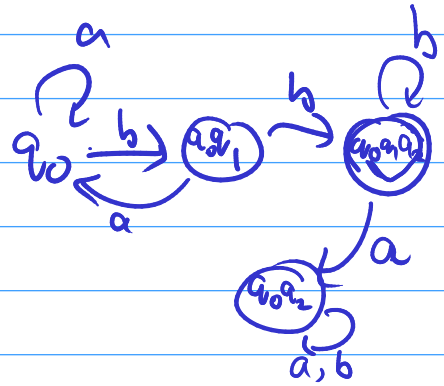


$a^*b(aa^*b)^*b(a \cup b)^*$ $\quad a^*b(aa^*b)^*b$

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

abbbbb

	a	b
q_0	q_0	$q_0 q_1$



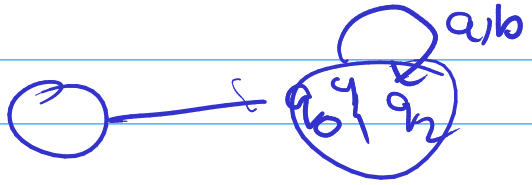
$q_0 q_1$ q_0 $q_0 q_2$

$q_0 q_1 q_2$ $(q_0 q_2)$ $q_0 q_1 q_2$

$(q_0 q_2)$ $(q_0 q_2)$ $(q_0 q_2)$

$\{\{q_0 \quad q_0 q_1\}, \{(q_0 q_1 q_2) \quad (q_0 q_2)\}\}$

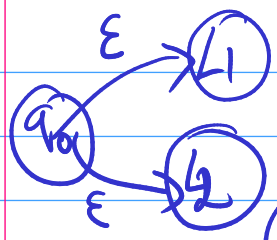
$\{\{q_0\}\{q_0 q_1 q_2\} \quad \{---\}\}$



xyz

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

$x,y,z = \{a,b\}^* \left(\{a,b\}^*\right)^{q>0} \{a,b\}^*$



$L_1 + L_2 - L_1 \cup L_2$

$(L_1 \cup L_2) - ((L_1 - L_2) \cup (L_2 - L_1))$

abba

NDPDA $\{a,b\}$ a, b

1	e	e	q, S
q	a	e	q, a
q	b	e	q, b
q	a	b	q, e
q	b	a	q, e

(b) $(011+1)^*(01)^*$

$S \to AB$

$A \to CA \mid DA \mid \varepsilon$

$C \to 011$

$D \to 1$

$B \to 01B \mid \varepsilon$

$S \to XY$

$X \to 011X \mid 1X \mid \varepsilon$

$Y \to 01Y \mid \varepsilon$

$\{a^n b^{2n}\}$

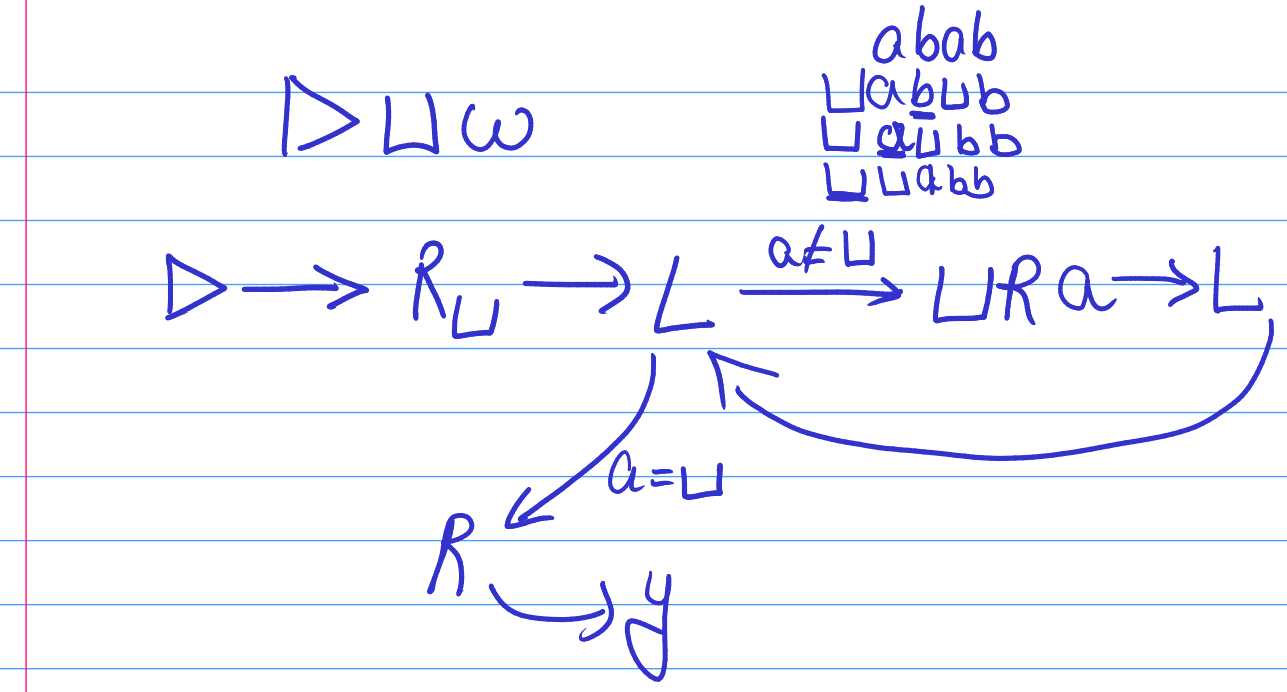
$S \to aXbb$
$X \to aXbb \mid \epsilon$

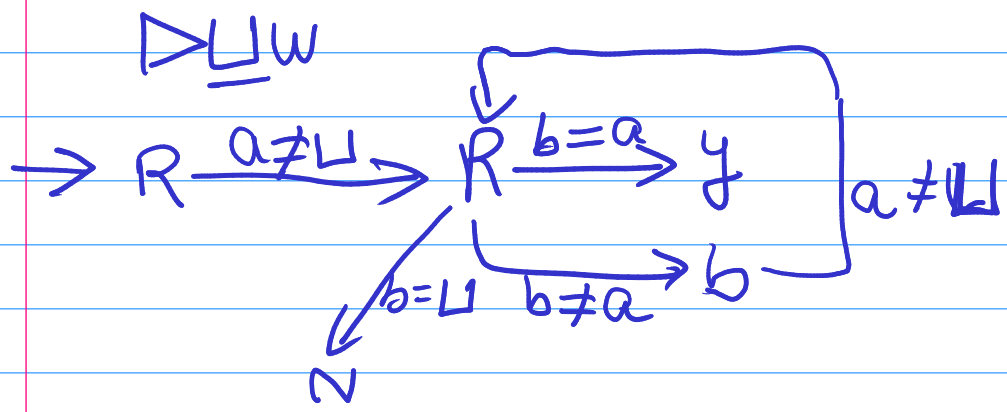
	FIRST	Follow
S	a	$
X	a, ε	b

(p, e, e)	(q, S)
(q_a, e, a)	(q_a, e)
(q_b, e, b)	(q_b, e)
(q, a, e)	(q_a, e)
(q, b, e)	(q_b, R)
(q_a, e, X)	$(q_a, aXbb)$
(q_b, e, X)	(q_b, b)
(q, $, e)	$(q_\$, e)$
(q, e, S)	$(q_a, aXbb)$

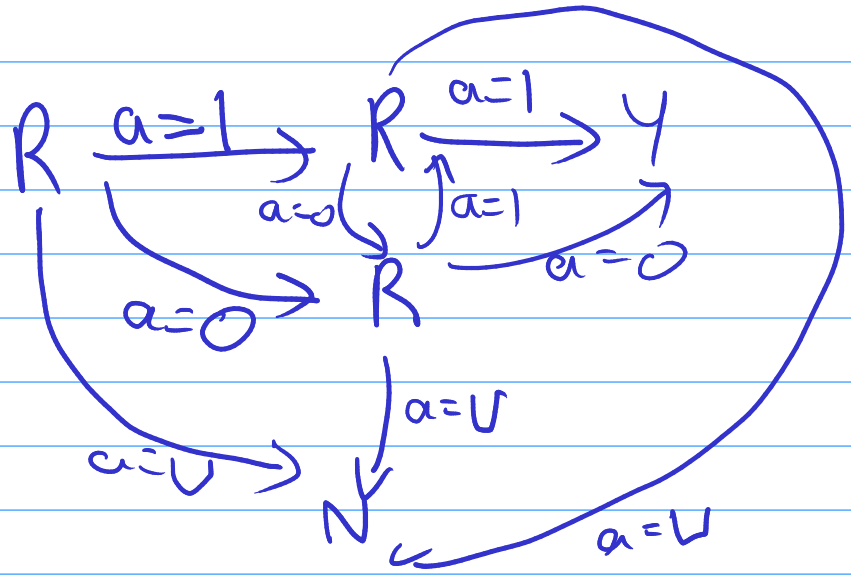
a →

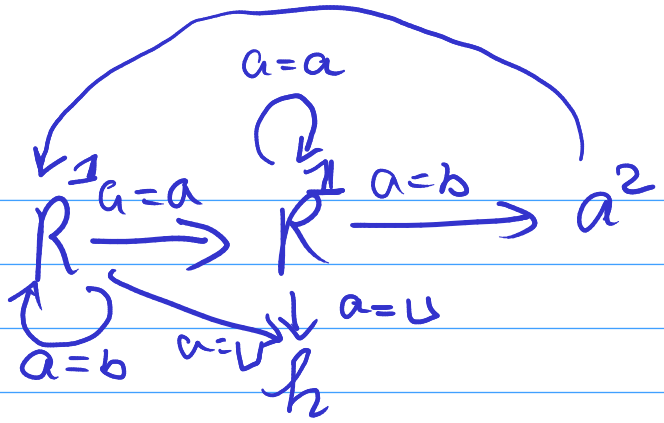
$S \to aBS_c$
$Ba \to aB$
$Bc \to bbC$
$Bb \to bbb$


▷ ␣ w
abab
␣abab
␣a␣bb
␣␣abb
▷
R␣
L
a≠␣
␣Ra
a=␣
R
y


▷␣w
R
a≠␣
R
b=a
y
a≠␣
b
b=␣
b≠a
N

␣ 1


R
a=1
R
a=1
y
a=0
a=1
a=0
R
a=0
a=␣
a=␣
N


a=a
1
a=a
R
R
a=b
a²
a=b
a=u
a=u
h