

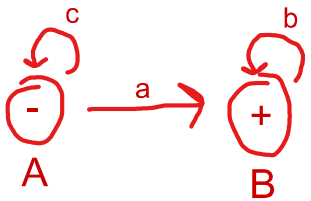
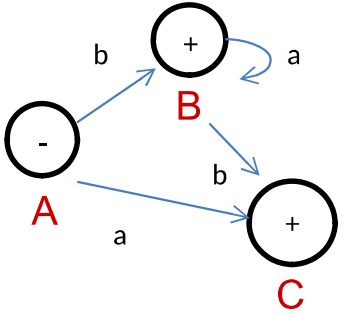
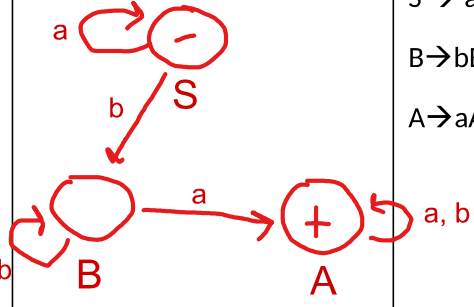
Computer Science 323  
Assignment No.1

Names.....Koo, Alexander.....row#.....  
.....Nguyen, Camplesg.....  
.....Do, Tristan.....

1. True or false? Circle your answers

i.	$L=a^*ba^*$	baa is a member of L aba is a member of L $\lambda$ is a member of L	True/false True/false True/false
ii.	$L=a^*b^*$	$b^2$ is a member of L $b^4a$ is a member of L	True/false True/false
iii.	$L=a^* + b^*$	$a^4$ is a member of L $ab^5$ is a member of L	True/false true/false
iv.	$L=(a + b)^*$	$a^3$ is a member of L bab is a member of L	True/false True/false
v.	$L=(ab)^*a$	$a(ba)^3$ is a member of L ababa is a member of L	True/false True/false
vi.	$L=a(aa)^*(\lambda + a)b$	$a^*b$ is a member of L aab is a member of L	True/false True/false
vii.	$L=(a+b)^*(aa+bb)$	aaa is a member of L aabb is a member of L	True/false True/false
viii.	$L=(aa)^*(\lambda + a)$	$a^4$ is a member of L $a^7$ is a member of L $L=a^*$	true/false true/false true/false

2. Complete the following table. Write your answer in each box

Language	FA	CFG
$L = c^* a b^*$		$A \rightarrow aB \mid cA$ $B \rightarrow bB \mid \lambda$
$L = ba^* + ba^*b + a$		$A \rightarrow bB \mid aC$ $B \rightarrow aB \mid bC \mid \lambda$ $C \rightarrow \lambda$
$L = a^* b b^* a (a + b)^*$		$S \rightarrow aS \mid bB$ $B \rightarrow bB \mid aA$ $A \rightarrow aA \mid bA \mid \lambda$

3. Find the language of each CFG. Write your answers in the space provided

i.  $S \rightarrow aA \mid bB$

$A \rightarrow aA \mid \lambda$

$B \rightarrow bB \mid \lambda$

Answer  $L = aa^* + bb^*$

ii  $S \rightarrow aS \mid bX \mid \lambda$

$X \rightarrow aX \mid bX \mid \lambda$

Answer  $L = a^* + a^*b(a + b)^*$

#### 4. Programming assignment

Write a program to read a postfix expression and display its numeric value.

All variables are single letter, MUST use stack.

##### Sample Input/Output

```
Enter the values of a, b, c and d: 5 7 2 4
Enter a postfix expression with $ at the end: ab+cd*-$
Value = 4
CONTINUE(y/n)? y
Enter a postfix expression with $ at the end: abcd+++ $
Value = 18
CONTINUE(y/n)? y
Enter a postfix expression with $ at the end: abcd*-*$
Value = -5
CONTINUE(y/n)? n
```

Directions. Include the following information at the beginning of your program.

Please write the names in alphabetical order and last name followed by first name.

```
//-----
//      Group names: Brown, John and Smith, Anna
//      Assignment   : CPSC 323, No.1
//      Due date     : .....
// Purpose: this program reads an expression in postfix form, evaluates the expression
// and displays its value
//-----
Comment all functions and class members.
```