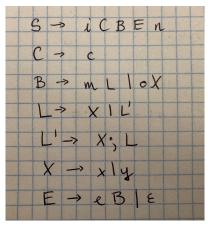
## Compiler Construction Problem Set 2 Alicja Jonczyk

**1.1** Adapt the grammar by eliminating any left recursion to make it compatible with top-down LL(1) parsing.



1.2 Tabulate the FIRST and FOLLOW sets for each non-terminal, as well as their nullability.

FIRST(S) = (i) FOLLOW(S) = 
$$\$$$
 number (S) =  $no$ 

FIRST(C) = (c) FOLLOW(C) =  $(m)$  number (C) =  $no$ 

FIRST(B) =  $(m_{f}o)$  FOLLOW(B) =  $(e,n)$  number (B) =  $no$ 

FIRST(L) =  $(x,y)$  FOLLOW(L) =  $(e,n)$  number (L) =  $no$ 

FIRST(L') =  $(x,y)$  FOLLOW(L) =  $(e,n)$  number (L') =  $no$ 

FIRST(X) =  $(x,y)$  FOLLOW(X) =  $(e,n,s)$  number (X) =  $no$ 

FIRST(E) =  $(e,s)$  FOLLOW(E) =  $(n,s)$  number (E) =  $yes$ 

**1.3** Construct the LL(1) parsing table for your grammar

	i	c	m	0	X	18	le	In	1 5
5	5→ CBER						HH		+++
C		C>c							
B			B->mL	B→oX					114
L					L→XIL'	L>XIL'			
L'					Ľ>X;L	L->X,L			
X					X+X	X-y			
E							E> eB	E→E	
						1			

## 2. VSL specification

```
jonczyk@alicja:~/COMPILER_CONSTRUCTION/problem_set_2/vsl_programs$ make ps2-check
cd ps2-parser; \
find * -wholename "suggested/*.ast" | awk -F/ '{print $0 " " $2}' | xargs -L 1 diff -s --unified=0
Files suggested/arrays.ast and arrays.ast are identical
Files suggested/function_call.ast and function_call.ast are identical
Files suggested/if_else.ast and if_else.ast are identical
Files suggested/helloworld.ast and helloworld.ast are identical
Files suggested/operators.ast and operators.ast are identical
Files suggested/variables.ast and variables.ast are identical
Files suggested/assignments.ast and assignments.ast are identical
Files suggested/while.ast and while.ast are identical
No differences found in PS2!
jonczyk@alicja:~/COMPILER_CONSTRUCTION/problem_set_2/vsl_programs$ []
```