Homework 11 - Abrudan Rebeca - 931

Consider the grammar:

$S \xrightarrow{1} AB$

$A \xrightarrow{2} 0A \mid 1A \mid \xrightarrow{3} \varepsilon$

$B \xrightarrow{4} 0B \mid \xrightarrow{5} \varepsilon$

Construct $FIRST_2$ and $FOLLOW_2$ for nonterminals of the grammar

$First_k$ = First k terminal symbols that can be generated from A

$Follow_k$ = Next k symbols generated after A

$FIRST_2$

	F_0	F_1	F_2
S	$\emptyset$	0, 1, ε	0, 1, ε
A	0, 1, ε	0, 1, ε	0, 1, ε
B	0, ε	0, ε	0, ε

$F_1 = F_2 = First$

$FIRST_2(S) = FIRST_2(AB) = FIRST_2(A) = \{0, 1, \varepsilon\}$

$FIRST_2(A) = \{0, 1, \varepsilon\}$

$FIRST_2(B) = \{0, \varepsilon\}$

FOLLOW$_2$

FOLLOW$_2$(S) $\overset{1}{=}$ ε

FOLLOW$_2$(A) $\overset{2}{=}$ ε and^1 FOLLOW$_2$(S) and^1 FIRST$_2$(B) = 0, ε

FOLLOW$_2$(B) $\overset{3}{=}$ ε and^1 FOLLOW$_2$(S)

	L_0	L_1	L_2
S	ε	ε	ε
A	$\emptyset$	ε, 0	ε, 0
B	$\emptyset$	ε	ε

$L_1 = L_2$ = FOLLOW

FOLLOW$_2$(S) = $\{\varepsilon\}$

FOLLOW$_2$(A) = $\{0, \varepsilon\}$

FOLLOW$_2$(B) = $\{\varepsilon\}$