Turcanu Cristian, IA1901

Lucrare de laborator nr.2

Varianta 1

CYK01. Fie gramatica independenta de context

$G = (V_N, V_T, P, D),$
$V_N = \{D, L, S, Z\},$
$V_T = \{:, (,), v, ,, i\},$
$P =$
$\{$
$1. D \to L,$
$2. L \to Z : S,$
$3. S \to i,$
$4. S \to (Z),$
$5. Z \to v,$
$6. Z \to Z, v$
$\}$

Generati un cuvant alcatuit din 5-7 simboluri. Efectuati analiza sintactica utilizand algoritmul Cocke-Yanger-Kasami.

Rezolvare:

Initial transformam gramatica pentru a elimina epsilon productiile, redenumirile si simboluri inaccesibile si inutile. Gramatica nu are epsilon productii, iar singura redenumire este in regula 1:

$G = (V_N, V_T, P, D),$
$V_N = \{D, S, Z\},$
$V_T = \{:, (,), v, ,, i\},$
$P =$
$\{$
$1. D \to Z : S,$
$2. S \to i,$
$3. S \to (Z),$
$4. Z \to v,$
$5. Z \to Z, v$
$\}$

Reguli inaccesibile si inutile nu avem, deci reducem la FNC:

$G = (V_N, V_T, P, D),$
$V_N = \{D, S, Z, X_1, X_2, X_3, X_4, X_5\},$
$V_T = \{:, (,), v, , , i\},$
$P =$
$\{$
$1. D \to ZX_1S,$
$2. X_1 \to :$
$3. S \to i,$
$4. S \to X_2ZX_3,$
$5. X_2 \to ($
$6. X_3 \to)$
$7. Z \to v,$
$8. Z \to ZX_4X_5$
$9. X_4 \to ,$
$10. X_5 \to v$
$\}$

$G = (V_N, V_T, P, D),$
$V_N = \{D, S, Z, X_1, X_2, X_3, X_4, X_5, Y_1, Y_2\},$
$V_T = \{:, (,), v, , , i\},$
$P =$
$\{$
$1. D \to ZY_1,$
$2. Y_1 \to X_1S$
$2. X_1 \to :$
$3. S \to i,$
$4. S \to X_2Y_2,$
$5. Y_2 \to ZX_3$
$6. X_2 \to ($
$7. X_3 \to)$
$8. Z \to v,$
$9. Z \to ZY_3$
$10. Y_3 \to X_4X_5$
$11. X_4 \to ,$
$12. X_5 \to v$
$\}$

Generam un cuvant din gramatica:

$D \to ZY_1 \to vX_1S \to v : X_2Y_2 \to v : (ZX_3 \to v : (v)$

$T_{11} = Z|X_5$

$T_{21} = X_1$

$T_{31} = X_2$

$T_{41} = Z|X_5$

$T_{51} = X_3$

$T_{12} = ZX_1|X_5X_1$

$T_{22} = X_1X_2$

$T_{32} = X_2Z|X_2X_5$

$T_{42} = ZX_3|X_5X_3$

$T_{13} = -$

$T_{23} = -$

$T_{33} = X_2Y_2$

$T_{14} = -$

$T_{24} = X_1S$

$T_{15} = ZY_1|X_5Y_1$

v	**:**	**(**	**v**	**)**
Z, X_5	X_1	X_2	Z, X_5	X_3
-	-	-	Y_2	
-	-	S		
-	Y_1			

D

Confirmam ca cuvantul face parte din gramatica.