16. Aprilie 2019

Seminar 5

EX1:

$E' \to E$

1. $E \to E+E$
2. $E \to E*E$
3. $E \to m$

$\Big\} G \Big\} G'$

Parser SLR (1)

Follow	
E	$\$, +, *$

Multimi canonice LR(0).

I_0
- $E' \to .E \to I_1$
- $E \to .E+E \to I_1$
- $E \to .E*E \to I_1$
- $E \to .m \to I_2$

I_1
- $E' \to E.$ → acceptare
- $E \to E.+E \to I_3$
- $E \to E.*E \to I_4$

I_2
- $E \to m.$

I_3
- $E \to E+.E \to I_5$
- $E \to .E+E \to I_5$
- $E \to .E*E \to I_5$
- $E \to .m \to I_2$

I_4
- $E \to E*.E \to I_6$
- $E \to .E+E \to I_6$
- $E \to .E*E \to I_6$
- $E \to .m \to I_2$

I_5
- $E \to E + E.$
- $E \to .E. + E \to I_3$
- $E \to *E. * E \to I_4$

I_6
- $E \to E * E.$
- $E \to E. + E \to I_3$
- $E \to E. * E \to I_4$

	action				goto
	+	*	n	$	E
0			s_2		1
1	s_3	s_4		acc	
2	r_3	r_3		r_3	
3			s_2		5
4			s_2		6
5	r_1/s_3	r_1/s_4		r_1	
6	r_2/s_3	r_2/s_4		r_2	

- deoarece am obț. conflicte, gramatica nu este SLR(1).

+, * același ptp.
* prioritar față de +
r_1/s_3 ptr. +

E+E	+

, + apare în urm. deci facem r_1

r_1/s_4	pt *
E+E	*

r_2/s_3	pt. +
E*E	+

r_2/s_4	pt *
E*E	*

EX 2: Să se atributeze E cu un atribut sintetizat V care reprezintă val. expr. (păstrăm gram. de la EX 1)

$E\uparrow v \to E\uparrow v_1 + E\uparrow v_2$

$[v \leftarrow v_1 + v_2]$

$\to E\uparrow v_1 * E\uparrow v_2$

$[v_1 \leftarrow v_1 * v_2]$

$\to n\uparrow val \quad [v \leftarrow val]$

$n+n*n$

2 3 4

$(0, n+n*n\$, \lambda) \overset{S_2}{\vdash} (0n\overset{2}{2}, +n*n\$, \lambda) \overset{r_3}{\vdash} (0\overset{2}{E}\overset{1}{1}, +n*n\$, 3) \overset{S_3}{\vdash}$

$(0\overset{2}{E}\overset{1}{1}+3, n*n\$, 3) \overset{S_2}{\vdash} (0\overset{2}{E}\overset{1}{1}+3\overset{3}{n}\overset{2}{2}, *n\$, 3) \overset{r_3}{\vdash} (0\overset{2}{E}\overset{1}{1}+3\overset{3}{E}5, *n\$, 33) \overset{S_4}{\vdash}$

$(0\overset{2}{E}\overset{1}{1}+3\overset{3}{E}5*4, n\$, 33) \overset{S_2}{\vdash} (0\overset{2}{E}\overset{1}{1}+3\overset{3}{E}5*4\overset{4}{n}\overset{2}{2}, \$, 33) \overset{r_3}{\vdash}$

$(0\overset{2}{E}\overset{1}{1}+3\overset{3}{E}5*4\overset{4}{E}6, \$, 33) \overset{r_2}{\vdash} (0\overset{2}{E}\overset{1}{1}+3\overset{12}{E}5, \$, 2333) \overset{r_1}{\vdash}$

$(0\overset{14}{E}\overset{1}{1}, \$, 12333) \vdash acc$

EX 3:

$E \to TR$

$R \to +TR \mid -TR \mid *TR \mid \lambda$

$T \to n \mid (E)$

$E\uparrow v$ v - val expr. generate de E

$T\uparrow v$

$E\uparrow v \to T\uparrow v_1 \; R\downarrow v' \uparrow v''$

$[v' \leftarrow v_1, v \leftarrow v'']$

$R\downarrow v'\uparrow v'' \to +T\uparrow v \; R\downarrow v_1'\uparrow v_1''$

$[v_1' \leftarrow v, v'' \leftarrow v_1'' * v']$

$\to -T\uparrow v \; R\downarrow v_1'\uparrow v_1''$

$[v_1' \leftarrow v, v'' \leftarrow v' - v_1']$

$\to *T\uparrow v \; R\downarrow v_1'\uparrow v_1''$

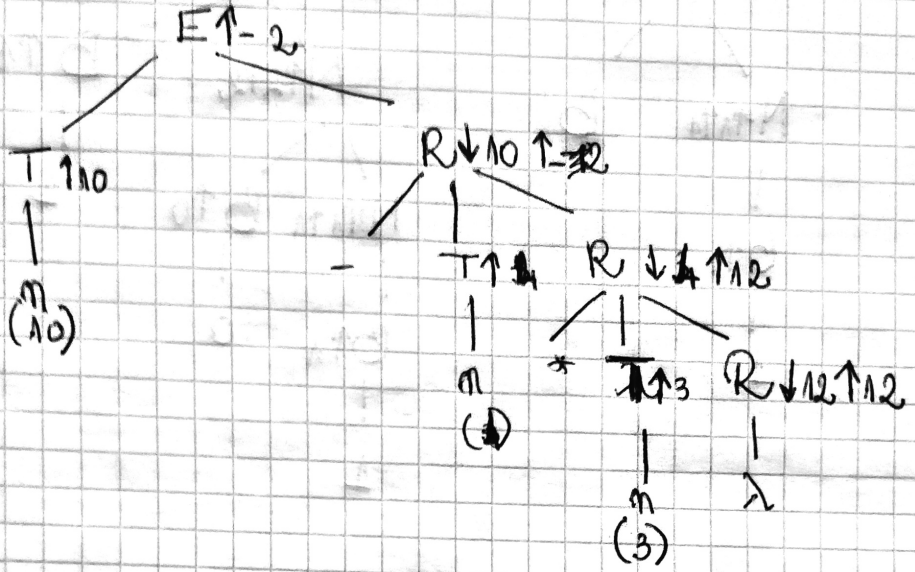
$[v_1' \leftarrow v' * v, v'' \leftarrow v_1'']$

$\rightarrow \lambda [v'' \leftarrow v']$

$T \uparrow v \rightarrow n \uparrow val \quad [v \leftarrow val]$

$\rightarrow (E \uparrow v_1) \quad [v \leftarrow v_1]$

$10 - 4 * 3$



EX4:

$S \rightarrow N.N$

$N \rightarrow NB$

$\rightarrow B$

$B \rightarrow 0$

$\rightarrow 1$

$S \uparrow v$ — v - valoarea în zecimal a nr. binar în virgulă mobilă generat de S

$S \uparrow v \rightarrow N \uparrow v_1 \uparrow l_1 . N \uparrow v_2 \uparrow l_2$

$[v \leftarrow v_1 + v_2 \cdot 2^{-l_2}]$

$N \uparrow v \uparrow l \rightarrow N \uparrow v_1 \uparrow l_1 B \uparrow v_2$

$[v \leftarrow 2v_1 + v_2 ; l \leftarrow l_1 + 1]$

$\rightarrow B \uparrow v_1$

$[v \leftarrow v_1 ; l \leftarrow 1]$

$B \uparrow v \rightarrow 0 \quad [v \leftarrow 0]$

$\rightarrow 1 \quad [v \leftarrow 1]$

11.101

$S \uparrow 3+5 \cdot 2^{-3} = 3+5\left(\frac{1}{8}\right) = 3+\frac{5}{8} = 3\frac{5}{8}$