fie $B \to \delta$ a.î. $\alpha\beta y = \gamma\delta x$. Avem cazurile

a) $x = y$. Rezultă $\alpha\beta = \gamma\delta$.

Din $S \overset{*}{\underset{d}{\Rightarrow}} \alpha A w$ rez că $A \to .\beta$; $First(w\$) \in goto(I_0, \alpha)$.

b).

Din $S \overset{*}{\underset{d}{\Rightarrow}} \gamma B x$, rez. $B \to .\delta$; $First(x\$) \in goto(I_0, \gamma)$.

Deoarece $x = y$, avem $First(x) = First(y)$ deci $First(x\$) = First(w\$)$.

Avem $A \to \beta.$; $First(w\$) \in goto(I_0, \alpha\beta)$.

$B \to \delta.$; $First(x\$) \in goto(I_0, \gamma\delta)$.

Fie $I_K = goto(I_0, \gamma\delta) = goto(I_0, \alpha\beta)$

Fie $a = First(x\$) = First(w\$)$.

Atunci $action[K, a] = reduce\ A \to \beta$

$= reduce\ B \to \delta$ (conflict multiplu)

02. Aprilie 2019

Seminar 4

EX1: Alg Earley

$S' \to S$

$G \begin{cases} S \to aABb \\ A \to BbS \mid B \\ B \to \lambda \end{cases}$

$w = \underset{1}{a}\underset{2}{b}\underset{3}{a}\underset{4}{b}\underset{5}{b}$, $n = 5$

$S_0 \begin{cases} S' \to .S, 0 \\ S \to .aABb, 0 \end{cases}$

$S_1 \begin{cases} S \to a.ABb, 0 \\ A \to .BbS, 1 \\ A \to .B, 1 \\ S \to aA.Bb, 0 \\ B \to .\lambda, 1 \end{cases} \begin{cases} A \to B.bS, 1 \\ A \to B., 1 \\ S \to aAB.b, 0 \end{cases}$

$w_1 = 'a'$

S_2

$w_2 = 'b'$

- $A \to Bb.\ S, 1$
- $S \to aABb., 0$
- $S \to .aABb, 2$
- $S' \to S., 0$

S_3

$w_3 = 'a'$

- $S \to a.\ ABb\ ,\ 2$
- $A \to .\ BbS\ ,\ 3$
- $A \to .B\ ,3$
- $S \to aA.\ Bb\ ,2$
- $B \to .\ ,3$
- $A \to B.\ bS\ ,\ 3$
- $A \to B.\ ,3$
- $S \to aAB.\ b, 2$

S_4

$w_4 = 'b'$

- $A \to Bb.\ S, 3$
- $S \to aABb.\ , 2$
- $S \to .\ aABb, 4$
- $A \to BbS.\ , 4$
- $S \to aA.\ Bb, 0$
- $B \to .\ , 4$
- $S \to aAB.\ b, 0$

S_5

$w_5 = 'b'$

- $S \to aABb.\ , 0$
- $S' \to S., 0$

$\Downarrow$ $w \in L(G)$

EX2: Construiți pentru LR(1) pt. gramatica:

1. $E \to E+T$
2. $E \to T$
3. $T \to T*F$
4. $T \to F$
5. $F \to$ ~~AA~~

simb. terminale $\{+, *, \$\}$
neterminale $\{E, T, F\}$

Pas 1. Extindem gr. cu $E' \to E$

I_0
- $E' \to .E\ ;\ \$ \xrightarrow{goto(I_0,E)} I_1$
- $E \to .E+T\ ;\ \$/+ \to I_1$
- $E \to .T\ ;\ \$/+ \to I_2$
- $T \to .T*F\ ;\ \$|+|* \to I_2$
- $T \to .F\ ;\ \$|+|* \to I_3$
- $F \to .$ ~~AA~~ $;\ \$|+|* \to I_4$

I_1
- $E' \to E.\ ;\ \$$
- $E \to E.+T\ ;\ \$|+ \to I_5$

I_2
- $E \to T.\ ;\ \$|+$
- $T \to T.*F\ ;\ \$|+|*| \to I_6$

I_3
- $T \to F.\ ;\ \$|+|*$

I_4
- $F \to$ ~~AA~~$.\ ;\ \$|+|*$

I_5
- $E \to E+.T\ ;\ \$|+ \to I_7$
- $T \to .T*F\ ;\ \$|+|* \to I_7$
- $T \to .F\ ;\ \$|+|* \to I_3$
- $F \to .$ ~~AA~~ $;\ \$|+|* \to I_4$

I_6 $\begin{cases} T \to T*.F\ ;\ \$/+/* \to I_8 \\ F \to .n\ ;\ \$/+/* \to I_4 \end{cases}$

	action				goto		
	+	*	n	$	E	T	F
0			s_4		1	2	3
1	s_5			acc			
2	r_2	s_6		r_2			
3	r_4	r_4		r_4			
4	r_5	r_5		r_5			
5			s_4			7	3
6			s_4				8
7	r_1	s_6					
8	r_3	r_3					

- în rest, eroare
- tabela nu are intrări multiple $\Leftrightarrow$ G este LR(1)

Analizăm șirul: n*n+n

$(0, n*n+n\$, \lambda) \vdash^{s_4} (0n4, *n+n\$, \lambda) \vdash^{r5}$
$(0F3, *n+n\$, 5) \vdash^{r4} (0T2, *n+n\$, 45) \vdash^{s_6}$
$(0T2*6n4, +n\$, 45) \vdash^{r5} (0T2*6F8, +n\$, 545) \vdash^{r3}$
$(0T2, +n\$, 3545) \vdash^{r2} (0E1, +n\$, 23545) \vdash^{s_5}$
$(0E1+5, n\$, 23545) \vdash^{s_4} (0E1+5n4, \$, 23545) \vdash^{r5}$
$(0E1+5F3, \$, 523545) \vdash^{r4} (0E1+5T7, \$, 45523545) \vdash^{r1}$
$(0E1, \$, 14523545) \vdash acc$