341 SEMINAR 5

1) Sa se construiasca tabela LR(1) pentru gramatica G cu productiile:

E->TR R->+TR | \*TR | lambda T->n

1: 2: 3: 4: 5:

Extindem G: E’->E se adauga si un simbol terminal nou, #

Calculam multimile canonice LR(1)

I0= E’->.E;# —>I1 //I0 starea initiala a AFD

E->.TR;# (#=First(lambda.#)) —>I2 // care rec prefixele viabile

T->.n;+|\*# —>I3 // First(R#)

I1= E’->E.;#

I2= E->T.R;# —>I4 (I4=goto(I2,R))

R->.+TR;# —>I5 (I5=goto(I2,+))

R->.\*TR;# —>I6 (I6=goto(I2,\*))

R->.;#

I3= T->n.;+|\*|#

I4= E->TR.;#

I5= R->+.TR;# —>I7

T->.n;+|\*|# —>I3

I6= R->\*.TR;# —>I8

T->.n;+|\*|# —>I3

I7= R->+T.R;# —>I9

R->.+TR;# —>I5

R->.\*TR;# —>I6

R->.;#

I8= R->\*T.R;# —>I10

R->.+TR;# —>I5

R->.\*TR;# —>I6

R->.;#

I9= R->+TR.;#

I10= R->\*TR.;#

Construim tabela LR(1) pentru GM

Tabela action Tabela goto

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| M | + | \* | n | # | E | T | R |
| 0 | error | error | Shift 3 | error | 1 | 2 | error |
| 1 | error | ... |  | accept |  |  |  |
| 2 | Shift 5 | Shift 6 |  | Reduce 4 |  |  | 4 |
| 3 | Reduce 5 | Reduce 5 |  | Reduce 5 |  |  |  |
| 4 |  |  |  | Reduce 1 |  |  |  |
| 5 |  |  | Shift 3 |  |  | 7 |  |
| 6 |  |  | Shift 3 |  |  | 8 |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 7 | Shift 5 | Shift 6 |  | Reduce 4 |  |  | 9 |
| 8 | Shift 5 | Shift 6 |  | Reduce 4 |  |  | 10 |
| 9 |  |  |  | Reduce 2 |  |  |  |
| 10 |  |  |  | Reduce 3 |  |  |  |

Tabela M nu are intrari multiple (conflicte) <=> G este LR(1)

Sa se analizeze sirul n\*n

(0, n\*n#, lambda) -> (shift 3) (0n3, \*n#, lambda) -> (0T2, \*n#, 5) -> (shift 6)

2=goto(0,T)

(0T2\*6, n#, 5) -> (shift 3) (0T2\*6n3, #, 5) -> (reduce 5) -> (0T2\*6T8, #, 55) -> (reduce 4) -> (0T2\*6T8R’10’, #, 455) -> (reduce 3) (0T2R4, #, 3455) -> (reduce 1)

(0E1, #, 13455) -> accept