SEMINAR 4

1) Se da gramatica G cu productiile:

S->aSB | aAc

A->bAc | lambda

B->cSc | b

1. Se extinde gramatica: S’->S, se introduce simbolul terminal nou #
2. Se calculeaza Follow2(X), X in {S,A,B). Se initializeaza Follow2(S)={#}

// Se fac treceri repetate peste prod de forma A->uBv;

// Follow2(B)+=First2(v.Follow2(A)). Daca v=lambda, Follow2(B)+=Follow2(A)

|  |  |  |
| --- | --- | --- |
| Follow2 | Pasul 1 | Pasul 2 |
| S | #, ca, b# | bc, bb |
| A | c#, cc, cb |  |
| B | #,ca,b#, c#, cc, cb | bc, bb |

S->aSB

Follow2(S) += First2(B.Follow2(S)) = {ca, b#}

B=>cSc=>caSBcc

=>caAcc

=>b

Follow2(B) +=Follow2(S)

S ->aAc

Follow2(A) += First2(c.Follo2(S)) = {c#, cc, cb}

A->bAc

Follow2(A) += First2(c.Follow2(A)) = {cc}

B->cSc

Follow2(S) += First2(c.Follow2(B)) = {c#, cc, cb}

Calculam intrarile in tabela:

1: S->aSB First2(a2:SB.Follow2(S))={aa}

2: S->aAc First2(aAc.Follow2(S))={ab,ac}

3: A--> bAc First2(bAc.Follow2(A)) = {bb,bc}

4: A--> lambda First2(lambda.Follow2(A))= Follow2(A) = {c#, cc, cb }

5: B-->cSc First2(cSc.Follow2(B)) = {ca}

6: B-->b First2(b.Follow2(B))={ b#,bc,bb}

Calculam tabela 2-predictiva pentru G

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| M | aa | ab | ac | bb | bc | b# | ca | cb | cc | c# |
| S | (aSB,1) | (aAc,2) | (aAc,2) | er | er | er | er | er | er | er |
| A | er | er | er | (bAc,3) | (bAc,3) | er | error | (lambda,4) | (lambda,4) | ((lambda,4) |
| B | error | error | error | (b,6) | (b,6) | (b,6) | (cSc,5) | error | error | error |

M nu are intrari multiple <=> G este LL(2) tare

Analizam sirul aacb

(aacb#,S#,lambda)|-(aacb#,aSB#,1)|-(acb#,SB#,1)|-(acb#,aAcB#,12) | -(cb#,AcB#,12) |- (cb#, cB#,124) |- (b#, B#, 124) |- (b#, b#,1246) |- (#,#,1246) |- accept

Analizam sirul bac

(bac#, S#, lambda)|- error

2) Sa se aplice algoritmul Earley pentru gramatica de la punctul 1 si pentru sirul aacb.

* Extindem gramatica G

S’->S

S->aSB | aAc

A->bAc | lambda

B->cSc | b

w=aacb, |w|=4. Se calculeaza S0, S1, S2, S3, S4, S5, multimi de configuratii Earley (de forma A->x.y,j 0<=j<=5

S0 = S’->.S,0 predictie pt S

S->.aSB,0 scanare pentru w1=’a’

S->.aAc,0

S1 = S->a.SB,0 predictie pt S

S->a.Ac,0 predictie pt A, predictie A anulabil

S->.aSB,1

S->.aAc,1 scanare pentru w2=’a’

A->.bAc,1

A->.,1 completare A->lambda

S->aA.c,0

S2 = S->a.SB,1 predictie pt S

S->a.Ac,1 predictie pt A, predictie A anulabil

S->.aSB,2

S->.aAc,2 scanare pentru w3=’c’

A->.bAc,2

A->.,2 completare A->lambda

S->aA.c,1

S3 = S->aAc.,1 completarea pentru S->aAc

S->aS.B,0 predictie pt B

B->.cSc,3 scanare pentru w4=’b’

B->.b,3

S4 = B->b.,3 completare

S->aSB.,0 completare

S’->S.,0 < => w in L(G)