

Appello II – 6 febbraio 2012:  
Compilatori: SOLUZIONE

Esercizio 2

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exG.yacc
Last Saved: 07-02-2012 18:19:01
File Path: Macintosh HD/Users/marcobellia/Desktop/exG.yacc

/*
**(a) Grammatica (in notazione yacc)
S: a S d | A c B d;
A: a A b | ;
B: c B d | ;

**(b) Collezione LR(1)
I0 = {S' -> .S/$, S -> .aSd/$, S -> .AcBd/$, A -> .aAb/c, A -> ./c} nc
I1 = G(0, S) = {S' -> S./}$
I2 = G(0, a) = {S -> a.Sd/$, A -> a.Ab/c, S -> .aSd/d, S -> .AcBd/d, A -> .aAb/c/b, A -> ./c/b} nc
I3 = G(0, A) = {S -> A.cBd/$}
I4 = G(2, S) = {S -> aS.d/$}
I5 = G(2, A) = {A -> aA.b/c, S -> A.cBd/d}
I6 = G(2/6, a) = {S -> a.Sd/d, A -> a.Ab/c/b, S -> .aSd/d, S -> .AcBd/d, A -> .aAb/c/b, A -> ./c/b} nc
I7 = G(3, c) = {S -> Ac.Bd/$, B -> .cBd/d, B -> ./d} nc
I8 = G(4, d) = {S -> aSd./}$
I9 = G(5, b) = {A -> aAb./c}
I10 = G(5/12, c) = {S -> Ac.Bd/d, B -> .cBd/d, B -> ./d} nc
I11 = G(6, S) = {S -> aS.d/d}
I12 = G(6, A) = {A -> aA.b/c/b, S -> A.cBd/d}
I13 = G(7, B) = {S -> AcB.d/$}
I14 = G(7/10/14, c) = {B -> c.Bd/d, B -> .cBd/d, B -> ./d}
I15 = G(10, B) = {S -> AcB.d/d}
I16 = G(11, d) = {S -> aSd./d}
I17 = G(12, b) = {A -> aAb./c/b}
I18 = G(13, d) = {S -> AcBd./}$
I19 = G(14, B) = {B -> cB.d/d}
I20 = G(15, d) = {S -> AcBd./d}
I21 = G(19, d) = {B -> cBd./d}
**Collezione LALR(1): compattamento stati:
{I0}, {I1}, {I2, I6}, {I3}, {I4, I11}, {I5, I12}, {I7, I10}, {I8, I16}, {I9, I17}, {I13, I15}, {I14}, {I18, I20}, {I19}, {I21}
**rinominazione:
I0={I0}, I1={I1}, I2={I2, I6}, I3={I3}, I4={I4, I11}, I5={I5, I12}, I6={I7, I10}, I7={I8, I16}, I8={I9, I17},
I9={I13, I15}, I10={I14}, I11={I18, I20}, I12={I19}, I13={I21}

**(c) tabella
stati  a b c d $ S A B
0      a2  r3
1      acc 1 3
2      s2 r3 r3 acc 4 5
3      s6
4
5      s8 s6
6      s10 r5 9
7
8      r2 r2 r8
9
10     s12 r5 s11
11     r1 r1
12     s12
13     r4

**(d) analisi: frase
input      stack(alta-bassa)
abcdd$    0$
abcd$     2a0$
bcd$      2a2a0$
bcd$      5A2a2a0$
cd$       8b5A2a2a0$
cd$       5A2a0$
d$        6c5A2a0$
d$        9B6c5A2a0$
d$        11d9B6c5A2a0$
d$        4S2a0$
$         7d4S2a0$
$         1S0$
accept
  
```

Esercizio 3

(a)

Una grammatica G non ambigua \*

```

E ::= ide += E | F
F ::= F + G | G
G ::= ide = G | H
H ::= -H | T
T ::= ide ++ | ide | ++ide | (E) | num
  
```

\*Assumiamo che lo scanner riconosca una sequenza di caratteri "++" come un unico simbolo e analogamente per la sequenza "+=".

L'espressione calcola 6 e assegna ad x il valore 4.



