

Given the following grammars:

- Calculate the FIRST and FOLLOW sets
- Construct the SLR parsing table.
- Generate the first 15 states of a LR(1) parser.

Exercise 1

$S ::= BB$
 $B ::= aB \mid b$

Exercise 2

$S ::= BA$
 $A ::= 0BA \mid \lambda$
 $B ::= DC$
 $C ::= 1DC \mid \lambda$
 $D ::= 3S4 \mid 2$

Exercise 3

$S ::= v < A$
 $A ::= DB$
 $B ::= CA \mid \lambda$
 $C ::= 2 \mid 4 \mid 5$
 $D ::= 3D \mid v \mid E$
 $E ::= 6F \mid 1F$
 $F ::= \mid 6F \mid 1F$

Exercise 4

$S ::= E \mid F$
 $E ::= 0E \mid 1$
 $F ::= 0F \mid 2$

Exercise 5

$S ::= AB$
 $A ::= a \mid b \mid d$
 $B ::= aB \mid c$

Exercise 6

$S ::= id = X$
 $X ::= X' X \mid X'$
 $X' ::= O \mid N \mid id$
 $N ::= (num , num)$
 $O ::= op X \mid fun (X)$

Exercise 7

$S ::= 1 A \mid 2 B \mid 3 C$
 $A ::= 2 B \mid 3 C \mid \lambda$
 $B ::= 1 A \mid 3 C \mid \lambda$
 $C ::= 1 A \mid 2 B \mid \lambda$