

**LPL grammar** (  $N^*$  denotes 0, 1 or more repetitions of  $N$  )

*Program*         $\rightarrow$  *FunDecl FunDecl\**  
*FunDecl*         $\rightarrow$  *id ( IdList ) { Stm\* }*  
*IdList*           $\rightarrow$  *id IdNext\**  
                   $\rightarrow$   
*IdNext*           $\rightarrow$  *, id*  
*Stm*              $\rightarrow$  *id = Exp ;*  
                   $\rightarrow$  **return** *Exp ;*  
                   $\rightarrow$  **if** ( *Exp* ) { *Stm\** } **else** { *Stm\** }  
                   $\rightarrow$  **printint** *Exp ;*  
                   $\rightarrow$  **printchar** *Exp ;*  
                   $\rightarrow$  *id ( ExpList ) ;*  
*Exp*              $\rightarrow$  *SimpleExp op SimpleExp*  
                   $\rightarrow$  *SimpleExp*  
*SimpleExp*        $\rightarrow$  *INTEGER\_LITERAL*  
                   $\rightarrow$  *id*  
                   $\rightarrow$  *id ( ExpList )*  
                   $\rightarrow$  ( *Exp* )  
*ExpList*         $\rightarrow$  *Exp ExpNext\**  
                   $\rightarrow$   
*ExpNext*         $\rightarrow$  *, Exp*

*op* is one of the following five binary operators: **< == + - \***

*id* is a sequence of letters, digits and underscores, starting with a letter.

*INTEGER\_LITERAL* is a non-empty sequence of decimal digits. [Note that this means that negative numbers are *not* integer literals.]

Comments: these can either be placed between */\** and *\*/* or make up the remainder of a line beginning with *//*