

SIMPLEC GRAMMAR

$prog \rightarrow func_block \$$
 $func_block \rightarrow \mathbf{data_type\ id\ \{ stmts \}}$
 $block \rightarrow \{ stmts \}$
 $stmts \rightarrow stmt\ stmts \mid e$
 $stmt \rightarrow \begin{array}{l} \mathbf{id = expr ;} \\ \mathbf{data_type\ id = expr ;} \\ \mathbf{if\ (relop_expr)\ block\ optional_tail} \\ \mathbf{while\ (relop_expr)\ block} \\ \mathbf{return\ 0 ;} \end{array}$
 $optional_tail \rightarrow \mathbf{else\ (relop_expr)\ block \mid e}$
 $expr \rightarrow term\ expr'$
 $expr' \rightarrow \mathbf{arithop\ term\ expr' \mid e}$
 $term \rightarrow factor\ term'$
 $term' \rightarrow \mathbf{arithop'\ factor\ term' \mid e}$
 $factor \rightarrow (expr) \mid \mathbf{id \mid num \mid ' letter '}$
 $relop_expr \rightarrow term\ relop_expr'$
 $relop_expr' \rightarrow \mathbf{relop\ term \mid e}$

$\mathbf{id} \rightarrow \mathbf{letter\ (letter \mid digit)^*}$
 $\mathbf{letter} \rightarrow \mathbf{a \mid b \mid c \mid \dots \mid z \mid A \mid B \mid C \mid \dots \mid Z}$
 $\mathbf{num} \rightarrow \mathbf{digits\ optional_fraction\ optional_exponent}$
 $\mathbf{digits} \rightarrow \mathbf{digit^+}$
 $\mathbf{digit} \rightarrow \mathbf{1 \mid 2 \mid 3 \mid \dots \mid 9}$
 $\mathbf{optional_fraction} \rightarrow \mathbf{(.\ digits)?}$
 $\mathbf{optional_exponent} \rightarrow \mathbf{(E\ (+ \mid -)? digits)?}$
 $\mathbf{if} \rightarrow \mathbf{if}$
 $\mathbf{elif} \rightarrow \mathbf{elif}$
 $\mathbf{else} \rightarrow \mathbf{else}$
 $\mathbf{while} \rightarrow \mathbf{while}$
 $\mathbf{data_type} \rightarrow \mathbf{int \mid float \mid char}$
 $\mathbf{arithop} \rightarrow \mathbf{+ \mid -}$
 $\mathbf{arithop'} \rightarrow \mathbf{* \mid /}$
 $\mathbf{relop} \rightarrow \mathbf{< \mid <= \mid == \mid >= \mid > \mid !=}$