prg	⇒	*header [function]* footer*
header	⇒	**\documenttype { *str* } { *str* }**
		\usepackage { *str* }
		\begin { document }
footer	⇒	**\end { document }**
function	⇒	**\begin { eqcode } { *id* }**
		{ *[idx [, idx]*]* **}**
		{ *[ext_type [, ext_type]*]* **} {** *ext_type* **}**
		instr_list
		\end { eqcode }
idx	⇒	***id** [upper] [lower]*
upper	⇒	**^ {** *[* **id** *[(* **+** *|* **-** *)* **num** *]* **}]**
lower	⇒	**_ {** *expr [, expr]** **}**
type	⇒	**\type { (Z | R | N | B) }**
ext_type	⇒	*type [* **^ { num }**
		[**_ { num** *[,* **num** *]** **}** *]]*
instr_list	⇒	*[instr* **\endl** *]**
instr	⇒	*definition*
	|	*declaration*
	|	*with_loop*
	|	*return*
definition	⇒	*[idx]+ expr*
boolop	⇒	**\land**
	|	**\lor**
	|	**\lnot**
	|	**\oplus**
binop	⇒	**+**
	|	**−**
	|	**\cdot**
	|	*divide*
	|	**\ll**
	|	**\gg**
	|	**\mod**
divide	⇒	**(** **\frac** **|** **\dfrac** **) {** *expr* **} {** *expr* **}**

$$
\begin{array}{lcl}
\textit{function\_call} & \Rightarrow & \textbf{\textbackslash CALL} \quad \{ \quad \textbf{\textit{id}} \quad \} \quad \{ \quad \textit{[idx [} \textbf{,} \textit{ id]}^* \textit{] } \quad \} \\[4pt]
\textit{sexpr} & \Rightarrow & (\textbf{ \textit{idx}} \quad | \quad \textbf{\textit{num}} \quad | \textit{ function\_call) [(binop } | \textit{ boolop)} \\
& & (\textbf{ \textit{idx}} \quad | \quad \textbf{\textit{num}} \quad | \textit{ function\_call)]}^* \\[4pt]
\textit{filter} & \Rightarrow & \textbf{\textbackslash filter} \quad \{ \quad \textbf{\textit{id}} \quad \hat{} \quad \{ \quad [\quad \textbf{\textit{id}} \quad] \quad \} \\
& & [\quad \textbf{,} \quad \textbf{\textit{id}} \quad \hat{} \quad \{ \quad [\quad \textbf{\textit{id}} \quad] \quad \} \textit{]}^* \\
& & | \quad \textit{extended\_condition } \} \\[4pt]
\textit{genarray} & \Rightarrow & \textbf{\textbackslash GenAr} \quad \textbf{\textbackslash limits} \quad \hat{} \quad \{ \textit{ expr } \} \quad (\textit{ sexpr }) \\[4pt]
\textit{vector} & \Rightarrow & \textbf{\textbackslash begin} \quad \{ \quad \textbf{tvector} \quad \} \\
& & \textit{[sexpr } \textbf{\textbackslash endl} \textit{]+} \\
& & \textbf{\textbackslash end} \quad \{ \quad \textbf{tvector} \quad \} \\[4pt]
\textit{matrix} & \Rightarrow & \textbf{\textbackslash begin} \quad \{ \quad \textbf{ttmatrix} \quad \} \quad \{ \quad \textit{[} \textbf{ c} \textit{]+} \quad \} \\
& & \textit{[sexpr [sexpr } \textbf{\&} \textit{]}^* \textbf{\textbackslash endl} \textit{]+} \\
& & \textbf{\textbackslash end} \quad \{ \quad \textbf{tmatrix} \quad \} \\[4pt]
\textit{expr} & \Rightarrow & \textit{sexpr} \\
& | & \textit{filter} \\
& | & \textit{genarray} \\
& | & \textit{vector} \\
& | & \textit{matrix} \\[4pt]
\textit{with\_loop} & \Rightarrow & \textit{with\_loop\_wbr} \\
& | & \textit{with\_loop\_wobr} \\[4pt]
\textit{with\_loop\_wbr} & \Rightarrow & \textit{idx} \quad | \quad \textit{extended\_condition} \quad \textbf{=} \\
& & \textbf{\textbackslash begin} \quad \{ \quad \textbf{cases} \quad \} \\
& & \textit{[expr } \textbf{\&} \textit{ extended\_condition]+} \\
& & \textit{[expr } \textbf{\&} \quad \textbf{\textbackslash otherwise} \textit{]+} \\
& & \textbf{\textbackslash end} \quad \{ \quad \textbf{cases} \quad \} \\[4pt]
\textit{with\_loop\_wobr} & \Rightarrow & \textit{idx} \quad | \quad \textit{extended\_condition} \quad \textbf{=} \quad \textit{expr} \\[4pt]
\textit{return} & \Rightarrow & \textbf{\textbackslash return} \quad \{ \textit{ expr } \}
\end{array}
$$