

<i>function</i>	\Rightarrow	$\backslash\text{begin} \left\{ \text{eqcode} \right\} \left\{ id \right\} \\ \left\{ [idx [, idx]^*] \right\} \\ \left\{ [ext_type [, ext_type]^*] \right\} \left\{ ext_type \right\} \\ instr_list \\ \backslash\text{end} \left\{ \text{eqcode} \right\}$
<i>idx</i>	\Rightarrow	$id [upper] [lower]$ num $divide$
<i>upper</i>	\Rightarrow	$\wedge \left\{ ([linear] linear) \right\}$
<i>linear</i>	\Rightarrow	$id [(+ -) num]$ num
<i>lower</i>	\Rightarrow	$- \left\{ sexpr [, sexpr]^* \right\}$
<i>type</i>	\Rightarrow	$\backslash\text{type} \left\{ (\mathbf{Z} \mathbf{R} \mathbf{N} \mathbf{B}) \right\}$
<i>ext_type</i>	\Rightarrow	$type [\wedge \left\{ sexpr \right\} \\ [- \left\{ sexpr [, sexpr]^* \right\}]]$
<i>instr_list</i>	\Rightarrow	$[instr \backslash\text{lend}]^*$
<i>instr</i>	\Rightarrow	$assign$ $declare$ $with_loop$ $return$
<i>assign</i>	\Rightarrow	$id \backslash\text{gets} expr$
<i>declare</i>	\Rightarrow	$id \backslash\text{in} ext_type$
<i>boolop</i>	\Rightarrow	$\backslash\text{land}$ $\backslash\text{lor}$ $\backslash\text{oplus}$
<i>binop</i>	\Rightarrow	$+$ $-$ $\backslash\text{cdot}$ $\backslash\text{ll}$ $\backslash\text{gg}$ $\backslash\text{mod}$
<i>divide</i>	\Rightarrow	$(\backslash\text{frac} \backslash\text{dfrac}) \left\{ expr \right\} \left\{ expr \right\}$
<i>function_call</i>	\Rightarrow	$\backslash\text{call} \left\{ id \right\} \left\{ [idx [, idx]^*] \right\}$

<i>sexpr</i>	\Rightarrow	$(\backslash \text{not} \mid -) (\textit{id} \mid \textit{function_call}) [(\textit{binop} \mid \textit{boolop})$ $(\textit{id} \mid \textit{function_call})]^*$ \mid (\textit{sexpr})
<i>filter</i>	\Rightarrow	$\backslash \text{filter} \{ \textit{id} \wedge \{ [\textit{id}] \} $ $[, \textit{id} \wedge \{ [\textit{id}] \}]^*$ $\mid \textit{generator} \}$
<i>genarray</i>	\Rightarrow	$\backslash \text{genar} \backslash \text{limits} \wedge \{ \textit{sexpr} \} (\textit{sexpr})$
<i>vector</i>	\Rightarrow	$\backslash \text{begin} \{ \textit{tvector} \}$ $[\textit{sexpr} \backslash \text{lend}]^+$ $\backslash \text{end} \{ \textit{tvector} \}$
<i>matrix</i>	\Rightarrow	$\backslash \text{begin} \{ \textit{tmatrix} \} \{ \textit{id} \}$ $[\textit{sexpr} [\& \textit{sexpr}]^* \backslash \text{lend}]^+$ $\backslash \text{end} \{ \textit{tmatrix} \}$
<i>expr</i>	\Rightarrow	<i>sexpr</i> \mid <i>filter</i> \mid <i>genarray</i> \mid <i>vector</i> \mid <i>matrix</i>
<i>with_loop</i>	\Rightarrow	$\textit{id} \mid \textit{generator} \backslash \text{gets} (\textit{expr} \mid \textit{with_loop_cases})$
<i>with_loop_cases</i>	\Rightarrow	$\backslash \text{begin} \{ \textit{cases} \}$ $[\textit{expr} \& \textit{generator}]^+$ $[\textit{expr} \& \backslash \text{otherwise}]^+$ $\backslash \text{end} \{ \textit{cases} \}$
<i>return</i>	\Rightarrow	$\backslash \text{return} \{ \textit{expr} \}$
<i>generator</i>	\Rightarrow	$\backslash \text{forall} \textit{id} [, \textit{id}]^*$ \mid $\textit{id} [, \textit{id}]^* : \textit{sexpr} [\textit{comp} \textit{sexpr}]^+$ $[\textit{set_op} \textit{sexpr} [\textit{comp} \textit{sexpr}]^+]^*$
<i>comp</i>	\Rightarrow	$<$ \mid $>$ \mid $\backslash \text{leq}$ \mid $\backslash \text{geq}$ \mid $[\backslash \text{not}] =$
<i>set_op</i>	\Rightarrow	$(\backslash \text{land} \mid \backslash \text{lor})$