

- **Gramática AVI LL1**

- $S = \text{funDec Type FunName } [' \text{ Params } ']' \text{ Body } S$
- $S = \text{Decl } S$
- $S = \varepsilon$

- **Function Declaration**

- $\text{FunName} = \text{'id'}$
- $\text{FunName} = \text{'main'}$
- $\text{Params} = \text{Type 'id' ArrayOpt Paramsr}$
- $\text{Params} = \varepsilon$
- $\text{Paramsr} = \text{' , ' Type 'id' ArrayOpt Paramsr}$
- $\text{Paramsr} = \varepsilon$
- $\text{FunCall} = \text{' [' Lec '] ' ; '}$
- $\text{Return} = \text{' return ' Ec ' ; '}$

- **Variable Declaration**

- $\text{Decl} = \text{Type LI}$
- $\text{LI} = \text{'id' ArrayOpt Inst}$
- $\text{Llr Llr} = \text{' , ' 'id' ArrayOpt Inst Llr}$
- $\text{Llr} = \text{' ; '}$

- **Instantiating Variables:**

- $\text{Inst} = \text{'atrib' Inr}$
- $\text{Inst} = \varepsilon$
- $\text{Inr} = \text{ArrayOpt}$
- $\text{Inr} = \text{Fc}$

- **Id**

- $\text{Id} = \text{'id' ldr}$
- $\text{ldr} = \text{ArrayOpt}$
- $\text{ldr} = \text{FunCall}$

- **Array**

- $\text{ArrayOpt} = \text{' (' ArrayAccess}$

- $\text{ArrayOpt} = \varepsilon$
- $\text{ArrayAccess} = \text{'}'$
- $\text{ArrayAccess} = \text{'intConst' '}'$

- **Variable Type**

- $\text{Type} = \text{'intType'}$
- $\text{Type} = \text{'floatType'}$
- $\text{Type} = \text{'boolType'}$
- $\text{Type} = \text{'stringType'}$
- $\text{Type} = \text{'reVoid'}$

- **Commands**

- $\text{Command} = \text{'reFor' '[' Atr ';' Eb ';' Inc']' Body}$
- $\text{Command} = \text{'reWhile' '[' Eb ']' Body}$
- $\text{Command} = \text{'reIf' '[' Eb ']' Body lfr}$
- $\text{lfr} = \text{'reElseIf' '[' Eb ']' Body lfr}$
- $\text{lfr} = \text{'reElse' Body}$
- $\text{lfr} = \varepsilon$
- $\text{Inc} = \text{'constInt'}$
- $\text{Inc} = \text{'id'}$

- **Id List**

- $\text{IdL} = \text{'id' ArrayAccess IdLr}$
- $\text{IdLr} = \text{' , 'id' ArrayAccess IdLr}$
- $\text{IdLr} = \varepsilon$

- **Body**

- $\text{Body} = \text{'{' BodyScope '}'}$
- $\text{BodyScope} = \text{Decl BodyScope}$
- $\text{BodyScope} = \text{Atr ';' BodyScope}$
- $\text{BodyScope} = \text{Command BodyScope}$
- $\text{BodyScope} = \text{Return Atr ';'}$
- $\text{BodyScope} = \varepsilon$

- **List of Expressions**

- $Lec = Fc\ Lecr$
- $Lec = \varepsilon$
- $Lecr = ', ' Ec\ Lecr$

- **Expression**

- $Atr = 'id' AtrR$
- $atrR = 'decreOp' ', '$
- $atrR = 'increOp' ', '$
- $AtrR = ArrayOpt\ 'atrib' Fc\ ', '$
- $AtrR = FunCall$
- $Fc = 'StringConst'$
- $Fc = Eb$
- $Eb = Tb\ Ebr$
- $Ebr = 'orOpLog' Tb\ Ebr\ //\ or$
- $Ebr = \varepsilon$
- $Tb = Fb\ Tbr$
- $Tbr = 'andOpLog' Fb\ Tbr\ //\ and$
- $Tbr = \varepsilon$
- $Fb = 'negOp' Fb\ //\ not$
- $Fb = 'boolConst'$
- $Fb = Ra$
- $Fbr\ Fbr = Comp\ Ra\ Fbr\ //\ low/great/eq$
- $Fbr = \varepsilon$
- $Ra = Ea\ Rar$
- $Rar = 'eqRI' Ea\ Rar\ //\ equal$
- $Rar = 'notEqRel' 'Ea\ Rar\ //\ not\ equal$
- $Rar = \varepsilon$
- $Ea = Ta\ Ear$
- $Ear = 'addOp' Ta\ Ear$
- $Ear = 'subOp' Ta\ Ear'$
- $Ear = \varepsilon$
- $Ta = Fa\ Tar$
- $Tar = 'divOp' Fa\ Tar$

- $\text{Tar} = \text{'multOp' Fa Tar}$
- $\text{Tar} = \varepsilon \text{ Fa} = \text{'(' Eb ')}$
- $\text{Fa} = \text{'subOp' Far}$
- $\text{Fa} = \text{Far}$
- $\text{Far} = \text{'Id'}$
- $\text{Far} = \text{'intConst'}$
- $\text{Far} = \text{'floatConst'}$
- $\text{Far} = \varepsilon$

- $\text{Comp} = \text{'greRel'}$
- $\text{Comp} = \text{'lowRel'}$
- $\text{Comp} = \text{'greEqRel'}$
- $\text{Comp} = \text{'lowEqRel'}$