## Attribute Grammar

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| **Nodo** | **Predicados** | **Reglas Semánticas** |
| **program** → *definitions*:definitions\* |  |  |
| **DefinitionVariable:**definitions  →  *name*:String *type*:type | variables.buscaActual(name) == null | variables[name] = DefinitionVariable |
| **DefinitionStruct:**definitions  →  *name*:String *body*:definitions\* | struct[name] ==null | Structs[name] = DefinitionStruct  {  Variables.set()  Visit(body)  Variables.reset()  } |
| **DefinitionFuncion:**definitions  →  *name*:String type:type *param:*definitions\* *definitions:* definitions\* *body*:sentence\* | Funciones[name] ==null | Funciones[name] = DefinitionFuncion  {  Variables.set()  Visit(definitions)  Visit(body)  Variables.reset()  } |
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| **TypeArray**:type → dimension:String type:type |  |  |
| **TypeStruct**:type → name:String | structs[name]!=null | TypeStruct.definicion = structs[name] |
| **TypeInt**:type → λ |  |  |
| **TypeChar**:type → λ |  |  |
| **TypeReal**:type → λ |  |  |
|  |  |  |
| **SentencePrint**:sentence → expr: expression accion:String |  |  |
| **SentenceRead**:sentence →  expression |  |  |
| **SentenceAssignment**:sentence → left: expression right: expression |  |  |
| **SentenceIf**:sentence → condition:expression trueCon:sentence\* falseCon:sentence\* |  |  |
| **SentenceWhile**:sentence →  condition:expression trueCon:sentence\* |  |  |
| **SentenceFunctionCall**:sentence →  *name*:String *param:*expression\* | funciones[name]!=null | SentenceFunctionCall.definicion = funciones[name] |
| **SentenceReturn**:sentence → expression |  |  |
|  |  |  |
| **ExpressionIntCte**:expression → value:String |  |  |
| **ExpressionRealCte**:expression → value:String |  |  |
| **ExpressionCharCte**:expression → value:String |  |  |
| **ExpressionVariable**:expression → value:String | variables.busca(name)!=null | ExpressionVariable.definicion = variables.busca(name) |
| **ExpressionArithmetic**:expression → left:expression op:String right:expression |  |  |
| **ExpressionComparision**:expression → left:expression op:String right:expression |  |  |
| **ExpressionOperator**:expression → left:expression op:String right:expression |  |  |
| **ExpressionNegative**:expression → expression |  |  |
| **ExpressionMinus**:expression → expression |  |  |
| **ExpressionCast**:expression → castTo:type castFrom:expression |  |  |
| **ExpressionElements**:expression → left: expression right: expression |  |  |
| **ExpressionArray**:expression → left: expression right:expression |  |  |
| **ExpressionFunctionCall**:expression → *name*:String *param:* expression\* | funciones[name]!=null | ExpressionFunctionCall.definicion = funciones[name] |

### Atributos

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| --- | --- | --- | --- | --- |
| **Categoría Sintáctica** | **Nombre del atributo** | **Tipo Java** | **Heredado/Sintetizado** | **Descripción** |
| ExpressionVariable | definicion | DefinitionVariable | Sintetizado | Nodo donde está definida la variable |
| ExpressionFunctionCall | definicion | DefinitionFunction | Sintetizado | Nodo donde está definida la variable |
| SentenceFuncionCall | definicion | DefinitionFunction | Sintetizado | Nodo donde está definida la variable |
| TypeStruct | defnicion | DefinitionStruct | Sintetizado | Nodo donde está definida la variable |

#### Conjuntos Auxiliares

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| --- | --- |
| ***Funciones*** | Map<String, DefinitionFunction> |
| ***Structs*** | Map<String, DefinitionStruct> |
| ***Variables*** | Stack<Map<String, DefinitionVariable>> |

