```
S                = 'typeInt' SR
                 | NotIntType Decl S
                 | 'typeVoid' 'identifier' DeclFun S
                 | EPSILON

SR               =  'fnDecl' SAux
                 | TypeArrOpt 'fnDecl' 'identifier' DeclFun S
                 | 'identifier' DeclVar S

SAux             = 'main' Main
                 | 'identifier' DeclFun S

Main             = '(' ')' Body

Body             = '{' Content '}'

Content          = Command Content
                 | VarType 'identifier' DeclVar Content
                 | 'identifier' Content'
                 | 'fnRtn' Rtn ';'
                 | EPSILON

Content'         = '(' ParamsCall ')' ';' Content
                 | LAttr ';' Content

Command          = 'cmdIf' '(' Eb ')' Body LElsif CmdElse
                 | 'cmdWhile' '(' Eb ')' Body
                 | 'cmdFor' 'identifier' '=' '(' Ea ',' Ea ',' Ea ')' Body
                 | 'fnRead' '(' LIdentifier ')' ';'
                 | 'fnWrite' '(' 'stringVal' PrintParams ')' ';'

LElsif            = 'cmdElsif' '(' Eb ')' Body LElsif
                 | EPSILON

CmdElse          = 'cmdElse' Body
                 | EPSILON

LIdentifier      = 'identifier' LIdentifier'
                 | EPSILON

LIdentifier'     = ',' 'identifier' LIdentifier'
                 | EPSILON

PrintParams      = ',' Eb PrintParams
                 | EPSILON

VarType          = 'typeInt'
                 | 'typeFloat'
                 | 'typeString'
                 | 'typeChar'
                 | 'typeBool'
```

```
DeclVar          = LVar ';'

LVar             = Var' LVar'
                 | EPSILON

LVar'            = ',' Var LVar'
                 | EPSILON

Var              = 'identifier' Var'

Var'             = '=' Ec
                 | ArrOpt

ParamsCall       = Ec ParamsCall'
                 | EPSILON

ParamsCall'      = ',' Ec ParamsCall'
                 | EPSILON

LAttr            =  '=' Ec LAttr'
                 |  '[' Ea ']' '=' Ec LAttr'

LAttr'           = ',' LAttr''
                 | EPSILON

LAttr''          = 'identifier' '=' Ec LAttr'
                 | '[' Ea ']' '=' Ec LAttr'

Rtn              = Ec
                 | EPSILON

DeclFun          = '(' Params ')' Body

Params           = VarType 'identifier' ArrOpt Paramsx
                 | EPSILON

Paramsx          = ',' VarType 'identifier' ArrOpt Paramsx
                 | EPSILON

ArrOpt           = '[' ArrSize ']'
                 | EPSILON

ArrSize     = 'identifier'
                 | 'intVal'

TypeArrOpt       = '[' ']'
                 | EPSILON

NotIntType       = 'typeFloat'
                 | 'typeString'
                 | 'typeChar'
                 | 'typeBool'

Decl             = TypeArrOpt Declx
```

```
Declx           = 'fnDecl' 'identifier' DeclFun
                | 'identifier' DeclVar

Ec              = Eb Ec'

Ec'             = 'opConcat' Eb Ec'
                | EPSILON

Eb              = Tb Eb'

Eb'             = 'opOr' Tb Eb'
                | EPSILON

Tb              = Fb Tb'

Tb'             = 'opAnd' Fb Tb'
                | EPSILON

Fb              = 'opNot' Fb
                | Ra Fb'

Fb'             = 'opGtrThan' Fb Fb'
                | 'opLessThan' Fb Fb'
                | 'opGtrEqual' Fb Fb'
                | 'opLessEq' Fb Fb'
                | EPSILON

Ra              = Ea Ra'

Ra'             = 'opEqual' Ea Ra'
                | 'opNotEqual' Ea Ra'
                | EPSILON

Ea              = Ta Ea'

Ea'             = 'opAdd' Ta Ea'
                | 'opSub' Ta Ea'
                | EPSILON

Ta              = Fa Ta'

Ta'             = 'opMult' Fa Ta'
                | 'opDiv' Fa Ta'
                | 'opMod' Fa Ta'
                | EPSILON

Fa              = '(' Ec ')'
                | 'opSub' Fa
                | VarOrFn
                | 'intVal'
                | 'floatVal'
                | 'stringVal'
                | 'charVal'
```

```
                        | 'boolVal'


VarOrFn        = 'identifier' VarOrFn'

VarOrFn'       = '[' Ea ']'
                 | '(' ParamsCall ')'
                 | EPSILON
```