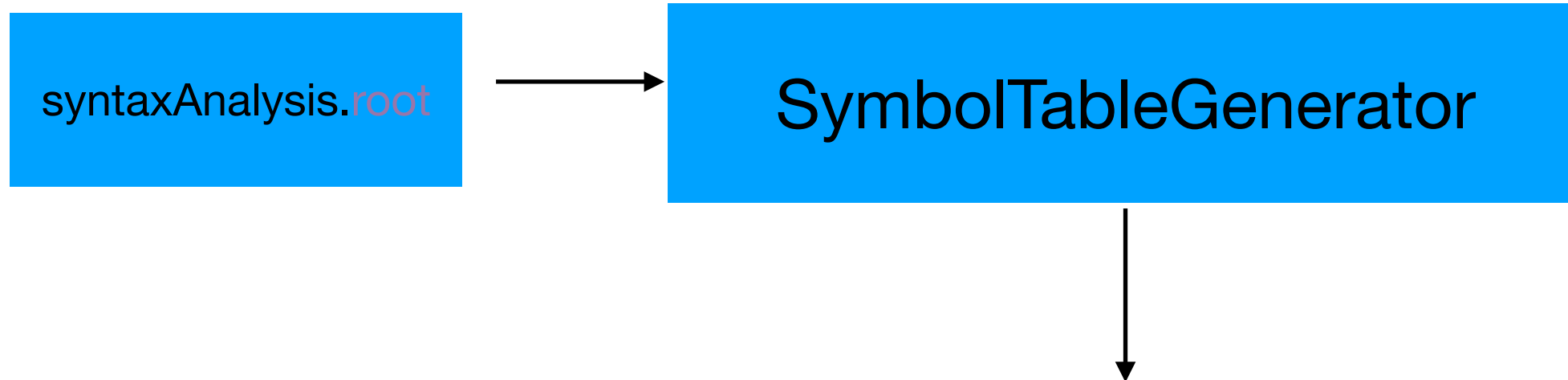# Semantic Analysis

Compiler Design (COMP 442/6421)
Assignment 4

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List of semantic rules implemented

```
Undeclared free function: at line 122
Undeclared local variable: at line 121
Undeclared local variable: at line 120
Undeclared free function: at line 119
Undeclared free function: at line 118
Undeclared local variable: at line 117
Undeclared free function: at line 116
Undeclared local variable: at line 115
Undeclared local variable: at line 113
Undeclared local variable: at line 112
```

Design

syntaxAnalysis.root → SymbolTableGenerator

structDecl - Table{content=[SymbolEntry{NodeType='Function', Name='evaluate', ParameterName='x', ParameterType='float', ReturnType='float', VariableName='null', VariableType='null', VarVisibility='null', NodeVisibility='public', Inherits='null', ParentClass='POLYNOMIAL'}, SymbolEntry{NodeType='Function', Name='evaluate', ParameterName='x', ParameterType='float', ReturnType='float', VariableName='null', VariableType='null', VarVisibility='null', NodeVisibility='public', Inherits='null', ParentClass='POLYNOMIAL'}]}

Design

```
|   |   |   |   |   |   | num - null
|   |   |   |   |   |   num - null
|   |   |   |   |   type - null
|   |   |   |   |   id - null
|   |   |   id - null
|   |   funcDef - Table{content=[SymbolEntry{NodeType='Function', Name='f', ParameterName='j', ParameterType='integer', ReturnType='integer'
|   |   |   statementBlock - null
|   |   |   type - null
|   |   |   fparamList - null
|   |   |   |   fparam - null
|   |   |   |   |   dimList - null
|   |   |   |   |   type - null
|   |   |   |   |   id - null
|   |   |   |   fparam - null
|   |   |   |   |   dimList - null
|   |   |   |   |   type - null
|   |   |   |   |   id - null
|   |   |   id - null
|   |   funcDef - Table{content=[SymbolEntry{NodeType='Function', Name='f', ParameterName='i', ParameterType='integer', ReturnType='void', V
|   |   |   statementBlock - null
|   |   |   type - null
|   |   |   fparamList - null
```

Design

```
| table: global
====================================================================================
| function  | main     | (): void
|     ===========================================================================
|     | table: main
|     ===========================================================================
|     | local        | j        | integer[][][]
|     | local        | i        | integer[][]
|     | local        | counter      | float
|     | local        | counter      | integer
|     | local        | f2       | QUADRATIC
|     | local        | f1       | LINEAR
|     | local        | c        | C
|     | local        | a        | a
====================================================================================
| function   | f3| (integer[][] ,): integer
|     ===========================================================================
|     | table: f3
|     ===========================================================================
====================================================================================
| function   | f| (integer, integer,): integer
|     ===========================================================================
|     | table: f
|     ===========================================================================
====================================================================================
| function   | f| (integer,): void
|     ===========================================================================
|     | table: f
|     ===========================================================================
====================================================================================
```

Use Of Tools

No use of 3rd party tools for this assignment.