The FORCE Top-level Design Proposal

Presented by Keith Dreibelbis

March 1, 1999

ProgramFile

- Think of this as the C file, split up into declaration sections
- includes - IncludeManager (tied to library functions)
- Global variable declarations - VarScope
- Global function prototypes, followed by definitions - FuncManager
- main() is just a special type of function

IncludeManager

- Makes sure that files and flags are only included once
- during code-building phase, handles output of includes and compiler flags
- communicates with FuncManager to keep track of when functions are used or unused

VarScope

- represents the list of variables in a scope
- can be used to represent local, global, parameters
- a variable is a name/type pair, indexed by name

Function Library

- a.k.a. the library function selector
- summary: allow user to select a function from the ones available
- could have a simple implementation first (e.g. text field where function is just named, or one big list) to get it working

Library Functions

- name
- parameters, return types: used to make plugs
- description (aesthetic)
- how to output itself
  - if it's a user func, use the LayoutGraph's self-output ability
  - if a code func, just output the user code
  - if a library func, need to talk to the IncludeManager

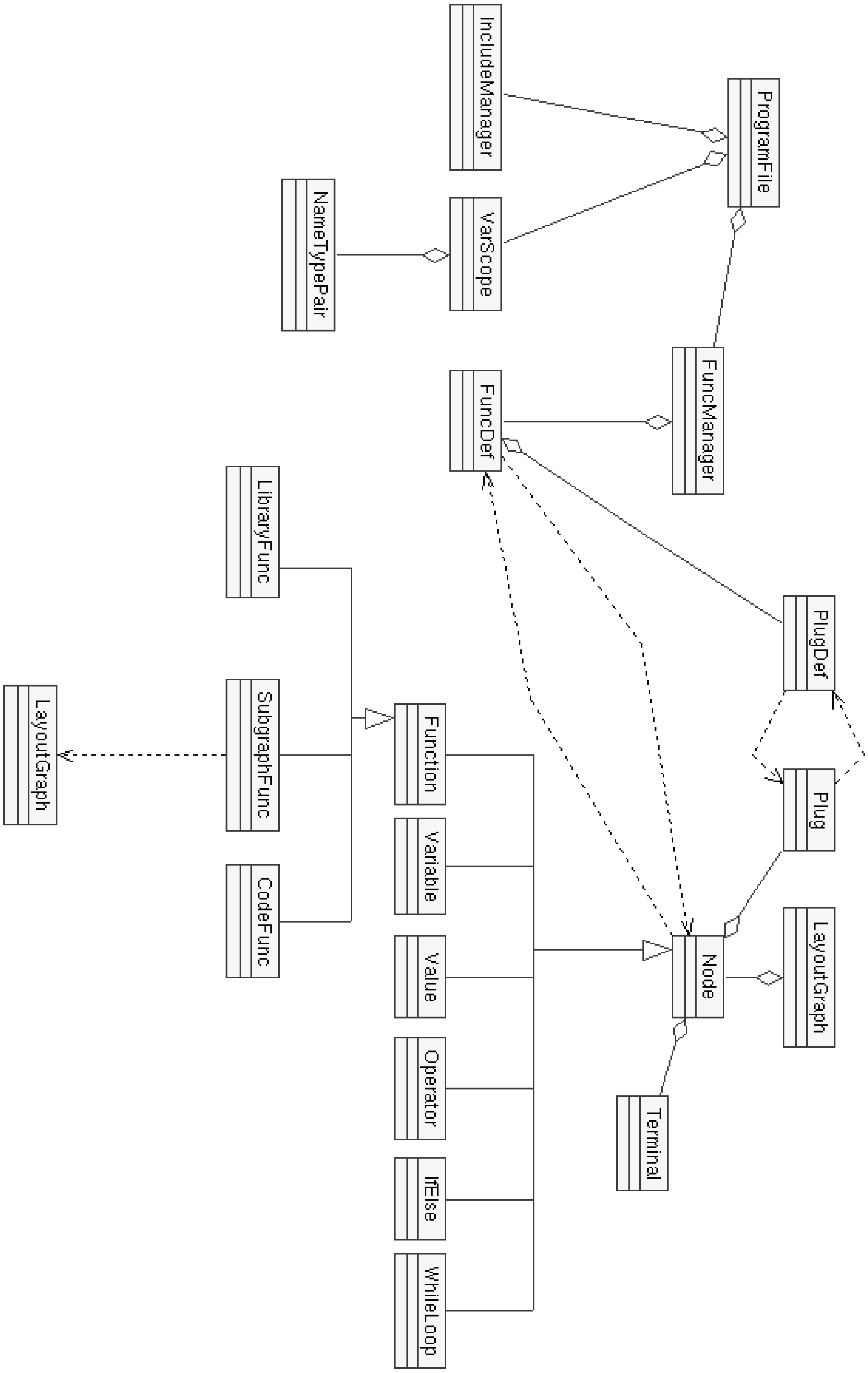
How is main Different from a Subgraph Function?

- parameter types, return types are fixed
- main is always the *last* function to output itself - this is a ProgramFile issue
- main cannot be placed as a function node on a LayoutGraph

How are parameters different from local variable declarations?

- each parameter must have an associated plug in the layout graph

- parameters have an explicit order, while variable declaration order can be switched around (in C anyways). for simplicity, maybe variable declaration could have explicit order, too.


IncludeManager
ProgramFile
NameTypePair
VarScope
FuncDef
FuncManager
LibraryFunc
PlugDef
LayoutGraph
SubgraphFunc
Function
Plug
Variable
CodeFunc
Node
LayoutGraph
Value
Operator
Terminal
IfElse
WhileLoop