flo

A VISUAL, PURELY FUNCTIONAL PROGRAMMING LANGUAGE

ELLIOTT LAWRENCE

Overview

- Syntax and semantics similar to Haskell

- Visual editor similar to Apple's Quartz Composer

- Features
  - Higher-order functions
  - Parametric polymorphism
  - Algebraic data types
  - Lazy evaluation

- Project goals
  - Design the language
  - Create the visual editor
  - Create the compiler

Language Syntax and Features

- Boxes

- Inputs and Outputs

- Cables

- Box Definitions

- Modules

- Local Definitions

- Types

- Data Constructors

- Literals

- Boxed and Unboxed Values

- Primitive Functions

- Case Expressions

Editor Implementation

- Written in Java

- Standard Widget Toolkit (SWT)

- MVC pattern

- FloGraph class

- Canvas

The Compiler

- Written in Haskell

- Two alternatives:

  - Compile to Haskell

  - Compile to C

Compilation Steps

- .flo File

- FloGraph

- FloProgram

- HaskellProgram

- Type Checking

- STG

- AbstractC

Thank you!