IB Extended Essay

Computer Science HL:

An Implementation of Scheme Interpreter (R^5RS^*)

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*Revised^5 Report on the Algorithmic Language Scheme

Abstract

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The main theme of this essay was the practice of compiler theories and lisp functional programming study. The essay records my journal about how I implemented a Scheme programming language interpreter in Ruby[1].

I tried to program the project with two times of reconstructions before the final version is done.

[1] Ruby programming language, http://ruby-lang.org

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The final work of the project consists an untested pre-complete Scheme interpreter with the following features:

- Basic types & literals: boolean, character, string, symbol, cons, vector, procedure, macro
- User defined closures
- User defined macros, both Scheme & Common Lisp styled, optionally unhygienic
- R^5RS standard library functions

Currently the following R^5RS features aren't implemented:

- Input/output ports
- Continuations
- Tail recursion optimization

The project is open-sourced under *The MIT License*, and the source code is hosted on github: https://github.com/shouya/revo

Hello, this is a test.

And test for math formula:

$$\int_0^1 f(t)e^{-2i\pi kt}$$

And inlines: $\phi = \frac{\sqrt{5}\pm 1}{2}$

Test foot[2]note.

underline is good, either *itatlic* and *emphasis*.

try `verb`texts

done.

[2]this is a footnote.