Exteneded Essay Outline

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

- Abstract

- Introduction

- Specification
    - Lisp specification
    - Scheme(R^5RS) specification

- From source codes to a syntax tree
    - Lexical scanner(lex)
        * Independent scanner module
    - Syntax parser(with racc)

- Basic data types
    - Primitive types
        * Strings
        * Characters
        * Numbers(integer, fraction, float, complex)
        * Symbols(aka. Identifier)
        * Vectors
    - Cons
    - Callable objects
        * Primitive procedures
        * Primitive macros
        * Closures(aka. Lambdas)
        * Currys

- Dynamic closures
- Promises

- Runtime
  - Scope model
    * Name searching
    * Handling with free variables
    * Handling with bound variables
    * Aliases support
  - User scope stack
  - Global scope

- Primitive procedures(aka. Standard library)
  - Implements in Ruby
  - Implements in Scheme

- Specials
  - Tail-recursion detection and optimization
  - Lazy-evaluation
  - Currying
  - Unhygienic macro