

HW3 discussion

General discussion

The C code for the HW3 solution is an extension of the HW2 code. See the HW2 discussion for details glossed over here. The HW3 code has been re-organized in several important ways:

- 1) It is set up to be compiled with ‘make’; there is now a Makefile.
- 2) Each file is split into a .h and a .c file. The .h file contains the “public” definitions from the corresponding .c file.
- 3) The input code now reads character-by-character. This makes it easier to handle multi-line strings and multi-line closures.
- 4) An added feature (not required by the HW3 spec) is the use of a “repl+” prompt when a multi-line string or closure is being entered interactively.

hw3.c

Contains the main function. The main function starts the interactive *read-eval-print* loop.

defs.h

Contains forward declarations of all the structs used in more than one file, and all necessary #include’s. For each pair of .h/.c file, the .c file #include’s the corresponding .h file, and the .h file #include’s “defs.h”.

REPL.h / REPL.c

Contains the major components of the *read-eval-print* loop, including parse, eval, nextToken and repl, as well as functions that apply the basic operators of our language.

Primitives.h / Primitives.c

Defines the functions that actually implement the basic operators of our language.

Expr.h / Expr.c

The expressions of our language.

ExprList.h / ExprList.c

A typed linked list of Expr. Used to represent the stack and also the body of a closure.

Bind.h / Bind.c

A name-value binding.

BindList.h / BindList.c

A typed linked list of Bind. Used to represent a single environment.

BindListList.h / BindListList.c

A typed linked list of BindList. A list of environments.