

CS450: Structure of Higher Level Languages

Fall 2020 Assignment 7, Part 2

Due: Sat, December 5 on Gradescope

Taken from assignments by Profs. Carl Offner and Ethan Bolker

Continuation

s450 has two flaws, each of which represents a failure to deal cleanly with abnormal control flow:

- There is no good way to leave s450. The exit special form Prof. Offner defined and used for testing hw6 uses the Scheme break, and so delivers an ugly reset message.
- There is no way to signal an error in s450 and return to the s450 prompt. Mistakes just crash the s450 virtual machine.

Repair those flaws now, using continuations to implement `(exit)` and `(s450error args)`. While you're at it, see if you can have `<EOF>` at the s450 prompt return the user to the Scheme virtual machine. (**Be careful:** I don't mean the string "EOF". I mean what you get when you come to the end of a file. See the entry under `eof-object?` in R5RS.)

One important implementation detail: don't put a call to `call/cc` at the outermost scope. In other words, always bury it inside the body of some procedure. The reason for this is that we really don't have any control over what the Scheme interpreter is doing at the outermost scope, and different versions of Scheme will act differently. I don't think this is a bug. If you look at the examples of this mechanism in R5RS, you will see that all of them are inside a procedure body. And again, I suggest very strongly that you use the handout `save_continuation.scm` as a model for your code.