CS 565 Out: September 20, 1996
Jens Palsberg Due: September 25, 1996

Homework 4, Extra Credit:

Optional and Keyword Parameters

For this problem you must extend the interpreter that solves the regular part of Homework 4. Submit only the extended interpreter.

1. Read *EOPL* Section 6.6 and do Exercises 6.6.1 and 6.6.3 in *EOPL* to create an interpreter that supports optional and keyword parameters. To stay consistent with the syntax we have used, use the following syntax in place of the book's:

⟨formal-parameter-list⟩::= `(` ⟨identifier⟩* ⟨key-decl⟩* `)`
⟨operand⟩ ::= ⟨key-decl⟩ | ⟨expression⟩
⟨key-decl⟩ ::= `:` ⟨identifier⟩ `=` ⟨expression⟩

The intent is that the ordinary actuals are associated with the ordinary formals by position; the remaining actuals (which are introduced by keywords) are bound to the corresponding formals by keyword; and any remaining formals are bound by their default expressions.

We can now write

```
let p = proc (x y :a = 3 :b = 4)
          begin print x; print y; print a; print b; end
    in begin (p 1 2); (p 1 2 :a = 5);
             (p 1 2 :b = 6); (p 1 2 :b = 6 :a = 5);
             99;
       end
```

which would print `1 2 3 4 1 2 5 4 1 2 3 6 1 2 5 6 99` (the 99 is the value of the expression).