```
nick@locutus] gcl
GCL (GNU Common Lisp)  Version(2.4.0) Tue Apr 30 13:15:51 ADT 2002
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Contains Enhancements by W. Schelter

>(defun fibonacci (i)
  (cond ((zerop i) 1)
        ((equal i 1) 1)
        (t (+ (fibonacci (1- (1- i)))
              (fibonacci (1- i))))))
FIBONACCI

>(fibonacci 3)
3
>(fibonacci 5)
8
>(fibonacci 8)
34

>;double recursion — potentially combinatorially explosive
>(defun deepreplaceatoms (at1 at2 l)
  (cond ((null l) nil)
        ((eq l at1) at2)
        ((atom l) l)
        (t (cons (deepreplaceatoms at1 at2 (car l))
                 (deepreplaceatoms at1 at2 (cdr l))))))
DEEPREPLACEATOMS

>(deepreplaceatoms 'a 'b '(a (a b)))
 (B (B B))

>:double and mutual recursion
>(defun deepreplace (el1 el2 l)
  (cond ((null l) nil)
        (t (cons (deepreplace1 el1 el2 (car l))
                 (deepreplace el1 el2 (cdr l))))))
DEEPREPLACE

>(defun deepreplace1 (el1 el2 l)
  (cond ((equal el1 l) el2)
        ((atom l) l)
        (t (deepreplace el1 el2 l))))
DEEPREPLACE1

>(deepreplace '(a) 'b '(x (a)))
(X B)
```