About those quotes…

Question: Why do we say the value of `(REST '(C A B))` is `(A B)` ?
Why don't we say it is `'(A B)` ?

Answer: `(A B)` is the value and `'(A B)` is an expression that has the value,
just as `5` is a value and `(+ 2 3)` is an expression that has the value.

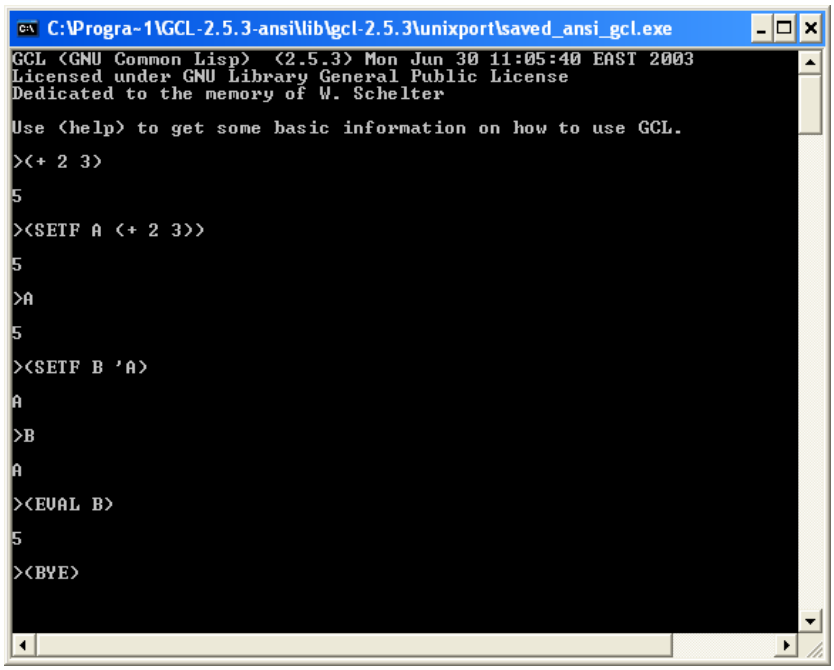
Another ex.: When we evaluate `(FIRST (REST '(A B)))`, here's what happens:

(1) `FIRST` is a function, so it evaluates its argument `(REST '(A B))`.
(2) `REST` is a function, so it evaluates its argument `'(A B)`.
(3) The value of `'(A B)` is `(A B)`.
(4) `REST` operates on `(A B)` to give `(B)`.
(5) `FIRST` operates on `(B)` to give `B`.

The quote is used to block evaluation at a specific place
(so that we won't try to call a function named `A`).
It is not part of the value itself.

A sample session with Gnu Common Lisp

(free software for Windows, also available on the PCs in the AI Lab, Room 111, Grad. Studies; *you need an account* in order to use these PCs; see also course syllabus).



When you get an error, the prompt will change to
`dbl>>`
or the like, which means you are in the debugger. To get back to the original prompt, type:
`:q`
which means "quit the debugger."

NOTE: As presently installed, the help system does not work.

Defining your own functions

`(defun` *`name`* `(`*`sym1 sym2…`*`)` *`expression expression expression expression…`*`)`

Evaluating a `(defun …)` expression causes the symbol *`name`* to become the name of a function which is computed as follows:

(1) Symbols *`sym1 sym2`* etc. are used as local variables for the arguments of the function.
(2) All of the expressions are evaluated, in order. (There is often only one.)
(3) The value of the function is the value of the last expression evaluated.

The `(defun …)` expression itself has a value, which is the name of the function.

Examples:

```
> (defun double (x) (* 2 x))
DOUBLE
> (double 3)
6

> (defun second-element (x) (first (rest x)))
SECOND-ELEMENT
> (second-element '(alpha beta gamma))
BETA
```

Storing function definitions in files

It is helpful to store function definitions in a text file. The function

`(load "filename")` (with backslashes written TWICE)

reads the file and evaluates all the expressions in it, but does not print their values.

Example:

```
(load "c:\\temp\\test.lisp")
```

reads file c:\temp\test.lisp.