

Lisp Lab 1

Introduction to Lisp at UNT

Fall 2008

This lab will teach you to:

1. Sign on to lisp
2. Execute functions within LISP
3. Load and execute functions that were created using a text editor
4. Save the output of your functions to a file that can be handed in. (also called a dribble file).

A. Starting lisp

There is a Lisp on the CSP machines. You will need to know your *csp* account to access this lisp.

After you login to the CSP machine, you can access the lisp by typing:

clisp

You will automatically be in the interpreter and you can start writing lisp functions.

*NOTE: Whenever you make a mistake, you are IMMEDIATELY dropped into the debugger....To get back to the top level, just hit the control key and D....This gets you back....To get out of lisp type:

(exit)

B. Creating a “dribble” file:

I will often ask you to create functions, run them, and hand in a file which shows the output of your functions. In lisp, this is called a ‘dribble’ file.

IN LISP – you create a dribble file, by typing:

(dribble “<file-name>”)

At this point forward, everything that you do in the lisp interpreter is sent to the file named after the dribble function.

C. Executing lisp functions:

Try executing a few lisp functions to see what they do. Since you typed (dribble “filename”) the information will be automatically sent to your dribble file.

- a. (expt 10 3)
- b. (first '(a b c))

- c. (rest '(a b c))
- d. 64
- e. (cons 'a '())
- f. a
- g. (setq a '(b c))
- h. a

D. Get out of LISP (either hit control D until you're out, or type **(exit)**). **Go to your favorite editor and open your dribble file. It should contain everything that you just typed. Don't worry if it contains your mistakes.**

E. Go back to Lisp and try writing the following functions:

- a. $23 * 2$
- b. $45/9 - 3$
- c. $50 - 10 - 20$
- d. 1.0/2.0
- e. (setq law1 '((a robot) may not (injure a (human) being) (((or))) (through inaction) allow a (human being) (((to) come) to) harm))

Give me the series of *first* and *rests* that retrieve the following

(a robot)	may
not	(injure a (human) being)
(human)	harm

Since you did NOT open a dribble file, these functions are NOT sent to your file.

F. The following exercises will require that you actually go and use an editor to write lisp functions and then load your functions into the LISP interpreter.

- **Go to your favorite editor (make sure it produces a text file). Start with this function.**
- **Write a function called *sub2* that subtracts 2 from a number that is input into the function. For example (*sub2 10*) would return 8.**
- **Call the file "lab1exercise"**

- **Got back into lisp**
- Loading functions into Lisp from a file:
type: (load "lab1exercise")

It should return t...If it does not, then you have an error and you'll need to go back into your editor and find your error.

G. Now go back and write the following functions in a text file and load them into lisp:

2. Write a function MY-THIRD which returns the third item of a list using FIRST and REST.

3. Write a function called DUO-CONS that adds two elements to the front of a list. Remember that the regular CONS function adds only one element to a list. DUO-CONS would be a function of three inputs. For example, (DUO-CONS 'PATRICK 'SEYMOUR '(MARVIN)), should return (PATRICK SEYMOUR MARVIN).

H. Submitting your programs:

I have created a project for you to submit programs. You should be able to see this. If you have never used project, then type

project (on the command line)

The system will print out the "STUDENT USAGE" commands. You can submit your program with the command:

You should submit your files to *lab1*

project 3210s001 lab1 <your-file>