Comp 430 Program 4 Points: 25

Due date - see deadline in Easel

The following is a sample of how your Simple Deductive Data Base program will be tested. The code should be in a file named ddb.lsp submitted via EASEL. The "data base" should be in a global variable named DB which I will establish before I load and execute your function. Variables are u,v,w,x,y,z,x1,x2,...,x20. There is no limit to the number of links in the backwards chain needed to satisfy a query or to the number of arguments of a predicate. Queries will have at most one variable.

```
$ cat db.lsp
(setq db '(  (T (dog fido))
             (T (dog lassie))
             ((dog x1) (mammal x1))
             ((mammal x2) (wb x2))
             ((cat x3) (feline x3))
             (T (cat felix))
             ((man x4) (mortal x4))
             (T (man Socrates))
             (T (man Plato))
             ((dog x5) (likes Pavlov x5))
             ((dog x6) (mortal x6))
             ((man x7) (mammal x7))
             ((feline x8) (mammal x8))
             ((lion x9) (feline x9))
             (T (lion leo))
             ((feline x10) (mortal x10))
             ((likes Pavlov x11) (hates x11 x12))
             ((student x13) (hates x13 homework))
             (T (student John))
             (T (student Mary))
             ((dog x14) (hates John x14))
          ))
>clisp
clisp> (load 'db)
; Loading contents of file db.lsp
clisp> (load 'ddb)
; Loading contents of file ddb.lsp
;   ?
clisp> (? '(mortal x))
(SOCRATES PLATO FIDO LASSIE FELIX LEO)
clisp> (? '(mortal fido))
YES
clisp> (? '(dog socrates))
NO
clisp> (? '(likes y fido))
(PAVLOV)
clisp> (? '(hates y fido))
(FIDO LASSIE JOHN)
clisp> (? '(hates fido y))
YES
clisp> (? '(mammal z))
(FIDO LASSIE SOCRATES PLATO FELIX LEO)
clisp> (? '(wb z))
(FIDO LASSIE SOCRATES PLATO FELIX LEO)
clisp> (exit)
$
```