LOGICAL PROGRAMMING **13**

COMPUTER SCIENCE 61AS

The Basics of Logic Programming and How it Works

1. What are the two central operations that the query system is organized around?

2. How do each of these work?

3. How is pattern testing against frames organized and how does it work?

4. How do compound queries work with pattern testing? (Describe for both `and` and `or`)

5. What will the logic interpreter print if a rule returns true?

Practice with the logic interpreter

1. Write logic (query) language rules for prefix, a relation between two lists that is satisfied if and only if the elements of the first list are the first elements of the second list, in order. Do not use lisp-value! For example, each of these examples matches the relation:

   ```
   (prefix (being for the) (being for the benefit of mister kite))
   (prefix (for no one) (for no one))
   (prefix () (got to get you into my life))
   ```

   But these do not satisfy the relation:

   ```
   (prefix (want i to) (i want to hold your hand))
   (prefix (to hold your) (i want to hold your hand))
   (prefix (i want to tell you) (i want to))
   ```

2. Now write rules for sublist, a relation between two lists that is satisfied if and only if the first is a consecutive sublist of the second. Do not use lisp-value! Hint: You will want to use the prefix relation from part (a) to help you. For example, each of these examples matches the relation:

   ```
   (sublist (give) (never gonna give you up))
   (sublist (you up) (never gonna give you up))
   (sublist () (never gonna give you up))
   ```

   And these do not:

   ```
   (sublist (never give up) (never gonna give you up))
   (sublist (let you down) (never gonna give you up))
   ```