Inference in First-Order Predicate Logic
ABC Murder Mystery
(borrowed from Rich and Knight)
CSC 4240 Programming Assignment 2
Due: October 23, 2003

Assignment description:
The program will begin with an initial KB read in from a file named "kb.txt." (See file listing below.) All rules are universally quantified.

New facts are added from the command line. After each new fact is added, the set of suspects should be displayed. If there are no suspects, the program should print "No suspects yet."

The user should be able to ask a question at any time. Example questions and answers are as follows:

> `motive(charlie)?`
> The program would respond `TRUE` if the sentence is entailed by the KB; `FALSE` otherwise.
>
> `beneficiary(X)?`
> The program would respond by listing all values `X` for which `beneficiary(X)` is true.

When the user enters "quit", the program should write the current knowledge base to a file called "finalkb.txt" and quit.

Variables will always start with a capital letter. Constants will always start with a lowercase letter. Your program should use a **forward-chaining algorithm** to make inferences.

You can assume that there will always be at least one rule that allows you to conclude that someone is a suspect, but do not assume that I won't change or add to the set of rules below.

sample kb.txt

```
motive(X)&opportunity(X)->suspect(X)
beneficiary(X)->motive(X)
no_alibi(X)&owns(X,Y)&weapon(Y)->opportunity(X)
wounds_consistent_with(X)->weapon(X)
```