

CSE 663 Advanced Knowledge Representation
Professor Shapiro
Homework 1
Maximum Points: 25
Due: 9:00 AM, Wednesday, September 8, 2004

August 30, 2004

Before this homework is due, submit a file containing your solution, suitable for loading and running, by executing the Unix command

```
submit_cse663 hwn.ext
```

Make sure the file is headed with a comment identifying it and you.

Then, hand in a hard-copy of your solution at the beginning of class. The hard-copy must be prepared in \LaTeX or other suitable formatting program, and must be formatted for human reading.

1. (10 points) Give the syntax and semantics of all the atomic symbols you need for question (2).
2. (12 points) Formalize the following domain in SNePSLOG using the symbols you documented for question (1). You must have one and only one SNePSLOG statement for each sentence.
 - (a) If person A tells person B something (what one tells another is a proposition), B will believe it if and only if he doesn't believe that A is a liar.
 - (b) A person will take evasive action when and only when that person believes that there's danger.
 - (c) Whenever someone believes that there's danger, that person will tell anyone they're near that there's danger.
 - (d) When there's danger, a person is injured if and only if he doesn't take evasive action.
 - (e) Bob, Larry, and Terri are people
 - (f) Bob believes that Larry is a liar.
 - (g) Bob doesn't believe that Terri is a liar.
 - (h) Larry and Terri believe that there's danger whenever there is.
 - (i) On Tuesday, Terri was near Bob and there was danger.
 - (j) On Wednesday, Larry was near Bob and there was danger.
3. (3 points) After loading the above knowledge base into SNePSLOG, ask it

When was Bob injured?

You should find that Bob was not injured on Tuesday, but was on Wednesday.