

CSE 4/563 Knowledge Representation
Professor Shapiro
Homework 10
Maximum Points: 17 with up to 17 Bonus Points
Due: 1:30 PM, Thursday, December 3, 2009

November 24, 2009

Put your answers in a file named `hw11.ext`, for an appropriate value of `ext`. **Include your name(s) and user name(s) at the top of the file.** Submit that file by executing the Unix command

```
submit_cse463 hw11.ext
```

or

```
submit_cse563 hw11.ext
```

whichever is appropriate for you. The file can be a text file, or produced by some word processing software, but it must be formatted so it is easy to read. The file is to end with a transcript of a demo run of your program.

You are also to submit a single file of your SNePSLOG program for this homework set. Name this file `hw11.snepslog`.

Each question is worth double if you use SNePSLOG mode 3 and path-based inference, and all earned points above 17 are bonus.

1. (2) Choose 3 periods of time in your country's history or in world history (they will be referred to below as A , B , and C), give the intensional semantics of the atomic symbols you use to represent them, and represent their temporal order with two SNePSLOG propositions using the predicate

$$[\text{Before}(x, y)] = [x] \text{ occurred before } [y].$$

2. (3) Choose one event that occurred in each of the three periods of time (they will be referred to below as D , E , and F), give the intensional semantics of the atomic symbols you use to represent them, and represent when they occurred with three SNePSLOG propositions using the predicate

$$[\text{During}(x, y)] = [x] \text{ occurred during } [y].$$

3. (3) Express in SNePSLOG the transitivity of `Before`.
4. (3) Notice that if u is during v , v is before w , and x is during w , then u is before x . Express this rule in SNePSLOG.
5. (3) Ask SNePSLOG if A occurred before C . It should answer that it did.
6. (3) Ask SNePSLOG if D occurred before F . It should answer that it did.

Each question is worth double if you use SNePSLOG mode 3 and path-based inference. However, to earn these points, you must fill in the following.

- Show the `define-frame` commands you use for `Before` and `During`.
- Show the path-based inference rules you use.