

Extra Credit EC3: Logical Agent using Semantic Modeling

CS 4300
Fall 2015

Assigned: 8 September 2015

Due: 24 October 2015

For this problem, handin a lab report pdf (include name, date, assignment and class number in pdf) which develops a semantic model function; i.e., determines which interpretations are true for a sentence and whether one model set contains another. This function must be demonstrated on the Wumpus world layout shown on p. 238, Figure 7.2.

You should handin the report pdf as well as the code used in the study. The code should conform to the style requested in the class materials (no matter what language).

In addition, please turn in a hardcopy of the report in class before the start of class time on October 24, 2015.

Write a lab report in the format (please do not deviate from this format!) described in the course materials.

The function for this should return the indexes of interpretations which model the sentence:

```
function models = CS4300_logical_models(variables,sentence)
% CS4300_logical_models - finds models of given sentence
% On input:
%   variables (1xn vector): integers from 1 to n represent
%   propositions
%   sentence (CNF data structure): list with clause field
%   (i).con (1xk vector): list of literals (+ or - integers)
```

```
% On output:
%     models (vector): list of indexes that model the sentence
% Call:
%     m1 = CS4300_logical_models([1:2],s);
% Author:
%     T. Henderson
%     UU
%     Fall 2014
%
```

An example test function is (found in code/A3 directory):

```
function [models_KB,models_alpha,contained] =
CS4300_test_logical_models
% CS4300_test_logical_models - tests the semantic models function
% On input: N/A
% On output:
%     models_KB (1xk vector): indexes of interpretations that model KB
%     models_alpha (1xn vector): indexes that model alpha
%     contained (Boolean): 1 if models_KB contained in models_alpha
% Call:
%     [mKB,ma,c] = CS4300_test_logical_models
% Author:
%     T. Henderson
%     UU
%     Summer 2014
%
```