

CS 5100, Fall 2011  
Assignment 1—A Relational Agent Program in Python

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**Assigned:** September 8, 2011

**Due:** September 15, 2011 11:59pm via upload to Blackboard

**Objective:** To get acquainted with Python and the use of production rules.

**Project Description:** Relational Agents are one kind of AI program, involving animated characters that produce gestures such as smiling, blinking, and nodding, to make them seem more realistic. Professor Bickmore's research attempts to see if relational agents that show empathy can influence users to improve their health behavior.

We will program the gesture selection component of a relational agent. The set of actions will be:

1. Smile
2. Frown
3. Nod
4. Blink

Percepts will be a user's communication to the program, consisting of two elements:

1. content (Positive, Negative, or Unsure)
2. mood (Happy, Sad, or Neutral).

The output is a gesture that the relational agent should perform when responding. The agent's gesture selection strategy will be as follows:

- If happy and either positive or negative, smile
- If happy and unsure, nod
- If sad, frown
- If neutral and positive or negative, nod
- If neutral and unsure, blink

**Your task:** Implement a production rule driven relational agent with the behavior as above. Input will be a file of 2-element Python tuples or lists, one per line. Your top-level function should be called `gestures(path)` where the *path* argument is a string representing the path to the input file, suitable as an argument to the Python function `f = open(path).`]

For full credit, you must implement the program declaratively using production rules, and not procedurally. This means NO hardcoding of "if...then" statements to output the correct results.

**Submission:** Upload your COMMENTED Python source file to Blackboard—I will test them with my own data. Please give the source file a name that includes your last name (or part of it) and proj1, such as: `sliva_proj1.py`