

COGS 511 Term Project Specifications

Spring 2010

1. Specification of the Task

For the term project you are expected to model the Artificial Grammar Learning Task with post-decision wagering in Persaud et al. (2007). As it is also explained in the article, in the learning phase participants are first asked to memorize 45 strings. Each string is presented for 5 seconds. Then they are told that these strings are indeed obeyed a complex set of rules. (Note that the particular rule is not told to the participants.) In the testing phase, participants are shown another 60 strings (30 of them (grammatical) obeying the same rule and others (ungrammatical) obeying another rule), and asked to classify these strings as grammatical and ungrammatical. Participants are also asked to place a wager of either low or high on their classification. That is, for each string in the testing phase, participants should first decide whether the string is grammatical or not, and then must place a high or low wager on their decisions.

Antonie Pasquali shared with us the strings that they used for their simulations in Pasquali et al. 2009. You can find this data that includes the particular strings for each phase and the underlying grammars in the “strings.pdf” file.

In the “sample_experiment.ppsx” file you will find a simple sample of the experiment. In the learning phase of the sample experiment only 9 strings (from grammar A) are presented (5 seconds for each). After the learning phase is over, the instructions for the testing phase appears. In this phase a key press is needed to change the screen. 6 grammatical strings (from grammar A) and 6 ungrammatical strings (from grammar B) are presented. Note that there is not any randomization of the strings in this sample experiment. However, you will need to randomize the strings (both in learning and in testing phase) for the model.

2. Project Report

Your project report should include the following parts:

2.1 Model Design

In this part you are expected to explain your model design. In particular, you should explain the chunks, production rules, and the relevant ACT-R parameters. It is also important to explicitly state the technical limitations (if any) limitations of your model, and your assumptions and the justifications of these assumptions.

2.2 Results

In this part, you are expected to present the results of your model. Primarily, you should state the number of the high and low wagers for correct and incorrect classifications. For 10 participants, these results are as the following for the 2007 study of Persaud et al. :

	Correct	Incorrect	Total
High wager	217	38	255
Low wager	266	79	345
Total	483	117	600

2.3 Discussions

Besides from the points that you want to discuss, this part of your report should include the comments on the following points:

1. Discuss how fair your model is in modeling particular aspects of consciousness? Besides from your particular model, also evaluate ACT-R - in general - with respect to these aspects.
2. Is post-wagering paradigm a valid paradigm to study consciousness? What may be the particular advantages or disadvantages to use this paradigm in consciousness studies in general and in the computational models?

3. Can you think of any other model design, the results of which still fit the human data, but the model is not a plausible model of consciousness?
4. Compare your model and results with the design and results of the metacognitive network for AGL task in the study of Pasquali et al. (2009; submitted).

3. Submission

Upload the folder that contains model file and the project report to the assignment section on METU-Online. Please make sure that file names contain the surnames of the group members. **Due day** is June 9.