

Networked Life (CIS 112), Spring 2010

Prof Michael Kearns

Essay on Behavioral Experiments in Network Formation

This assignment is for those students who do NOT participate in any of the three experimental sessions.

For this assignment, you should write an essay about the behavioral experiments in a network formation game conducted at the end of the term, and which were described in class on April 20 (slides available on the course web site). Since these experiments are ongoing and I do not want to bias them in any way, I will not further clarify the nature or rules of the experiments beyond the April 20 lecture and slides. To the extent that you need or want further details in order to articulate a point, you should feel free to simply make a clearly stated assumption on the missing details and make your point conditional on that assumption. However, you should make sure your essay incorporates what details of the experiments and GUI are available --- for instance, exactly what information is available to participants is important.

The nature of the essay is open-ended --- you are free to discuss or predict any aspect of the experiments you like. Creativity and novelty will be appreciated. But here are some suggested ideas:

- Predict what you think will happen in the experiments, both at the level of individual behavior and collective behavior. Do you think subjects will do well or poorly at this task? How do you think the various parameters of the experiment (edge costs, initial network empty or “seeded”, etc) will influence behavior and performance?
- What structural properties would you expect to see in the emerging networks? How might those properties evolve as an experiment progresses?
- In what ways do you think actual human subject behavior may deviate from pure “rationality” in these experiments?
- How do you think these experiments will compare to the earlier experiments you read about on biased voting in networks, where the network structures were exogenously determined?
- Describe strategies for individual play that you think might be employed by the subjects.
- What strategy or strategies do you think you would adopt if you were a subject in these games?
- Try to (informally) apply equilibrium analysis to the game.
- Propose specific analyses or investigations that we might perform on the data generated by the experiments.

Again, the list above is merely suggestive, not exhaustive.

Essay length: For fairness in comparison to those participating in the experiments rather than writing an essay, you should spend a total of about 3 hours on this assignment, which is about the length of each experimental session. So I would guesstimate that most essays would be about 2-3 pages in the approximate format of this document.

Due date: Essays are due by **5 PM on May 11**. You should send them as an email attachment directly to Prof Kearns at mkearns@cis.upenn.edu, with the subject line “Experimental Essay”.