Coloring Game Protocols

Experiment materials:

1. 16 dividers, and index cards with subject numbers
2. 16 Linux or PC Computers for subjects
3. One Mac or Linux computer to control the server
4. Handouts (at the end of this file)
    a. Sign-in sheet
    b. Show-up payment form
    c. Consent forms
    d. Quizzes
    e. Receipts
    f. Post-Experimental Questionnaires

Welcome to the UCSD Political Science Experimental Lab. Today's experiment is part of a study on decision making. You will be paid for your participation. Today's experiment will last no longer than 2 hours. During the experiment you will earn money based on the decisions you and others make. Please do not use the computers or push any buttons on them until I instruct you to do so.

Instructions for the experiment will be given shortly. Along the way, you may have some questions about the experiments. If you do, please raise your hand and one of us will assist you. It is important that you do not communicate with any other participant at any time during the experiment. If you do, we will ask you to leave. [Pause] Additionally, please check your cell phones and turn them off so they do not disrupt the experiment.

Please pay careful attention to the instructions. After explaining the procedures, we will provide a quiz on the instructions, in which you will earn $0.25 for each correct answer.

Each of you has an index card on your desk. That card has a number on it. Please keep that number private. We will use your number to keep track of the actions you take and to pay you at the end of the experiment. Please write that number on your consent form now, and then we will collect your consent form and distribute a $5 on-time bonus.

[COLLECT CONSENT FORMS AND PAY $5]

In this experiment, you will earn money for the decisions you and others make. To expedite the experiment we will pay you your entire earnings at the end of the experiment.

During the time you are here today, you will take part in many different *sessions*. Each session will last up to 3 minutes. I will now describe the decisions and actions you must make in each session during the experiment.

There are 16 subjects here participating in the experiment. During the experiment each subject will represent a **node** in a **network** that contains all 16 of you. To repeat, each of you is a part of the same network and you each control one of the 16 nodes. As I stated

earlier, the experiment today will consist of multiple sessions, with each session lasting no longer than 3 minutes. During each session, your task will be to choose a color for your node. You will make decisions about the color of your own node using the computer in front of you.

Please turn to the computer and enter the number on your index card in the box on the screen and press enter. After you press the "enter" button a new screen will appear after a few moments. Please be patient and do not click on anything else on the computer screen.

[OPEN TEST GRAPH]

You should now see a screen shot that is similar to the ones you will see during each session of the experiment. During the experiment sessions you should NOT attempt to close or minimize this window or click on anything else unless we tell you to do so. If you do, it will cause us to stop the experiment and start over. This will waste your time and the other subjects' time.

As you can see on the computer screen, your node is in the center, and it is labeled "YOU." Your node is connected to some number of other nodes. We call these nodes your **neighbors**. You will not see any of the nodes in the network except your neighbors. You will also not see any of the connections in the network except for your connections to your neighbors. To put it another way, you will not see the entire network of 16 nodes; you will only see your neighbors. The shape of the network will generally change from session to session, but even if the network remains the same between two sessions, you are not always assigned to the same node.

You earn money if all 16 people in the network are a **different** color than the nodes they are connected to before the 3-minute time limit runs out. Again, a successful session ends when each node in the network is a **different** color than all of the nodes it is connected to. For example, if the available colors are green and blue, then the session will not end successfully until the neighbors of each blue node are all red and the neighbors of each red node are all blue. You will earn money only if every person in the network chooses a different color than their neighbors before the 3 minute time limit runs out.

As I described earlier, your node is in the center of the screen and has the word "YOU" written in the middle of it. You can only see your immediate neighbors in the network. Notice that your neighbors (the nodes you are connected to) have a number in the center. The number tells you how many neighbors **that** node has. For instance, if the number 2 appears in the center of a node it means that node has 2 total neighbors, you and one other node. If a three appears, then your neighbor has 3 total neighbors, you and 2 other nodes. If a one appears, you are that node's only neighbor. If a 15 appears, that node is connected to every other node in the network of 16 nodes.

In each session, you will be able to see the current color of all of your neighbors. The instant your neighbor changes his color, you will see the color change on your own screen. Likewise, whenever you change your own color, all of your neighbors will

immediately see your new color. To change your color, you click on one of the color buttons that is below the picture of you and your neighbors. You can change your color as many times as you want during each session of the experiment, without penalty. Again, you can change your color whenever you like, and it costs you nothing to change your color.

There is a bar at the top of the screen that shows how much time is remaining in the experiment. Again, if the session is successfully completed before 3 minutes elapse then that session of the experiment will end immediately. If the network is not completed before the time runs out, that will also end the session of the experiment. In either event, when the session ends you will not be able to take any further actions, and I will announce that the session has ended.

Now that you understand your task I will explain how you earn money. In each session, you earn money if **every** person in the experiment chooses a color so that **no one** is the same color as the people to whom they are connected. To put it another way, every person in the network must choose a different color than their neighbors. If everyone in the experiment successfully chooses a color different than all of his or her neighbors before the 3-minute time limit is reached, then each person will be paid $1. If the time limit is reached before everyone chooses a different color than his or her neighbors, then no one earns any money in that part of the experiment. Remember, you are only paid if the entire group is able to choose colors so that no one is the same color as any of his or her neighbors. You will not receive payment just for being a different color than your own neighbors.

We will run these sessions until [END TIME -15 MIN].

[E.G. IF THE EXPERIMENT BEGINS AT NOON, 1:45 PM.]

Therefore, the less time each session takes, the more sessions you will participate in, and the more money you may be able to earn. To reiterate, there is not a fixed number of sessions, but we continue running sessions until [END TIME -15 MIN].

Now, to ensure that everyone understands the experiment we will distribute a quiz. We will pay you 25 cents for each correct answer.

[QUIZ]
[PAY SUBJECTS FOR QUIZZES AND CORRECT ANY INCORRECT ANSWERS]

We will now collect the quizzes. Please ensure that you have written your number at the top of the quiz.

Now please turn toward you computer and prepare for the first session of the experiment.

[INSTALL & LOAD A GAME] The next session is ready.
[PRESS START BUTTON] You may begin now.
[WHEN SESSION ENDS] That session is now complete.

[REPEAT UNTIL 15 MINUTES BEFORE END]

That completes this experiment. We will now distribute a post-experimental questionairre, and call you up one by one to pay you in private. Please do not approach our desk until your number has been called. Once you are called up, we will hand you your remaining earnings. Please complete the questionnaire before and/or after you are called up to be paid.

Sign-In Sheet for _____

1. _____ .

2. _____ .

3. _____ .

4. _____ .

5. _____ .

6. _____ .

7. _____ .

8. _____ .

9. _____ .

10. _____ .

11. _____ .

12. _____ .

13. _____ .

14. _____ .

15. _____ .

16. _____ .

17. _____ .

18. _____ .

19. _____ .

20. _____ .

21. _____ .

22. _____ .

23. _____ .

24. _____ .

25. _____ .

26. _____ .

27. _____ .

28. _____ .

29. _____ .

30. _____ .

31. _____ .

32. _____ .

33. _____ .

I RECEIVED _____ FOR SHOWING UP BUT NOT PARTICIPATING.

Date: _____

Name / Signature:

1. _____ .

2. _____ .

3. _____ .

4. _____ .

5. _____ .

6. _____ .

7. _____ .

8. _____ .

9. _____ .

10. _____ .

11. _____ .

12. _____ .

13. _____ .

14. _____ .

Subject Number: _____

Quiz

1. Under which circumstance will you earn money in the upcoming sessions?
    a. When the three-minute time limit runs out
    b. If I am a different color than all my neighbors, regardless of others' status
    c. Only if every person chooses a different color than their neighbors
    d. Only if every person chooses the same color as their neighbors

2. When will each session end?
    a. When all subjects choose a different color than their neighbors
    b. When the three-minute time limit runs out
    c. Either (a) or (b), whichever happens first

3. When will you receive your earnings from the sessions?
    a. At the end of the entire experiment
    b. After each session

4. How often can you change the color of your node?
    a. Once
    b. Twice
    c. As often as you wish
    d. None of the above

5. What is the meaning of the number in the center of each of your neighboring nodes?
    a. It represents the node's color.
    b. It shows how many neighbors that node has, other than you.
    c. It shows how many neighbors that node has, including you.
    d. It shows how many times that node has changed colors.

Subject Number: _____

Post Experiment Questionnaire

Year in School: _____

Undergraduate Major(s): _____

Date of Birth: _____

College GPA: _____

Did you take a college math course: _____

If so, which courses: _____

Have you participated in other experiments _____

If so, in what department: _____

Did you have any strategiees for picking your color?

_____

_____

_____

_____

_____

_____

Study of Learning and Decision-Making Under Risk and Uncertainty

Recognition of Payment

I acknowledge that I have received the earnings listed below. I agree that this constitutes payment in full for my participation, and I do not have any further claims to the University of California or the investigators conducting this study for my participation in this study.

Date: _____

Earnings from on-time bonus: _____
Earnings from quiz answers: _____
Earnings from all sessions: _____

Total Earnings: _____

Full Name: _____

Signature: _____