

# An Experimental Analysis of Multidimensional Cheap Talk

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## Online Appendix I – Translated Experimental Instruction for Game 2

### TASSEL EXPERIMENTAL INSTRUCTION

#### Experimental Payment

At the end of the experiment, you will receive a show-up fee of NT\$100 plus the NTD converted from the “Standard Currency Units” you have earned in the experiment. (“Standard Currency Units” are the experimental currency units used in the experiment.) The amount of “Standard Currency Units” you will receive, which will be different for each participant, depends on your decision, the decision of others and some random factor. All earnings are paid in private and you are not obligated to tell others how much you have earned.

**Note: The exchange rate between “Standard Currency Units” and NTD is 2 : 1. (2 Standard Currency Units = NT\$1.)**

#### Experimental Instructions

This is an experiment on group decisions among three individuals. There are 3 practice rounds and 50 official rounds. Each group consists of three members, Member A, B and C. At the beginning of the experiment, you will be randomly assigned by the computer to be either A, B, or C. Once decided, your role remains the same throughout the experiment. However, at the beginning of each round, the computer will randomly rematch participants to form new groups; thus, members in your group are not the same each round.

At the beginning of each round, the computer will randomly select the current state out of four possibilities:  $(L, U)$ ,  $(R, U)$ ,  $(L, D)$  and  $(R, D)$ . Member A and Member B will be informed about the selected current state (displayed on their screens) but not Member C. In each round, Member C will have to make a decision, choosing (left, up), (right, up), (left, down) or (right, down).

Before Member C makes the decision, Member A and Member B will both recommend “left” or “right” and “up” or “down”. Member A will first recommend “left” or “right” and then “up” or “down”; Member B will recommend “up” or “down” and then “left” or “right”. Recommendations will be displayed on Member C’s screen only after all the recommendations have been made by

both Member A and Member B, after which Member C makes the decision. For example, the decision screen of Member C is displayed here, in which Member A has recommended “left”, “down” and Member B has recommended “right”, “up”.<sup>1</sup>

In each round, each member’s earnings depend on the current state and Member C’s decision, as in the table displayed on the screen. Your earnings are bold in blue and those of the other two members are in black (italic or underlined). If you are Member A and Member B, the current state will further be highlighted in red. There are four regions in the table, the top-left region shows the earnings when the current state is  $(L,U)$ , and the top-right shows the earnings when the current state is  $(R,U)$ . Similarly, the bottom-left and the bottom-right regions show the respective earnings for  $(L,D)$  and  $(R,D)$ . In each of the regions, there are four cells showing each member’s respective earnings when Member C chooses (left,up), (right, up), (left, down) or (right, down).

For example, suppose the current state is selected to be  $(L,U)$ . If Member C’s decision is (left, up), then she will receive 50 Standard Currency Units, while the other two members will each receive 20 (top-left cell). On the other hand, if Member C’s decision is (left, down), then this will only bring her 10 Standard Currency Units, while Member A receives 50 and Member B receives 0 (bottom-left cell). If Member C chooses (right, up) instead, she will receive 20, while Member A will receive 0 and Member B will receive 50 (top-right cell). Finally, if Member C chooses (right, down), she will receive 0 Standard Currency Units, while both Member A and Member B will receive 10 (bottom-right cell). Similarly for other three states.

At the end of each round, the computer will display results of the round, including the current state, Member A’s and Member B’s recommendations, Member C’s decision and your earnings. Click “Confirm” to proceed to the next round.

In addition, in some rounds you will be asked to make some “predictions.” Please follow the instructions on the screen. If you have any questions, please raise your hand, and the experimenter will come to answer.

### Practice Rounds

There are three practice rounds, where the objective is to get you familiar with the computer interface and the earnings calculation. **Please note that the practice rounds are entirely for this purpose, and any earnings in the practice rounds will not contribute to your final payment at all.** Once the practice rounds are over, the experimenter will announce “The official experiment begins now!” after which the official experiment starts.

If you have any questions, please raise your hand. The experimenter will answer your question individually.

### The Official Experiment Begins

The official experiment begins now. There are in total 50 rounds. The Standard Currency Units you earn in all 50 rounds will be converted into NTD and paid to you according to the 2 : 1 exchange rate (2 Standard Currency Units = NT\$1). So, please make your decisions carefully.

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<sup>1</sup>The experimental instructions were accompanied by slide illustrations showing the screen shots in online Appendix II.

# Online Appendix II – Original Experimental Instruction in Chinese (Game 2) and Screen Shots

## TASSEL 實驗說明 p.1

### 實驗報酬

本實驗結束後，你將得到定額車馬費新台幣 100 元，以及你在實驗中獲得的「法幣」所兌換成之新台幣。（「法幣」為本實驗的實驗貨幣單位。）你在實驗中能獲得的「法幣」會根據你所做的決策、別人的決策，以及隨機亂數決定，每個人都不同。每個人都會個別獨自領取報酬，你沒有義務告訴其他人你的報酬多寡。  
**請注意：本實驗中的「法幣」與新台幣兌換匯率為 2:1。（法幣 2 元=新台幣 1 元）**

### 實驗說明

本實驗為三人一組的共同決策實驗，共有三個練習回合與五十回合的正式實驗。每組有成員甲、成員乙、成員丙三人。在實驗一開始時，電腦會隨機決定你是成員甲、成員乙還是成員丙。一旦決定之後，你的成員身份在實驗中不會再變動。然而，每回合一開始時，電腦會將所有人打散重新隨機分組，因此，每次你遇到的成員並非相同。

每回合一開始時，電腦會從下列四種可能性，隨機選取本回合的狀態： $(L, U)$ 、 $(R, U)$ 、 $(L, D)$  和  $(R, D)$ 。電腦會告知成員甲和成員乙每回合的狀態（顯示在螢幕上），但不會告知成員丙。每回合成員丙都必須做一個決定：「左上」、「右上」、「左下」或「右下」。

在成員丙做決定之前，成員甲和成員乙要分別**建議**選擇「左」或「右」與「上」或「下」。成員甲會先建議「左」或「右」，然後才建議「上」或「下」，成員乙則會先建議「上」或「下」，然後才建議「左」或「右」。當成員甲和成員乙的所有建議都完成之後，才會一次全部顯示在成員丙的螢幕上，然後成員丙才做決定。舉例來說，螢幕上顯示的是成員丙做決定的畫面，成員甲建議了「左」、「下」，成員乙建議了「右」、「上」。

每個成員的報酬取決於本回合的狀態與成員丙的決定，如螢幕上的附表所顯示。其中，你的報酬顯示為藍色粗體，其他成員的報酬則顯示為黑色斜體或黑色加底線。如果你是成員甲或成員乙，本回合的狀態會以紅色字體標示。表上有四個區域，左上的區域顯示狀態為  $(L, U)$  時的報酬表。右上的區域則顯示狀態為  $(R, U)$  時的報酬表。同理，左下和右下區域分別顯示狀態為  $(L, D)$  和  $(R, D)$  的報酬表。在每個區域的報酬表中均有四個方格，對應到的是該狀態下，當成員丙選取「左上」、「右上」、「左下」或「右下」的時候，每位成員各自的報酬。

## TASSEL 實驗說明 p.2

舉例來說，當本回合的狀態為 (L, U) 時，成員丙的決定如果是「左上」，他自己會得到法幣 50 元的報酬，另外兩位成員則各得法幣 20 元 (左上方格)。但是若成員丙的決定是「左下」，則只能帶給他自己法幣 10 元的報酬，成員甲則獲得法幣 50 元，成員乙獲得法幣 0 元 (左下方格)。相反地，若成員丙的決定是「右上」，他自己會得到法幣 20 元的報酬，成員甲獲得到法幣 0 元，成員乙則獲得法幣 50 元 (右上方格)。最後，成員丙的決定若是「右下」，他自己能獲得法幣 0 元，成員甲獲得法幣 10 元，成員乙則獲得法幣 10 元 (右下方格)。其他狀態依此類推。

每回合結束後，螢幕上會顯示這回合的實驗結果，包括本回合的狀態、成員甲和成員乙的建議選擇、成員丙的決定，以及你所獲得的報酬。按「確認」進入下一回合。

另外，某些回合會請你做一些「預測」，請按照螢幕上的指示去做。如果有問題，請當場舉手，實驗者會過來解答。

### 練習階段

此階段共有三回合，目的為幫助您熟悉正式實驗的操作介面及計分方式。請注意，**練習階段的得分僅供您熟悉本實驗的進行方式，與您最後的現金報酬無關。**練習結束後，實驗者會宣佈「實驗正式開始！」，然後才進入正式實驗。

如果您對本實驗有任何疑問，請在此時舉手。實驗者會過來解答。

### 實驗正式開始

現在實驗正式開始，一共有五十回合！在正式實驗中所獲得的「法幣」都會在實驗結束後，按照 2:1 的匯率 (法幣 2 元=新台幣 1 元) 兌換成新台幣付給您。因此請慎重選擇、慎重決定。



Figure 1: Sender 1 in Game 2 recommending left/right when the true state is  $(L, U)$



Figure 2: Receiver in Game 2 choosing action after Sender 1 recommends (left, down) and Sender 2 (right, up)