Online Appendix for "Hypothetical Thinking and Information Extraction in the Laboratory," by Ignacio Esponda and Emanuel Vespa.

Section 1 contains additional treatments and results that confirm the robustness of the results. Section 2 provides the instructions for all the treatments.

1 Additional results

1.1 Non-strategic behavior

In this section, we use the data from the Simultaneous Voting Treatment (baseline and treatment with feedback) to categorize the behavior of non-strategic subjects. To the extent that we can categorize the suboptimal behavior of non-strategic subjects, we can be more confident that suboptimal behavior cannot simply be explained by random mistakes. The two main types of strategic behavior we find in the data motivate the following definitions. Let

$$p_R^c(p,q) = 1 \times (p/10) + (1-q) \times (1-p/10) \tag{2}$$

denote the probability that a computer votes Red in round (p,q), which is given by the probability that it votes Red and the ball is red plus the probability that it votes Red and the ball is blue.

Definition 3. A vote is **sincere** given (p,q) if it is a vote for Red whenever $p > 5$, a vote for Blue whenever $p < 5$, and a vote for either Red or Blue whenever $p = 5$. A vote is **conforming** given (p,q) if it is a vote for Red whenever $p_R^c(p,q) > .5$ and a vote for Blue whenever $p_R^c(p,q) < .5$.

Under sincere voting, a subject votes for the alternative that she considers best using only her information about the primitives and not taking into account the strategies of the computers. Under conforming voting, a subject "conforms" to the votes of the computers by voting for the color that the computer votes with highest probability. Such conforming behavior is in line with prior evidence by Goeree and

Yariv (2007) , who find that, in a related setting, a significant number of subjects non-strategically conform to the choices of previous subjects. Each of these definitions captures a response to one of the two features that are varying in our environment: the number of red balls (p) and the strategies of the computers (q).[34]

Figure 7 shows how we can identify each type of behavior by looking at the behavior of subjects for each of the 45 (p, q) pairs. In Region 1, sincere and conforming votes are for Red, while strategic votes are for Blue. In Region 2, conforming votes are for Red, while sincere and strategic votes are for Blue. In Region 3, all three types of votes are for Blue.[35]

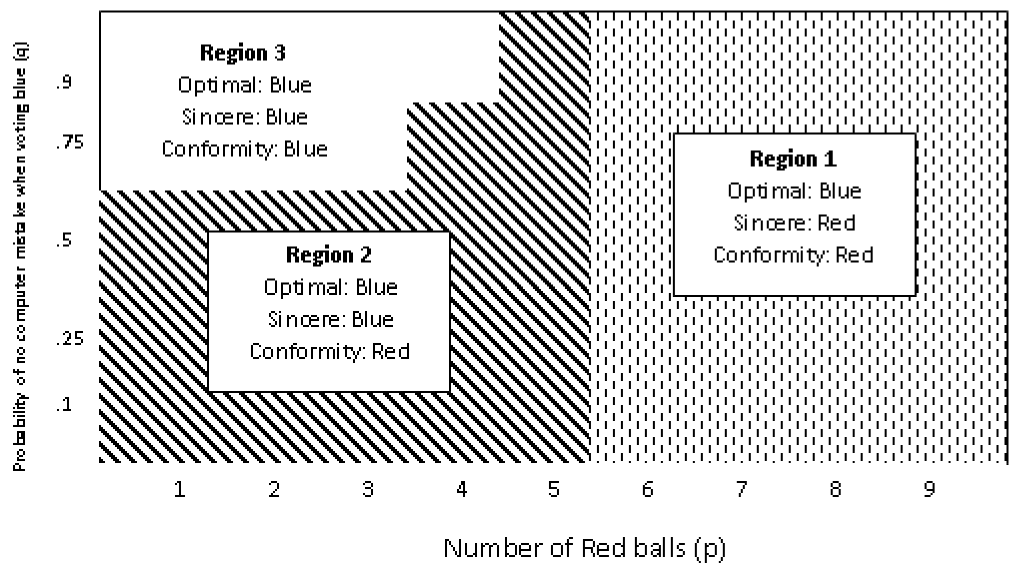

Figure 7: Regions of voting behavior by type.

Our main finding is that most of the subjects that are classified as non-strategic can be classified as either sincere, conforming, or a mixture of these two types. First, we restrict attention to rounds in Regions 1 and 3 in Figure 7, where sincere and conforming votes coincide: Red in Region 1 and Blue in Region 3. Of the 79 subjects that are classified as non-strategic in Part 1 (at $t = 40$), 67 subjects (45 and 22 in the baseline and the treatment with feedback respectively) vote in a manner consistent with sincere and conforming types in 90% of the rounds in Regions 1 and 3. Hence,

[34]We "discovered" this conforming definition when one subject explicitly wrote down equation (2) in his/her advice.

[35]For simplicity, the figure arbitrarily shows sincere votes being always Blue if $p = .5$, but in the analysis we do follow Definition 3.

the behavior of only 12 subjects cannot be explained in these regions.[36]

Second, we evaluate to what extent these 67 subjects that behave as sincere and conforming types in Regions 1 and 3 can be classified as either sincere or conforming. We do so by focusing on Region 2, where a sincere vote is Blue but a conforming vote is Red. The top panels of Figure 8 show the frequency plot of the proportion of Blue votes for rounds (p, q) in Region 2 played in Part 1.[37] A proportion close to 1 indicates mostly sincere behavior, while a proportion close to 0 indicates mostly conforming behavior. While there are spikes in the frequency both near 0 (baseline treatment) and 1 (treatment with feedback), for both cases there is also a spike around .5, suggesting that several subjects behave sometimes as conforming and sometimes as sincere. The bottom panels of Figure 8 show the same information, but restricted to the subset of subjects that remain non-strategic throughout the entire experiment. A similar picture emerges, except that now for both treatments fewer subjects are concentrated around .5, suggesting that those subjects that are persistently non-strategic tend to behave more purely as either conforming or sincere subjects.

It is clear from our findings that, despite a substantial fraction of the subjects being sincere, there is also a non-negligible fraction of non-strategic subjects who do respond to the strategies of the computers. Therefore, while conforming behavior is likely to be specific to our setup, the general point is that one should look for alternatives beyond sincere behavior when testing for strategic behavior. This finding is similar to Charness and Levin's (2009) finding that overbidding in the acquire-the-company game cannot solely be explained by "sincere" behavior.

1.2 No Variation in (p, q)

In Section 3 we discussed the reasons why we wanted variation in the number of red balls and the strategies of the computers, (p, q). It is unlikely that this variation confused subjects, since the same variation is present in the Sequential Voting Treatment, where most subjects behave strategically. Nevertheless, in this section we show that the results of the Simultaneous Voting Treatment continue to hold even if we fix (p, q) throughout the experiment and do not invert the computers' rules. We conduct an experiment in which a total of 59 subjects participate in the first 45 rounds of the

[36] When we decrease 90% to 80%, only 6 subjects cannot be explained.

[37] If $p = 5$, then a conforming vote is Red, but a sincere vote can be either Red or Blue. Therefore, we only count this vote as evidence of sincere behavior if it is a Blue vote.

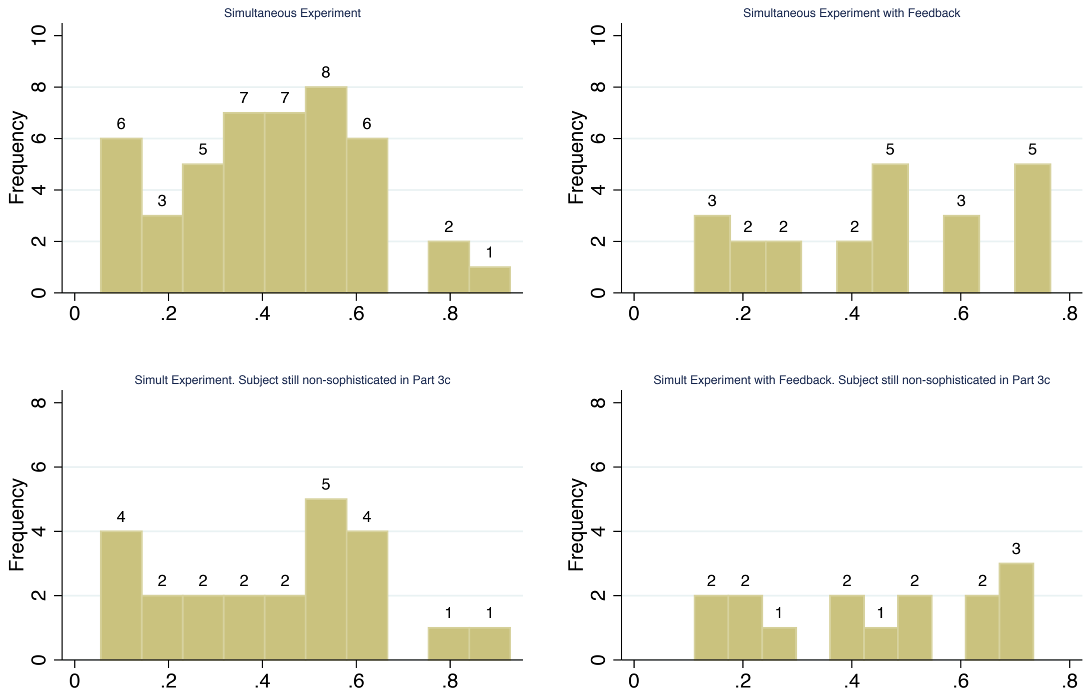

Figure 8: Simultaneous Voting Treatment: Non-Strategic behavior

Note: This graph only includes subjects whose votes in regions 1 and 3 of Figure 7 are at least 90% of the times in line with sincere and conforming behavior. (In those two regions sincere and conforming behavior prescribe the same choice.) For each of those subjects we measure the proportion of votes for blue in region 2 of Figure 7, in which sincere and conforming behavior diverge. A proportion value of 1 (all votes for blue) indicates perfect sincere behavior and a value of 0 (all votes for red) indicates perfect conformity as indicated by equation (2). Each graph plots the distribution of this proportion value for votes from Part 1 (top row) and Part 3c (bottom row). The numbers on top of each column indicate the total number of subjects corresponding to that proportion value.

Simultaneous Voting Treatment, but where $p = 7$ and $q = 1/2$ is fixed throughout. Also, in order to make the experiment as simple as possible, we provide subjects with feedback after each round as well as with the full history of the session at each time they make a decision.[38]

Figure 9 reports the findings. As with other treatments, in round 1, only about 10% of subjects play optimally every remaining period (100-strategic). By round $t = 40$, the percentage increases to 49%, a figure that is not statistically different (p-value 0.925) from the percentage of strategic subjects in the treatment where we

[38] For each past round they can see: the color of the selected ball, their own vote, how each computer voted, the color selected by the majority, and the resulting payoff.

also give feedback to the subjects but where we have variation in (p, q) in each round (i.e., the Simultaneous Voting Treatment with Feedback of Section 4.1).[39] Thus, we conclude that variation in (p, q) is not the reason why subjects are making mistakes.

1.3 Understanding of the instructions

As with all experiments, a possible concern is that subjects did not understand the instructions. There are several reasons why a lack of understanding of the instructions is unlikely to explain our findings. First, the instructions are essentially the same for all treatments, whereas behavior differed substantially in the simultaneous versus sequential treatments. Second, we provided detailed instructions followed by several incentivized questions about the instructions as well as explanations of the right answers (see the next section for details).[40] Third, most subjects answer these questions correctly. Of the 60 subjects that participate in the baseline treatment of the Simultaneous Voting Treatment, 46 subjects answer these questions correctly (either in the first or second trial).[41] When we take out one session where the questions were not incentivized, 37 subjects answer correctly, and only 3 answer incorrectly. Similarly, of the 58, 58, 61, and 59 subjects that participate in the Sequential Voting Treatment, Simultaneous Voting Treatment with Feedback, the Private Values Treatment, and the Fixed (p, q) Treatment, 52, 53, 54, and 51 subjects answer correctly, respectively. In other words, on average approximately 90% of participants in all treatments with incentivized questions answer correctly.

Fourth, in the Simultaneous Voting Treatment with Feedback, the feedback seems to mostly affect people that provide correct answers to the questions in the instructions. Of the 52 subjects who correctly answer the questions, 27 become strategic. Of the 6 subjects who answer incorrectly, only 1 becomes strategic. This result suggests that the reason why more people become strategic in the Simultaneous Voting Treatment with Feedback treatment is not the lack of understanding of the instructions.

Finally, in the Sequential Voting Treatment, subjects are asked to give advice for

[39]More permissive definitions of strategic behavior that allow for a large fraction of mistakes ($z = 85$) also result in about 50% of subjects becoming strategic by round $t = 40$.

[40]In one session of the Simultaneous Voting Treatment, we did not provide incentives to answer the questions and obtained a higher proportion of incorrect answers.

[41]If the answer to a question is correct, the subject gets \$1 and learns that her answer is correct. If the answer is incorrect, the subject is provided with an explanation of the correct answer and is given a second chance to answer a similar question. Then, irrespective of how she answers this second time, the subject begins the experiment.

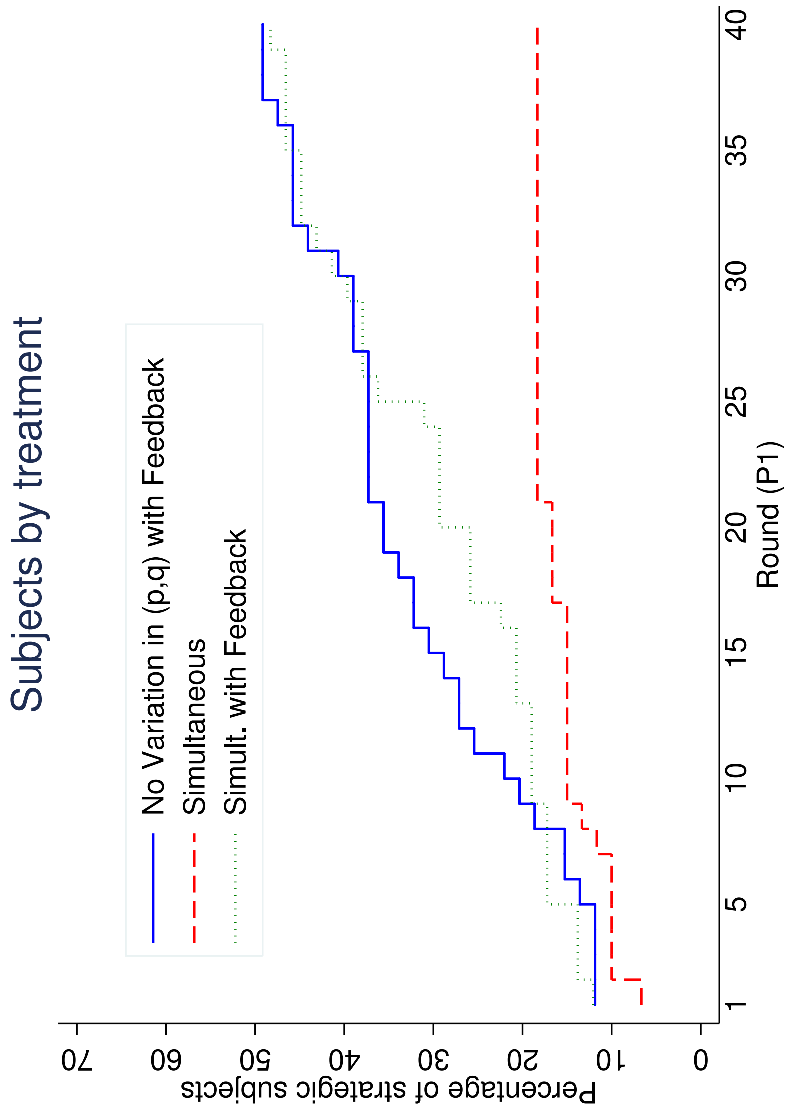

Figure 9: No Variation in (p, q) Treatment with Feedback: Strategic Behavior (59 participants)

Note: z=100 for all treatments; as a reference, the graph also displays behavior in the simultaneous treatment (60 participants) and the simultaneous treatment with feedback (58 participants) the case where both computers vote for the same color. According to the instructions, in this case the vote of the subject will be irrelevant in determining the outcome. We test whether subjects understand this aspect of the instructions by comparing the percentage of times that a subject votes the color voted by the computers when her vote is irrelevant.[42] While we find a bias in the direction of voting for the same color voted by the computers, we find that this percentage is actually (slightly) higher for subjects classified as strategic (90%) compared to non-strategic subjects (86%). For further reassurance, in the final session of the Sequential Voting Treatment we include a question after the instructions (see next section) that more explicitly tests subjects' understanding of the notion of a simple majority (even if their vote is not in the majority) and the payoff implications. This question is answered correctly by all of our subjects, and we observe essentially no difference in the results between the session where this question is included and the sessions where it is not.

2 Instructions

All sessions were conducted at the Center for Experimental Social Science (CESS) at NYU. For each treatment, we conducted 3 sessions, with at least 18 participants and at most 21. All participants are NYU students, who were recruited using CESS's software. After participants arrived to the Laboratory and were placed in a computer terminal we distributed instructions which were read aloud. To ease understanding of the instructions and the software interface used in the experiment, we projected slides that are described in the scripted part of the instructions. Subjects were shown how their payoffs are calculated at the end of the session and were paid in US dollars.

Simultaneous Voting

The instructions and structure of the sessions in the Simultaneous Voting Treatment (SVT), the Simultaneous Voting Treatment with Feedback (SVTwF) and the Private Values Treatment (PVT) are similar. Unless it is explicitly mentioned, the text is the same in all treatments.

[42]About half of our subjects explicitly write that their recommendation is irrelevant when computers vote for the same color, but, of course, we cannot draw conclusions from those subjects who do not explicitly mention the irrelevance.

Welcome

You are about to participate in a session on decision-making, and you will be paid for your participation with cash, privately at the end of the session. What you earn depends partly on your decisions and partly on chance. Please turn off pagers, mp3 devices and cellular phones now. Please close any program you may have open on the computer.

The entire session will take place through computer terminals and there will be no interaction with participants seated at other terminals. Please do not talk or in any way try to communicate with other participants during the session. We will start with a brief instruction period. During the instruction period you will be given a description of the main features of the session and will be shown how to use the computers. If you have any questions during this period, please wait until we finish reading the instructions.

Instructions: Part 1

There is a jar with 10 balls, some of which are Red and some of which are Blue. One of these balls will be randomly drawn (each ball having equal probability) and will be called the ‘selected ball’.

Your payoff will be determined by the color of the selected ball, your action, and the action of two computers, Computer 1 and Computer 2, which are programmed to behave in a specific manner. Before describing your task, we explain how the computers behave.

(SVT, SVTwF) Each of the two computers, Computer 1 and Computer 2, cast a vote for either Red or Blue after observing the color of the selected ball. Both computers follow the same voting rule, which specifies what to do if the selected ball is Red and what to do if it is Blue.
An example of a voting rule is the following:

- If the selected ball is Blue: vote Blue with probability 4/5 and vote Red with probability 1/5.
- If the selected ball is Red: vote Red with probability 2/3 and vote Blue with probability 1/3.

This rule means that, for example, if the selected ball is Red, then each computer is programmed to roll a three sided die and vote for Red if 1 or 2 come up (2 out of 3 cases, probability 2/3), and vote for Blue if 3 comes up (1 case out of 3, probability 1/3). Each computer is programmed to follow the same rule, but each computer rolls its own die. In particular, because each computer rolls its own die then their votes may be different.
Example: To illustrate, consider the case where the computers follow the previous rule. First, a ball is randomly chosen from the jar. Suppose that the color of the randomly chosen ball (which we call the selected ball) is Red. Following the above rule, each computer votes Red with probability 2/3, which means the following: each computer rolls its own 3-sided die and votes for Red if 1 or 2 comes up (probability 2/3) or votes for Blue if 3 comes up (probability 1/3). Suppose that computer 1 rolls a 1 and computer 2 rolls a 3. Then computer 1 will vote for Red and computer 2 will vote for Blue.

(PVT) Each of the two computers, Computer 1 and Computer 2, cast a vote for either Red or Blue. Computer 1 votes first. Computer 2 observes how Computer 1 voted and then votes.
An example of a voting rule is the following:

- Computer 1 votes for Red with probability 1/2 and for Blue with probability 1/2.
- If Computer 1 voted for Red: Computer 2 votes Red with probability 4/5 and votes Blue with probability 1/5.
- If Computer 1 voted for Blue: Computer 2 votes Red with probability 1/3 and votes Blue with probability 2/3.

This rule means that Computer 1 starts by rolling a two sided die and votes for Red if 1 comes up (1 out of 2 cases, probability 1/2) or for Blue if 2 comes up (1 out of 2 cases, probability 1/2). Computer 2 observes how Computer 1 voted and then votes. If Computer 1 voted for Red, then Computer 2 rolls a five sided die and votes for Red if 1, 2, 3 or 4 come up (4 out of 5 cases, probability 4/5) and for Blue if 5 comes up (1 out of 5 cases, probability 1/5). If Computer 1 voted for Blue, then Computer 2 rolls a three sided die and votes for Red if 1 comes up (1 out of 3 cases, probability 1/3) and for Blue if 2 or 3 come up (2 out of 3 cases, probability 2/3)
Example: To illustrate, consider the case where the computers follow the previous rule. First, Computer 1 rolls a two sided die and votes for Red if 1 comes up and for Blue otherwise. Suppose that Computer 1 rolls a 1. Then, Computer 1 will vote for Red. Computer 2 observes that Computer 1 voted for Red and will roll a five sided die. Following the rule, Computer 2 is programmed to vote for red if 1 through 4 come up and for blue otherwise. Suppose Computer 2 rolls a 5. Then, Computer 2 will vote for Blue.

Your task: You will be given information about the number of Blue and Red balls in the jar (which indicates the likelihood that the selected ball will be Red or Blue) and about the voting rule followed by the computers. Without observing the color of the selected ball, you must cast a vote for either Red or Blue.

(SVT, SVTwF) Your payoff: If the selected ball is Red and the majority voted for Red, your payoff for the round is $2. If the selected ball is Blue and the majority votes for Blue, your payoff is $2. In all other cases, your payoff is $0. In other words, you get $2 if the vote of the majority coincides with the color of the selected ball and $0 otherwise. Note that there are a total of 3 votes (two by the computers and one by yourself), so that saying that a majority voted for a specific color means that there are 2 or 3 votes for that specific color.
The following table summarizes the payoffs:

		Color of selected ball	
		Red ball	Blue ball
Decision of the group	Majority votes for Red	$2	$0
	Majority votes for Blue	$0	$2

(PVT) Your payoff: If the selected ball is Red and there are one or more votes for Red, your payoff for the round is $2. If the selected ball is Blue and there are one or more votes for Blue, your payoff is $2. In all other cases, your payoff is $0. In other words, you get $2 if at least one vote coincides with the color of the selected ball and $0 otherwise. Note that there are a total of 3 votes (two by the computers and one by yourself), so that saying that at least one vote is for a specific color means that either you or one of the two computers voted for that specific color.
The following table summarizes the payoffs:

		Color of selected ball	
		Red ball	Blue ball
Decision of the group	One or more votes for Red	$2	$0
	One or more votes for Blue	$0	$2

The above voting process will repeat itself for several rounds and in each round the number of red/blue balls in the jar and the rule followed by the computers will change. After facing 45 rounds in which the rules followed by the computers and the composition of the jar changes, Part 1 will be over and we will hand in instructions for Part 2. At the end of the experiment, the payoffs from 7 randomly chosen rounds from Part 1 will be added to compute your total reward for Part 1. You will be able to earn additional money after Part 1. You can make a maximum of $40 US dollars, but on average participants will earn $25 US dollars.

Are there any questions? If at any point during the experiment you need help, just raise your hand.

Cheat Sheet on Probabilities

If you are unfamiliar with probabilities and at any point during the experiment need help with the interpretation of probability numbers this cheat sheet should provide some help.

As an example on how to read the table, take the first line: A probability of 1/3 could be expressed as 0.333 and means that the alternative will be chosen if number 1 comes up when the computer is rolling a 3 sided die.

Probability		Alternative chosen if ...	when rolling a...
As a fraction	As a number		
1/3	0.333	1 comes up	3 sided die
2/3	0.667	1 or 2 come up	3 sided die
1/4	0.25	1 comes up	4 sided die
3/4	0.75	1, 2 or 3 come up	4 sided die
1/2	0.5	1 or 2 come up	2 sided die
1/10	0.1	1 comes up	10 sided die
2/10	0.2	1 or 2 come up	10 sided die
3/10	0.3	1, 2 or 3 come up	10 sided die
4/10	0.4	1, 2, 3 or 4 come up	10 sided die
5/10	0.5	1 through 5 come up	10 sided die
6/10	0.6	1 through 6 come up	10 sided die
7/10	0.7	1 through 7 come up	10 sided die
8/10	0.8	1 through 8 come up	10 sided die
9/10	0.9	1 through 9 come up	10 sided die

Finally, a reminder that probability 1 means that the alternative is chosen always and probability 0 that the alternative is never chosen.

(SVT SVTwF) For example, a possible rule for the computers may be: If the selected ball is Red vote for Red with probability 1 and vote for Blue with probability 0. This means that upon seeing a Red ball the computer always votes for red and never votes for blue.

(PVT) For example, a possible rule for the computers may be: If Computer 1 votes for Red, Computer 2 votes for Red with probability 1 and votes for Blue with probability 0. This means that if Computer 1 votes for Red, Computer 2 always votes for red and never votes for blue.

<u>Script to be read (and not distributed)</u> (Between {} we indicate text that changes in the Simultaneous Voting Treatment (SVT), Simultaneous Voting Treatment with Feedback (SVTwF) and Private Values Treatment (PVT))

Now we will explain how to use the computer interface.

The projected slide shows a display of the interface you will use in this experiment. [Not to be Read: A screenshot similar to Figure 1 in the paper is projected] On the top left of the screen under the title 'General Instructions' you are reminded of the main features of the task that are explained in detail in the instructions. Immediately below the general instructions you will receive information on the voting rule the computers have been programmed to follow. To the right of the general instructions you will see a Jar containing 10 balls. Here you will learn the number of Red and the number of Blue balls. The box at the bottom on the left side reminds you of the payoffs for the game: {SVT and SVTwF: If the color voted by the majority coincides with the color of the selected ball, your payoff for that round is $2. Otherwise, your payoff is $0.} {PVT: If there are one or more votes for a red and the color of the selected ball is red you get $2. If there are one or more votes for blue and the color of the selected ball is blue, you get $2. Otherwise, your payoff is $0.} Finally, at the bottom on the right side is where you will cast your vote. By clicking on top of either 'vote for Red' or 'vote for Blue' you will make your choice. You can take all the time you need to make a decision, but you can only submit your decision 15 seconds after the situation has been presented. In other words, 15 seconds AFTER the situation first appeared on your screens a button 'submit' will appear below the voting decision box. You can change your decision as long as you haven't clicked on submit, but clicking on the submit button makes your decision final. We will start the experiment now. The experiment will start with one case for practice that will not count for money.

[DON'T READ: START THE SERVER] Your screens should now display the case that is projected. There are 3 red balls and 7 blue balls. The rules the computers follow are the following: {SVT, SVTwF: If the selected ball is RED vote for RED with probability 1 and for BLUE with probability 0. If the selected ball is BLUE, vote for BLUE with probability 0.5 and for RED with probability 0.5.} {PVT: Computer 1 votes for Red with probability 1/2 and for Blue with probability 1/2. Computer 2 observes how Computer 1 voted and then votes. If Computer 1 voted for Red, Computer 2 votes for Red with probability 0 and for Blue with probability 1. If Computer 2 voted for Blue, Computer 2 votes for Red with probability 1/2 and for Blue with probability 1/2} Now one ball, the selected ball, will be randomly chosen (with equal probability) among the 10 balls in the jar. You will not see the color of the selected ball. {SVT, SVTwF: Computer 1 gets to see the ball and uses the rule previously described to cast its vote. Given the rule, if the selected ball is RED, Computer 1 is programmed to vote for RED. If the selected ball is BLUE, Computer 1 will toss a two-sided die and vote for BLUE if 1 comes up and for RED otherwise. At the same time, Computer 2 gets to see the ball as well and uses the same rule to cast its vote. Given the rule, if the selected ball is RED, Computer 2 is programmed to vote for RED. If the selected ball is BLUE Computer 2 will toss a two-sided die and vote for BLUE if 1 comes up and for RED otherwise. Notice that each computer uses its own die, so it is possible that they vote differently.} {PVT: Computer 1 will toss a two-sided die and vote for RED if 1 comes up and for BLUE otherwise. Computer 2 gets to see how Computer 1 voted. If Computer 1 voted for Red, Computer 2 will vote for Blue. If Computer 1 voted for Blue, Computer 2 will toss a two-sided die and vote for RED if 1 comes up and for BLUE otherwise.} You will cast your vote without knowing the color of the selected ball. You can vote for RED or BLUE, but remember that this is just a dry run to familiarize you with the interface and will not count for money. Please vote and then click on Submit. {SVT, SVTwF: As an example I will vote for Blue. The screen you see now provides the feedback. In the projected case the selected ball was Blue, I voted for Blue, Computer 1 voted for Blue and Computer 2 voted for Red. Remember that both computers follow the same rule, but each one uses its own die. Since two votes were for BLUE, as the next line shows, the majority voted for BLUE. Since the color chosen by the majority matches the color of the selected ball, your payoff for this round is $2. {PVT: As an example I will vote for Red. The screen you see now provides the feedback. In the projected case the selected ball was Red, I voted for Red, Computer 1 voted for Blue and Computer 2 voted for Red. There are two votes for Red (Computer 2 and me). There is one vote for Blue (Computer 1). Since there is at least one vote for a color that coincides with the color of the selected ball, your payoff for this round is $2.} At the end of the experiment, the payoffs from 7 randomly chosen rounds from Part 1 will be added to compute your total reward for Part 1.

[READ THIS PARAGRAPH ONLY IF THE TREATMENT IS SVTwF] The Feedback box displayed on the screen was just shown to make the instructions clearer. In the rounds for MONEY you will NOT receive any feedback UNTIL the end of the experiment.

Any questions?

Finally, there are some brief questions regarding the instructions that you can now answer by clicking on the OK button. These questions will count for money: you will get $1 when you answer correctly. After those questions you will start playing cases for Money.

Part 2 (Distributed to subjects after they finish with part 1)

Now, given your experience with this environment, you have the possibility of making extra money by giving advice. At the end of the experiment one participant chosen at random will face two voting situations like the ones you faced before. The next page of these instructions describes these two situations. Below the description of each situation you will write what you recommend the advisee should do in each case. Three pieces of advice submitted by participants other than the Advisee will be randomly chosen and given to the Advisee, who will read the advice before confronting the two voting environments. After the Advisee has faced each environment he/she will choose the piece of advice that was most useful to him/her. The participant whose advice was chosen will add to his/her earnings whatever the advisee earned in those two voting situations. The payoffs will be higher in these two cases that will be faced by the advisee.

(SVT, SVTwF)

		Color of selected ball	
		Red ball	Blue ball
Decision of the group	Majority votes for Red	$4	$0
	Majority votes for Blue	$0	$4

(PVT)

		Color of selected ball	
		Red ball	Blue ball
Decision of the group	One or more votes for Red	$4	$0
	One or more votes for Blue	$0	$4

In a few words, both the advisee and the participant whose advice was selected will add to their payments whatever the advisee makes when facing these two situations. When you are ready writing down your advice, raise your hand and give the sheet of paper to the experimenter. After you hand in the advice to the Experimenter you can click on continue and proceed to Part 3.

Any questions?

(SVT, SVTwF)
Cases
Situation number 1:
Rules the computers are programmed to follow (remember each computer uses its own die):

- If the selected ball is RED: vote for RED with probability 1 and vote for BLUE with probability 0.
- If the selected ball is BLUE: vote for BLUE with probability 9/10 and vote for RED with probability 1/10.

The number of RED balls is 7 and the number of Blue Balls is 3.
What should the advisee do? Vote for Red or Blue? EXPLAIN YOUR LOGIC
NEXT
Situation number 2:
Rules the computers are programmed to follow (remember each computer uses its own die):

- If the selected ball is RED: vote for RED with probability 1/10 and vote for BLUE with probability 9/10.
- If the selected ball is BLUE: vote for BLUE with probability 1 and vote for RED with probability 0.

The number of RED balls is 7 and the number of Blue Balls is 3.
What should the advisee do? Vote for Red or Blue? EXPLAIN YOUR LOGIC
NEXT

(PVT)
Cases
Situation number 1:
Rules the computers are programmed to follow:

- Computer 1 votes for RED with probability 9/10 and for BLUE with probability 1/10.
- If Computer 1 voted for RED: Computer 2 votes for RED with probability 0 and for BLUE with probability 1.
- If Computer 1 voted for BLUE: Computer 2 votes for RED with probability 9/10 and for BLUE with probability 1/10.

The number of RED balls is 3 and the number of Blue Balls is 7.
What should the advisee do? Vote for Red or Blue? EXPLAIN YOUR LOGIC
NEXT
Situation number 2:
Rules the computers are programmed to follow:

- Computer 1 votes for RED with probability 9/10 and for BLUE with probability 1/10.
- If Computer 1 voted for RED: Computer 2 votes for RED with probability 9/10 and for BLUE with probability 1/10.
- If Computer 1 voted for BLUE: Computer 2 votes for RED with probability 1 and for BLUE with probability 0.

The number of RED balls is 7 and the number of Blue Balls is 3.
What should the advisee do? Vote for Red or Blue? EXPLAIN YOUR LOGIC
NEXT

(SVT, SVTwF)
Part 3a (As displayed on the screen)
Last Part of the experiment: Questions.
In short you will be asked to answer two questions. You will receive $3 for each correct answer.
After you answer the question you will face 4 cases as you did in Part 1. One of the four cases will be randomly chosen for payment. Click on Continue when you are ready to proceed.
Question 1: Consider the following situation
Computers programmed to follow this rule (each computer rolls its own die):

- If the selected ball is RED: vote for RED with probability 1 and vote for BLUE with probability 0.
- If the selected ball is BLUE: vote for BLUE with probability 1/2 and vote for RED with probability 1/2.

If the computers follow this rule, what is the probability that the selected ball is BLUE if one computer votes for RED and the other votes for BLUE?

(PVT)
Part 3a (As displayed on the screen)
Last Part of the experiment: Questions.
In short you will be asked to answer two questions. You will receive $3 for each correct answer.
After you answer the question you will face 4 cases as you did in Part 1. One of the four cases will be randomly chosen for payment. Click on Continue when you are ready to proceed.
Question 1: Consider the following situation
Computers programmed to follow this rule:

- Computer 1 votes Red with probability 1/2 and Blue with probability 1/2
- Computer 2 observes how computer 1 voted and then votes:
  - If Computer 1 voted Red: Computer 2 votes Red with probability 0 and Blue with probability 1
  - If Computer 1 voted Blue: Computer 2 votes Red with probability 1/2 and Blue with probability 1/2

If computers follow that rule, what is the probability that both vote for red?

(SVT, SVTwF)
Part 3b (As displayed on the screen)
Last Part of the experiment: Questions.
Question 2. You will receive $3 if you answer correctly.
After you answer the question you will face 4 cases as you did in Part 1. One of the four cases will be randomly chosen for payment. Click on Continue when you are ready to proceed.
Consider the following situation
Computers programmed to follow this rule (each computer rolls its own die):

- If the selected ball is RED: vote for RED with probability 1 and vote for BLUE with probability 0.
- If the selected ball is BLUE: vote for BLUE with probability 1/2 and vote for RED with probability 1/2.

Suppose the Selected ball is RED. Can your vote change the color chosen by the majority?

(PVT)
Part 3b (As displayed on the screen)
Last Part of the experiment: Questions.
Question 2. You will receive $3 if you answer correctly.
After you answer the question you will face 4 cases as you did in Part 1. One of the four cases will be randomly chosen for payment. Click on Continue when you are ready to proceed.
Consider the following situation
Computers programmed to follow this rule:

- Computer 1 votes Red with probability 1/2 and Blue with probability 1/2
- Computer 2 observes how computer 1 voted and then votes:
    - If Computer 1 voted Red: Computer 2 votes Red with probability 0 and Blue with probability 1
    - If Computer 1 voted Blue: Computer 2 votes Red with probability 1/2 and Blue with probability 1/2

Suppose the selected ball is red. Can you get a payoff of zero if you voted for blue?

(SVT, SVTwF)
Part 3c (As displayed on the screen)
Consider the following situation
Computers programmed to follow this rule (each computer rolls its own die):

- If the selected ball is RED: vote for RED with probability 1 and vote for BLUE with probability 0.
- If the selected ball is BLUE: vote for BLUE with probability 1/2 and vote for RED with probability 1/2.

(Subjects click on continue and the next paragraph appears in the same screen)
Suppose the Selected ball is RED. Then, following the rule, both computers will vote for RED. In other words, if the Selected ball is RED, a majority of the votes will always be for RED regardless of the color you vote for.
(Subject clicks on continue and the next paragraph appears in the same screen)
Suppose the Selected ball is BLUE. Then, following the rule, each computer will toss a 2 sided die. If both computers end up voting for RED or both computers end up voting for BLUE your vote will not matter. But, if one computer voted for RED and the other voted for BLUE your vote DOES matter. By voting for BLUE you make sure that if such a case arises, the majority chooses the color of the Selected ball.
(Subject clicks on continue and the next paragraph appears in the same screen)
Since the only case in which your vote may influence the color chosen by the majority is when the selected ball is BLUE, then you should vote for BLUE (as long as there is at least 1 blue ball in the jar)
(Subject clicks on continue and the next paragraph appears in the same screen)
Now you will face four more cases. One of them will be randomly chosen for payoff at the end of the experiment.

(PVT)
Part 3c (As displayed on the screen)
Consider the following situation
Computers programmed to follow this rule:

- Computer 1 votes Red with probability 1/2 and Blue with probability 1/2
- Computer 2 observes how computer 1 voted and then votes:
  - If Computer 1 voted Red: Computer 2 votes Red with probability 0 and Blue with probability 1
  - If Computer 1 voted Blue: Computer 2 votes Red with probability 1/2 and Blue with probability 1/2

(Subjects click on continue and the next paragraph appears in the same screen)
Your vote can only make a difference in two cases. 1) If both computers vote for red and the selected ball is blue or 2) If both computers vote for blue and the selected ball is red. For example, if both computers voted RED, you want to vote for BLUE so that there is at least one vote for RED and one for BLUE
(Subject clicks on continue and the next paragraph appears in the same screen)
Following the rules, it is never possible that both computers vote for RED. If Computer 1 votes for RED, Computer 2 will certainly vote for BLUE. The only case in which your vote matters is if both computers vote for BLUE.
(Subject clicks on continue and the next paragraph appears in the same screen)
Since the only case in which your vote may make a difference is when both computers vote for BLUE, then you should vote for RED (as long as there is at least 1 red ball in the jar).
(Subject clicks on continue and the next paragraph appears in the same screen)
Now you will face four more cases. One of them will be randomly chosen for payoff at the end of the experiment.

Sequential Voting Treatment:

Welcome (No change with respect to Simultaneous)

Instructions: Part 1

There is a jar with 10 balls, some of which are Red and some of which are Blue. One of these balls will be randomly drawn (each ball having equal probability) and will be called the 'selected ball'.

Your payoff will be determined by the color of the selected ball, your action, and the action of two computers, Computer 1 and Computer 2, which are programmed to behave in a specific manner. Before describing your task, we explain how the computers behave.

Each of the two computers, Computer 1 and Computer 2, cast a vote for either Red or Blue after observing the color of the selected ball. Both computers follow the same voting rule, which specifies what to do if the selected ball is Red and what to do if it is Blue.

An example of a voting rule is the following:

- If the selected ball is Blue: vote Blue with probability 4/5 and vote Red with probability 1/5.
- If the selected ball is Red: vote Red with probability 2/3 and vote Blue with probability 1/3.

This rule means that, for example, if the selected ball is Red, then each computer is programmed to roll a three sided die and vote for Red if 1 or 2 come up (2 out of 3 cases, probability 2/3), and vote for Blue if 3 comes up (1 case out of 3, probability 1/3). Each computer is programmed to follow the same rule, but each computer rolls its own die. In particular, because each computer rolls its own die then their votes may be different.

Example: To illustrate, consider the case where the computers follow the previous rule. First, a ball is randomly chosen from the jar. Suppose that the color of the randomly chosen ball (which we call the selected ball) is Red. Following the above rule, each computer votes Red with probability 2/3, which means the following: each computer rolls its own 3-sided die and votes for Red if 1 or 2 comes up (probability 2/3) or votes for Blue if 3 comes up (probability 1/3). Suppose that computer 1 rolls a 1 and computer 2 rolls a 3. Then computer 1 will vote for Red and computer 2 will vote for Blue.

Your task: You will be given information about the number of Blue and Red balls in the jar (which indicates the likelihood that the selected ball will be Red or Blue), about the voting rule followed by the computers and about the actual vote of each computer. Without observing the color of the selected ball, you must cast a vote for either Red or Blue.

Your payoff: If the selected ball is Red and the majority voted for Red, your payoff for the round is \$2. If the selected ball is Blue and the majority votes for Blue, your payoff is \$2. In all other cases, your payoff is \$0. In other words, you get \$2 if the vote of the majority coincides with the color of the selected ball and \$0 otherwise. Note that there are a total of 3 votes (two by the computers and one by yourself), so that saying that a majority voted for a specific color means that there are 2 or 3 votes for that specific color.

The following table summarizes the payoffs:

		Color of selected ball	
		Red ball	Blue ball
Decision of the group	Majority votes for Red	$2	$0
	Majority votes for Blue	$0	$2

The above voting process will be repeated for several rounds and in each round the number of red/blue balls in the jar and the rule followed by the computers will change. After facing 45 rounds in which the rules followed by the computers and the composition of the jar changes, Part 1 will be over and we will hand in instructions for Part 2. At the end of the experiment, the payoffs from 7 randomly chosen rounds from Part 1 will be added to compute your total reward for Part 1. You will be able to earn additional money after Part 1. You can make a maximum of $69 US dollars, but on average participants will earn $30 US dollars.

Are there any questions? If at any point during the experiment you need help, just raise your hand.

Cheat Sheet on Probabilities (Idem as in Simultaneous Treatment)_

Script to be read (and not distributed) when describing the screenshot.

Now we will explain how to use the computer interface. [Not to be Read: A screenshot similar to Figure 1 presented in the paper is projected.] The projected slide shows a display of the interface you will use in this experiment. On the top left of the screen there under the title ‘General Instructions’ you are reminded of the main features of the task that are explained in detail in the instructions. Immediately below the general instructions you will receive information on the voting rule the computers have been programmed to follow. To the right of the general instructions you will see a Jar containing 10 balls. Here you will learn the number of Red and the number of Blue balls. The box at the bottom on the left side reminds you of the payoffs for the game: If the color voted by the majority coincides with the color of the selected ball, your payoff for that round is $2. Otherwise, your payoff is $0. The box at the bottom on the right side lets you know how each computer voted. Finally, at the bottom on the right side is where you will cast your vote. By clicking on top of either ‘vote for Red’ or ‘vote for Blue’ you will make your choice. You can take all the time you need to make a decision, but you can only submit your decision 15 seconds after the situation has been presented. In other words, 15 seconds AFTER the situation first appeared on your screens a button ‘submit’ will appear below the voting decision box. You can change your decision as long as you haven’t clicked on submit, but clicking on the submit button makes your decision final. We will start the experiment now. The experiment will start with one case for practice that will not count for money. [DONT READ: START THE SERVER] Your screens should now display the case that is projected. There are 3 red balls and 7 blue balls. The rules the computers follow are the following: If the selected ball is RED vote for RED with probability 1 and for BLUE with probability 0. If the selected ball is BLUE, vote for BLUE with probability 0.5 and for RED with probability 0.5. Now one ball, the selected ball, will be randomly chosen (with equal probability) among the 10 balls in the jar. You will not see the color of the selected ball. Computer 1 gets to see the ball and uses the rule previously described to cast its vote. Given the rule, if the selected ball is RED, Computer 1 is programmed to vote for RED. If the selected ball is BLUE, Computer 1 will toss a two-sided die and vote for BLUE if 1 comes up and for RED otherwise. At the same time, Computer 2 gets to see the ball as well and uses the same rule to cast its vote. Given the rule, if the selected ball is RED, Computer 2 is programmed to vote for RED. If the selected ball is BLUE Computer 2 will toss a two-sided die and vote for BLUE if 1 comes up and for RED otherwise. Notice that each computer uses its own die, so it is possible that they vote differently. The box at the bottom on the right side lets you know how each computer voted. The projected example omits this box, but each one of you can check on your screens how the computers voted. You will cast your vote without knowing the color of the selected ball. You can vote for RED or BLUE, but remember that this is just a dry run to familiarize you with the interface and will not count for money. Please vote and then click on Submit. As an example I will vote for BLUE. The screen you see now provides the feedback. In the projected case the selected ball was Blue, I voted for Blue, Computer 1 voted for Blue and Computer 2 voted for Red. Remember that both computers follow the same rule, but each one uses its own die. Since two votes were for BLUE, as the next line shows, the majority voted for BLUE. Since the color chosen by the majority matches the color of the selected ball, your payoff for this round is $2. [Click] At the end of the experiment, the payoffs from 7 randomly chosen rounds from Part 1 will be added to compute your total reward for Part 1. The Feedback box displayed on the screen was just shown to make the instructions clearer. In the rounds for MONEY you will NOT receive any feedback UNTIL the end of the experiment. Any questions? Finally, there are some brief questions regarding the instructions that you can now answer by clicking on the OK button. These questions will count for money: you will get $1 when you answer correctly. After those questions you will start playing cases for Money.

Instructions: Part 2

Now, given your experience with this environment, you have the possibility of making extra money by giving advice. At the end of the experiment one participant chosen at random will face three voting situations. The next page of these instructions describes these three situations. Below the description of each situation you will write what you recommend the advisee should do in each case. Three pieces of advice submitted by participants other than the Advisee will be randomly chosen and given to the Advisee, who will read the advice before confronting the two voting environments. After the Advisee has faced each environment he/she will choose the piece of advice that was most useful to him/her. The participant whose advice was chosen will add to his/her earnings whatever the advisee earned in those two voting situations. The payoffs will be higher in these two cases that will be faced by the advisee.

The following table summarizes the payoffs:

		Color of selected ball	
		Red ball	Blue ball
Decision of the group	Majority votes for Red	\$4	\$0
	Majority votes for Blue	\$0	\$4

In a few words, both the advisee and the participant whose advice was selected will add to their payments whatever the advisee makes when facing these two situations. When you are ready writing down your advice, raise your hand and give the sheet of paper to the experimenter. Any questions?

Cases:

Situation number 1: Rules the computers are programmed to follow (remember each computer uses its own die):

- If the selected ball is RED: vote for RED with probability 1 and vote for BLUE with probability 0.
- If the selected ball is BLUE: vote for BLUE with probability 9/10 and vote for RED with probability 1/10.

The number of RED balls is 7 and the number of Blue Balls is 3. You can only offer advice for the case where the computers vote in the following manner: Computer 1: Votes for RED Computer 2: Votes for BLUE (If computers vote in a different way the advisee will be on his/her own.) How should the advisee vote in such a case? EXPLAIN YOUR LOGIC NEXT.

Situation number 2: Rules the computers are programmed to follow (remember each computer uses its own die):

- If the selected ball is RED: vote for RED with probability 1/10 and vote for BLUE with probability 9/10.
- If the selected ball is BLUE: vote for BLUE with probability 1 and vote for RED with probability 0.

The number of RED balls is 7 and the number of Blue Balls is 3. You can only offer advice for the case where the computers vote in the following manner: Computer 1: Votes for BLUE Computer 2: Votes for RED (If computers vote in a different way the advisee will be on his/her own.) How should the advisee vote in such a case? EXPLAIN YOUR LOGIC NEXT.

Situation number 3: Rules the computers are programmed to follow (remember each computer uses its own die):

- If the selected ball is RED: vote for RED with probability 1/4 and vote for BLUE with probability 3/4.
- If the selected ball is BLUE: vote for BLUE with probability 1 and vote for RED with probability 0.

The number of RED balls is 6 and the number of Blue Balls is 4. You can only offer advice for the case where the computers vote in the following manner: Computer 1: Votes for BLUE Computer 2: Votes for BLUE (If computers vote in a different way the advisee will be on his/her own.) How should the advisee vote in such a case? EXPLAIN YOUR LOGIC NEXT.

Instructions: Part 3

You will now go over 45 rounds of voting and, for each round, you will provide partial advice to a partner on how they should vote. Later, your partner will play these rounds with the help of your advice, and you will make money provided he/she does well. You will be shown the 45 situations that the other participant (your partner) will face. For each situation you will submit a partial recommendation on how your partner should vote. In this case there is no written advice, just a recommendation on which color to vote for. The recommendation is partial because for each situation the interface will ask you to submit a voting recommendation only for one of the following possible scenarios: (1) Both computers voted Red (2) Both computers voted Blue (3) One computer voted Red and the other voted Blue

When your partner faces a particular round, then he/she will get to see your advice. Of course, if for a particular round your partner does not face the scenario for which you provided advice, then your recommended vote will not be relevant for that round. As before, the likelihood that your partner faces one of the previous 3 scenarios is given by the features of the problem in that round: The number of red and blue balls in the jar and the voting rules of the computers. Your partner will add to his/her payoffs the amounts made in 7 randomly chosen situations. You will also add to your payoffs the amount your partner made in those 7 situations. Any Questions?

Instructions: Part 4

Again, you have the possibility of making extra money by giving written advice. At the end of the experiment the advisee will face three more voting situations like the ones you faced before (for a total of six situations). The next page of these instructions describes these three additional situations. Below the description of each situation you will write what you recommend the advisee should do in each case. DIFFERENCE: In these three cases the advisee will have to vote WITHOUT knowing how the computers voted. Three pieces of advice submitted by participants other than the Advisee will be randomly chosen and given to the Advisee, who will read the advice before confronting the two voting environments. After the Advisee has faced each situation he/she will choose the piece of advice that was most useful to him/her. The participant whose advice was chosen will add to his/her earnings whatever the advisee earned in those two voting situations. The payoffs will be higher in these two cases that will be faced by the advisee.

[NOT PRINTED: Situations from Part 2 are reproduced, but no reference to how computers would vote]

Instructions: Part 5

Now you will face the final 45 cases. For each case you will know how the computers voted and may receive advice from your partner. When you finish your choices we will add to your payoffs the amount you made in 7 randomly chosen rounds.

Simultaneous Voting Treatment with no change in $(\mathbf{p},\mathbf{q})$:

Welcome (No change with respect to Simultaneous Voting Treatment)

Instructions:

There is a jar with 10 balls, 7 balls are Red and 3 balls are Blue. One of these balls will be randomly drawn (each ball having equal probability) and will be called the 'selected ball'.

Your payoff will be determined by the color of the selected ball, your action, and the action of two computers, Computer 1 and Computer 2, which are programmed to behave in a specific manner. Before describing your task, we explain how the computers behave.

Each of the two computers, Computer 1 and Computer 2, cast a vote for either Red or Blue after observing the color of the selected ball. Both computers follow the same voting rule, which specifies what to do if the selected ball is Red and what to do if it is Blue.

The voting rule the computers follow is:

- If the selected ball is Blue: vote Blue with probability 1/2 and vote Red with probability 1/2.
- If the selected ball is Red: vote Red with probability 1 and vote Blue with probability 0.

This rule means that if the selected ball is Blue, then each computer is programmed to roll a two sided die and vote for Red if 1 comes up (1 out of 2 cases, probability 1/2), and vote for Blue if 2 comes up (1 case out of 2, probability 1/2). If the selected ball is red, then each computer is programmed to always vote for red and never vote for blue.

Each computer is programmed to follow the same rule, but each computer rolls its own die. In particular, because each computer rolls its own die then their votes may be different.

Your task: Without observing the color of the selected ball, you must cast a vote for either Red or Blue.

Your payoff: If the selected ball is Red and the majority votes for Red, your payoff for the round is $2. If the selected ball is Blue and the majority votes for Blue, your payoff is $2. In all other cases, your payoff is $0. In other words, you get $2 if the vote of the majority coincides with the color of the selected ball and $0 otherwise. Note that there are a total of 3 votes (two by the computers and one by yourself), so that saying that a majority voted for a specific color means that there are 2 or 3 votes for that specific color.

The following table summarizes the payoffs:

		Color of selected ball	
		Red ball	Blue ball
Decision of the group	Majority votes for Red	$2	$0
	Majority votes for Blue	$0	$2

The above voting process will repeat itself for 45 rounds. In each round a new "selected ball" will be randomly drawn from the jar. At the end of the experiment, the payoffs from 7 randomly chosen rounds will be added to compute your total reward. You can make a maximum of $14 US dollars. You will be able to make $3 extra by answering a few questions on these instructions before the experiment begins. Are there any questions? If at any point during the experiment you need help, just raise your hand.

Script to be read (and not distributed) when describing the screenshot. Now we will explain how to use the computer interface. [Not to be Read: A screenshot similar to Figure J is projected.] The projected slide shows a display of the interface you will use in this experiment. At the top of the screenshot you can see the number for the current round. The screenshot displays what you will see in Round 1 when you start with the experiment. On the top left of the screen, under the title 'General Instructions', you are reminded of the main features of the task that are explained in detail in the instructions. Immediately below the general instructions you can see the rule the computers are programmed to follow. To the right of the general instructions you will see a Jar containing 7 red balls and 3 blue balls. The box at the bottom on the left side reminds you of the payoffs for the game: If the color voted by the majority coincides with the color of the selected ball, your payoff for that round is $2. Otherwise, your payoff is $0. At the bottom on the center side is where you will cast your vote. By clicking on top of either 'vote for Red' or 'vote for Blue' you will make your choice. You can take all the time you need to make a decision, but once you click on the submit button your decision will be final. After you make your decision you will learn how each computer voted, the color chosen by the majority, the color of the selected ball and your payoff for the round. Finally, at the bottom on the right side of the screen you can see the history of previous decisions. For each PREVIOUS round you can see how you voted, how each computer voted, what the majority selected, what the color of the selected ball was and your payoff. Since this is a screenshot for round 1 there is yet no previous history to show. From round 2 onwards you will see the history of your previous decisions in that table. We will start the experiment now. There are some questions on the instructions first, in which you can make up to $3. After you answer these questions, you will start with the experiment.

Questions on the instructions

After reading the instructions and the script for Part 1, but before Part 1 starts, subjects are incentivized to answer a few questions on the instructions. Subjects answer these questions using the interface. Below we provide a transcript with the details.

Simultaneous Voting Treatment (all sessions), Simultaneous Voting Treatment with Feedback (all sessions) and Sequential Voting Treatment (sessions 1 and 2):

- Question: Consider the following situation

Computers programmed to follow this rule (each computer rolls its own die)

If the selected ball is RED: vote for RED with probability 1/2 =0.5 and vote for BLUE with probability 1/2 = 0.5.

If the selected ball is BLUE: vote for BLUE with probability 3/4 = 0.75 and vote for RED with probability 1/4 = 0.25.

[Subjects answer each of the following questions on the screen]

Suppose the Selected ball is BLUE. What is the probability that computer 1 votes for BLUE?

Suppose the Selected ball is BLUE. What is the probability that computer 2 votes for BLUE?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs.

The probability that computer 1 votes for BLUE if the selected ball is BLUE is 3/4=0.75.

The probability that computer 2 votes for BLUE if the selected ball is BLUE is also 3/4=0.75.

[If subject answers incorrectly]

Your reply was INCORRECT. We will add $0 to your payoffs.

The probability that computer 1 votes for BLUE if the selected ball is BLUE is 3/4=0.75.

The probability that computer 2 votes for BLUE if the selected ball is BLUE is also 3/4=0.75.

[Subjects move on to the second question]

- Question: Consider the following situation

Suppose the Selected ball is BLUE. After throwing their own die, Computer 1 votes for RED and Computer 2 votes for BLUE.

[Subjects answer each of the following questions on the screen]

What would have been your payoff if you had voted for BLUE?

What would have been your payoff if you had voted for RED?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs

The selected ball is BLUE. If you had voted for BLUE there would be two votes for BLUE and one for RED. Since the majority would have voted BLUE and the selected ball is BLUE your payoff would have been $2.

The selected ball is BLUE. If you had voted for RED there would be two votes for RED and one for BLUE. Since the majority would have voted RED and the selected ball is BLUE your payoff would have been 0

[If subject answers incorrectly]

Your reply was INCORRECT. We will add $0 to your payoffs.

The selected ball is BLUE. If you had voted for BLUE there would be two votes for BLUE and one for RED. Since the majority would have voted BLUE and the selected ball is BLUE your payoff would have been $2.

The selected ball is BLUE. If you had voted for RED there would be two votes for RED and one for BLUE. Since the majority would have voted RED and the selected ball is BLUE your payoff would have been 0

[Subjects who answered correctly both items of both questions move on to Part 1. Subjects who answered any item incorrectly face two additional questions. These additional questions are identical to the ones shown above, except that instead of assuming that the selected ball was blue we say 'Suppose the Selected ball is RED' and adjust answers accordingly.]

Sequential Voting Treatment (session 3)

In the third session, we divided the second question into two questions and asked these two questions instead (for a total of three questions):

- Question: Consider the following situation

[Subjects answer each of the following questions on the screen]

Suppose that Computer 1 votes for Red and Computer 2 votes for Red. Suppose that you vote for Blue. What is the color chosen by the majority?

Suppose that Computer 1 votes for Blue and Computer 2 votes for Red. Suppose that you vote for Blue. What is the color chosen by the majority?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs.

There are two votes for Red, so the majority votes for Red.

There are two votes for Blue, so the majority votes for Blue.

[If subject answers incorrectly]

Your reply was INCORRECT. We will add $0 to your payoffs.

There are two votes for Red, so the majority votes for Red.

There are two votes for Blue, so the majority votes for Blue.

[If Subjects answer either of these incorrectly they face both questions again (re-labeling the colors)]

- Question: Consider the following situation

[Subjects answer each of the following questions on the screen]

Suppose that the majority votes for Red and the color of the selected ball is Red. What is your payoff?

Suppose that the majority votes for Blue and the color of the selected ball is Red. What is your payoff?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs

Your payoff is $2 since the color of the selected ball matches the color voted by the majority.

Your payoff is $0 since the color of the selected ball does not match the color voted by the majority.

[If subject answers incorrectly]

Your payoff is $2 since the color of the selected ball matches the color voted by the majority.

Your payoff is $0 since the color of the selected ball does not match the color voted by the majority.

[Subjects who answered correctly both items of both questions move on to Part 1. Subjects who answered any item incorrectly face two additional questions. These additional questions are identical to the ones shown above, except that instead of assuming that the selected ball was blue we say 'Suppose the Selected ball is RED' and adjust answers accordingly.]

Private Values Treatment

- Question:

Computers programmed to follow this rule

Computer 1 votes for Red with probability 0.5 and for Blue with probability 0.5.

If Computer 1 voted for RED: Computer 2 votes RED with probability 0.1 and votes BLUE with probability 0.9.

If Computer 1 voted for BLUE: Computer 2 votes RED with probability 0.75 and votes BLUE with probability 0.25.

[Subjects answer each of the following questions on the screen]

What is the probability that Computer 1 votes for BLUE?

Suppose that Computer 1 voted for RED. What is the probability that Computer 2 votes for BLUE?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs.

The probability that Computer 1 votes for BLUE is 0.5.

The probability that Computer 2 votes for BLUE if Computer 1 voted for RED is 0.9.

[If subject answers incorrectly]

Your reply was INCORRECT. We will add $0 to your payoffs.

The probability that Computer 1 votes for BLUE is 0.5.

The probability that Computer 2 votes for BLUE if Computer 1 voted for RED is 0.9.

[If Subjects answer either of these incorrectly they face both questions again (re-labeling the colors)]

- Question: Consider the following situation

[Subjects answer each of the following questions on the screen]

Suppose that Computer 1 voted for Red, Computer 2 voted for Blue and you voted for Red. Suppose that the color of the selected ball is Blue. What is your payoff?

Suppose that there are three votes for Blue and the color of the selected ball is Red. What is your payoff?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs

Your payoff is $2 since there is at least one vote for Red and the color of the selected ball is Red.

Your payoff is $0 since the color of the selected ball is Red and there are no votes for Red.

[If subject answers incorrectly]

Your payoff is $2 since there is at least one vote for Red and the color of the selected ball is Red.

Your payoff is $0 since the color of the selected ball is Red and there are no votes for Red.

[If Subjects answer either of these incorrectly they face both questions again (relabeling the colors). Then part 1 of the experiment starts]

Simultaneous Voting Treatment with no change in $(p.q)$

- Question: Consider the following situation

Computers programmed to follow this rule (each computer rolls its own die)

If the selected ball is RED: vote for RED with probability 1 and vote for BLUE with probability 0.

If the selected ball is BLUE: vote for BLUE with probability 1/2=0.5 and vote for RED with probability 1/2 = 0.5.

[Subjects answer each of the following questions on the screen]

Suppose the Selected ball is BLUE. What is the probability that computer 1 votes for BLUE?

Suppose the Selected ball is BLUE. What is the probability that computer 2 votes for BLUE?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs.

The probability that computer 1 votes for BLUE if the selected ball is BLUE is 1/2=0.5.

The probability that computer 2 votes for BLUE if the selected ball is BLUE is also 1/2=0.5.

[If subject answers incorrectly]

Your reply was INCORRECT. We will add $0 to your payoffs.

The probability that computer 1 votes for BLUE if the selected ball is BLUE is 1/2=0.5.

The probability that computer 2 votes for BLUE if the selected ball is BLUE is also 1/2=0.5.

[If Subjects answer either of these incorrectly they face both questions again]

- Question: Consider the following situation

[Subjects answer each of the following questions on the screen]

Suppose that Computer 1 votes for Red and Computer 2 votes for Red. Suppose that you vote for Blue. What is the color chosen by the majority?

Suppose that Computer 1 votes for Blue and Computer 2 votes for Red. Suppose that you vote for Blue. What is the color chosen by the majority?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs.

There are two votes for Red, so the majority votes for Red.

There are two votes for Blue, so the majority votes for Blue.

[If subject answers incorrectly]

Your reply was INCORRECT. We will add $0 to your payoffs.

There are two votes for Red, so the majority votes for Red.

There are two votes for Blue, so the majority votes for Blue.

[If Subjects answer either of these incorrectly they face both questions again]

- Question: Consider the following situation

[Subjects answer each of the following questions on the screen]

Suppose that the majority votes for Red and the color of the selected ball is Red. What is your payoff?

Suppose that the majority votes for Blue and the color of the selected ball is Red. What is your payoff?

You will receive $1 if you answer both questions correctly.

[If subject answers correctly]

Your reply was CORRECT. We will add $1 to your payoffs

Your payoff is $2 since the color of the selected ball matches the color voted by the majority.

Your payoff is $0 since the color of the selected ball does not match the color voted by the majority.

[If subject answers incorrectly]

Your payoff is $2 since the color of the selected ball matches the color voted by the majority.

Your payoff is $0 since the color of the selected ball does not match the color voted by the majority.

[If Subjects answer either of these incorrectly they face both questions again]

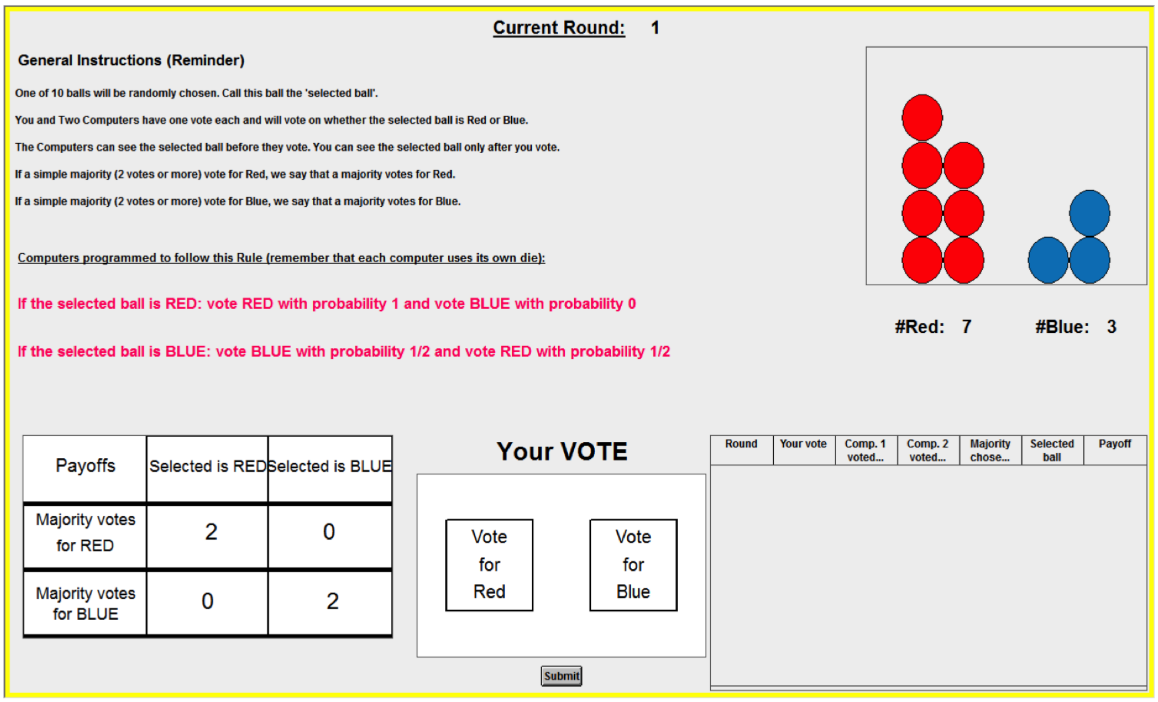

Figure J: Screenshot for the Simultaneous Voting Treatment with no change in (p, q)