

Internet Appendix to “You Need to Recognize Ambiguity to Avoid It”

The next twelve pages are composed of screen shots of the last of three experiments. The difference between the presentation of the questions in the experiments is summarized as follows.

1. Experiments 1 and 2 did not initially include the psychometric scale questions or the questions about the temperature scale (screen shot pages 9 through 11). In a follow-up study, that captured well over one half of the subjects in experiments 1 and 2, we presented the questions on these pages to the subjects.
2. In experiments 1 and 2 the gender question was posed at the end of the study along with the remaining demographic information.
3. Experiments 1 and 2 collected more demographic data (e.g., marital status, home ownership, children, etc.). In analyzing the data from these first two experiments we discovered no relationship between them and the tasks completed or choices made.



Welcome to our research study. In this study, you will be presented with a choice situation and asked to make a decision about which of two or more options you would choose. All of your responses will remain confidential. So please, just answer to the best of your ability. Thank you in advance for participating in our research project.

It should take about 15 minutes to complete this study. If you complete the study, you will be entered into one of several drawings for the chance to receive the actual monetary outcome of the choice you make in this experiment. Everyone who completes the study has the same chance of being selected. This random drawing will be conducted live on January 12, 2013 at 8:30am EST. The drawing is public and can be viewed live at <http://b2ess.nus.edu.sg/webcast.htm> on January 12, 2013 at 8:30am EST.

Your participation in this study is voluntary. You are free to choose not to participate or to withdraw at any time if you choose not to answer some of the questions. However, if you choose not to participate or withdraw from the study, then you will not be eligible for the prize drawing.

Your individual results will be kept anonymous and you will not be identified in the data that will be collected or in the results that will be reported. The study will collect information about the browser you are using and your IP address. No personal information will be placed on your browser by the use of cookies.

For additional information about giving consent or your rights as a participant in this study, please feel free to contact the Vanderbilt University Institutional Review Board Office at (615) 322-2918 or toll free at (866-224-8273), or email Professor Mark Ratchford at mark.ratchford@owen.vanderbilt.edu.



What is your gender?

- Male
- Female

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There are two decks of cards, each containing exactly 20 cards: Deck #1 contains exactly 10 black cards and 10 red cards. Deck #2 contains an unknown mix of black and red cards (could be all black, all red, an even mix, or any combination in between).



A card is randomly drawn from each deck: One card is drawn from Deck #1 (which contains exactly 20 cards, 10 of which are black and 10 of which are red), and One card is drawn from Deck #2 (which contains an unknown mix of 20 red and black cards).

In Deck #1, what is the percentage chance that a red card is drawn? (i.e. what are the odds that a red card is randomly selected from Deck #1?)

- 0% chance
- 25% chance
- 50% chance
- 75% chance
- 100% chance
- Cannot be determined

In Deck #2, what is the percentage chance that a red card is drawn? (i.e. what are the odds that a red card is randomly selected from Deck #2?)

- 0% chance
- 25% chance
- 50% chance
- 75% chance
- 100% chance
- Cannot be determined



Below is a hypothetical choice. Suppose you are asked to choose between the following two payoff tables:

| | | | |
|--|-------|---|---------|
| Option A | | Deck #2: 20 cards of which an unknown number are black and/or red | |
| | | Black | Red |
| Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$1 | Win \$2 |
| | Red | Win \$3 | Win \$4 |

or

| | | | |
|--|-------|---|---------|
| Option B | | Deck #2: 20 cards of which an unknown number are black and/or red | |
| | | Black | Red |
| Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$3 | Win \$1 |
| | Red | Win \$4 | Win \$2 |

The payoff from your choice will be determined by drawing two cards: One card from Deck 1 containing 10 black and 10 red cards. One card from Deck 2 containing 20 cards with an unknown mix of red and/or black cards.

Suppose you select Option B:

| | | | |
|--|-------|---|---------|
| Option B | | Deck #2: 20 cards of which an unknown number are black and/or red | |
| | | Black | Red |
| Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$3 | Win \$1 |
| | Red | Win \$4 | Win \$2 |

Then a card will be drawn from each of the two decks:

- If the card from Deck #1 is **Black** and the card from Deck #2 is **Black** then you win \$3 (the amount in the top-left box)
- If the card from Deck #1 is **Black** and the card from Deck #2 is **Red** then you win \$1 (the amount in the top-right box)
- If the card from Deck #1 is **Red** and the card from Deck #2 is **Black** then you win \$4 (the amount in the bottom-left box)
- If the card from Deck #1 is **Red** and the card from Deck #2 is **Red** then you win \$2 (the amount in the bottom-right box)

Suppose you select Option A (shown below):

| | | | |
|--|-------|---|---------|
| Option A | | Deck #2: 20 cards of which an unknown number are black and/or red | |
| | | Black | Red |
| Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$1 | Win \$2 |
| | Red | Win \$3 | Win \$4 |

Given that you select Option A (shown above), what would the payoff be if Black is drawn from Deck #1 and Red is drawn from Deck #2?

- \$1
- \$2
- \$3
- \$4

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| | | | |
|--|-------|---|----------|
| | | Deck #2: 20 cards of which an unknown number are black and/or red | |
| | | Black | Red |
| Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$0 | Win \$95 |
| | Red | Win \$0 | Win \$95 |

The payoff from your choice will be determined by drawing two cards:

1. One card from Deck 1 containing 10 black and 10 red cards
2. One card from Deck 2 containing 20 cards with an unknown mix of red and/or black cards.

Given the above scenario, what is the probability (what are the odds) that you will win \$95?

- 0% chance
- 25% chance
- 50% chance
- 75% chance
- 100% chance
- Cannot be determined

| | | | |
|--|-------|---|----------|
| | | Deck #2: 20 cards of which an unknown number are black and/or red | |
| | | Black | Red |
| Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$0 | Win \$0 |
| | Red | Win \$95 | Win \$95 |

The payoff from your choice will be determined by drawing two cards:

1. One card from Deck 1 containing 10 black and 10 red cards
2. One card from Deck 2 containing 20 cards with an unknown mix of red and/or black cards.

Given the above scenario, what is the probability (what are the odds) that you will win \$95?

- 0% chance
- 25% chance
- 50% chance
- 75% chance
- 100% chance
- Cannot be determined



We will now ask you to make a choice between two payoff tables. There is no right or wrong answer. Please make your decision by carefully considering the information presented in each choice scenario.



Situation #1

- Deck #1 contains exactly 20 cards with 10 red cards and 10 black cards
- Deck #2 contains exactly 20 cards with an unknown number of red and black cards (could be all black, all red, an even mix, or any combination in between)

The payoff from your choice will be determined by drawing two cards:

- One card from Deck 1 containing 10 black and 10 red cards
- One card from Deck 2 containing 20 cards with an unknown mix of red and/or black cards.

Please select the bet below that you most prefer (Option A or Option B)

| | | | | | | | | |
|--|-------|---|-----------|--|-----------------|-----------|---|-----|
| Option A | | Deck #2: 20 cards of which an unknown number are black and/or red | | or | Option B | | Deck #2: 20 cards of which an unknown number are black and/or red | |
| | | Black | Red | | | | Black | Red |
| Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$0 | Win \$101 | Deck #1: 20 cards of which 10 are black and 10 are red | Black | Win \$0 | Win \$0 | |
| | Red | Win \$0 | Win \$100 | | Red | Win \$100 | Win \$100 | |

Option A

Option B

Please briefly indicate why you selected this option

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For each of the statements below, please indicate how characteristic each statement is of you.

Please use the following scale:
 1 = extremely uncharacteristic of you (not at all like you)
 2 = somewhat uncharacteristic of you
 3 = uncertain
 4 = somewhat characteristic of you
 5 = extremely characteristic of you (very much like you)

| | extremely uncharacteristic of you | somewhat uncharacteristic of you | uncertain | somewhat characteristic of you | extremely characteristic of you |
|---|-----------------------------------|----------------------------------|-----------------------|--------------------------------|---------------------------------|
| I would prefer complex to simple problems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I like to have the responsibility of handling a situation that requires a lot of thinking. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Thinking is not my idea of fun. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I like tasks that require little thought once I've learned them. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The idea of relying on thought to make my way to the top appeals to me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I really enjoy a task that involves coming up with new solutions to problems. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| Learning new ways to think doesn't excite me very much. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| | extremely uncharacteristic of you | somewhat uncharacteristic of you | uncertain | somewhat characteristic of you | extremely characteristic of you |
| I prefer my life to be filled with puzzles that I must solve. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| The notion of thinking abstractly is appealing to me. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I would prefer a task that is intellectual, difficult, and important to one that is somewhat important but does not require much thought. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I feel relief rather than satisfaction after completing a task that required a lot of mental effort. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| It's enough for me that something gets the job done; I don't care how or why it works. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |
| I usually end up deliberating about issues even when they do not affect me personally. | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> | <input type="radio"/> |

Please do not spend too much time on the following items. There are no right or wrong answers and therefore your first response is important. Mark "agree" or "disagree" for each statement and please do not skip any.

| | Agree | Disagree |
|---|-----------------------|-----------------------|
| A problem has little attraction for me if I don't think it has a solution. | <input type="radio"/> | <input type="radio"/> |
| I am just a little uncomfortable with people unless I feel that I can understand their behavior. | <input type="radio"/> | <input type="radio"/> |
| There's a right way and a wrong way to do almost everything. | <input type="radio"/> | <input type="radio"/> |
| I would rather bet 1 to 6 on a long shot than 3 to 1 on a probable winner. | <input type="radio"/> | <input type="radio"/> |
| The way to understand complex problems is to be concerned with their larger aspects instead of breaking them into smaller pieces. | <input type="radio"/> | <input type="radio"/> |
| I get pretty anxious when I'm in a social situation over which I have no control. | <input type="radio"/> | <input type="radio"/> |
| Practically every problem has a solution. | <input type="radio"/> | <input type="radio"/> |
| | Agree | Disagree |
| Before an examination, I feel much less anxious if I know how many questions there will be. | <input type="radio"/> | <input type="radio"/> |
| The best part of working a jigsaw puzzle is putting in that last piece. | <input type="radio"/> | <input type="radio"/> |
| Sometimes I rather enjoy going against the rules and doing things I'm not supposed to do. | <input type="radio"/> | <input type="radio"/> |
| I don't like to work on a problem unless there is a possibility of coming out with a clear-cut and unambiguous answer. | <input type="radio"/> | <input type="radio"/> |
| I like to fool around with new ideas, even if they turn out later to be a total waste of time. | <input type="radio"/> | <input type="radio"/> |
| Perfect balance is the essence of all good composition. | <input type="radio"/> | <input type="radio"/> |

The temperature at the main airport in Boston, MA USA at noon on December 10, 2012 was 49.27 degrees Fahrenheit. Select the digit in the second decimal place of this temperature measurement out of the choices below.

- 0
- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9

Is the digit you selected above "odd" or "even?"

- Odd
- Even

Which of the following two bets would you prefer?

- Win \$1,000 if the second decimal digit of the temperature reading (in Fahrenheit) at your current home town's airport at noon tomorrow will be even.
- Win \$1,002 if the second decimal digit of the temperature reading (in Fahrenheit) at the Helsinki, Finland airport at noon tomorrow will be even.



What year were you born?

What is your ethnicity (race)?

What is the highest level of education you have completed?

What is your combined annual household income?

In which country do you reside?