Survey.2015

The purpose of this study is to better understand how people integrate information and draw conclusions in different contexts. With this information, it is hoped that future research in this area might contribute to the understanding of peoples' ability to make accurate forecasts about future events.  During this experiment, you will be asked to complete a variety of tasks. Some of these tasks will ask you about your beliefs and opinions in real or imagined scenarios; others will ask you to make judgments concerning the probability that an event will occur. At the end of this experiment, you will also be asked to complete a brief demographic questionnaire.

Participation in this study is expected to take approximately 40-minutes. Some participants may finish more quickly or more slowly than anticipated.There are no direct benefits to participating in this study other than the financial compensation listed below. However, it is hoped that the results of this study will provide valuable insight into judgment and decision making processes.

There are no foreseeable risks to participating in this study. If you are uncomfortable or wish to withdraw for any other reason, you may stop participating at any time.  All data collected during this experiment will be completely anonymous, and will be stored at all times on a password protected computer. When the research is completed, we may save the electronic files of data for use in future research done by our research team or others. We will retain this study information for up to 5 years after the results of the study are published, to comply with American Psychological Association data-retention rules. Participants will be paid at a rate of $10/hr for participation.  Participation in research is completely voluntary. You have the right to decline to participate or to withdraw at any point in this study without penalty or loss of benefits to which you are otherwise entitled. If you have any questions or concerns about this study, you may contact Josh Baker at jbak@sas.upenn.edu. If you have any questions or concerns about your rights and treatment as a research subject, you may contact the Office of Regulatory Affairs at the University of Pennsylvania, at 215.573.2540 or via email at burgess4@upenn.edu. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ If you agree to participate in this study, please click the “I agree” button below. Otherwise, please click the button labelled “I would NOT like to participate in this experiment.”

* I agree.
* I do NOT like to participate in this experiment.

Part 1: Instructions   For the next five questions, you will be asked to provide your beliefs about various verbal statements of uncertainty. For each item, please imagine that you are reading a news report and that you have come across the presented statement, exactly as it appears on the screen. Your task is to assign numerical probabilities to each statement, reflecting three characteristics of the statement's intended meaning:

The lowest plausible interpretation of the statement as a numerical probability, the highest plausible interpretation of the statement as a numerical probability, and the best interpretation of the statement as a numerical probability. There are no right or wrong answers. We are simply interested in your personal opinions. We'll give you a practice question to make sure you've got the hang of it.

Practice Question Please imagine you are reading a news report, and you come across the following statement: "It is improbable that Edward Snowden will return to the United States before 2016."

\_\_\_\_\_\_Use this slider to indicate the lowest plausible interpretation of this statement as a numerical probability

\_\_\_\_\_\_ Use this slider to indicate the best interpretation of this statement as a numerical probability

\_\_\_\_\_\_ Use this slider to indicate the highest plausible interpretation of this statement as a numerical probability

Check

* Got it. I understand how to answer these questions.

Please imagine you are reading a news report, and you come across the following statement: "It is almost impossible that a woman will be elected president of the United States in the 2016 presidential election."

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Please imagine you are reading a news report, and you come across the following statement: "It is possible that a private spaceflight company will allow members of the public to purchase passage to the moon by January 1st, 2040."

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Please imagine you are reading a news report, and you come across the following statement: "It is doubtful that additional U.S. states will legalize the recreational use of marijuana by January 1st, 2017." (\*\*Note: At present, marijuana has been legalized for recreational use in Washington and Colorado. Alaska has also passed legislation to legalize the recreational use of marijuana which will go into effect in February 2015. When answering this question, please assume that the news report is making a statement about the probability that one or more states beyond these three will legalize marijuana for recreational use.)

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Please imagine you are reading a news report, and you come across the following statement: "It is likely that the U.S. Mint will discontinue production of the penny by January 1st, 2019."

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Please imagine you are reading a news report, and you come across the following statement: "It is almost certain that an HIV vaccine will be commercially available by January 1st, 2030."

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The next five questions will look very similar to the five you just answered, but they are different in an important way. For the next five questions, please provide your personal opinion about the probability of each of the items presented.

What is the probability that a woman will be elected president of the United States in the 2016 presidential election?

\_\_\_\_\_ Use this slider to indicate your personal opinion.

 What is the probability that a private spaceflight company will allow members of the public to purchase passage to the moon by January 1st, 2040?

\_\_\_\_\_\_ Use this slider to indicate your personal opinion.

What is the probability that additional U.S. states will legalize the recreational use of marijuana by January 1st, 2017? (\*\*Note: At present, marijuana has been legalized for recreational use in Washington and Colorado. Alaska has also passed legislation to legalize the recreational use of marijuana which will go into effect in February 2015. When answering this question, please consider the probability that one or more states beyond these three will legalize marijuana for recreational use.)

\_\_\_\_\_\_ Use this slider to indicate your personal opinion.

What is the probability that the U.S. mint will discontinue production of the penny by January 1st, 2019?

\_\_\_\_\_\_ Use this slider to indicate your personal opinion

What is the probability that an HIV vaccine will be commercially available by January 1st, 2030?

\_\_\_\_\_\_ Use this slider to indicate your personal opinion.

Part 2: Instructions: In this section, you will be presented with several word problems concerning probability. Your task is simply to provide your best estimate of the specified event's probability. In addition, we will also ask you to rate your confidence that your answers are correct. Many participants may find the problems in this section of the study difficult. We will provide you with space to work-out your answers, but we ask that you don't spend too long on problems that you don't know how to solve. In all cases, we ask that you provide your best estimates of the specified probability, but if you come across a problem that is too difficult, it is okay to make your estimate based on intuition.

Suppose there are two opaque jars, each full of cookies. Jar #1 has 10 chocolate-chip cookies and 30 plain cookies. Jar #2 has 20 cookies of each type. Fred picks one of the jars at random. Then without looking, he randomly takes a cookie from that jar. The cookie is a plain one. Fred wonders which of the two jars he originally selected. The plain cookie is one piece of evidence. Given that the cookie he selected was plain, what is the probability that the cookie came from Jar #1? (Please provide your answer as a decimal between 0 and 1).

In the 1980’s, a particular HIV test was used in the United States. At the time, 10 out of every 1000 people in the US were infected with HIV, and 990 were not. Imagine that, during this time, public health researchers selected a random sample of 1000 Americans to be tested for HIV. In this sample, all 10 of the people who truly had HIV tested positive, and 40 of the remaining people (i.e. those who did not have HIV) also tested positive. Imagine, now, that a new person takes the test, and has a positive result. If the results from the previous sample hold true for the population at large, what is the probability that this person actually has HIV? (Please provide your answer as a decimal between 0 and 1).

Imagine a device has been invented for screening engine parts for internal cracks. Most parts are without cracks, but past results show that 10 in 1000 parts have a crack. Of parts with cracks, 9 out of 10 will be correctly identified with the screening device. Of parts without cracks, 10 out of 990 will be incorrectly identified as having cracks. An engine part is tested and the result is a crack. What is the probability the engine part really is cracked? (Please provide your answer as a decimal between 0 and 1).

Imagine Sue throws a fair, six-sided die. If it comes up with the number "1," she picks a ball from Urn A. With any other number, she will pick a ball from Urn B. Urn A has 2 black balls and 1 white ball. Urn B has 1 black ball and 2 white balls. A black ball is selected from one of the two urns. What is the probability that Urn A was selected? (Please provide your answer as a decimal between 0 and 1).

The probability of breast cancer is 1 % for a woman at age forty who participates in routine screening. If a woman has breast cancer, the probability is 80% that she will get a positive mammography. If a woman does not have breast cancer, the probability is 9.6% that she will also get a positive mammography. A woman in this age group had a positive mammography in a routine screening. What is the probability that she actually has breast cancer? (Please provide your answer as a decimal between 0 and 1).