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Replicating the experiment by Tversky and Kahneman

1.Introduction

The laboration is basically replication of an experiment by Amos Tversky and Daniel Kahneman. In the original experiment researchers investigate how framing solution for problems effect on people's selection. In this report we are exploring people's judgments about the alternative programs for two different problems.

The first problem is one of the main reasons of people death in Iran. According to the Iran statistical center in 2010, traffic accident fatality rate in Iran is about 20,000 people annually. There are different reasons for the mentioned problem, for instance old roads that were built decades ago with low road engineering standards. Some accidents are attributed to human error when driving or even social and cultural aspects like ignoring driving regulation.

The Second problem that we investigate is the Iran Nuclear program, which launched in the 1950s. Nowadays this program is considered as a threat for many countries around the world. They believe that if the program is not stopped, Iran can have nuclear bomb. The main goal of International Atomic Energy Agency is to stop Iran nuclear program. According to the Energy Agency report in March 2013, Iran needs 3000 centrifuges to enrich enough uranium to make nuclear bomb.

2.Method

In order to control the effect of participating group we did the experiment with two groups of participants. Group 1 answered the first problem with A-B alternative programs and the second problem with C-D programs and vice versa for the Group 2. The experiment conducted online by 24 exchange students from Uppsala University.

Group 1, Questionnaire:

At present, traffic accident fatality rate in Iran is about 20,000 people annually . There are some programs to decrease the death rate.

If Program A is adopted, 5000 people will be saved.

If Program B is adopted, there is a $1/4$ probability that all 20000 people will be saved, and a $3/4$ probability that no people will be saved.

Iran needs to build 3000 centrifuges to have nuclear bomb. Alternative programs to stop Iran.

If Program C is adopted, 2000 centrifuges will continue working.

If Program D is adopted, there is a $1/4$ probability that all centrifuge stop working, and a $3/4$ probability that 3000 centrifuges continue working

Group 2, Questionnaire:

At present, traffic accident fatality rate in Iran is about 20,000 people annually. There are some programs to decrease the death rate.

If Program C is adopted, 15000 people will die.

If Program D is adopted, there is a $1/4$ probability that nobody will die, and a $3/4$ probability that 20,000 people will die

Iran needs to build 3000 centrifuges to have nuclear bomb. Alternative programs to stop Iran.

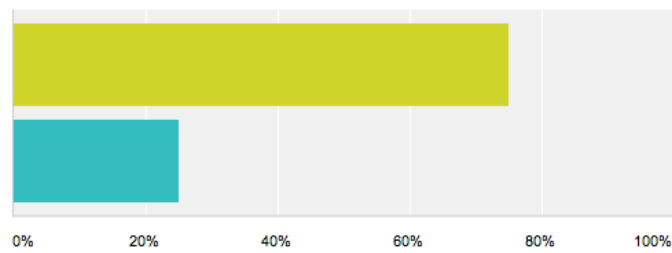
If program A adopted, 1000 centrifuges will stop working.

If Program B is adopted, there is a $1/4$ probability that 3000 centrifuge stop working, and a $3/4$ probability that all centrifuges continue working.

3.Results

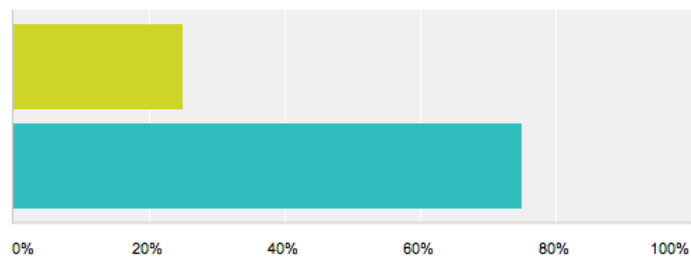
Group one, Answers to the First problem:

Answer Choices	Responses	
If Program A is adopted, 5000 people will be saved.	75%	9
If Program B is adopted, there is a 1/4 probability that all 20000 people will be saved, and a 3/4 probability that no people will be saved.	25%	3
Total	12	



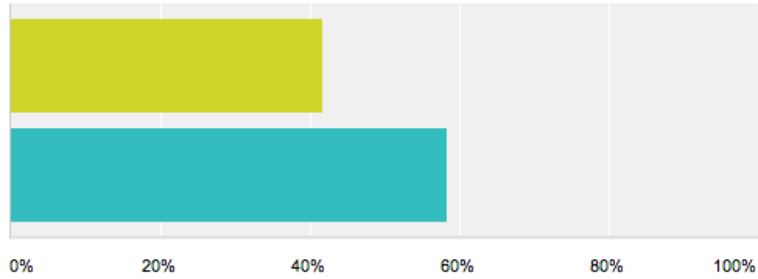
Group one, Answers to the Second problem:

Answer Choices	Responses	
If Program C is adopted, 2000 centrifuges will continue working.	25%	3
If Program D is adopted, there is a 1/4 probability that all centrifuge stop working, and a 3/4 probability that 3000 centrifuges continue working.	75%	9
Total	12	



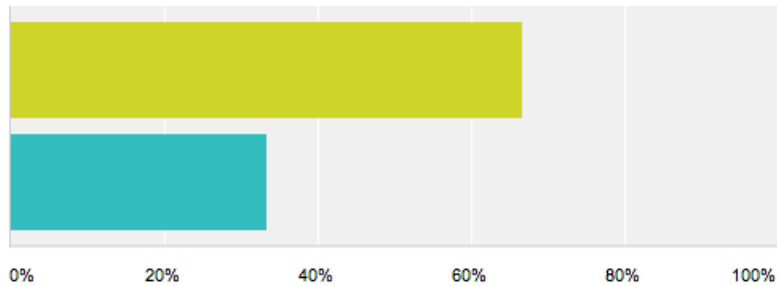
Group two, Answers to the First problem:

Answer Choices	Responses
If Program C is adopted, 15000 people will die.	41.67% 5
If Program D is adopted, there is a 1/4 probability that nobody will die, and a 3/4 probability that 20,000 people will die	58.33% 7
Total	12



Group two, Answers to the Second problem:

Answer Choices	Responses
If Program A is adopted, 1000 centrifuges will stop working.	66.67% 8
If Program B is adopted, there is a 1/4 probability that 3000 centrifuge stop working, and a 3/4 probability that all centrifuges continue working.	33.33% 4
Total	12



4. Discussion and conclusion

The table shows the percentages of the programs that were chosen in different experiments.

	Original Experiment	First Problem	Second Problem
Program A	72	66	75
Program B	28	33	25
Program C	22	27	41
Program D	78	72	58

The result shows that the percentage of people taking the risk would be changed but still the result is the same, in the other word, when we put the two alternative programs together like A_B or C_D with different problems, majority of people choose the same option as the original experiment. Majority of people are risk taking when they are asked to choose between A and B, on the other hand, they are risk-Averse when they want to choose from C and D. It seems that they do not think about the final outcome but the word framing. For instance in the nuclear program problem when we say 2000 centrifuges continue working they do not choose the option and the take the risk. In another example in the traffic accident problem when we use the word die people do not choose the option and when we use the word save they will choose it whereas the outcome is same.