

Supplement to “Bandits in the Lab”

Johannes Hoelzemann^{*} Nicolas Klein[†]

February 28, 2021

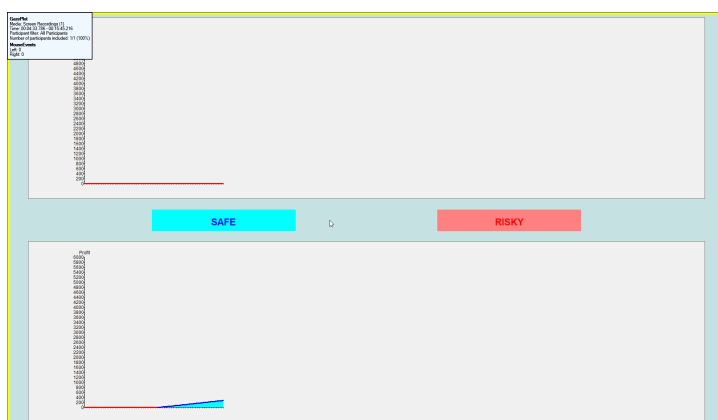
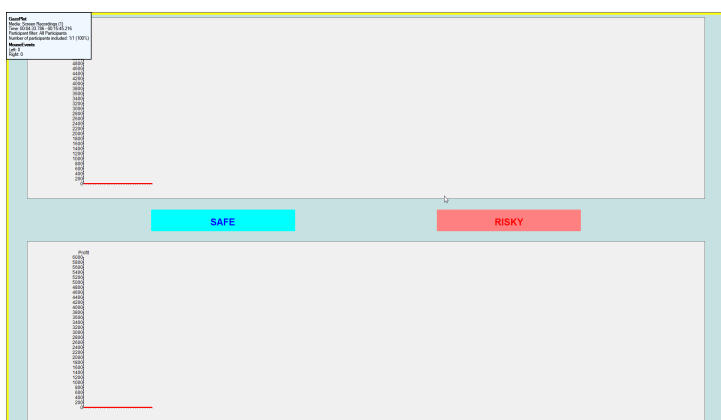
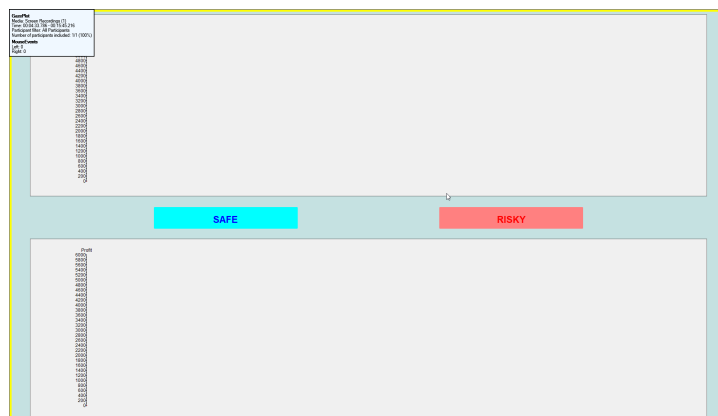
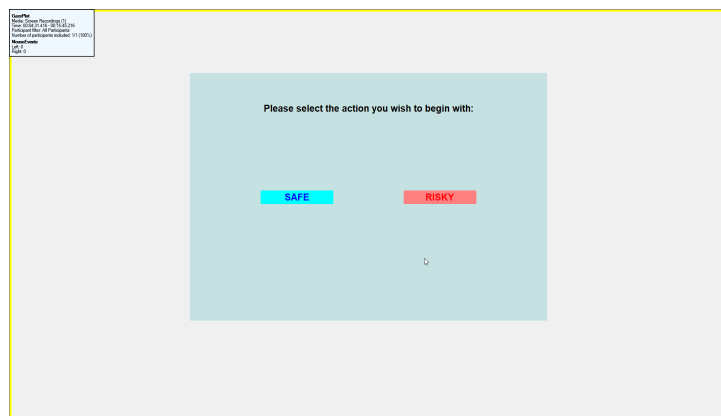
B Interfaces

In this Appendix, we exhibit examples of the interfaces subjects saw during the game, showing the evolution of the screen over intervals of 30 seconds. In the top half (third) of his screen, a subject could see his own past actions and payoffs, while the bottom half (two thirds) of the screen showed his fellow group member’s (or members’) actions and payoffs. A blue (red) part of the payoff curve indicated that the player used the safe (risky) arm over the corresponding period. The x-axis represented calendar time, while the y-axis gave the player’s cumulated total earnings up to each point in time. There was no prior indication of the point in time the game would end.

^{*}University of Toronto. Mailing address: University of Toronto, Department of Economics, Max Gluskin House, 150 St. George Street; Toronto, ON M5S 2E9, Canada. e-mail: j.hoelzemann@utoronto.ca.

[†]Université de Montréal and CIREQ. Mailing address: Université de Montréal, Département de Sciences Économiques, C.P. 6128 succursale Centre-ville; Montréal, H3C 3J7, Canada. e-mail: kleinnic@yahoo.com.

$n = 2$ Strategic Set-up: Example for Game 1



$n = 2$ Control Set-up: Example for Game 1

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Figure 1
 Year: 2019, Type: 2019, 15, 014
 17, 000, 16, 000, 15, 000, 14, 000, 13, 000, 12, 000, 11, 000, 10, 000, 9, 000, 8, 000, 7, 000, 6, 000, 5, 000, 4, 000, 3, 000, 2, 000, 1, 000, 0

Number of publications (2019-2019)
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SAFE

RISKY

Figure 1

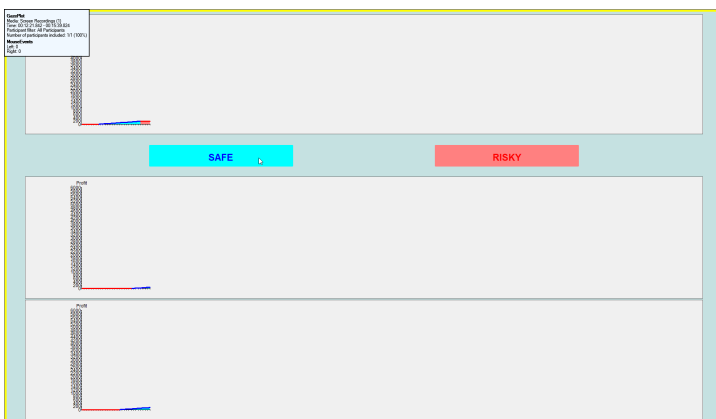
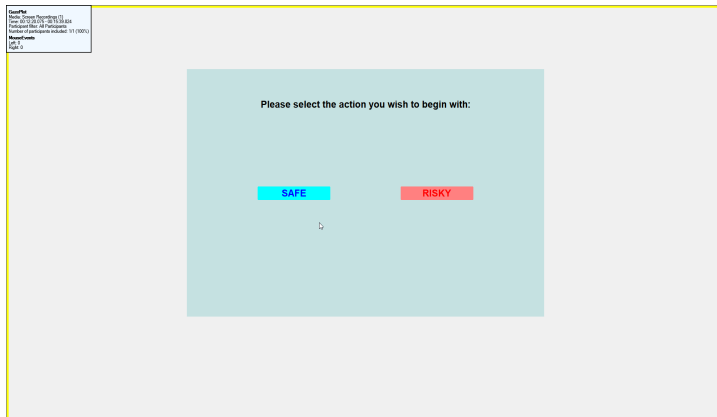
SAFE

RISKY

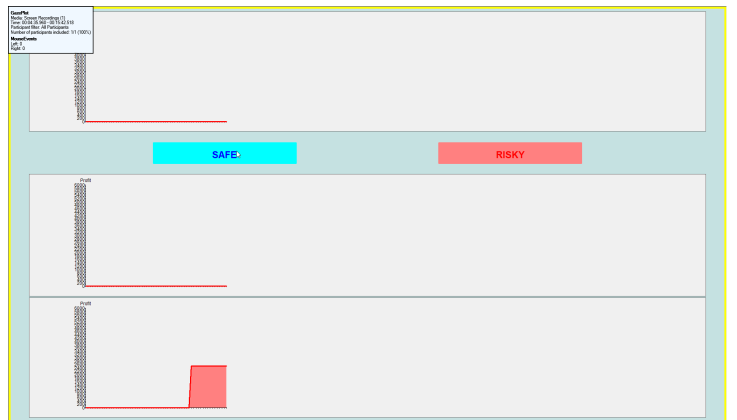
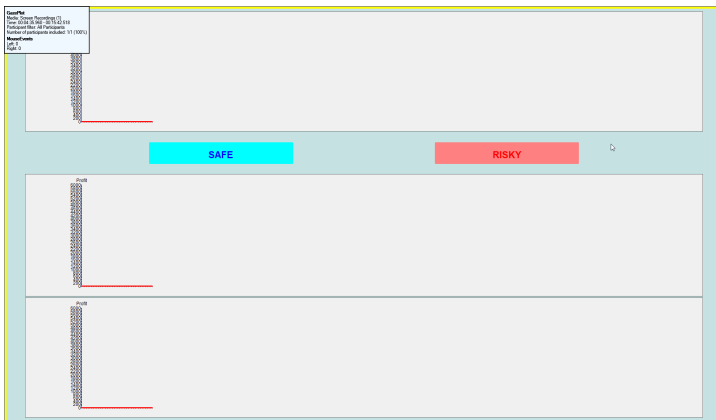
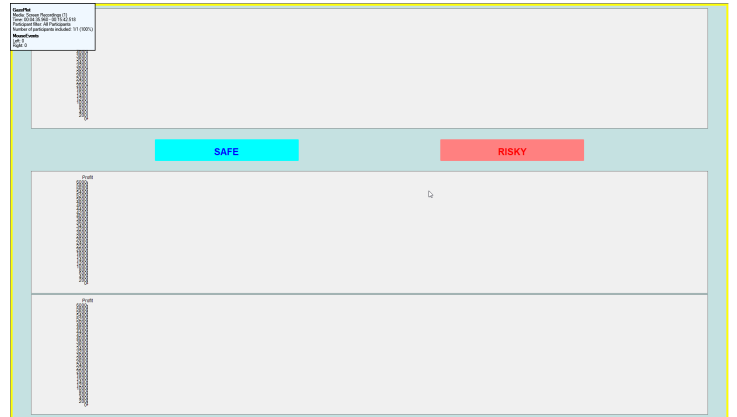
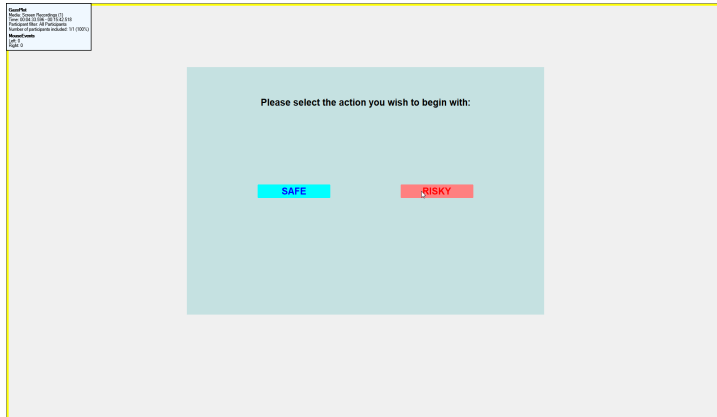
Number of participants in each age group (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, 75-84, 85-94, 95-104)

Age Group	SAFE	RISKY
18-24	100	80
25-34	80	100
35-44	60	80
45-54	40	60
55-64	20	40
65-74	10	20
75-84	5	10
85-94	2	5
95-104	1	2

$n = 3$ Strategic Set-up: Example for Game 2



$n = 3$ Control Set-up: Example for Game 2



C Instructions

The order of the instructions is as follows:

1. $n = 2$: Strategic Treatment
2. $n = 2$: Control Treatment
3. $n = 3$: Strategic Treatment
4. $n = 3$: Control Treatment

Experiment Instructions

Ground Rules

Welcome to the experiment. Please read the instructions carefully. The earnings you make in this experiment will be paid to you, in cash, at the end of the session.

Your earnings will be determined by your choices and the choices of other participants.

Communication between participants is not allowed. Please use only the computer to input your decisions. Please do not start or end any programs, and do not change any settings.

How Groups are Organized

This experiment consists of six games in total. In the beginning of the first game, participants are randomly matched to pairs and the pairs stay the same in all six games. Therefore, in each game you will interact with the same participant.

How the Timing Works

Games will last on average *120 seconds* but may end at any time. The probability that the game ends is the same at each instant. Equivalently, the probability that the game ends during a given period of time depends only on the length of that period of time, and not on how long the game has already been going on. (Such processes are known as *exponential processes* in statistics.)

How the Game Works

In every game, you have to decide whether you want to play the “**safe**” or the “**risky**” option. You can switch between the two options at any time and as often as you like by clicking on the safe (Blue) or risky (Red) button on the screen.

Whenever you choose the **safe** option, your payoff will increase for sure at the rate ***E\$ 10***. That means the **safe** option will give you a reward of ***E\$ 10*** every second during which you use it.

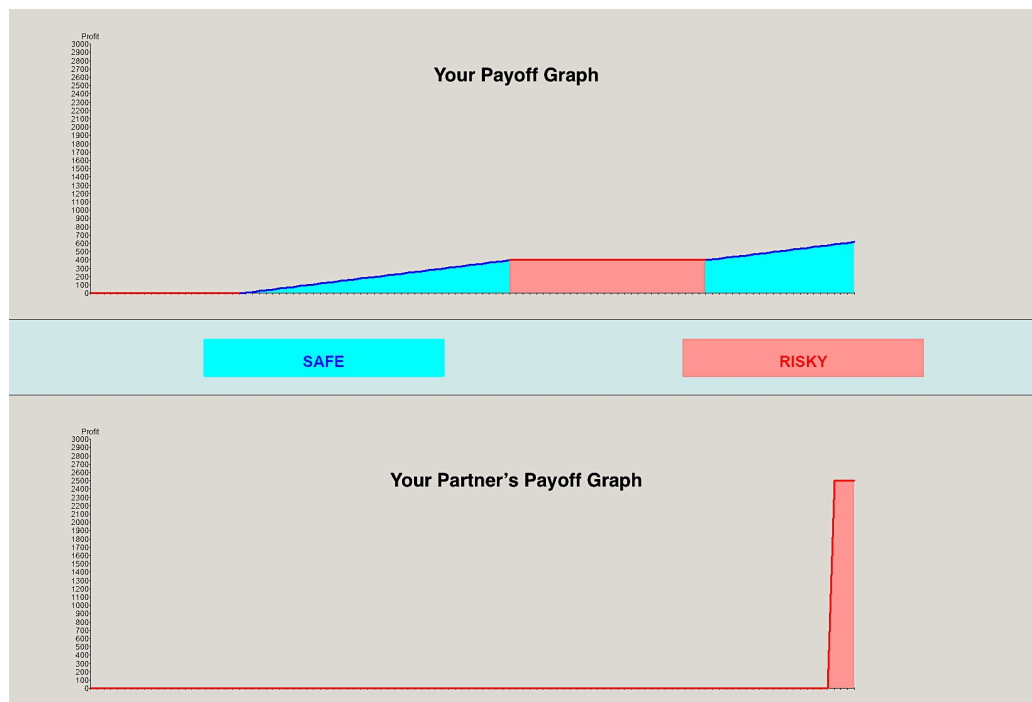
When you choose the **risky** option, however, what you will be getting depends on the quality of that risky option. The quality of the **risky** option is determined by the computer once and for all at the start of each game; it never changes during the course of the game. We have programmed the computer so that the risky option will be **good** or **bad** with equal probability in each of the six games. The quality of the risky option in later games is independent of its quality in previous games. That is, in each of your six games, with probability $\frac{1}{2}$ your risky option will be **good**; with probability $\frac{1}{2}$ it will be **bad**. The same is true for your partner. Note that your risky option and that of your partner’s might or might not be of the same quality.

If your risky option is **good**, it may give you a reward of **E\$ 2500**, but it will only ever do so if you use it. A good risky option yields such a reward after using it on average for 100 seconds. The probability that you get this reward from a good risky option during a given period of time during which you use it depends only on the length of that period of time; it does not depend on anything else, e.g. on how long the game has already been going on. Note that a good risky option may give you more than one reward of E\$ 2500 per game.

If your risky option is **bad**, it will never give you any reward.

You can switch back and forth between the risky option and the safe option at will and as many times as you like. All that matters for your chance of getting the reward is (1) the quality of the risky arm as determined by the computer before the game starts and (2) the overall amount of time you choose to spend on it.

The following graphic illustrates what you are going to see on your screen during the game. The graphs will be updated every second.



- The **upper** diagram always shows **your** actions and payoffs.
- In this example, you have started playing the risky option (highlighted in Red), then you have switched to the safe option (highlighted in Blue), then you have switched back again to the risky option, etc.
- The **lower** diagram always shows **your partner's** actions and payoffs.
- In this example, your partner has started playing the risky option and continues to do so.
- Note that, in this example, your partner's risky option was good and gave him once a reward of **E\$ 2500**.

The parameters are chosen in such a way that, *if you knew* the risky option to be good, you would be best off by **always** choosing it. Yet, *if you knew* the risky option to be bad, you would be best off by **always** choosing the safe option. In short:

Good risky option > Safe option > **Bad** risky option

Your partner is solving the exact same problem as you and has read the exact same instructions.

Payment

In the experiment you will be making decisions that will earn you E\$ (Experimental Dollars). At the end of the experiment, the E\$ you earned will be converted into Australian Dollars at an exchange rate of E\$ 100 = AU\$ 1, and paid out in cash. This amount will be added to your show-up fee of AU\$ 5.

After completing the experiment, the computer will randomly select one out of the six games (this will be the same game for all participants), and this game will then be used to determine your payoffs.

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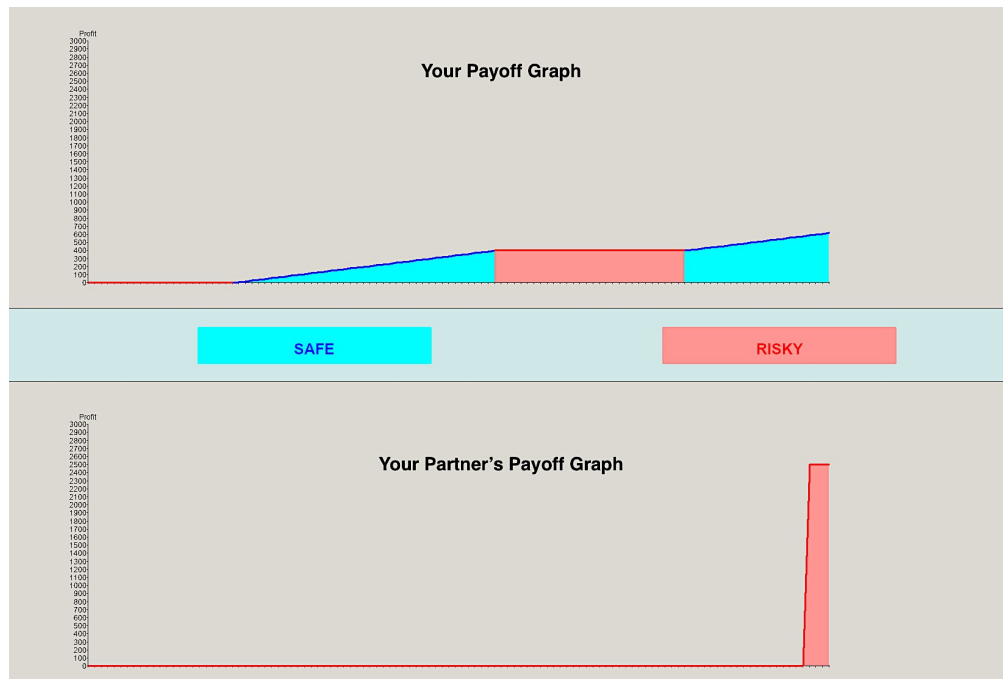
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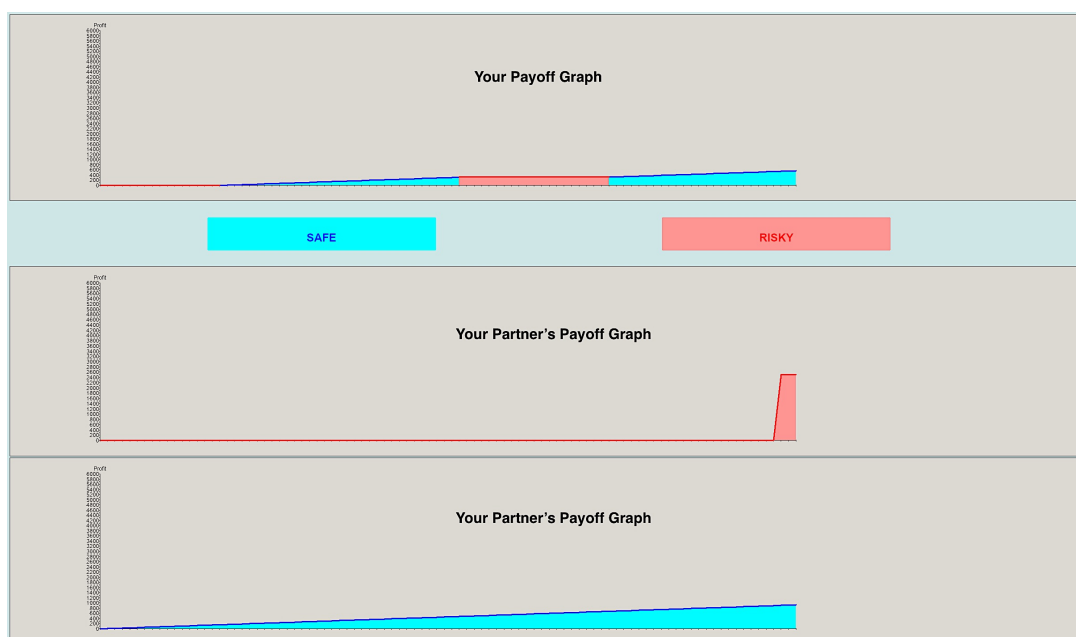
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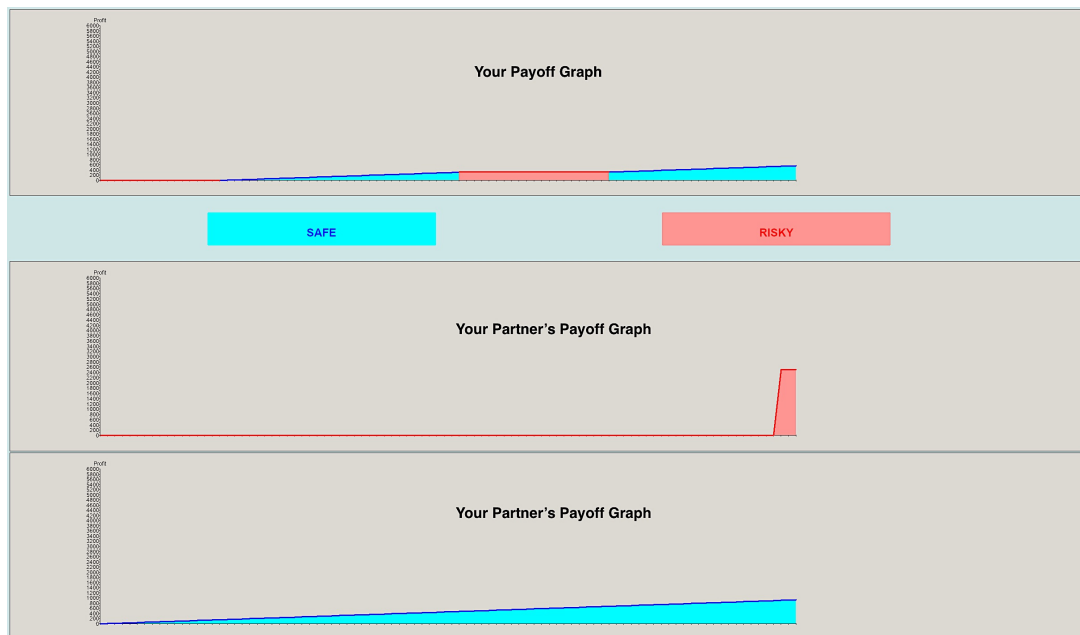
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