

Instructions for the first part of the experiment

In this part of the experiment you will go through 12 rounds of a task which will be explained to you in the following. Each round will take about 2 - 3 minutes. In this part of the experiment you can win up to 24 €.

1 What is the experiment about?

This part of the experiment consists of 12 rounds of a task which will be described in the following. There are two computers, a "high" computer and a "low" computer: One of these computers, the "high" computer, generates high numbers more frequently, while the "low" computer generates low numbers more frequently. At the beginning of each round, one of the two computers (high or low) is randomly selected, but you do not know which one. The probability for each computer is equal, i.e. 50% for each computer. In each round, you will see numbers which have been generated by the selected computer. We will ask you to indicate your guess which one of the two computers has been selected in this round using the numbers you have seen as indicators for the selected computer.

As you can see in figure 5, we will ask you three times per round to indicate your guess.

- The first time, we will ask you at the beginning of a round, before you have seen any numbers, without any additional information.
- The second time, after you have seen 5 numbers in phase 1, which have been generated by the selected computer of this round.
- The third time, after you have seen additional numbers in phase 2, which have been generated by the selected computer of this round.

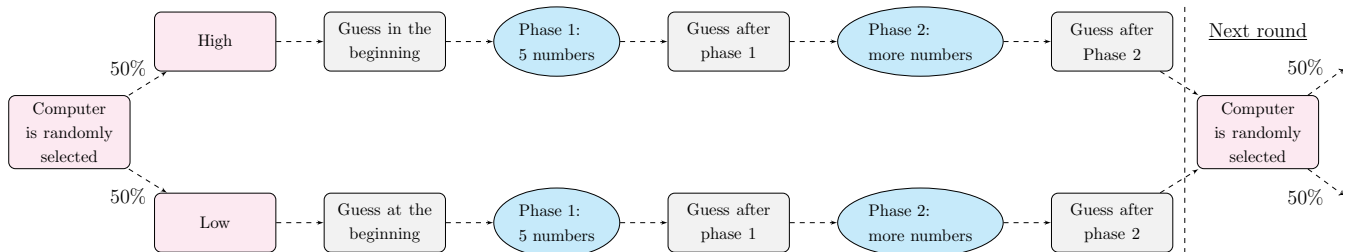


Figure 1: Sequence of a round

2 How to make a guess?

In the following, we explain how you can use numbers as indicators for the computer which has been selected at the beginning of a round and how we will retrieve your guess on the monitor.

2.1 The high and the low Computer

Both computer can only generate numbers between 1 and 8. Table 1 shows the probabilities with which the computers produce the numbers 1 to 8. For example, the probability that the “high” computer generates the number 8 is 18%, this means that it happens in 18 out of 100 cases on average. The “high” computer generates smaller numbers less likely. For example, the probability that the computer generates the number 1 is only 8%, in other words, in 8 out of 100 cases.

The “low” computer generates numbers with the probabilities shown in table 2 and can be seen as a mirror image of the “high” computer. For example, the probability with which the “low” computer generates the number 8 is only 8%, on other words, in 8 out of 100 cases. A number 1 is generated by the “low” computer with a probability of 18%, in other words, in 18 out of 100 cases.

generated number	1	2	3	4	5	6	7	8
probability of the number	8%	9%	10%	12%	13%	14%	16%	18%

Table 1: The “High” Computer

generated number	1	2	3	4	5	6	7	8
probability of the number	18%	16%	14%	13%	12%	10%	9%	8%

Table 2: The “Low” Computer

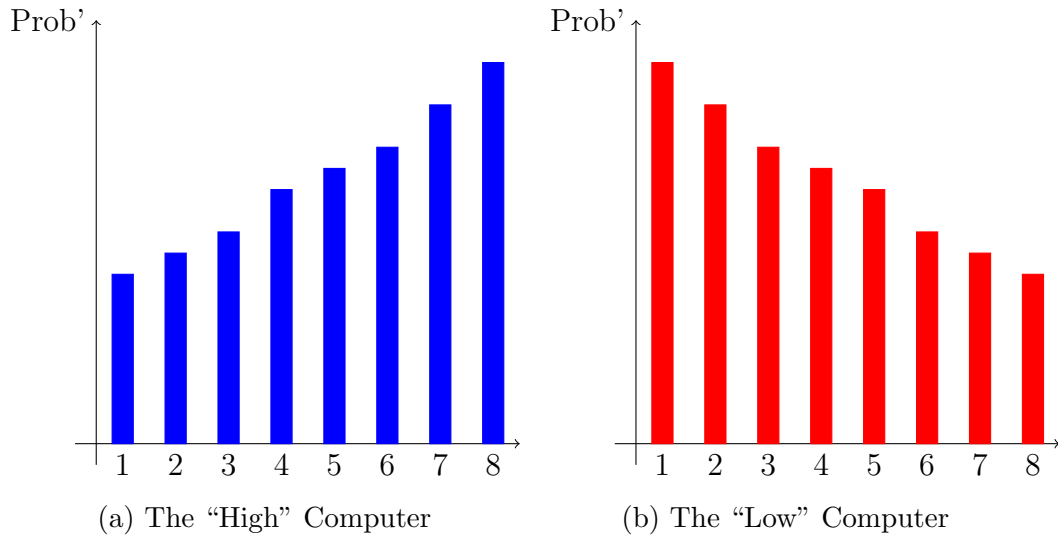


Figure 2: Graphical illustration of the probabilities with which the “high” and the “low” computer generate the numbers 1 to 8.

As described in the beginning, it is your task to guess whether the “high” or the “low” computer is generating the numbers of the current round.

At the beginning of each round, one of the two computers is selected with equal probability. Each one of the computers has the probability 50%. The computers are selected independently over the rounds, this means that the probability that the “high” or the “low” computer is selected in a round, is always 50%. The selection of the computers is independent from which computer has been selected in the previous round.

2.2 Shown numbers as indicators of the computer

You can use the shown numbers as indicator of which computer has been selected in the respective round. For example, the number 1 is an indicator that the “low” computer has been selected in this round and is generating the numbers - however, this is not certain. As shown in table 1 and table 2, the probability that the “low” computer generates a number 1 is 18%, while the probability that the “high” computer generates a number 1 is only 8%.

On the contrary, when you see a number 8, it is an indicator that the “high” computer has been selected in this round and is generating the numbers. The probability that the “high” computer generates a number 8 is 18%, while the probability that the “low” computer generates a number 8 is only 8%.

In general, high numbers are an indicator that the “high” computer has been selected while low numbers are an indicator of the “low” computer having been selected. For example, the number 5 is an indicator that the “high” computer has been selected. Higher numbers, for example 6 or 7, are a stronger indicator that the “high” computer has been selected. Likewise, a number 4 is an indicator that the “low” computer has been selected, but a less strong indicator than a lower number as for example a 3 or a 2.

2.3 How we measure your guess

We will ask you for your guess which computer is generating all the numbers you see in a round. To make your guess as specific as possible, you should consider **all** numbers you see in a round; those of the first phase and those of the second phase.

Each of your guesses will have the form below:

1. Which computer is more likely?

In the first step you will be asked, which computer is generating the numbers in the current round in your opinion. This is shown in figures 3a and 3b. To answer this first question, you can click on one of the two pictured buttons and state, which computer has been selected with a higher probability in your opinion in the respective round.

2. Your exact assessment:

In the second step, we want to know your precise assessment, i.e. how certain you feel about your guess in the first step. The tables shown in figures 3a and 3b provide some assistance. In each row you can decide between two options:

- Win 8 € if you have guessed the right computer
- Win 8 € with a certain probability which starts at 50% in the first row and increases by 5% per row.

One of the rows will be randomly selected for your payment. However, your choice in a row **CANNOT** influence, **which** one of the rows will be selected. Therefore, think about your choice between option 1 and option 2 very carefully in each row since every row could be selected for your payment.

An example

Assume you make the following assessment: You believe that the high computer has been selected and is generating the numbers in the respective round with a probability of 66%.

So, in the first step, for the question "Which of the two computers is more likely?" you click on the button "high".

Now, in the second step, for the question "Please specify your exact assessment", you have two options to choose from to specify your assessment:

- In the first row, you have the options "Win 8 € if "high" is right" and "Win 8 € with probability 50%". Since you believe that "high" is right with probability 66%, you should choose option 1 since this way, you win 8 € with probability 66% (instead of 50% as it would be the case with option 2).
- In the second row you have the options "Win 8 € if "high" is right" and "Win 8 € with probability 55%". Since you believe that "high" is right with probability 66%, you should choose option 1, since this way, you win 8 € with probability 66% (instead of 55% as it would be the case with option 2).
- Accordingly, you should choose option 2 in the rows where the probability of winning 8 € is 70% or higher, it is, equal or higher to the probability with which you believe that the computer you think has been chosen is right.

Verbleibende Zeit, um Ihre Einschätzung abzugeben: 0:19

Runde 1 - Erste Einschätzung

Welcher der beiden Computer ist wahrscheinlicher?

☒ "hoch" ☐ "niedrig"

Präzisieren Sie Ihre Einschätzung:

Option 1		Option 2
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 50 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 55 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 60 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 65 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 70 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 75 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 80 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 85 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 90 %
Gewinne 8€, falls "hoch" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 95 %

Weiter

(a) The monitor after you clicked “High”

Verbleibende Zeit, um Ihre Einschätzung abzugeben: 0:11

Runde 1 - Erste Einschätzung

Welcher der beiden Computer ist wahrscheinlicher?

☐ "hoch" ☒ "niedrig"

Präzisieren Sie Ihre Einschätzung:

Option 1		Option 2
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 50 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 55 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 60 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 65 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 70 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 75 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 80 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 85 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 90 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 95 %

Weiter

(b) The monitor after you clicked “Low”

Figure 3: The assessment monitor of the first guess in the beginning of a round, after you have clicked “high” or “low”

Welcher der beiden Computer ist wahrscheinlicher?

☒ "hoch" ☐ "niedrig"

Präzisieren Sie Ihre Einschätzung:

Option 1			Option 2
Gewinne 8€, falls "hoch" richtig ist	☒	☐	Gewinne 8€ mit Wahrscheinlichkeit 50 %
Gewinne 8€, falls "hoch" richtig ist	☒	☐	Gewinne 8€ mit Wahrscheinlichkeit 55 %
Gewinne 8€, falls "hoch" richtig ist	☒	☐	Gewinne 8€ mit Wahrscheinlichkeit 60 %
Gewinne 8€, falls "hoch" richtig ist	☒	☐	Gewinne 8€ mit Wahrscheinlichkeit 65 %
Gewinne 8€, falls "hoch" richtig ist	☐	☒	Gewinne 8€ mit Wahrscheinlichkeit 70 %
Gewinne 8€, falls "hoch" richtig ist	☐	☒	Gewinne 8€ mit Wahrscheinlichkeit 75 %
Gewinne 8€, falls "hoch" richtig ist	☐	☒	Gewinne 8€ mit Wahrscheinlichkeit 80 %
Gewinne 8€, falls "hoch" richtig ist	☐	☒	Gewinne 8€ mit Wahrscheinlichkeit 85 %
Gewinne 8€, falls "hoch" richtig ist	☐	☒	Gewinne 8€ mit Wahrscheinlichkeit 90 %
Gewinne 8€, falls "hoch" richtig ist	☐	☒	Gewinne 8€ mit Wahrscheinlichkeit 95 %

Weiter

Figure 4: The guessing screen from the example with a guessed probability of 66% for the “high” computer. The button for “High” and the button of option 2 with winning probability 70% has been clicked.

So, as soon as the probability of winning in option 2 is higher than your certainty of your guess (whether the high/low computer has been selected), you should choose option 2. This is illustrated in figure 4.

Please notice the fill-in assistance: The fill-in assistance will automatically choose option 2 in all the following choices under option 2 with a higher winning probability than the one you have chosen (it is, all the rows under the row where you have chosen option 2 for the first time), since the winning probabilities are increasing by 5% per row.

After you have chosen option 2 with a winning probability of 70%, all following rows with a higher probability than 70% in option 2 will be automatically chosen for you.

On the other hand, when you think that it is more likely that the numbers in the re-

spective round are generated by the “low” computer, you click on the button “low” in the first step. For the second step, you proceed as described above and compare for each row, whether you prefer option 1 or option 2. You can indicate your exact assessment as described above. The only difference lies in option 1, as illustrated in figure 3b: You win 8 € if the “low” computer has been selected.

Reminder:

- In the first step you indicate which computer you think is more likely
- In the second step, you make a more exact assessment:
 - Therefore, you should read the table row by row and compare option 1 to option 2 in each row to decide, which option you prefer in the respective row.
 - This is very important, since every one of your decisions is relevant for your payment and determines, how much you will earn in this experiment. Therefore, please think about your choices very carefully.
- As soon as the winning probability in the second step under option 2 is higher than your certainty of your guess (whether the high or low computer has been selected), you should choose option 2
- The fill-in assistance will automatically choose option 2 for you in all the following choices with a higher winning probability in option 2 than the one where you have chosen option 2 for the first time.

3 The sequence of each round

In the following we explain the procedure of the experiment to you by guiding you through the sequence of a round. In this part of the experiments, 12 rounds will be played. Each round consists of a number of guesses and phases. In the phases of a round, you see numbers which you can use as indication for which computer has been selected in the respective round. The sequence of a round is illustrated in figure 5.

3.1 A computer is randomly selected

At the beginning of each round, one of the two computers (it is, the “high” or the “low” computer) is randomly selected. Each of the computers (high or low) has the same chance to be selected. Thus, the probability for the “high” or the “low” computer is 50% in each case at the beginning of a round. You will see a screen which points out that a new round has started and once again one of the two computers (“high” or “low”) has been randomly selected.

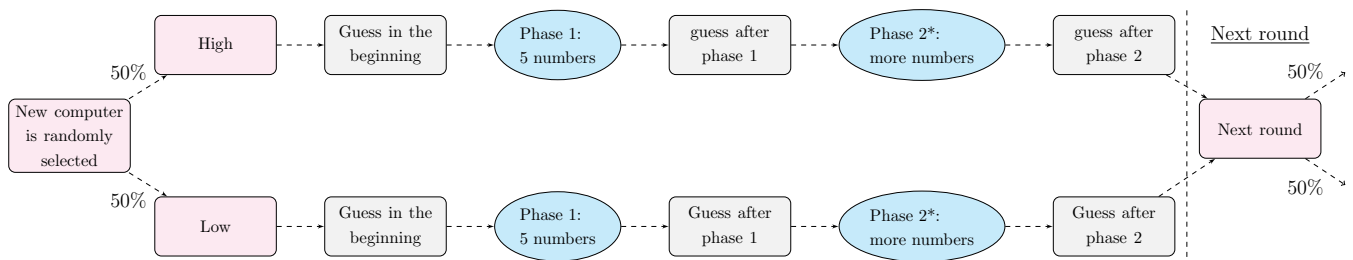


Figure 5: Sequence of a round
(* Phase 2 can occur in 2 versions)

3.2 Guess at the beginning of a round

In each round, at the beginning of the round, the “high” or the “low” computer will be randomly selected with a probability of 50% each. This happens randomly at the beginning of each round.

At the beginning of a round, before you see any numbers, we will ask you for your guess which computer has been randomly selected. We do this to make sure that you know you are at the **beginning** of a round. You have 30 seconds to make your guess.

Reminder: If you do not feel confident how to fill out the assessment screen or do not know when to choose option 1 or option 2 in a row, please read section 2.3 “How we measure your guess” again.

3.3 Phase 1

In phase 1 you will see 5 numbers, as illustrated in figure 6. Those numbers are generated by the computer which has been randomly selected at the beginning of the current round; for example “5 7 3 2 2” or “7 7 6 4 2”. You have 30 seconds time to look at the numbers and to form your assessment. After 30 seconds, the numbers will disappear and you will be directed to the next screen. On the next screen, you will be asked to indicate your guess as described above.

Runde 1, Phase 1



Figure 6: Auszug Bildschirm Phase 1

3.4 Guess after phase 1

After phase 1, we will ask you again to make a guess which computer has been selected at the beginning of the round and is now generating the numbers. You can use the numbers from phase 1 as indication of the randomly selected computer. Again, you will indicate your guess in the table from figures 3a and 3b, at this, you will see your assessment from the first guess as default setting. However, you can change this assessment as you like. You have 30 seconds time to make indicate your guess and to make it more precise.

Reminder: If you do not feel confident how to fill out the assessment screen or do not know when to choose option 1 or option 2 in a row, please read section 2.3 “How we measure your guess” again.

3.5 Phase 2

In phase 2, you will see up to 7 additional numbers. These numbers are generated by the computer which has been randomly selected at the beginning of the current round. There are two versions of phase 2 which can switch randomly from round to round.

Phase 2, Version 1

In version 1 of phase 2, you can reveal up to 7 additional numbers. Again, those numbers are generated by the computer which has been randomly selected at the beginning of the current round and has already generated the 5 numbers from phase 1 of the current round. You can only see one number at a time: When you uncover the next number, the number shown until then will disappear. You have no possibility to go back to this number.

The first number appears as soon as phase 2 starts. When you want to see the next number in this version of phase, you can click “Next”. You will be redirected to a screen as in figure 7.

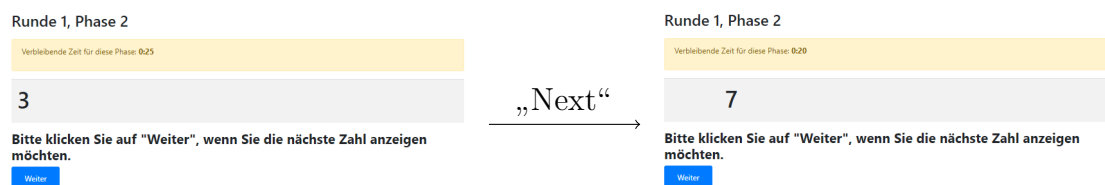


Figure 7: Screen of phase 2, version 1

Please notice: As soon as you click “next”, the currently displayed number will disappear. You have **no** possibility to go back to the previous screen to see this number again.

After 30 seconds in phase 2 and no matter if you have seen all 7 numbers, you will be directed to the screen for the guess after phase 2. You will have 30 seconds in phase 2 in total and cannot proceed earlier. Thus, consider carefully how you want to allocate your time between the 7 numbers that you can uncover in total.

Phase 2, Version 2

In version 2 of phase 2 you will be shown up to 7 additional numbers. Again, those numbers are generated by the computer which has been randomly selected at the beginning of the current round and has already generated the 5 numbers from phase 1 of the current round.

The additional numbers appear one after another on your monitor. In this version of phase 2, you **cannot** control the display of the next numbers. Instead, the numbers will be shown automatically. Differently to version 1, the shown numbers will not disappear again: The previous numbers will be still visible. An example is shown in figure 8.

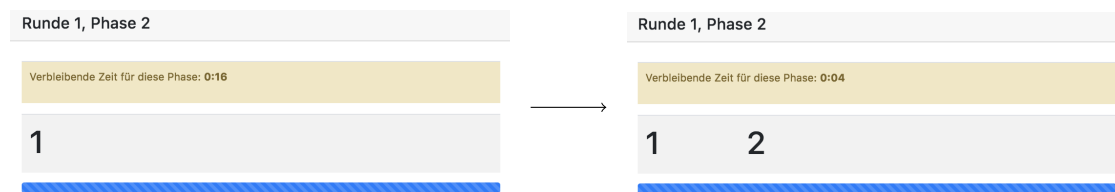


Figure 8: Screen of phase 2, version 2

After 30 seconds have passed, you will be directed to the next screen to make your guess after phase 2. Note that you have 30 seconds time but it can happen that you see less than 7 numbers in these 30 seconds.

3.6 Guess after phase 2

After phase 2, we will ask you again to make a guess which computer has been selected at the beginning of the round. You can use the numbers from phase 1 and phase 2 as indication of the randomly selected computer. Again, you will indicate your guess in the table from figures 3a and 3b, at this, you will see your assessment from the first guess as default setting. However, you can change this assessment as you like. You have 30 seconds time to make indicate your guess and to make it more precise.

Reminder: If you do not feel confident how to fill out the assessment screen or do not know when to choose option 1 or option 2 in a row, please read section 2.3 “How we measure your guess” again.

3.7 Next round

After your guess after phase 2, a new round will start and a new computer (the “high” or the “low” one) will be randomly selected and will be generating the numbers in the new round.

4 How you will get paid

For this part of the experiment, you play 12 rounds with 3 guesses each per round. From these guesses, we will randomly select 3 of your guesses:

One guess at the beginning of a round, one guess after you have seen 5 numbers in phase 1, and one guess at the end of a round after you have seen up to 7 numbers in phase 2. Each of these randomly selected guesses will come from a different round. Subsequently, from each of these guesses, a row will be randomly selected in the corresponding decision table. Your choice in this row will determine your payment:

1. if you chose option 1, you will win 8 € if you guessed correctly whether it was a “high” or “low” computer generating the numbers of the round;
2. if you chose option 2, you will win 8 € with the probability specified in the row we randomly selected.

5 Control Questions

1. In the first guess of a round (before you have seen the numbers of phase 1), what is the probability that the “high” computer has been selected?

Answer: The probability is _____ percent.

2. In the first guess of a round (before you have seen the numbers of phase 1), what is the probability that the “low” computer has been selected?

Answer: The probability is _____ percent.

3. Suppose that in the previous round, you have seen the numbers

1, 2, 2, 3, 3, 1, 4, 7.

Now, in the first guess of the next round (before you have seen the numbers of phase 1), what is the probability that the “high” distribution was selected for this round? Why?

Answer: The probability is _____ percent.

Please explain: _____

4. What do you choose in the table when you believe that the “low” computer is right with a probability of 72%? Please draw your choice in the table below.

Welcher der beiden Computer ist wahrscheinlicher?

☐ "hoch" ☒ "niedrig"

Präzisieren Sie Ihre Einschätzung:

Option 1		Option 2
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 50 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 55 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 60 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 65 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 70 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 75 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 80 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 85 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 90 %
Gewinne 8€, falls "niedrig" richtig ist	☐ ☐	Gewinne 8€ mit Wahrscheinlichkeit 95 %

Weiter

5. Assume that you think at the beginning of a round, that the probability for the “high” distribution is 50%. Please draw in the table below, how the screen should look like before you would click “next”.

Welcher der beiden Computer ist wahrscheinlicher?

☐ "hoch" ☐ "niedrig"

Präzisieren Sie Ihre Einschätzung:

Option 1			Option 2
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 50 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 55 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 60 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 65 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 70 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 75 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 80 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 85 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 90 %
Gewinne 8€, falls "____" richtig ist	☐	☐	Gewinne 8€ mit Wahrscheinlichkeit 95 %

Weiter

6. Take a look at the following example: After you have seen the numbers, you believe that the “high” computer has been selected with a probability of 85%. What has not been filled in correctly in the following screen?

Welcher der beiden Computer ist wahrscheinlicher?

☒ "hoch" ☐ "niedrig"

Präzisieren Sie Ihre Einschätzung:

Option 1		Option 2	
Gewinne 8€, falls "hoch" richtig ist	☒ ☐	Gewinne 8€ mit Wahrscheinlichkeit 50 %	
Gewinne 8€, falls "hoch" richtig ist	☒ ☐	Gewinne 8€ mit Wahrscheinlichkeit 55 %	
Gewinne 8€, falls "hoch" richtig ist	☒ ☐	Gewinne 8€ mit Wahrscheinlichkeit 60 %	
Gewinne 8€, falls "hoch" richtig ist	☐ ☒	Gewinne 8€ mit Wahrscheinlichkeit 65 %	
Gewinne 8€, falls "hoch" richtig ist	☐ ☒	Gewinne 8€ mit Wahrscheinlichkeit 70 %	
Gewinne 8€, falls "hoch" richtig ist	☐ ☒	Gewinne 8€ mit Wahrscheinlichkeit 75 %	
Gewinne 8€, falls "hoch" richtig ist	☐ ☒	Gewinne 8€ mit Wahrscheinlichkeit 80 %	
Gewinne 8€, falls "hoch" richtig ist	☐ ☒	Gewinne 8€ mit Wahrscheinlichkeit 85 %	
Gewinne 8€, falls "hoch" richtig ist	☐ ☒	Gewinne 8€ mit Wahrscheinlichkeit 90 %	
Gewinne 8€, falls "hoch" richtig ist	☐ ☒	Gewinne 8€ mit Wahrscheinlichkeit 95 %	

Weiter

Answer: _____