Weighting Competing Models: Experimental Instructions & Interface

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Contents

1 Main Study

1.1 Part 1

OVERVIEW

The study takes about 30 minutes to complete. You are guaranteed to receive $6 for completing the study.

This study consists of 4 parts. In the **first 3 parts**, you will be asked to complete several tasks in a similar format. This format is based on a **guessing task**. You can earn an additional bonus of **$2 by making accurate guesses**. You will receive more detailed instructions about the guessing task and the bonus for accuracy before you participate in each part. *In these 3 parts, you will complete a total of 11 guessing tasks. You will be paid the bonus payment for 1 of these 11 tasks, chosen at random by the computer.* This means that you should consider the decisions you make in each part carefully. In the fourth part, you will fill out a questionnaire.

Given the instructions above, what is the guaranteed dollar payment that you receive for completing the study? (Please make a numeric entry)

Given the instructions above, about how many minutes does it take to complete the study? (Please make a numeric entry)

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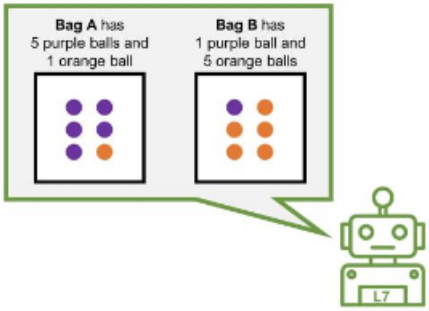
INSTRUCTION – PART 1

In Part 1, you are asked to complete 2 guessing tasks. In each guessing task, there are 2 bags, bag A and bag B. Each bag contains 6 balls, some of which are orange and some of which are purple. A robot chooses the number of orange and purple balls in each bag. For example, robot L7 chose the color of the balls in the bags as shown in the following figure:



In each guessing task, the computer flips a **fair coin** to select bag A or bag B. It is **equally likely** that the computer selects bag A or bag B. **You will not observe which bag was selected.** Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

The goal of the guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. You make your guess by selecting the chance between 0% and 100% on a slider. To give some examples of what these percentages mean:

- **50%** means that you think it is **equally likely** that bag A and bag B were selected,
- **0%** means that you are **certain** that **bag B** was selected,
- **100%** means that you are **certain** that **bag A** was selected.

Remember that you can earn an additional $2 by making accurate guesses. We have carefully chosen the payment rule such that you maximize the chance of winning the bonus of $2 if you give your best guesses. **It is in your best interest to always give the guess that you think is the true chance. The closer your guess is to the true chance, the higher the probability of winning the bonus.** If you are interested, further details on the payment are provided here.

In Part 1, you will complete 2 different guessing tasks. In each task, a different robot chooses the number of orange and purple balls in each bag. The computer then randomly selects (1) a bag, and (2) a ball from the selected bag. **Which bag is selected in each task is independent of the selected bag in other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the robot do in the guessing task? (Select all options that are correct)

- **a) Choose the number of orange and purple balls in each bag**
- b) Flip a fair coin to select bag A or bag B
- c) Randomly pick a ball from the selected bag

2. What does the computer do in the guessing task? (Select all options that are correct)

- a) Choose the number of orange and purple balls in each bag
- **b) Flip a fair coin to select bag A or bag B**
- **c) Randomly draw a ball from the selected bag**

3. What do you know when you guess the chance that bag A was selected after observing the drawn ball? (Select all options that are correct)

- **a) The number of orange and purple balls in each bag**
- b) Whether bag A or bag B was selected
- **c) The color of the ball that is randomly drawn from the selected bag**

4. What can you earn by making accurate guesses?

a) Nothing

b) Up to $0.2

c) Up to $2

5. Is the following statement true or false? “It is in your best interest to give your best guess of the chance that bag A was selected given the color of the drawn ball.”

a) True

b) False

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PART 1: Task 1/2

Please click on the right arrow if you are ready to proceed to the next task.

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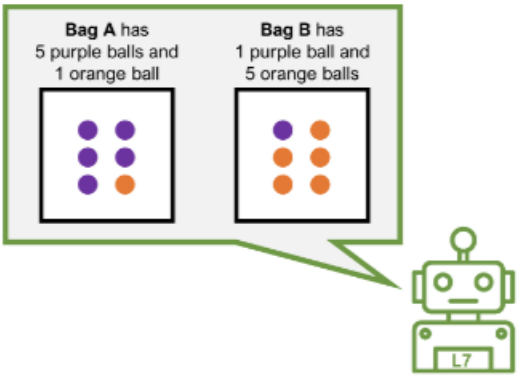
For this task, consider robot L7.

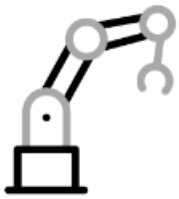


When you click "**START**", the following steps take place:

- **Step 1:** the computer fills the bags with purple and orange balls according to robot L7
- **Step 2:** the computer selects one bag by flipping a fair coin
- **Step 3:** the computer draws a ball from the bag that was selected in Step 2

START

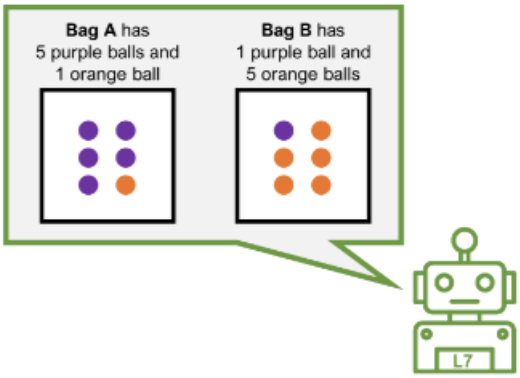
Step 1: The computer **filled the bags** with balls according to robot L7.



Step 2: The computer flipped the coin and **has selected the bag**.

Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is orange.

Remember that for this task we consider robot L7.



Remember, the computer has drawn an orange ball

What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

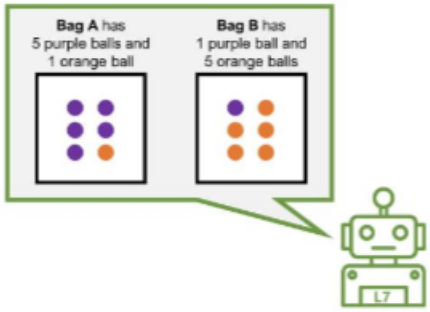
Chance of **bag A (in %): Please click on the slider**

1.2 Part 2

INSTRUCTION – PART 2

Part 2 is designed to help you understand an **important aspect of the guessing task that will be important for Part 3**: There is a **mathematical formula** (called the Bayes rule) that gives the **correct chance** that bag A was selected by the computer if you observe a ball of a certain color.

For example, consider again robot L7 that chose the color of the balls in the bags as shown in the following figure:

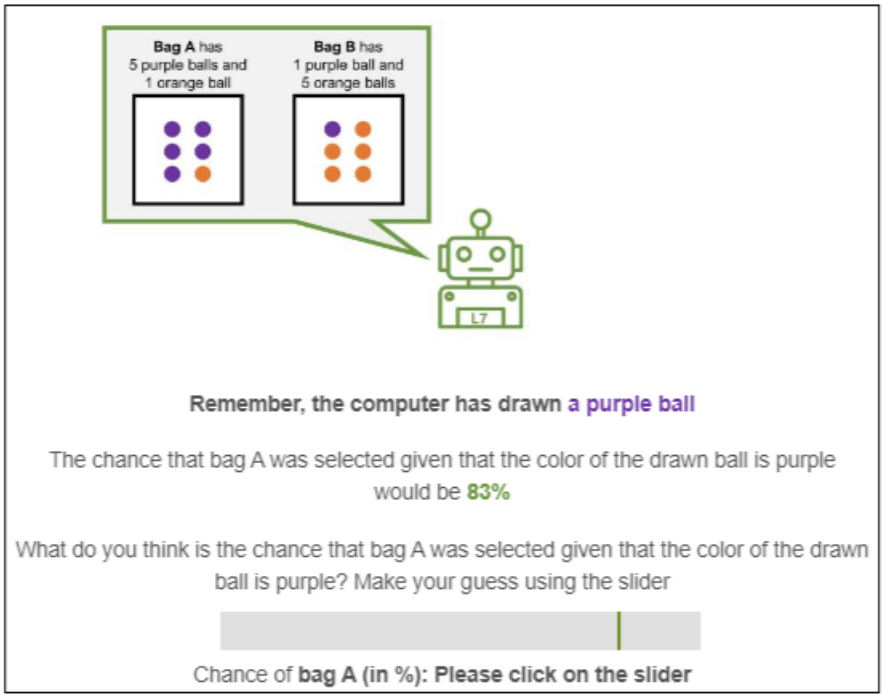


According to this formula:

- If the observed ball is orange, the correct chance that bag A was selected is 17%,
- If the observed ball is purple, the correct chance that bag A was selected is 83%.

In Part 2, you will complete the same guessing tasks as in Part 1, but **now the robots inform you of the correct chance that bag A was selected given the color of the drawn ball**. Note that the robots always communicate the correct chance; that is, **the robots never lie to you and never make mistakes when calculating the correct chance**.

The following figure provides an example of this interface:



Again you make your guess by selecting the chance between 0% and 100% on a slider. Now, a colorful pin helps you to visually indicate on the slider the correct chance communicated by the robot (see example above).

Remember that the closer your guess is to the correct chance, the higher the chance of winning the bonus of $2. That is, **you maximize the chance of winning the bonus by submitting the correct guess provided by the robot**. In the example above, if a purple ball was drawn, you would maximize the chance of winning the bonus by reporting a guess of 83%.

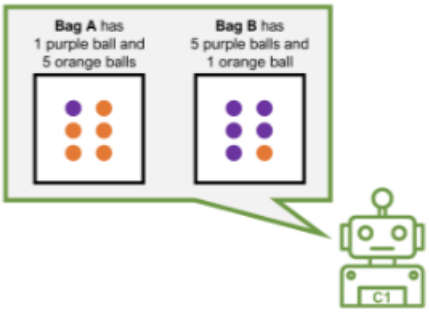
The goal of Part 2 is to familiarize with the interface where the robots communicate the correct chances. Understanding the interface is important for Part 3, as we will explain later.

1) Is the following statement true or false? "The robots never lie to you and never make mistakes when calculating the correct chance that bag A was selected."

a) True

b) False

2) Consider the following example:



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple would be **17%**

a) What is the correct chance (in %) that bag A was selected given that the color of the drawn ball is purple?

17

b) What guess (in %) would maximize your chance of winning the bonus?

17

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PART 2: Task 1/2

Please click on the right arrow if you are ready to proceed to the next task.

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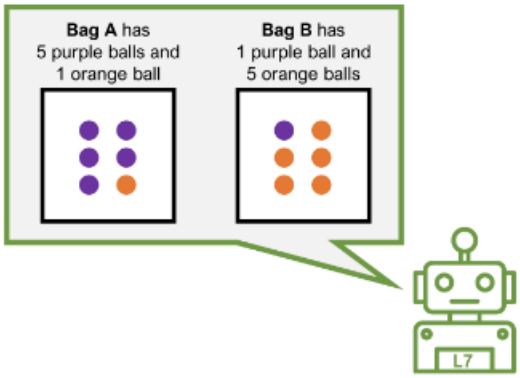
For this task, consider robot L7.



When you click "**START**", the following steps take place:

- **Step 1:** the computer fills the bags with purple and orange balls according to robot L7
- **Step 2:** the computer selects one bag by flipping a fair coin
- **Step 3:** the computer draws a ball from the bag that was selected in Step 2

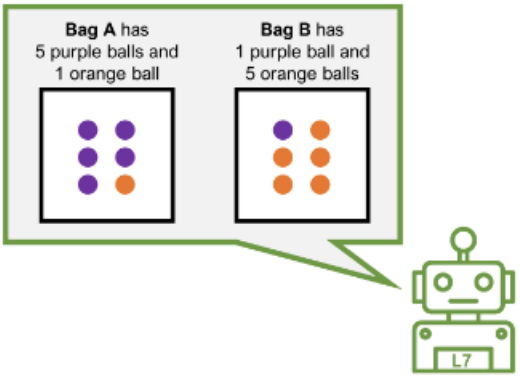
START

Step 1: The computer **filled the bags** with balls according to robot L7.

Step 2: The computer flipped the coin and **has selected the bag**.

Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is orange.

Remember that for this task we consider robot L7.



Remember, the computer has drawn an orange ball

The chance that bag A was selected given that the color of the drawn ball is orange would be **17%**

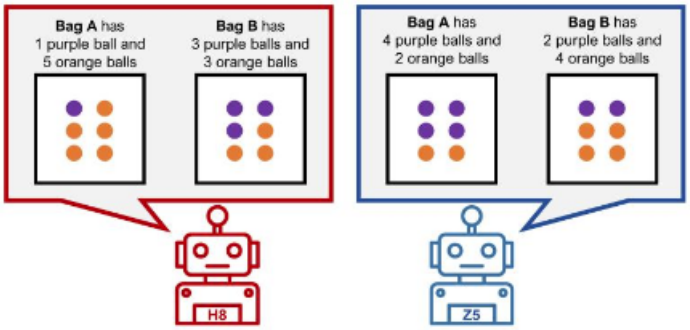
What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

1.3 Part 3

INSTRUCTION – PART 3

You will now complete a **new version of the guessing task**. Some elements are the same as the previous version of the guessing task: there are again 2 bags, bag A and bag B; each bag contains 6 balls, and each ball is either orange or purple. Now, in each task, there are 2 robots. Each robot suggests a distribution of purple and orange balls in the bags. In the following, we illustrate the new guessing tasks with the robots H8 and Z5. Note, however, that we will use two different robots in each task. The following figure shows you how the robots H8 and Z5 would distribute the balls in the bags for this task:



The suggestion of one of the two robots is used to fill the bags with the balls. First, the computer randomly selects one of the two robots, either robot H8 or robot Z5, and then fills bag A and bag B according to how the selected robot would distribute the balls in the bags. The suggestion of the other robot does not count. To select a robot, the computer rolls a fair 6-sided die.

- If the **number 1, 2 or 3** was rolled, the computer chooses robot **H8**.
- If the **number 4, 5 or 6** was rolled, the computer chooses robot **Z5**.

Importantly, **you do not know what number was rolled and whether robot H8 or robot Z5 was selected** by the computer, and, hence, you do not know the composition of bag A and bag B.

After the computer selects a robot and fills the bags according to this robot's suggestion, the computer then flips a fair coin to select bag A or bag B as in the guessing tasks that you did in Part 1 and Part 2. It is equally likely that the computer selects bag A or bag B. As before, you will not observe which bag was selected. Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

As in Part 2, the robots tell you the correct chance that the observed ball was drawn from bag A, but **each robot tells you the correct chance for the case in which the robot's suggestion was selected to fill bag A and bag B**. In the example of robots H8 and Z5, consider the case in which an orange ball was drawn. In this case:

- If the robot H8's suggestion were selected, the correct chance would be 63%,
- If the robot Z5's suggestion were selected, the correct chance would be 33%.

Your goal of the new guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. Again, you make your guess by selecting the chance between 0% and 100% on a slider. Two colorful pins help you to visually indicate on the slider the correct chance if if the suggestion of robot H8 is selected (63%) and the correct chance if the suggestion of robot Z5 is selected (33%):

What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

As in the previous parts, to maximize the chance of winning the bonus of $2, **it is in your best interest to always give a guess that you think is the true chance.**

In Part 3, you will complete 7 of these new guessing tasks. Note that draws in these guessing tasks are independent of any earlier draws. **So you should think about which bag was selected for each task independently of all other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the computer do in the new guessing task? (Select all options that are correct)

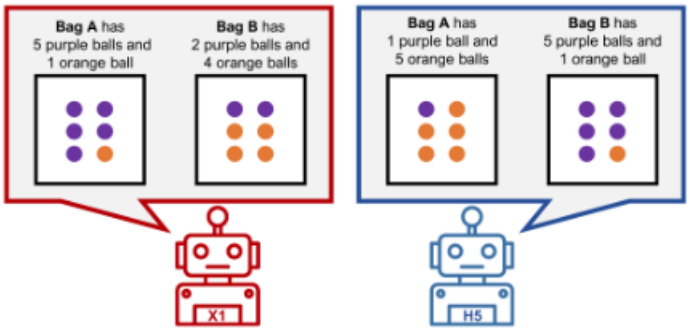
a) Choose the number of orange and purple balls in each bag for both robots

b) Roll a fair 6-sided die to select a robot, and uses the chosen numbers of this robot to fill bag A and bag B

c) Flip a fair coin to select bag A or bag B

d) Randomly draw a ball from the selected bag of the selected robot

2. Consider the following example:



Remember, the computer has drawn a purple ball.

The chance that bag A was selected given that the color of the drawn ball is purple would be…

71%
if I, robot X1, were selected

17%
if I, robot H5, were selected

a) Suppose that the computer randomly chose robot X1 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

71

b) Suppose that the computer randomly chose robot H5 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

17

c) What do you know when you guess the chance that bag A was selected? (Select all options that are correct)

- **a) The number of orange and purple balls in each bag of robot X1 and of robot H5**
- b) Whether robot X1 or robot H5 was randomly selected to fill bag A and bag B
- c) Whether bag A or bag B was selected
- **d) The color of the ball that is randomly drawn from the selected bag**

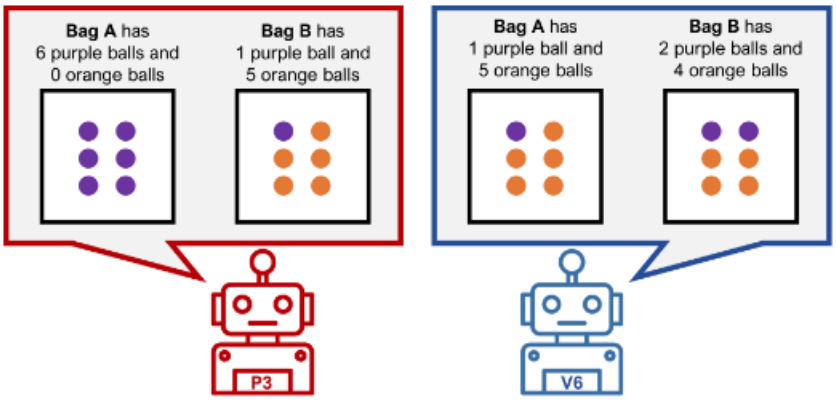
→

PART 3: Task 1/7

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot P3 and robot V6.



When you click "**START**", the following steps take place:

- **Step 1:** the computer selects one of the two robots by rolling a fair 6-sided die
  - If the number 1, 2 or 3 is rolled: the computer selects robot P3
  - If the number 4, 5 or 6 is rolled: the computer selects robot V6
- **Step 2:** the computer fills the bags with purple and orange balls according to the robot selected in Step 1
- **Step 3:** the computer selects one bag by flipping a fair coin
- **Step 4:** the computer draws a ball from the bag that was selected in Step 3

START

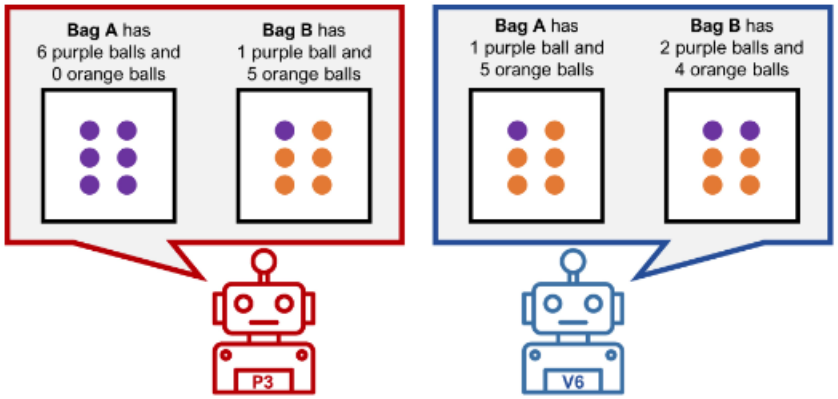
Step 1: The computer rolled the dice and **has selected the robot**.

Step 2: The computer **filled the bags** with balls according to the selected robot in Step 1.

Step 3: The computer flipped the coin and **has selected the bag**.

Step 4: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is purple.

Remember that for this task we consider robot P3 and robot V6.



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple would be…

86%
if I, robot P3, were selected

33%
if I, robot V6, were selected

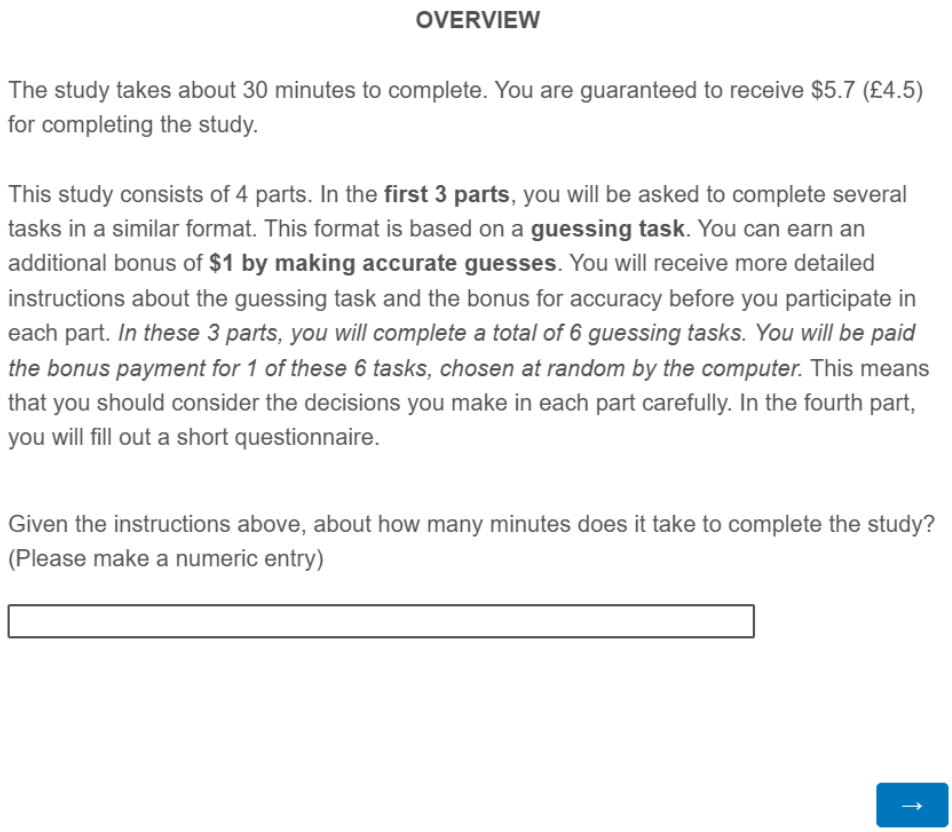
What do you think is the chance that bag A was selected given that the color of the drawn ball is purple? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

2 Additional Studies

2.1 Part 1: All Treatments

The following instructions are common for both the second and third studies. The only difference is that in the third study, it is mentioned that participants complete 7 (instead of 6) of these tasks.



OVERVIEW

The study takes about 30 minutes to complete. You are guaranteed to receive $5.7 (£4.5) for completing the study.

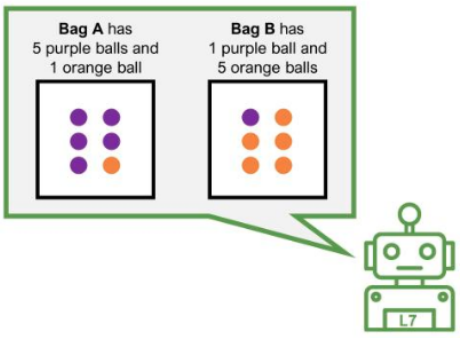
This study consists of 4 parts. In the **first 3 parts**, you will be asked to complete several tasks in a similar format. This format is based on a **guessing task**. You can earn an additional bonus of **$1 by making accurate guesses**. You will receive more detailed instructions about the guessing task and the bonus for accuracy before you participate in each part. *In these 3 parts, you will complete a total of 6 guessing tasks. You will be paid the bonus payment for 1 of these 6 tasks, chosen at random by the computer.* This means that you should consider the decisions you make in each part carefully. In the fourth part, you will fill out a short questionnaire.

Given the instructions above, about how many minutes does it take to complete the study? (Please make a numeric entry)

→

INSTRUCTION – PART 1

In Part 1, you are asked to complete 2 guessing tasks. In each guessing task, there are 2 bags, bag A and bag B. Each bag contains 6 balls, some of which are orange and some of which are purple. A robot chooses the number of orange and purple balls in each bag. For example, robot L7 chose the color of the balls in the bags as shown in the following figure:



In each guessing task, the computer flips a **fair coin** to select bag A or bag B. It is **equally likely** that the computer selects bag A or bag B. **You will not observe which bag was selected.** Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

The goal of the guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. You make your guess by selecting the chance between 0% and 100% on a slider. To give some examples of what these percentages mean:

- **50%** means that you think it is **equally likely** that bag A and bag B were selected,
- **0%** means that you are **certain** that **bag B** was selected,
- **100%** means that you are **certain** that **bag A** was selected.

Remember that you can earn an additional $1 by making accurate guesses. We have carefully chosen the payment rule such that you maximize the chance of winning the bonus of $1 if you give your best guesses. **It is in your best interest to always give the guess that you think is the true chance. The closer your guess is to the true chance, the higher the probability of winning the bonus.** If you are interested, further details on the payment are provided here.

In Part 1, you will complete 2 different guessing tasks. In each task, a different robot chooses the number of orange and purple balls in each bag. The computer then randomly selects (1) a bag, and (2) a ball from the selected bag. **Which bag is selected in each task is independent of the selected bag in other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the robot do in the guessing task? (Select all options that are correct)

a) Choose the number of orange and purple balls in each bag

b) Flip a fair coin to select bag A or bag B

c) Randomly pick a ball from the selected bag

2. What does the computer do in the guessing task? (Select all options that are correct)

a) Choose the number of orange and purple balls in each bag

b) Flip a fair coin to select bag A or bag B

c) Randomly draw a ball from the selected bag

3. What do you know when you guess the chance that bag A was selected after observing the drawn ball? (Select all options that are correct)

a) The number of orange and purple balls in each bag

b) Whether bag A or bag B was selected

c) The color of the ball that is randomly drawn from the selected bag

5. Is the following statement true or false? “It is in your best interest to give your best guess of the chance that bag A was selected given the color of the drawn ball.”

a) True

b) False

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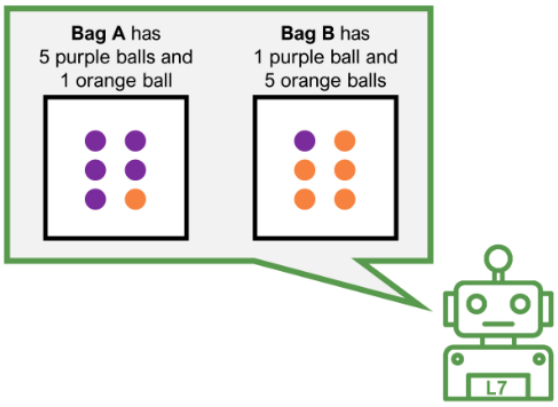
PART 1: Task 1/2

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot L7.



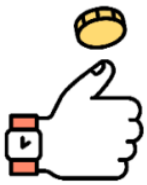
When you click "**START**", the following steps take place:

- **Step 1:** the computer fills the bags with purple and orange balls according to robot L7
- **Step 2:** the computer selects one bag by flipping a fair coin
- **Step 3:** the computer draws a ball from the bag that was selected in Step 2

START

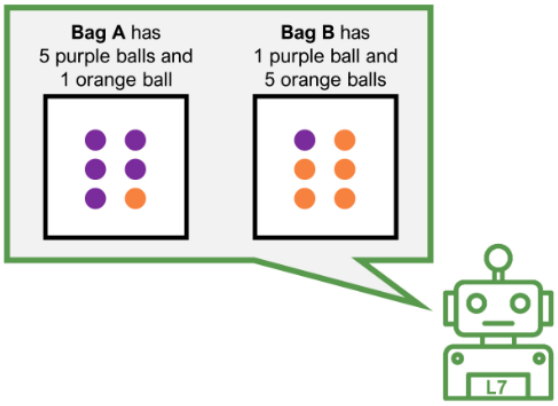
Step 1: The computer **filled the bags** with balls according to robot L7.

Step 2: The computer flipped the coin and **has selected the bag**.



Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is orange.

Remember that for this task we consider robot L7.



Remember, the computer has drawn an orange ball

What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

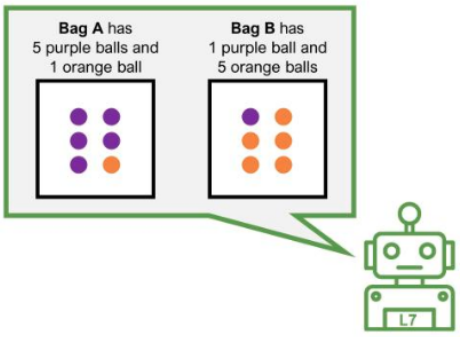
2.2 Part 2

2.2.1 Part 2: Baseline, No-Prior, Non-Conflicting, Three-Models

INSTRUCTION – PART 2

Part 2 is designed to help you understand an **important aspect of the guessing task that will be important for Part 3**: There is a **mathematical formula** (called the Bayes rule) that gives the **correct chance** that bag A was selected by the computer if you observe a ball of a certain color.

For example, consider again robot L7 that chose the color of the balls in the bags as shown in the following figure:

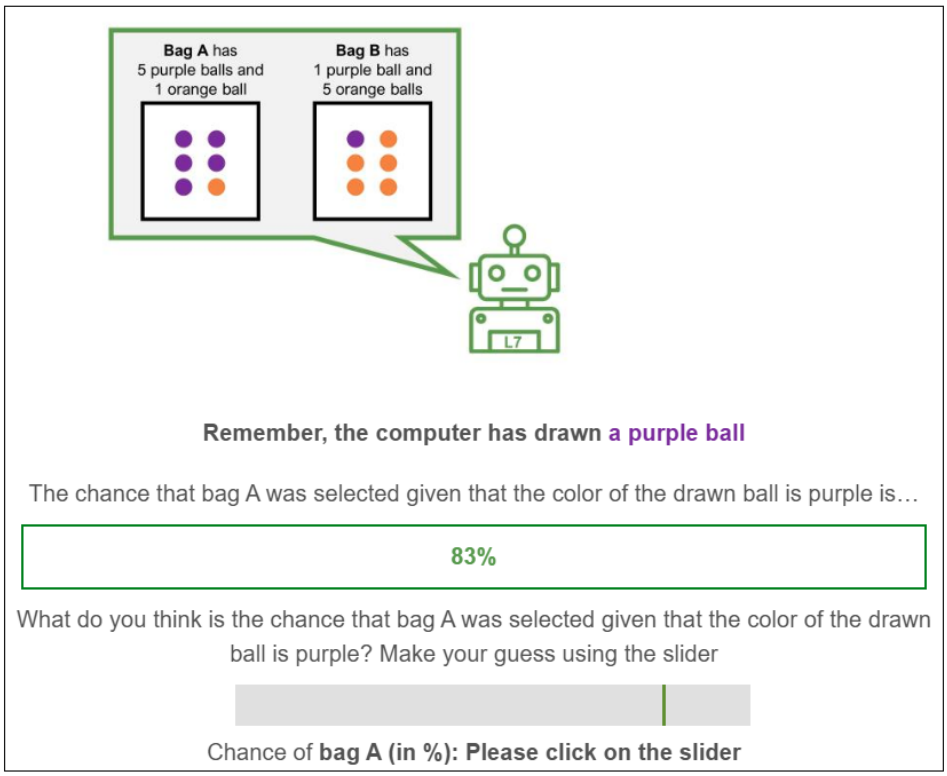


According to this formula:

- If the observed ball is orange, the correct chance that bag A was selected is 17%,
- If the observed ball is purple, the correct chance that bag A was selected is 83%.

In Part 2, you will complete the same guessing tasks as in Part 1, but **now the robots inform you of the correct chance that bag A was selected given the color of the drawn ball**. Note that the robots always communicate the correct chance; that is, **the robots never lie to you and never make mistakes when calculating the correct chance**.

The following figure provides an example of the interface:



Again you make your guess by selecting the chance between 0% and 100% on a slider. Now, a colorful pin helps you to visually indicate on the slider the correct chance communicated by the robot (see example above).

Remember that the closer your guess is to the correct chance, the higher the chance of winning the bonus of $1. That is, **you maximize the chance of winning the bonus by submitting the correct guess provided by the robot**. In the example above, if a purple ball was drawn, you would maximize the chance of winning the bonus by reporting a guess of 83%.

The goal of Part 2 is to familiarize with the interface where the robots communicate the correct chances. Understanding the interface is important for Part 3, as we will explain later.

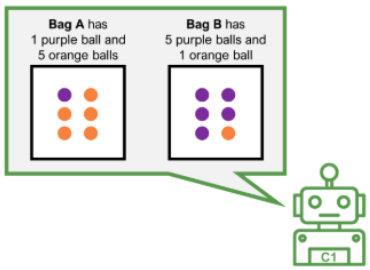
Before you report your guesses, please answer the following comprehension questions.

1) Is the following statement true or false? “The robots never lie to you and never make mistakes when calculating the correct chance that bag A was selected.”

a) True

b) False

2) Consider the following example:



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple is…

17%

a) What is the correct chance (in %) that bag A was selected given that the color of the drawn ball is purple?

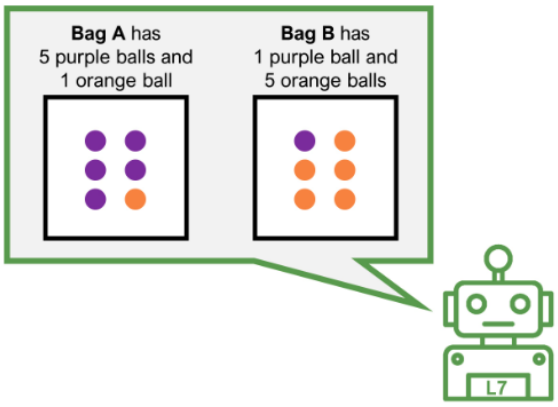
b) What guess (in %) would maximize your chance of winning the bonus?

PART 2: Task 1/2

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot L7.



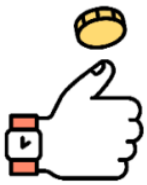
When you click "**START**", the following steps take place:

- **Step 1:** the computer fills the bags with purple and orange balls according to robot L7
- **Step 2:** the computer selects one bag by flipping a fair coin
- **Step 3:** the computer draws a ball from the bag that was selected in Step 2

START

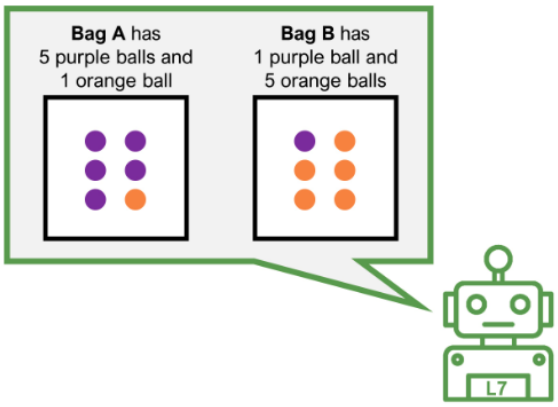
Step 1: The computer **filled the bags** with balls according to robot L7.

Step 2: The computer flipped the coin and **has selected the bag**.



Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is purple.

Remember that for this task we consider robot L7.



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple is…

83%

What do you think is the chance that bag A was selected given that the color of the drawn ball is purple? Make your guess using the slider

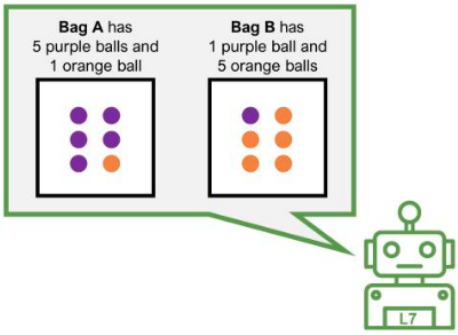
Chance of **bag A (in %): Please click on the slider**

2.2.2 Part 2: Click

INSTRUCTION – PART 2

Part 2 is designed to help you understand an **important aspect of the guessing task that will be important for Part 3**: There is a **mathematical formula** (called the Bayes rule) that gives the **correct chance** that bag A was selected by the computer if you observe a ball of a certain color.

For example, consider again robot L7 that chose the color of the balls in the bags as shown in the following figure:



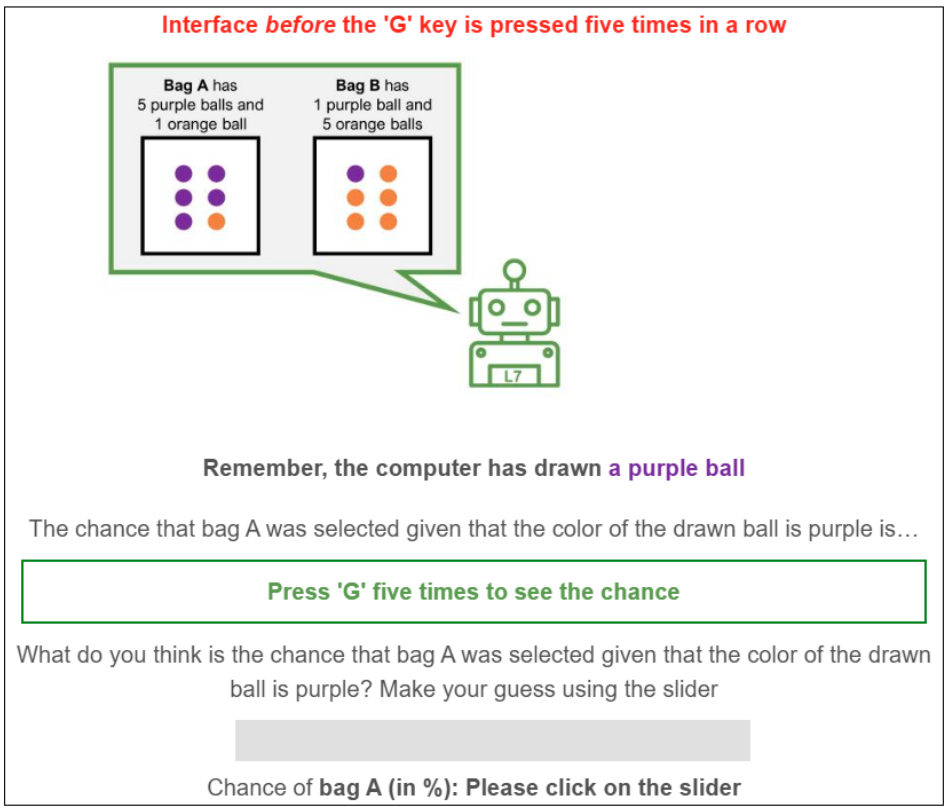
According to this formula:

- If the observed ball is orange, the correct chance that bag A was selected is 17%,
- If the observed ball is purple, the correct chance that bag A was selected is 83%.

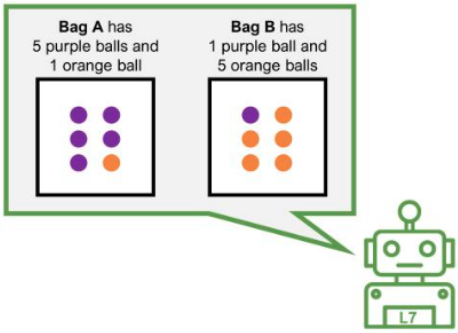
In Part 2, you will complete the same guessing tasks as in Part 1, but **now the robots can inform you of the correct chance that bag A was selected given the color of the drawn ball**. Note that the robots always communicate the correct chance; that is, **the robots never lie to you and never make mistakes when calculating the correct chance**.

If you want to see this information about the correct chance, you must press the 'G' key five times in a row. *Importantly, you must press the 'G' key five times consecutively—if you press a different key in between, you will need to start over.*

The following figure provides an example of the interface:



Interface *after* the 'G' key is pressed five times in a row



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple is…

83%

What do you think is the chance that bag A was selected given that the color of the drawn ball is purple? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

Again you make your guess by selecting the chance between 0% and 100% on a slider. Once the 'G' key is pressed five times in a row, a colorful pin helps you to visually indicate on the slider the correct chance communicated by the robot (see example above).

Remember that the closer your guess is to the correct chance, the higher the chance of winning the bonus of $1. That is, **you maximize the chance of winning the bonus by submitting the correct guess provided by the robot**. In the example above, if a purple ball was drawn, you would maximize the chance of winning the bonus by reporting a guess of 83%.

The goal of Part 2 is to familiarize with the interface where the robots communicate the correct chances if you press the 'G' key five times. Understanding the interface is important for Part 3, as we will explain later.

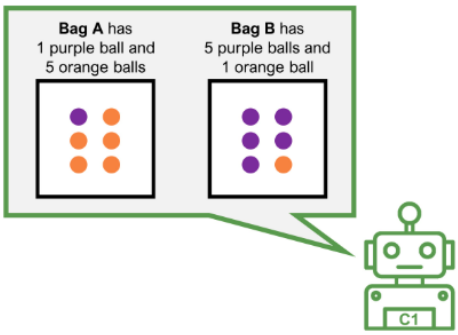
Before you report your guesses, please answer the following comprehension questions.

1) Is the following statement true or false? “The robots never lie to you and never make mistakes when calculating the correct chance that bag A was selected.”

a) True

b) False

2) Consider the following example:



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple is…

Press 'G' five times to see the chance

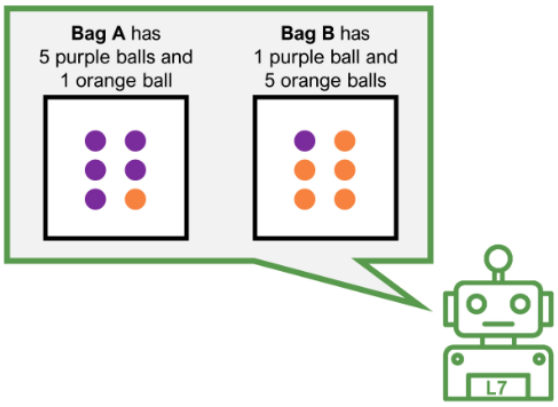
You must demonstrate your understanding of how to reveal the correct chance that bag A was selected given the color of the drawn ball. To do this, press the 'G' key five times in a row to display the information in the interface. Based on the revealed information, answer the following questions.

a) What is the correct chance (in %) that bag A was selected given that the color of the drawn ball is purple?

b) What guess (in %) would maximize your chance of winning the bonus?

→

For this task, consider robot L7.



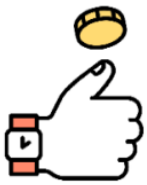
When you click "**START**", the following steps take place:

- **Step 1:** the computer fills the bags with purple and orange balls according to robot L7
- **Step 2:** the computer selects one bag by flipping a fair coin
- **Step 3:** the computer draws a ball from the bag that was selected in Step 2

START

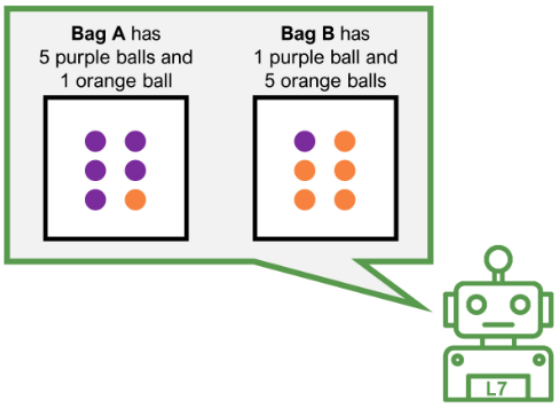
Step 1: The computer **filled the bags** with balls according to robot L7.

Step 2: The computer flipped the coin and **has selected the bag**.



Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is purple.

Remember that for this task we consider robot L7.



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple is…

Press 'G' five times to see the chance

What do you think is the chance that bag A was selected given that the color of the drawn ball is purple? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

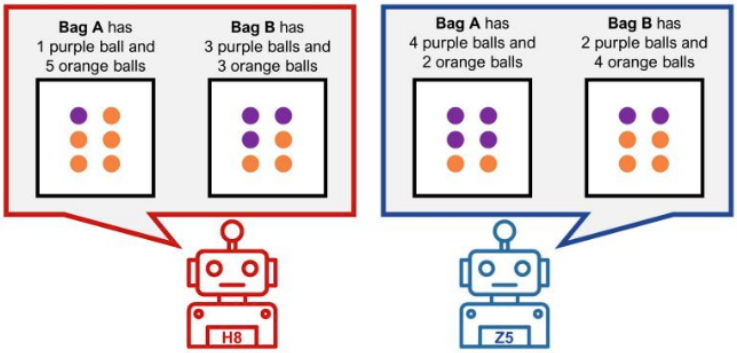
2.3 Part 3

2.3.1 Part 3: Baseline

The following instructions apply to both the second and third studies. The only difference is that in the third study, it is written that participants complete 3 (rather than 2) of these tasks and that the set of cards consists of 60 (rather than 100) cards.

INSTRUCTION – PART 3

You will now complete a **new version of the guessing task**. Some elements are the same as the previous version of the guessing task: there are again 2 bags, bag A and bag B; each bag contains 6 balls, and each ball is either orange or purple. Now, in each task, there are 2 robots. Each robot suggests a distribution of purple and orange balls in the bags. In the following, we illustrate the new guessing tasks with the robots H8 and Z5. Note, however, that we will use two different robots in each task. The following figure shows you how the robots H8 and Z5 would distribute the balls in the bags for this task:



The suggestion of one of the two robots is used to fill the bags with the balls. First, the computer randomly selects one of the two robots, either robot H8 or robot Z5, and then fills bag A and bag B according to how the selected robot would distribute the balls in the bags. The suggestion of the other robot does not count.

To select a robot, the computer randomly **draws a card from a set of 100 cards** and each card has an equal probability of being drawn. **Each card is either red or blue. Note that the left robot is always red**, **and the right robot is always blue.** If a red card is drawn, the red robot (H8 in the example above) is selected; if a blue card is drawn, the blue robot is selected (Z5).

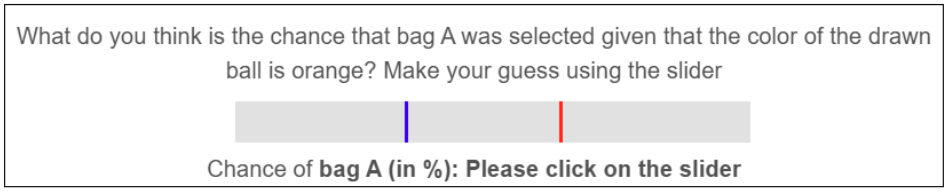
Importantly, **the set of cards consists of 50 red cards and 50 blue cards**, ensuring that both robots have an equal chance of being selected. **You will not know which card is drawn and whether robot H8 or robot Z5 is selected by the computer,** and, hence, you will not know the composition of bag A and bag B.

After the computer selects a robot and fills the bags according to this robot's suggestion, the computer then flips a fair coin to select bag A or bag B as in the guessing tasks that you did in Part 1 and Part 2. It is equally likely that the computer selects bag A or bag B. As before, you will not observe which bag was selected. Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

As in Part 2, the robots tell you the correct chance that the observed ball was drawn from bag A, but **each robot tells you the correct chance for the case in which the robot's suggestion was selected to fill bag A and bag B**. In the example of robots H8 and Z5, consider the case in which an orange ball was drawn. In this case:

- If the robot H8's suggestion were selected, the correct chance would be 63%,
- If the robot Z5's suggestion were selected, the correct chance would be 33%.

Your goal of the new guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. Again, you make your guess by selecting the chance between 0% and 100% on a slider. Two colorful pins help you to visually indicate on the slider the correct chance if the suggestion of robot H8 is selected (63%) and the correct chance if the suggestion of robot Z5 is selected (33%):



As in the previous parts, to maximize the chance of winning the bonus of $1, **it is in your best interest to always give a guess that you think is the true chance.**

In Part 3, you will complete 2 of these new guessing tasks. Note that draws in these guessing tasks are independent of any earlier draws. **So you should think about which bag was selected for each task independently of all other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the computer do in the new guessing task? (Select all options that are correct)

a) Choose the number of orange and purple balls in each bag for both robots

b) Draw a card from a set of 100 cards to select a robot

c) Flip a fair coin to select bag A or bag B

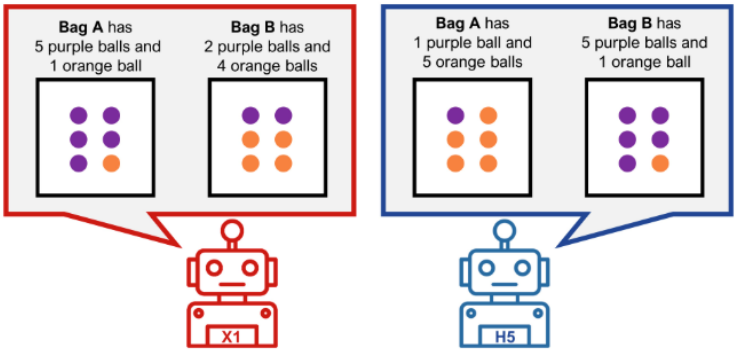
d) Randomly draw a ball from the selected bag of the selected robot

2. Is the following statement true or false? "When the computer draws a card to select a robot, you will know how many cards are red and how many cards are blue."

True

False

3. Consider the following example:



Remember, the computer has drawn a purple ball.

The chance that bag A was selected given that the color of the drawn ball is purple would be…

71% if I, robot X1, were selected	**17%** if I, robot H5, were selected

a) Suppose that the computer randomly chose robot X1 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

b) Suppose that the computer randomly chose robot H5 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

c) What do you know when you guess the chance that bag A was selected? (Select all options that are correct)

- a) The number of orange and purple balls in each bag of robot X1 and of robot H5
- b) Whether robot X1 or robot H5 was randomly selected to fill bag A and bag B
- c) Whether bag A or bag B was selected
- d) The color of the ball that is randomly drawn from the selected bag

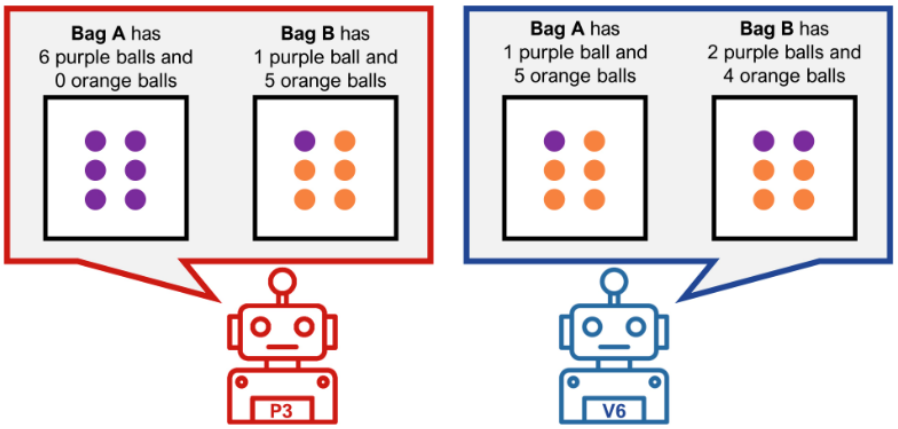
→

PART 3: Task 1/2

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot P3 and robot V6.

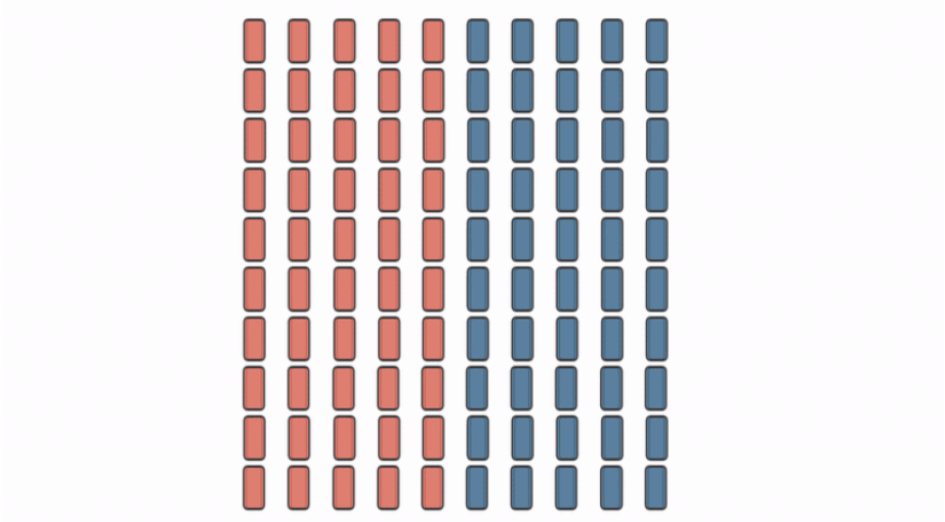


When you click "**START**", the following steps take place:

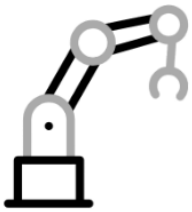
- **Step 1:** the computer selects one of the two robots by drawing a card
  - If a red card is drawn: the computer selects robot P3
  - If a blue card is drawn: the computer selects robot V6
- **Step 2:** the computer fills the bags with purple and orange balls according to the robot selected in Step 1
- **Step 3:** the computer selects one bag by flipping a fair coin
- **Step 4:** the computer draws a ball from the bag that was selected in Step 3

START

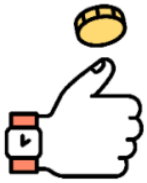
Step 1: The computer drew a card and **has selected the robot**.



Step 1: The computer **filled the bags** with balls according to robot L7.

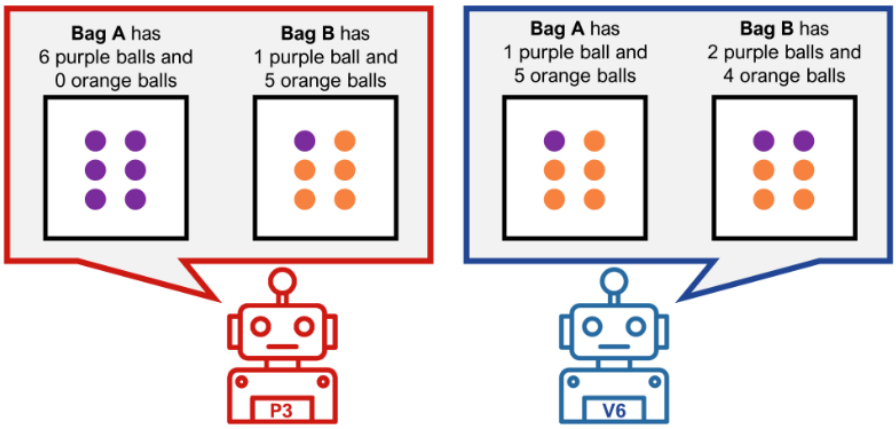


Step 2: The computer flipped the coin and **has selected the bag**.



Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is purple.

Remember that for this task we consider robot P3 and robot V6.



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple would be…

86%	33%
if I, robot P3, were selected	if I, robot V6, were selected

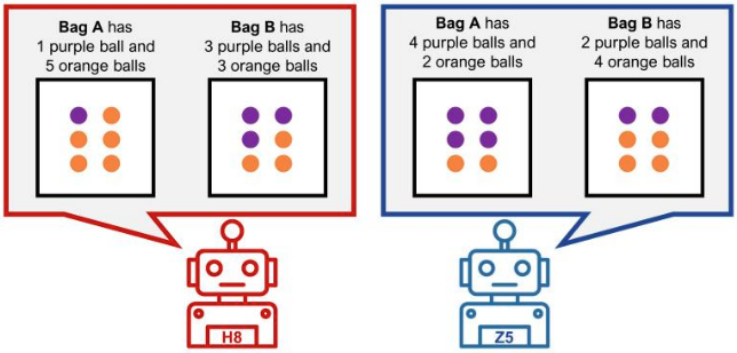
What do you think is the chance that bag A was selected given that the color of the drawn ball is purple? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

2.3.2 Part 3: No-Prior

INSTRUCTION – PART 3

You will now complete a **new version of the guessing task**. Some elements are the same as the previous version of the guessing task: there are again 2 bags, bag A and bag B; each bag contains 6 balls, and each ball is either orange or purple. Now, in each task, there are 2 robots. Each robot suggests a distribution of purple and orange balls in the bags. In the following, we illustrate the new guessing tasks with the robots H8 and Z5. Note, however, that we will use two different robots in each task. The following figure shows you how the robots H8 and Z5 would distribute the balls in the bags for this task:



The suggestion of one of the two robots is used to fill the bags with the balls. First, the computer randomly selects one of the two robots, either robot H8 or robot Z5, and then fills bag A and bag B according to how the selected robot would distribute the balls in the bags. The suggestion of the other robot does not count.

To select a robot, the computer randomly **draws a card from a set of 100 cards** and each card has an equal probability of being drawn. **Each card is either red or blue. Note that the left robot is always red**, **and the right robot is always blue.** If a red card is drawn, the red robot (H8 in the example above) is selected; if a blue card is drawn, the blue robot is selected (Z5).

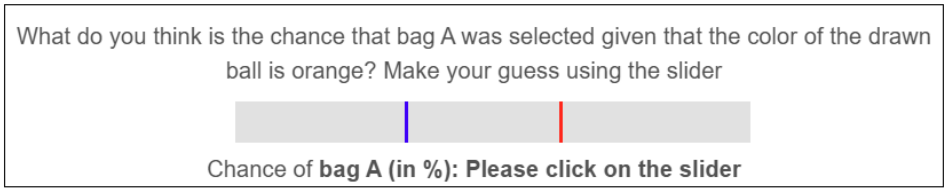
Importantly, we will not disclose the composition of the card set. That is, **you will not know how many cards are red or blue. You will not know which card is drawn and whether robot H8 or robot Z5 is selected by the computer,** and, hence, you will not know the composition of bag A and bag B.

After the computer selects a robot and fills the bags according to this robot's suggestion, the computer then flips a fair coin to select bag A or bag B as in the guessing tasks that you did in Part 1 and Part 2. It is equally likely that the computer selects bag A or bag B. As before, you will not observe which bag was selected. Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

As in Part 2, the robots tell you the correct chance that the observed ball was drawn from bag A, but **each robot tells you the correct chance for the case in which the robot's suggestion was selected to fill bag A and bag B**. In the example of robots H8 and Z5, consider the case in which an orange ball was drawn. In this case:

- If the robot H8's suggestion were selected, the correct chance would be 63%,
- If the robot Z5's suggestion were selected, the correct chance would be 33%.

Your goal of the new guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. Again, you make your guess by selecting the chance between 0% and 100% on a slider. Two colorful pins help you to visually indicate on the slider the correct chance if the suggestion of robot H8 is selected (63%) and the correct chance if the suggestion of robot Z5 is selected (33%):



As in the previous parts, to maximize the chance of winning the bonus of $1, **it is in your best interest to always give a guess that you think is the true chance.**

In Part 3, you will complete 2 of these new guessing tasks. Note that draws in these guessing tasks are independent of any earlier draws. **So you should think about which bag was selected for each task independently of all other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the computer do in the new guessing task? (Select all options that are correct)

a) Choose the number of orange and purple balls in each bag for both robots

b) Draw a card from a set of 100 cards to select a robot

c) Flip a fair coin to select bag A or bag B

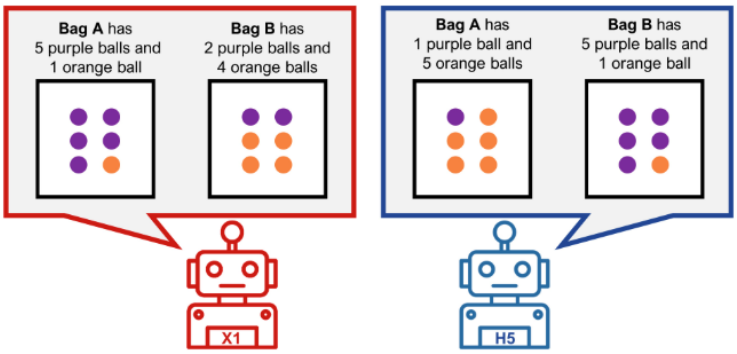
d) Randomly draw a ball from the selected bag of the selected robot

2. Is the following statement true or false? "When the computer draws a card to select a robot, you will know how many cards are red and how many cards are blue."

True

False

3. Consider the following example:



Remember, the computer has drawn a purple ball.

The chance that bag A was selected given that the color of the drawn ball is purple would be…

71%	17%
if I, robot X1, were selected	if I, robot H5, were selected

a) Suppose that the computer randomly chose robot X1 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

b) Suppose that the computer randomly chose robot H5 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

c) What do you know when you guess the chance that bag A was selected? (Select all options that are correct)

- a) The number of orange and purple balls in each bag of robot X1 and of robot H5
- b) Whether robot X1 or robot H5 was randomly selected to fill bag A and bag B
- c) Whether bag A or bag B was selected
- d) The color of the ball that is randomly drawn from the selected bag

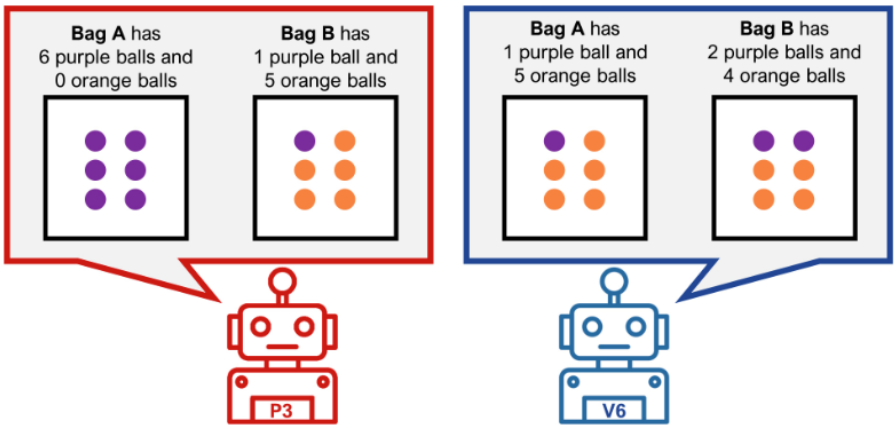
→

PART 3: Task 1/2

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot P3 and robot V6.

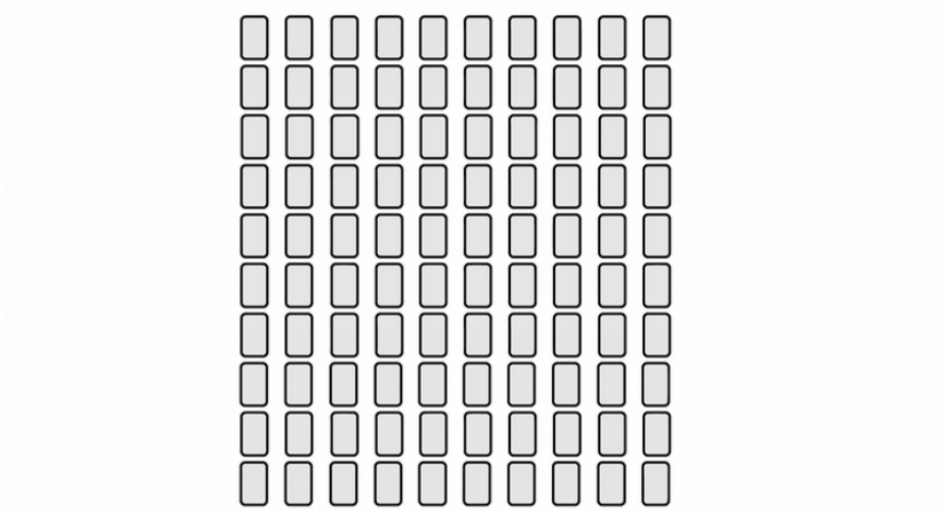


When you click "**START**", the following steps take place:

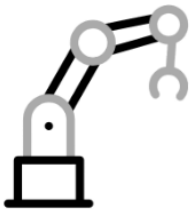
- **Step 1:** the computer selects one of the two robots by drawing a card
  - If a red card is drawn: the computer selects robot P3
  - If a blue card is drawn: the computer selects robot V6
- **Step 2:** the computer fills the bags with purple and orange balls according to the robot selected in Step 1
- **Step 3:** the computer selects one bag by flipping a fair coin
- **Step 4:** the computer draws a ball from the bag that was selected in Step 3

START

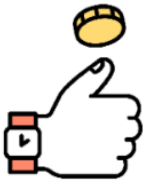
Step 1: The computer drew a card and **has selected the robot**.



Step 1: The computer **filled the bags** with balls according to robot L7.

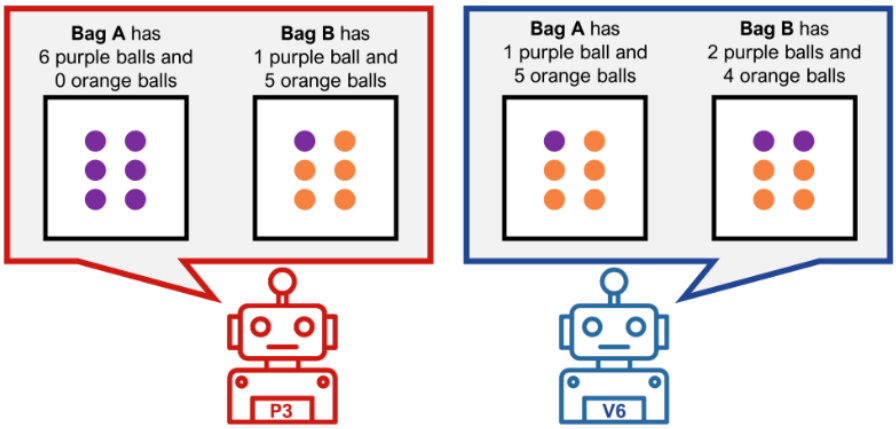


Step 2: The computer flipped the coin and **has selected the bag**.



Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is purple.

Remember that for this task we consider robot P3 and robot V6.



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple would be…

86%	33%
if I, robot P3, were selected	if I, robot V6, were selected

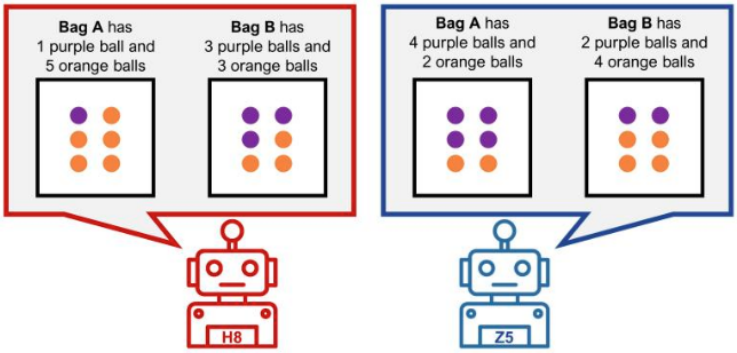
What do you think is the chance that bag A was selected given that the color of the drawn ball is purple? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

2.3.3 Part 3: Click

INSTRUCTION – PART 3

You will now complete a **new version of the guessing task**. Some elements are the same as the previous version of the guessing task: there are again 2 bags, bag A and bag B; each bag contains 6 balls, and each ball is either orange or purple. Now, in each task, there are 2 robots. Each robot suggests a distribution of purple and orange balls in the bags. In the following, we illustrate the new guessing tasks with the robots H8 and Z5. Note, however, that we will use two different robots in each task. The following figure shows you how the robots H8 and Z5 would distribute the balls in the bags for this task:



The suggestion of one of the two robots is used to fill the bags with the balls. First, the computer randomly selects one of the two robots, either robot H8 or robot Z5, and then fills bag A and bag B according to how the selected robot would distribute the balls in the bags. The suggestion of the other robot does not count.

To select a robot, the computer randomly **draws a card from a set of 100 cards** and each card has an equal probability of being drawn. **Each card is either red or blue. Note that the left robot is always red**, **and the right robot is always blue.** If a red card is drawn, the red robot (H8 in the example above) is selected; if a blue card is drawn, the blue robot is selected (Z5).

Importantly, **the set of cards consists of 50 red cards and 50 blue cards**, ensuring that both robots have an equal chance of being selected. **You will not know which card is drawn and whether robot H8 or robot Z5 is selected by the computer,** and, hence, you will not know the composition of bag A and bag B.

After the computer selects a robot and fills the bags according to this robot's suggestion, the computer then flips a fair coin to select bag A or bag B as in the guessing tasks that you did in Part 1 and Part 2. It is equally likely that the computer selects bag A or bag B. As before, you will not observe which bag was selected. Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

As in Part 2, the robots can tell you the correct chance that the observed ball was drawn from bag A, but **each robot tells you the correct chance for the case in which the robot's suggestion was selected to fill bag A and bag B**. In the example of robots H8 and Z5, consider the case in which an orange ball was drawn. In this case:

- If the robot H8's suggestion were selected, the correct chance would be 63%,
- If the robot Z5's suggestion were selected, the correct chance would be 33%.

As in Part 2, **if you want to receive this information about the correct chance, you must press specific buttons on the keyboard**:

- Press the 'R' key five times in a row to reveal the correct chance if the red robot were selected,
- Press the 'B' key five times in a row to reveal the correct chance if the blue robot were selected.

Importantly, you must press the same key five times consecutively—if you press a different key in between, you will need to start over. This means you cannot reveal both correct chances at the same time. You must first press the 'R' key five times before starting to press the 'B' key five times, or vice versa.

Your goal of the new guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. Again, you make your guess by selecting the chance between 0% and 100% on a slider. Once you press the 'R' and 'B' keys five times in a row, two colorful pins help you to visually indicate on the slider the correct chance if the suggestion of robot H8 is selected (63%) and the correct chance if the suggestion of robot Z5 is selected (33%):

What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

As in the previous parts, to maximize the chance of winning the bonus of $1, **it is in your best interest to always give a guess that you think is the true chance.**

In Part 3, you will complete 2 of these new guessing tasks. Note that draws in these guessing tasks are independent of any earlier draws. **So you should think about which bag was selected for each task independently of all other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the computer do in the new guessing task? (Select all options that are correct)

a) Choose the number of orange and purple balls in each bag for both robots

b) Draw a card from a set of 100 cards to select a robot

c) Flip a fair coin to select bag A or bag B

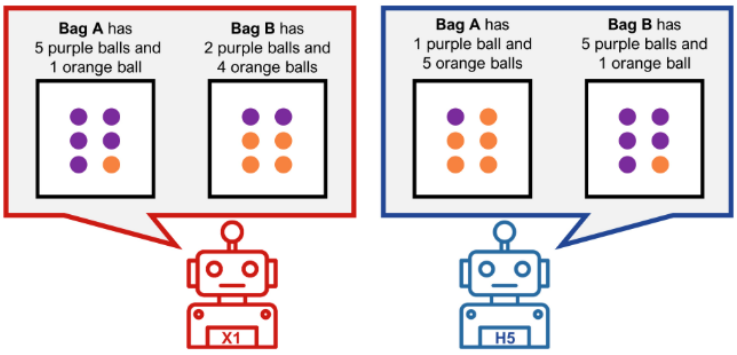
d) Randomly draw a ball from the selected bag of the selected robot

2. Is the following statement true or false? "When the computer draws a card to select a robot, you will know how many cards are red and how many cards are blue."

True

False

3. Consider the following example:



Remember, the computer has drawn a purple ball.

The chance that bag A was selected given that the color of the drawn ball is purple would be…

Press 'R' five times to see the chance if robot X1 were selected	Press 'B' five times to see the chance if robot H5 were selected

You must demonstrate your understanding of how to reveal the left and right robots' correct chance that bag A was selected given the color of the drawn ball. To do this, press the 'R' and 'B' key five times in a row to display the information in the interface below.

Answer the following questions based on the revealed information.

a) Suppose that the computer randomly chose robot X1 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

b) Suppose that the computer randomly chose robot H5 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

c) What do you know when you guess the chance that bag A was selected? (Select all options that are correct)

- a) The number of orange and purple balls in each bag of robot X1 and of robot H5
- b) Whether robot X1 or robot H5 was randomly selected to fill bag A and bag B
- c) Whether bag A or bag B was selected
- d) The color of the ball that is randomly drawn from the selected bag

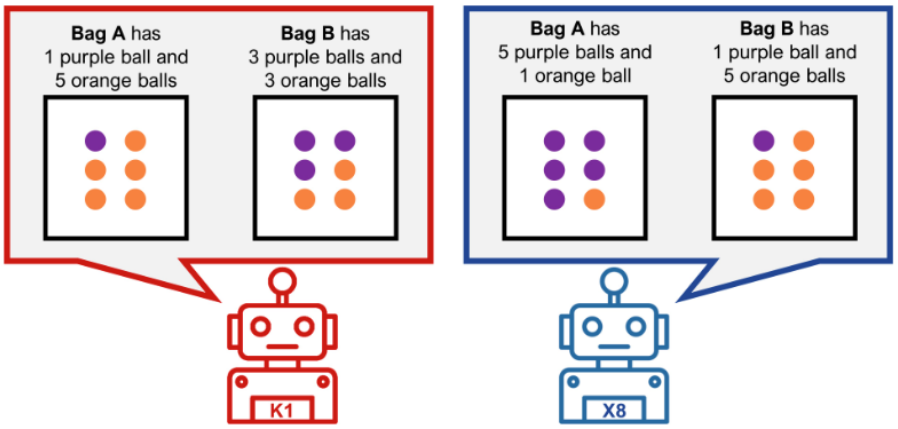
→

PART 3: Task 1/2

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot K1 and robot X8.

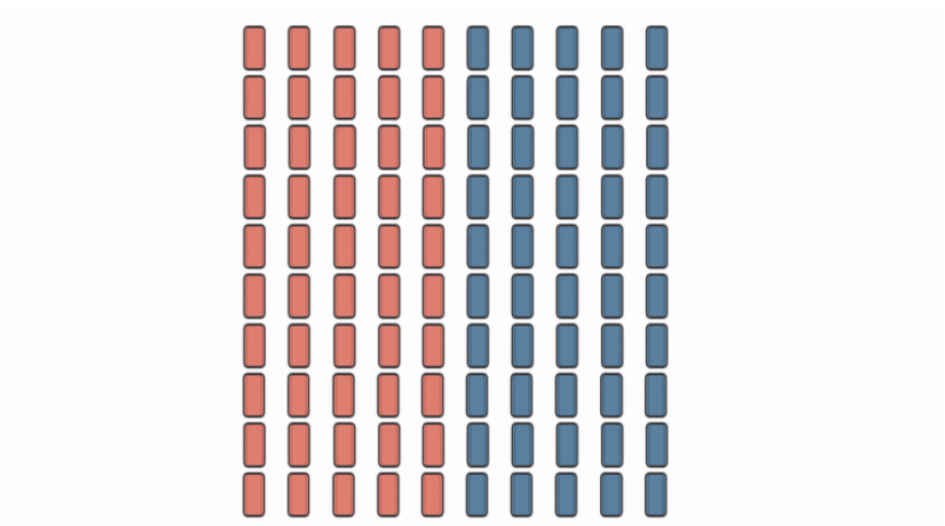


When you click "**START**", the following steps take place:

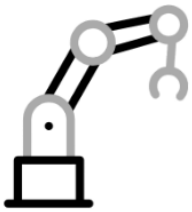
- **Step 1:** the computer selects one of the two robots by drawing a card
  - If a red card is drawn: the computer selects robot K1
  - If a blue card is drawn: the computer selects robot X8
- **Step 2:** the computer fills the bags with purple and orange balls according to the robot selected in Step 1
- **Step 3:** the computer selects one bag by flipping a fair coin
- **Step 4:** the computer draws a ball from the bag that was selected in Step 3

START

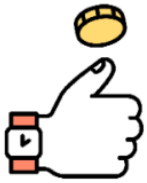
Step 1: The computer drew a card and **has selected the robot**.



Step 1: The computer **filled the bags** with balls according to robot L7.

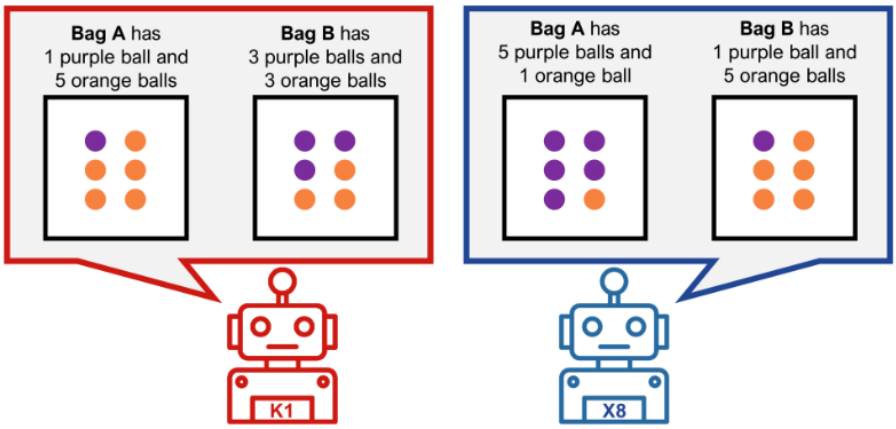


Step 2: The computer flipped the coin and **has selected the bag**.



Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is purple.

Remember that for this task we consider robot K1 and robot X8.



Remember, the computer has drawn an orange ball

The chance that bag A was selected given that the color of the drawn ball is orange would be…

Press 'R' five times to see the chance if robot K1 were selected

Press 'B' five times to see the chance if robot X8 were selected

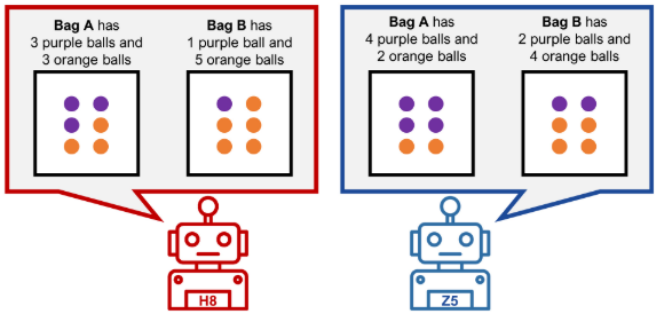
What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

2.3.4 Part 3: Non-Conflicting

INSTRUCTION – PART 3

You will now complete a **new version of the guessing task**. Some elements are the same as the previous version of the guessing task: there are again 2 bags, bag A and bag B; each bag contains 6 balls, and each ball is either orange or purple. Now, in each task, there are 2 robots. Each robot suggests a distribution of purple and orange balls in the bags. In the following, we illustrate the new guessing tasks with the robots H8 and Z5. Note, however, that we will use two different robots in each task. The following figure shows you how the robots H8 and Z5 would distribute the balls in the bags for this task:



The suggestion of one of the two robots is used to fill the bags with the balls. First, the computer randomly selects one of the two robots, either robot H8 or robot Z5, and then fills bag A and bag B according to how the selected robot would distribute the balls in the bags. The suggestion of the other robot does not count.

To select a robot, the computer randomly **draws a card from a set of 60 cards** and each card has an equal probability of being drawn. **Each card is either red or blue. Note that the left robot is always red**, **and the right robot is always blue.** If a red card is drawn, the red robot (H8 in the example above) is selected; if a blue card is drawn, the blue robot is selected (Z5).

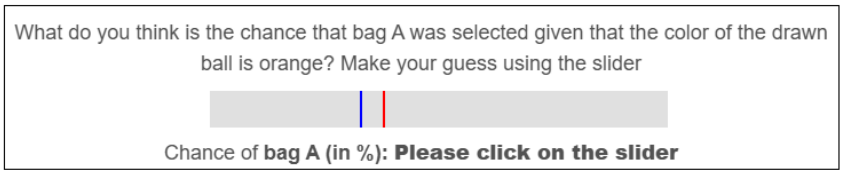
Importantly, **the set of cards consists of 30 red cards and 30 blue cards**, ensuring that both robots have an equal chance of being selected. **You will not know which card is drawn and whether robot H8 or robot Z5 is selected by the computer,** and, hence, you will not know the composition of bag A and bag B.

After the computer selects a robot and fills the bags according to this robot's suggestion, the computer then flips a fair coin to select bag A or bag B as in the guessing tasks that you did in Part 1 and Part 2. It is equally likely that the computer selects bag A or bag B. As before, you will not observe which bag was selected. Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

As in Part 2, the robots tell you the correct chance that the observed ball was drawn from bag A, but **each robot tells you the correct chance for the case in which the robot's suggestion was selected to fill bag A and bag B**. In the example of robots H8 and Z5, consider the case in which an orange ball was drawn. In this case:

- If the robot H8's suggestion were selected, the correct chance would be 38%,
- If the robot Z5's suggestion were selected, the correct chance would be 33%.

Your goal of the new guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. Again, you make your guess by selecting the chance between 0% and 100% on a slider. Two colorful pins help you to visually indicate on the slider the correct chance if the suggestion of robot H8 is selected (38%) and the correct chance if the suggestion of robot Z5 is selected (33%):



As in the previous parts, to maximize the chance of winning the bonus of $1, **it is in your best interest to always give a guess that you think is the true chance.**

In Part 3, you will complete 2 of these new guessing tasks. Note that draws in these guessing tasks are independent of any earlier draws. **So you should think about which bag was selected for each task independently of all other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the computer do in the new guessing task? (Select all options that are correct)

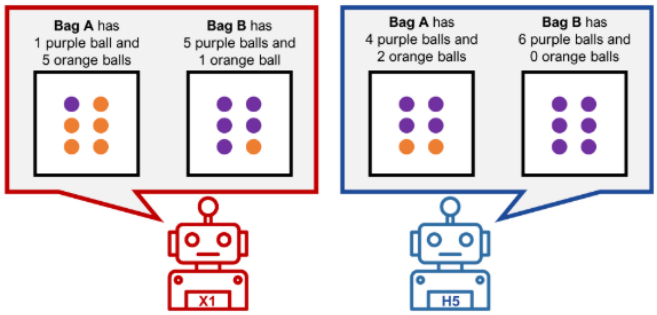
a) Choose the number of orange and purple balls in each bag for both robots

b) Draw a card from a set of 60 cards to select a robot

c) Flip a fair coin to select bag A or bag B

d) Randomly draw a ball from the selected bag of the selected robot

2. Consider the following example:



Remember, the computer has drawn a purple ball.

The chance that bag A was selected given that the color of the drawn ball is purple would be…

17% if I, robot X1, were selected	**40%** if I, robot H5, were selected

a) Suppose that the computer randomly chose robot X1 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

b) Suppose that the computer randomly chose robot H5 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

c) What do you know when you guess the chance that bag A was selected? (Select all options that are correct)

- a) The number of orange and purple balls in each bag of robot X1 and of robot H5
- b) Whether robot X1 or robot H5 was randomly selected to fill bag A and bag B
- c) Whether bag A or bag B was selected
- d) The color of the ball that is randomly drawn from the selected bag

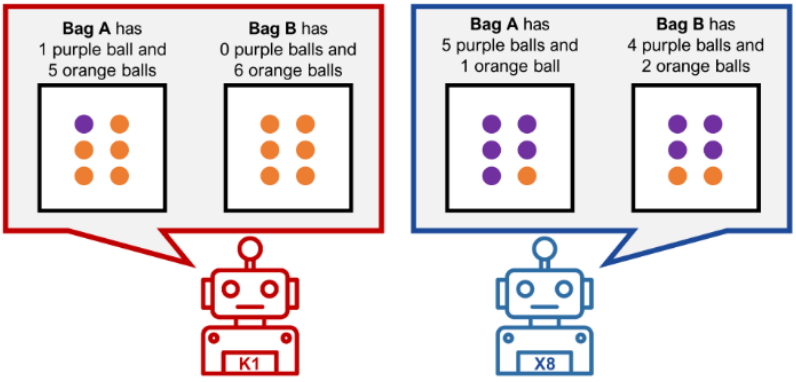
→

PART 3: Task 1/3

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot K1 and robot X8.

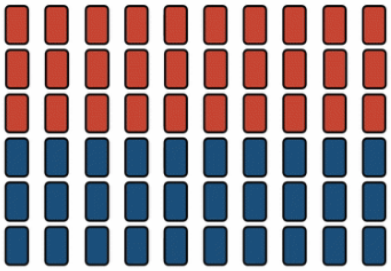


When you click "**START**", the following steps take place:

- **Step 1:** the computer selects one of the two robots by drawing a card
  - If a red card is drawn: the computer selects robot K1
  - If a blue card is drawn: the computer selects robot X8
- **Step 2:** the computer fills the bags with purple and orange balls according to the robot selected in Step 1
- **Step 3:** the computer selects one bag by flipping a fair coin
- **Step 4:** the computer draws a ball from the bag that was selected in Step 3

START

Step 1: The computer drew a card and **has selected the robot**.

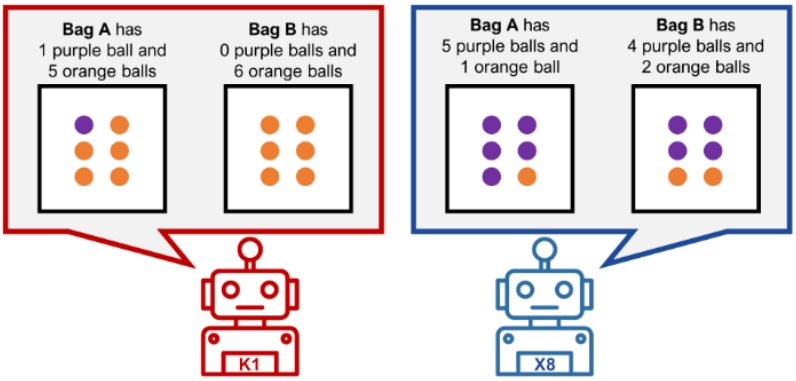


Step 2: The computer **filled the bags** with balls according to the selected robot in Step 1.

Step 3: The computer flipped the coin and **has selected the bag**.

Step 4: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is orange.

Remember that for this task we consider robot K1 and robot X8.



Remember, the computer has drawn an orange ball

The chance that bag A was selected given that the color of the drawn ball is orange would be…

45% if I, robot K1, were selected	33% if I, robot X8, were selected

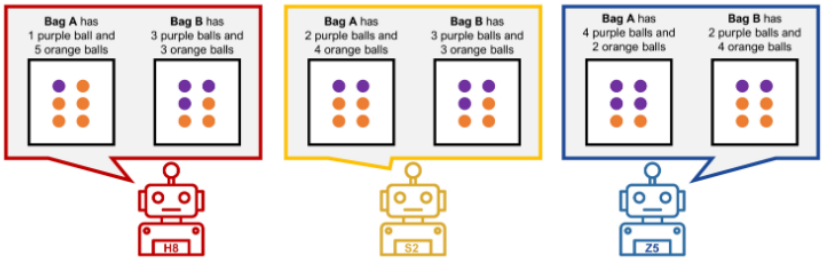
What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

2.3.5 Part 3: Three-Models

INSTRUCTION – PART 3

You will now complete a **new version of the guessing task**. Some elements are the same as the previous version of the guessing task: there are again 2 bags, bag A and bag B; each bag contains 6 balls, and each ball is either orange or purple. Now, in each task, there are 3 robots. Each robot suggests a distribution of purple and orange balls in the bags. In the following, we illustrate the new guessing tasks with the robots H8, S2, and Z5. Note, however, that we will use two different robots in each task. The following figure shows you how the robots H8, S2, and Z5 would distribute the balls in the bags for this task:



The suggestion of one of the three robots is used to fill the bags with the balls. First, the computer randomly selects one of the three robots, either robot H8 or robot S2 or robot Z5, and then fills bag A and bag B according to how the selected robot would distribute the balls in the bags. The suggestion of the other robots do not count.

To select a robot, the computer randomly **draws a card from a set of 60 cards** and each card has an equal probability of being drawn. **Each card is either red or yellow or blue. Note that the left robot is always red**, **the central robot is always yellow, and the right robot is always blue.** If a red card is drawn, the red robot (H8 in the example above) is selected; if a yellow card is drawn, the yellow robot is selected (S2); if a blue card is drawn, the blue robot is selected (Z5).

Importantly, **the set of cards consists of 20 red cards, 20 yellow cards, and 20 blue cards**, ensuring that both robots have an equal chance of being selected. **You will not know which card is drawn and whether robot H8 or robot S2 or robot Z5 is selected by the computer,** and, hence, you will not know the composition of bag A and bag B.

After the computer selects a robot and fills the bags according to this robot's suggestion, the computer then flips a fair coin to select bag A or bag B as in the guessing tasks that you did in Part 1 and Part 2. It is equally likely that the computer selects bag A or bag B. As before, you will not observe which bag was selected. Instead, the computer draws one ball from the secretly selected bag and shows you the color of the ball.

As in Part 2, the robots tell you the correct chance that the observed ball was drawn from bag A, but **each robot tells you the correct chance for the case in which the robot's suggestion was selected to fill bag A and bag B**. In the example of robots H8, S2, and Z5, consider the case in which an orange ball was drawn. In this case:

- If the robot H8's suggestion were selected, the correct chance would be 63%,
- If the robot S2's suggestion were selected, the correct chance would be 57%,
- If the robot Z5's suggestion were selected, the correct chance would be 33%.

Your goal of the new guessing task is to correctly guess the chance (in %) that bag A was selected, given the available information. Again, you make your guess by selecting the chance between 0% and 100% on a slider. Three colorful pins help you to visually indicate on the slider the correct chance if the suggestion of robot H8 is selected (63%), the correct chance if the suggestion of robot S2 is selected (57%), and the correct chance if the suggestion of robot Z5 is selected (33%):

What do you think is the chance that bag A was selected given that the color of the drawn ball is orange? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**

As in the previous parts, to maximize the chance of winning the bonus of $1, **it is in your best interest to always give a guess that you think is the true chance.**

In Part 3, you will complete 3 of these new guessing tasks. Note that draws in these guessing tasks are independent of any earlier draws. **So you should think about which bag was selected for each task independently of all other tasks.**

Before you report your guesses, please answer the following comprehension questions.

1. What does the computer do in the new guessing task? (Select all options that are correct)

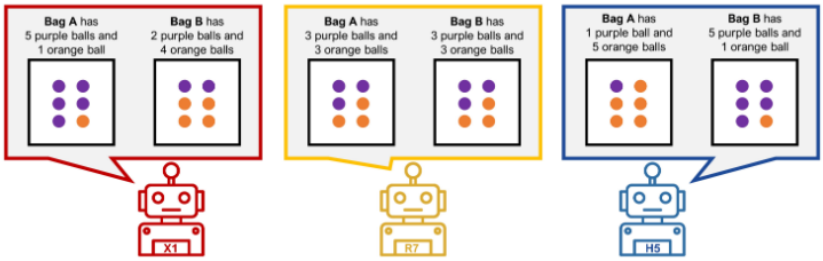
a) Choose the number of orange and purple balls in each bag for all robots

b) Draw a card from a set of 60 cards to select a robot

c) Flip a fair coin to select bag A or bag B

d) Randomly draw a ball from the selected bag of the selected robot

2. Consider the following example:



Remember, the computer has drawn a purple ball.

The chance that bag A was selected given that the color of the drawn ball is purple would be…

71% if I, robot X1, were selected	**50%** if I, robot R7, were selected	**17%** if I, robot H5, were selected

a) Suppose that the computer randomly chose robot X1 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

b) Suppose that the computer randomly chose robot R7 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

c) Suppose that the computer randomly chose robot H5 to fill bag A and bag B. What is the correct chance (in %) that the bag A was selected given that the color of the drawn ball is purple?

d) What do you know when you guess the chance that bag A was selected? (Select all options that are correct)

- a) The number of orange and purple balls in each bag of robot X1, robot R7, and of robot H5
- b) Whether robot X1 or robot R7 or robot H5 was randomly selected to fill bag A and bag B
- c) Whether bag A or bag B was selected
- d) The color of the ball that is randomly drawn from the selected bag

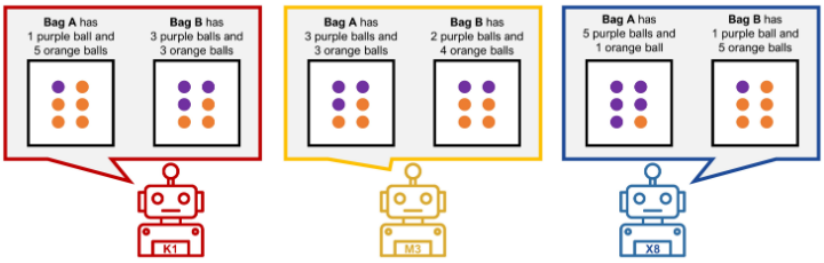
→

PART 3: Task 1/3

Please click on the right arrow if you are ready to proceed to the next task.

→

For this task, consider robot K1, robot M3, and robot X8.

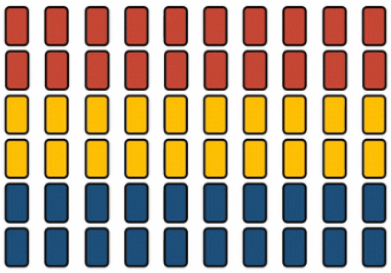


When you click "**START**", the following steps take place:

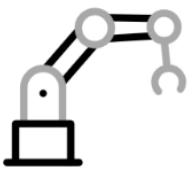
- **Step 1:** the computer selects one of the two robots by drawing a card
  - If a red card is drawn: the computer selects robot K1
  - If a yellow card is drawn: the computer selects robot M3
  - If a blue card is drawn: the computer selects robot X8
- **Step 2:** the computer fills the bags with purple and orange balls according to the robot selected in Step 1
- **Step 3:** the computer selects one bag by flipping a fair coin
- **Step 4:** the computer draws a ball from the bag that was selected in Step 3

START

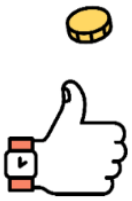
Step 1: The computer drew a card and **has selected the robot**.



Step 2: The computer **filled the bags** with balls according to the selected robot in Step 1.

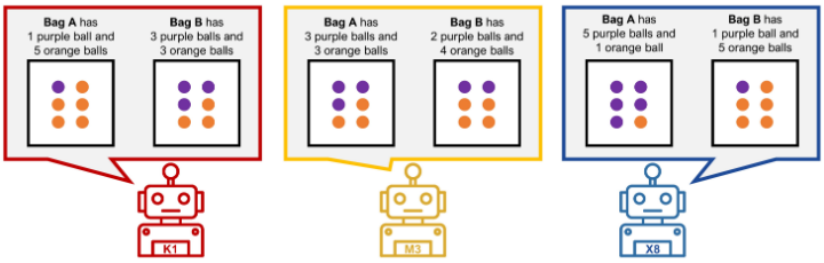


Step 3: The computer flipped the coin and **has selected the bag**.



Step 3: The computer **has drawn a random ball** from the selected bag in Step 2.
The drawn ball is purple.

Remember that for this task we consider robot K1, robot M3 and robot X8.



Remember, the computer has drawn a purple ball

The chance that bag A was selected given that the color of the drawn ball is purple would be…

25% if I, robot K1, were selected	**60%** if I, robot M3, were selected	**83%** if I, robot X8, were selected

What do you think is the chance that bag A was selected given that the color of the drawn ball is purple? Make your guess using the slider

Chance of **bag A (in %): Please click on the slider**