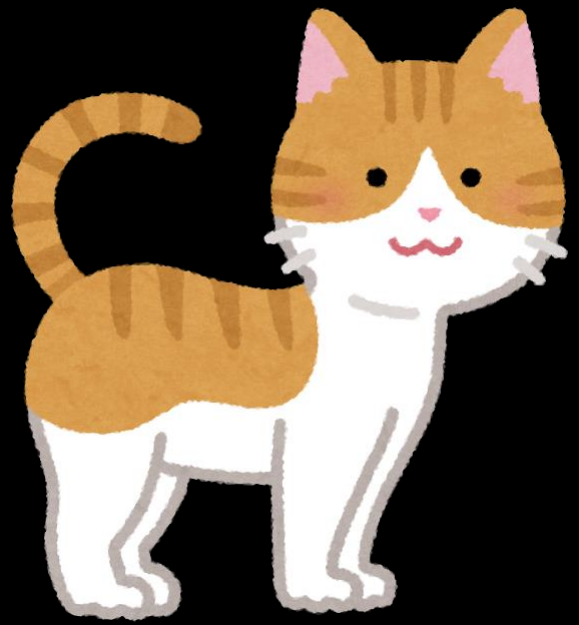
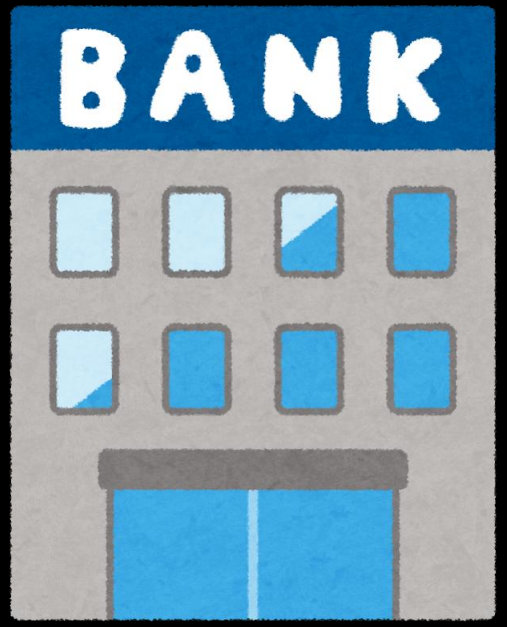
Linda problem
(conjunction fallacy)
Psychology of misunderstand
Complete solution





Linda problem (conjunction fallacy)

Question

Linda is 31 years old, single, outspoken, and very bright.
She majored in philosophy.
As a student, she was deeply concerned with issues of discrimination
and social justice, and also participated in anti-nuclear demonstrations.

Which is more probable?

(A) Linda is a bank teller.
(B) Linda is a bank teller and is active in the feminist movement.

A great detective solves the Linda problem (conjunction fallacy) once and for all.
We will not only explain what is right, but also the psychology behind why things are wrong.
The following is the Linda problem.
Linda is 31 years old, single, outspoken, and very bright.
She majored in philosophy.
As a student, she was deeply concerned with issues of discrimination and social justice, and also participated in anti-nuclear demonstrations.
Which is more probable?
(A) Linda is a bank teller.
(B) Linda is a bank teller and is active in the feminist movement.

Linda problem (conjunction fallacy)

Probability

(A) Linda is a bank teller.
(B) Linda is a bank teller and is active in the feminist movement.
↑ Many people answered that this is the more probable option.

If (B) is true, (A) is also true
If (A) is true, (B) is not necessarily true
} (A) is more probability

Conjunction: (・・・)AND (・・・)

The misconception that conjunctions are more probability : conjunction fallacy

The psychology of those who answered (B)

(1) Heuristic judgment
(2) Misinterpretation of probable

Many people seem to answer that (B) is more likely.
The narrower range created by adding logical disjunction (AND) is called conjunction.
If (B) is true, then (A) is also true, but even if (A) is true, it does not necessarily mean that (B) is true.
In other words, (A) is clearly more likely.
The phenomenon in which a conjunction is mistakenly believed to be more likely is called the conjunction fallacy.
Two types of psychology are at work in people who answer (B).
(1) Heuristic judgment
(2) Misinterpretation of probable

Linda problem (conjunction fallacy)

(1) Heuristic judgment

The psychology of ignoring logic and making quick, empirical judgments

(A) Linda is a bank teller.
(B) Linda is a cat wizard.

Many people would instinctively feel that (A) is the correct answer.

I forgot what the description said, but it might have been a cat.

We tend to focus on typical options before thinking logically.

Let's look at the first type of psychology, heuristic judgment.
This is the psychology of making quick, empirical judgments, ignoring logic.
For example, imagine you were given the following options:
(A) Linda is a bank teller.
(B) Linda is a cat wizard.
Most people would instinctively feel that (A) is the correct answer.
I forgot what the description said, but it might have been a cat.
We tend to focus on typical options before thinking logically.

Linda problem (conjunction fallacy)

(2) Misinterpretation of probable

"Which is more probable?" can be interpreted in many different ways.

(A) Linda is a bank teller.
(B) Linda is a bank teller and is active in the feminist movement.

" Which statement has the lowest probability of containing false testimony?"

Many people answered (A).

" Which statement has the highest probability of being a more detailed guess?"

Many people answered (B).

The second psychological issue is the misinterpretation of possibility.
"Which is more probable?" can be interpreted in various ways.
Let's change the wording to make it easier to interpret.
"Which statement has the lowest probability of containing false testimony?"
To this question, most people would answer (A).
"Which statement has the highest probability of being a more detailed guess?"
To this question, most people would answer (B).

Linda problem (conjunction fallacy)

Good inference

Many people think that “more probable" and "good inference" have similar meanings.

(A) Linda is a human being.
(B) Linda is a bank teller and is active in the feminist movement.

(A) is obvious, so the probability of being wrong is zero, but it cannot be said to be good inference.

Even if there is a possibility that it may be wrong, (B), which is a more detailed guess, feels like a good inference.

Many people think that “more probable" and "good inference" have similar meanings.
How about the following examples?
(A) Linda is a human being.
(B) Linda is a bank teller and is active in the feminist movement.
(A) is obvious, so the probability of being wrong is zero, but it cannot be said to be good inference.
Even if there is a possibility that it may be wrong, (B), which is a more detailed guess, feels like a good inference.

Linda problem (conjunction fallacy)

Good inference

(A) Linda is a bank teller.
(B) Linda is a bank teller and is active in the feminist movement.

Both (A) and (B) guess that the person is a bank teller.

(B) is the better inference
because it also guesses about the feminist movement.

(B) has a higher chance of being wrong,
but both have the same chance of correctly guessing the person's occupation.

Let's consider the original question.
Both (A) and (B) guess that the person is a bank teller.
(B) is the better inference because it also guesses about the feminist movement.
(B) has a higher chance of being wrong, but both have the same chance of correctly guessing the person's occupation.

Linda problem (conjunction fallacy)

Good inference

From experience, it seems that a more detailed guess is a better inference.

(A) Linda's weight is 44.5kg
(B) Linda's weight is between 2X and 3X kg, or between 4X and 5X kg

I feel that (A), which makes a more detailed guess,
has grasped the information necessary to make a good inference.

(B) is a model answer for an investigative professional
that is not allowed to be wrong.

Also, from experience, it seems that a more detailed guess is a better inference.
(A) Linda's weight is 44.5kg.
(B) Linda's weight is between 2X and 3X kg, or between 4X and 5X kg.
I feel that (A), which makes a more detailed guess, has grasped the information necessary to make a good inference.
(B) is a model answer for an investigative professional that is not allowed to be wrong.
That's all.

Contact Information

For inquiries,

please contact us here.

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