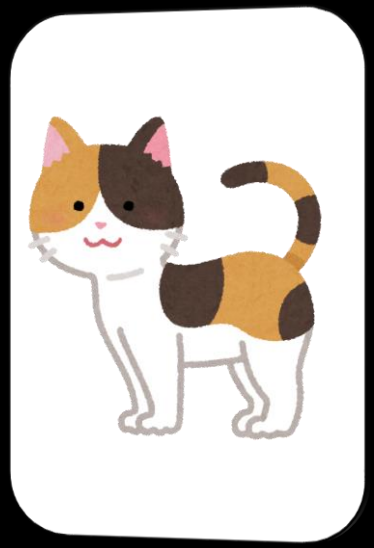
Four-card problem
(Wason selection task)
Psychology of misunderstand
Complete solution



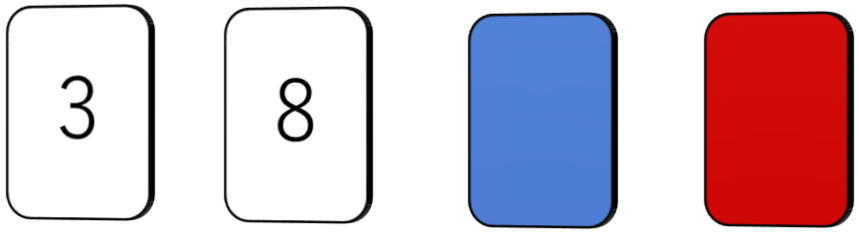
Four-card problem (Wason selection task)

Question

One side has numbers written on it and the other side is colored.

Hypothesis: If one side has an even number written on it, the other side is red.

Which cards need to be turned over to test your hypothesis?



Many people intuitively answer that they would flip the "8" and "red"

Logically, the correct answer is to flip over "8" and "blue".

A great detective perfectly solves the Four Cards Problem (Wason Multiple Choice Task).
Not only does he explain what is correct, but he also explains the psychology behind why people make mistakes.
Four cards are placed on a table.
Each card has a number on one side and a color on the other.
"3", "8", "blue" and "red" are visible.
There is a hypothesis that "if a card has an even number written on one side, the other side is red".
Which cards need to be turned over to verify this hypothesis?
Intuitively, many people seem to give the incorrect answer of turning over "8" and "red".
Logically, the correct answer is to turn over "8" and "blue".

Four-card problem (Wason selection task)

Social Question

Changing the questions to the following seems to reduce the number of incorrect answers.

(1) Is the rule that only people over 20 years old can drink alcohol being followed?

➡ I think we would flip "16" and "beer."

(2) Are people over 20 years old drinking alcohol?

➡ I think we would flip “25" and "beer."

Changing the questions to the following seems to reduce the number of incorrect answers.
"16," "25," "Coke," "Beer."
(1) Is the rule that only people over 20 years old can drink alcohol being followed?
I think we would flip "16" and "beer."
Now, how about the following questions?
(2) Are people over 20 years old drinking alcohol?
I think we would flip “25" and "beer."

Four-card problem (Wason selection task)

Rule and Situation

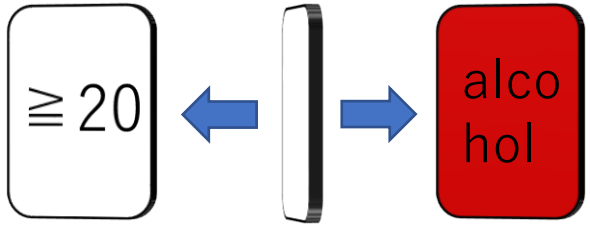
(1) Is the rule that only people over 20 years old can drink alcohol being followed?

The respondent tries to verify the "rule".

(2) Are people over 20 years old drinking alcohol?

The respondent tries to verify the "situation".

The respondent imagines a "situation"
where one side has a number above 20 and the other has alcohol on it.



They search for a card that matches the situation,
and turn over the "25" and "beer."

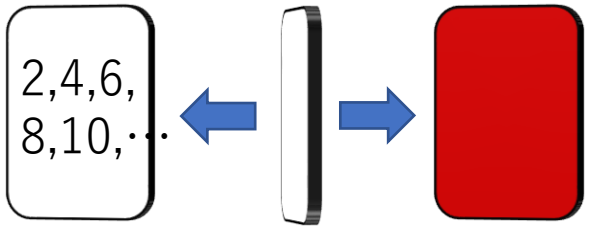
We will explain the psychology behind the different answer trends for the two questions.
In question (1), the respondent is trying to verify the "rule".
In question (2), the respondent is trying to verify the "situation".
The respondent imagines a "situation" where one side has a number above 20 and the other has alcohol on it.
They search for a card that matches the situation, and turn over the "25" and "beer".
A common explanation is that questions about "social rules" increase the rate of correct answers.
The fact that it's "social" misses the point.
The important thing is whether it's a "rule" or a "situation".

Four-card problem (Wason selection task)

Majority and minority

The rules are explained to us:
"If one side of the card has an even number written on it, the other side is red“.

Majority



Even if what is explained is a "rule“,
you will instinctively imagine a "situation“.

Minority *IF (one side is even) THEN (the other side is red)*

Imagine "rules" using logical expressions

When it is difficult to visualize the situation,
you are forced to think in logical terms, which reduces mistakes.

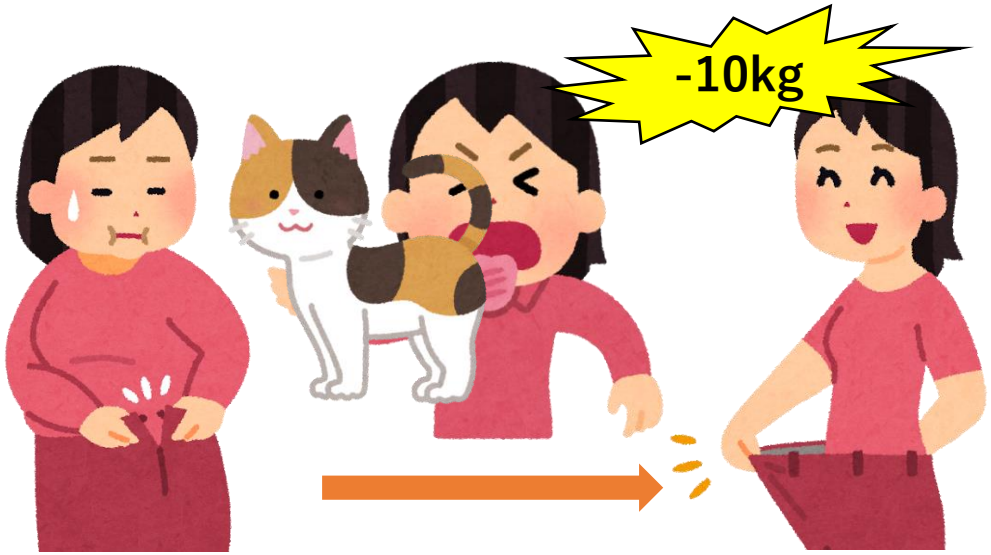
When it's clear from experience that the "rule" is being asked,
like in the alcohol example, mistakes also reduce.

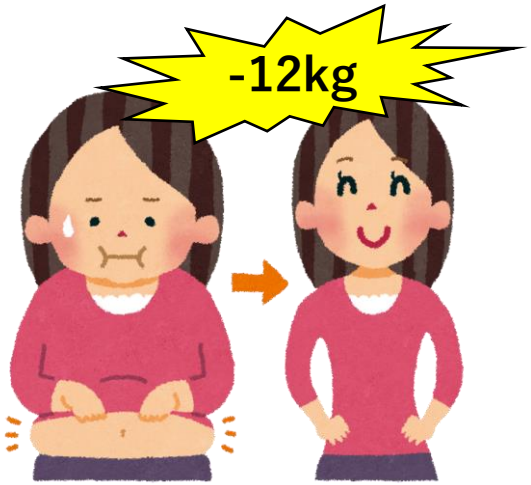
When it comes to problems involving numbers and colored cards, it's easy to imagine the "situation“.
You are explained the rule: "If one side of the card has an even number written on it, the other side must be red“.
Even though what you've been explained is just a "rule," you reflexively imagine the "situation“.
Most people imagine a card with an even number written on the front and a red back.
Because you have an image of the "situation" in your head, you unconsciously try to verify whether the card matches it.
I think only a few people imagine the "rule" in the logical formula "if the front is an even number, the back is red“.
When it's hard to imagine the "situation," you are forced to think in logical formulas, which reduces mistakes.
When it's clear from experience that the "rule" is being asked, like in the alcohol example, mistakes also reduce.

Four-card problem (Wason selection task)

Cat licking diet

Licking a cat will help you lose weight!





*This is a personal opinion.

Are you only looking at successful situations
and judging the rules to be correct?

By the way, have you heard of the cat licking diet?
After Alice started licking cats a month ago, she lost 10kg.
Many other people have also successfully lost weight.
Be careful if you see so many "situations" of successful dieters and believe them.
There may be more people who have actually gained weight, but we just haven't introduced them.
In other words, the "rule" that owning a cat will make you lose weight has not been verified.
This is the dark side of the four-card problem.
Incidentally, it's also possible that you actually lost weight as a result of developing a cat allergy and becoming unwell.
That's all.

Contact Information

For inquiries,

please contact us here.

https://ultagi.org/