

Wason Selection Task

The Wason Selection Task, is one of the most repeated tests of logical reasoning in the world of experimental psychology. In this task, the subject is given a conditional rule 'If antecedent (P) then subsequent (Q)' that applies to four cards placed in front of him, facing upwards. An example of it is:

Subjects are shown a set of four cards placed on a table, each of which has a figure on one side and a colored patch on the other side. They have to ensure that cards have been produced in accordance with the following rule:

"If a card has a circle on one side, then it has the color yellow on the other side."

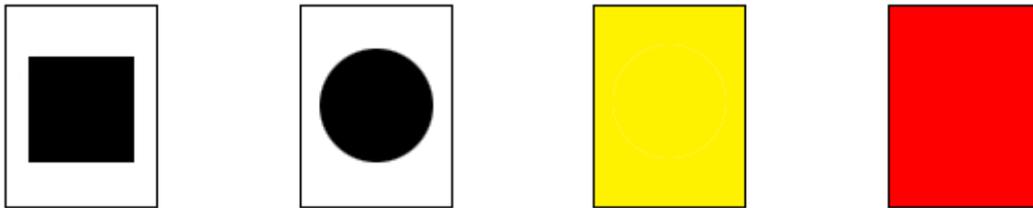


Figure 1. Wason Selection Task (borrowed from [2])

The correct response is to turn cards 2 and 4. However, in this test, less than 10% of the subjects found the correct solution.

Evolutionary psychologists hypothesize that subjects find the Wason task much easier to solve if it is placed in the context of a social rule that they are asked to enforce. This suggests that humans "solve the social-rule problem with a specialized mental module that evolved to catch cheaters in a social environment." For instance, the following rule:

"If a person drinks an alcoholic drink, then they must be over the age of 21 years old."



Figure 2. Wason Selection Task set in context of a social rule (borrowed from [2])

A higher percentage of subjects did succeed in this task. This experimental evidence supports the aforementioned hypothesis that the task proves to be easier if the rule to be tested is one of social exchange and the subject is asked to enforce the rule. This supports the claim of evolutionary psychologists that certain features of human psychology could be "mechanisms that have evolved, through natural selection, to solve specific problems of social interaction, rather than expressions of general intelligence."

Roth [3] described an experimental study of the Wason Selection Task carried out among undergraduate students at the University of Illinois. The subjects were given a 'reduced array' or one card less than the number of cards in the original test. The subjects performed better than if they were given the full set of cards. She postulates that the reduced array facilitates genuine insight into the task as opposed to a 'matching

bias' which occurs when in the original test. This bias occurs mainly because the subjects only choose the card that verifies the rule given. To ferret out any miscommunication, subjects were given explicit instructions about the conditional statements. They were told clearly which statements held and whether their converse statements were true or not. They were also shown both sides of the cards and asked to specify which cards caused the given statement to be true/false.

The findings of this task have given rise to discussion among logicians about the implications of such conditional rules. Johnson-Laird and Tagart in [4] conducted a study where they modified the conditional statement to generate its contrapositive as well other variations that involved disjunction. They found that subjects considered all those statements irrelevant where the antecedent (P) was false.

References:

1. http://en.wikipedia.org/wiki/Wason_selection_task
2. <http://www.philosophyexperiments.com/wason/Default.aspx>
3. E.M. Roth. Facilitating insight in a reasoning task. *British Journal of Psychology*, Volume 70, Issue 2, pages 265–271
4. N. Johnson-Laird and Joanna Tagart , How Implication Is Understood. *The American Journal of Psychology*, Vol. 82, No. 3 (Sep., 1969), pp. 367-373