
BOOK REVIEW

Review of Rationality and Reasoning

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Rationality and Reasoning, Jonathan St. B. T. Evans and David Over, 1996, Psychology Press: East Sussex, U.K., 179 pp.

Suppose that you are presented with the following task. Before you are four cards that represent four hypothetical customers in a pub. Each card has the name of the patron's libation on one side and his or her age on the reverse. The four cards are lying on a table with the words beer, coke, 16, and 22 observable. Your task is to turn over two cards to verify the conditional statement "if a person is drinking beer, that person is over 19 years of age." If you chose the cards labeled beer and 16 you are correct! Surprisingly, most people do not choose the cards labeled beer and 16 unless the task is reframed as follows. "The cards before you represent four actual pub customers and you work for the Government Alcoholic Beverage Commission. It is your duty to enforce the regulation that if a person is drinking beer, they must be over the age of 19." Why is it that significantly more people choose the correct cards in this second, as opposed to the first, presentation? The authors pose this question and then provide an answer based on their model of rationality.

In this insightful and concisely written monograph, the authors suggest that the reason for the previous paradox, and many other cases of "irrational" decision behavior, is that humans make use of two complementary reasoning systems. More specifically, the authors propose a dual process theory of thinking in which a natural and implicit process of thinking operates in parallel with a sequential and formally logical explicit process. The implicit process primarily reflects biologically constrained learning of both the explicit (conscious)

and implicit (subconscious) kind. The major advantage of the implicit system is its vast computational power, allowing very complex acts of information processing to take place rapidly. The shortcoming of the implicit system is that it is rather inflexible and domain specific. On the other hand, the explicit system makes use of formal rules and models that allow for conscious reflective thought and foresight that the implicit system by nature cannot provide. The principal shortcoming of the explicit system is its slowness and inability to deal with complex decisions.

The authors maintain that the paradox of humans making normative decision errors, yet choosing correctly in commonplace complex decisions, reflects an oversimplified notion of rationality (correctness). In this regard the authors advocate the adoption of a dual definition of rationality. In particular, they define rationality (1), as the degree to which people reliably achieve their personal goals. Rationality(2), is the degree to which people perform inferences or act for reasons sanctioned by some abstract normal standard, like formal logic or probability theory. The implicit reasoning system is primarily responsible for achieving rationality (1), while the explicit formally logical system is responsible for achieving rationality (2).

The authors are critical of the widely popular belief that the laws of logic are the laws of thought. Instead, they maintain that the laws of thought must be approached from the ecological perspective of how decisions taken and actions performed serve individuals' goals. In this regard they note that humans are more concerned with practical reasoning, which has as its objective actions needed to be performed to achieve one's goals, rather than theoretical reasoning, which has as its objective the inference of true beliefs. While good theoretical and practical reasoning depend upon one another, one needs to be cognizant of the fact that humans don't reason to be logical. They reason in order to achieve their goals.

Throughout the book the authors discuss many familiar decision behaviors such as base rate neglect, over confidence, and the use of heuristics. In particular, they demonstrate how these behaviors lead to normative decision errors. On the other hand, they explain why these

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"shortcuts" are efficient and adaptive in a world that is not completely knowable or probabilistically predictable. This brings me back to an answer to the question posed at the beginning of this review. Most people don't choose the correct answer when the drink/age task is left "unframed" because they are usually poor at formal deductive logic. They perform better when it is reframed as an enforcement task since the reframing appears to activate a "mental module," which appears to exist to assist in "cheater detection." The ability to detect cheaters is a

very valuable skill where individual survival is enhanced by social reciprocity. Given the importance of this skill, an implicit mental process oriented toward cheater detection seems to have evolved.

In conclusion, if you are interested in a fresh approach to the problem of error inconsistency in human decision making, this well researched and referenced book has a lot to offer. While the book was published a few years back, it contains cutting edge thought on a topic of substantial current interest.

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