

Review of: "Cognitive Dissonance Model of Conditional Reasoning based on Truth-making"

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Potential competing interests: No potential competing interests to declare.

It is always exciting to see new experimental work on conditional reasoning. Moreover, I am intrigued by your idea that errors in conditional reasoning may somehow be explained by models of cognitive dissonance. Unfortunately, the paper does not fulfill its promise.

First, you seem to mis-understand truthmaker theory, which is at the core of your project.

- 'truth-making assumes that ordinary people make logical inferences by making the sentences in reasoning true.' No. You may be thinking of either hypothetical reasoning or the principle of charity.
- 'the subject's truth-making process will break'. Truth-making is not a subjective process, or one that can break.
- 'two or more truthmakers conflict'. A truthmaker is, roughly speaking, a fact. Facts can never conflict with each other.

Second, your logic is invalid. A few examples:

- You seem to presuppose that every card has a letter on one side and a number on the other, but that was never stipulated. To test the rule, we also need to check K.
- 'If you turn over the "Beer" and the number on the back is 18 or greater, the rule is true.' No. Beer/18 would be *consistent* with the rule, but would not make it *true*.
- 'you don't need to turn over the "Coke" and the "16".' I think you mean that you don't need to turn over the "Coke" or the "22".

Third, the paper is confusing. A few examples:

- [i] 'There are many theories... Among them, there are mental logic, mental rule, optimal data simulation, and paradigmatic reasoning schemas.' [ii] 'The theories include mental logic, mental model, optimal model and pragmatic model.' It takes work for the reader to realize that a mental rule is supposed to be the same as a mental model, and paradigmatic reasoning schemas are the same as a pragmatic model – partly because the enumerated paragraphs that intervene between [i] and [ii] do not line up with either [i] or [ii].
- 'The other is the psychology of proof'. The other what?
- 'The results doubted against human rationality aroused by the performance on the abstract task.' This is uninterpretable English. You should get translation assistance.
- 'there's a round on the other.' 'When the confidence in reasoning is greater than that of reasoning...' Something seems to be left out. You need to take care to proofread your work before posting it.

- '[a c]'. You don't explain your notation, yet it is necessary for understanding.
- 'a social cognitive disorder'. The rest of your paper does not mention interpersonal phenomena, so I don't know what you mean by 'social'.
- 'people in daily life make reasoning with truth from reality, not from logical truth.' Logical truths are part of reality.
- 'based on these hypotheses, we can predict that...' Your 'hypotheses' are your assumptions. Your predictions are your hypotheses. Because you use the vocabulary of experimental science in a non-standard way, your readers need to do a double-take.
- 'The syntactic core has seven patterns... double negation and MP... The remaining six...' Your math does not add up.
- $112 - 11 = 100$?
- $10/11 = 91\%$, not 100%.
- Do not confuse use and mention. 'Given if p then q and p, we can infer that q.' Better: 'Given "if p then q" and "p", we can infer that q' or 'Given if p then q and p, we can infer q'.
- References to wine, in the context of beer vs. coke, are confusing.