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.

The authors' aim is to propose a model of conditional reasoning based on cognitive dissonance.

General comments

I have several important concerns about the paper:

1. It seems that the study hardly approches its goal at all, since the observed data are coherent with several alternative explanations – if not, the authors should provide more explanation.
2. There is a general lack of clarity throughout the paper. Important notions are not defined, neither are most variables of interest. Important notions such as “truth-maker”, “suppositive reasoning” or even the theory that the authors want to put forward, need to be reformulated in less fuzzy terms, along with examples.
3. The paper isn't comprehensive on the theretical aspects either. (1) There is a confusion between assessing the truth of (if p then q), the Wason's task that is a “meta-task” on this respect, and logical rules involving conditionals such as Modus Ponens. (2) Important theories are left unaddressed, such as the idea that (if p then q) might be undetermined when p is false.

Having read the entire article, I am not convinced that the authors made a point. However, since the paper is mostly unclear, it may be different in a revised form. I suggest that the authors modify the paper bearing clarity in mind.

Specific comments

Abstract

In the abstract, I suggest changing “The experimental paradigm for conditional reasoning” by something less universal. There exist several methods to study conditional reasoning. So something like “One widespread method consists in…” sounds more acurate.

Introduction

I don't understand the first sentence of the introduction. It sounds unnecessary anyway, so I would suggest to simply remove it.

The description beginning with “When the suppositive reasoning meets conditional reasoning, people without logical training often begin with the truth of A (If A, Then B) by suppositive thinking and reach into the truth of B also by another suppositive thinking (Johnson-Larid, 1999)” is hardly understandble. I would suggest a simpler explanation. Example: “To assess (if A then B), suppositive thinker hypothesize that A is true, building if necessary an imaginary world resembling the real one, where A is true. They then assess the truth of B in this world…”.

Cognitive dissonance

The sentences “This paper will use cognitive dissonance theory to explain this phenomenon. Cognitive dissonance theory (CDT) suggests that when individuals hold two or more cognitions that are contradictory, they will feel an unpleasant state —dissonance—until they are able to resolve this state by altering their cognitions (Festinger, 1957).” are repeated twice.

The sentence “When the participant is confident in the answer to the choice, usually the corresponding rule for the answer he chooses is MP.” is also written twice in the same paragraph.

I did not find the description of the core notion of “truth making/truth makers” clear enough. Please add examples. For instance, from your description I could argue that “if 0=1 then 0=0” is true from reality, since 0=1 is false, and 0=0 true in reality. I guess that you wouldn't say so. Your point needs to be clarified here.

Hypotheses

I don't understand H1 nor H2.

H3 seems strange. The everyday understanding of conditionals is sometimes at odds with formal logic, and sometimes not, depending on the context. So the hypothesize looks like an over-generalization.

Same for H4. MT is perfectly understandble in some situations.

Methods

Instead of “They all don’t learn formal logic courses”, write e.g. “none of them studied formal logic”

In the procedure section, I would suggest you write all verbs in the past tense.

Results

When reaching this section, I have no clue what “deductive reasoning” and “suppositive are”, not only theoretically, but also as a numerical variable. These variables should be described beforehand.

The following part is either wrong of badly explained: “When the confidence of deductive reasoning is greater than that of suppositive reasoning (a total of 44 people), 14 people are correct in the post-test, while 16 people are correct in the pre-test, so the accuracy rate is 14/16(=87.5%).” As I get it from the text, you would conclude to an accurary rate of 100% whenever the number of correct responses in the pre-test equals the number ot respones in the post-test. Please give rationale to this.