Review of: "Induction: an Afterthought"

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I have had to read the original article from the same author and published in 2020 to get a better understanding of the context.

Both the present article and the one from 2020, published elsewhere, make the fair claim that probability theory can bring salvation to Hume's problem of induction.

That being said, I must say that I enjoyed reading the article from 2020 more than the present one. I appreciate that the present article is meant to be an article capturing the ‘essence’ of the argument from the somewhat long paper from 2020, but, in my opinion, too much is left out for an unacquainted reader to understand what is going on.

If I were to judge the quality of the article with the traditional criteria for reviewers in most scientific journals, then:

- Background: “Does the article provide enough background to follow the article?”. I do not think it does. The problem of induction itself is barely stated.
- Presentation: “Is the article and the arguments therein well presented?". I believe they are for the most part.
- Logic: “Is the conclusion/results supported by the provided evidence?”. This one is more problematic.
    - First, I must admit that I am not a fan of the spiral/circle representation, which actually plays an important role in this article. I do not really understand what it is supposed to represent. In the original paper from 2020, it is exemplified with the case of functions that can be recursively defined (like n!). In my view, the n! example is good to illustrate a finite regress whereby the reference to the map itself in a hierarchical sequence of equations eventually leads to a closure equation (1! = 1) that does not call upon the map itself on the right-hand side. I must also say that I do not necessarily see the relevance of discussing n! in the original article, given that the recursive rule provided precisely tells how to inductively go from (n-1)! to n! by construction (it is not something to guess or measure experimentally).
    - Second, I would take issue with the claim that any extension of classical logic designed to address the induction problem must be the classical theory of probability. It could be any of the many formal logics that have been developed in the past decades. Some examples that come to mind would be Possibility theory, Fuzzy logic, or even, depending on how we may want to interpret scientific statements relying on induction, doxastic logic. And even if one agrees that extending classical logic to address induction leads to probabilities, I find no reason to commit to Kolmogorov's probability theory, as opposed to von Neumann's, for example.
    - Third, the article claims to solve the problem of induction essentially by quantifying our uncertainty with probabilities and their corresponding information measures, notably to evaluate the distance from A to C. But that is, in and of

itself, a problem; for there is no clear recipe to find with certainty these probabilities in the first place. This point is somewhat already addressed in the 2020 article with a discussion of the frequentist approach conflating the theoretical notion of probability with limits of frequencies. I think that the author would need to delve into the discussion of whether or not these probabilities are to be understood as being objective or subjective, for example.

  - Fourth, the discussion of the smallness of the gap allowing confident induction from one level to a consecutive one is unclear to me. A typical logical paradox precisely uses such a smallness argument between consecutive levels of inference, and getting things wrong in the end, is the Sorites paradox. How is this problem resolved in the induction strategy mentioned in the present article?

- Importance: "How important/relevant is the work?". I think it is very important indeed.
- Originality: "How original is the presented work?". The original part of the article is the discussion of the 4 situations diagrammatically represented by lines of different lengths, lines of equal length, a spiral, and a circle. As mentioned above, I am not yet convinced of the usefulness of these diagrams, especially the circular ones. Otherwise, the idea to use probabilities to escape the induction problem is certainly valid but not novel, and the author does not seem to claim so.