A Defense of the Principle of Indifference

Greg Novack

Wayne State

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Overview

- The Principle of Indifference (Poi) says that if you have no more reason to believe A than B, then you ought not believe A any "more strongly" than B.
- I won't argue *for* Poi, but will instead defend it against an objection widely regarded as conclusive.
  - I'll argue that this style of objection is unsound by virtue of falsity in the premises.

The Principle of Indifference (Poi)

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- '$A \sim B$' means that one does not believe A any "more strongly" than B and *vice versa*: **credential/belief symmetry**.
  - "more strongly" means "belief state is asymmetrically tilted in favor of A".

(Poi): if $A \approx B$ then one ought to have $A \sim B$.

Poi (cont'd)

- '$P \succ_e Q$' for "has more reason to believe P than Q".
- '$P \succ_b Q$' for "believes P 'more' than Q".

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- The 'ought' is an ought of epistemic rationality. (No, I do not have an account of what that means). I'll just call this an epistemic ought for short.
- (Poi): $A \approx B \rightarrow \Box(A \sim B)$

Poi (cont'd #2)

What Poi does *not* have built-in:

- Any assumptions that credential intensities must conform to the probability calculus;
  - Or even any assumption that there exist credential intensities.
- That there is or is not any such thing as outright belief.

If Poi is so noncomittal, why is it so roundly rejected?

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Because of the Mystery Square Factory.

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- L_2: the side length is between 1 and 2 inches

Which have you more reason to believe, L_1 or L_2? It would seem **neither**.

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Which have you more reason to believe, L_1 or L_2? It would seem **neither**. On the other hand...

- A_1: the area is between 0 and 1 sq in
- A_2: the area is between 1 and 2 sq in
- A_3: the area is between 2 and 3 sq in
- A_4: the area is between 3 and 4 sq in

Which of these four have you more reason to believe than any other? It would seem **none**.

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- If we suppose that propositions known to be equivalent must bear '$\approx$' to each other, the key portion becomes:

$$(\star)\ A_2 \approx L_1 \approx L_2.$$

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- And, $\{$BP'ism, $(\star)\} \vDash$ not-Poi.
- That's because you end up with $p(A_2) = p(L_2)$, which is an instance of $A_2 \sim L_2$, which BP'ism bans.
  - "because" it amounts to $A_2 \sim (A_2 \vee A_3 \vee A_4)$,

The Mystery Square Factory (cont'd)

- One is stuck believing A_2 no more and no less than L_2, despite the fact that L_2 is *genuinely weaker* than A_2.

  Genuinely weaker A proposition Q is GW'er than P just in case: $P \vDash Q$, $Q \nvDash P$, and $Q \wedge \neg P$ is still an open possibility for you.

- (Sometimes written as $P \vDash^{*} Q$)

The Factory's Core

Let's distill what's making trouble for Poi. The nugget that suffices:

- Three contingent propositions, A, B, and C, such that
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- **Distilled Factory**: $\{$BP'ism, $\exists$ an evidn'l bridge$\}$ refute Poi.

Just Drop Belief-Probablism?

Can we then drop BP'ism and be satisfied? No. There is a **Deadlier Factory Argument** that uses much weaker premises. If we assume only that:

($\mathbf{T}_\sim$) '$\sim$' is transitive

($\mathbf{M}_\sim$) If $P \vDash^* Q$, then $P \prec_b Q$

- ('*M*' for *montonicity* across genuine weakness)

...then Poi *still* is in trouble: $\{T_\sim, M_\sim, \exists$ evidn'l bridges$\} \vDash$ not-Poi.

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. . . then Poi *still* is in trouble: $\{T_\sim, M_\sim, \exists$ evidn'l bridges$\} \vDash$ not-Poi.

- Proof: Poi plus the evidential bridge yield $A \sim B \sim C$ (a "credential bridge"), whence by $T_\sim$ we get $A \sim C$. But since $A \vDash^* C$, $M_\sim$ says $A \prec_b C$.

A White Knight to the Rescue?

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($\mathbf{T}_{\approx}$) '$\approx$' is transitive.

($\mathbf{M}_{\approx}$) if Q is GW'er than P, then $P \prec_e Q$

$\{T_{\approx}, M_{\approx}\} \vDash$ no evidn'l bridges (at all, not just in Factory)

Pyrrhic Victory

White saves Poi at the expense of something at least as plausible, if not more so.

> **(Ig)** if one is ignorant of anything relevant to the question of (P,Q), then $P \approx Q$.

Ig together with features of the Factory imply that there's at least one evidential bridge.

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Is that it?

- Well, one could quibble with just how often transitivity is violated.
- Worse, the intransitivity of '$\sim$' wouldn't save Poi from the Factory anyway.

Making My Job Harder

A principle stronger than $M_\sim$, but consistent with *in*transitivity of '$\sim$', can replace the conjunction $M_\sim \wedge T_\sim$ in the Deadlier Factory argument. I call this principle 'Heredity':

($\mathbf{H}_\sim$) If [$P \sim Q$ and $Q \vDash^* R$], then $P \prec_b R$.

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- **Even Deadlier Factory**: $\{H_\sim, \exists$ evid'l bridge$\} \vDash$ not-Poi
- Proof: The evidential bridge $A \approx B \approx C$ plus Poi yield $A \sim B \sim C$. This credential bridge is inconsistent with $H_\sim$. For $B \sim A$ and $A \vDash^* C$, yet $B \sim C$.

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- Proof: The evidential bridge $A \approx B \approx C$ plus Poi yield $A \sim B \sim C$. This credential bridge is inconsistent with $H_{\sim}$. For $B \sim A$ and $A \vDash^{*} C$, yet $B \sim C$.
- $M_{\sim} \wedge T_{\sim}$ don't quite imply $H_{\sim}$ unless '$\succ_b$' is transitive.

Making My Job Harder (cont'd)

All the Factory arguments "really" work by appealing to premises that ban credential bridges.

1. Poi plus the evidential bridge yield a credential bridge.
2. There are no credential bridges.
3. Therefore, not-Poi.

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Indeed, $H_\sim$ is "almost" *equivalent* to (2). Is there anything weaker than $H_\sim$ that implies (2)? No.

- To ban cred'l bridges while $\neg H_\sim$ is to create "antiheredity" cases wherein $P \sim Q$, R is GW'er than Q, but $P \succ_b R$. I suspect folks won't get on board with that.

Heredity is False

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> **N**: The world is how I **N**ormally think it is, in particular, I'm not being systematically deceived.
>
> **D**: I'm being systematically deceived by a **D**emon
>
> **T**: I'm being systematically deceived by some **T**rickster being or other, be it a genie, a demon, a goblin, a god, etc.

Note that D is contrary to N is contrary to T, and that T is GW'er than D.

Perhaps Descartes, after meditating, finds himself in this credential situation:

$$\begin{tikzcd}[column sep=small] & \mathrm{N} \arrow[dr, squiggly, no head] & \\ D \arrow[ur, squiggly, no head] & & T \end{tikzcd}$$

Because this is a credential bridge, Heredity implies that Descartes is thereby committing an epistemic sin.

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- That's obviously false. He's not sinning, at least, not by violating Heredity.
- He *might* be sinning by having a goofy theory of what constitutes evidence, or by ignoring good reasons to have $N \succ_b D$.

Heredity is False (cont'd #2)

If Descartes *also* holds $D \sim T$, i.e.,

$$\begin{array}{ccccc} & & \mathsf{N} & & \\ & \sim & & \sim & \\ D & & \sim & & T \end{array}$$

he violates not just $H_\sim$, but $M_\sim$ as well.

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If instead he holds $D \prec_b T$, so that

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then he still violates $H_\sim$, but obeys $M_\sim$.

- There's nothing wrong with this either; at least, not with the violation of $H_\sim$.

Heredity is False (cont'd #3)

Moreover: one way to have $A \sim B$ is to suspend judgment on each (i.e., $\text{sus}(A) \wedge \text{sus}(B)$).

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- *That* relation is transitive, but it plainly isn't montonic over genuine weakness.
- There is nothing wrong with suspending on each of "Detroit is in Michigan" and "Detroit is in Michigan or Ohio", despite the fact that the latter is genuinely weaker then the former (for those ignorant of US geography).
- Hence $M_{\sim}$ is false, and therefore $H_{\sim}$ is too.
- Note that $M_{\sim}$, $\neg H_{\sim}$, and $T_{\succ_b}$ imply that there *are* credential bridges. So $M_{\sim}$ would have been a nice ally. Too bad.

Enemies of Both Heredities

There's an evidential principle corresponding to $H_{\sim}$, namely $H_{\approx}$. It's false, because it's inconsistent with $(\star)$ and Ig too. That's not the only quibble one *might* have with $H_{\approx}$:

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  - $M_\approx$ and $H_\approx$ are false (and so are $M_\sim, H_\sim$ if Poi is true).
  - $M_\approx$ is false because "this card is a jack" is just as probable given "the suit is clubs" as it is given "the color is black".

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Norton (2008) denies $M_{\approx}$ (I'm pretty sure)...

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- and affirms Poi, hence is committed to $\neg M_{\sim}$ and $\neg H_{\sim}$.

But he affirms $T_{\approx}$ and $T_{\sim}$.

- $T_{\sim}$, $\neg M_{\sim}$, and his substitute for monotonicity imply there are credential bridges.
- Since he seems also to affirm the converse of Poi, he's committed to evidential bridges as well.

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- White's rescue: there are no evidential bridges.
- My rescue: $T_{\sim}$, and more importantly $H_{\sim}$, are both false—there are obvious credential bridges—so Poi escapes the Factory without cutting off its limbs.
- In the rest of the paper, I explore the relations between Poi and "Epistemic Permissivism".