

Evidential Symmetry and Mushy Credence

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- Evidential Symmetry: $p \approx q$ iff you have no more evidence for p than you have for q and vice versa.
 - Principle of Indifference (PoI): $p \approx q \Rightarrow Cr(p) = Cr(q)$.
- van Fraassen's paradox: You're given a mystery square - all you know is that it's width is between 0 and 2 meters.
 - $0 \leq \text{width} < 1 \approx 1 \leq \text{width} \leq 2$
 - $0 \leq \text{area} < 1 \approx 1 \leq \text{area} < 2 \approx 2 \leq \text{area} < 3 \approx 3 \leq \text{area} \leq 4$
 - Clearly inconsistent: the first claim says you should have credence a $\frac{1}{2}$ that the width is between 0 and 1. The second claim says you should have credence $\frac{1}{4}$ that it's area is between 0 and 1. But note that the width is between 0 and 1 if and only if the area is between 0 and 1 (and you're certain of this.)
- We should reject that our evidence is symmetrical in the way described in these cases. If we don't reject this then we get we have no more or less evidence for the square being between 0 and 1 meters² than its being between 0 and 4 meters².
- In favour of PoI: three doors one has a prize behind it, we ought to distribute credence equally between the doors.
 - Assimilate to cases where we're fairly sure of the objective chances. Intuitions about the three door case is skewed by the similarity to these cases.
- Self locating belief: you know that you're going to be woken up on Monday and on Tuesday with your memory erased of the Monday awakening. You're credence should be a half that it is Monday.
 - Very hard in this case to assimilate it to objective chances.
- Frequency credence: If (i) I know that a is an F , (ii) I know that $\text{freq}(G | F) = x$ (the proportion of F s that are G), and (iii) I have no further evidence bearing on whether a is a G , then $P(a \text{ is a } G) = x$.

- FC entails PoI.
- Levi: FC only applies when the individual was randomly selected (had an even objective chance of being selected?)
- In the argument for PoI couldn't we just keep randomly selecting until we got p_1 ? What's the relevant difference?
- In favour of PoI: Credence supervenes, in some sense, on your evidence. (So given a state of evidence only one credence is permissible?) But once we have the supervenience claim, there's only one plausible candidate for your credence.
- **The coin puzzle:** Coin game: You haven't a clue as to whether p . But you know that I know whether p . I agree to write p on one side of a fair coin, and $\neg p$ on the other, with whichever one is true going on the Heads side. (I paint over the coin so that you can't see which sides are heads and tails). We toss the coin and observe that it happens to land on p .
 1. **Your credence in p remains the same, credence in heads becomes mushy:**
 2. The principle principal. (Note that this case doesn't seem to involve inadmissible evidence.)
 3. Reflection: Since you're certain that your credence will be mushy.
 4. Mushy betting: generates some strange consequences.
 5. **Your credence in p sharpens to $\frac{1}{2}$:**
 6. Symmetrical reasoning says that if you observe the coin landing $\neg p$ you should do the same. So you know you'll arrive at the same credence no matter what you see - so why not just update to $\frac{1}{2}$ now? (Reflection.)
 7. $Cr(p \mid \text{the coin lands 'p'}) = Cr(p \mid \text{the coin lands '\neg p'}) = \frac{1}{2}$. So by irrelevance, $Cr(p) = \frac{1}{2} \notin [0, 1]$.