

Carr 2019, "Imprecise Evidence without Imprecise Credences"

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I. The Disagreement (§0)

Sharppers: It is always permissible to have rational degrees of belief ("credences") that are representable with a single probability function.

Musher's: Some types of evidence make it rationally required to have degrees of belief that are only representable with *sets* of probability functions. A *representer* C , thought of as members of a committee.

Carr argues that the motivations for Mushing are really motivations for a certain kind of Sharping: sharp credences combined with normative uncertainty about *which* (single) probability function you should have.

Function c from propositions to real numbers such that

- (1) $c(q \vee \neg q) = 1$,
- (2) $c(q) \geq 0$, and
- (3) $c(p \vee q) = c(p) + c(q)$ if $c(p \wedge q) = 0$.

Slogan: "Anything mushy can do, sharp can do better."

II. Why Mush? (§1)

Two types of cases:

1) Messy or ambiguous evidence:

Jellyfish: You see a stranger on the street who has started pulling objects out of a bag. The first three objects he pulls out are a regular-sized tube of toothpaste, a live jellyfish, and a travel-sized toothpaste. How confident should you be that the next object he pulls out will be another tube of toothpaste?

Slogan: "Imprecise evidence calls for imprecise credences."

Elga 2010

2) Evidence doesn't entail precise chance facts:

Mystery Coin: You have a coin from a factory where they can make coins of any bias, and you have no idea which bias this coin has. How confident should you be that the next time you toss it, it'll land heads?

Joyce 2010

Musher says responding to these cases by saying "0.5" (or 0.7, or whatever) would be arbitrary or somehow overly precise—why not 0.501 (or 0.701)?

III. Sharpening the Mush (§§2–3)

Basic point: the arbitrariness motivation does not support Mushing over Sharping, since the former faces an exactly analogous problem.

If they say you should have a representer with probabilities in *Toothpaste* spanning $[0.2, 0.8]$, why not instead $[0.2, 0.8001]$?

Reply: go permissivist? (1) saps original motivation; (2) arbitrariness re-emerges at border of permissive range.

Better reply: rather than a *set* of probability functions (where each is either in or out), we should have a *weighting* of probability functions (some get more weight than others).

E.g. in Jellyfish, 0.6 in *toothpaste* seems more reasonable than 0.9, even if neither is clearly irrational.

It's a trap! Any such weighting can be transformed into a *probability measure* over the different probability functions, which can then be understood as representing your (sharp) uncertainty about which probability function is "the right one."

Where "right" might mean (1) the objective chances, (2) rational opinions, or (3) actual opinions. Carr focuses on (2).

Claim: Any motivations for Mushing are (better) motivations for Sharping + higher-order uncertainty.

IV. Are sharp credences *too informative*? (§4)

Jellyfish/Mystery Coin ask, "How confident should you be in $\left\{ \begin{array}{c} \text{toothpaste} \\ \text{heads} \end{array} \right\}$?"
Higher-Order Sharper says, "I don't know!"

In general, Mushers claim that having a precise credence about A commits you to overly strong attitudes about some other subject matter B .

Carr's reply: having (say) $c(A) = 0.5$ is compatible with having $c(B) = \text{low}$.

For example:

– $A = \text{heads}$

$B = \text{the objective chance of heads is/was } 0.5.$

– $A = \text{heads}$

$B = \text{it would be a mistake to bet on the coin landing heads fewer than } \frac{17}{100} \text{ times rather than on rolling an ace with a fair dice.}$

– $A = \text{heads}$

$B = \text{The coin is } 0.5 \text{ likely to land heads.}$

You should have some such precise level of confidence, but you should be unsure which precise such level of confidence you should have. Maybe $P(\text{toothpaste}) = 0.6$; but even if so, $P(P(\text{toothpaste}) = 0.6) \ll 1$.

Joyce 2010

V. Evidential Indeterminacy? (§5)

What if we thought that the confirmation relation between bodies of evidence were imprecise (**Imprecise Confirmation**), and which opinions you should have is fully determined by your evidence (**Strict Evidentialism**)?

Carr says we should say the same thing here that we do about other cases of vagueness.

E.g. supervaluationism (or epistemicism): it's determinately the case that you should have some precise credal state, but it's not determinate which precise credal state you should have.

Compare: it's determinately the case that there is a cutoff between red and non-red squares, but it is not determinate where the cutoff is.

VI. Some thoughts...

1) What of motivations from insensitivity to mild evidential sweetening?

Reply(?): "Your evidence for p and for q is on a par" just means "you should be unsure which of p and q you should be more confident in". This relation is insensitive to mild evidential sweetening.

Schoenfield 2012

2) Does Ellsberg's paradox motivate mushy credences + some fancy decision rule?

Reply(?): Whatever your fancy decision rule for representers is, the higher-order Sharper can mimic it by using the set of probability functions with positive support.

E.g. instead of "maximize expected utility", use the rule "do the act which maximizes the minimal expected utility of all the probability functions you leave open." These rules are identical when there's no higher-order uncertainty, but allow Ellsberg preferences when there is.

3) What's going on which the Mystery Coin and the "Chance-Grounding Thesis" ("the spread of one's credence should cover the range of chance hypotheses left open by your evidence" (White 2009, 174)) which seems to motivate it?

I have a coin of either $\frac{1}{3}$ or $\frac{2}{3}$ bias toward heads. On 10 tosses, it landed heads every time. C-G Thesis implies you should (still) have a mushy credence of $\left\{ \frac{1}{3}, \frac{2}{3} \right\}$ in the next flip landing heads.