Pragmatic Argument Against Imprecise Credences

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Elga's Arbitrage Opportunity Argument

Let H be proposition such that $Cr(H) = [.2, .8]$. And consider the following bets:

$Cr(H) = [.2, .8]$ means that, for all $r \in [.2, .8]$, there is a probability function Pr in your representor $\mathcal{C}$ such that $\Pr(H) = r$.

$$\textbf{Bet 1} = \begin{cases} -\$10 & \text{if } H \\ \$15 & \text{if} \neg H. \end{cases} \qquad \textbf{Bet 2} = \begin{cases} \$15 & \text{if } H \\ -\$10 & \text{if} \neg H. \end{cases}$$

What's the expected value of accepting these bets?

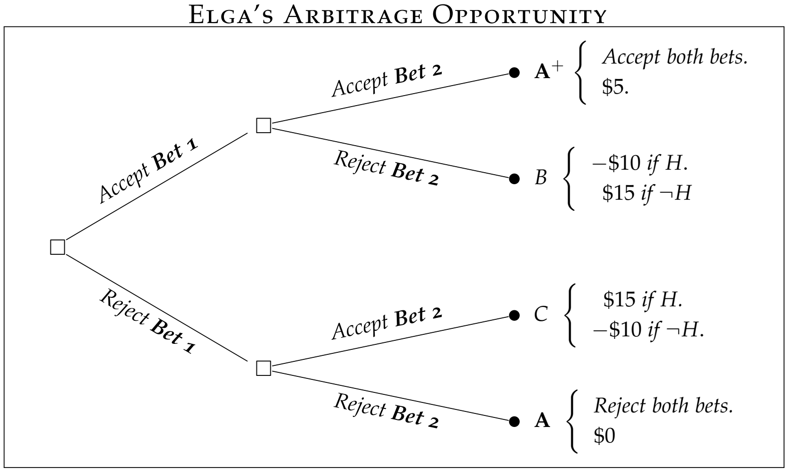
- **Proposal:** If you have an unsharp credence in H, then these bets have "unsharp" expected values.

$$EV(\text{accept } \textbf{Bet 1}) = [-\$5,\ \$10] \quad (1)$$
$$EV(\text{accept } \textbf{Bet 2}) = [-\$5,\ \$10] \quad (2)$$

Suppose you are, first, offered **Bet 1** and, then, after you decide whether to accept it or reject it, you are offered **Bet 2.** What is it rational to do?

	H	$\neg H$
Accept both bets	\$5	\$5
Accept only **Bet 1**	−\$10	\$15
Accept only **Bet 2**	\$15	−\$10
Reject both bets	\$0	\$0

Elga's Arbitrage Opportunity



What it is rational to do depends on the *decision rule.*

Liberal Decision Rules. If action X uniquely maximizes expected value for all $\Pr \in \mathcal{C}$, then you are *rationally obligated* to perform X. If X maximizes expected value relative to some $\Pr \in \mathcal{C}$, then it is *rationally permissible* to perform X.

Conservative Decision Rules. If action X uniquely maximizes expected value for all $\Pr \in \mathcal{C}$, then you are *rationally obligated* to perform X. If X fails to maximizes expected value for all $\Pr \in \mathcal{C}$, then it is *rationally impermissible* to perform X.

The Conservative Decision Rules are problematic because they will lead to practical dilemmas: there are possible decision problems in which you are rationally forbidden from performing any of the available options; no matter what you do, you will have done something irrational.

Elga's Worry: According to any plausible decision rule for unsharp credences, it will be permissible to reject both bets. But, by rejecting both bets, you bring about an outcome that is worse, by your own lights, than the outcome that was guaranteed to result were you to *accept* both bets.

It is rationally permissible to reject **Bet 1** because there are some $\Pr \in \mathcal{C}$, namely those that assign $x \in [.6, .8]$ to H, according to which rejecting the bet maximizes expected value.

And it is rationally permissible to reject **Bet 2** (even after having rejected **Bet 1**) because there are some $\Pr \in \mathcal{C}$, namely those that assign $x \in [.2, .4]$ to H, according to which rejecting that bet maximizes expected value.

Elga's Argument Against Unsharp Credences

P1 If it is rationally permissible to have unsharp credences, then (1) it is rationally permissible to reject **Bet 1**, and (2) it is rationally permissible to reject **Bet 2**, conditional on you having rejected **Bet 1.**

P2 Export Principle: If it is rationally permissible for you to ϕ and it is rationally permissible for you to ψ *conditional on you having performed* ϕ, then it is rationally permissible for you to perform the sequence $\langle \phi, \psi \rangle$.

P3 It is not rationally permissible for you to perform the sequence $\langle$reject **Bet 1**, reject **Bet 2**$\rangle$.

C It is not rationally permissible to have unsharp credences.

Rinard's Rejoinder

A Supervaluational Decision Rule can avoid Elga's argument.

- It is *determinately permissible* to ϕ if it is permissible to ϕ according to all $\Pr \in \mathcal{C}$.
- It is *determinately obligatory* to ϕ if it is obligatory to ϕ according to all $\Pr \in \mathcal{C}$.
- It is *determinately impermissible* to ϕ if it is impermissible to ϕ according to all $\Pr \in \mathcal{C}$.
- If there is disagreement among your $\Pr \in \mathcal{C}$, then it is *indeterminate* what rationality requires.

There are no functions $\Pr \in \mathcal{C}$ that recommend performing the sequence $\langle$reject **Bet 1**, reject **Bet 2**$\rangle$. So it is *determinately impermissible* for you to perform this sequence.

What Rinard's Supervaluational Proposal Recommends:

1. *Reject **Bet 1**?*

   It's indeterminate whether it is permissible.
2. *Reject **Bet 2**?*

   It's indeterminate whether it is permissible.
3. *Perform the Sequence $\langle$reject **Bet 1**, reject **Bet 2**$\rangle$?*

   It's determinately impermissible.