Pascal's Wager

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Intro Philosophy

1. The wager

> If there is a God, He is infinitely incomprehensible, since, having neither parts nor limits, He has no affinity to us. We are then incapable of knowing either what He is or if He is. (Pascal, *R&R*, p. 170)

> A game is being played at the extremity of this infinite distance where heads or tails will turn up. What will you wager? According to reason, you can do neither the one thing nor the other; according to reason, you can defend neither of the propositions…

> Let us weigh the gain and the loss in wagering that God is. Let us estimate these two chances. If you gain, you gain all; if you lose, you lose nothing. Wager, then, without hesitation that He is…

> …there is here an infinity of an infinitely happy life to gain, a chance of gain against a finite number of chances of loss, and what you stake is finite. (Pascal, p. 170)

2. Pragmatic vs. epistemic reasons

3. Decision matrices and expected utility

Decision theory studies rational decision-making. Main idea: you should take the risk that would in the long run have the best average outcome.

An example of a decision:

> A doctor is trying to decide whether to give medicine A or medicine B to treat a disease. Medicine A works 90% of the time, but when it doesn't work, it causes a severe side effect that is ten times worse than the disease itself. Medicine B works only 60% of the time, but when it doesn't work it doesn't cause any side effect.

According to decision theory, we must take into account these two factors:

Probabilities: how likely the various outcomes are

Utilities: how good and bad those outcomes are

This information can be represented in a *decision matrix*:

Outcomes

	works	doesn't work
Medicine A	+100 (90%)	-1000 (10%)
Medicine B	+100 (60%)	0 (40%)

Choices

Expected utility (Average utility in the long run.) To compute the expected utility of a choice, take each possible outcome of the choice, multiply its value by its probability, and then add up all the results.

$$\text{EU} = \text{U}(O_1) \times \text{Pr}(O_1) \ + \ \text{U}(O_2) \times \text{Pr}(O_2) \ + \ \dots$$

Expected utility of taking medicine A: +100 × .9 + -1000 × .1 = **-10**
Expected utility of taking medicine B: +100 × .6 + 0 × .4 = **+60**

4. Decision matrix for believing in God

	God exists	God doesn't exist
Believe	+∞ (50%)	0 (50%)
Don't believe	-∞ (50%)	0 (50%)

Expected utility of believing: +∞ × .5 + 0 × .5 = **+∞**
Expected utility of not believing: -∞ × .5 + 0 × .5 = **-∞**

5. Some failed objections

- the evidence isn't 50/50; it favors the conclusion that God doesn't exist

- believing in God does cost me something, since I love doing bad stuff and hate going to Church

- God wouldn't put people in hell; he would just let them stay dead

If these are correct then the matrix would instead be this:

	God exists	God doesn't exist
Believe	+∞ (10%)	-100 (90%)
Don't believe	+200 (10%)	+200 (90%)

Expected utility of believing: +∞ × .1 + -100 × .9 = **+∞**
Expected utility of not believing: +200 × .1 + +200 × .9 = **+200**

6. "My beliefs aren't under my control"

Objection: we can't just decide to believe in God. Pascal's reply:

> Endeavor, then, to convince yourself, not by increase of proofs of God, but by the abatement of your passions. You would like to attain faith and do not know the way; you would like to cure yourself of unbelief and ask the remedy for it. Learn of those who have been bound like you, and

who now stake all their possessions. These are people who know the way which you would follow, and who are cured of an ill of which you would be cured. Follow the way by which they began; by acting as if they believed, taking the holy water, having masses said, etc. Even this will naturally make you believe, and deaden your acuteness. (Pascal, *R&R*, pp. 136–137)

7. Too risk-averse?

8. Outcomes not really infinite in value?

Suppose the first hour of listening to trumpets has value +4. Eventually trumpets might start to have "diminishing marginal value" in such a way that heaven is finitely valuable even though it lasts forever:

$$4 + 2 + 1 + \frac{1}{2} + \frac{1}{4} + \frac{1}{8} + \ldots = 8$$

9. The many gods objection

A "reverse-God", who punishes people who believe and rewards those who don't, is *possible* even if unlikely. New matrix:

	God exists	Reverse-God exists	no God exists
Believe	$+\infty$ (49%)	$-\infty$ (1%)	0 (50%)
Don't believe	$-\infty$ (49%)	$+\infty$ (1%)	0 (50%)

Expected utility of believing: $+\infty \times .49 + -\infty \times .01 + 0 \times .5 = +\infty + -\infty = $ **?**
Expected utility of not believing: $-\infty \times .49 + +\infty \times .01 + 0 \times .5 = -\infty + +\infty = $ **?**