

## Handout 6: Pascal's Wager

### I. Background

#### A. Blaise Pascal

#### B. Epistemic Obligation vs. Prudential Obligation

#### C. Decision Theory

### II. The Argument from Dominance

#### A. The Principle of Dominance

##### 1. The Concept of Dominance

“The simplest special case occurs when one course of action is better no matter what the world is like”

- Hacking, “The Logic of Pascal's Wager” (1972)

##### a. Decision Matrices

A *decision matrix* represents, for each act, A, someone could perform at some time, and each state, S, the world might be in, how good things would go for the agent if she were to perform A, given that the world is in S.

##### b. A Decision Matrix In Which an Act Dominates

	<u>S1</u>	<u>S2</u>	<u>S3</u>
A1	10	10	30
A2	5	10	30

##### c. Dominance Defined

An act *dominates* iff (i) in at least one state it brings about an outcome that is better for the agent than the outcome that would be brought about by any alternative to it, and (ii) in no state does it bring about an outcome that is worse for the agent than the outcome that would be brought about by any alternative to it.

In other words: an act dominates iff it might be better, and can't be worse.

## 2. The Principle

The Principle of Dominance: If an agent is in a situation in which one of her alternatives dominates, then she ought to perform that alternative.

### B. The Argument

#### The Argument from Dominance

1. The following decision matrix represents your situation with respect to the decision whether to believe in God:

	<u>G</u>	<u>~G</u>
<u>B</u>	10,000	100
<u>~B</u>	-10,000	100

2. If (1), then B dominates.
3. If B dominates, then you ought to choose B.
4. Therefore, you ought to choose B (in other words, you ought to believe in God).

### C. Problems for the Argument from Dominance

#### 1. Doxastic Voluntarism

#### 2. The Appeals of a Libertine Life:

	<u>G</u>	<u>~G</u>
<u>B</u>	10,000	10
<u>~B</u>	-10,000	200

## III. The Argument from Expected Value

### A. The Principle of Expected Value

#### 1. The Concept of Expected Value

“The *expected value*, or *expectation*, of [an act] is the average value of doing [it]”  
- Hacking, “The Logic of Pascal’s Wager” (1972)

“In *decisions under risk*, the agent assigns subjective probabilities to the various states of the world. Assume that the states of the world are independent of what the agent does. A figure of merit called the *expected utility*, or the *expectation* of a given action can be calculated by a simple formula: for each state, multiply the utility that the action produces in that state by the state’s probability; then, add these numbers”

- Alan Hájek, “Pascal’s Wager,” *The Stanford Encyclopedia of Philosophy*

$$EV(A) = [P(S1) * V(A|S1)] + [P(S2) * V(A|S2)] + [P(S3) * V(A|S3)] + \dots$$

## 2. Examples

- a. The Coin Bet
- b. The Libertine Life

## 3. The Principle of Expected Value

The Principle of Expected Value: One ought to maximize expected value (i.e., perform the act (or one of the acts) such that no alternative to it has a higher expected value).

### B. The Argument

#### The Argument from Expected Value

1. The following decision matrix represents your situation with respect to the decision whether to believe in God:

	<u>G</u>	<u>~G</u>
<u>B</u>	$\infty$	10
<u>~B</u>	-10,000	200

Why  $V(\sim B|G) \neq -\infty$ :

“justice to the outcast is less vast than mercy to the elect”

- Pascal

2. The following probability assignments represent how likely you think it is that God exists:

$$\begin{aligned} P(G) &= .5 \\ P(\sim G) &= .5 \end{aligned}$$

3. If (1) and (2), then B maximizes expected value for you.
4. If B maximizes expected value for you, then you ought to choose B.
5. Therefore, you ought to choose B.

### C. Problems for the Argument from Expected Value

1. Might  $P(G) < .5$ ?

### III. The Argument from Dominating Expected Value

#### A. The Principle of Dominating Expected Value

##### 1. The Concept of Dominating Expected Value

An act has *dominating expected value* iff it maximizes expected value for all (non-zero) probability assignments.

In other words: an act has dominating expected value iff it maximizes expected value no matter what you believe (so long as you agree that all the relevant states are at least possible).

##### 2. The Principle of Dominating Expected Value

The Principle of Dominating Expected Value: If an agent is in a situation in which one of her alternatives has dominating expected value, then she ought to perform that alternative.

#### B. The Argument

##### The Argument from Dominating Expected Value

1. The following decision matrix represents your situation with respect to the decision whether to believe in God:

	<u>G</u>	<u>~G</u>
<b>B</b>	$\infty$	10
<b>~B</b>	-10,000	200

2. If (1), then B has dominating expected value.
4. If B has dominating expected value, then you ought to choose B.
5. Therefore, you ought to choose B.

#### C. Problems for the Argument from Dominating Expected Value

##### 1. The Many-Gods Objection