Philosophy 200: Fall 2005
Introduction to Philosophy
Epistemology.Handout.2
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Pascal's Wager and the Pragmatic Justification of Induction

1. A primer on rational decision theory

• Rational decision theory is a formal theory concerning the rationality of courses of action or decisions. It serves as the foundation of contemporary microeconomics and has philosophical applications in epistemology, the philosophy of action, the philosophy of science, and elsewhere.

• In rational decision theory, it is common to represent a decision problem with a two dimensional matrix:
(1) The rows of the matrix list possible acts.
(2) The columns of the matrix survey the conditions under which these acts may be performed.
(3) The values in the matrix are numerical representations of the utility (i.e., welfare) derived from performing the relevant act under the salient condition.

• Two important types of decision problems treated by rational decision theory are *decisions under ignorance* and *decisions under uncertainty or risk*. In decisions under ignorance, we cannot rationally assign probabilities or likelihoods to the conditions under which our acts will be performed. In decisions under uncertainty, we can rationally assign probabilities to these circumstances. Accordingly, in decisions under uncertainty or risk:
(4) The columns are flagged with a probability assignment on the real interval from 0 to 1 inclusive.

• *Dominance* is a central concept for decisions under ignorance. An act A dominates all its rivals iff:
(1) For every competitor R and every condition C, the utility of A under C is at least as high as the utility of R under C; and
(2) For every competitor R, there exists some condition C such that the utility of A under C is higher than the utility of R under C.

• A central contention of decision theory is that, under conditions of ignorance, it is rational to perform an act A that dominates all of its rivals. At a minimum, it is more rational to perform A than to perform any of A's rivals. No matter how the circumstances play our, we'll fair at least as well by performing A as we would by performing any rival. Furthermore, for any rival R, there are circumstances under which we'll fair better by performing A than performing R.

• It may seem silly to assign precise numbers to the utility we would derive from performing acts under various conditions. However, these numerical assignments are simply convenient bookkeeping devices for our comparative preferences concerning acts performed under various conditions. If we would derive more utility by performing A under C than we would from performing A′ under C′, we fill in the entry for <A,C> with a higher value than the entry for <A′,C′>. Any numbers will do provided that the former is higher than the latter.[1]

2. Pascal's Wager

• Interpreter's of Pascal have plausibly identified three distinct arguments for the reasonableness of religious conviction:
(1) An argument from *equiprobability*, which assumes that we can assign probability of .5 to both the claim that God exists and the claim that God does not exist. The relevant decision problem would be a decision under uncertainty.
(2) An argument from *infinite utility*: A major assumption of this argument is that we derive infinite utility from believing in God, provided that God exists.

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[1] A note for those with some background in math. This isn't quite right. For decisions under ignorance, the class of adequate utility functions—functions from ordered pairs of acts and circumstances to utility values—is closed under positive monotic transformation. For decisions under uncertainty, it must be closed under positive linear transformation.

2. Pascal's Wager (cont.)
(3) An argument from *dominance*, succinctly expressed in the following quote: "Let us assess the two cases: if you win you win everything, if you lose you lose nothing. Do not hesitate then; wager that he does exist." This third argument is commonly known as *Pascal's wager* proper. It makes less dubious assumptions than the other two arguments and is, accordingly, the most plausible of the three. Crucially, for our purposes, it has the same argumentative structure as the pragmatic justification of induction.
• Pascal's argument from dominance: terminology (charitably interpreted).
Wager for God: believe in God's existence. You are a theist!
Wager against God: either refrain from forming any belief as to God's existence or believe that God does not exist. You are an agnostic or an atheist!
• Pascal's decision matrix (charitably interpreted):

	God exists	**God does not exist**
Wager for God	n	l
Wager against God	m	l

Assumptions: n, m, and l are all finite; n > m.
• Pascal's argument:
(1) Wagering for God dominates wagering against God.
(2) Wagering for God is an act (broadly construed).
(3) Wagering against God is the only rival to wagering for God.
(4) If an act A dominates all rivals, than it is rational to perform A.

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(5) It is rational to wager for God. [From (1), (2), (3), and (4)]
That is, it is rational to believe in God's existence.

3. The pragmatic justification of induction
• The pragmatic justification of induction argues that it is rational to use induction as our method for forming beliefs about the unobserved *even if we are incapable of reasonable beliefs about the likelihood of (UP)'s truth or falsity*. It treats our decision to use induction as a decision under ignorance. That is, it makes no assumptions about the likelihood of (UP) being true or false.
• The decision matrix for the pragmatic justification of induction:

	(UP) is true	**(UP) is false.**
Use Induction	n	l
Use some predictive method other than induction	m	l

Assumptions: n, m, and l are all finite; n > m.
(UP) Observed regularities and patterns in nature will generally hold up in unobserved cases.
Intuitively: the course of nature will remain uniform; the future will resemble the past.
• The pragmatic justification of induction:
(1) Using induction dominates using any predictive method other than induction.
(2) Using induction is an act (broadly construed).
(3) The use of induction dominates the use of any alternative predictive method.
(4) If an act A dominates a rival R, then it is more rational to perform A than R.

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(5) Using induction is more rational than using any alternative predictive method. [From (1), (2), (3), and (4)]