LECTURE 5

An Introduction to Social Epistemology

PART 1

today's lecture: 2 parts

FORMAL ARGUMENTS IN EPISTEMOLOGY (AND SOCIAL EPISTEMOLOGY)

INTRODUCTION TO SOCIAL EPISTEMOLOGY

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INTRODUCTION TO SOCIAL EPISTEMOLOGY

In *Experts, which ones should we trust?* Goldman develops a formal argument to defend the claim that one of the sources of trust in an expert comes from her accordance with additional experts.

To address these issues, I shall begin by listing five possible sources of evidence that a novice might have, in a novice/2-experts situation, for trusting one putative expert more than another. I'll then explore the prospects for utilizing such sources, depending on their availability and the novice's exact circumstance. The five sources I shall discuss are:

(A) Arguments presented by the contending experts to support their own views and critique their rivals' views.

(B) Agreement from additional putative experts on one side or other of the subject in question.

(C) Appraisals by "meta-experts" of the experts' expertise (including

Why many is better than one (or few)?

- The argument that Goldman develops is based on Bayesian epistemology.
- However, some argue that Bayesian epistemology rests on false premises; that would undermine arguments developed on premises taken from Bayesian Epistemology.
- Whatever one's take on Bayesian probability theory, and Bayesian epistemology is, the argument that the agreement of many is "better" than the judgment of one, or few, has a long history.
- The first to present an epistemic argument in defense of democracy (or "majority rule") was the Marquis de Condorcet.

Marquis de Condorcet
(1743 - 1794)

- Before Condorcet, most of the arguments in favor of democratic rule, in particular (rule of the majority), were mostly based on moral, or political arguments (democracy is *just*, *viable*, *sustainable*, etc.)
- Condorcet argued that when among two options, one of which is the *right* one, and the other the *wrong* one, a majority is more likely to choose the right from the wrong, provided that, individually the voters are more likely to choose the right from the wrong.
  - NOTA BENE: The argument's premises have been relaxed, showing that, in fact a majority performs better in a large number of conditions.
- Condorcet developed a formal argument to show his conclusion.

- Imagine a group of three agents (*n*=3), who has to choose between two alternatives *a* and *b*. The three agents have the ability to pick the option that is “best” (in a factual matter, they have the ability to pick the *correct* option). Such ability is expressed by the probability *p*, and we assume that $p > 1/2$. Conversely, (1-p) will be the probability that an agent will pick the *wrong* option.

- **QUESTION: Should we pick the judgment of the *best* expert, or should we pick the judgment of the majority?** (note that the probability of getting the right answer is the same for all agents)

- As it turns out, choosing the option of the majority is always at least as good as choosing the best expert (in this case) any expert. Choosing the expert, on the other hand, can be worse than choosing the majority.

- Moreover, as the number of experts increases, the probability that the correct answer will be picked tends to one.

PART 1: majority always at least as good as best expert

π (f^m, **p**) is the probability that the majority picks the correct option, π (f^e, **p**) is the probability that the best expert will pick the correct option

$$
\begin{aligned}
\pi(f^m, \mathbf{p}) - \pi(f^e, \mathbf{p}) &= p^3 + 3p^2(1-p) - p \\
&= 3p^2 - 2p^3 - p \\
&= p^2(3-2p) - p \\
&= p(3-2p) - 1 \\
&= 3p - 2p^2 - 1 \\
&= 2p^2 - 3p + 1 \leq 0 \\
& \quad (2p-1)(p-1) \leq 0 \\
& \quad \frac{1}{2} \leq p \leq 1
\end{aligned}
$$

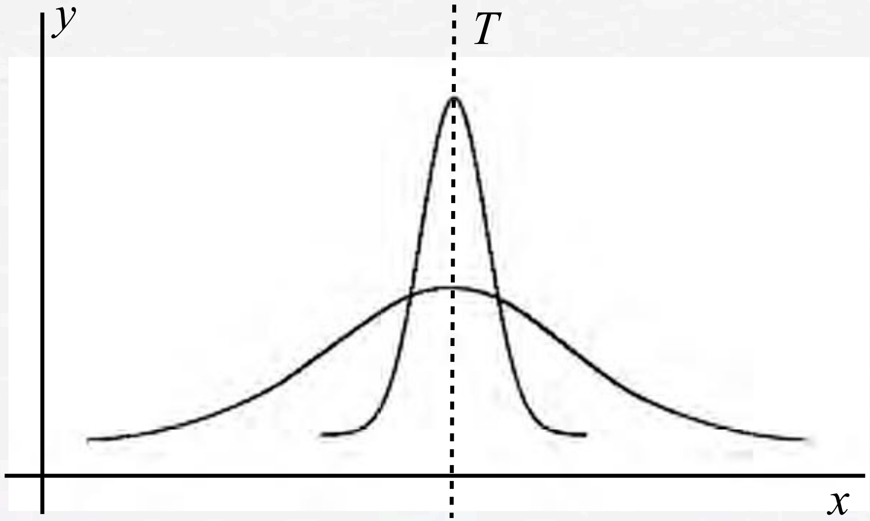
PART 2: as the number of voters increases, probability π (f^m, **p**) goes to 1.

INFORMAL EXPLANATION

3 voters: $\pi(f^m, \mathbf{p}) = \binom{3}{3}p^3(1-p)^0 + \binom{3}{2}p^2(1-p)^1$

5 voters: $\pi(f^m, \mathbf{p}) = \binom{5}{5}p^5(1-p)^0 + \binom{5}{4}p^4(1-p)^1 + \binom{5}{3}p^3(1-p)^2$

n voters (for odd n) : $\pi(f^m, \mathbf{p}) = \sum_{k>n/2}^{n} \binom{n}{k}p^k(1-p)^{n-k}$



TIP: check for larger values of n; what happens to $C(n, k)$ as n increases?