

305 Lecture 41 - Objective Theories of Probability

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Plan

- In this lecture we're going to start talking about interpretations of probability.
- And we'll go over so called 'objective' interpretations.

Associated Reading

Odds and Ends, chapter 15.

Two Questions

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2. What should we mean by those things? What meanings would be mostly useful for conversational purposes, scientific purposes, etc?

Caveats

First, a caveat.

- There probably isn't a single good answer to either of these questions.
- That we actually do things a certain way is some evidence that that's a good way to do it, but far from compelling evidence.
- And what is useful in the context of physical science is probably different to what's useful in social science and is probably different again to what's useful in everyday life.

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But let's see how we can do by ignoring all this and finding a single meaning for probability.

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- Saying “Probably” feels like an answer, and not just a response, to being asked whether p is true.

Objective or Subjective

- Objective theories say that probability is something about the world.
- Subjective theories say that probability is something about minds.

One Paradigm Objective Theory

Probability is frequency.

- To say that the probability the roulette wheel will land 17 is $\frac{1}{38}$ just is to say that the proportion of spins that land 17 is $\frac{1}{38}$.

Advantages

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- Makes probability something observable.
- Makes probability something we clearly care about.
- Explains why we connect probability to action.

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- Need extra complications to deal with cyclic events. The probability that it's now daytime is not 0.5, although the proportions of times that are daytime is 0.5.
- Implies that one-off events do not have a defined probability. But we can say, for instance, that it is very probable that Oswald killed Kennedy.

Reference Class

Thinking of probabilities as frequencies requires a reference class.

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- Is it the frequency of right-handedness amongst:
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 - Humans?
 - Adult male humans?
 - Australians?
 - Michigan faculty?
 - Philosophy faculty?
 - Australians who are on the philosophy faculty at Michigan?

The last of these is a singleton class, so the probability is 0 or 1.

For Next Time

- We will move on to looking at subjective theories.