Nicholas deWitt

Econ 3640

Professor D. Sündal

Assignment 3

Probability & Randomness Under the Microscope

Jaynes critique about conventional sampling replacement when problems get too difficult:

* Make things more complicated by understanding the nuances thus making things exponentially more difficult to solve.
* Because all of the complications of nuances (shaking in this example) are clearly too complicated to solve, revert back to the original Bernoulli Urn Rule.
* Inventing dignified, technical-sounding terms to conceal aspects that we do not understand the true nature of to make it seem respectable. DELIBERATELY THROW AWAY RELEVANT INFO WHEN IT’S TOO COMPLICATED.

The concept of Mind Projection Fallacy is that when a person interprets the world around them as assuming that their interpretation is truly how the world is (relative to their perspective) which can be completely incorrect. From the text - when describing randomization, Mind Projection Fallacy can be seen as “If I don’t know the detailed causes, therefore nature does not know them”. Randomness leads to vagueness that is only uninterpretable (for better or for worse) to the person saying such things are “random.”

The concept of randomization is not the problem, the application of randomization to make our limit theorems seem bulletproof is the problem.

These limit theorems are the foundation of probability theory. Which means by nature these concepts are fundamentally flawed. Thus, the randomization that happens when pulling sample sizes means the concept is not a proper “real world” concept, yet we clearly still use it as if it were. This creates a critical problem of understanding our “real world” concepts that should be acknowledged. Within the scope of probability theory that needs to be stated that it may not determine “real world events” correctly. But to be clear: there is a difference and value between having an abstract model and having a model that is able to determine “real world events”.

Jayne’s critique of the urn experiment makes the most sense to me and I have always been skeptical of the concepts like this I have seen from economic statistical analysis. Obviously, the urn experiment is great for an understanding and creating useful approximations; however, I have always asked the question: why are they glazing over the details when putting the urn back in? How hard are they shaking the urn? There are so many variables that affect such a simple game which have a significant impact on the end answer that are just swept under the guise of “randomization” that always bothered me. The reason why it bothered me is because one cannot make the approximation with confidence that the “randomness” is something that is considered “unmeasurable”.

Moreover – things that happen in nature, are they truly “random events”? I don’t know the answer to this but the more I learn the more I realize this is not the case.