



Georgetown
University

Refresher: Probability Theory

Why use randomness for randomness' sake?

- Is there a good justification for modeling deterministic processes as random ones? ...
- The argument of whether or not some process or phenomenon is truly random is often a philosophical matter. It is a matter of fact, though, that deterministic processes can, to those who only partially observe them, appear random.
- In the world of NLU, this is particularly relevant. Language is a coarse proxy of the human mind, and as such, building a deterministic model that mimics human perception and behavior is unrealistic. The process that generates human language is partially observable (text/speech); but we don't yet have a good model of human intelligence. Building a simple model that is uncertain about its belief is currently our best modeling approach.
- Dirty secret: Our decision to model $p(w | context)$ is also one of convenience: we have the internet and labels are free.



"God does not play dice ..."
- Albert Einstein