BAYESIAN VIEW OF MACHINE LEARNING

A DISCUSSION

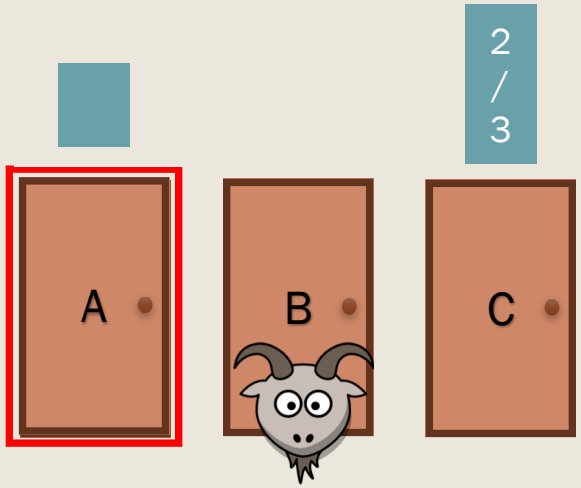
KAIM '18
Anand Krish

Bayesian Perspective

- "Grass is *always* greener on the other side" – The 2 envelope problem

$$E[B] = E[B|A < B]p(A < B) + E[B|A > B]p(A > B)$$

- Belief concentration – Monty Hall problem



Bayesian Inference

- **Basic Inference problem** - Given a model $f(x, \theta)$, how would you **infer** the values of θ given the data x. i.e.
  - *Frequentist approach : Estimate θ such that some defined loss function is reduced. (i.e. Theta here is a constant to be found for the likelihood distribution)*

    "Inference is an estimation problem"
  - *Bayesian approach - θ is a random variable and has its own distribution of values that it can take. Inference is to optimize this distribution given the data i.e. posterior distribution using Bayes rule.*

    "Inference is a simple consequence of Bayes rule"