PROBIBILITY

A MATHMATICAL FRAMEWORK FOR DESCRIBING PHENOMON THAT ARE RANDOM

THINGS THAT CANT BE DESCRIBED WITH CERTAINTY

TYPES OF PROBABILITY

A. "KNOWABLE" OR "CALCULABLE" [CLASSICAL / AXIOMATIC]

ASSUMPTION ABOUT A SITUATION ALLOW YOU TO STATE OR CALCULATE THE PROB. OF EVENT

- COIN
- DICE
- CASINO APP.

B. "MEASURABLE" OR "ESTIMATED" [FREQ. OF OCCURANCES]

SOMETIMES, PROB. CAN BE MEASURED

- INSURANCE APP.

C. "INFERABLE" OR "GUSSABLE" [SUBJECTIVE / INTUITIVE]

SOME PROBABILITY CAN'T BE MEASURED, BUT CAN BE INFERRED OR GUESSED FROM SECONDARY DATA.

EX: KU BBALL WINNING

KU FOOTBALL WINNING

TOPICS

PROBABILITY LAWS & PROPERTIES

DISCRETE & CONTINUOUS VARIABLES

STATISTICS IS A MEANS OF DESCRIBING / ESTIMATING PROBABILITY

TOPICS

(1) DISTRIBUTION STATS. E.G. MEANS & VARIENCE

ESTIMATION OF ABOVE

REGRESSION ANALYSIS

CONFIDENCE INTERVALS FOR ESTIMATES

HYPOTHESIS TESTING

MODELING

MATH MODELING OF ACTUAL PHYSICAL SYSTEMS IS ESSENTIAL FOR ANALYSIS / DESIGN

MODELING

(1) KNOWLEDGE OF PROBABILITY & STATISTICS

(2) SENSE OF A WIDE VARIETY OF COMPUTER SCIENCE SITUATIONS.

PRE - REQ.

INTRODUCTION TO COMPUTER NETWORKS

DATA STRUCTURES & ALGORITHMS

INTRODUCTION TO DATA SCIENCE

INFORMATION THEORY

A PROBABILITY PUZZLE

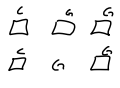
PROBABILITY IS NOT INTUITIVE

MONTE HALL PUZZLE

PREMISE: 3 DOORS

$C = \{C, G, G\}$

1. CHOOSE DOOR
2. "MONTE" OPENS OTHER 2 DOORS
3. OFFERED OPP.



A) SHOULD YOU SWITCH OR SHOULD YOU STAY OR DOES IT MATTER

B) WHAT IS THE PROB. OF WINNING W/ EACH CHOICE

C) HOW DO YOU ARRIVE AT ANSWER

30 % == 1/3

50 % == 1/2