Theoretical Hypothesis Testing

Week 1: Introduction

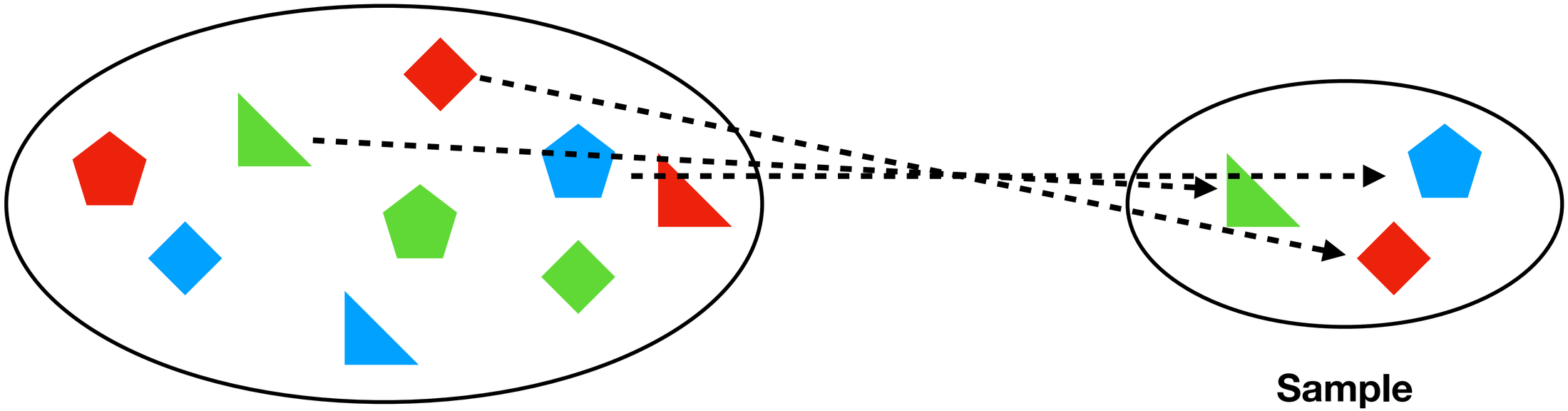
Oct 3, 2022

Base

Three main concepts make an inference about a population based on sample taken from:

1. Point estimation
2. Confidence interval
3. **Hypothesis testing**

Base



Fundamental Setup

Let denote a sample of size n by $x_1, x_2, \ldots, x_n,$ where the x_i are observations of identically independent distributed random variables X_i, $i = 1,2,...,n$. The hypotheses, null H_0 and alternative H_A, must be stated as follows:

$$H_0 : A = , \leq , \geq A_i$$

$$H_A : A \neq , > , < A_i$$

where the population parameter space of A is Θ is partitioned into disjoint sets Θ_0 and Θ_A with $\Theta_0 \cup \Theta_A$, corresponding to H_0 and H_A, respectively.

Contents

- Why the hypothesis tests are used?
- Knowing more about the hypothesis testing process.
- Combining theory with **PRACTICE**.

Style

- Mostly discussion
- Free to stop me
- Never to memorize, always **PRACTICE**!

Tracking course materials

on GitHub: https://github.com/mcavs/ESTUStat_2022Fall_TheoreticalHypothesisTesting