

Point Estimation

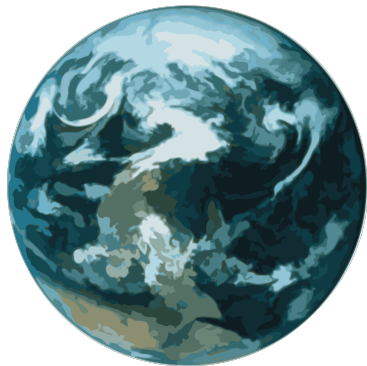
Introduction to Estimation and Statistical Inference

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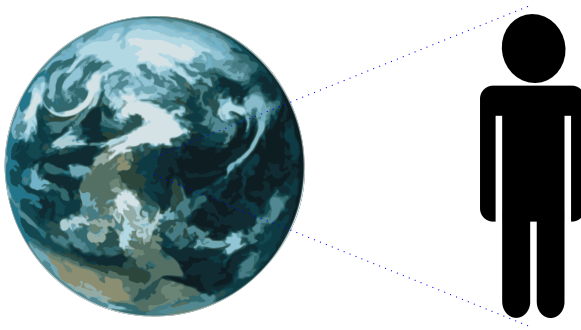
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How tall is a man?



Known Lots of men on Earth
Question How tall is a man?

An experiment



What did we learn?

- Simple observation of logic

$\exists m$ on Earth, $\text{height}(m) = x$.

- **Nothing** learnt about men in general.

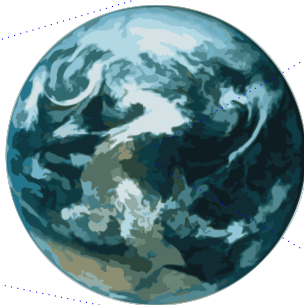
From Logic to Statistics

Logic teaches us to draw conclusions (**deductions**) from complete information.

Statistics teaches us to draw conclusions (**inference**) from incomplete information.

Descriptive statistics

Population Mean



Sample Mean



$$\mu = \frac{1}{\#E} \sum_{i \in E} x_i$$

$$\bar{x} = \frac{1}{n} \sum_{i=1}^n x_i$$

Summary

Objective say something about unknown and unmeasurable quantities.

Example average height of an inhabitant of Earth

Solution measurable quantity which can be assumed to approximate the unknown.

Jargon we call this **estimation**

Example sample mean is an **estimator** for the population mean.