Statistics Overview

Outline

- Randomness

- Summarizing results

- Probability (predicting results)

- Central Limit Theorem

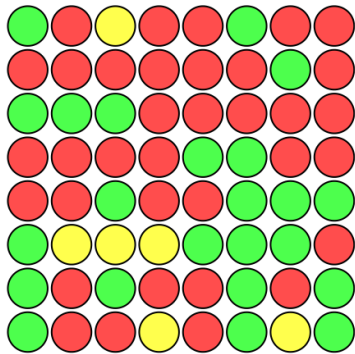- Inference (interpreting results)

- Study Design

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Randomness

- Common random-number generators: dice, spinners, cards, coins, tops…

- How long will it take to get home?

- Some deterministic systems are treated as random.

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Randomness 2

We will study three types of generators: categorical, discrete, and continuous.
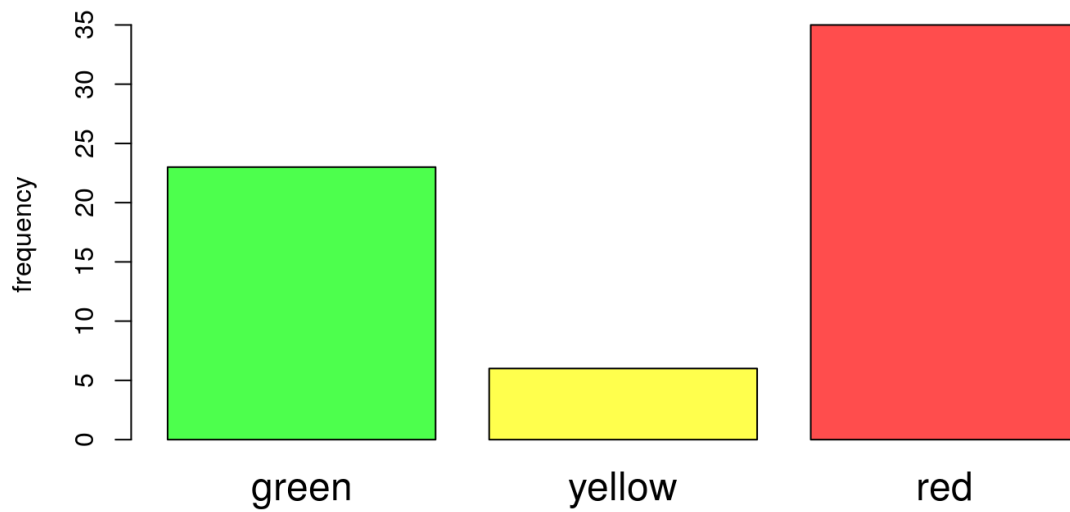
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Summarizing

- Raw data is overwhelming.

Summarizing 2

- So, instead we summarize.

Color	Frequency	Relative Frequency
Green	23	$\frac{23}{64} \approx 0.3594$
Yellow	6	$\frac{6}{64} \approx 0.0938$
Red	35	$\frac{35}{64} \approx 0.5469$

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Summarizing 3

・ So, instead we summarize. We are visual creatures…

Probability

A wedge's size determines its long-run relative frequency.

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Probability 2

Long-run average winnings can be calculated as a weighted average.

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