Non-Probability Sampling, Part 2

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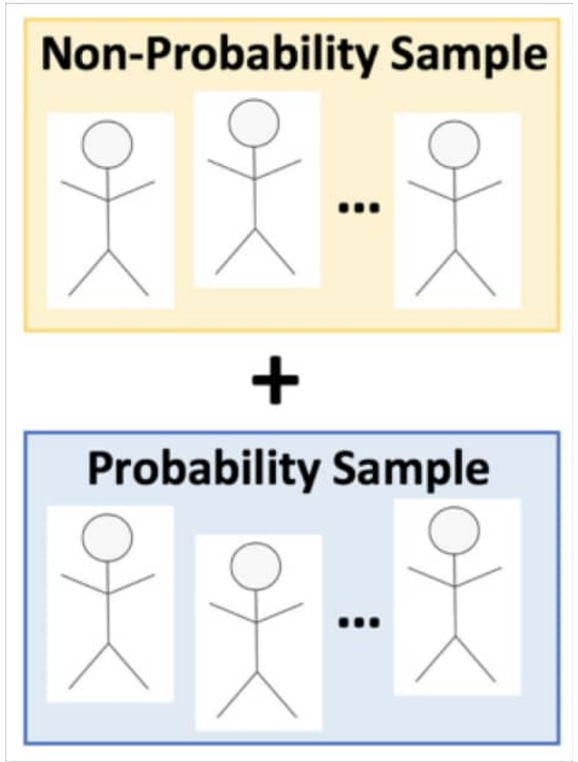
Population Inference Approaches

"Pseudo-Randomization Approach"

- **Combine non-probability sample with a probability sample**
- **Estimate probability of being included in non-probability sample** as a function of auxiliary information available in both samples
- **Treat estimated probabilities of selection as "known"** for non-probability sample, use probability sampling methods for analysis



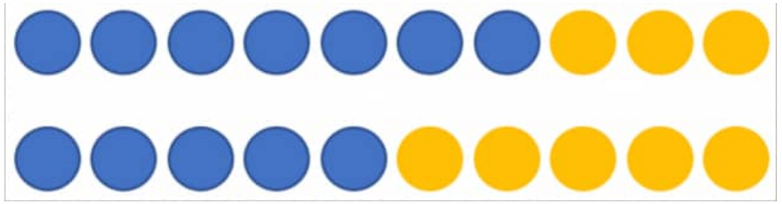
Population Inference Approaches

"Calibration" Approach

– **Compute weights for responding units** in non-probability sample that allow weighted sampled to mirror a known population

Non-probability sample: 70% female, 30% male

Population: 50% female, 50% male



→ **Down-weight females and Up-weight males**

Population Inference Approaches

"Calibration" Approach

- **Compute weights for responding units** in non-probability sample that allow weighted sampled to mirror a known population

- **Limitation:** if weighting factor not related to variable(s) of interest
  → will not reduce possible sampling bias

Twitter Example: Non-Probability Sample

API to extract info from several hundred thousand tweets and indicator of support for President Trump computed

- **Probability** of a tweet being selected **cannot be determined**
- **Twitter users not a random sample** of larger population
- **Lots of data**, ***but*** „„
  - high potential for sampling bias
  - lack of representation: may only capture people with strong opinions!

Logo from Twitter

What's Next?

- **Sampling distributions and sampling variance ~** how to estimate features of these distributions
  based on only one probability sample
- **Examples of making population inferences**
  based on type of sample selected
- Introduce **model-based** approaches to analyzing data