Population = Census

Inference

Prediction about **POPULATION**
based on **SAMPLE** data

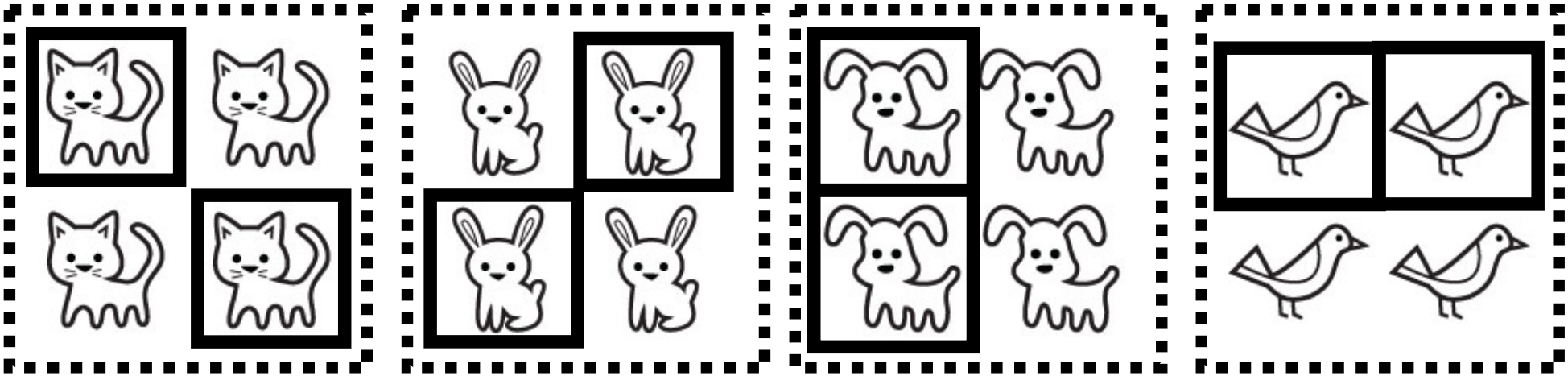
Sample = Survey

[STRATIFIED]

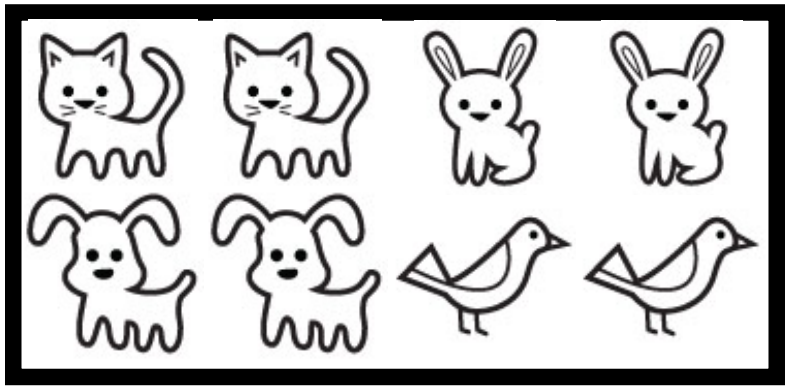
RANDOM SAMPLING

STRATA:

SAME WITHIN; DIFFERENT BETWEEN



SAMPLE

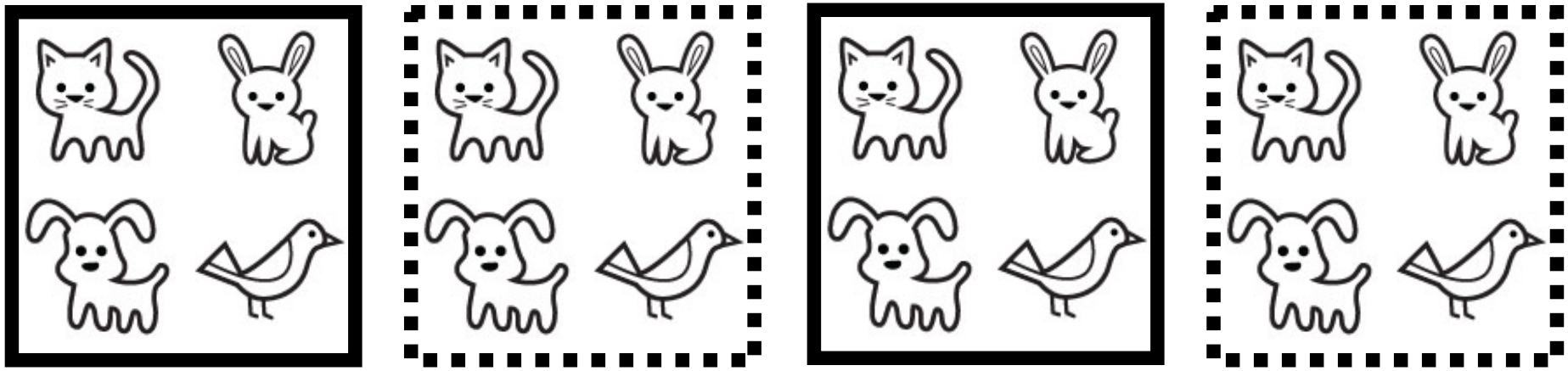


= SRS FROM EACH STRATA

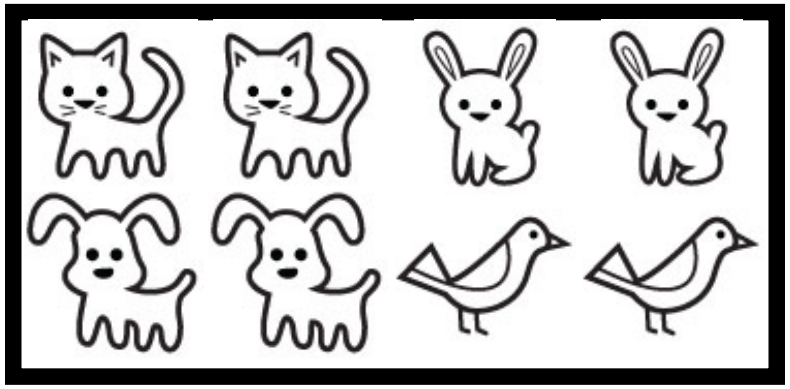
CLUSTER SAMPLING

CLUSTERS:

DIFFERENT WITHIN; SAME BETWEEN



SAMPLE

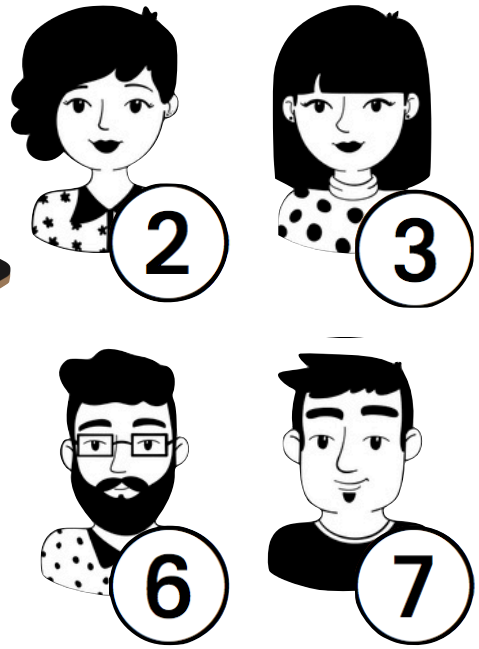


= SRS OF THE CLUSTERS

Simple Random Sample

All samples of size "n" are <u>equally likely</u> to be selected.

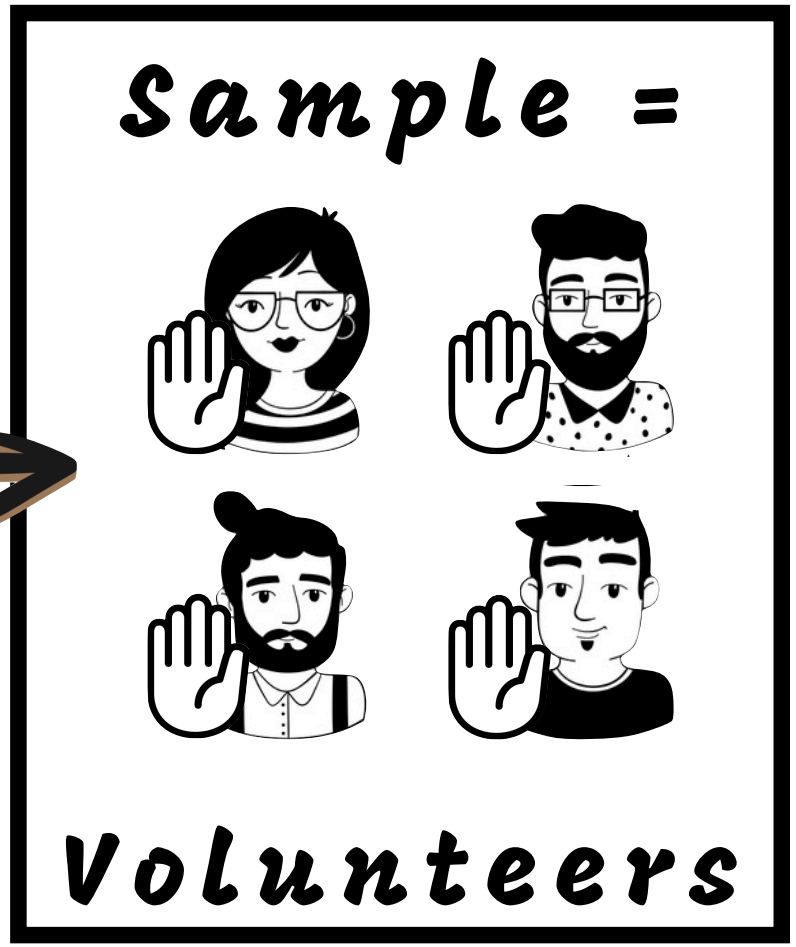
Sample =



#'s randomly generated

VOLUNTARY RESPONSE

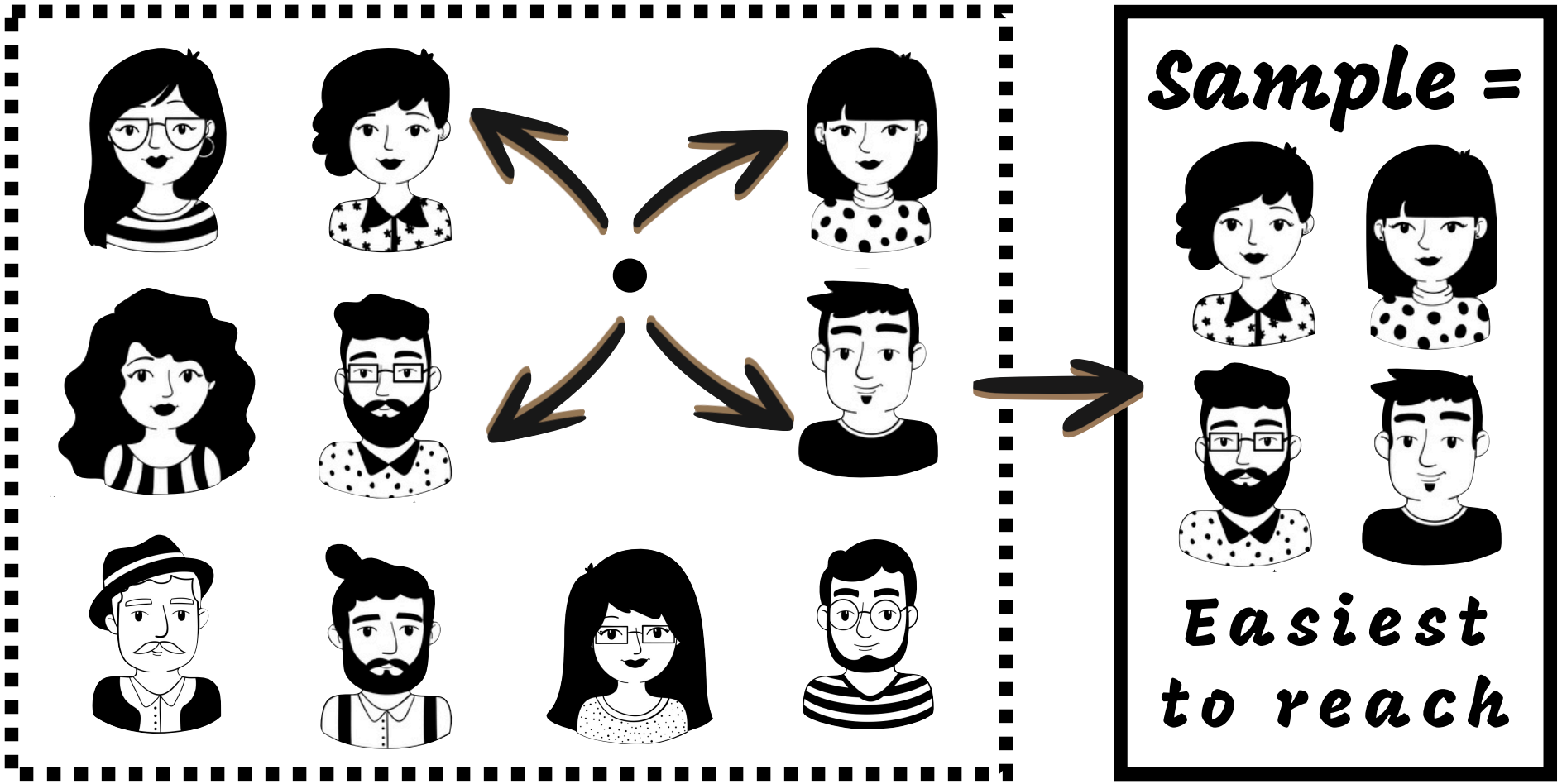
BIAS Sampling Method



BIAS... *volunteers may be more passionate*

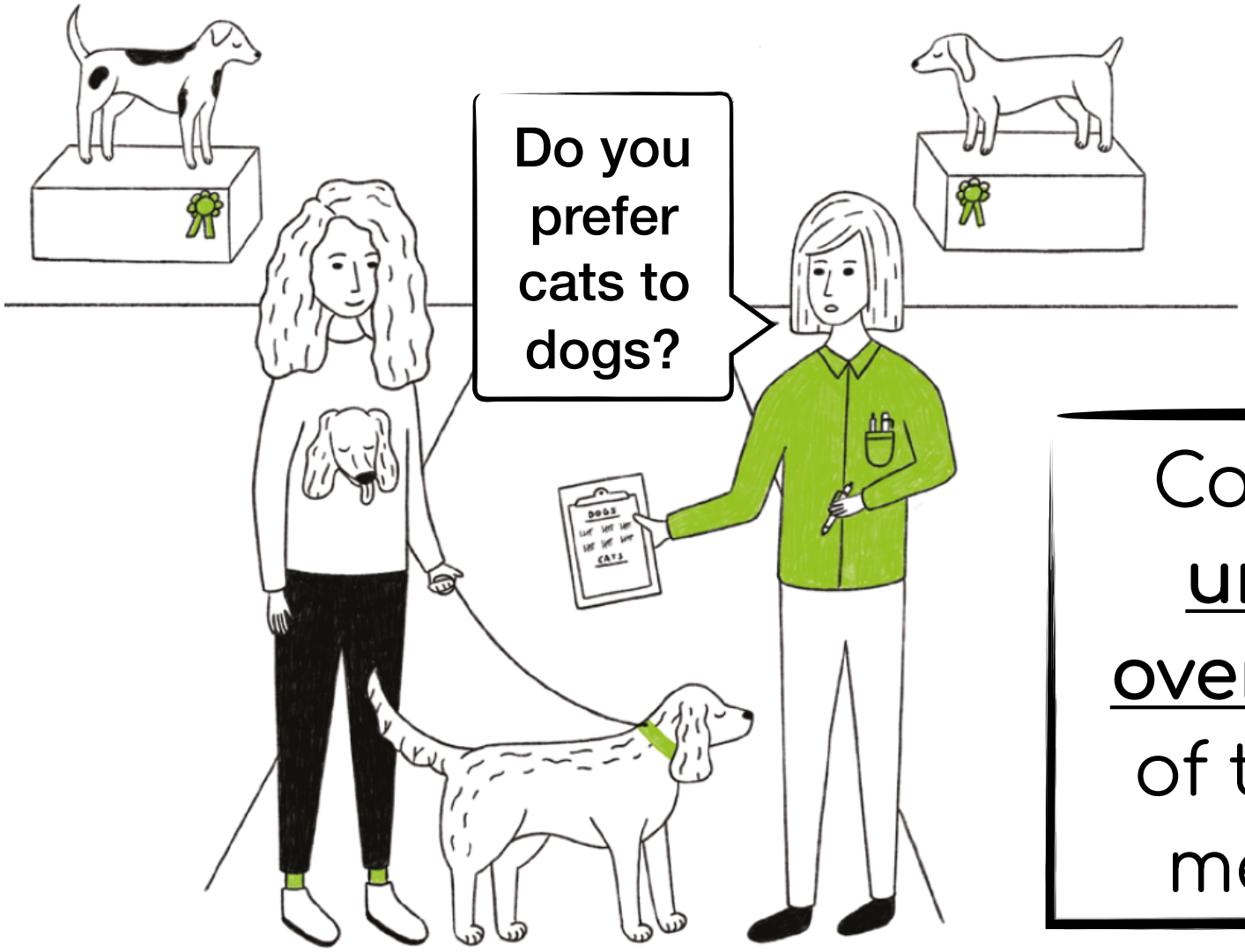
CONVENIENCE SAMPLE

BIAS Sampling Method



BIAS... *sample may not be representative*

Sampling BIAS



Consistent
<u>under or</u>
<u>overestimate</u>
of the value measured

Observational Study

Does work out

→ Measure energy level

NO treatment is imposed

Doesn't work out

→ Measure energy level

Experiment

Subjects

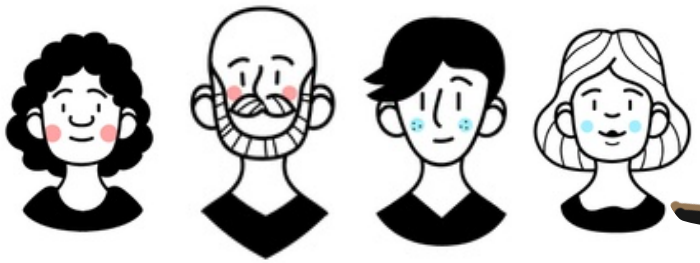
Random Assignment

Treatment #1

Measure response

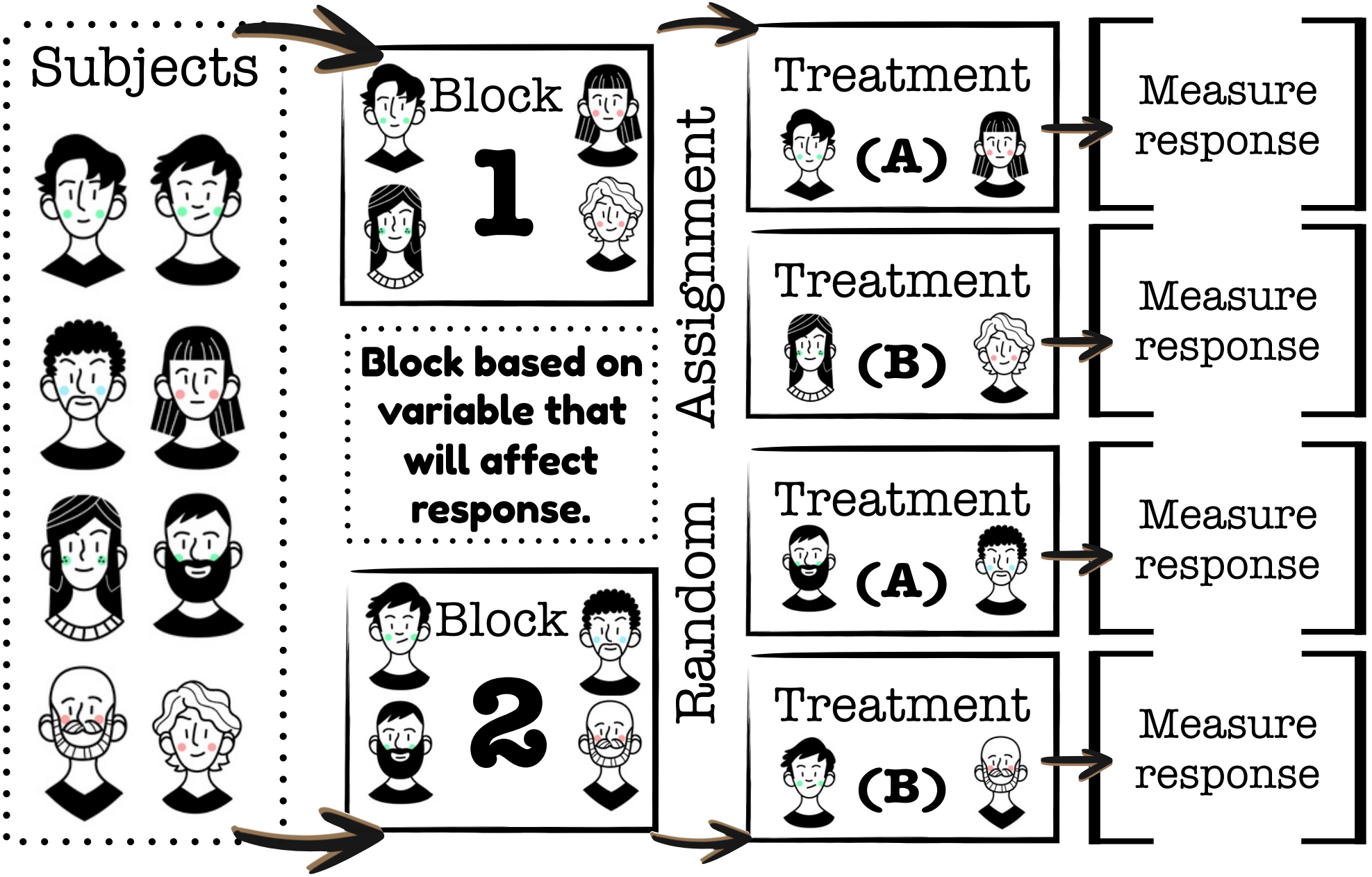
Treatment is imposed

Treatment #2

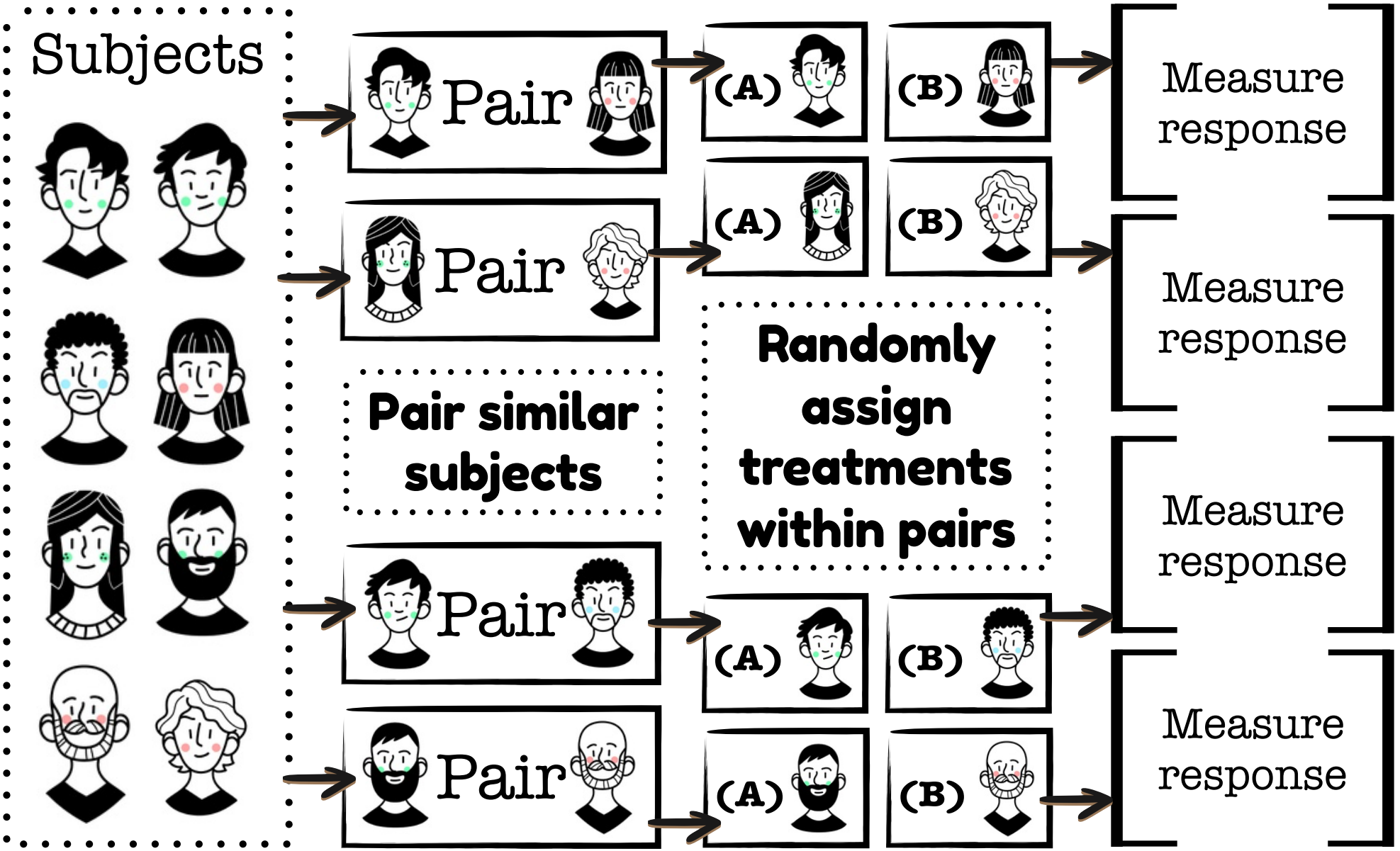


Measure response

Randomized Block Design



Matched Pairs Design



Scope of Inference