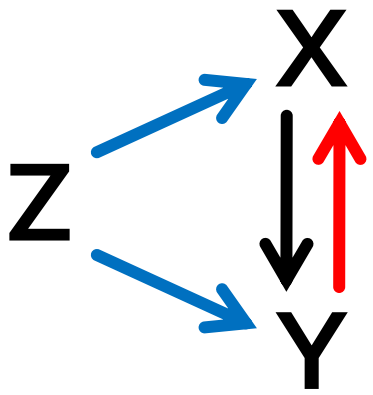
Overview

- Correlational Studies
  cf. true experiment & two alternative interpretations
- External Validity
  minimize need (not maximize extent) and sampling
- Surveys
  "personalness" continuum & realism vs. reactivity
- Observational Methods
  naturalistic (vs. participant) and observer bias
- Quasi-Experiments & Aging Research
  relative stability requirement and forced confounds

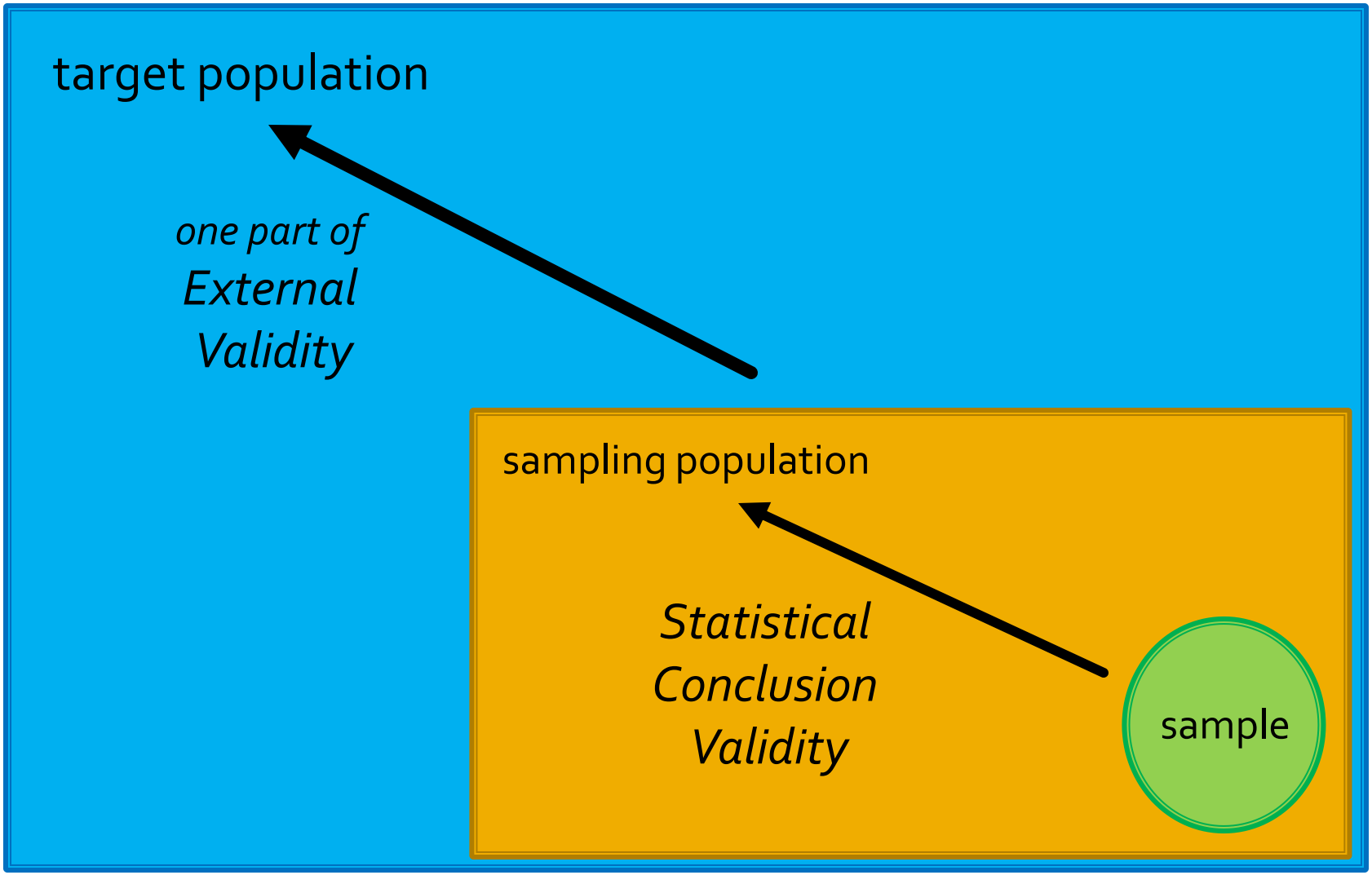
Pictures – Interpretation of Correlations



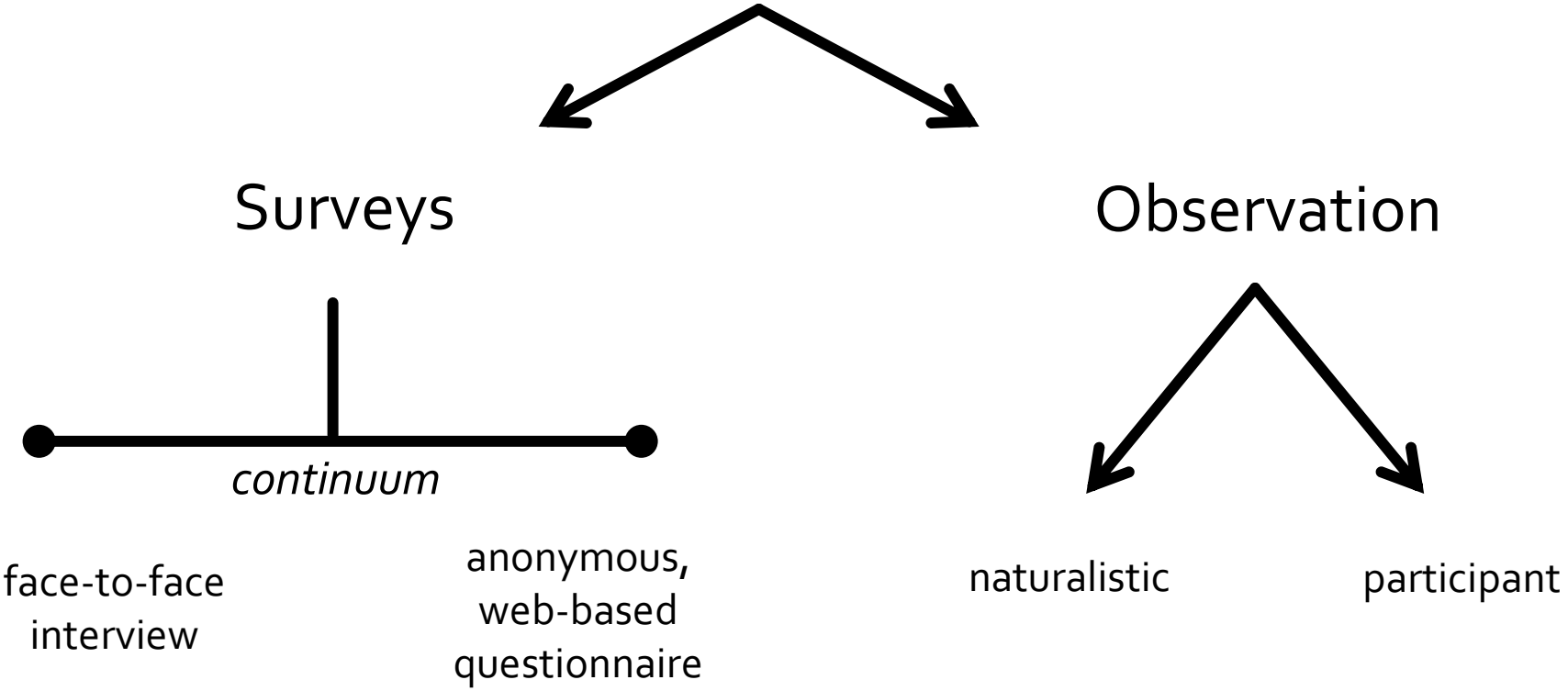
"Directionality Problem"
run a cross-lagged study

"Third-Variable Problem"
indentify, measure, and co-vary out

Pictures – External vs Stats-Con Validity



Pictures – Collecting Correlational Data



Quasi-Definitions

- Experiment: one manipulated variable – the IV
  one labile measured variable – the DV

  Correlational Study: two labile measured variables
  one called "predictor" (cause)
  one called "predicted" (effect)

  Quasi-Expt: one stable measured variable (SV)
  that is treated as if it were an IV
  one labile measured variable
  that is treated as the DV

More Quasi-Definitions

- "Third Variable" – *a (typically unmeasured) variable that could be the cause of both of the measured variables in a correlational study*
- Spurious (adj) – *a significant relationship that is not causal (in either direction)*

(New) Types of Correlations

- cross-lagged: *the correlation between one variable at one time and another variable at another time (e.g., X1Y2)*

  - used to determine the more likely direction of causation

  - e.g., if $r^2_{X1Y2} > r^2_{X2Y1}$ then X is probably the cause

- partial (with respect to Z): *the correlation between two variables after the effects of a third variable (Z) have been removed*

  - used to test (and rule out) a third variable explanation

  - e.g., if $pr_{XY \bullet Z} = r_{XY}$ then Z is not a cause of both X & Y

Definitions

- External Validity – *the extent to which the results (from an experiment or study) (and, therefore, the conclusions) will generalize to other situations (i.e., other people, places, and times)*
- Context Specificity – *when the results from an expt or study are unique to the situation*
- Person Specificity – *when the results from an expt or study are unique to the subjects*

Definitions

- Convenience Sampling – *when only easily-recruited subjects are used*
- Simple Random Sampling – *when all members of the pop. have a definable probability of being sampled, but no attempt is made to match the group sizes*
- Proportional Stratified Random Sampling – *when the relative sizes of the groups in the sample are forced to be the same as those in the population*
- Quota Sampling – *most popular type of non-proportional stratified random sampling – when the sizes of the groups in the sample are forced to be equal*

Definitions

- Survey or Questionnaire – *a structured set of items designed to measure attitudes, beliefs, values, or behavioral tendencies*
- Scale – *a (small) set of items designed to measure a particular attitude, belief, value, or behavral tendency*

  Likert – sets of "strongly agree" thru "strongly disagree" items

  Guttman – sets of ascending questions

  Thurstone – "check all that apply" (that are worth varying points)

  semantic differential – indicate position btwn opposite pairs

Definitions (and more)

- Naturalistic Observation – *studying behavior in everyday environments without getting involved*
  key threat: **reactivity** (secondary: observer bias)
- Participant Observation – *studying behavior from within the target group*
  key threat: std. **experimenter bias** (secondary: obsr bias)
  note: Partic.Obs. is not often possible, since no-consent observation can only occur when and where there is no reasonable expectation of privacy
- Observer Bias – *when the beliefs or expectancies of the observer (consciously or otherwise) influence what is recorded* – note: inter-coder reliability must be .90+

Experimenter Bias

- in general: *when the beliefs and/or expectancies of the experimenter end up altering the results*

  "standard" experimenter bias occurs *when the experimenter behaves differently when collecting data in different conditions*

  defenses: remove experimenter or double-blind

  observer bias is *when only the recording of data is altered by the beliefs of the observer*

  defenses: checklists and/or partial sampling

Definitions

- *ex-post-facto* quasi-expt – *when you take only one sample and then divide the subjects into the groups after-the-fact*
- planned quasi-expt – *when you take separate (and usually equal-sized) samples for each of the groups*

  note: this is another good example of the effort vs quality trade-off

Definitions

- longitudinal (aging) study – *when you follow the same subjects over time*

  major unique threat: time-frame (zeitgeist) effects

- cross-sectional (aging) study – *when you take separate samples for each age-group (at the same time)*

  major unique threat: cohort effects

- solution (to both issues)

  run a hybrid study and verify same results either way

  fifth (and final) form of logic used against confounds