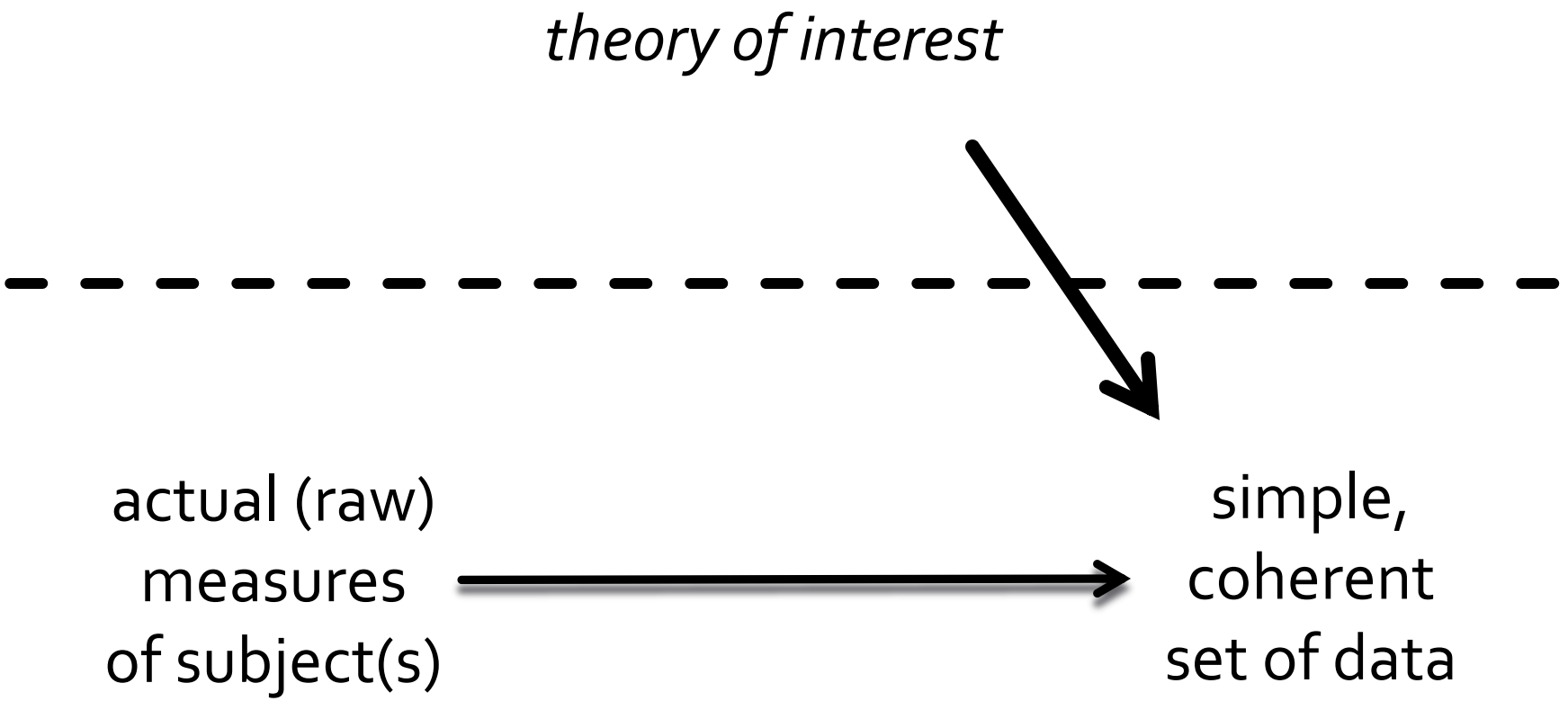
Picture #1


theory of interest
actual (raw) measures of subject(s)
simple, coherent set of data

Rationalism, Empiricism, & Authority

Modus Tollens	*falsification*
if P, then Q	if theory correct, then certain data
not Q	did not get the predicted data
therefore, not P	therefore, theory is not correct

Rationalism, Empiricism, & Authority

if P, then Q

not Q

therefore, not P
(modus tollens)

Q

therefore, P
(affirming the consequent)

P "survives"

{ confidence in P may increase }

Rationalism, Empiricism, & Authority

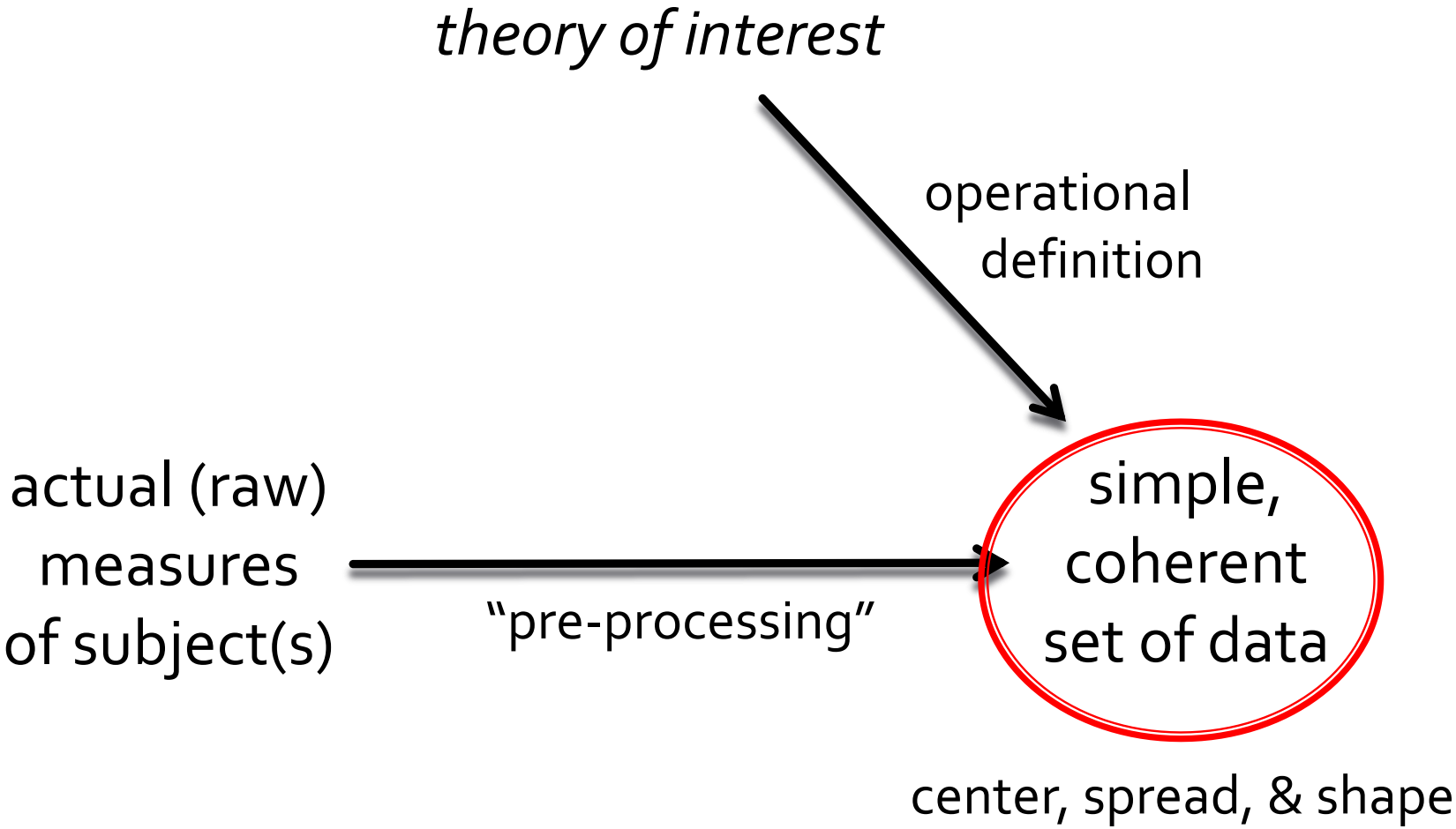
if P, then Q	if theory correct, then certain data
not Q	did not get the predicted data
therefore, not P	therefore, theory is not correct

psychological theories often make their predictions in terms of constructs that are not directly observable

if (theory & operational definition) correct, then data

we give the operational definition higher status,
as long as it met our agreed-upon criteria

Picture #1


theory of interest
operational definition
actual (raw) measures of subject(s)
"pre-processing"
simple, coherent set of data
center, spread, & shape

Picture #1

ual (raw)
easures
ubject(s)

simple
coheren
set of da

raw score

summary score — reduce "noise" … lower unreliability … raise reliability

condensed score — broaden scope … raise convergent validity

Picture #1

ual (raw)
easures
ubject(s)

simple
coheren
set of da

center [mean]

spread [std dev]

(name for) shape

All Measures…

- …can be summarized across subjects via:

  a distribution or density function

  and/or center (**mean**), spread (**std dev**), and shape (*name*)

- …have at least some "unreliability"

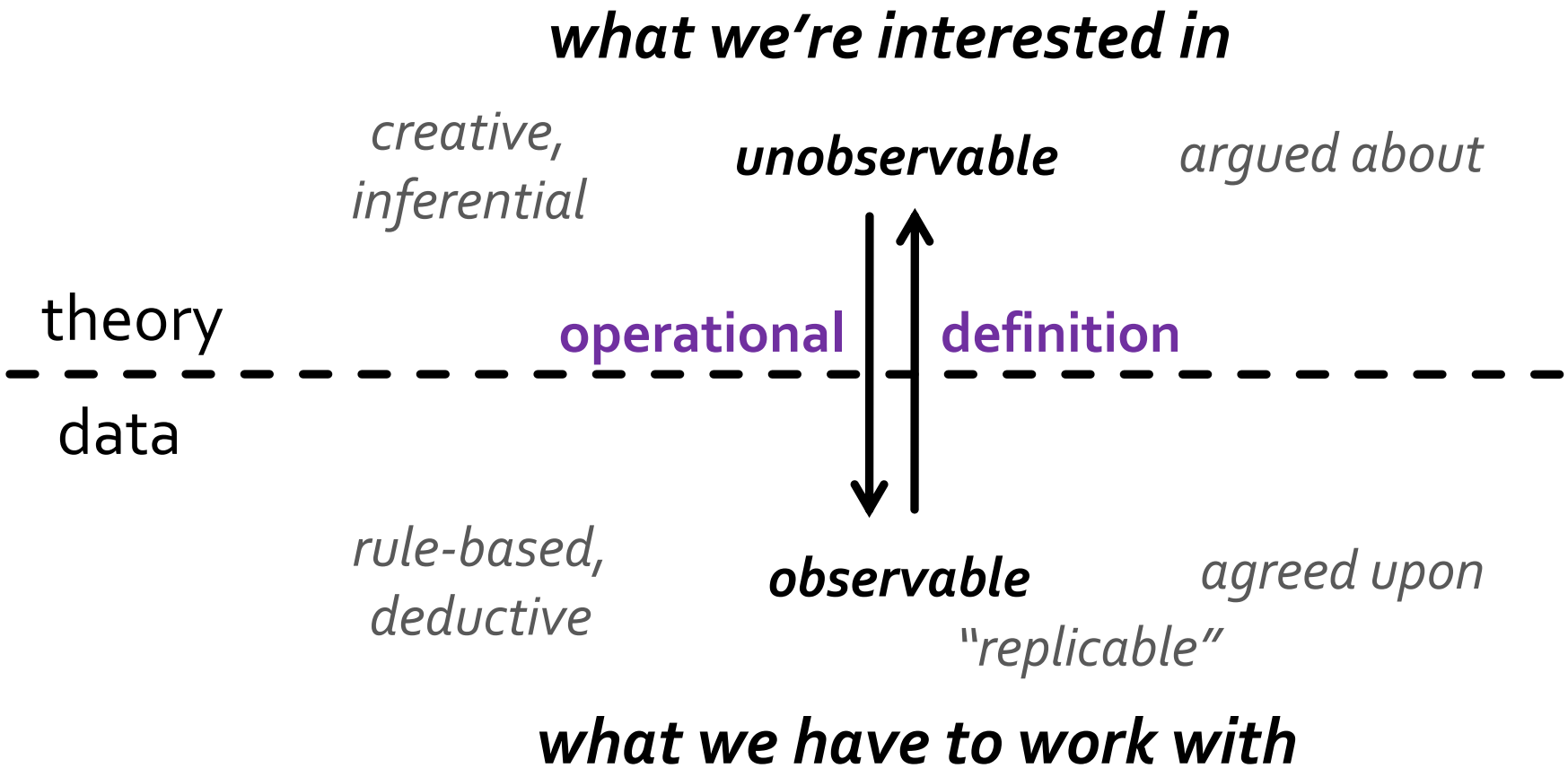
  = standard deviation (across many uses on the same thing)

- …have some level of reliability

  = test/retest correlation (which needs to be at least .70)

- …only have (construct) validity with regard to what they are being used to estimate

Theories & Data



Operational Definitions…

- …link one or more measures to one or more unobservables
- …are what allow many theories to make predictions
- …have some level of construct validity
- …need to be both selective and exhaustive

  selective = discriminant validity (.20 rule)

  exhaustive = convergent validity (.70 rule)

Operational Definition

- *a statement that maps one or more empirical measures onto one or more theoretical constructs*

  example: "fear of X is defined as the speed at which the animal moves away from X when it is presented"

  note: one or more measures
  this refers to condensed scores [e.g., BDI]

  note: one or more constructs
  this refers to distributed constructs [e.g., self-esteem] and other multi-facet constructs [e.g., attitudes]

Construct Validity

- *the extent to which the operational definition being used is accurate*
  don't use … not complete & depends on another term
- *the extent to which the measure provides an accurate estimate of the target theoretical construct*
  better, but please don't use … still not complete
- *the extent to which the measure provides an exhaustive and selective estimate of the target theoretical construct*
  best … mentions the two sides of ConVal

Picture #2

Content (Logical) Validity

exhaustive

+.70 or better

Convergent Validity

correlations

Predictive (Criterion) Validity

exclusive

Discriminant Validity

within .20 of zero

~~Face Validity~~

Construct Validity … threats & fixes

lack of exhaustiveness

add or expand items

lack of selectivity

delete or refine items

target is *ad hoc*

"wake" it up (e.g., affective attitude [p&s])

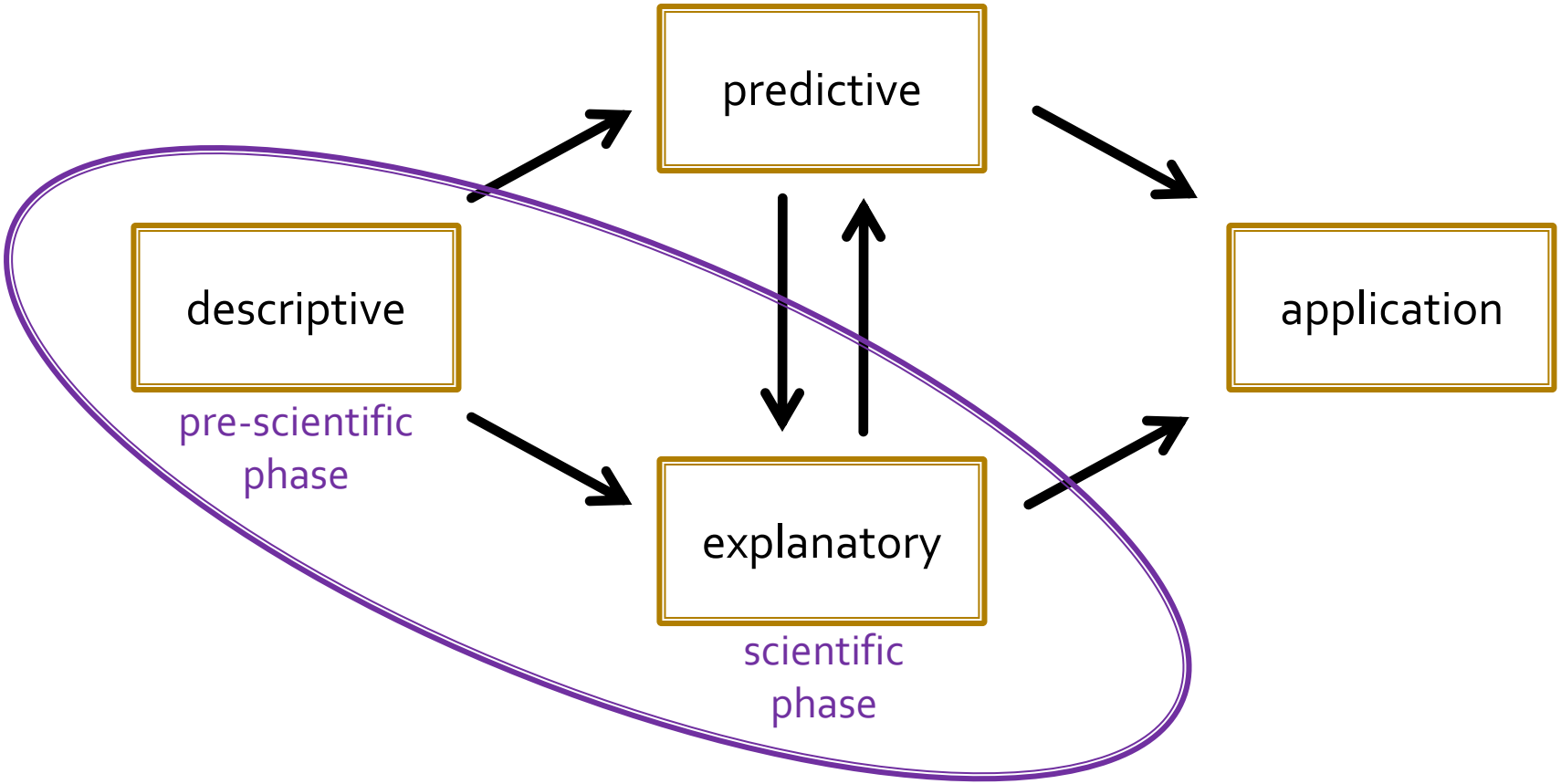
target is distributed

measure the components separately

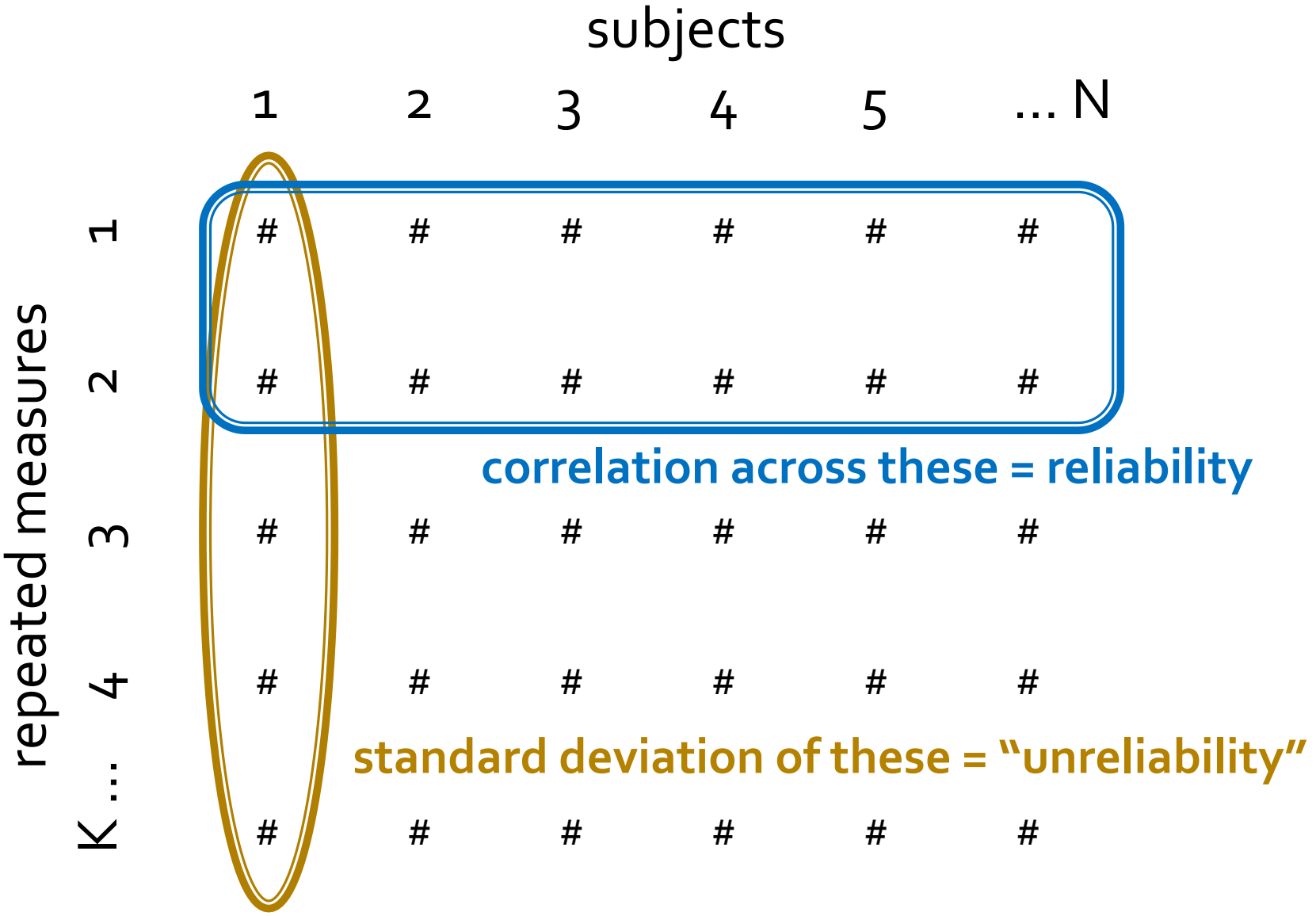
reactivity

many fixes, discussed in Part III

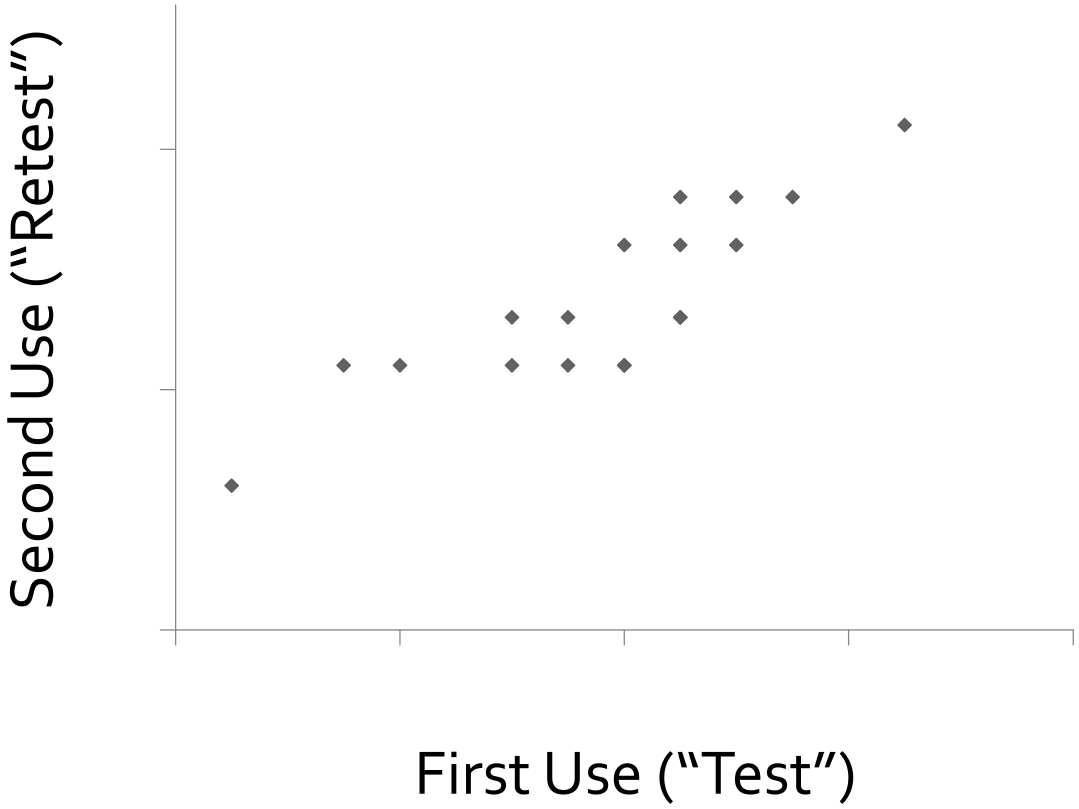
"Phases" of Psychological Research



Reliability vs "Unreliability"



Test/Retest Correlations



This is what you are hoping for:
a +.70 correlation (or better)

Exam Rules & Format

- bring #2 pencil(s) – pen, as well, if you wish
- bring proof of who you are – univ. ID preferred
- you may leave early if *and only if* you don't have to move past/over/around someone else

Exam Rules & Format

- definitions

  - don't have to be word-for-word identical to lecture or notes

- multiple choice

  - no penalty for guessing, so answer every one

- short answer

  - answer all of the question, but only the question

Last-minute Questions

- 10 pm on Wed evening:

  http://www.justin.tv/directory/science_tech

  look for “Uipsymeth” stream

  if it asks for password: “exam1”