

# TODAY'S AGENDA 9/28/98

- More on science, theory, and experimentation
- What we can learn from object perception

# SUMMARY SO FAR

- Theories make causal claims
- Experimentation, uniquely among research methods, establishes causation
- Therefore, experimentation is the preferred method of confirming theories.

# THE INTERNAL ANATOMY OF AN EXPERIMENT

- One or more **independent** variables
- One or a set of **dependent** variables
- Preferably, a measurement check to see if the independent variable manipulation had the desired effect. (A “check on the manipulation.”)

## THE KEY TO GOOD EXPERIMENTATION. THE AVOIDANCE OF ARTIFACT

### WHAT IS AN ARTIFACT?

The introduction of a variable into an experiment that can provide false confirmation of the hypothesis.

The artifactual variable is tied to the independent variable

Thus when we manipulate the independent variable, if the dependent variable changes in the predicted way, it can be because the change was caused by the independent variable, or disturbingly, caused by the tied change in the artifactual variable.

Since the experimenter was too stupid to avoid the introduction of the artifact, he will interpret his results as confirming the hypothesis and supporting the theory.

Thus the introduction of an artifact into the experiment results in false confirmation of the hypothesis.

# SOURCES OF ARTIFACT

- Experimenter expectancy effects
- Subject expectancy effects. The Placebo effect.
- Non-random assignment of subjects to conditions.

# THEORY-TESTING EXPERIMENTS

- The preferred method of testing hypotheses.
- Can go wrong in different ways.
- A bad way of going wrong involves the introduction of artifact. Why is this bad?
- We have standard procedures to avoid artifacts.
- But artifacts can creep back.