

What is science?

- The empirical data has to be: reproducible
- Theory has to be: falsifiable (sensitive to empirical data)

Hypothesis testing

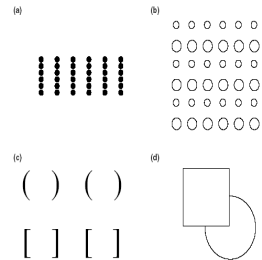
- A hypothesis is a specific question within a theory
- Scientists use experiments to test hypotheses.
- An experiment must have at least two variables:
 - The *independent variable* is manipulated by the researcher.
 - The *dependent variable* is measured by the researcher.

Wilhelm Wundt

- First experimental psychology laboratory in Leipzig, 1879
- Mental atoms combined by will
- Method: introspection

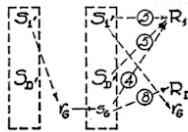
Gestalt psychology

- Wholes are more than the sums of their parts
- Vision: perceptual organization
- Cognition: insight



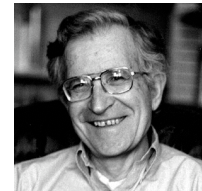
Behaviorism

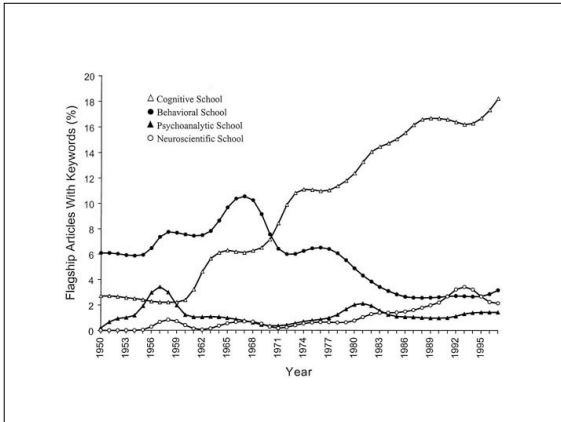
- Explanation without reference to an inner world, only stimulus and response relations
- Pavlov, Watson, Skinner
- Late phase: getting baroque
- Peak: Skinner: *Verbal behavior* (1957)



Noam Chomsky

- Formal linguistics: *Syntactic structures* (1957)
- Review of Skinner's book (1959)





The cognitive revolution in psychology

- 1956
 - Symposium at MIT and Dartmouth
 - G.A. Miller: *7+/-2*, Bruner: *A study of thinking*
- 1960
 - Harvard’s Center for Cognitive Studies
- 1967
 - Neisser: *Cognitive Psychology*

Simon and Newell

- Simon: Nobel Prize in economics in 1978
“Bounded rationalism”
- study problem-solving by simulating it with computer programs:
 - General Problem Solver (GPS): e.g. Tower of Hanoi

