Chapter 11 Confirmation, Falsification, Underdetermination

Epistemological problems of Hypothesis Testing

- the relationship between evidence/data/ expeeriments and hypothesis is complex
  - problems of scientific general hypothesis:
    - uncomplete confirmation for the limitation of experience
      - falsification
        - falsification is a character for science
        - strict falsifiablity is impossible
          - auxiliary hypotheses/assumptions
    - the evidence can support other hypothesis
      - the new riddle of induction and projectable predictes
        - how to distingush projectable predictes and unprojectable one?
    - irrelative facts can be regarded as postive evidence
      - logical relations is not the nature of science

It is hard to know the false is the evidence or the assumptions.

the paradox of confirmation

- irrelative facts are evidence for hypothesis, but unsophisticated attitude
- skepticism
- Bayesian approach
  - the new riddle of induction

Induction as a Pseudo-Problem: Poper's Gambit

- Poper: Hume's problem of induction is a pseudo-problem
  - challenge of problrm of induction
    - positive instances can not confirm the hypothesis
    - we have no idea of what is postive instance
  - Poper's resopnse: the science is not a process of confirmation, but falsifing a theory and replace it with a better one
    - conjection and refutation
      - problem for falsification remian. the auxiliary hypotheses
- comment: falsifiablity is a description of attitude to hypotheses
  - history has showed the problems of falsifiablity
  - Poper's ideas is not attractive for scientists and instrumentalists.
- corroboration
  - quantitative property of hypotheses.

Underdtermination

- problem of empirically equivalent but logically incompatible
  - begging question
  - retrospective problem
- other criteria besides observation
  - simplicity
  - economy
  - explanatory unification
  - precision in prediction
  - consistency with other theories
- theory choice: why should we choose a specific theory?
  - rationalist
    - begging question
  - empiricism
    - circular argument
  - a priori approach