

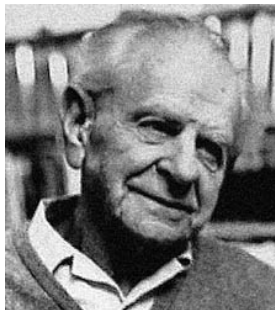
Popper's falsificationism

Christian Wüthrich

<http://philosophy.ucsd.edu/faculty/wuthrich/>

145 Philosophy of Science
Class 10, 1 May 2008

Sir Karl Popper (1902-1994)



- born in Vienna, educated at U of Vienna
- 1928 PhD, 1930-1936 secondary school teacher
- 1934 *Logik der Forschung* (translated 1959)
- 1937 emigration to NZ, lecturer at Canterbury U College of NZ
- 1946 emigrated to UK, position at LSE
- 1963 *Conjectures and Refutations*
- popular in science; “Popperazzi”

Popper's theory of science in a nutshell

- prob of induction → forget about induction altogether
- thy of *deductive method of testing* instead
- “deductivism” (as opposed to inductivism)
- explicitly acknowledges Duhem as forerunner of deductivism
- rejected log positivist demarcation criterion of verifiability (or confirmability)

- instead proposed as demarcation criterion “falsifiability”
- there’s no logic of scientific discovery, but of “scientific justification”
- scientific progress results from the continued cycles of conjectures and refutations
- can never be completely sure that a theory is true; nor can we reasonably increase our confidence in the truth of a theory when it is “corroborated”
- intended as descriptive *and* prescriptive

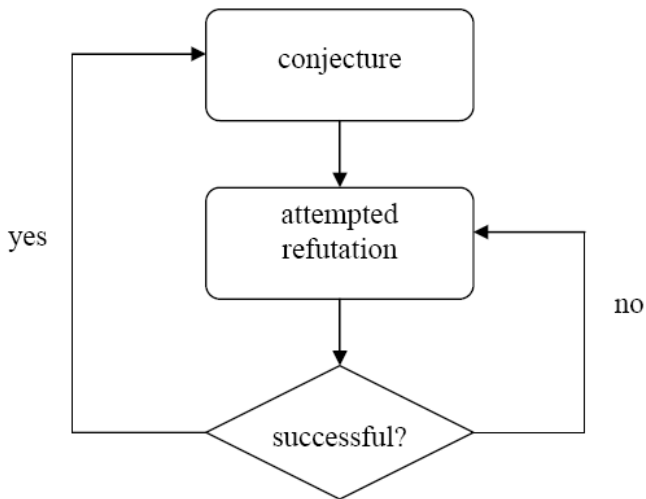
Falsification

Thesis (Falsification)

A hypothesis is scientific iff it has the potential to be refuted by some possible observation.

- Simplistic slogan: the easier a hypothesis can be refuted, the better, i.e. the more scientific it is!
- asymmetry between verification and falsification:
 - a observation contradicting prediction leads to definite falsification (and rejection) of thy under scrutiny
 - b no amount of corroboration ever verifies a thy; confirmation is a myth
- we should entertain a tentative attitude toward scientific thys
- science is search for truth, but we can never know whether we attained it!

Scientific change: conjectures and refutations



Problems with falsificationism

- holism about testing: no isolated hypothesis can be falsified individually
 - Popper was aware of fact that logic itself does not force a scientist to reject a particular hypothesis in the face of recalcitrant data
 - but good scientist would never do that
 - falsification process is based on a decision regarding the observation report that can be challenged
 - Popper insisted that making these decisions about observations is different from making decision about the thys themselves
 - any hypothesis can be retained despite apparent falsification if people are only willing to make certain decisions
- ⇒ scientific thys can be immunized against falsification

Question: can Popper really justify that science is rational and objectively progressive when it ultimately depends on purely conventional and arbitrary decisions?

More trouble...

- What if a hypothesis does not forbid any particular observation and is thus taking no risks?
- example: coin toss
- Popper: logically speaking, these hypotheses are unscientific, but “in practice” falsifiable
- \Rightarrow falsification can occur “in practice” without its being backed up by deductive relation bw observation and thy
- Even assuming falsificationism, how can we rationally distinguish bw a highly “corroborated” thy and a new thy?
- But if corroboration is different from confirmation in that it is only “backward-looking”, how can it be rationally justified?
- Salmon (1981): if there’s no confirmation, then no policy is more rational than choosing the untested thy (really, it’s a tie)

“[I]t’s a mistake to try to work out whether theories like Marxism or Freudianism are themselves ‘scientific’ or not, as Popper did. A big idea like Marxism or Freudianism will have scientific and unscientific *versions*... Scientific versions of Marxism and Freudianism are produced when the main principles are connected with other ideas in a way that exposes these principles to testing. To scientifically handle the basic principles of Marxism is to try to work out what *difference* it would make to things we can observe if the Marxist principles were true.”

Peter Godfrey-Smith, p. 71 (emphases in original)