

Imre Lakatos (1970): "History of Science and its Rational Reconstruction."

## Introduction

*"Philosophy of science without history of science is empty; history of science without philosophy of science is blind"*

Lakatos aims to "explain *how* the historiography of science should learn from the philosophy of science and *vice versa*."

Vital demarcation: *normative-internal* vs. *empirical-external*

## 1. Rival Methodologies

Loose sets of rules for appraisal of scientific theories

### A. Inductivism

- BACKBONE
  - Hard facts and infallible inductive generalizations
  - External factors may determine problem-choice.
- CODE OF HONOUR
  - Proven facts/generalizations must determine theory.
- REVOLUTIONS
  - Consist in unmasking irrational errors (pseudoscience)

### B. Conventionalism

- BACKBONE
  - Internally coherent "pigeonhole" systems
  - External factors influence initial choice of pigeonholes when relative merits (simplicity) are unclear
- CODE OF HONOUR
  - Free will and creativity: pigeonhole systems may be built around "*any* fancy idea"
- REVOLUTIONS
  - Happen when a pigeonhole becomes too clumsy and a simpler one is offered to replace it
    - e.g. Copernican revolution

### C. Falsificationism

- BACKBONE
  - Bold, falsifiable theories and negative crucial experiments
  - External factors influence invention of theories
- CODE OF HONOUR

- A theory is scientific only if it *could* conflict with a fact
- A theory must predict facts which are *novel*
- REVOLUTIONS
  - Result from crucial experiments

#### D. MSRP

- BACKBONE
  - Research programmes evaluated in terms of progressive and degenerating problemshifts
  - *Hard core*
  - *Positive heuristic*
- CODE OF HONOUR
  - License to accept facts, theories by convention
  - Anomalies are to be recorded but need not be acted on
  - Modesty
  - The relative standing of RPs must be public
- REVOLUTIONS
  - When one research programme supercedes another
  - “War of attrition”
- (EXPLANATORY ADVANTAGES):
  - More realistic account of “crucial experiments”
  - Fewer problems of “false consciousness”
  - Simultaneous discoveries, priority disputes are part of *internal* history

#### E. Internal and External History

Normative reconstructions have to be supplemented to explain residual non-rational factors.

- What counts as internal vs. external depends on methodology

#### 2. Critical Comparison of Methodologies

Using the methodologies to appraise the methodologies: *Lakatos goes meta*

##### A. Falsificationism as Meta-Criterion

Falsificationist meta-criterion: *If a demarcation criterion is inconsistent with the ‘basic’ appraisals of the scientific elite, it should be rejected.*

- “Some of the research programmes now held in highest esteem by the scientific community progressed in an ocean of anomalies.”
  - Hence, falsificationism is a poor guide to the historian of science
- Inductivism and conventionalism fare no better

- *MSRP is likewise “falsified” by the history of science*

## B. The Methodology of *Historiographical* Research Programmes

MHRP: A progressing methodology predicts (post-dicts) facts about the history of science—i.e. increasingly views historical facts as rational.

- Falsificationism represents progress over inductivism
  - Rehabilitated the scientific status of falsified theories
- MSRP is progress over falsificationism
  - Numerous examples of scientists persisting in the face of anomalies
- Sweeping externalist explanations are a hallmark of weak historiographical methodology
  - Inductivist history invited sweeping “vulgar-Marxist” explanations
  - Falsificationist history invited “trendy ‘sociologists of knowledge’”
- MSRP can explain more than Kuhnian “historiographical positivism”

## C. Against Aprioristic and Antitheoretical Approaches

Lakatos’s position is a middle ground between, or pluralism about, purely *a priori* “statute law” and pure “case law” (total deference to historical particulars).

### Questions

1. Does Lakatos fulfil his promise to explain how history of science can learn from philosophy of science and *vice versa*?
2. If our answer to 1 is at all positive, are we then satisfied about what integrated HPS is? Is the rest of this seminar just footnotes to Lakatos?
3. What do we think of Lakatos’s comments on Kuhnian approaches (p. 120)? Why is “historiographical positivism” not among the methodologies in part 1?

### Gems

- ❖ Role of internal/external distinction
- ❖ Meta turn
- ❖ Too elaborate/ornate(?)