

Lakatos, Feyerabend

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145 Philosophy of Science

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- main idea: “research programmes” rather than paradigms
 - more than one research programme per field at any given time
 - large-scale dynamics governed by competition between research programmes
 - tries to reconcile Kuhn’s forceful historical arguments with Popper’s attempts to rationally account for all scientific reasoning
- ⇒ rational reconstructions of historical episodes; almost beyond recognition...

Methodology of scientific research programmes

- research programmes (RP) have two elements: *hard core* (set of basic ideas and methods such as Newton's laws) and a *protective belt* (less fundamental ideas, links to applications such as views about matter, structure of the universe, mathematical tools)
- competition bw RPs is what ensures the rationality of and progress in science
- RPs are justifiably alive beyond the first signs of falsification and anomaly
- two types of change: (1) within individual RP; (2) at level of collection of RPs

Scientific change

- 1 change within RPs:
 - Rule 1: changes should only be made to protective belt, not to hard core
 - Rule 2: changes to protective belt should be progressive (i.e. expansion of application to ever larger set of cases, more precise treatment, more predictive power)
 - if changes are no longer progressive, and more and more anomalies occur, RP becomes “degenerate”
- 2 large-scale change:
 - acceptable to protect degenerating RP for a while, to give it a chance of recovering
 - Lakatos couldn't give rules for when it becomes irrational to defend degenerating RP
 - Feyerabend: that's why Lakatos's account of rational theory choice is ultimately empty

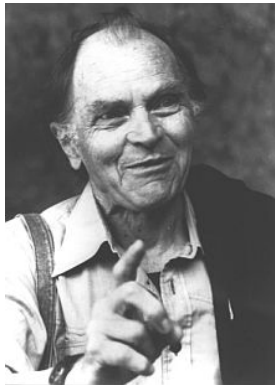
Godfrey-Smith: some sciences might be best described by mixture of Kuhnian paradigms and Lakatos' competing RPs

Example: evolutionary biology

- single over-arching paradigm of “synthetic theory” (= combination of Darwinism and genetics)
- several competing RPs of how to articulate paradigm, i.e. how to understand change and variation
- e.g. levels debate: natural selection operative at level of genes, genetic variations within populations, group selection etc; exact contribution of each level

- “research traditions” (RTs, rather than RPs): thys within RTs more loosely related, variation also in hard core
- distinction bw **acceptance** (like belief) and **pursuit** of thy
- pursuit: decision to work with idea, explore, refine, articulate it
- it can be rational to pursue an idea without accepting it
- rational to pursue RT with highest **rate of progress**
- rational to accept RT with highest **level of problem-solving power**
- Difficulties:
 - would come out as irrational to pursue RT with currently low rate of progress, but with high hopes of future high rate
 - what is best distribution of workers across range of RTs?

Paul Feyerabend (1924-1994)



- born and educated in Vienna
- teaching positions at Berkeley, London, Zürich
- *Against Method* (1975)
- often incorrectly called “worst enemy of science”
- “the wild man” of C20 phil of sci
- **epistemological anarchism**:
opposition to all systems of rules and constraints of rationality in sci
- incommensurability,
theory-ladenness of observation
(cf. Ch. 10)
- sci as highly creative enterprise

The Master Argument in *Against Method*

- problem for heliocentrism: highly counterintuitive (contrasensual) “implications” for terrestrial physics
- tower thought experiment
- Galileo: shipmast thought experiment \Rightarrow composite motion, notion of “circular inertia”
- \Rightarrow Galileo created new observational description of the world with apparent motions compatible with heliocentrism
- \Rightarrow example of how science often challenges rather than follows observations
- very basic empiricist principle seems to point away from sci thy we now consider more meritorious
- Feyerabend’s radical extrapolation of this historic episode: “it is advisable to let one’s inclination go against reason in **any circumstances**, for science may profit from it” (*Against Method*, p. 156)

Feyerabendian general principles (!?)

- **Principle of tenacity**: hold onto attractive ideas despite initial difficulties and anomalies
- **Principle of proliferation**: propose new ideas and thys
- Motivation: sci benefits from diversity of ideas and approaches
- problem: no mechanism for eliminating and rejecting ideas and thys
- Feyerabend stresses analogy of sci to art, thereby compromising the practical aspects of sci

Recurring theme in C20 philosophy of science

One-level thy of sci change

- Popper, Quine, (Feyerabend)
- unified account
- no way to give non-question-begging distinction bw two kinds of change (“guided by facts” v. “merely pragmatic”)

Two-level thy of sci change

- Carnap, Kuhn, Lakatos, Laudan
- one-levellers ask for overly stringent conception of distinction
- historical examples suggest utility of two-level account