

History of Psychology

Session 1: What kind of science is psychology?

Rui Mata, Center for Cognitive and Decision Sciences
September 22, 2025

Welcome!



Prof. Dr. Rui Mata

Center for Cognitive
and Decision
Sciences (CDS)



Dr. Loreen Tisdall

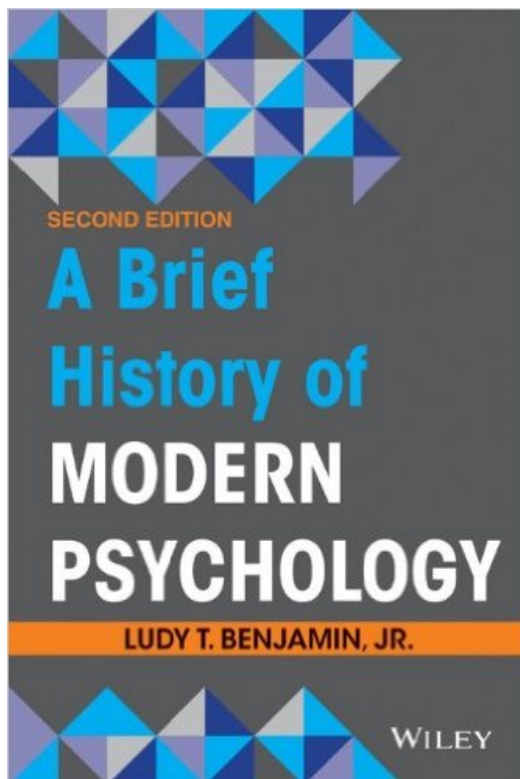
Center for Cognitive
and Decision
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Learning Objectives for Today

- Distinguish different forms of psychology
- Create your timeline of psychology
- Learn about different positions in epistemology (e.g., falsificationism, paradigm shifts, research programs, epistemological anarchism)
- Discuss “What kind of science is psychology?” and form hypotheses...

Different Forms of Psychology

Academic (scientific), Professional, and Popular Psychologies



“Today psychology exists in three forms. There is an **academic psychology** located in secondary schools, colleges, and universities, and research institutes. (...) there is also a **profession of psychology** that applies the knowledge of scientific psychology to real-world problems. (...) The third kind of psychology is the oldest. It might be called public psychology or **popular psychology**. It comprises public interest in and beliefs about behavior and mental states.”

(Benjamin, 2014, pp. x-xi, emphasis added)

Benjamin, L. T. (2014). A brief history of modern psychology. Wiley: Honoke, NJ, USA.

TIMELINE OF PSYCHOLOGY

Create a timeline of events and/or individuals that you think have significantly shaped psychology



DISCUSS YOUR TIMELINEs OF PSYCHOLOGY

Compare and contrast...



KEEP YOUR TIMELINEs OF PSYCHOLOGY



Who is the history of psychology?

The 25 Psychologists Most Frequently Cited in the Professional Psychological Journal Literature

Rank	Name	Citation frequency
1	Freud, Sigmund	13,890
2	Piaget, Jean	8,821
3	Eysenck, H. J.	6,212
4	Winer, B. J.	6,206
5	Bandura, Albert	5,831
6	Siegel, S.	4,861
7	Cattell, Raymond B.	4,828
8	Skinner, B. F.	4,339
9	Osgood, Charles E.	4,061
10	Guilford, J. P.	4,006
11	Campbell, Donald T.	3,969
12	Festinger, Leon	3,536
13	Miller, George A.	3,394
14	Bruner, Jerome S.	3,279
15	Cronbach, Lee J.	3,253
16	Erikson, Erik H.	3,060
17	Edwards, A. L.	3,007
18	Rotter, Julian B.	3,001
19	Byrne, Donn	2,904
20	Kagan, Jerome	2,901
21	Wolpe, Joseph	2,879
22	Rosenthal, Robert	2,739
23	Underwood, Benton J.	2,686
24	Paivio, Allan	2,678
25	Rokeach, Milton	2,676

The 25 Psychologists Most Frequently Cited in Introductory Psychology Textbooks

Rank	Name	Citation frequency
1	Freud, Sigmund	560
2	Skinner, B. F.	310
3	Bandura, Albert	303
4	Piaget, Jean	240
5	Rogers, Carl	202
6	Schachter, Stanley	200
7	Harlow, Harry F.	175
8	Brown, Roger	162
9	Miller, Neal E.	154
10	McClelland, D. C.	153
11	Erikson, Erik H.	151
12	Milgram, Stanley	146
13	Seligman, Martin E. P.	143
14	Maslow, Abraham	142
15	Bower, Gordon H.	138
16	Kohlberg, Lawrence	128
17	Watson, John B.	127
18	Allport, Gordon W.	124
19	Festinger, Leon	121
20	Loftus, Elizabeth F.	120
21	Zajonc, R. B.	118
22	Pavlov, Ivan P.	117
23	Kagan, Jerome	116
24.5	Sternberg, Robert J.	114
24.5	Mischel, Walter	114

The 26 Psychologists Most Frequently Named in the Survey

Rank	Name	Frequency
1	Skinner, B. F.	58
2	Piaget, Jean	33
3	Freud, Sigmund	28
4	Watson, John B.	24
5	Bandura, Albert	23
6.5	James, William	21
6.5	Pavlov, Ivan P.	21
8	Lewin, Kurt	17
9.5	Rogers, Carl	14
9.5	Thorndike, Edward	14
11.5	Festinger, Leon	13
11.5	Hebb, D. O.	13
14.5	Allport, Gordon	11
14.5	Hull, Clark	11
14.5	Miller, Neal E.	11
14.5	Tolman, Edward C.	11
17	Erikson, Erik H.	10
19	Köhler, Wolfgang	9
19	Maslow, Abraham	9
19	Vygotsky, Lev Semenovich	9
21	Ainsworth, Mary D.	8
24	Eysenck, H. J.	7
24	Luria, Alexander R.	7
24	Schachter, Stanley	7
24	Simon, Herbert	7
24	Sperry, Roger W.	7

Haggbloom, S. J., Warnick, R., Warnick, J. E., Jones, V. K., Yarbrough, G. L., Russell, T. M., ... & Monte, E. (2002). The 100 most eminent psychologists of the 20th century. *Review of General Psychology*, 6(2), 139-152.
<https://journals.sagepub.com/doi/pdf/10.1037/1089-2680.6.2.139>

WHAT IS EPISTEMOLOGY?

and why does it matter for psychology



Epistemology and History of Science

branch of philosophy concerned
with a theory of knowledge



The logic of scientific discovery (1934/1959)

Karl Popper

The structure of scientific revolutions (1962)

Thomas Kuhn

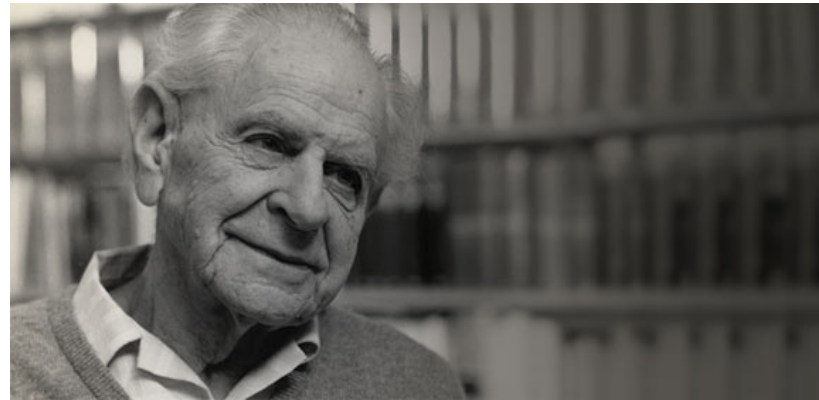
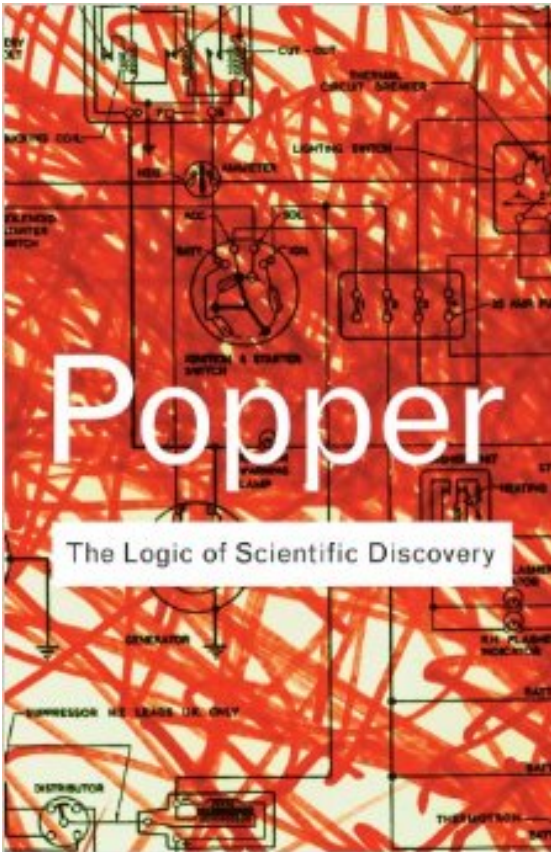
Criticism and the growth of knowledge (1970)

Imre Lakatos

Against method (1975)

Paul Feyerabend

Epistemology and History of Science



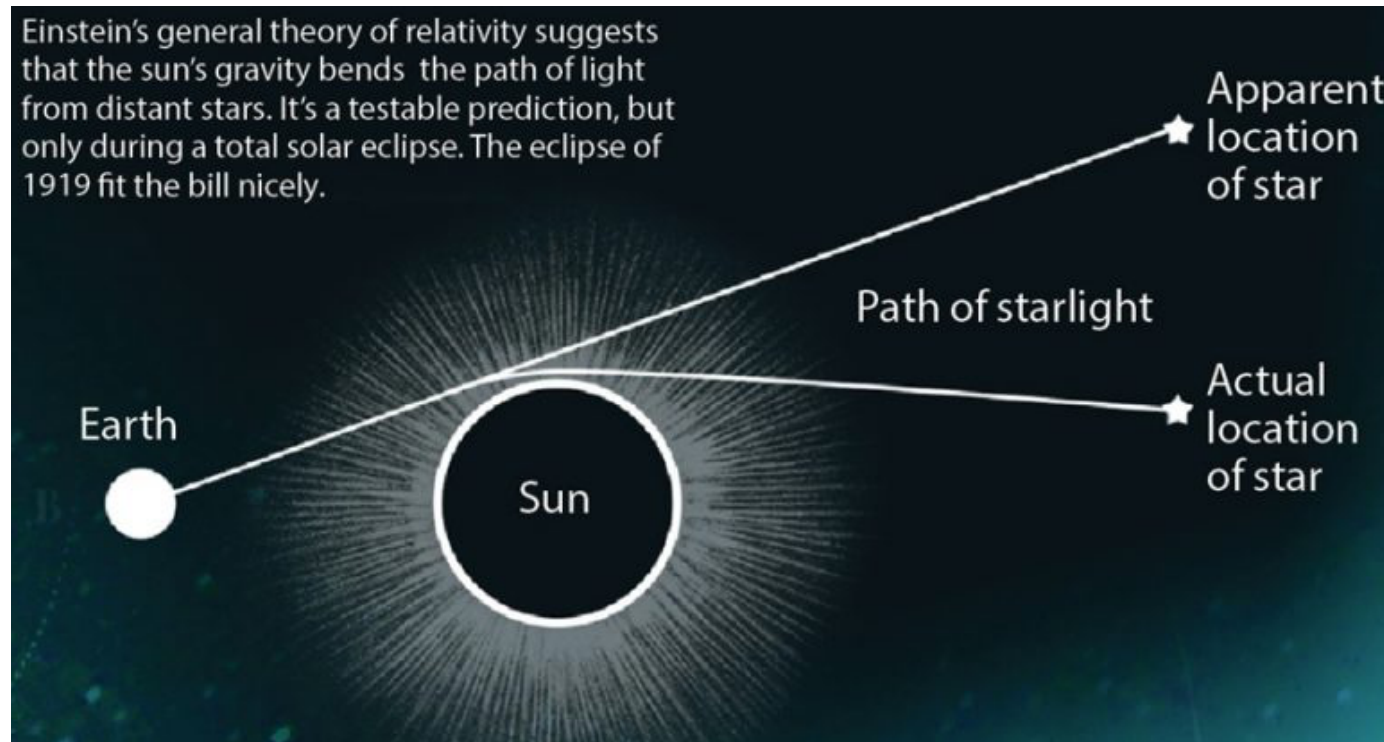
Karl Popper
1902-1994

Austrian-born philosopher of science (psychologist!), lecturer in philosophy U New Zealand (1937), reader logic London School of Economics (1946), prof. of logic and scientific method U London (1949). Popper wrote *The Logic of Scientific Discovery* (1959 based on *Die Logik der Forschung* that he had published in 1934) in which he discussed the **problem of demarcation** of science (i.e. what distinguishes science from non-science). Popper rejected the classical inductivist views on the scientific method and advocated **empirical falsification** as the hallmark of the empirical sciences. Further, Popper emphasised that a theory in the empirical sciences can never be proven, only falsified, meaning that it can and should be scrutinised by decisive experiments. Popper's views can be described as prescriptive.



<https://www.youtube.com/watch?v=sLDpj8dx0UU>

General Relativity and the Dyson-Eddington-Davidson test



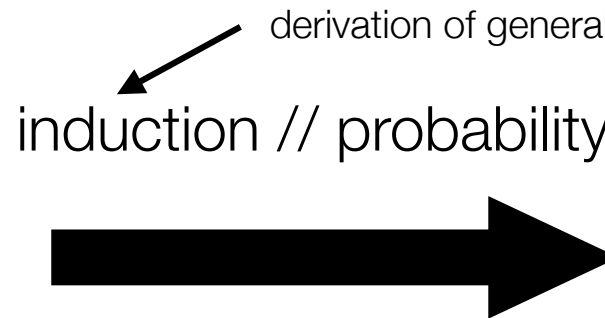
<https://earthsky.org/human-world/may-29-1919-solar-eclipse-einstein-relativity>

“(...) the experiment sought to test between three different theoretical predictions. The first was the presumption, inherent in the nineteenth-century wave theory of light, that light has no mass and is unaffected by gravity. As such, the presence of the Sun would cause no deflection of stars in its field. The second possibility was put forward by Einstein as a consequence of his principle of equivalence. In this viewpoint, light has energy, which means it has mass. Thus it falls towards the Sun as it passes by, causing a small deflection (0.87 arcsecond at the limb of the Sun) in star positions away from the Sun, as seen from Earth. Finally, after developing GR, with its prediction that gravity alters the geometry of spacetime, Einstein realized there would be an additional deflection, due to curvature near the Sun. This resulted in his final light deflection prediction (1.75 arcsecond at the limb of the Sun), twice as great as his original one. In their presentations, Eddington and Dyson chose to assign credit for the middle (‘half-deflection’) prediction, to Newton, on the grounds that it was consistent with massive photons interacting with the Sun according to his famous law of gravity”.

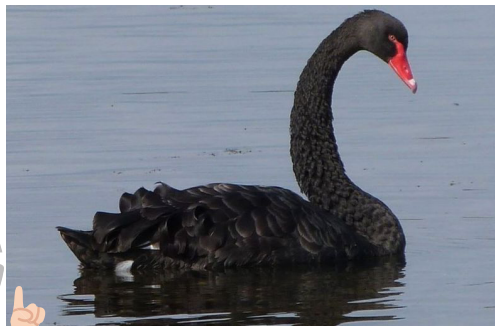
The Problem of Induction



Finding a white swan...



supports the hypothesis that “all swans are white”
inductively sound but deductively invalid

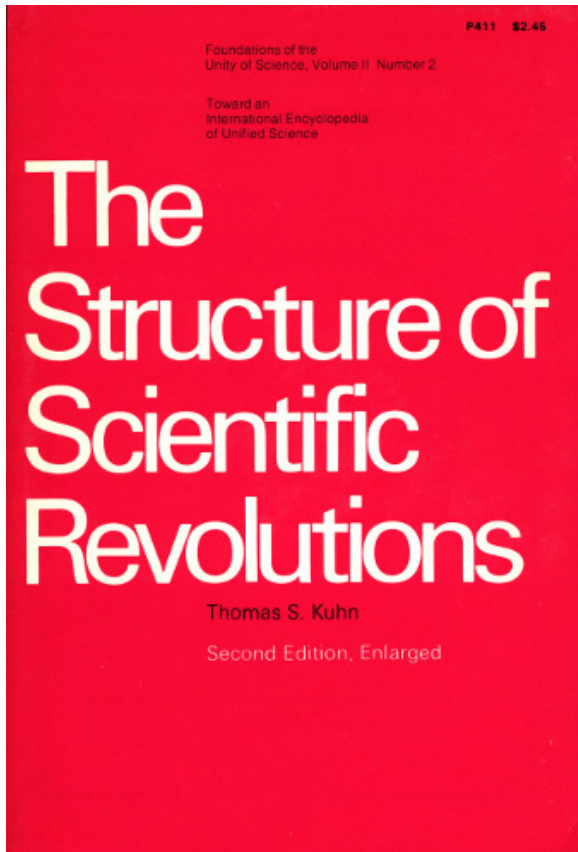


Finding a black swan...



rejects the hypothesis that “all swans are white”
deductively valid

Epistemology and History of Science



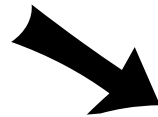
Thomas Kuhn
1922-1996

American philosopher of science (physicist, historian), prof. of history of science philosophy dept. at UC Berkeley. His major work is *The Structure of Scientific Revolutions* (1962) which exposed his view that scientific fields undergo periods of “normal science” characterised by a consensual “paradigm” shared by a scientific community, occasionally disrupted/renewed by a “paradigm shift”, typically in the face of accumulated “anomalies” that cannot be explained in the context of the previous paradigm. Kuhn held that competing paradigms are often incommensurable, that is, they are competing and irreconcilable accounts of reality. Kuhn’s views are largely anchored in a historic and sociological analysis of science (e.g., development of chemistry) rather than a prescriptive view.

Scientific Revolutions // Paradigm shifts

Pre-science

No existing paradigm



Normal Science

Puzzle solving stage

Scientists share a common paradigm

- articulate theory
- make predictions
- measurement

all the theories, concepts, and methods that a discipline takes for granted to make sense of some phenomena

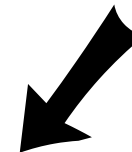


Anomalies arise

Blame apparatus

Auxiliary assumptions

Set aside problem

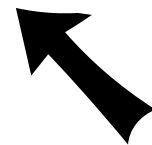


Crisis

Anomaly too problematic

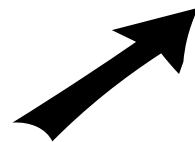
Faith in paradigm shaken

Alternative concepts compete

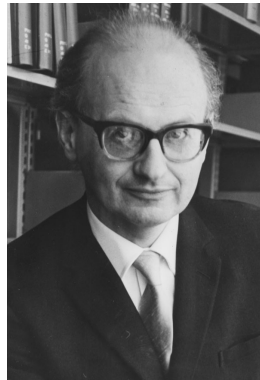
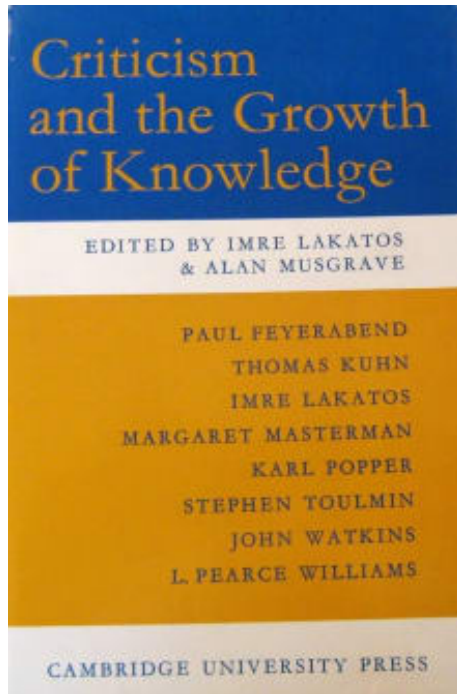


Scientific revolution

A paradigm shift takes place -
new paradigm prevails that
best accommodates the facts
to be judged relevant



Epistemology and History of Science



Imre Lakatos
1922-1974

Hungarian-born philosopher of science; initially studied mathematics and philosophy, influenced by Marxist and Hegelian ideas before turning to philosophy of science. A student of Karl Popper at the London School of Economics, Lakatos sought to reconcile Popper's falsificationism with Thomas Kuhn's paradigms. As a professor at the London School of Economics, he developed the *methodology of scientific research programs*, outlined in works like *Criticism and the Growth of Knowledge* (1970). Lakatos emphasized that science advances through competing research programs, judged on their ability to generate novel predictions (progressiveness) rather than strict falsification. His work bridges rationalism and historicism, offering a middle ground between Popper and Kuhn.

<https://plato.stanford.edu/entries/lakatos/>

Epistemology and History of Science

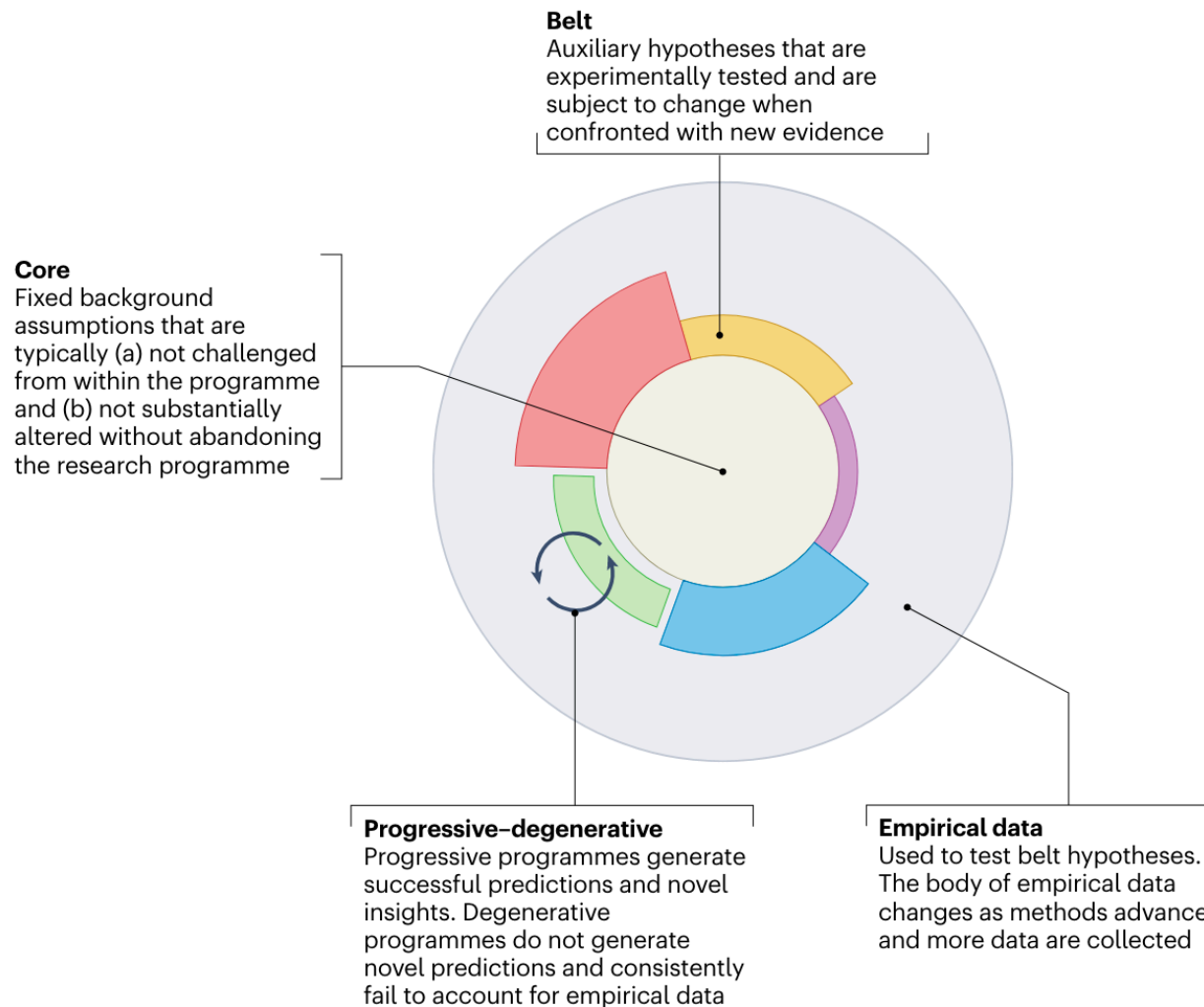
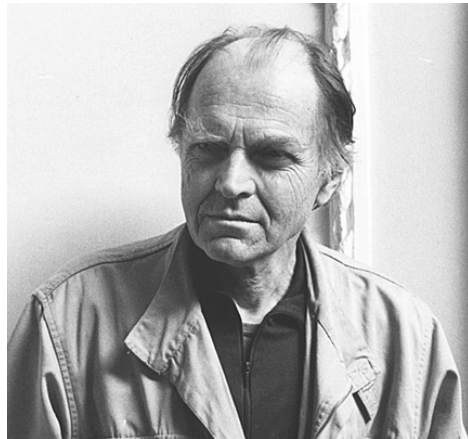
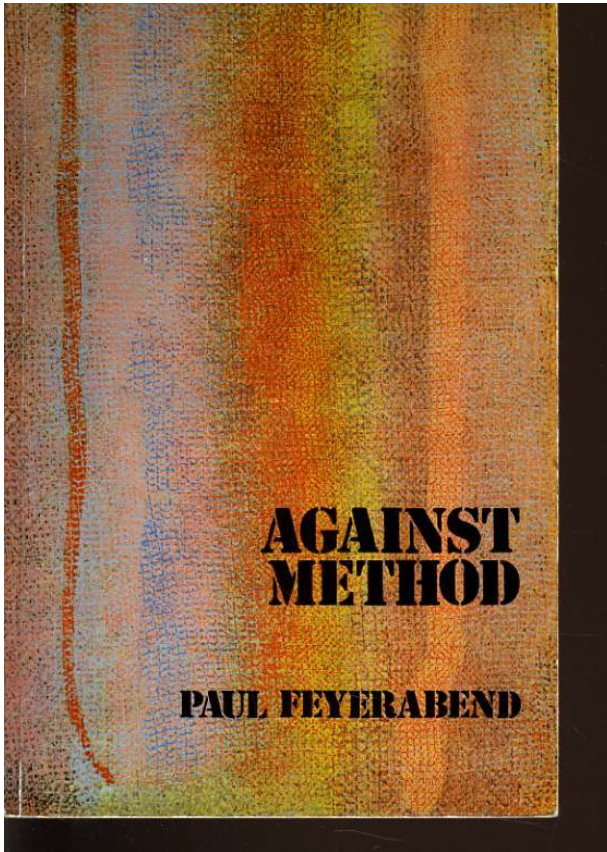


Fig. 2 | Lakatosian research programmes.

A conceptualization whereby research programmes are composed of a core of fixed background assumptions and a variable belt of auxiliary hypotheses. Empirical data are used to test and falsify belt hypotheses without changing the core. In the Lakatosian view, the entire research programme is not immediately falsified by conflicting empirical data. Instead, it is judged on its ability to successfully adapt its belt hypotheses to satisfy empirical constraints, which is indicated longitudinally by whether the research programme generates new insights and corroborates belt hypotheses (progressive) or not (degenerative).

Epistemology and History of Science

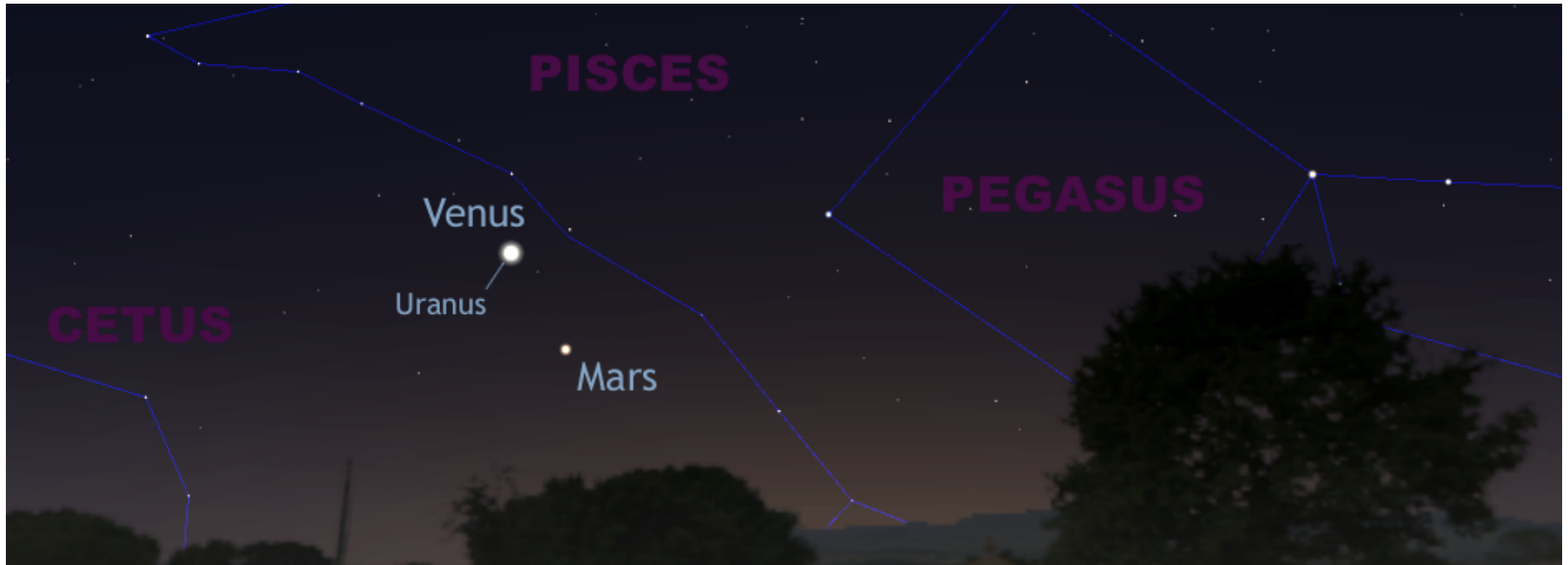


Paul Feyerabend
1924-1994

Austrian-born philosopher of science; studied with Popper (Feyerabend was first a supporter, later a critic of Popper), he was professor of philosophy at UC Berkeley (overlapped and interacted with Kuhn) and LSE (overlap with Lakatos) among other appointments. One of his major works is *Against Method* (1975) which exposes his anarchistic view of science (epistemological anarchism) and his rejection of the existence of universal methodological rules. He applied both humanitarian and historic arguments to argue for diversity in scientific process and discovery.

<http://plato.stanford.edu/entries/feyerabend/>

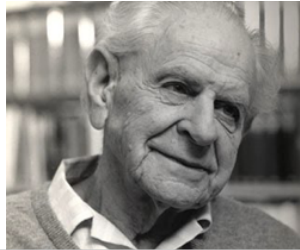
Galileo and the Copernican Revolution



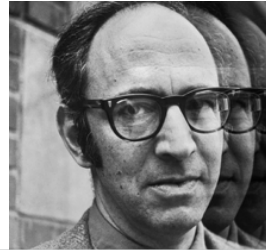
“A key part of Feyerabend's case involves the apparent sizes of the planets Venus and Mars as viewed from Earth. (...) the variations in their sizes as gauged through a telescope are in conformity with the Copernican theory whereas the corresponding variations as gauged with the naked eye clash with that theory. Galileo introduced the phenomenon of irradiation [bright objects appear larger] to argue for the preferability of the telescopic to the naked eye data. According to Feyerabend, this hypothesis of Galileo received support mainly from its agreement with the Copernican point of view and was therefore largely ad hoc.”

Chalmers, A. (1985). Galileo's telescopic observations of Venus and Mars. *The British Journal for the Philosophy of Science*, 36(2), 175–184. <http://doi.org/10.2307/687033>

Archetypes of epistemologists...



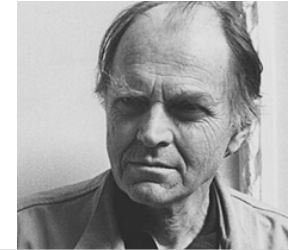
Popper



Kuhn



Lakatos



Feyerabend

Nickname

“the logician”

“the sociologist”

“the mediator”

“the anarchist”

Thesis

scientists attempt to falsify their theories, without resorting to ad hoc explanations

old scientists do “normal science” and brush aside “anomalies”, young scientists fight for “paradigm shifts”

competing research programs are judged on their ability to generate novel predictions and solve anomalies (progressiveness vs. degeneration).

anything goes - rejects the idea of universal methodological rules in science, advocating for pluralism and creativity in scientific discovery.

Examples

Positive: Einstein’s General Relativity
Negative: Freud’s Psychoanalytic Theory

The discovery of oxygen and the chemical revolution (by Lavoisier and others)

Positive: Quantum mechanics replacing classical physics.
Negative: The Ptolemaic system in its degenerative phase.

Galileo’s defense of heliocentrism using rhetorical and non-empirical methods.

WHAT KIND OF SCIENCE IS PSYCHOLOGY?

**Which perspective do you think may
best describe psychology?**



Summary

- **Different forms of psychology:** academic, professional, popular; this course will be mostly dedicated to the first (academic/scientific)
- **Timeline of psychology:** keep in mind and update over time...
- **Epistemology:** There are multiple ways to think about how science operates; **Popper** argued that science advances through falsification; **Kuhn** proposed the idea of paradigm shifts, distinguished phases of inquiry: normal science within paradigms, and crises that trigger paradigm shifts, often led by younger scientists; **Lakatos** proposed that competing research programmes are evaluated by whether they are progressive (make novel predictions) or degenerative (rely on ad hoc patches); **Feyerabend** emphasized methodological pluralism, rejecting universal rules and arguing that “anything goes” can foster creativity; together, these perspectives offer complementary lenses on scientific change and the scientific process that may be helpful to contrast when learning about the history of psychology.

Session information

Sessions take place Mondays, 8.15–9.45, Chemie, Organische, Grosser Hörsaal OC.

#	Date	Topic	Instructor	Resources
1	22.09.2025	What kind of science is psychology?	Mata	Spektrum Podcast
2	29.09.2025	The birth of psychology	Mata	Brysbaert & Rastle (2021; 4.1–4.2)
3	13.10.2025	Psychoanalysis	Mata	Brysbaert & Rastle (2021; 4.3–4.4)
4	20.10.2025	Behaviorism	Mata	Brysbaert & Rastle (2021; 5.2)
5	27.10.2025	Gestalt psychology	Mata	Brysbaert & Rastle (2021; 4.2)
6	03.11.2025	Cognitive psychology	Mata	Brysbaert & Rastle (2021; 5.3)
7	10.11.2025	Psychology today	Tisdall	Spear (2007)
8	17.11.2025	Psychotherapy research	Tisdall	Braakmann (2015)
9	24.11.2025	Psychological testing	Tisdall	Wasserman (2012)
10	01.12.2025	Decision science	Tisdall	Newell et al. (2022)
11	08.12.2025	What kind of science is psychology? (revisited)	Tisdall	Ball (2012)
12	15.12.2025	Exam (see below)		

https://matarui.github.io/HISTPSY_HS25/