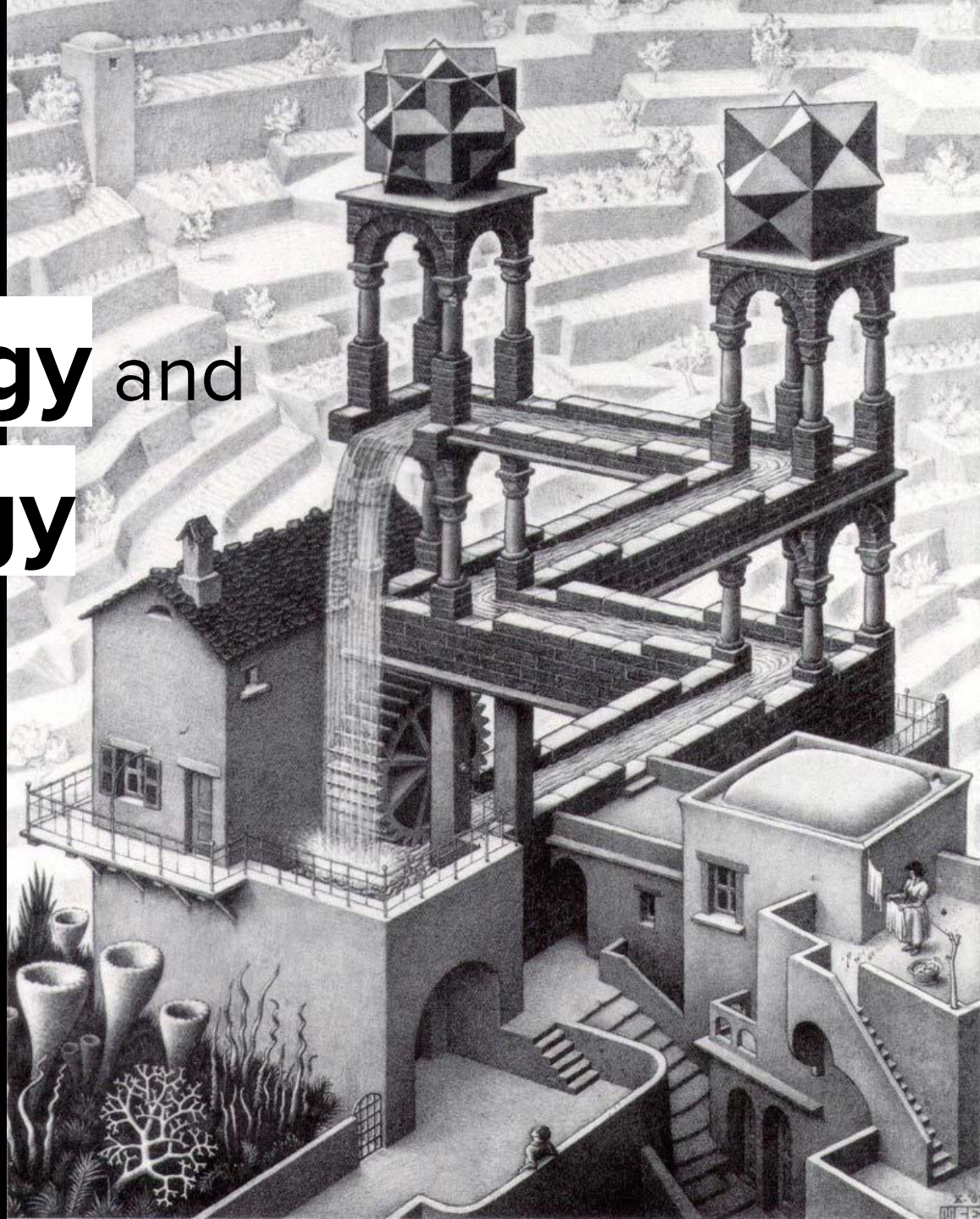
Tutorials in **Epistemology** and **Methodology** of the **Social Sciences**

François Briatte

Fall 2017



This course is about

The first principle is that you must not fool yourself—and **you are the easiest person to fool**.

Richard P. Feynman

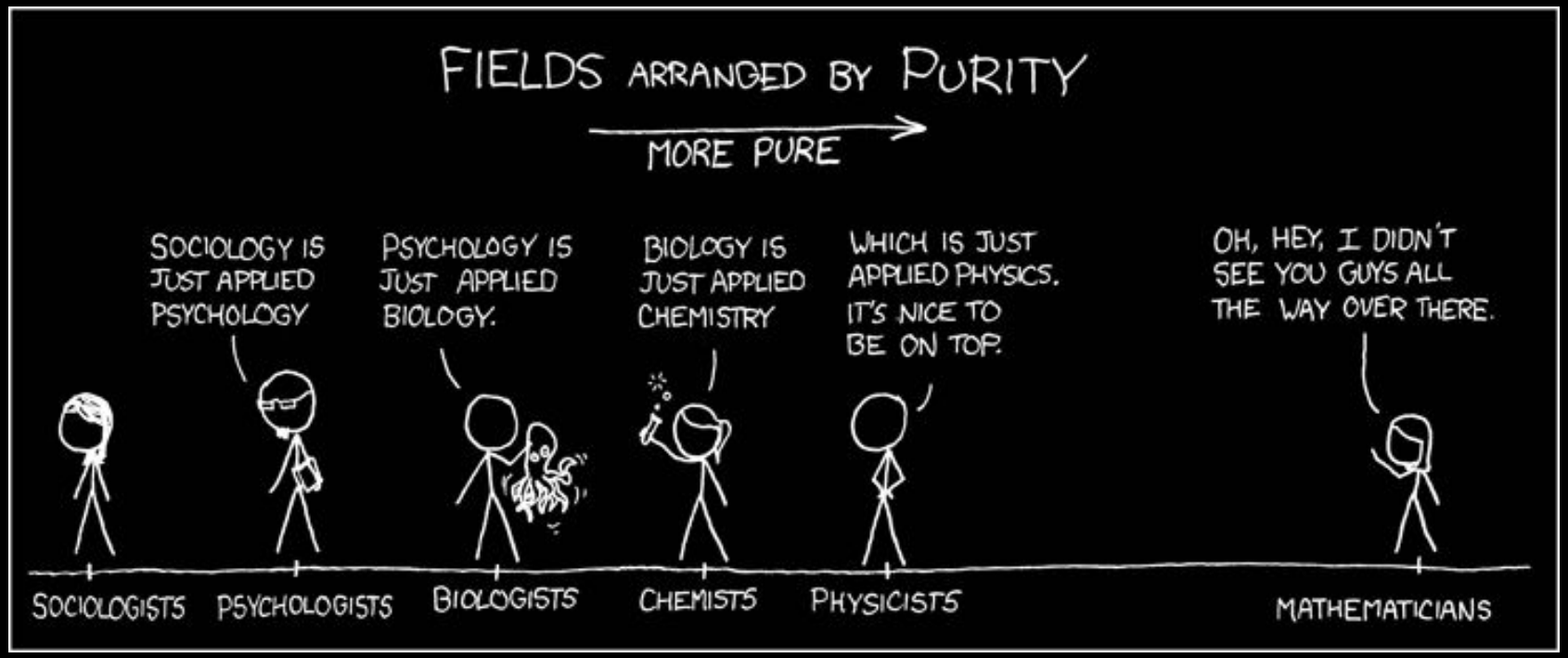
This course is about social science

Video extract

Mark Abrahams Keynote,
BAHFest East 2017

Analyzing human behaviour isn't rocket science. It's **harder than rocket science**.

Edward R. Tufte



What about political science?

Political science is the study of politics through **the procedures of science**.

Robert O. Keohane

Course ingredients

Philosophy

Social Science

Methods

and coffee

optional

A mathematician is a machine
for **turning coffee into theorems**.

Paul Erdős

Welcome to the course

Tutorial organization

- **Syllabus**
  Check lectures and tutorials numbering.
- **Instructors**
  François (Tutorials 1, 2, 5, 6), Gayatri (Tutorials 3, 4, 7, 8).
- **Language**
  Lecture and tutorials are taught 100% in English.

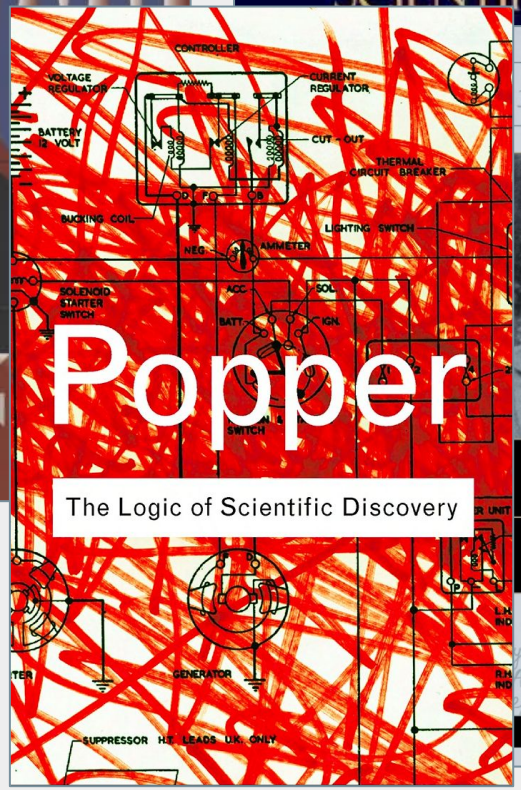
Additional material available online at
`frama.link/emss-2017`

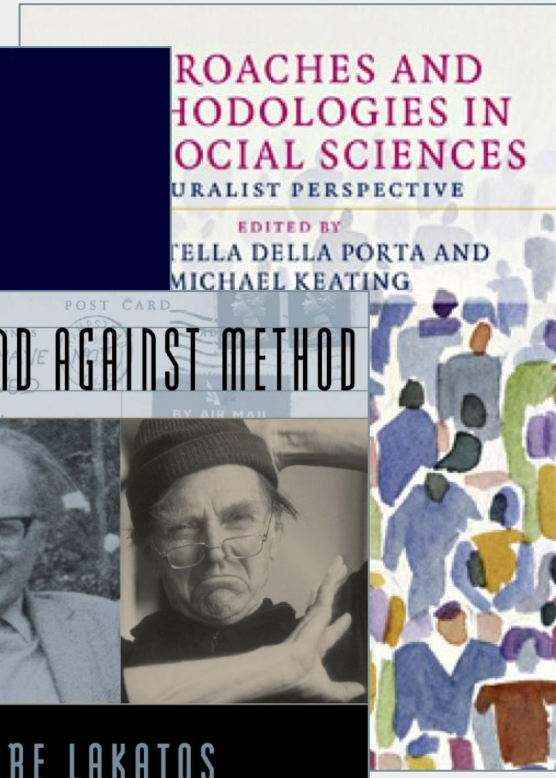
Tutorial rules

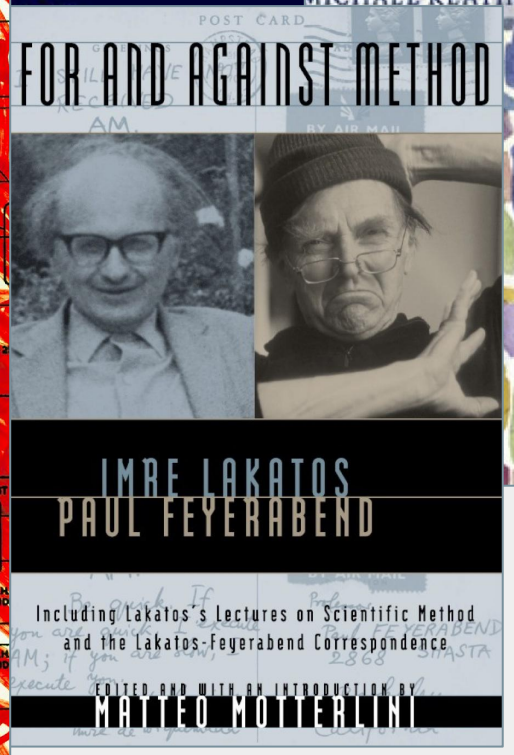
- **Readings**
  Do them. Take notes. Come to class.
- **Laptops**
  Not allowed on Tutorials 1 and 2.
- **Quizzes**
  One per tutorial. Notes allowed, readings not.

Gayatri's tutorials: her classes, her rules.
N.B. Neither of us handle absences.

Compulsory readings







After the break

- **Short quiz**
  Please clean up your desk and leave the room.
- **Readings 1–3**
  Notes on the readings, with quiz answers.
- **Reading 4**
  We will look at Popper next week, when .

During the second hour, please feel free to ask any question on the readings in class, in English.


QUESTIONS


10 minute break


short quiz
10’ max
no questions
no chatting

Reading 1

Keohane

Political Science as a Vocation

Robert O. Keohane, *Woodrow Wilson School of Public and International Affairs, Princeton University*

This lecture was presented at the University of Sheffield on October 22, 2008, inaugurating the Graduate School of Politics; and at Oxford University on October 16, 2008. I have retained the lecture style for this publication, only making minor changes and additions in the text.

About 90 years ago, at the end of World War I, Max Weber gave two now-famous lectures, published in English as "Science as a Vocation" and "Politics as a Vocation." They well repay reading and re-reading. Thinking of those lectures, it seemed appropriate, on this occasion, to reflect on "Political Science as a Vocation." As the title of my lecture indicates, I am directing my comments principally to the graduate students in attendance here, who are beginning careers in our field. After the lecture, I want to hear about your reasons for becoming political scientists, and your aspirations. In the lecture, I will reflect on our vocation from the vantage point of someone who has been a practicing political scientist—teaching, reflecting, and writing about politics—for 43 years.

I begin by pointing out that, viewed historically, you are in distinguished company. Aristotle was probably the first systematic Western political scientist, theorizing the relationship of politics to other spheres of life and creating a typology of regimes—what we would now call comparative politics. Machiavelli not only advised the prince but sought to analyze the nature of leadership, the characteristic hypocrisy of political speech, and the sources of republican greatness. Hobbes provided what is still one of the most compelling discussions of the causes of political violence and the sources of, and justification for, the state. Montesquieu and Madison developed a durable theory of constitutionalism, and Toqueville put forward insights into the nature of democracy that remain vibrant today—for example, in the work of Robert Putnam. I have already mentioned Max Weber. In the generation of political scientists born in the first three decades of this century I would list, somewhat arbitrarily, Gabriel Almond, Robert Dahl, Judith Shklar, and Kenneth Waltz—all of whom profoundly affected our knowledge of politics. Today, there are so many fine colleagues doing insightful work that to mention a few would be to risk slighting others whose work is equally important. The point is that you are joining a vibrant profession with a rich history. If I were conversant with classical Chinese and Indian sources, I could probably add to this list and extend this history even further into the past.

Following Virginia Woolf, many of you probably noticed that except for Judith Shklar, this is a "procession" of men. Fortunately, however, this lamentable situation has changed. Had I listed contemporary political scientists of note I would have had to include Elinor Ostrom, Theda Skocpol, Margaret Levi, and Suzanne Rudolph, as well as many younger women who are now leaders in our profession. Although exclusion on gender and racial lines was long a reality, our profession is now increasingly open to talented people from a wide variety of backgrounds.

What, then, is "political science"? I have an economist colleague who likes to say that any discipline with "science" in its name is not really a science—that it protests too much. Were one to adopt a narrow view of science, as requiring mathematical formulations of its propositions, precise quantitative testing, or even experimental validation, *political science* would indeed be an oxymoron. But today I will defend our nomenclature by taking a broader view.

I define *politics* as involving attempts to organize human groups to determine internal rules and, externally, to compete and cooperate with other organized groups; and reactions to such attempts. This definition is meant to encompass a range of activities from the governance of a democracy such as Great Britain to warfare, from corporate takeovers to decisions made in the UN Security Council. It includes acts of leadership and resistance to leadership, behavior resulting from deference and from defiance. I define *science* as a *publicly known* set of procedures designed to make and evaluate *descriptive and causal inferences* on the basis of the self-conscious application of *methods* that are themselves subject to public evaluation. All science is carried out with the understanding that any conclusions are *uncertain* and subject to revision or refutation (King, Keohane, and Verba 1994, 7–9). Political science is the study of politics through the procedures of science.

TEACHING

Most of this lecture will be devoted to an explication of how, in my view, political science should be carried out: that is, the processes of thinking and research that yield insights about politics. But I want to begin by talking about *teaching*. Teaching is sometimes disparaged. Colleagues bargain to reduce their "teaching loads." The language is revealing, since we speak of "research opportunities" but of "teaching loads." National and global

Robert O. Keohane *is professor of international affairs, Princeton University. He is the author of* After Hegemony: Cooperation and Discord in the World Political Economy *(1984) and co-author of* Designing Social Inquiry *(1994). He won the Johan Skytte Prize in Political Science, 2005.*

doi:10.1017/S1049096509090489

I define ***science*** as a *publicly known* set of procedures designed to make and evaluate *descriptive and causal inferences* on the basis of the self-conscious application of *methods* that are themselves subject to public evaluation.

All science is carried out with the understanding that any conclusions are *uncertain* and subject to revision or refutation.

Keohane 2009: 359

The **sociologist** [...] is someone concerned with understanding society in a disciplined way. The nature of this discipline is scientific.

This means that what the sociologist finds and says about the social phenomena he studies occurs within a certain rather strictly defined frame of reference.

One of the main characteristics of this scientific frame of reference is that operations are bound by certain **rules of evidence**.

Berger 1963: 16

As a **scientist**, the sociologist tries to be objective, to control his personal preferences and prejudices, to perceive clearly rather than to judge normatively.

This restraint, of course, does not embrace the totality of the sociologist's existence as a human being, but is limited to his operations *qua* sociologist.

Nor does the sociologist claim that his **frame of reference** is the only one within which society can be looked at.

Berger 1963: 16–7

1 Important notions

- **Research puzzles**

  Science aims at answering questions

- **Conceptualization**

  Solving questions require *explicit* definitions of their terms

- **Descriptive inference**

  Generalization from *established premises* + *facts*

  If (interpretation) and (description) then (inference)

- **Causal inference**

  Counterfactuals, experiments

2 Challenges

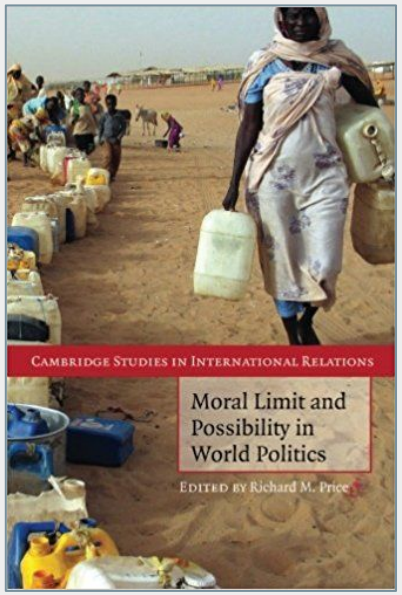
- **Inferences are subject to error** (p. 361)
  Precision · Reliability · Validity
- **Most political phenomena are non-manipulable** (p. 361–2)
  e.g. No “Rwandan genocide, – Christianity, + Islam”
- **Many political phenomena are singular events** (p. 362)
  e.g. French Revolution, World War I
- **Human reasoning is heavily biased** (p. 362)
  Omitted variables · Confirmation bias

3 Principles

- **No covering laws** (p. 362)
  Political (and social) science ≠ Newtonian physics
- **Mertonian rules** (p. 363)
  (Organized) Skepticism · Universalism ·
  Disinterestedness · Communism
- **Forget value-neutrality** (p. 363)
  e.g. “symbiotic relationship with democracy”, war *vs.* peace
- **Strive for objectivity** (p. 363)
  Objectivity = Absence of bias

Value-neutrality

How to reconcile science with values is an important, ongoing, and probably endless debate.



Moral limit and possibility in world politics

RICHARD PRICE

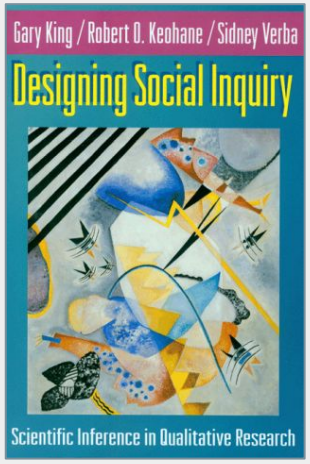
Introduction

At what point, if any, is one to reasonably concede that the 'realities' of world politics require compromise from cherished principles or moral ends, and that what has been achieved is ethically justified? How do we really know we have reached an ethical limit when we see one, or fallen short in ways that deserve the withholding of moral praise? Less abstractly, how might we seek to reconcile the cherished freedoms of liberal democracy with restrictions on immigration? Can war legitimately be waged in defence of human rights, and override competing moral claims to self-determination? Can the perpetuation of slaughter be risked by refusing amnesties to perpetrators of atrocities in order to enforce international criminal law? Is there any way to ethically navigate moral dilemmas such as the above, ones that seem to require choices between cosmopolitanism and communitarianism, or consequentialism and deontology, or the oft-competing demands between procedural and substantive justice?

Conclusion

Why do we need a science of politics?

What is relevant political science?



Obvious

True *v.* False · *Sein*

Public *v.* Private

Less obvious

Important *v.* Trivial

Free *v.* Sold · *Open v. Closed*

Universal *v.* Particular

Right *v.* Wrong · *Sollen*

Useful *v.* Useless

Complex *v.* Simple

Reading 3

van Evera

I will talk about **Hempel** next week, with the other readings for that week.

van Evera 1997 ch. 1 pp. 7-21

CHAPTER 1

Hypotheses, Laws, and Theories: A User's Guide

What Is a Theory?

Definitions of the term "theory" offered by philosophers of social science are cryptic and diverse.[1] I recommend the following as a simple framework that captures their main meaning while also spelling out elements they often omit.

Theories are general statements that describe and explain the

1. Most posit that theories explain phenomena and leave it at that. The elements of an explanation are not detailed. See, for example, Brian Fay and J. Donald Moon, "What Would an Adequate Philosophy of Social Science Look Like?" in Michael Martin and Lee C. McIntyre, eds., *Readings in the Philosophy of Social Science* (Cambridge: MIT Press, 1994), p. 26: a social theory is a "systematic, unified explanation of a diverse range of social phenomena." Likewise Earl Babbie, *The Practice of Social Research*, 7th ed. (Belmont, Calif.: Wadsworth, 1995), p. 40: "A theory is a systematic explanation for the observations that relate to a particular aspect of life." See also Kenneth Waltz, quoted in note 9. Each leaves the components of an explanation unspecified.

Leaving even explanation unmentioned is W. Phillips Shively, *The Craft of Political Research*, 3d ed. (Englewood Cliffs, N.J.: Prentice-Hall, 1990): "A theory takes a set of similar things that happen—say, the development of party systems in democracies—and finds a common pattern among them that allows us to treat each of these different occurrences as a repeated example of the same thing" (p. 2).

1 Important notions

- **Theory** (p. 7)
  = (*Laws* | *Hypotheses*) + *Explanations* + *Conditions*
- **Laws** (p. 8)
  Deterministic *vs.* Probabilistic
  Causal *vs.* non-causal (correlation)
- **Hypotheses** (p. 9)
  Conjectured relationship between *variables* H: $A \rightarrow B$
- **Explanation** (p. 9)
  Connexion between cause and effect

2 ‘DV/IV’ terminology

- **Dependent variable – DV** (p. 11)

  The *outcome* that we want to explain or *predict*

  $\boldsymbol{Y} = f(X_1 + X_2 + X_3 \ldots)$

- **Independent variables – IVs** (p. 10)

  The *explanatory factors* that *predict* the outcome

  $Y = f(\boldsymbol{X_1} + \boldsymbol{X_2} + \boldsymbol{X_3} \ldots)$

- **Antecedent conditions – a.k.a ‘interaction terms’** (p. 10)

  Prerequisites that enable Y to depend on X_1

  $Y = f(X_1 \times \boldsymbol{A_1} + X_2 + X_3 \ldots)$

Homework

Read Popper – *again*

Read Kuhn and Motterlini

References

Berger, Peter L. 1963. *Invitation to Sociology. A Humanistic Perspective*, New York, Random House.

Keohane, Robert O. 2009. "Political Science as a Vocation," *PS: Political Science & Politics* 42(2): 359-363. **reader**

Price, Robert M. (ed.). 2009. *Moral Limit and Possibility in World Politics*, Cambridge, Cambridge University Press.

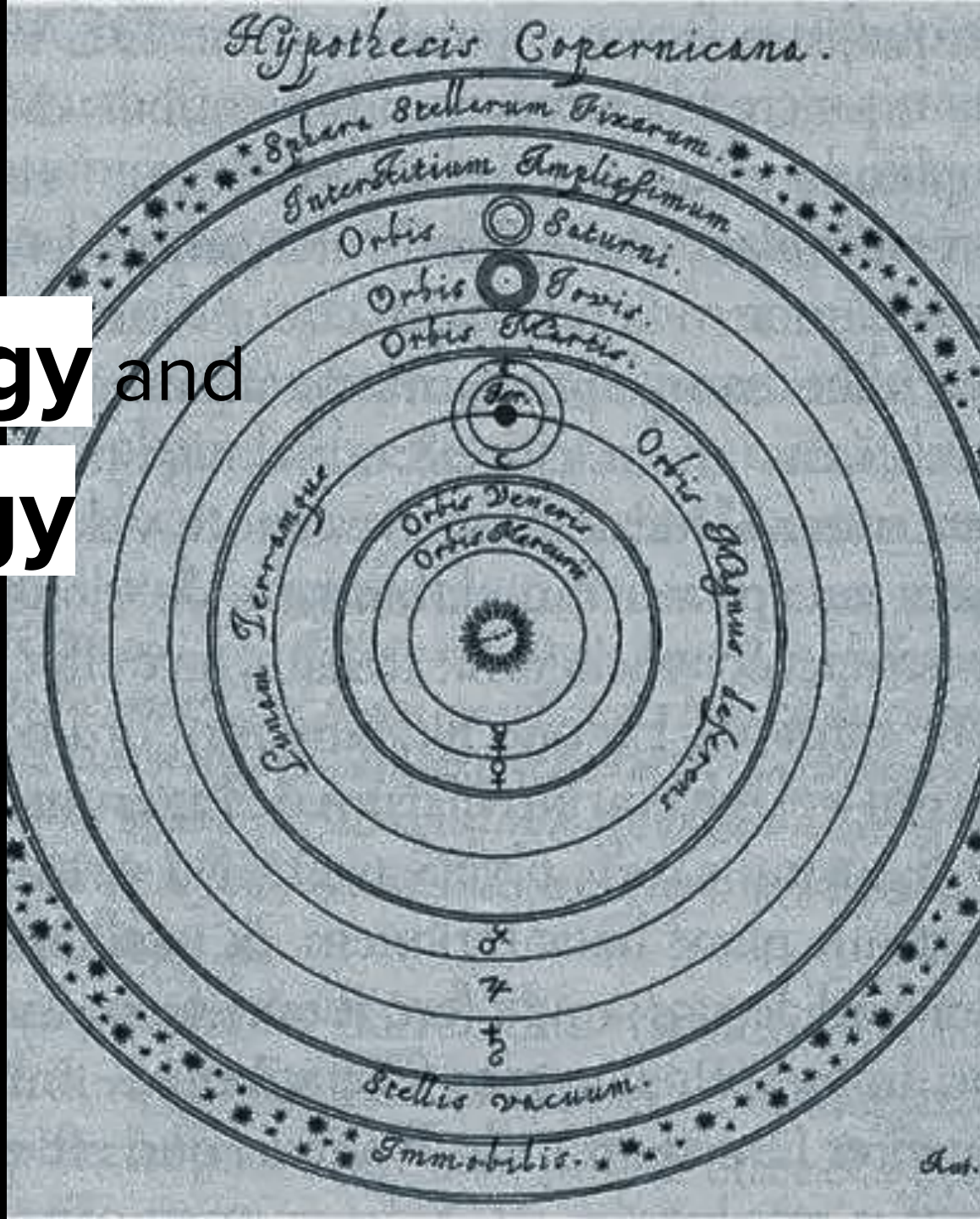
Van Evera, Stephen. 1997. *Guide to Methods for Students of Political Science*, Ithaca, Cornell University Press. **reader**

All references above are covered and/or cited in the previous slides.
For additional – and always *optional* – readings, see my emails.

Tutorial 2 in **Epistemology** and **Methodology** of the **Social Sciences**

François Briatte

Fall 2017

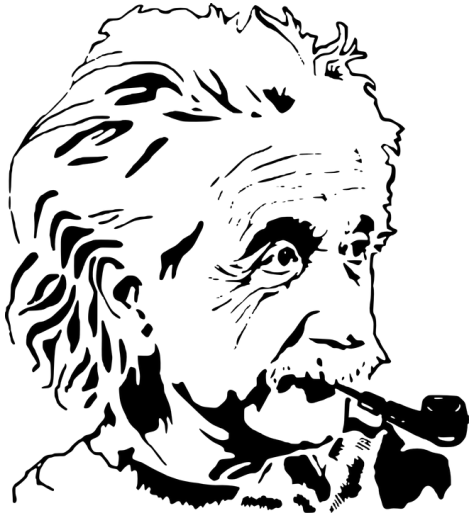


Gravitational wave discoverers win physics Nobel prize

HOW THE FIRST GRAVITATIONAL WAVES WERE FOUND

LIGO and Gravitational Waves: A Graphic Explanation

theory



evidence


Two Black Holes Merge into One
As the black holes circle each other, their intense gravity warps the starlight around them.

Tutorial organization – Reminders

- **Downloads**

  Tutorial material – emails, slides, videos

  Compulsory and additional readings

  `frama.link/emss-2017`

- **Language**

  Lecture and tutorials – 100% in English

  Emails and questions – 100% in English

- **Keep reading and taking notes**

  Create *your own style* of *written* notes

intuition, based upon something like an intellectual love ('Einfühlung') of the objects of experience.'[6]

3 DEDUCTIVE TESTING OF THEORIES

According to the view that will be put forward here, the method of critically testing theories, and selecting them according to the results of tests, always proceeds on the following lines. From a new idea, put up tentatively, and not yet justified in any way—an anticipation, a hypothesis, a theoretical system, or what you will—conclusions are drawn by means of logical deduction. These conclusions are then compared with one another and with other relevant statements, so as to find what logical relations (such as equivalence, derivability, compatibility, or incompatibility) exist between them.

We may if we like distinguish four different lines along which the testing of a theory could be carried out. First there is the logical comparison of the conclusions among themselves, by which the internal consistency of the system is tested. Secondly, there is the investigation of the logical form of the theory, with the object of determining whether it has the character of an empirical or scientific theory, or whether it is, for example, tautological. Thirdly, there is the comparison with other theories, chiefly with the aim of determining whether the theory would constitute a scientific advance should it survive our various tests. And finally, there is the testing of the theory by way of empirical applications of the conclusions which can be derived from it.

The purpose of this last kind of test is to find out how far the new consequences of the theory—whatever may be new in what it asserts—stand up to the demands of practice, whether raised by purely scientific experiments, or by practical technological applications. Here too the procedure of testing turns out to be deductive. With the help of

[6] Address on Max Planck's 60th birthday (1918). The passage quoted begins with the words, 'The supreme task of the physicist is to search for those highly universal laws . . .,' etc. (quoted from A. Einstein, *Mein Weltbild*, 1934, p. 168; English translation by A. Harris: *The World as I see It*, 1935, p. 125). Similar ideas are found earlier in Liebig, *op. cit.*; cf. also Mach, *Principien der Wärmelehre*, 1896, pp. 443 ff. *The German word 'Einfühlung' is difficult to translate. Harris translates: 'sympathetic understanding of experience'.

other statements, previously accepted, certain singular statements—which we may call 'predictions'—are deduced from the theory; especially predictions that are easily testable or applicable. From among these statements, those are selected which are not derivable from the current theory, and more especially those which the current theory contradicts. Next we seek a decision as regards these (and other) derived statements by comparing them with the results of practical applications and experiments. If this decision is positive, that is, if the singular conclusions turn out to be acceptable, or verified, then the theory has, for the time being, passed its test: we have found no reason to discard it. But if the decision is negative, or in other words, if the conclusions have been falsified, then their falsification also falsifies the theory from which they were logically deduced.

It should be noticed that a positive decision can only temporarily support the theory, for subsequent negative decisions may always overthrow it. So long as theory withstands detailed and severe tests and is not superseded by another theory in the course of scientific progress, we may say that it has 'proved its mettle' or that it is '*corroborated*'*[1] by past experience.

Nothing resembling inductive logic appears in the procedure here outlined. I never assume that we can argue from the truth of singular statements to the truth of theories. I never assume that by force of 'verified' conclusions, theories can be established as 'true', or even as merely 'probable'.

In this book I intend to give a more detailed analysis of the methods of deductive testing. And I shall attempt to show that, within the framework of this analysis, all the problems can be dealt with that are usually called '*epistemological*'. Those problems, more especially, to which inductive logic gives rise, can be eliminated without creating new ones in their place.

4 THE PROBLEM OF DEMARCATION

Of the many objections which are likely to be raised against the view here advanced, the most serious is perhaps the following. In rejecting

*[1] For this term, see note *1 before section 79, and section *29 of my *Postscript*.

Objectivity ①

Stanford Enc. "Sci. Obj."

} value attainability — but first, def

obj = sci value (sci > belief)
bec. sci = obj.

Product obj. : sci. findings (laws, obs) are accurate descr. of the world
→ ACCURACY

Process obj. : sci uses methods that are not contingent on social/ethical/personal biases
→ ABS OF BIAS

① faithfulness to FACTS
② abs. of NORMATIVE commitm^ts = VALUE-freedom
③ abs. of PERSONAL bias
④ instrumentalism

OBJ ②

Carnap, Popper, Hempel:
sci is obj when it succeeds at establishing + generalizing FACTS
↑
"discovering"

- sci proceeds by elimination of false theories & competing th. are separated by obs.
  → linear progress of sci.
  → verification: Popper, Hempel

counter-args:
- Duhem
- Wittgenstein

observations are THEORY-LADEN:
- Hanson
- Kuhn

↓ why? ① meaning changes w/ context

e.g. Feyerabend: "mass", "length"
are ≠t in:
- ~~thermodynamics~~
- Newtonian
- relativistic physics

② percept° influences obs.

e.g.
- Tycho Brahe (Ptolemaic)
- Johannes Kepler (Copernician)

... looked at the same data (sun)

Reading 2

Hempel

vestigation might lead us. It is, however, pertinent to say that much more in the way of positive results has already been attained than is indicated anywhere in this article.

JOHN DEWEY.

COLUMBIA UNIVERSITY.

THE FUNCTION OF GENERAL LAWS IN HISTORY

1. It is a rather widely held opinion that history, in contradistinction to the so-called physical sciences, is concerned with the description of particular events of the past rather than with the search for general laws which might govern those events. As a characterization of the type of problem in which some historians are mainly interested, this view probably can not be denied; as a statement of the theoretical function of general laws in scientific historical research, it is certainly unacceptable. The following considerations are an attempt to substantiate this point by showing in some detail that general laws have quite analogous functions in history and in the natural sciences, that they form an indispensable instrument of historical research, and that they even constitute the common basis of various procedures which are often considered as characteristic of the social in contradistinction to the natural sciences.

By a general law, we shall here understand a statement of universal conditional form which is capable of being confirmed or disconfirmed by suitable empirical findings. The term "law" suggests the idea that the statement in question is actually well confirmed by the relevant evidence available; as this qualification is, in many cases, irrelevant for our purpose, we shall frequently use the term "hypothesis of universal form" or briefly "universal hypothesis" instead of "general law," and state the condition of satisfactory confirmation separately, if necessary. In the context of this paper, a universal hypothesis may be assumed to assert a regularity of the following type: In every case where an event of a specified kind C occurs at a certain place and time, an event of a specified kind E will occur at a place and time which is related in a specified manner to the place and time of the occurrence of the first event. (The symbols "C" and "E" have been chosen to suggest the terms "cause" and "effect," which are often, though by no means always, applied to events related by a law of the above kind.)

2.1 The main function of general laws in the natural sciences is to connect events in patterns which are usually referred to as *explanation* and *prediction*.

1 Important notions

- **General laws** (p. 35)
  If (cause *C*) then (event *E*)
  Purpose = *Explanation* = *Prediction*
  Instruments = *Empirics* + *Logic* ≠ ‘fate’ | ‘spirit’ | chance
- **Unicity of science** (p. 37)
  History = Biology = Physics
  All are concerned with *general*, not *singular*, laws
- **Opposition to** (e.g. p. 9)
  Much of – late 19th, early 20th – social science
  Metaphysics · Psychoanalysis

2 Unicity of science

p. 37

But there is no difference, in this respect, between history and the natural sciences: both can give an account of their subject-matter only in terms of general concepts, and history can "grasp the unique individuality" of its objects of study no more and no less than can physics or chemistry.

- **Empirical positivism** · **Vienna Circle**, interwar period
- **Principle of verification** as the criterion of demarcation
  - Scientific statements are **meaningful**, i.e. true | false
  - We know that by subjecting them to **empirical tests**

Example: ‘Laws’ in modern physics

Maxwell’s continuity equation

- A **flux** q is a real physical quantity that can flow or move (e.g. energy, molecules)
- The flux moves according to a **vector field** denoted **j**
- In its differential form, the equation states a **conservation law** (e.g. conservation of electric charge)

$$\frac{\partial \rho}{\partial t} + \nabla \cdot \mathbf{j} = \sigma$$

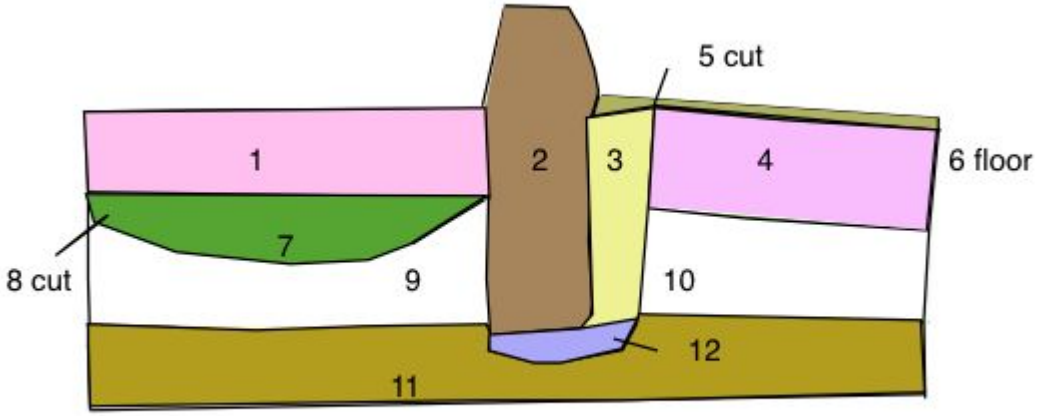
$\frac{\partial \rho}{\partial t}$	Amount of q per unit at time t
$\nabla \cdot \mathbf{j}$	Divergence of the vector field **j**
σ	Generation of q per unit at time t

Disclaimer – I have no idea of what this equation really means in either theory or practice. Ask a real physicist.

Example: ‘Laws’ in modern archaeology

Principles of stratigraphy

- **Superposition**
  Upper layers are younger than lower ones
- **Original horizontality**
  Layers will initially form horizontally
- **Lateral continuity**
  Layers are bounded at the edges of their basin of deposition



Know thy enemies – classical examples

Astrology

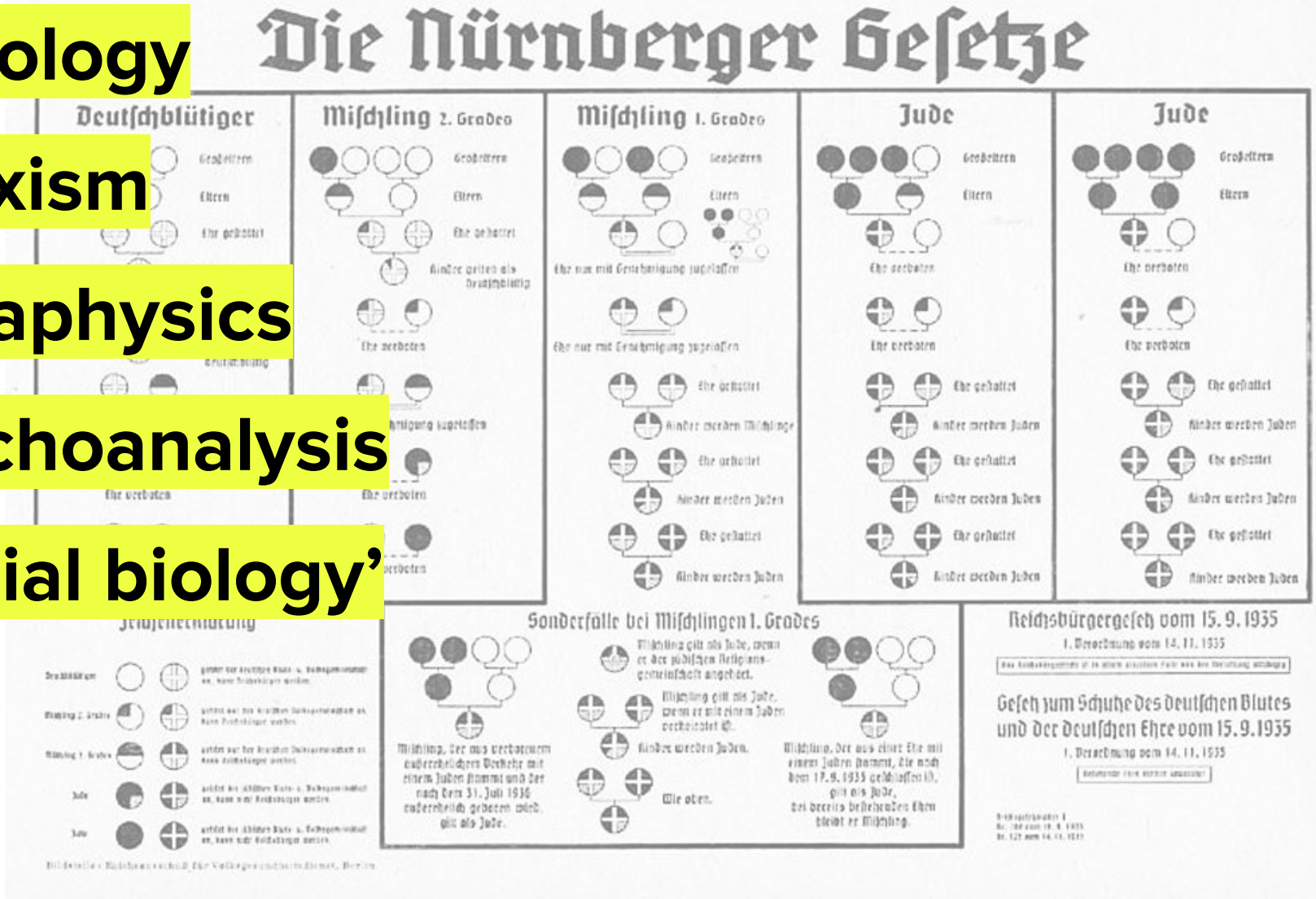
Marxism

Metaphysics

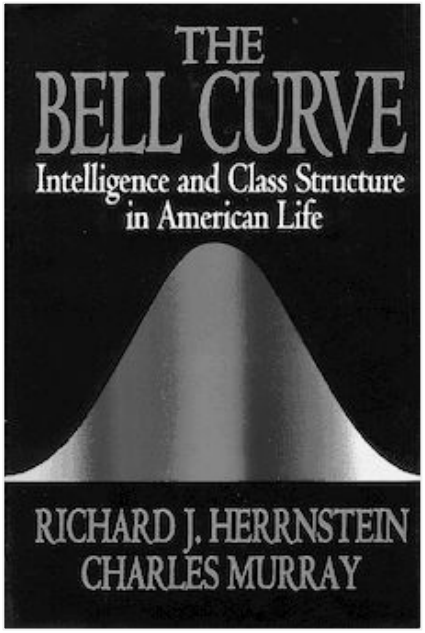
Psychoanalysis

‘Racial biology’

…



Know thy enemies – contemporary examples



Mesdames, si vous allez faire les soldes,
c'est car vous n'avez pas de pénis


QUESTIONS


10 minute break


short quiz
15’ max
no questions
no chatting

Reading 4

Popper

1

A SURVEY OF SOME FUNDAMENTAL PROBLEMS

A scientist, whether theorist or experimenter, puts forward statements, or systems of statements, and tests them step by step. In the field of the empirical sciences, more particularly, he constructs hypotheses, or systems of theories, and tests them against experience by observation and experiment.

I suggest that it is the task of the logic of scientific discovery, or the logic of knowledge, to give a logical analysis of this procedure; that is, to analyse the method of the empirical sciences.

But what are these 'methods of the empirical sciences'? And what do we call 'empirical science'?

1 THE PROBLEM OF INDUCTION

According to a widely accepted view—to be opposed in this book — the empirical sciences can be characterized by the fact that they use '*inductive methods*', as they are called. According to this view, the logic of scientific discovery would be identical with inductive logic, *i.e.* with the logical analysis of these inductive methods.

It is usual to call an inference 'inductive' if it passes from *singular*

Prelude: induction *v.* deduction

- **Inductive inference** (pp. 3–4)
  From *singular* statements to *universal* statements
  - **Singular** = Observations, Experiments (empirics)
  - **Universal** = Hypotheses, Theories (predictions)
- **Logical deduction** (p. 9)
  From *new ideas* to *conclusions*
  - **New ideas** = Hypotheses (tentative, not yet justified)
  - **Conclusions** = Particular statements (empirical)

N.B. Note that those are **ideal types** – practical examples will contain both logics.

Important notions

- **Problem of induction** (pp. 5–6, p. 11)
  Regardless of the past, **future instances are unknown**
  Grounding truth in experience leads to **infinite regress**
- **Principle of falsification** (p. 10)
  A theory is scientific if it is **refutable by a singular statement**
  Corollary □ Scientific theories are **empirically testable**
- **Fundamental asymmetry** (p. 10)
  Verification requires infinite proofs
  Falsification requires one

Empirical refutability

p. 18

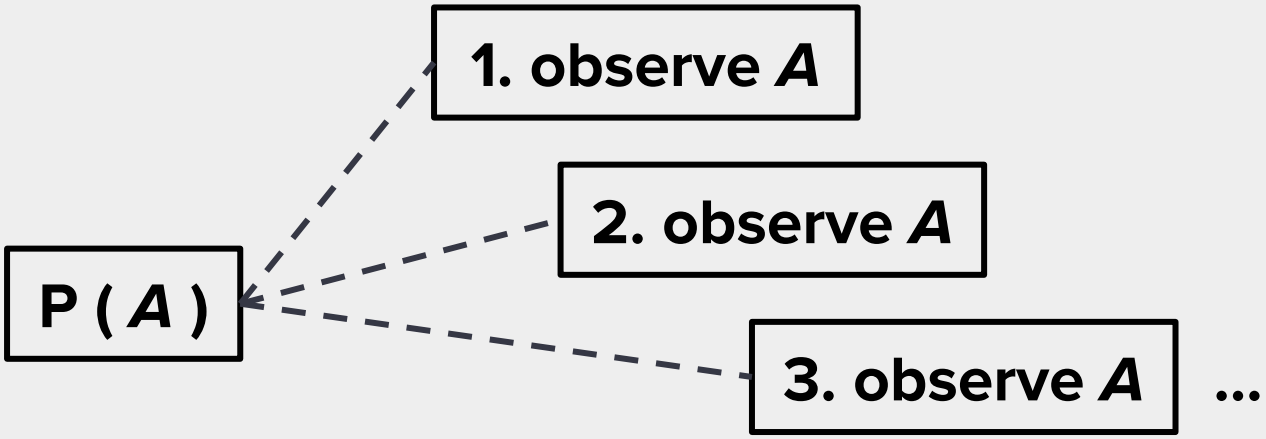
I shall certainly admit a system as empirical or scientific only if it is capable of being *tested* by experience.

it must be possible for an empirical scientific system to be refuted by experience.

- **Common enemies** · Marxism, most metaphysics
- **Common ingredients** · Logic, Empirics
- **Opposite principles** · Truth *v.* Falsehood

Problem of induction · ‘forward’ version

Prove statement *A*

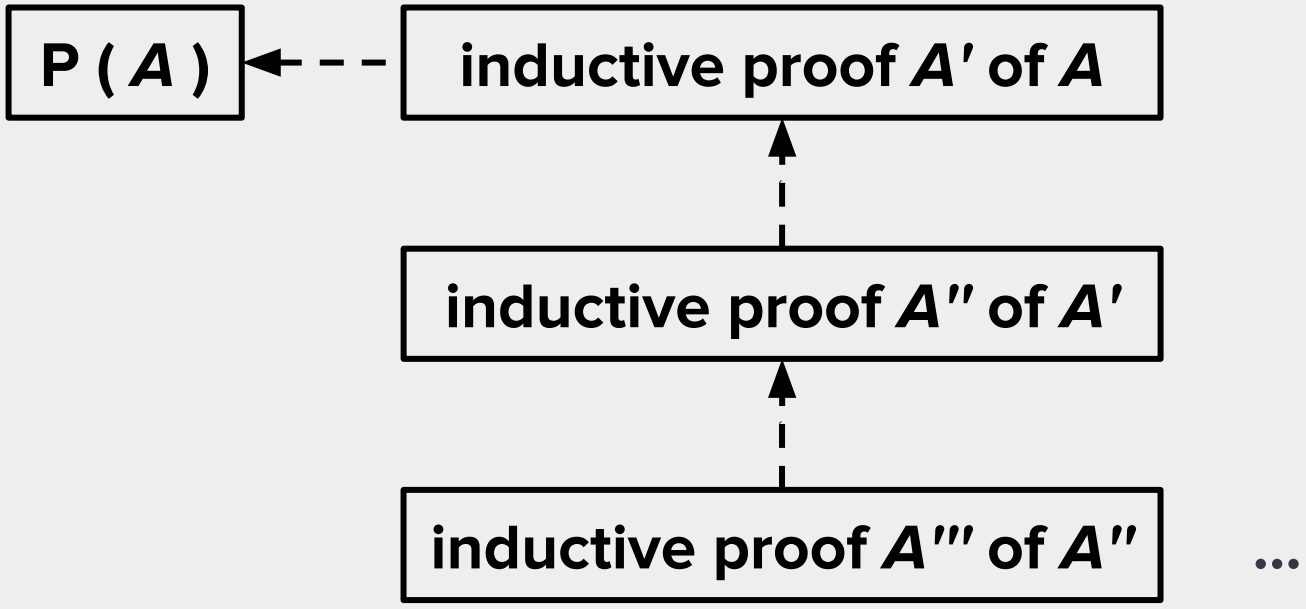


Logical empiricism — ***A* is verified by experience**

Hume, Popper — **obs. 4 = *A* ?** — **Solution is non-finite**

Problem of induction · ‘backward’ version

Prove statement *A*



induction leads to infinite regress

Reading 5

Kuhn

I. Introduction: A Role for History

History, if viewed as a repository for more than anecdote or chronology, could produce a decisive transformation in the image of science by which we are now possessed. That image has previously been drawn, even by scientists themselves, mainly from the study of finished scientific achievements as these are recorded in the classics and, more recently, in the textbooks from which each new scientific generation learns to practice its trade. Inevitably, however, the aim of such books is persuasive and pedagogic; a concept of science drawn from them is no more likely to fit the enterprise that produced them than an image of a national culture drawn from a tourist brochure or a language text. This essay attempts to show that we have been misled by them in fundamental ways. Its aim is a sketch of the quite different concept of science that can emerge from the historical record of the research activity itself.

Even from history, however, that new concept will not be forthcoming if historical data continue to be sought and scrutinized mainly to answer questions posed by the unhistorical stereotype drawn from science texts. Those texts have, for example, often seemed to imply that the content of science is uniquely exemplified by the observations, laws, and theories described in their pages. Almost as regularly, the same books have been read as saying that scientific methods are simply the ones illustrated by the manipulative techniques used in gathering textbook data, together with the logical operations employed when relating those data to the textbook's theoretical generalizations. The result has been a concept of science with profound implications about its nature and development.

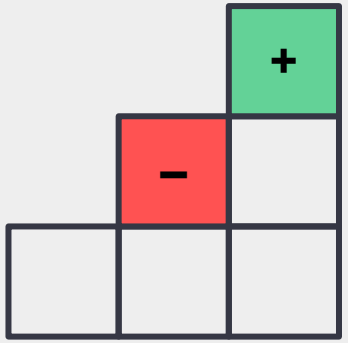
If science is the constellation of facts, theories, and methods collected in current texts, then scientists are the men who, successfully or not, have striven to contribute one or another element to that particular constellation. Scientific development becomes the piecemeal process by which these items have been

Scientific change · pp. 2–3

Incremental ⇔ cumulative, accretive

Science is like **Minecraft**

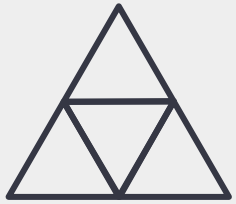
All changes occur **‘one brick at a time’**



Revolutionary ⇔ radical, paradigmatic

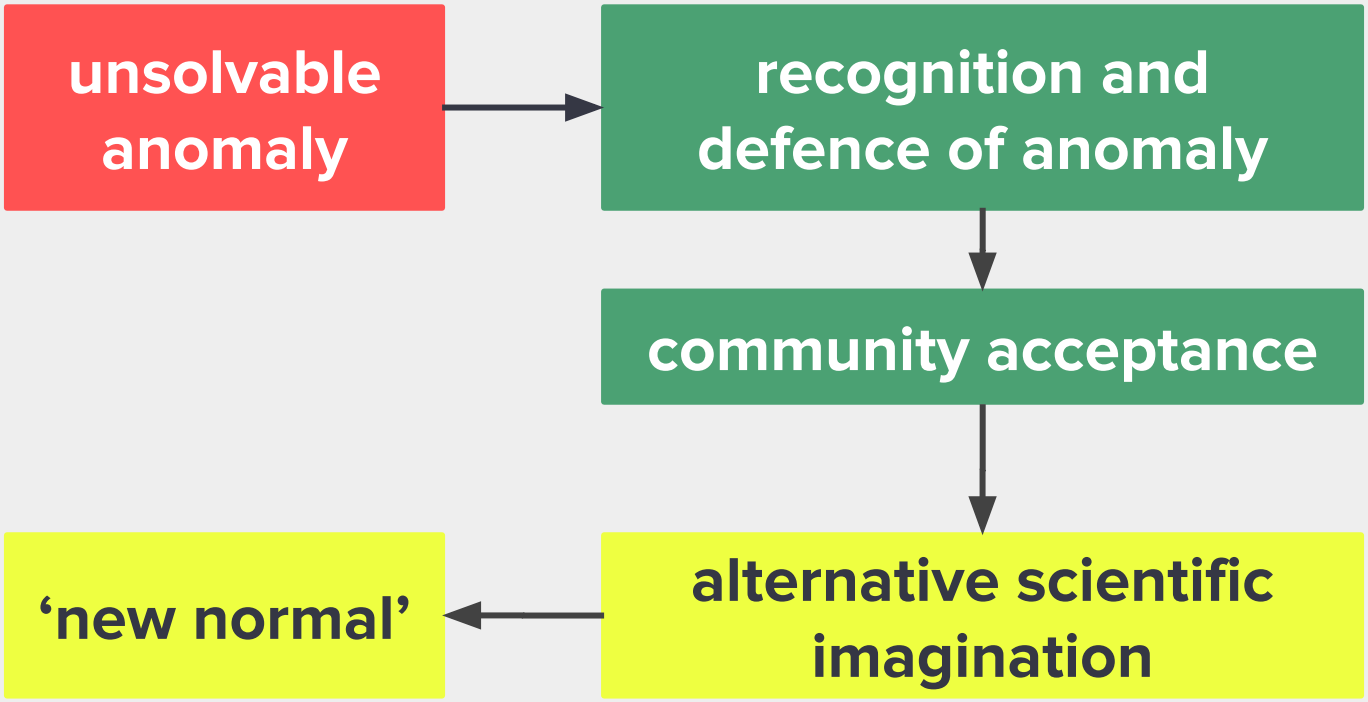
‘Nothing works like before!’

‘Things will never be the same again!’



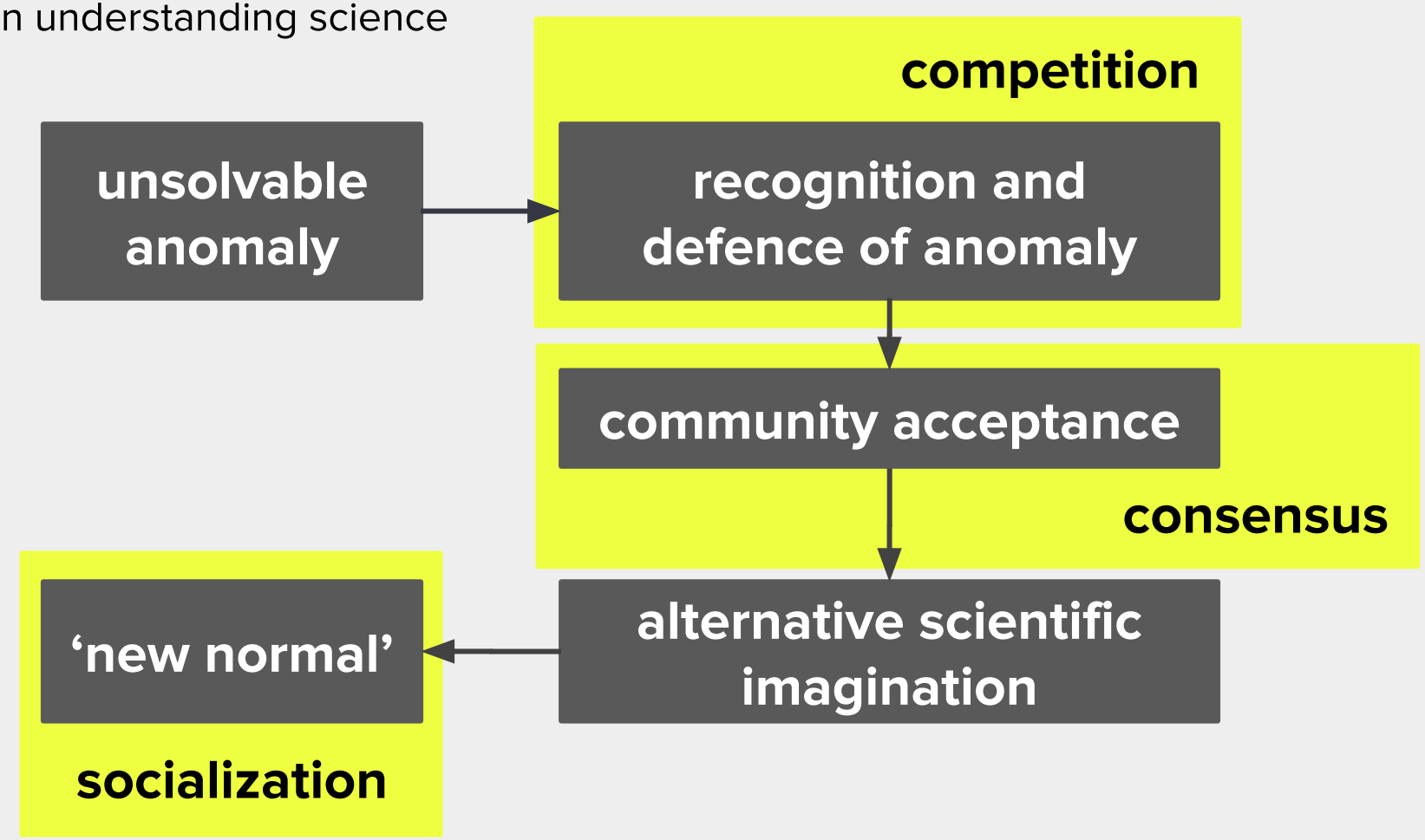
⇔ **Pre- and post-revolutionary ideas are incommensurable to each other**

Steps to revolution · pp. 5–6

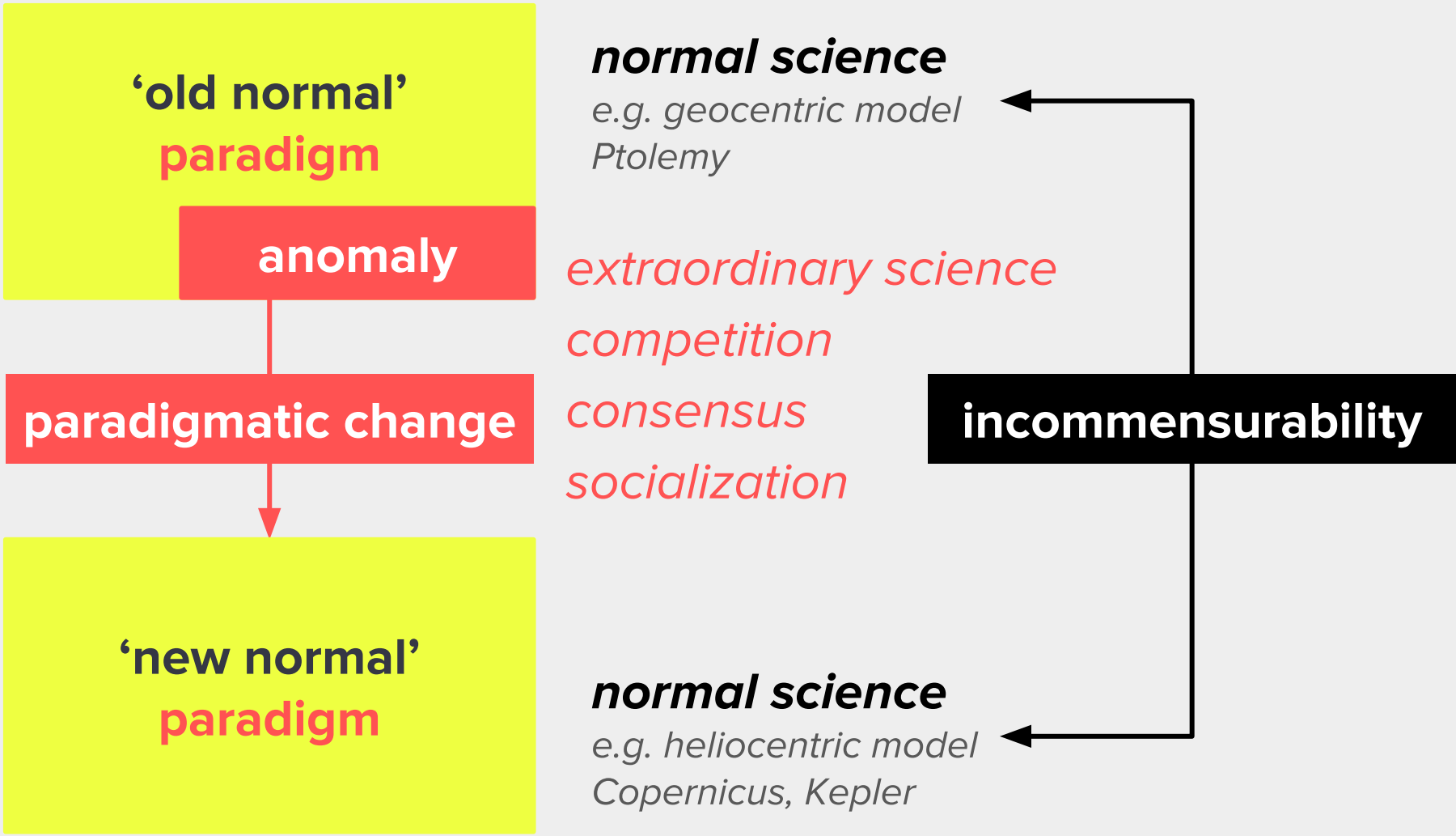


Sociological processes · pp. 4–5, 8

↑ Hence, the role of history in understanding science



Paradigmatic change



Examples of uses

Policy Paradigms, Social Learning, and the State

The Case of Economic Policymaking in Britain

Peter A. Hall

To be read in your Public Policy course, Week 6

Towards a paradigm shift in biology

The steady conversion of new techniques into purchasable kits and the accumulation of nucleotide sequence data in the electronic data banks leads one practitioner to cry, "Molecular biology is dead — Long live molecular biology!".

Animal Consciousness:
Paradigm Change in the Life Sciences


QUESTIONS

Homework

Tutorial 3 – Schütz

Tutorial 4 – White

Tutorial 5 – della Porta and Franklin

Tutorial 6 – Martin

Your instructor will be **Gayatri Rathore**

See you in a few weeks!

References

Hempel, Carl G. 1942. "The Function of General Laws in History", *Journal of Philosophy* 39 (2): 35-48. **reader**

Kuhn, Thomas S. [1962] 2012. "Introduction: A Role for History," in *The Structure of Scientific Revolutions*, 4th ed., Chicago: University of Chicago Press, pp. 1–9. **reader**

Popper, Karl. [1935] 2002. "A Survey of some Fundamental Problems," in *The Logic of Scientific Discovery*, London, Routledge, pp. 3–26. **reader**

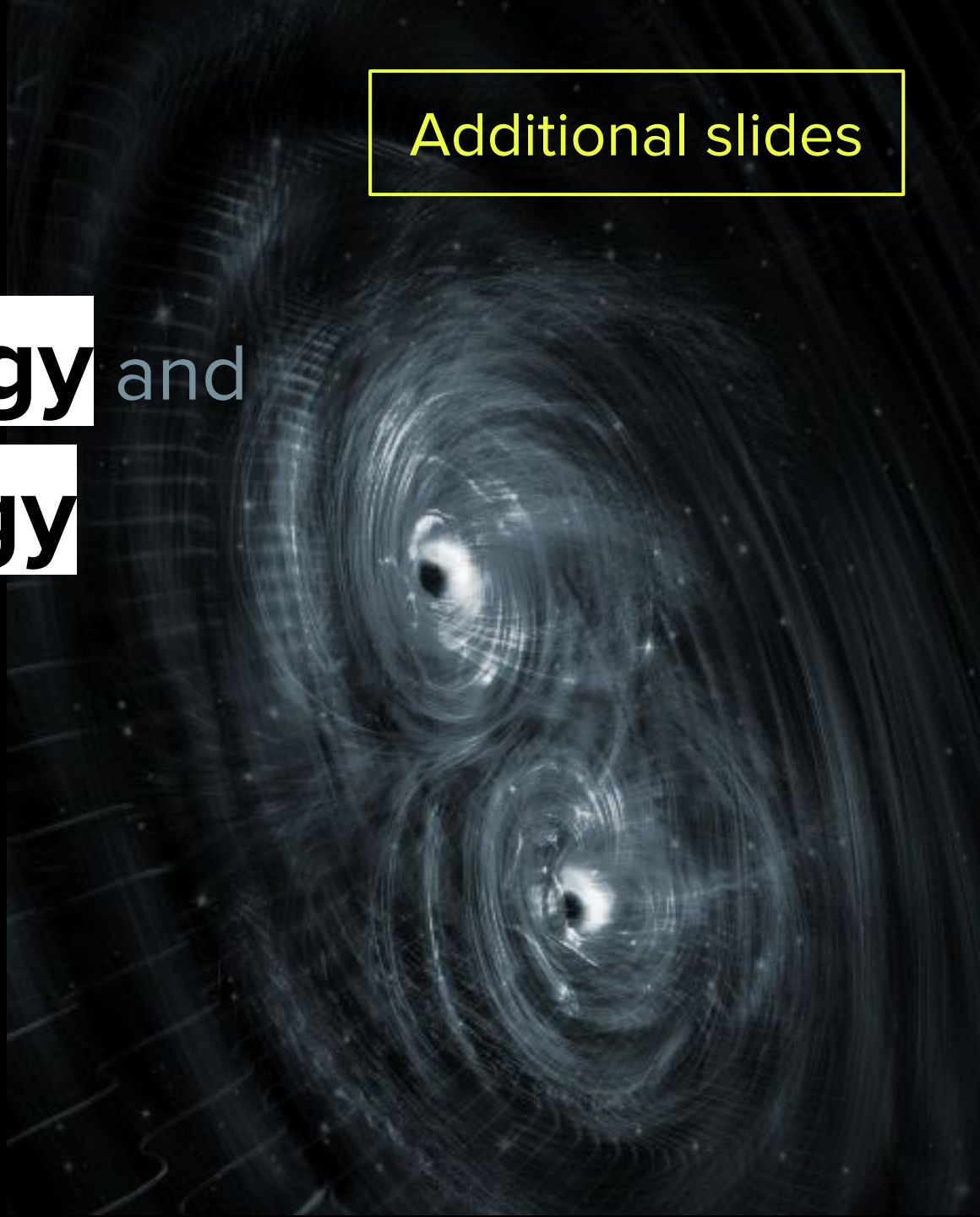
All references above are covered and/or cited in the previous slides.
For additional – and always *optional* – readings, see my emails.

Additional slides

Tutorial 2 in Epistemology and Methodology of the Social Sciences

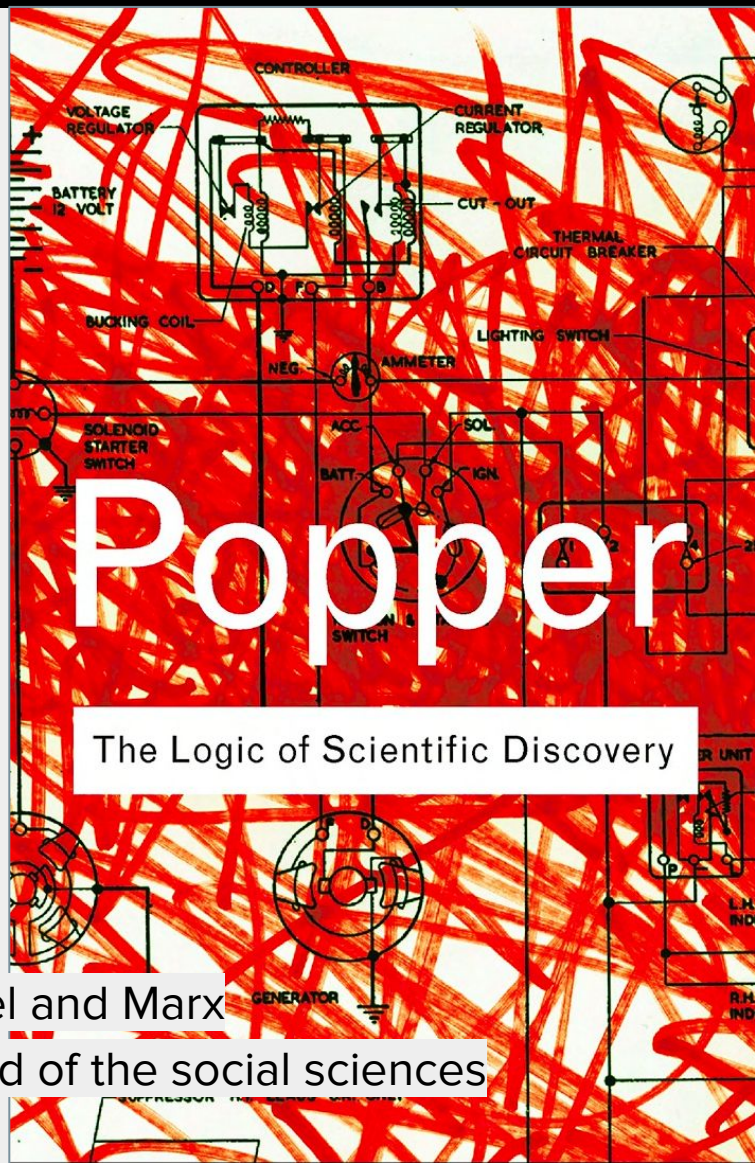
François Briatte

Fall 2017



1 Popper · *Logic of Scientific Discovery* · 1935

- **Inductive inference** does not provide a valid **criterion of scientific demarcation** (≠ Hempel, Vienna Circle)
- **Logical deduction** can be coupled with an alternative one: the **principle of falsification** (≠ Metaphysics, Psychoanalysis)



Also by Popper

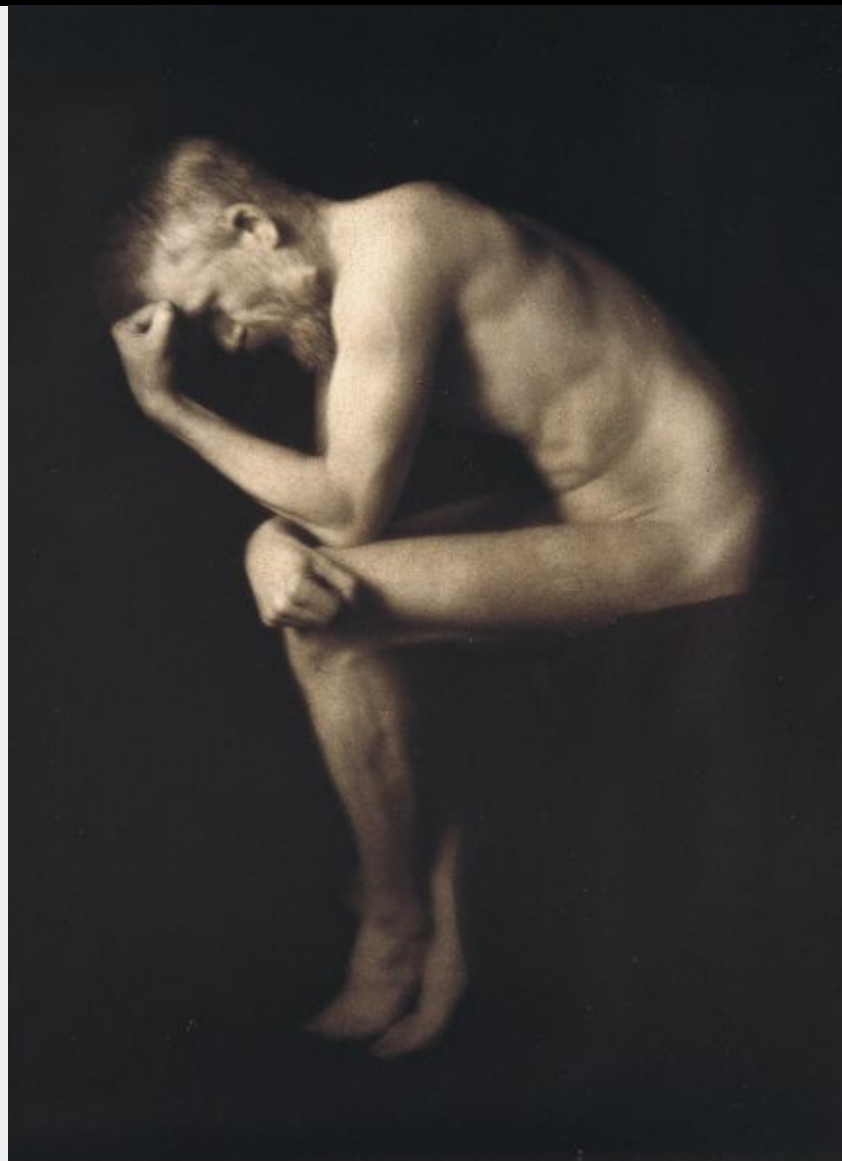
The Open Society and its Enemies – on Plato, Hegel and Marx

The Poverty of Historicism – on the scientific method of the social sciences

Popper in a nutshell

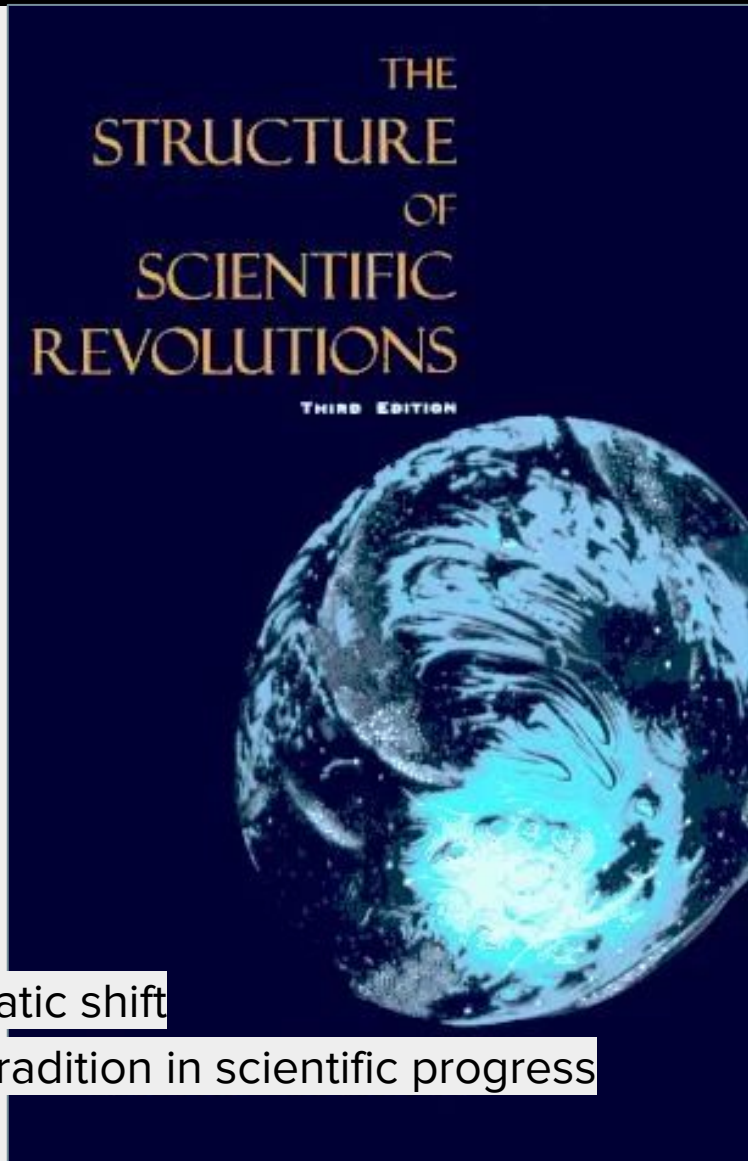
There can be no ultimate statements in science (p. 25)

- ⇔ We are never assuredly free of error (Agassi 2014: 91)
- ⇔ **Cartesian doubt** – use your own reason, but do not trust yourself (Descartes)
- ⇔ The first principle is that you **must not fool yourself**—and you are the easiest person to fool (Richard P. Feynman)



2 Kuhn · *Structure of Scientific Revolutions* · 1962

- **Scientific change** does not always happen incrementally: **paradigmatic shifts** can occur (e.g. Copernican Revolution)
- **Historicity** (precise accounts of the history of science) is required to understand how scientific discoveries really play out



Also by Kuhn

The Copernican Revolution – an example paradigmatic shift
The Essential Tension – on the role of change and tradition in scientific progress

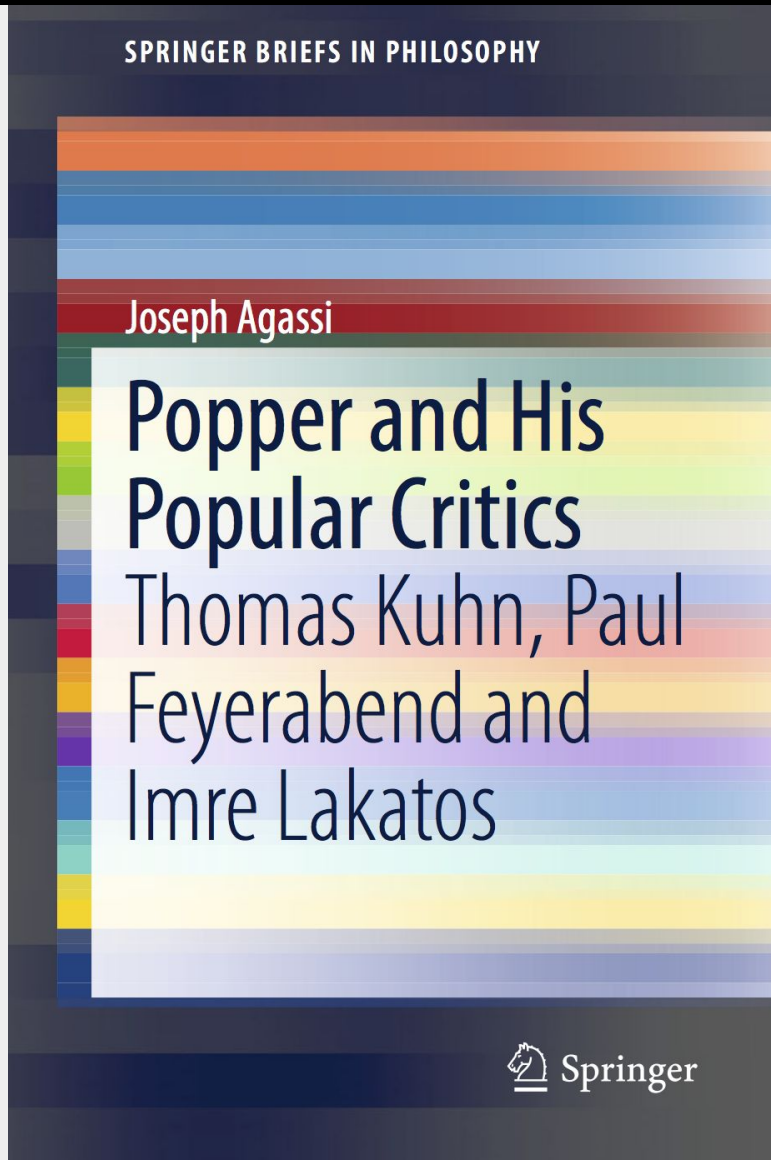
Kuhn and Popper's critics

- **Normal science**
  implies that studying science requires to study **dogmas**

  ⇒ If science is not value-free, can it still be **objective?**

- **Paradigmatic shifts**
  imply that studying science requires to study **history**

  ⇒ If science is not linear, can it still make **progress?**



Themes for discussion

- **Science and values**
  Does the scientific method allow **value-free neutrality**, or does science contain **beliefs, dogmas, traditions**?
- **Science and history**
  How can we reconcile **scientific progress** with nonlinear, discontinuous **‘revolutionary’ scientific changes**?
- **Scientific objectivity**
  If values and history carry **human subjectivity** with them, does that make science inherently subjective as well?

Reading 5

Motterlini

Introduction: A Dialogue

Matteo Motterlini

A dialogue is a discourse consisting of question and answer on some philosophical or political subject, with due regard to the characters of the persons introduced and the choice of diction. The dialectic is the art of discourse by which we either refute or establish some proposition by means of question and answer on the part of the interlocutors.

Diogenes Laertius

The following dialogue between Lakatos and Feyerabend is obviously nothing more than fiction, but over the years a real dialogue did take place between the two friends. It consisted in a genuine, lengthy, continuous, and outspoken exchange of letters and papers which shows the two men taking stands in the discussion *for* and *against* method. My fictitious reconstruction mirrors their own contributions, but paraphrases them for stylistic reasons. I refer to the original texts in the footnotes.

The rhetorical form of the dialogue is well described in the above fragment by Diogenes Laertius. The reason for adopting it here is given by the two imaginary interlocutors explicitly at the beginning of their discourse.

Paul Feyerabend: Rumour has it, dear *Imre,* that while one can freely discuss ideas in a loose way, in letters, phone calls, and at dinner, academics will always prefer an essay or a book. And any paper of this kind has a beginning, a middle, and an end. There is an exposition, a development, and a result. After that the idea is as clear and well-defined as a dead butterfly in a collector's box.[1]

Imre Lakatos: Plato thought that the *gulf* between *ideas* and *life* could be bridged by *dialogue*—not by a written dialogue, which he considered but a superficial account of past events, but by a real, spoken exchange between people of different backgrounds. I agree that a *dialogue* reveals more than an essay. It can show the effect of arguments on outsiders. It makes explicit the loose ends which an essay tries to conceal by showing the *inconclusiveness of "conclusions"*[2] . . .

1. See Feyerabend 1991, 163–64.
2. Lakatos wrote his masterpiece in the philosophy of mathematics, *Proofs and Refutations,* in dialogue form; it started from a nonproblematical situation and gradually evolved into BETA's final remark: "I had no problems at the beginning, and now I have nothing *but* problems!"

Arguments

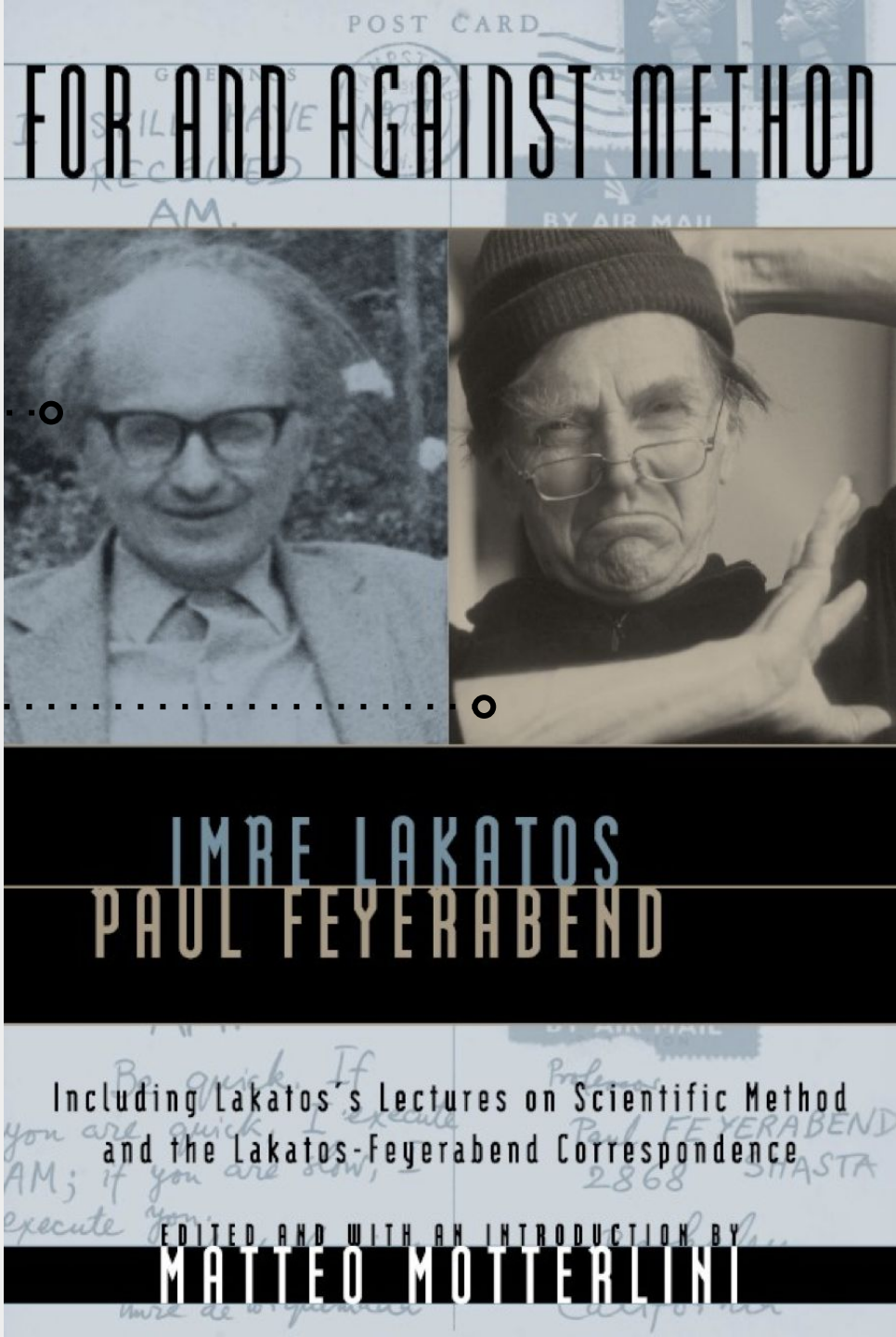
Imre Lakatos

‘I have a solution that both Popper and Kuhn will like’

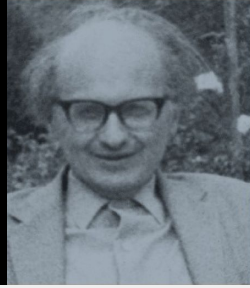
Paul Feyerabend

‘Stop looking for a solution, we do not actually need one’

N.B. Lakatos and Feyerabend were contemporaries who knew each other very well (see book preface)

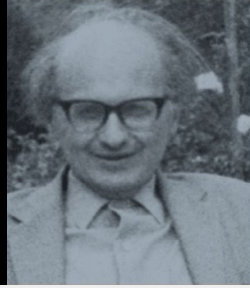


Imre Lakatos



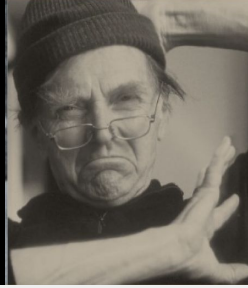
- **Research programmes** (p. 2)
  Ensembles of theories built around untestable **‘hard cores’**
  Either **progress** or **degenerate** through time
- **Sophisticated falsification** (p. 3)
  Distinction between **rejection** and **falsification**
  - Compatible with, yet critical of, Popper’s ‘naive’ principle
- **Rational scientific progress** (p. 3)
  Degenerating, ‘bad’ programmes are to be abandoned
  - Compatible with Kuhn’s **historicised scientific change**

Imre Lakatos · *Strengths of the argument*



- **Rationality**
  Some aspects (‘hard cores’) of scientific thought *are* irrational
  Yet (‘progressive’) scientific change is, *ultimately*, rational
- **Gradualism**
  Scientific change need not rely on ‘revolutionary’ episodes
  Yet *some* historicism is required to understand it (pp. 17–8)
- **Relevance**
  Contemporary scientific thought, esp. in the social sciences, does *not* develop through incommensurable paradigms.

Paul Feyerabend



- **All research will eventually seem irrational** (p. 3)
  Any scientific methodology is bound to be rejected
  'Truth and Objectivity' serve only as **oppressors of Culture**
- **Epistemological anarchism**
  The single consistent methodological guideline that history provides for scientific discovery is to **reject existing views**
- *Consequence* □ **'Anything goes'**
  i.e. **'epistemic free-for-all'** – do whatever you believe might ultimately generate new scientific knowledge

Any sufficiently advanced technology is **indistinguishable from magic**.

Arthur C. Clarke (science-fiction author)

References

Feyerabend, Paul K. [1975] 1993. *Against Method*, 3rd ed., London, Verso.

Motterlini, Matteo. 1999. "Introduction: A Dialogue," in Imre Lakatos and Paul Feyerabend (ed. Matteo Motterlini), *For and Against Method*, Chicago, University of Chicago Press, pp. 1–18. **reader**

Lakatos, Imre. 1970. "Falsification and the Methodology of Scientific Research Programmes," in Lakatos, Imre, and Musgrave, Paul (eds), *Criticism and the Growth of Knowledge*, Cambridge, Cambridge University Press, pp. 91–196.

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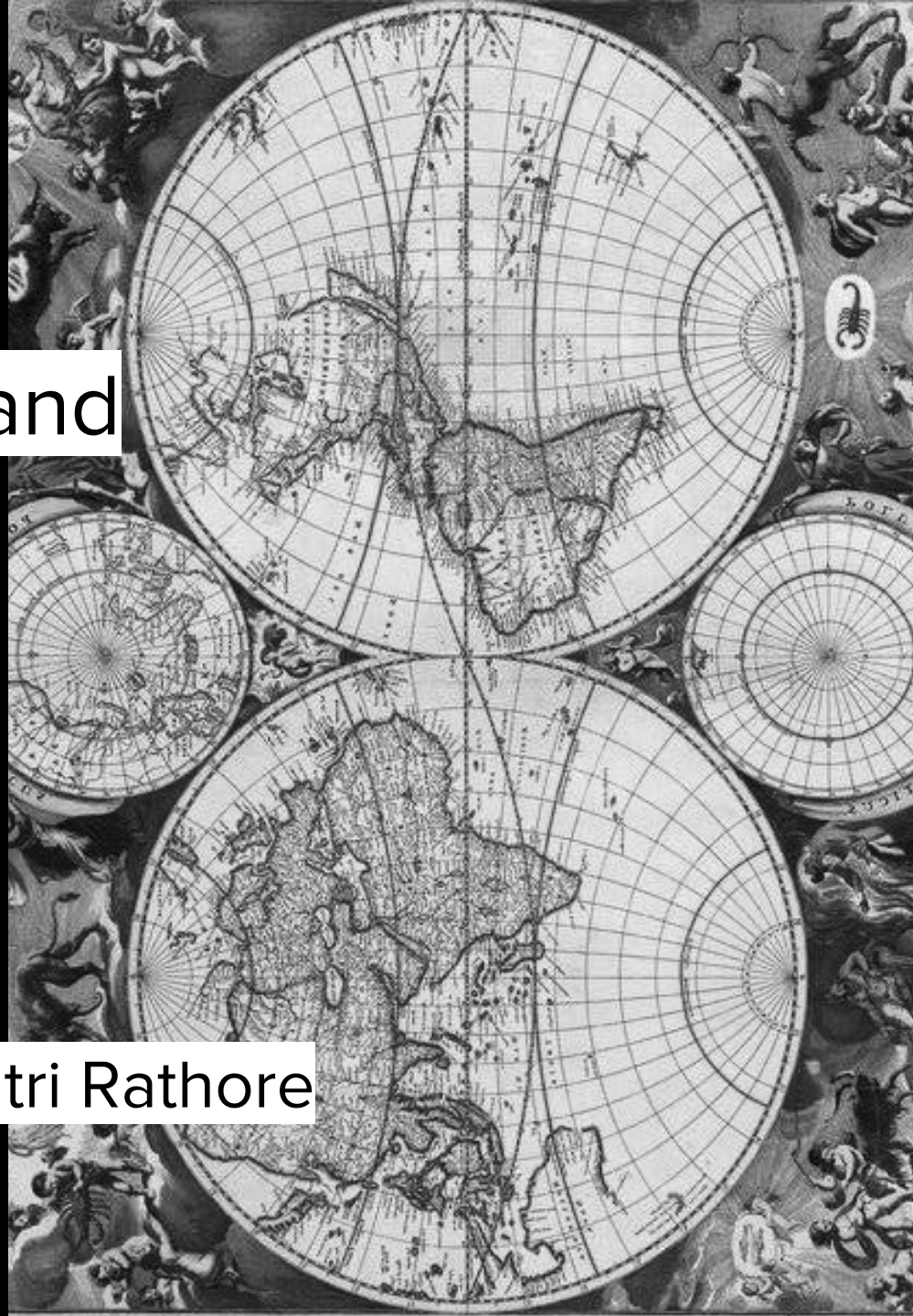
For additional – and always *optional* – readings, see my emails.

Tutorial 3 in Epistemology and Methodology of the Social Sciences

François Briatte and Gayatri Rathore

Fall 2017



Reading 7

Schütz

VOLUME LI, No. 9 APRIL 29, 1954

THE JOURNAL OF PHILOSOPHY

CONCEPT AND THEORY FORMATION IN THE SOCIAL SCIENCES [1]

THE title of my paper refers intentionally to that of a Symposium held in December, 1952, at the annual meeting of the American Philosophical Association.[2] Ernest Nagel and Carl G. Hempel contributed highly stimulating comments on the problem involved, formulated in the careful and lucid way so characteristic of these scholars. Their topic is a controversy which for more than half a century has split not only logicians and methodologists but also social scientists into two schools of thought. One of these holds that the methods of the natural sciences which have brought about such magnificent results are the only scientific ones and that they alone, therefore, have to be applied in their entirety to the study of human affairs. Failure to do so, it has been maintained, prevented the social sciences from developing systems of explanatory theory comparable in precision to those offered by the natural sciences and makes debatable the empirical work of theories developed in restricted domains such as economics.

The other school of thought feels that there is a basic difference in the structure of the social world and the world of nature. This feeling led to the other extreme, namely the conclusion that the methods of the social sciences are *toto coelo* different from those of the natural sciences. In order to support this position a variety of arguments was proffered. It has been maintained that the social sciences are idiographic, characterized by individualizing conceptualization and seeking singular assertory propositions, whereas the natural sciences are nomothetic, characterized by generalizing conceptualization and seeking general apodictic propositions. The latter have to deal with constant relations of magnitude which can be measured and can perform experiments, whereas neither measurement nor experiment is practicable in the social sciences. In general, it is held that the natural sciences have to deal with material objects and processes, the social sciences, how-

[1] Paper presented at the 33rd Semi-Annual Meeting of the Conference on Methods in Philosophy and the Sciences, New York, May 3, 1953.

[2] Published in the volume *Science, Language and Human Rights* (American Philosophical Association, Eastern Division, Vol. I), Philadelphia, University of Pennsylvania Press, 1952, pp. 43–86 (referred to as SLH).

Reality as two worlds (p. 257)

Physical reality	**Social** reality
Material world (matter)	Mental world (psyche)
Physical elements	Human agents
… *Respond to stimuli*	… *Respond to other agents*
Functions	Intentions
Unicity of science	**Social sciences**
Nomothetic method	Idiographic method
⇒ **Apodictic generalization**	⇒ **Singular assertions**

Schütz · Inspirations and relevance / 1

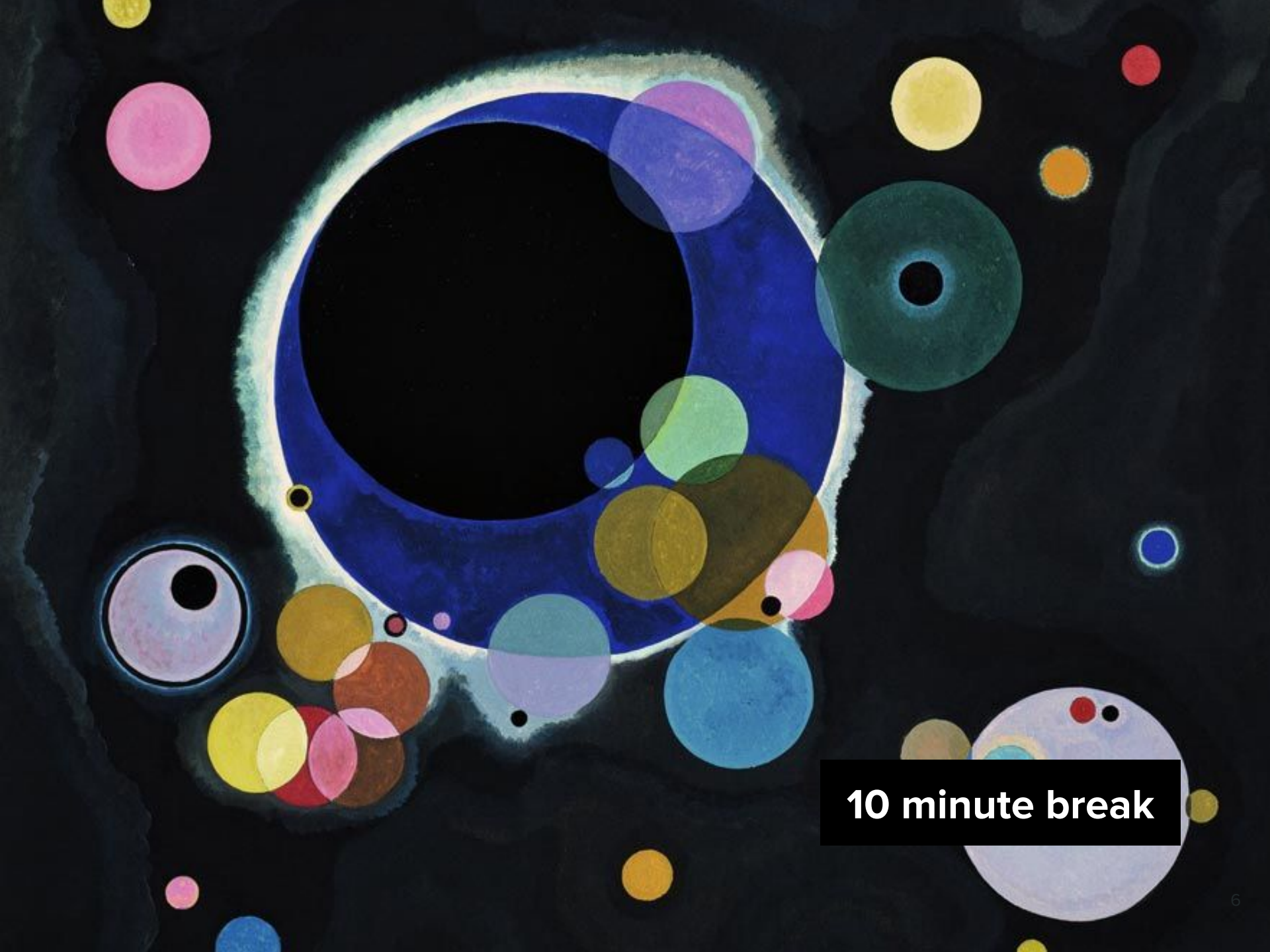
- **Phenomenological approach** grounded in Husserl's concept of the *Lebenswelt* ('life world')

  ⇔ **Metaphysics** · **Psychology** · **Psychoanalysis**

- Inspired **interpretative** studies of 'everyday life' in society, in line with Weber's *Verstehende Soziologie*
  - **Methodological individualism** (≠ Durkheim, Parsons)
  - Social behaviour has its own distinct **meaningfulness**
  - Social actors share **intersubjective** knowledge

Schütz · Inspirations and relevance / 2

- Also influenced
  - **Constructivism**, i.e. the study of how reality is socially represented (Berger and Luckmann)
  - **Ethnomethodology**, i.e. formalizations of everyday interactions (Garfinkel)
- **Daily social life** is now routinely understood as crucial to sociological processes (Bourdieu, Giddens, Luhmann...)


10 minute break

Meaningful social action

- **Schemes of experience**
  - **‘In order to’ motives** (forward-looking)
  - **‘Because of’ motives** (backward-looking)
- Sharing mechanism: **communication**
  (i.e. interaction between two subjects)
  - **Ego** provides ‘in order to’ motives
  - **Alter ego** stores them as ‘because of’ motives

⇒ Result: **intersubjectivity** (i.e. shared understandings)

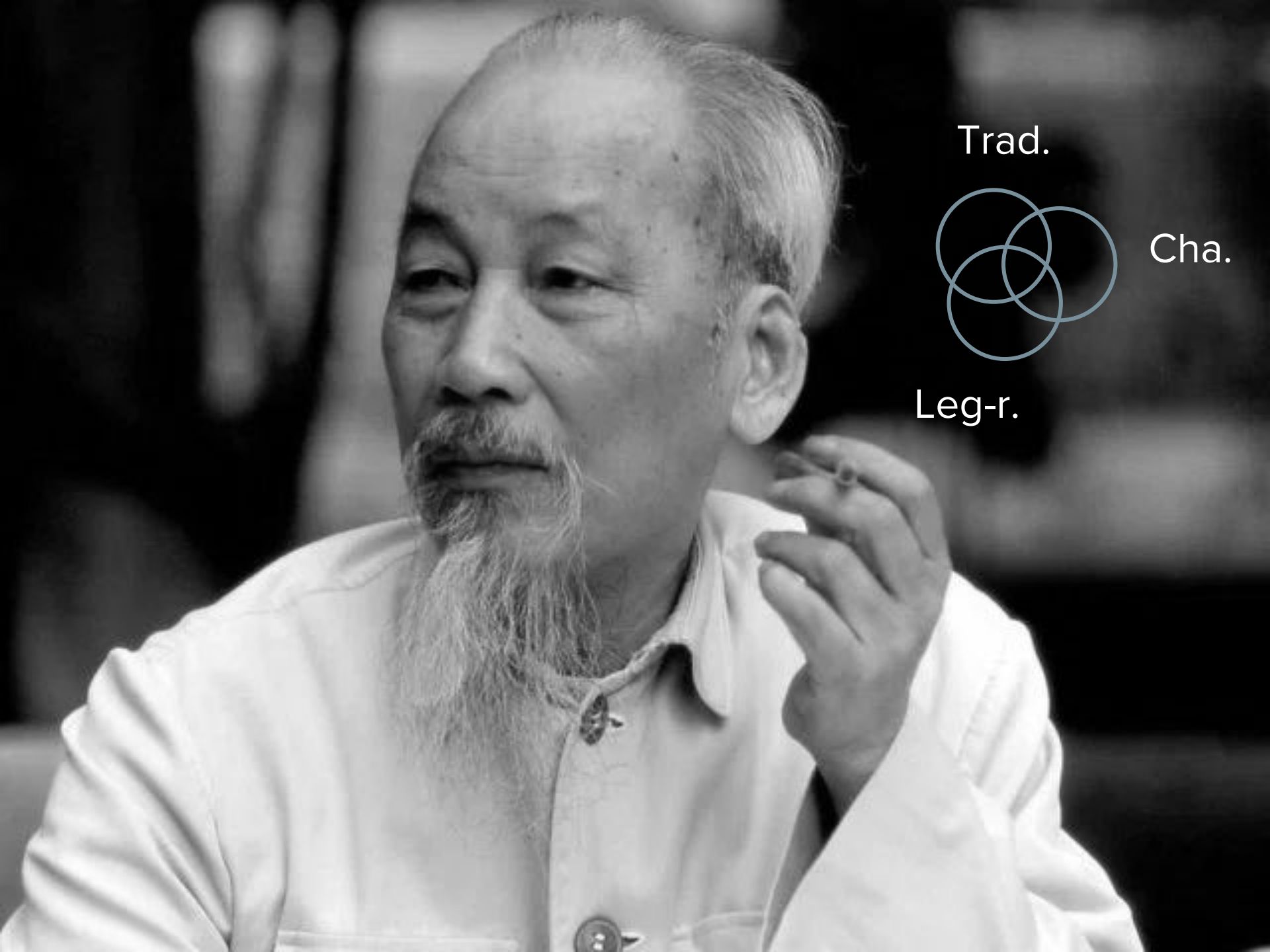
Interpretive social science

- Theory formation via **ideal-types**
  - Shared understandings that are **taken for granted**
  - Separable in theory, **mixed together in practice**
- Empirical basis: **common-sense knowledge** (p. 268-9)

  ⇔ **Mental constructs** shared in everyday life

  ⇔ **‘First-degree’ understanding** (second: ideal-types)
- Classical ideal-type example: **modes of domination**

  Traditional · Charismatic · Legal-rational


Trad.
Cha.
Leg-r.

Disagreements about Weber (p. 259)

- **Motives for action** are amenable to observation

⇒ Can we really study things that are *immanent*?

- **Emotions** and psychological states determine action
- **Social values** can be studied in a neutral fashion

⇔ **Value-neutral sociology**


QUESTIONS

Bonus digression: Immanuel Kant / 1

"Kant's whole ethics amounts to the idea that every person, in every action, must reflect on **whether the maxim of his action can become a general law.**"

(Hannah Arendt, interview with Joachim Fest, 1964)

⇒ Were Popper and the Vienna Circle **neo-Kantians?**

Possibly. Yet, ...

Bonus digression: Immanuel Kant / 2

… yet Kant's *Critique of Judgment* insists that we "**think from the standpoint of everyone else**"

[… which is why Arendt mentions Kant to Fest in the previous quote: she is discussing Adolf Eichmann's lack of empathy.]

⇒ From that viewpoint, **Schütz** is the true neo-Kantian here.

Tutorial 5 in Epistemology and Methodology of the Social Sciences

François Briatte

Fall 2017

Course announcements

- **Slides** for Tutorial 3 (Schütz) are **now online**

  Bonus slides for Tutorial 2 (Feyerabend, Lakatos) are coming up soon in my next email

- **Quiz grades** for Tutorials 1 and 2 are **now online**

  If you were absent, please justify it with admin and tell them to email me

- **Midterm is coming!**
  - November 8 – see **Hyperplanning**
  - All information to be provided in Janis' lecture

Tutorials 5–8

Welcome to Part II.

Methodological approaches

Reading 9

della Porta

11 Comparative analysis: case-oriented versus variable-oriented research

Donatella della Porta

Comparative analysis holds a central place in social science research. There is a well-established view in the social sciences that it should be based on variables (see Héritier, ch. 4, and Schmitter, ch. 14). Yet much research – especially in political science, but also in some branches of sociology – is case-oriented: that is, it aims at rich descriptions of a few instances of a certain phenomenon. This chapter argues that both approaches are legitimate. Variable-oriented studies mainly aim at establishing generalized relationships between variables, while case-oriented research seeks to understand complex units. Some people would argue that case-based comparisons follow a different logic of research, while others insist that the rules are essentially the same.

The chapter starts by introducing the debate on comparative analysis, distinguishing the experimental, statistical and 'comparative' methods. We then single out two main strategies of research, presenting their origins in the methodological reflections by Durkheim and Weber, and focusing on the assumptions that are linked to the variable-oriented and case-oriented approaches, respectively. Advantages and disadvantages of each will be discussed on the basis of illustrations from social science works on democratization, political violence and political participation, looking at examples of large-*N* statistical research designs and contrasting them with small-*N* comparisons, especially in the tradition of historical sociology. The chapter also discusses recent attempts to bridge the gap between the two approaches, in particular with qualitative comparative analysis (QCA) and recent reflections on the case-oriented strategy. Conditions that might influence the choice of one logic or the other include environmental conditions (such as stages in a research cycle or types of data available) and researchers' epistemological preferences as to approach and methodological skills. We then look at strategies

I am grateful to Marco Giugni, Michael Keating, Leonardo Morlino, Philippe Schmitter, Pascal Vennesson and Claudius Wagemann for helpful comments on previous versions of this chapter.

Comparison as variables and observations · *X, Y, N*

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8	32	Argentina	ARG	160	32	QoGStdCSJan16	.	.	25	2
9	36	Australia	AUS	900	36	QoGStdCSJan16	64	2.61e+09	.	.
10	40	Austria	AUT	305	40	QoGStdCSJan16	103	4.61e+08	.	1
11	44	Bahamas	BHS	31	44	QoGStdCSJan16	.	.	1	1
12	48	Bahrain	BHR	692	48	QoGStdCSJan16	.	.	1	1
13	50	Bangladesh	BGD	771	50	QoGStdCSJan16	.	.	1	1
14	51	Armenia	ARM	371	51	QoGStdCSJan16	.	.	21	2
15	52	Barbados	BRB	53	52	QoGStdCSJan16	.	.	10	5
16	56	Belgium	BEL	211	56	QoGStdCSJan16	108	1.53e+09	.	.
17	64	Bhutan	BTN	760	64	QoGStdCSJan16	.	.	15	9
18	68	Bolivia	BOL	145	68	QoGStdCSJan16	.	.	23	1
19	70	Bosnia and Herzegovina	BIH	346	70	QoGStdCSJan16	.	.	2	1
20	72	Botswana	BWA	571	72	QoGStdCSJan16	.	.	16	8
21	76	Brazil	BRA	140	76	QoGStdCSJan16	74	1.19e+08	22	1
22	84	Belize	BLZ	80	84	QoGStdCSJan16	.	.	1	8
23	90	Solomon Islands	SLB	940	90	QoGStdCSJan16	.	.	1	1
24	96	Brunei	BRN	835	96	QoGStdCSJan16	.	.	.	.
25	100	Bulgaria	BGR	355	100	QoGStdCSJan16	.	.	.	1
26	104	Myanmar	MMR	775	104	QoGStdCSJan16	.	.	24	7
27	108	Burundi	BDI	516	108	QoGStdCSJan16	.	.	21	13
28	112	Belarus	BLR	370	112	QoGStdCSJan16	.	.	18	9

Comparison as 3 methods (p. 200)

Experimental methods

(Limited applications)

Quantifiable variables

Treatment(s) and controls

Statistical methods

(Many applications)

Quantifiable variables

Competing hypotheses

Comparative methods

a.k.a. **case studies** ('small-N')

(Many applications)

Mostly qualitative information

Many dimensions of analysis

⇒ **'Many variables, small N' problems** (Lijphart)

⇒ **Case-oriented** logic ≠ **Variable-oriented** logic

Comparison as 2 logics (p. 203)

Durkheimian logic

(Tutorials 1–2, esp. van Evera)

Specification

Statistical methods

⇒ Concomitant variation

Functional explanation

⇒ **Effects of external causes**

Weberian logic

(Tutorials 3–4, esp. Schütz)

Ideal-typification

Narrative method

⇒ Agreement and difference

Genetic explanation

⇒ **Internal causes of effects**

Example: *States and Social Revolutions* (Skocpol 1979)

A COMPARATIVE ANALYSIS
OF FRANCE, RUSSIA, AND CHINA

Step 1

Commensurate

i.e. identify and measure comparable dimensions

A. Conditions For Political Crises

	Monarchy/ Dominant Class	Agrarian Economy	International Pressures
France	Landed–commercial dominant class has leverage within semibureaucratic absolue monarchy.	Growing, but no break-through to capitalist agriculture.	Moderate. Repeated defeats in wars, especially due to competition from England.
Russia	Highly bureaucratic absolutist state; landed nobility has little political power.	Extensive growth; little devel-opment in core regions.	Extreme. Defeats in 1850s and 1905. Prolonged participation and defeat in WWI.
China	Landed–commercial dominant class has leverage within semi-bureaucratic absolutist state.	No developmental breakthrough; near limits of growth, given population and available land.	Strong. Defeats in wars and imperialist instrusions.

Example: *States and Social Revolutions* (Skocpol 1979)

A COMPARATIVE ANALYSIS
OF FRANCE, RUSSIA, AND CHINA

Step 2

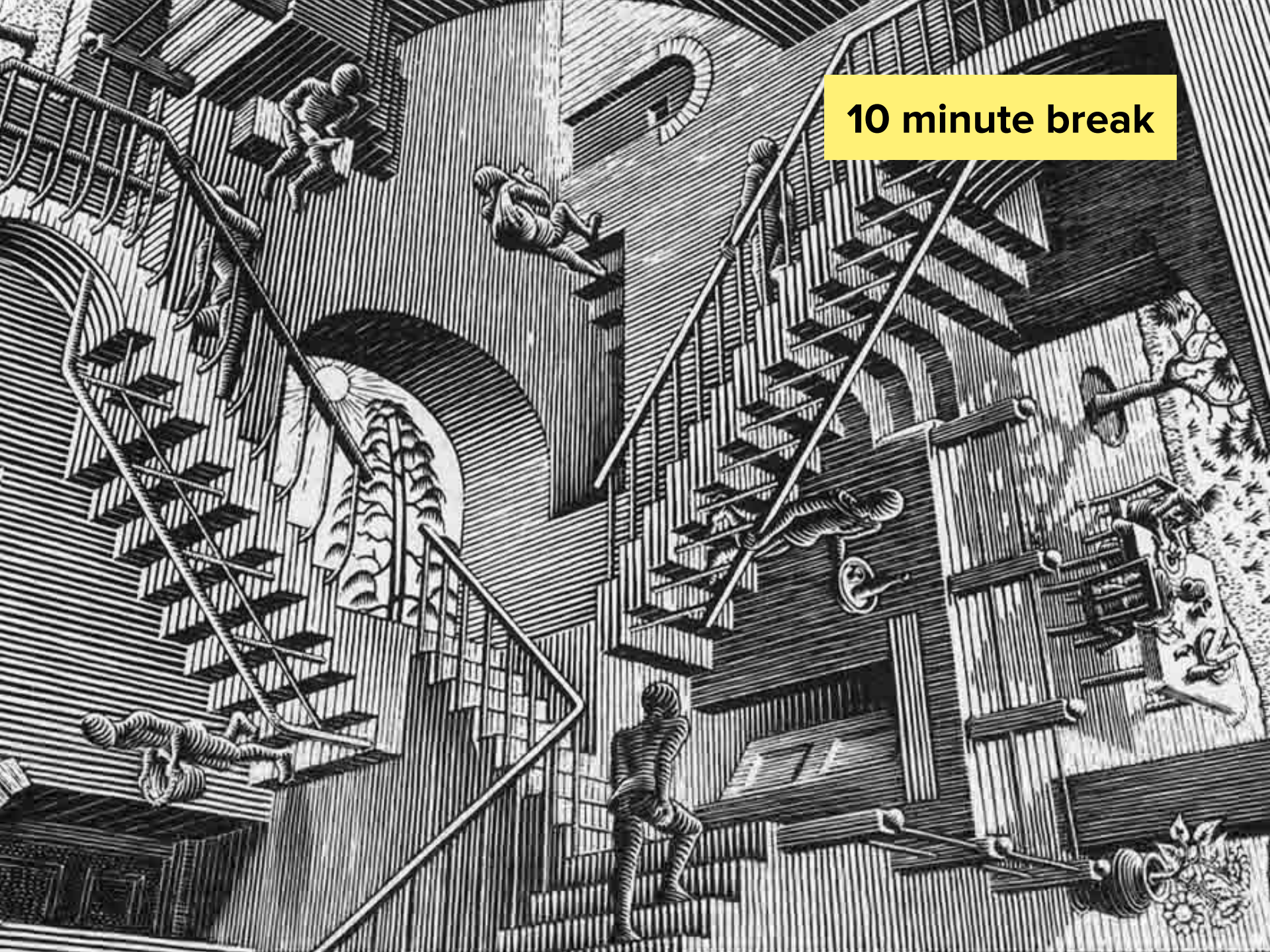
Compare and contrast

i.e. identify and interpret similarities and differences

Table 2. *Outcomes of Social Revolutions in France, Russia, and China*

Effects of Social-Revolutionary Crises	Socioeconomic Legacies of the Old Regimes	International and World-Historical Circumstances
Similarities		
Liberal stabilization impossible. Dominant classes vulnerable. Popular groups available for political mobilization.	Society remains predominantly agrarian with peasants a major presence.	Nation intensively caught up in international competition during and after revolution.
France		
Liberal phases, but not stable. Organizational framework of royal line armies survives. Peasant revolts abolish seigneuri-	Agrarian-commercial economy of small and medium units; industry nonmechanized. No industrial proletariat. Petty-propertied	France involved in Continental military competition as a potentially hegemonic power. State control of national economic development not yet a world-historical


QUESTIONS


10 minute break

Comparison as 2 ‘system’ designs (p. 204)

comparative statics

⇔ ‘controls’

causal factors

⇔ ‘treatments’

outcomes

⇔ ‘results’ (responses)

Case 1	Case 2	Case n
a b c	d e f	g h i
x	x	x
y	y	y

Positive case(s)	Negative case(s)
a b c	a b c
x	not x
y	not y

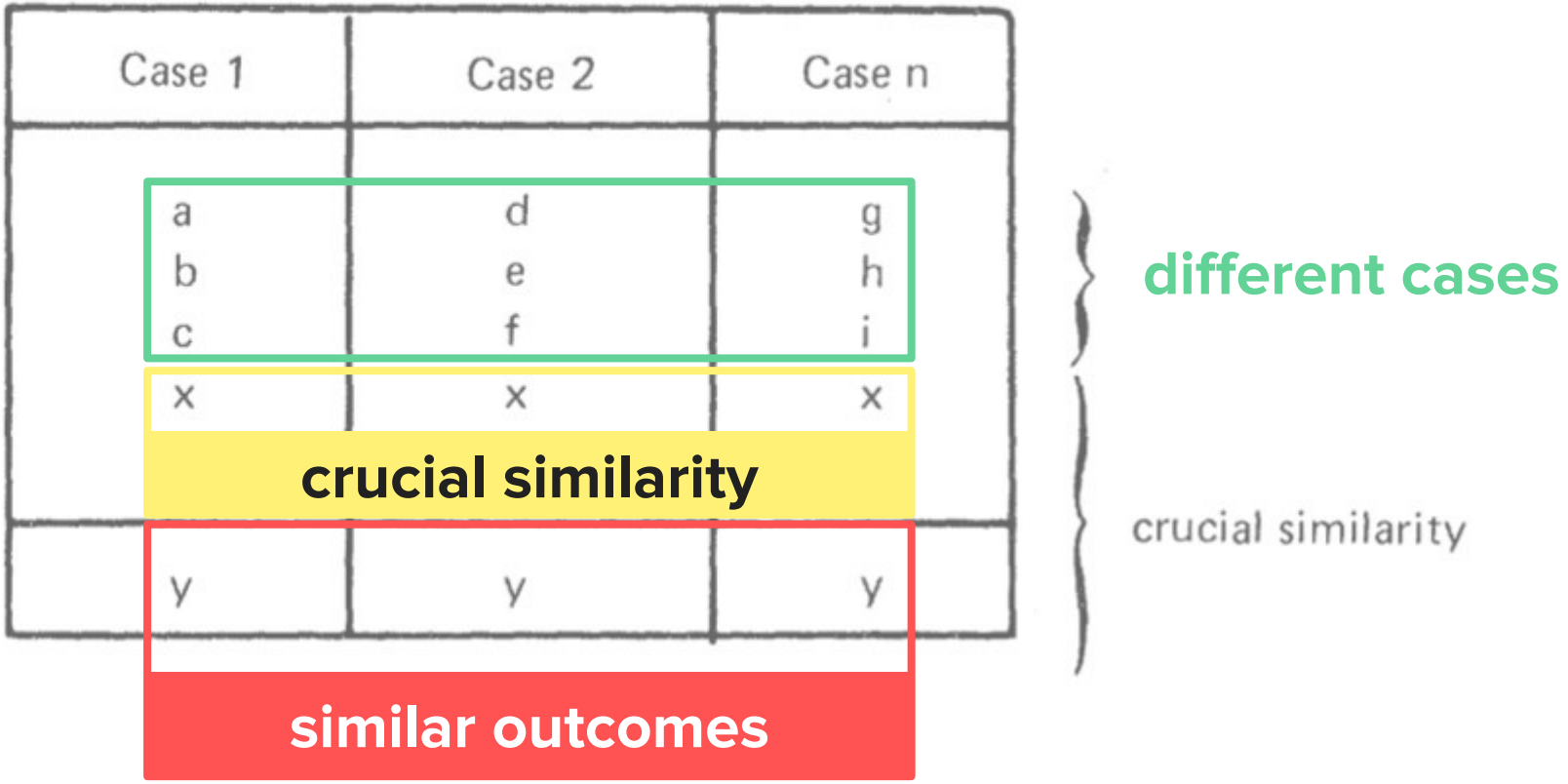
Mill's method of agreement

Case 1	Case 2	Case n
a b c x	d e f x	g h i x
y	y	y

overall differences

crucial similarity

Most Different Systems Design (MDSD)



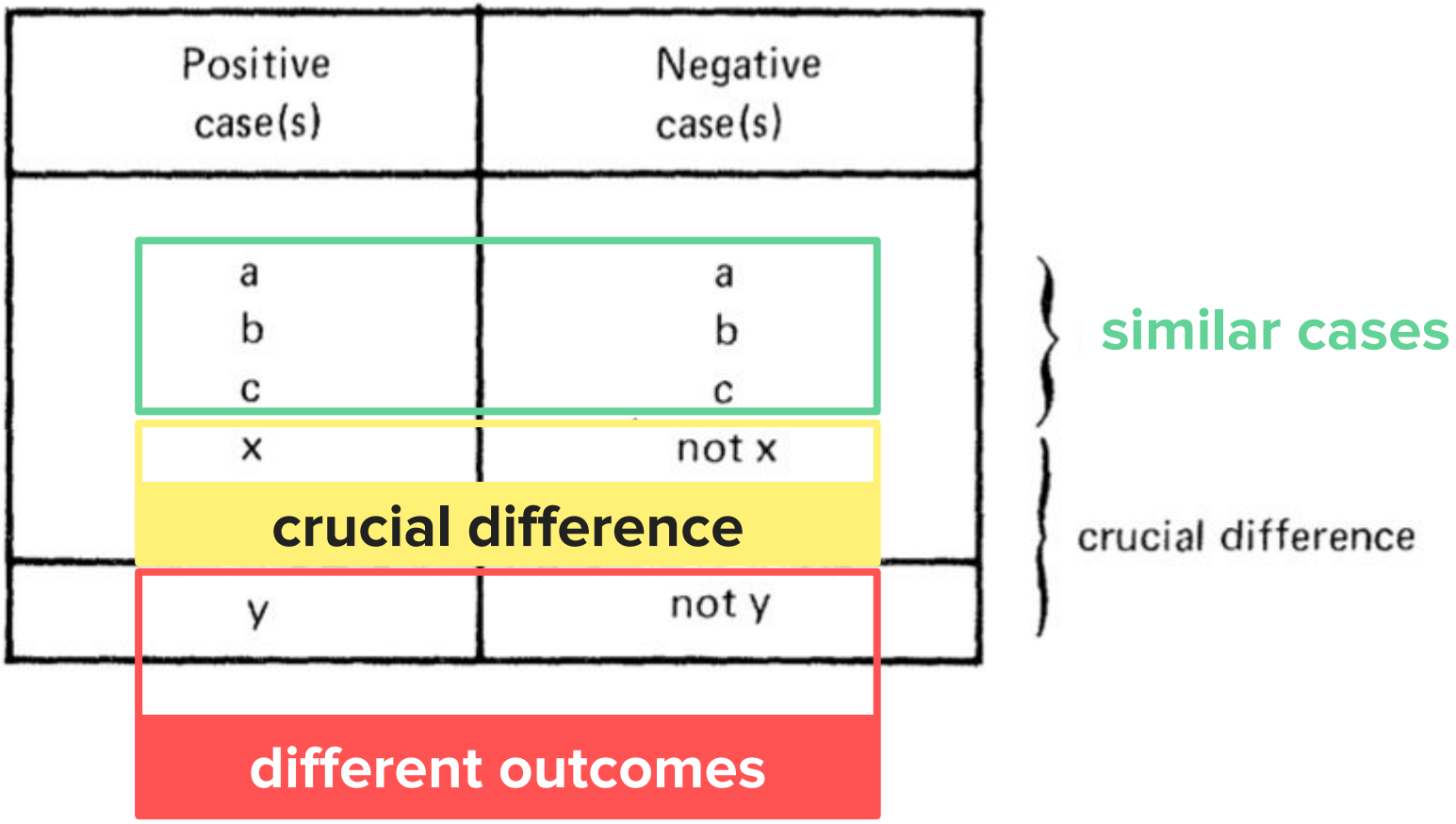
Mill's method of difference

Positive case(s)	Negative case(s)
a b c x	a b c not x
y	not y

overall similarities

crucial difference

Most Similar Systems Design (MSSD)



Issues in case study methods

- '**Same causes**, same effects' ≠
  '**Same effects**, same causes'

  ⇔ Issue = **Causality**

- Generalizing **from singular events**,
  to singular events

  ⇔ Issues = **Comparability** + **Conceptualization**

- **Which** cases, and **how many**?

  ⇔ Issue = **Case selection** = **Research design**

Reading 10

Franklin

13 Quantitative analysis

Mark Franklin

Quantification is one way of employing the scientific method to discover things about the world. In the social sciences we are trying to discover things about the social world, but the approach we use can still be regarded as scientific. The scientific approach attempts to abstract from the nuances and details of a story the salient features that can be built up into a theoretical statement (or statements) expected to hold true of any situation that can be defined in terms of the same abstractions. If such a theoretical statement does not hold true in some specific situation, this is presumed to be either because the theory was wrong or because it was not sufficiently elaborated. Elaborating social theories to bring in additional features of the world, found necessary for a full explanation, is an important feature of the scientific approach; but for elaboration to progress very far we need to employ quantitative analysis, as this chapter will try to show.

The transition from case studies to quantitative analysis is largely a matter of the number of cases. If you have one case, no causal inferences can be made. If you have two cases, you can rule out something as a necessary condition for something else. If you have three cases you can rule out two things, or you can start to make quantitative statements (for example, something might be found to pertain two-thirds of the time). As soon as you start saying things like 'this happens two-thirds of the time' you are doing quantitative analysis. But in order to make such statements you need to be able to abstract general features that are common to many cases, which tends to require a more elaborate theoretical basis for a quantitative study than for a case study. You also need a fairly large number of cases.

Exactly what constitutes 'fairly large' in the above statement is not at all clear, and in practice there is a large area of overlap in which one researcher would talk of a 'multiple case study' while another would talk of a 'small-*N* study' (the letter *N* in the quantitative tradition stands for 'number of cases'; as soon as you see cases referred to in that way, you know you are reading something written in the quantitative tradition).

Terminology of quantitative research

- **Surveys**

  Target populations ⇔ **Samples**

  Randomization ⇔ **Representativeness**

- **Datasets**

  Observations · Variables

  Panel data and time series · N, T

- **Statistics**

  Descriptive statistics · Statistical models

Example: ***N* = 1** U.S. presidential election

Vox

EXPLAINERS POLITICS & POLICY WORLD CULTURE SCIENCE & HEALTH IDENTITIES MORE

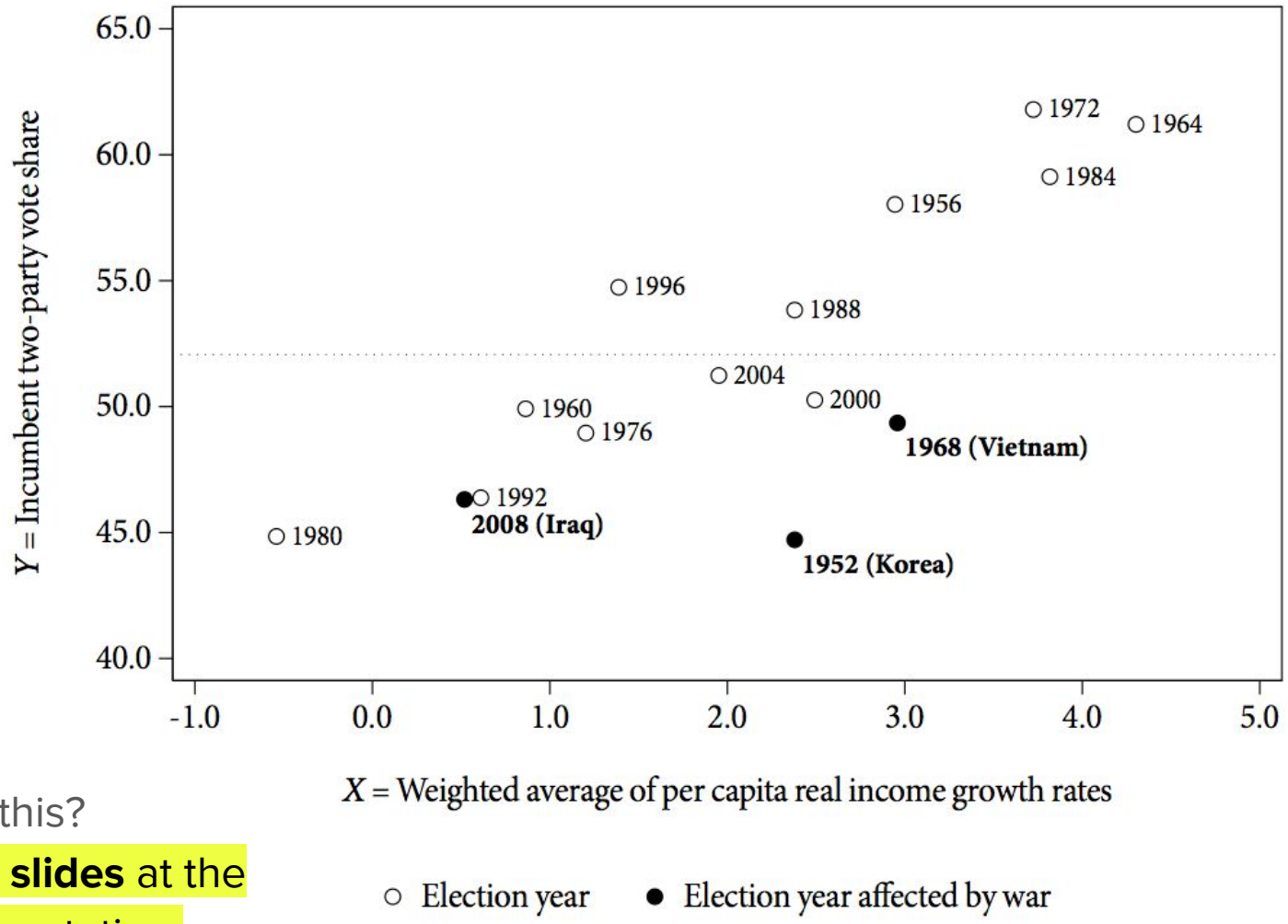
Everything mattered: lessons from 2016's bizarre presidential election

WTF just happened?

Updated by David Roberts | @drvox | david@vox.com | Nov 30, 2016, 8:30am EST

A ‘bizarre’ election?

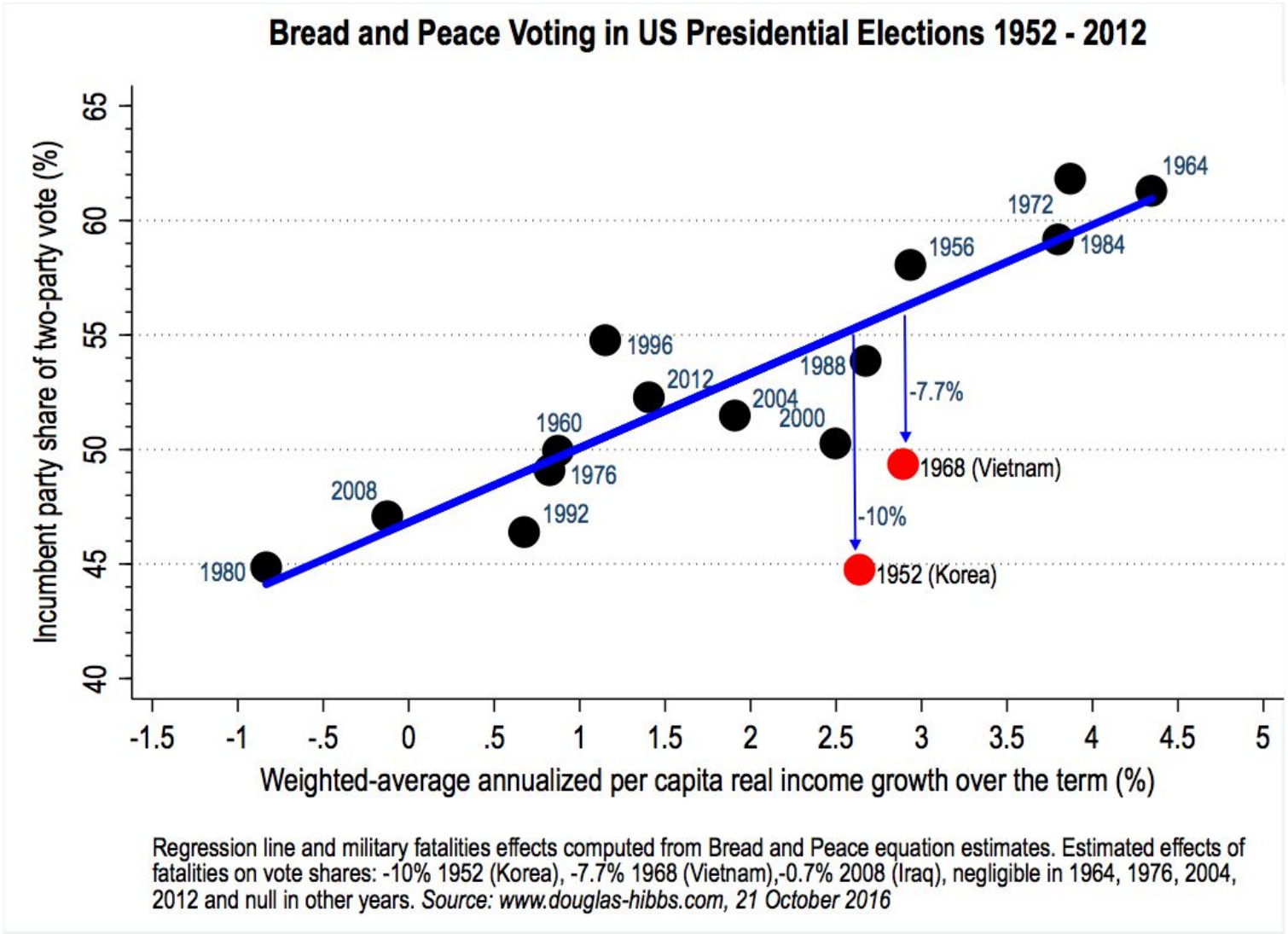
Example: ***N* = 15** U.S. presidential elections



Curious about this?

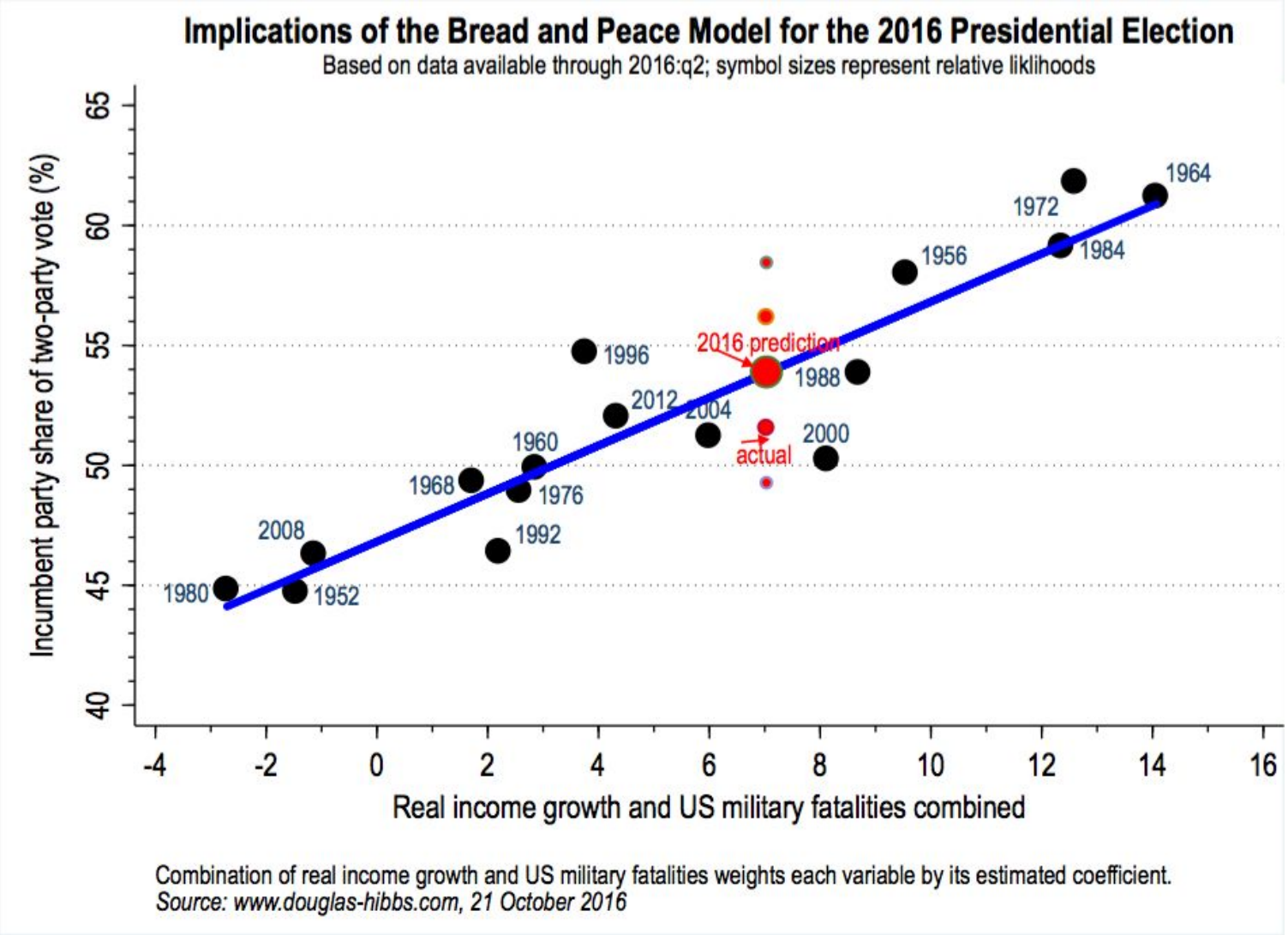
See the **bonus slides** at the end of this presentation.

Argument: Bread = income, Peace = War fatalities



Regression line and military fatalities effects computed from Bread and Peace equation estimates. Estimated effects of fatalities on vote shares: -10% 1952 (Korea), -7.7% 1968 (Vietnam),-0.7% 2008 (Iraq), negligible in 1964, 1976, 2004, 2012 and null in other years. *Source: www.douglas-hibbs.com, 21 October 2016*

Application to the 2016 presidential election




QUESTIONS

Homework

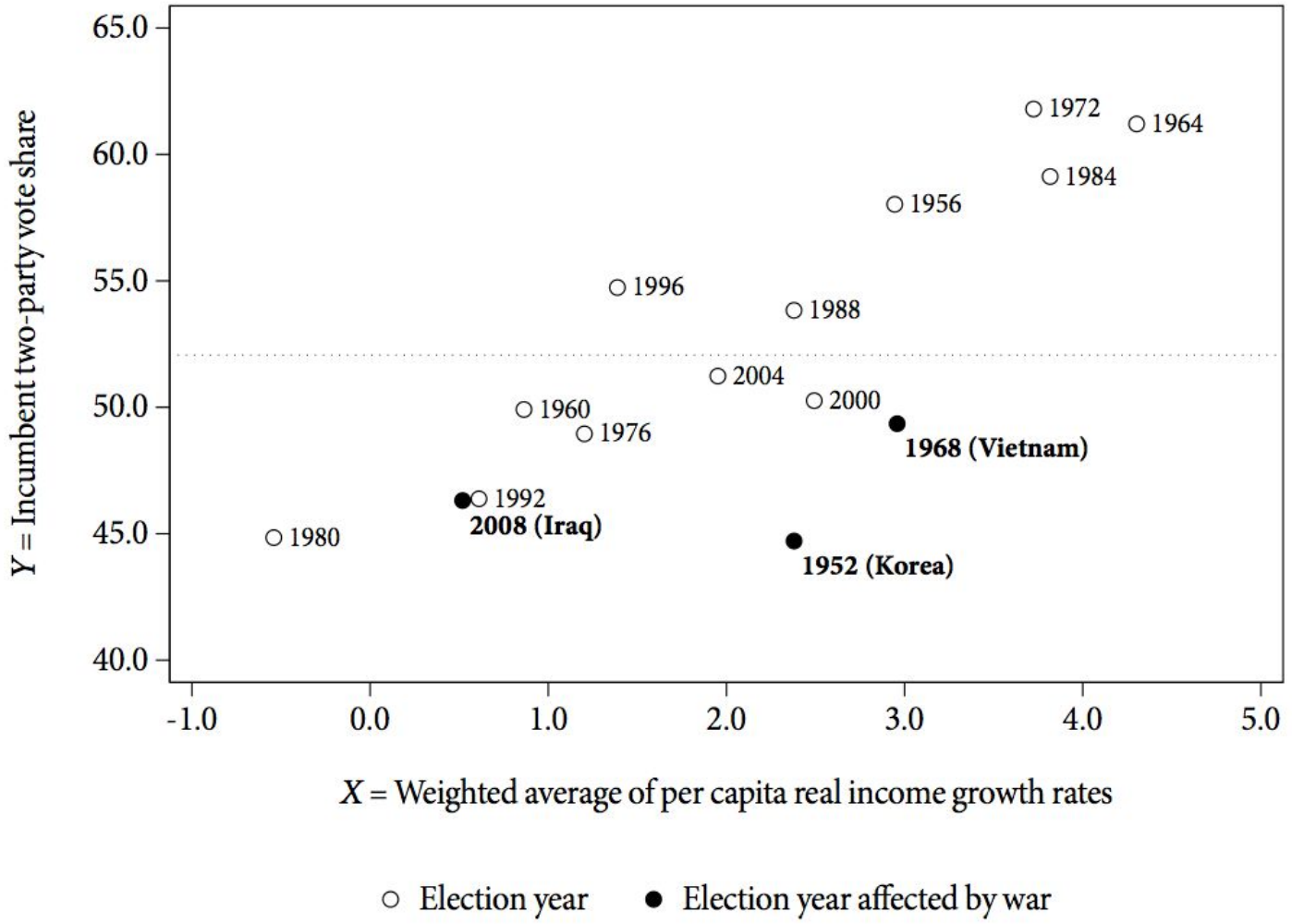
Read Franklin if you have not already

Read Martin

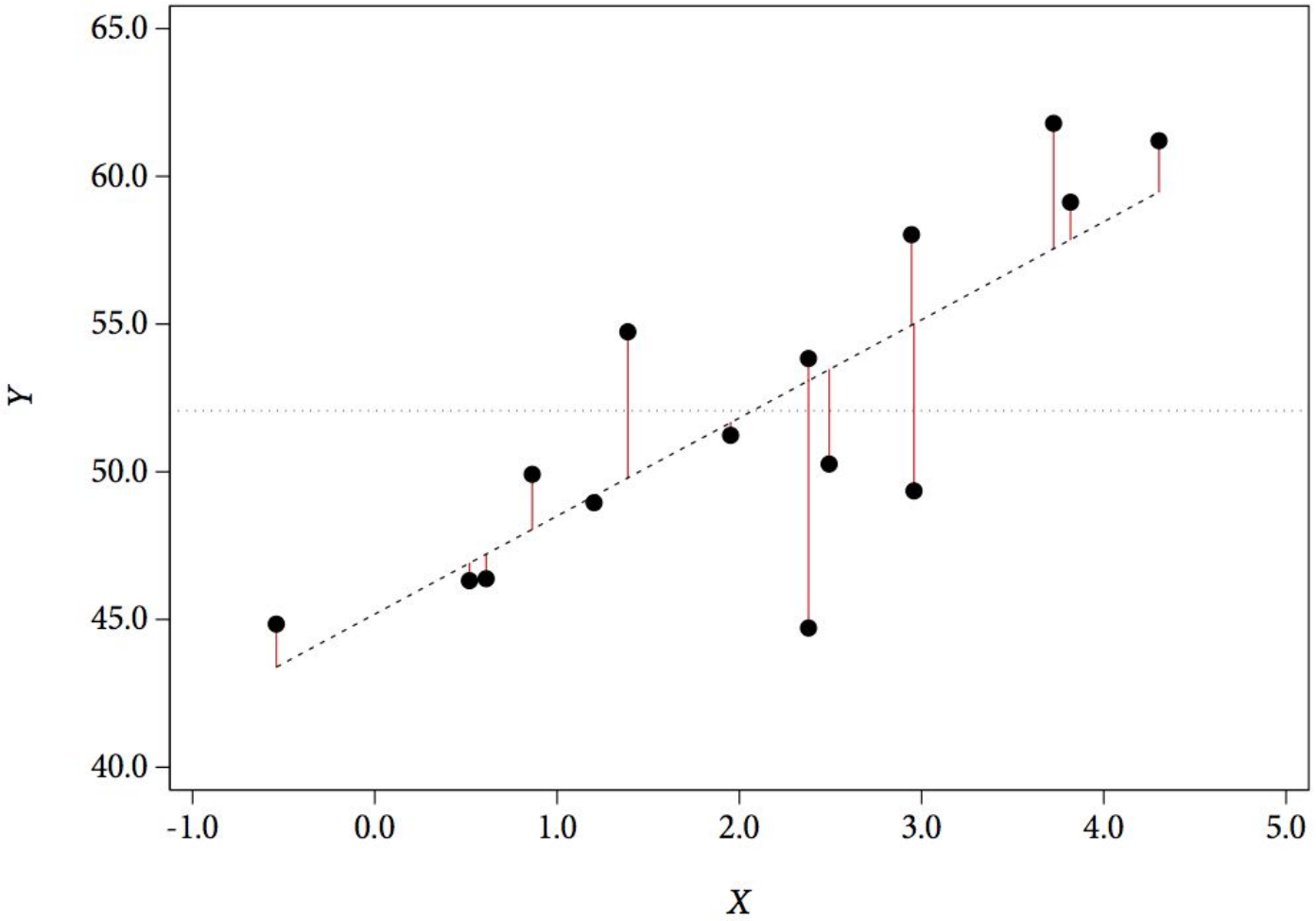
Bonus slides

More about Douglas Hibbs' 'Bread and Peace' model

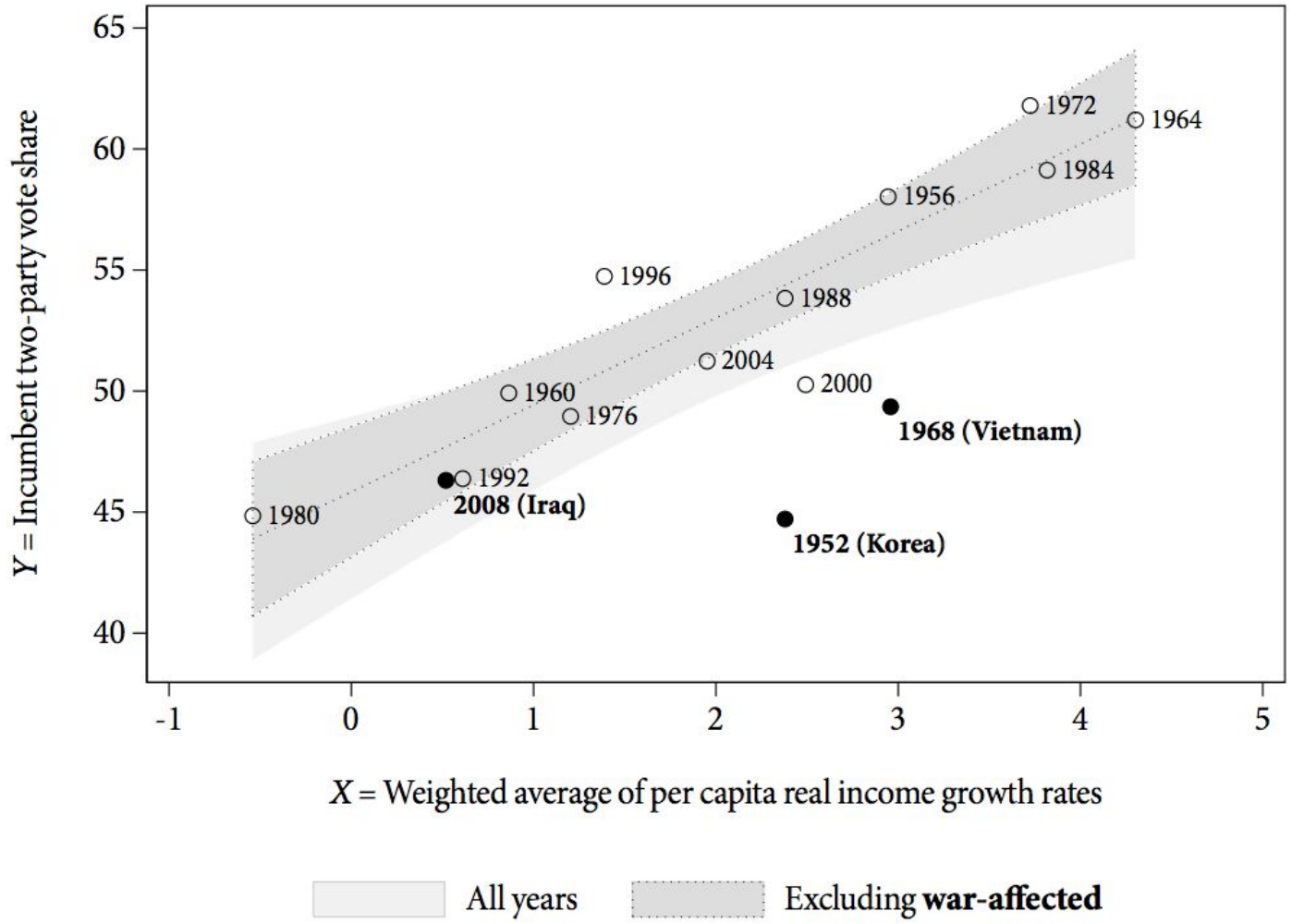
1 Data: *N* = 15 U.S. presidential elections



2 **Linear model:** $Y = f(X)$, with $f = m \cdot X + b$



3 Visualization of the model



4 Estimation of the model

```
. reg vote bread peace, beta
```

Source	SS	df	MS
Model	417.215728	2	208.607864
Residual	53.843113	12	4.48692608
Total	471.058841	14	33.6470601

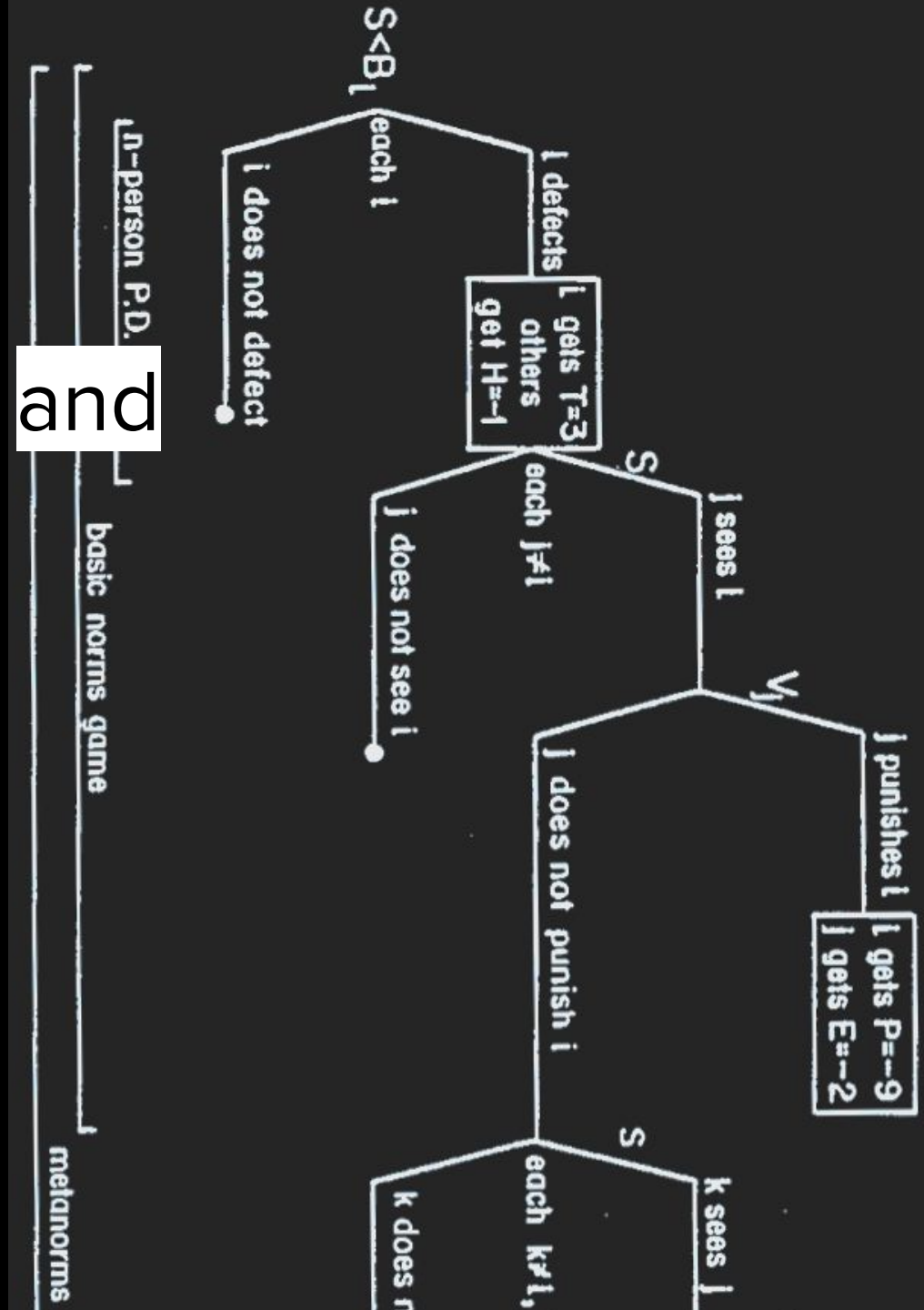
Number of obs	15
F(2, 12)	46.49
Prob > F	0.0000
R-squared	0.8857
Adj R-squared	0.8666
Root MSE	2.1182

vote	Coef.	Std. Err.	t	P>|t|	Beta
bread	3.637368	.414132	8.78	0.000	.866537
peace	-.0504247	.0096548	-5.22	0.000	-.5152733
_cons	45.72775	1.013267	45.13	0.000	.

Tutorial 6 in **Epistemology** and **Methodology** of the **Social Sciences**

François Briatte

Fall 2017



Tutorials 5 and 6

- **Tutorial 5** was about **comparing**

  Experiments · Statistical Analysis · Case Studies

  Qualitative / Quantitative Methods

- **Tutorial 6** is about **modeling**

  Rational Choice Theory · Game Theory

  Formal Methods / Models

- **Tutorials 7 and 8** will be about **interpreting**

  Ethnomethodology · Discourse Analysis

Modeling (ir)rational decisions

States like [North Korea, Iran, Iraq], and their terrorist allies, constitute an **axis of evil**... They could provide [weapons of mass destruction] to terrorists... They could attack our allies or attempt to blackmail the United States. In any of these cases, **the price of indifference would be catastrophic**.

George W. Bush · SoU address, 2002

... there are also **unknown unknowns** – the ones we don't know we don't know. And if one looks throughout the history of our country and other free countries, it is the latter category that tend to be **the difficult ones**.

Donald Rumsfeld · DoD briefing, 2002

Rational choice and game theory

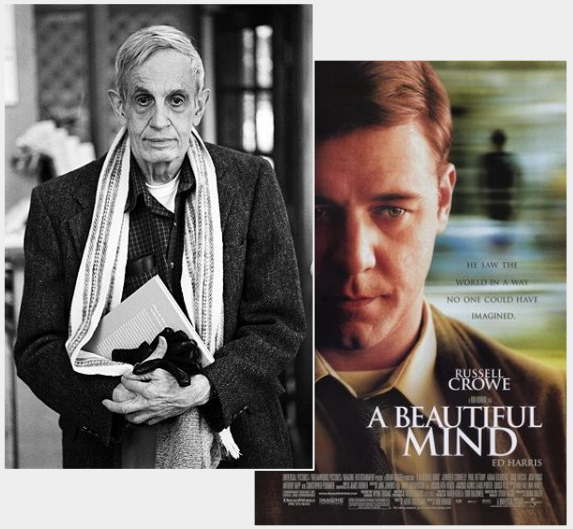
- "The **price of indifference** would be catastrophic"

  ⇒ **Costs** and benefits · **Utility** maximization

- "**Known unknowns**" and "unknown unknowns"

  ⇒ (Im)perfect and/or (in)complete **information**

- **Decision games**
  - **Two-player** *v.* multi-player
  - **Repeated** *v.* non-repeated
  - Optimal *v.* suboptimal **equilibrium**



Brinkmanship, according to Thomas Schelling, the Nobel Prize-winning economist who pioneered the theory of nuclear deterrence, is the art of "manipulating the shared risk of war." In 1966, he envisaged a nuclear standoff as a pair of mountain climbers, tied together, fighting at the edge of a cliff. Each will move ever closer to the edge, so that the other begins to fear that he might slip and take both of them down. It is a matter of creating the right amount of fear without losing control. Schelling wrote, "However rational the adversaries, they may compete to appear the more irrational, impetuous, and stubborn." But what if the adversaries *are* irrational, impetuous, and stubborn?

LETTER FROM PYONGYANG SEPTEMBER 18, 2017 ISSUE

THE RISK OF NUCLEAR WAR WITH NORTH KOREA

Game-theoretic representations

Decision trees

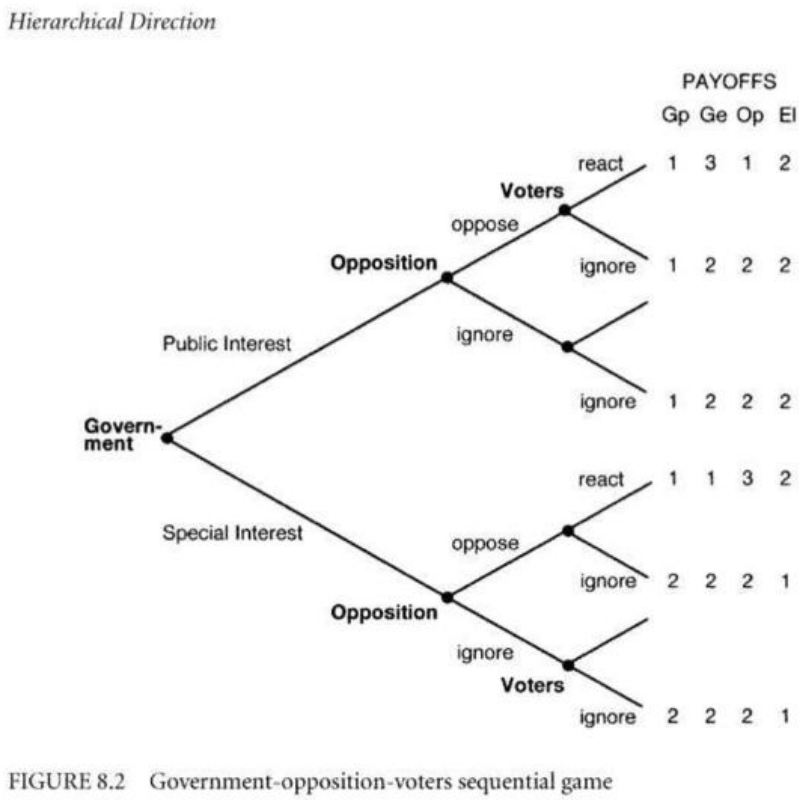
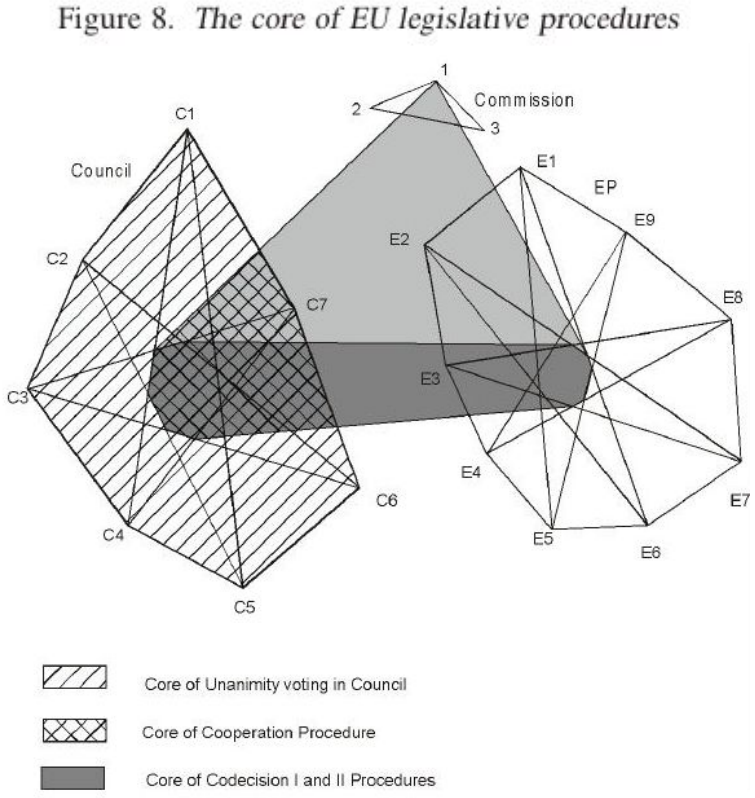


FIGURE 8.2 Government-opposition-voters sequential game

Scharpf 1997, p. 185

Spatial analysis



Tsebelis 2004, p. 133

Game-theoretic representations

Payoff matrixes

	Mobilize	Don't mobilize
Mobilize	–10, –10	10, –20
Don't mobilize	–20, 10	0, 0

World War I dilemma

	Increase arms	Decrease arms
Increase arms	25, 25	200, –100
Decrease arms	–100, 200	100, 100

A simple arms race

Niou and Ordeshook 2015, p. 183 and 189

Prisoner's Dilemma (Sigmund 2010, p. 3)

This strange game is an example of a *Prisoner's Dilemma*. This is an interaction between two players, player I and II, each having two options: to cooperate (play C) or to defect (play D). If both cooperate, each obtains a *Reward R* that is higher than the *Punishment P*, which they obtain if both defect. But if one player defects and the other cooperates, then the defector obtains a payoff T (the *Temptation*) that is even higher than the Reward, and the cooperator is left with a payoff S (the *Sucker's payoff*), which is lowest of all. Thus,

$$T > R > P > S. \tag{1.1}$$

As before, it is best to play D, no matter what the co-player is doing.

		if player II plays C	if player II plays D
Payoff for player I	if player I plays C	R	S
	if player I plays D	T	P

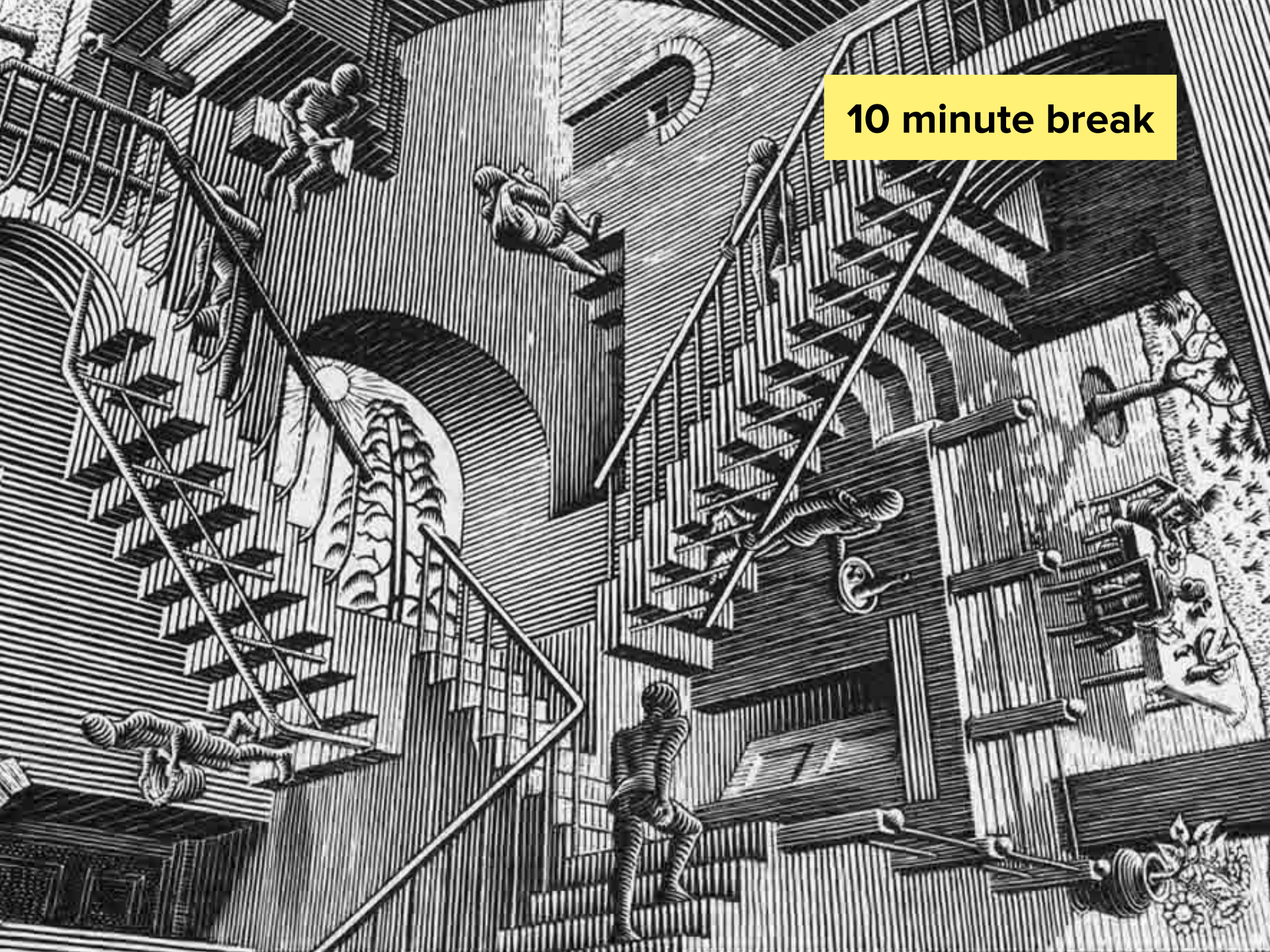
Prisoner's Dilemma (Sigmund 2010, p. 4)

The young mathematicians who first investigated this game were employees of the Rand Corporation, which was a major think tank during the Cold War. They may have been inspired by the dilemma facing the two superpowers. Both the Soviet Union and the United States would have been better off with joint nuclear disarmament. But the temptation was to keep a few atomic bombs and wait for the others to destroy their nuclear arsenal. The outcome was a horrendously expensive arms race.

Reminder: $T > R > P > S$

		if player II plays C	if player II plays D
Payoff for player I	if player I plays C	R	S
	if player I plays D	T	P


QUESTIONS


10 minute break

Reading 11

Martin

Interests, power, and multilateralism

Lisa L. Martin

Within the European Community (EC), member states increasingly accept the results of majoritarian voting procedures as constraints on their foreign policies, particularly on economic issues. At the same time, the United States is turning more frequently to bilateral negotiations to solve its international trade dilemmas. Some international organizations involve all members in important decisions through regularized, weighted voting mechanisms; others—for example, the United Nations (UN)—delegate some decision-making powers to a subset of actors (such as the UN Security Council). Some organizations have gained widespread monitoring powers and have developed dispute resolution mechanisms; others are primarily talking shops or negotiating arenas. This article considers the functional imperatives that contribute to such variance in patterns of international cooperation and uses the concept of multilateralism as a metric with which to characterize the patterns thus observed.

States can choose from a wide array of organizing forms on which to base their interactions; among these is multilateralism. A number of recent works have explored situations in which states have used varying degrees of multilateralism to structure their relations.[1] This article argues that studies of

This article was originally prepared for the Ford Foundation West Coast Workshop on Multilateralism, organized by John Gerard Ruggie. The author gratefully acknowledges the Ford Foundation's financial support for this project. My thanks also to Robert Keohane and Stephen Krasner, as well as to the participants in this project, for their valuable comments on this research.

1. See Geoffrey Garrett, "International Cooperation and Institutional Choice: The European Community's Internal Market," *International Organization* 46 (Spring 1992), pp. 533–60; John Gerard Ruggie, "Multilateralism: The Anatomy of an Institution," *International Organization* 46 (Summer 1992), pp. 561–98; James A. Caporaso, "International Relations Theory and Multilateralism: The Search for Foundations," *International Organization* 46 (Summer 1992), pp. 599–632; Steve Weber, "Shaping the Postwar Balance of Power: Multilateralism in NATO," *International Organization* 46 (Summer 1992), pp. 633–80; Miles Kahler, "Multilateralism with Small and Large Numbers," *International Organization* 46 (Summer 1992), pp. 681–708; and John Gerard Ruggie, ed., *Multilateralism Matters: The Theory and Praxis of an Institutional Form* (New York: Columbia University Press, forthcoming). See also *International Journal* 45 (Autumn 1990), which is a special issue on multilateralism.

International Organization 46, 4, Autumn 1992

Problem definition

- **Distributions of power**

  Hegemony · Bipolarism · Multilateralism (EU, UN)

- **Successful multilateralism**

  Indivisibility · Nondiscrimination (MFN) · Reciprocity

- **Cooperation problems**

  Collaboration and *Coordination* (symmetric preferences)

  Suasion (asymmetric preferences)

  Assurance (imperfect or incomplete information)

Collaboration problems

- **Repeated Prisoner's Dilemma strategies**

  Tit-for-tat · Trigger strategy

  ⇒ Specific reciprocity requires credible sanctions

- **Free riding on multilateral norms**

  Public goods (non-rival, non-excludable) · Free-riding

  ⇒ Multilateralism risks a '**tragedy of the commons**'

Coordination problem

A \ B	0	1
0	4, 3	1, 2
1	2, 1	3, 4

FIGURE 2. *A coordination game with divergent interests (battle of the sexes)*

Collaboration or coordination problem?

Could Ireland credibly threaten to veto an EU-UK trade deal?

Kevin O'Rourke

August 26, 2017

Brexit, Trade, Uncategorized

For years now, Ireland and the UK have been the best of friends. Very sadly, Brexit is placing the relationship under strain. The positions of the two governments on the Irish border could not be further apart. Ireland is very clear: no trade deal that involves a physical border is acceptable. That obviously implies that the United Kingdom should seek to remain within the European Economic Area, and form a new customs union with the EU. This would replicate its existing trade ties with the bloc, while respecting the vote to leave the EU, and avoid the need for a border within Ireland. The United Kingdom, on its part, is adamant that it must leave the customs union in order to strike separate trade deals with the United States and other countries overseas. To be sure, it pays lip service to the importance of avoiding a border between Northern Ireland and the Republic, but this appears to be nothing more than a cynical manoeuvre. On the one hand, the

Suasion and assurance games

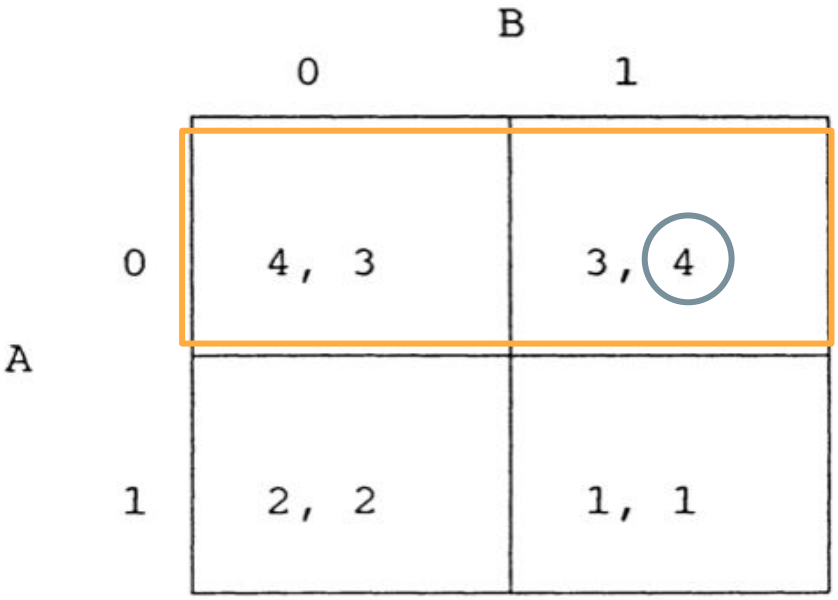


FIGURE 3. *A suasion game*

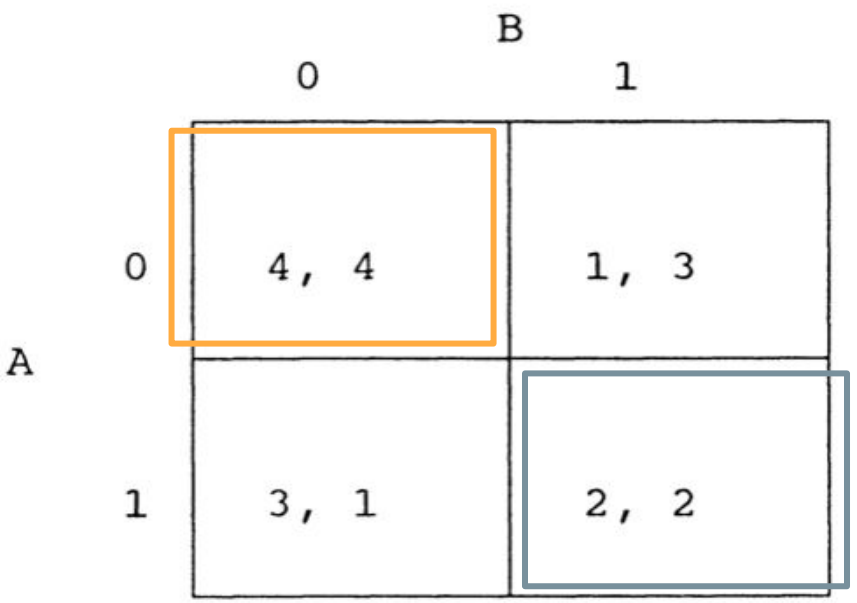


FIGURE 4. *An assurance game (stag hunt)*

dominant strategy (A)

most favoured outcome (B)

sole preferred outcome

suboptimal equilibrium


QUESTIONS

Next sessions

Tutorial 7 – Scott

Tutorial 8 – Cohn

Your instructor will be
Gayatri Rathore

Thank you for your attention,
and see you next semester

References

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Niou, Emerson M.S. and **Ordeshook**, Peter C. 2015. *Strategy and Politics. An Introduction to Game Theory*, London, Routledge.

Scharpf, Fritz. 1997. *Games Real Actors Play. Actor-Centered Institutionalism in Policy Research*, Boulder, Westview Press.

Sigmund, Karl. 2010. *The Calculus of Selfishness*, Princeton, Princeton University Press.

All references above are covered and/or cited in the previous slides.
For additional – and always *optional* – readings, see my emails.

References

Tsebelis, George S. 2004. “Institutional Analyses of the European Union,” in Lequesne, Christian and Surel, Yves (eds), *L’intégration européenne*, Paris, Presses de Sciences Po, pp. 117–41.

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