Some implications of traditional philosophy for current economics

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A prelude

" When Maxwell's Demon rank orders scientific disciplines by their "fruitfulness"and by their propensity to engage in methodological discussion, he finds a negative correlation and a strong inverse relationship. [...]

But, of course, I jest. Methodological discussion, like calisthenics and spinach, is good for us, [i]t is the Lord's work, and we are grateful."

(Samuelson 1963, 231)

Agenda

- main question:

  how to employ philosophical tools in order to improve our understanding of economic issues and economic theory?

- concepts (and applications)

  - ‚realism vs. instrumentalism' (in economic methodology)

  - ‚logic' (and the interpretation of economic assumptions)

  - ‚scientific explanation' (and its implications for economic models)

  - ‚falsificationism' (and the conflict of theory and data in economics)

  - ‚axiomatic variation' (and the flexibility of mainstream economics)

  - ‚ontology' (and the the issue of micro-meso-macro)

  - ‚paradigms' (and the role of pluralism in economic thought)

  - ‚performativity' (and the power of economics models)

An introduction:
The aims of science and the question of realism

- **the aims of science...**

  - **truth**, i.e. scientific accounts and empirical data/descriptions correspond closely

  - **order and system** to provide systematic accounts of known relationships and mechanisms, preferably by means of far-reaching laws

  - **simplicity**, i.e. making things as simple as possible (not simpler!)

- Philosophical controversy: truth or usefulness?

  - **correct predictions** (instrumentalism) or **correct prediction + a realistic account of the world** (realism)

$A_1, A_2, \ldots A_n$ (assumption)

Realism   True   ——————————

Instrumentalism   True   T   (Conclusion)
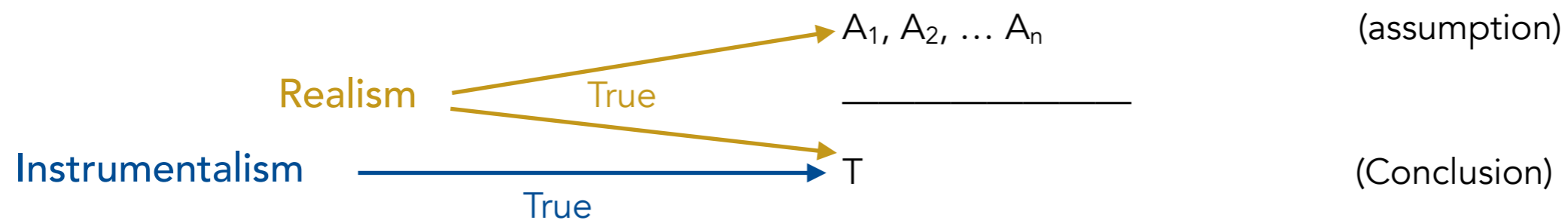
Instrumentalism in economics

> " Viewed as a body of substantive hypotheses, theory is to be judged by its predictive power for the class of phenomena which it is intended to 'explain'. "

Friedman 1953: The Methodology of Positive Economics.
In: *Essays of Positive Economics.*
(weak version)

Instrumentalism in economics

> "Truly important and significant hypotheses will be found to have ‚assumptions' that are wildly inaccurate descriptive representations of reality, and, in general, the more significant the theory, the more unrealistic the assumptions."

Friedman 1953: The Methodology of Positive Economics.
In: *Essays of Positive Economics.*
(strong version)

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Realism in economics

" Economics is a science of thinking in terms of models joined to the art of choosing models which are relevant to the contemporary world. It is compelled to be this, because, unlike the typical natural science, the material to which it is applied is, in too many respects not homogeneous through time. "

Keynes, John M. (1973[1938]): Briefwechsel mit Roy Harrod. In: Keynes, John M. (1973): Collected Works, Volume XIV, S. 295-300.

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Logic

Deduction

- „Deduction" is the derivation of novel statements (conclusions) from a set of given assumptions (premises).

    - misleading alternative definition: „to derive something specific out of something (more) general" - conclusions can be as general as premises.

    - e.g. from P_1: „all humans are mammals" and P_2: „all mammals are mortals" it follows that „all humans are mortal"

- For any deduction the following holds:

    - If the premises are true, the conclusion is true.

    - informational content of the conclusion $\leq$ informational content of premises

    - hence, deduction is suitable for exploring the implications of our current knowledge, but does not, by itself, extend our (empirical) knowledge.

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Deduction: Some simple examples

Any piece of metal is electroconductive. (premise)

This piece of metal is electroconductive. (conclusion)

For all humans (x) holds: If x eats 100 mg of death cups, x will be heavily poisoned (P_1)

Hans has eaten 100 mg of death cups. (P_2)

Hans suffers from a heavy poisoning. (C)

Deduction: Some simple examples

Either Maria or Peter had eaten the last piece of cake. (P_1)

Maria has not eaten the last piece of cake. (P_2)

Peter has eaten the last piece of cake. (C)

If two times two equals five, then Santiago de Chile is a small town. (P_1)

Two times two equals five. (P_2)

Santiago de Chile is a small town. (C)

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Deduction: lessons learned!

- „logically valid" and „empirically correct" are two entirely different things

  - An argument can be logically valid, even if all statements are empirically false.

- What is the exact relationship between logics and empirics?

  - If the premises are true, the conclusions are true.

  - If the premises are false, the conclusions are either true or false.

  - If the conclusion is false, at least one of the premises must be false.

  - If the conclusion is true, the premises are be either true or false.

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Checking our deductive intuition: a riddle
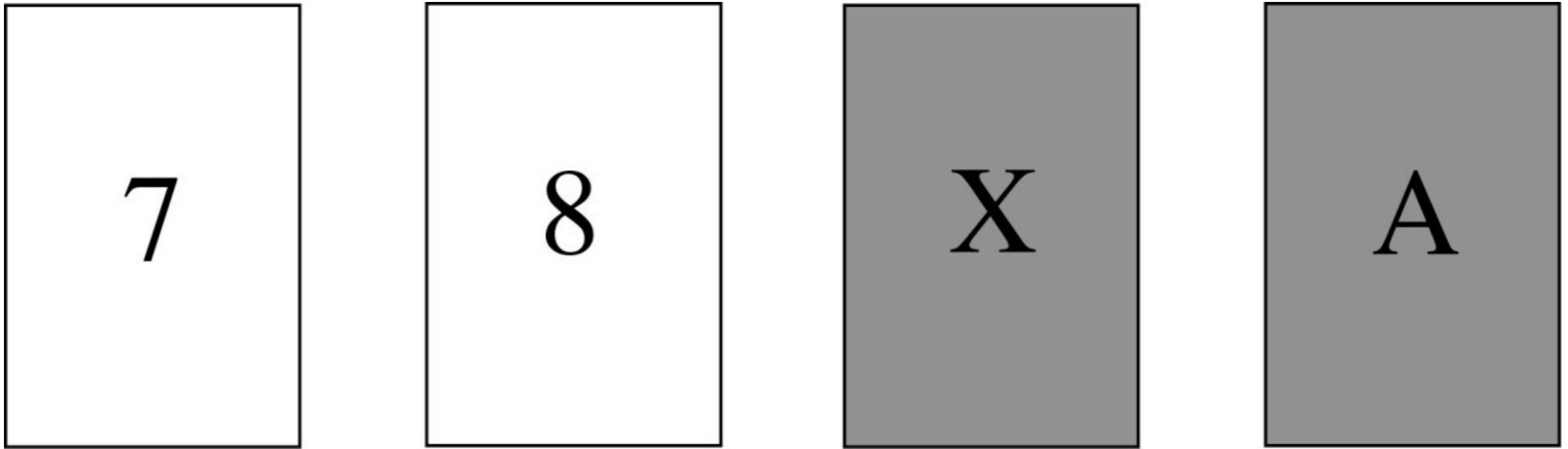
"If there is a ‚7' on a card's front side (white), then there is an ‚X' on the cards back-side (grey)."

- Which of the cards above should be turned around to test this hypothesis?

Once again:
Milton Friedman's "Essays on Positive Economics" (1953)

- **main assumptions** need not to be true, but just have to bring forth correct predictions: *"predictive power"*

  - **Examples:** Leaves on a tree + the role of sunlight, main assumptions of the *homo oeconomicus*-model

  - **in logical terms:** starting conditions (C) und fictitious law-like hypotheses (FL) allow for the deduction of a certain prediction P (C ∧ FL → P)

  - In other words: **Empirical validity** of FL **negligible** as long as P holds.

- *Which problems arises with the latter claim given our analysis of the characteristics of deductions?*

# Unrealistic assumptions vs. ‚alibi-assumptions'

- **unrealistic assumptions**

    - source of criticism since the 19th century

    - **typical examples:** full information, perfect rationality, absence of transaction costs, Maximization, Equilibrium, homogenous preferences, etc.

    - past criticism as a prime motive for Friedman's *„Essays in Positive Economics"*

- **‚alibi-assumptions'** (Hans Albert)

    - if unrealistic assumptions are interpreted as auxiliary conditions, the corresponding theory is granted with an unlimited ‚alibi' in case of failure.

    - if any P is false, the result is attributed to (conventional) unrealistic assumptions

    - Albert diagnoses a great potential for immunization against critique.

    - Albert's alternative: if possible, focus on testing single assumptions.

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A final application: logic and the „law of demand"

- *Lesson: Closely look at the proposed mechanism! It is always worthwhile to inspect single assumptions!*

- the „law of demand" as a core feature of standard microeconomics
  - back then in the 19th century: a core *premise* for the analysis of markets
  - today: a core *conclusion* derived from rational choice theory under very restrictive (i.e patently absurd) assumptions
- originally: verbal framing
  - *„If prices rise (fall), the the quantity demanded will be reduced (will increase)."*

$$\frac{\partial Q}{\partial P} < 0$$

Logic and the law of demand
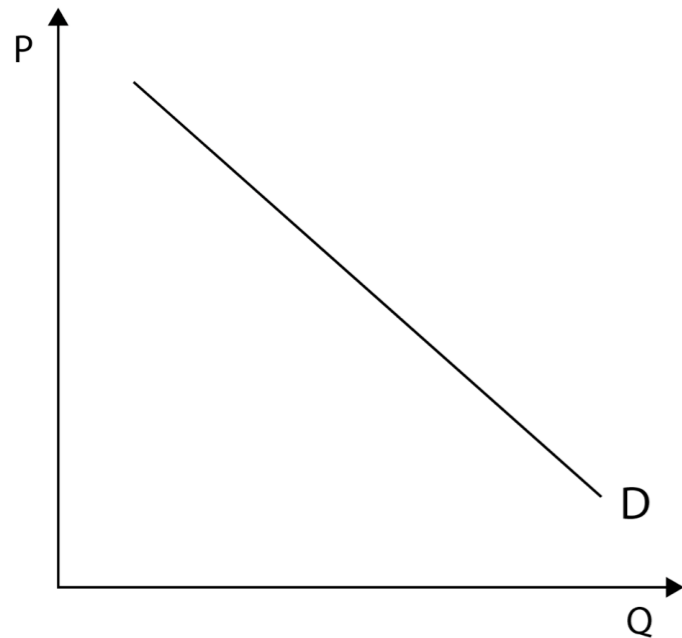
$$\frac{\partial P}{\partial Q} < 0$$

- Exact transformation?
  - *Verbally:* Causality from P to Q_D (to Q_S)
  - *Here:* Causality in both directions - also from Q_S to Q_D to P.
  - e.g. Monopolist chooses Q_S to set prices.

- Inverting causalities creates logical problems I: Requires and ‚if and only if'
  - If he is Batman, he is dressed in black.
  - If he is dressed in black,…

- Inverting causalities creates logical problems II: Direction of causality?
  - Force is determined by mass and acceleration.
  - However, force does not determine mass and acceleration…

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Inverting causalities: the example of inflation

- **Inverting causalities in the case of inflation**

  - **Conflict inflation:** if unemployment is low and market competition is not severe, inflation will go up.

- **Logical problems I: Requires and 'if and only if'**

  - If there is inflation, unemployment must be low and market competition is not severe.

  - This presupposes that no other reasons for inflation exist ('if and only if') — but **scarcity of real goods/production** capacities or **rising resource costs** can also drive inflation!

- **Logical problems II: Direction of causality?**

  - Inflation does not cause neither low unemployment nor does it have an impact on market competition.

A basic epistemological question (three times):

What's the mechanism?

Which law-like hypothesis is proposed to capture it?

What, exactly, are we talking about?

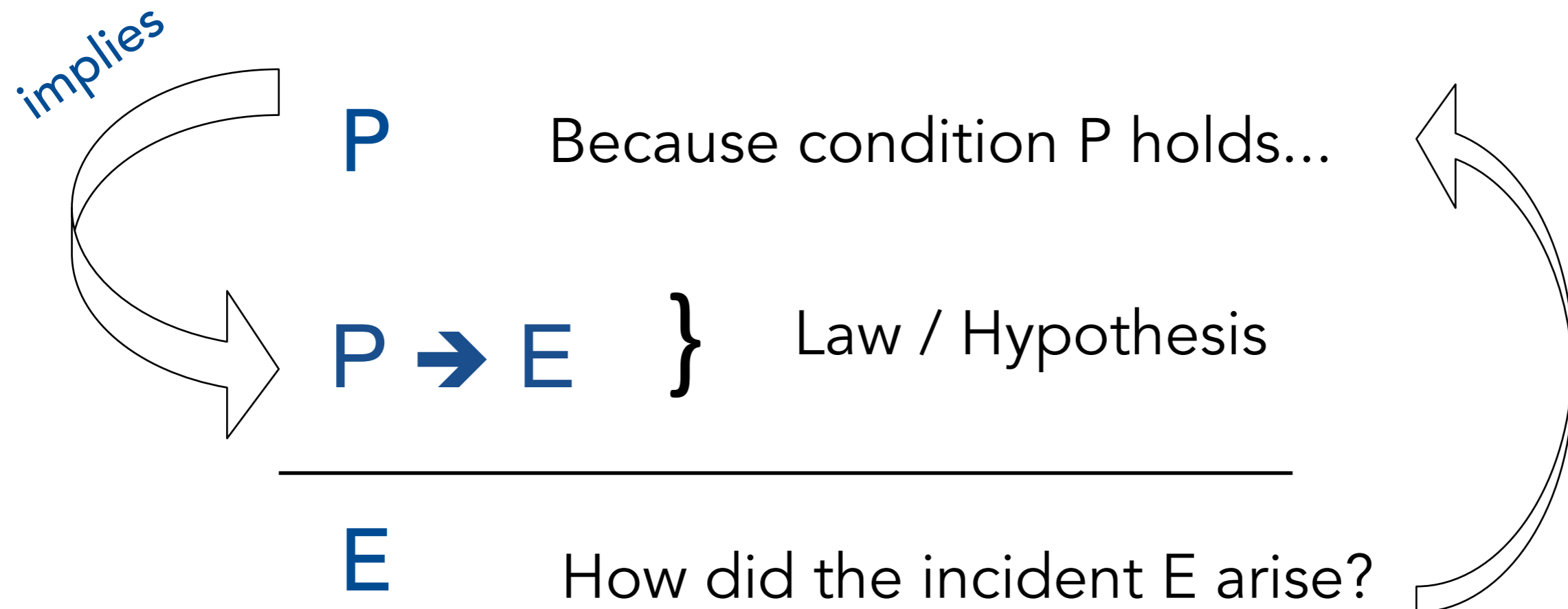# scientific explanation

Explanation of singular events

For all humans (x) holds: If x eats 100 mg of death cups, x will be heavily poisoned (P_1)

Hans has eaten 100 mg of death cups. (P_2)

Hans suffers from a heavy poisoning. (E)

- Explanations of this kind make use of deductive reasoning and employ at least one nomological statement: *deductive nomological model.*
  - The explained outcome (*explanandum*) is located in the conclusion, while the part that does the explaining (*explanans*) is located in the premises.

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Explanations in everyday life

implies

P   Because condition P holds…

P → E } Law / Hypothesis

──────────────────────

E   How did the incident E arise?

Explanation of singular events:
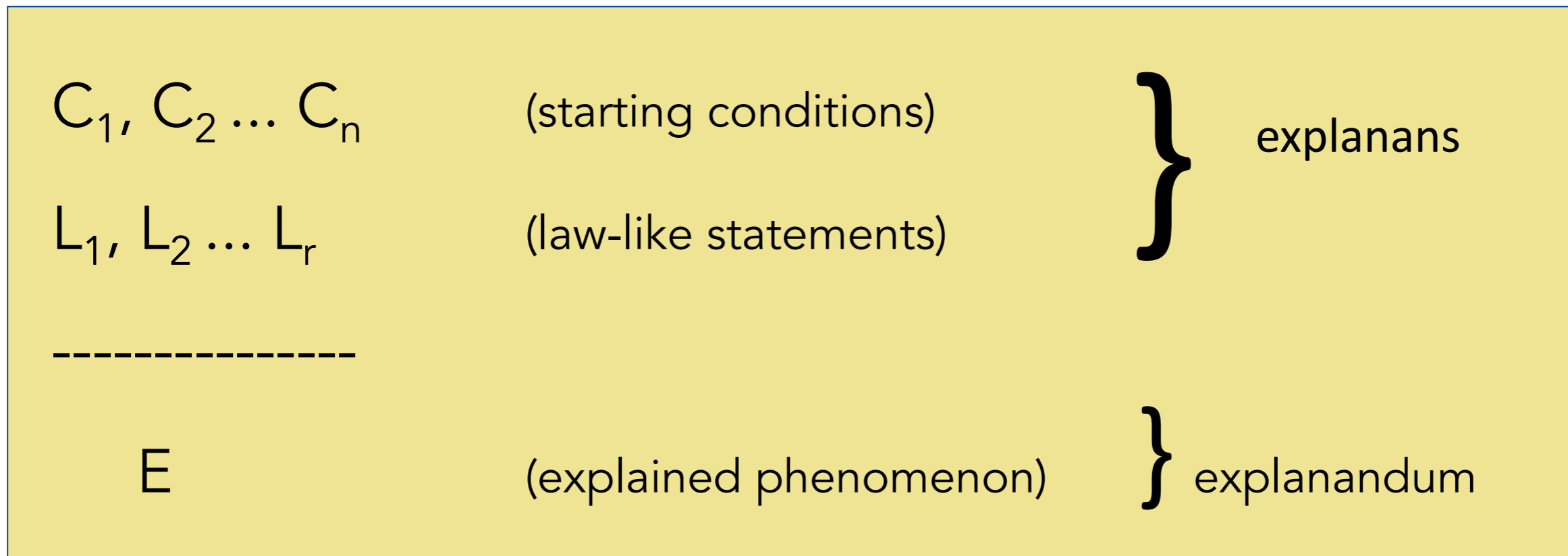# a simple social-science example

The number of people living below the poverty line has increased. (C)

For all societies x holds: If the number of people living below the poverty line increases in x, then the number of mental illnesses rises. (L)

The has been an increase in mental illnesses. (E)

- The explanans contains premises (P) of different types (here: starting conditions (C) and law-like statements or hypotheses (L), while the explanandum contains the explained event (E).

- The basic structure of explanations stays constant across disciplines, what changes are the (often more important) peculiarities.

Explanation

$$C_1, C_2 \ldots C_n \qquad \text{(starting conditions)}$$

$$L_1, L_2 \ldots L_r \qquad \text{(law-like statements)}$$

$$\Big\}\ \text{explanans}$$

$$E \qquad \text{(explained phenomenon)} \qquad \Big\}\ \text{explanandum}$$

- The deductive nomological-model as a general scheme for explanation...

Prediction

$C_1, C_2 \ldots C_n$ (starting conditions)

$L_1, L_2 \ldots L_r$ (law-like statements)

      P   (predicted phenomen)

- … prediction …

- (the difference is only in the temporal setting)

Design

- … and design.

- **main question:** how can we achieve a certain outcome P?

- **basic answer:** To achieve P, one should consider the relevant mechanisms (expressed as law-like statements in L_1, L_2 … L_r) and try to find and implement those conditions C_1, C_2 … C_n which predict P.

C_1, C_2 … C_n (starting conditions - to be found)
      e.g. politicians: wow, that's extremely helpful. We will try to render labor markets more flexible…

L_1, L_2 … L_r (law-like statements)
      e.g. economists: according to our theories unemployment is mainly caused by labor market „rigidities" (=regulation)

P   (desired outcome)
      e.g. politicians: we want full employment

Explanation, prognosis and design in a single framework

	given	unknowns	practical question
explanation:	E	C, L	How did it happen?
prediction:	C, L	P	What will happen?
design:	(P)	(C, L)	How can we achieve this?

The level of political/ moral aims	The question of technical implementation
politics as ideology	⟷	politics as technology

C - starting conditions, L - laws, E - past outcomes, P - future outcomes

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The similarity of explanation and design and the genesis of economic policy

- **Claim:** Current mainstream economics is more successfully in changing than in explaining economic phenomena (e.g. Backhouse 2010, „Performativity").

- Economic models can be interpreted in two ways (Ötsch 2009)
  - the realistic interpretation applies when the economic process exhibits no obvious deviation from standard model-outcomes and is explanatory.
  - the utopian interpretation applies in the reverse case. It turns to ,calls for reform' (i.e. design) as an alternative to theoretical revisions.

- The parallel between explanation and design
  - is exploited to provide policy proposals and serves as an immunization against critique (,econ as ideology')

The perfect competition model as an ideological blueprint

- Unrealistic assumptions in standard models

  - Ideology as a system of statements, which contains *„false assertions, which may be exploited as weapons in the political battle."* (Albert 1954, 126, Translation JK)

  - *„analytical ideal types all too easily turn into political ideals"* (Myrdal 1932, 101, TL JK)

- Many models have a **double nature** (Albert 1954, Ötsch 2009)

model as explanation

If the facts roughly correspond to the model, the latter can be interpreted as an explanation of actual events.
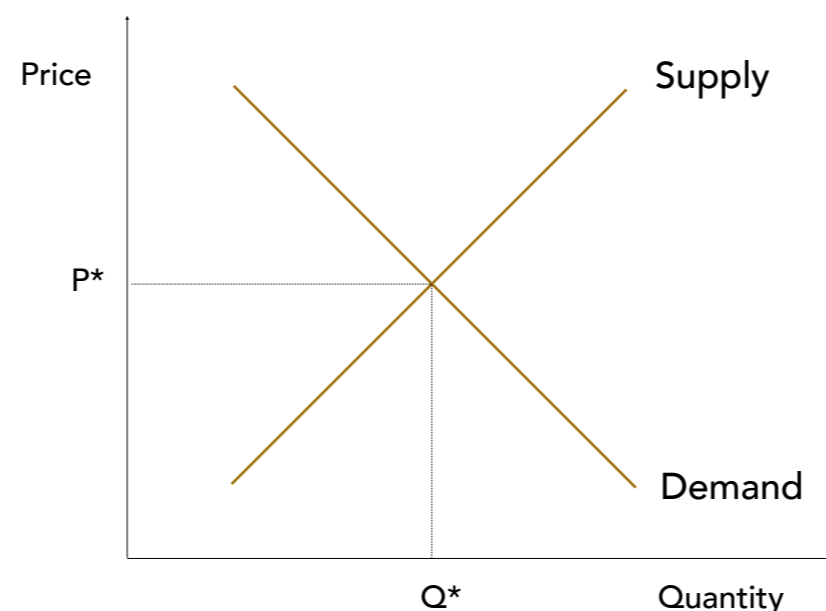
model as utopian design

If the facts do not correspond to the model, the latter may serve as a blueprint for political reform or changes in individual behavior.

Price

Supply

P*

Demand

Q*   Quantity

Scientific explanation:
From simple to more complex cases

- *Why is it so easy for economics to introduce alibi-assumption or readily switch between explanation and application?*

- *Is this really typical for science or is there some inexactness or sloppiness driving these routines?*

- For providing an epistemological answer to these questions, we have to delve a little deeper into the idiosyncrasies of scientific explanations...

  - more specifically: we have to introduce the idea of auxiliary assumptions...

Scientific explanation:
The case of Newton and Galilei

L_1: Newton's second law of motion (F = ma)

L_2: Newton's law of Gravitation (F = GmM / r^2)

AC_1: one of these mass-points is planet earth (M = 5,9736·10^{24} kg).

AC_2: the drop height is much higher than earth's radius (r = 6370 km).

AC_3: only gravitational forces matter (e.g. air resistance or magnetic fields can be

ignored).

T / G_{neu}: Galileo's law of falling bodies (s(t) = $5t^2$)

Question: What is the role of the auxiliary conditions for testing the conclusion?

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Hypotheses and auxiliary assumptions in economic models
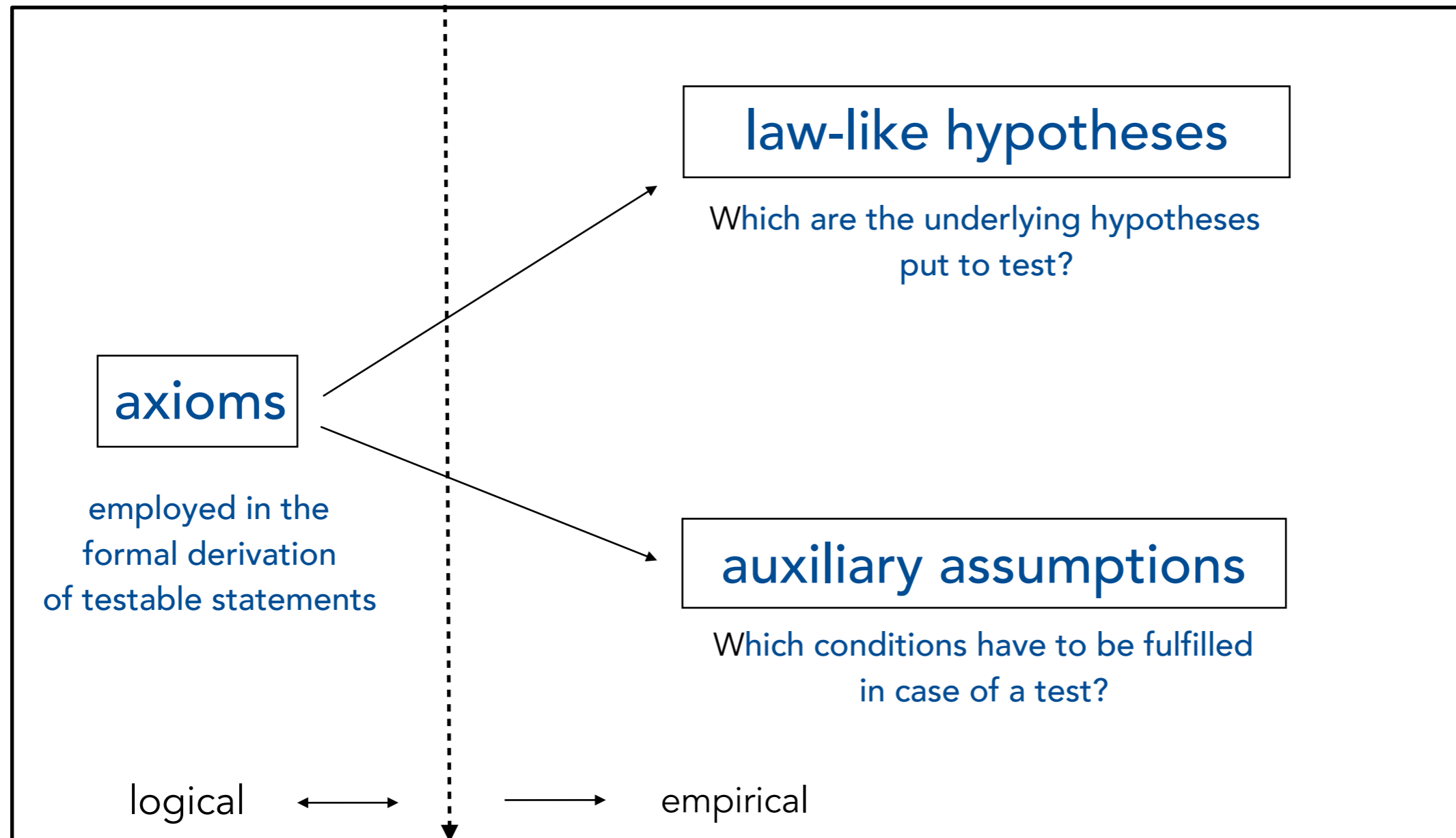
Hypotheses and auxiliary assumptions in economic models

- An economic model typically has the following form:

$$A_1, A_2, A_3 \ldots A_n$$

$$T$$

- In order to mimic the Newtonian archetype, it must be possible to transform such a model into something like this:

$$L_1, L_2, L_3 \ldots L_r \wedge AC_1, AC_2, AC_3 \ldots AC_s$$

_____

$$T$$

$$(r + s = n)$$

Hypotheses and auxiliary assumptions in economic models

- **Why should we do that?** Logically speaking the answer is…

$$L_1, L_2, L_3 \dots L_r$$

$$\text{---}$$

$$(AC_1, AC_2, AC_3 \dots AC_s) \rightarrow T$$

- **This means:** Without a differentiated account on the exact role of single assumptions (are they hypotheses or conditions?), standard criterions of theory appraisal - like testability, informational content or direct empirical tests - are not applicable.

- **Hence,** economics eschews to draw firm conclusion from conflicting evidence

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Hypotheses and auxiliary assumptions in economic models

"It is well-known that the overarching use of the term ‚assumptions' in economics leads to a certain neglect regarding the differences between hypotheses and auxiliary conditions within a given set of statements."

(Albert M. 1994, 225, Translation JK)

How does this give rise to deeper explanations for the observed phenomena?

- We can now precisely describe what happens...

  - the diffuse role of assumption allows for declaring single unrealistic assumptions as ‚bold and law-like claims' in the case of theoretical success

- ...in the case of an ‚alibi-assumption'

  - the very same assumptions serve as an excuse for predictive failure, when interpreted as an auxiliary condition.

- ...in the case of ‚design beats explanation'

  - the very same assumptions serve as a rationale for policy, when interpreted as an (not yet fulfilled) auxiliary condition.

- standard models have a great deal of flexibility

  - they may accommodate different outcomes, without revision of basic axioms.

Unrealistic assumptions vs. realism in economics

" Economics is a science of thinking in terms of models joined to the art of choosing models which are relevant to the contemporary world. It is compelled to be this, because, unlike the typical natural science, the material to which it is applied is, in too many respects not homogeneous through time."

Keynes, John M. (1973[1938]): Letter to Roy Harrod. In: Keynes, John M. (1973): Collected Works, Volume XIV, S. 295-300.

Standard Economic Practice: Some of the received assumption can be made without justification to provide economists with some ‚first principles'

Realism in Economics: Assumptions should align well with the socio-historical characteristics of the situation of interest

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falsificationism

Falsifiability as a criterion for demarcation (i.e. seperating „science" and „non-science")

- „Any hypothesis in empirical science must be falsifiable observation." (Popper 1934)

  - fallibilism posits that all our assertions are potentially wrong, since there is no possibilty for ultimate verification of empirical statements.

  - advance (a diversity of) hypotheses and subject these to critical tests - It is considered „rational" to preliminary accept those hypotheses which fared comparably well in these tests.

- How does critical research proceed?

  - „informational content" - striving for informational value, avoiding tautologies

  - „intersubjectivity" - all results should be reproducible

  - „criticism as a general principle" - in order to avoid the emergence of *immunization strategies* (e.g. active search for competing hypotheses - „pluralism", test assumptions directly, etc.)

A basic distinction: analytic vs. synthetic statements

- Analytic statements:

  - If it rains, it rains. (If A, then A.)

  - It rains, or it does not. (A or Non A.)

  - All bachelors are unmarried. (All As are As.)

- Analytic statements do not inform about the world

  - They have no informational content = are tautological..

  - Their correctness only depends on their internal structure.

A basic distinction:
analytic vs. synthetic statements

- Synthetic statements, e.g.:

  - Max has blue eyes.

  - Subject p has achieved a score of 115 in our test.

  - Planetary motion follows elliptic trajectories.

  - All physical objects consist out of atoms.

- **Synthetic statements inform about the world**

  - in many cases these statements can be tested since their correctness actually depends on empirical criteria.

Application I:
Analytical statements, informational content and apriorism

> " The efforts of economists during the last hundred and fifty years have resulted in the establishment of a body of generalisations whose substantial accuracy and importance are open to question only by the ignorant or the perverse."

(Robbins 1945, 1)

> " An economist once told me to my bewilderment: ‚These concepts [like rationality or equilibrium] are so strong that they supersede any empirical observation."

(Bouchaud 2008, 1181)

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Application I: Analytical statements, informational content and „models as stories"

" Credibility in models is, I think, rather like credibility in 'realistic' novels. In a realistic novel, the characters and locations are imaginary, but the author has to convince us that they are credible – that there could be people and places like those in the novel."

(Sugden 2000, 25)

Application I: Analytical statements, informational content and „models as stories"

> **"** The word ‚model' sounds more scientific than ‚fable' or ‚fairy tale' although I do not see much difference between them. The author of a fable draws a parallel to a situation in real life. He has some moral he wishes to impart to the reader. The fable is an imaginary situation that is somewhere in between fantasy and reality. Any fable can be dismissed as being unrealistic or simplistic, but this is also the fable's advantage."

<p style="text-align:right">(Rubinstein 2006, 881)</p>

Application I: Analytical statements, informational content and „models as stories"

- in ‚former' times: ‚apriorism' - economic assumptions as eternal truths

  - (often truths are to be found by introspection - speaking with Plato, who was very fond of apriorism, truth is to be found in the ‚economist's soul'...)

- today: ‚thought-experimentalism' - economic models as story-telling without empirical commitment

$$A_1, A_2, A_3 \ldots A_n \qquad\qquad AC_1, AC_2, AC_3 \ldots AC_{s\,=\,n}$$

----------------------------   _____

$$T \qquad\qquad\qquad\qquad\qquad T$$

- *What does this imply for falsifiability?*

Application II: Analytical statements, informational content and utility theory

- „If people act, they try to maximize their utility"

  - tautology-alarm!

  - however we can try to repair this statement, e.g.: „If people act, they try to maximize their utility *in a rational way*"

  - The then-clause is now more specific, since rationality in economics is confined in narrow requirements like transitivity

  - the modified version can indeed be falsified, e.g....

PROBLEM 11: In addition to whatever you own, you have been given 1,000. You are now asked to choose between

A: (1,000, .50), and B: (500).

$N = 70$ [16] [84]*

PROBLEM 12: In addition to whatever you own, you have been given 2,000. You are now asked to choose between

C: (−1,000, .50), and D: (−500).

$N = 68$ [69*] [31]

Kahneman und Tversky (1979)

Application III: Refined falsificationism and the Ceteris Paribus clause

- **Duhem's Problem(s)**

  - (1) How to falsify a hypothesis with certainty, when the background knowledge (BK) is also fallible? How do we know that all auxiliary conditions hold?

  - Formally:

    $$L_i \wedge BK \rightarrow T$$

    $$\neg T$$

    $$\text{-----------------------------}$$

    $$\neg L_i \vee \neg BK$$

  - **Refined falsificationism:** resorting to ¬BK is only possible if the source of error can be clearly determined empirically; otherwise: ‚alibi assumptions'!

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Application III: Refined falsificationism and the Ceteris Paribus clause

- **Duhem's Problem(s)**

    - (2) How do we know that our account of the background knowledge is complete?

    - **Refined falsificationism:** we can never be sure and, hence it is necessary to introduce CP-clauses in our arguments. However, resorting to these clauses is subject to the same constraint as resorting to ¬BK.

    - Hence, **every time we resort to a CP-clause we have to identify an additional disturbing factor**, which gave rise to a failed prediction. and thereby create a new auxiliary hypothesis.

Application III:
Refined falsificationism and the Ceteris Paribus clause
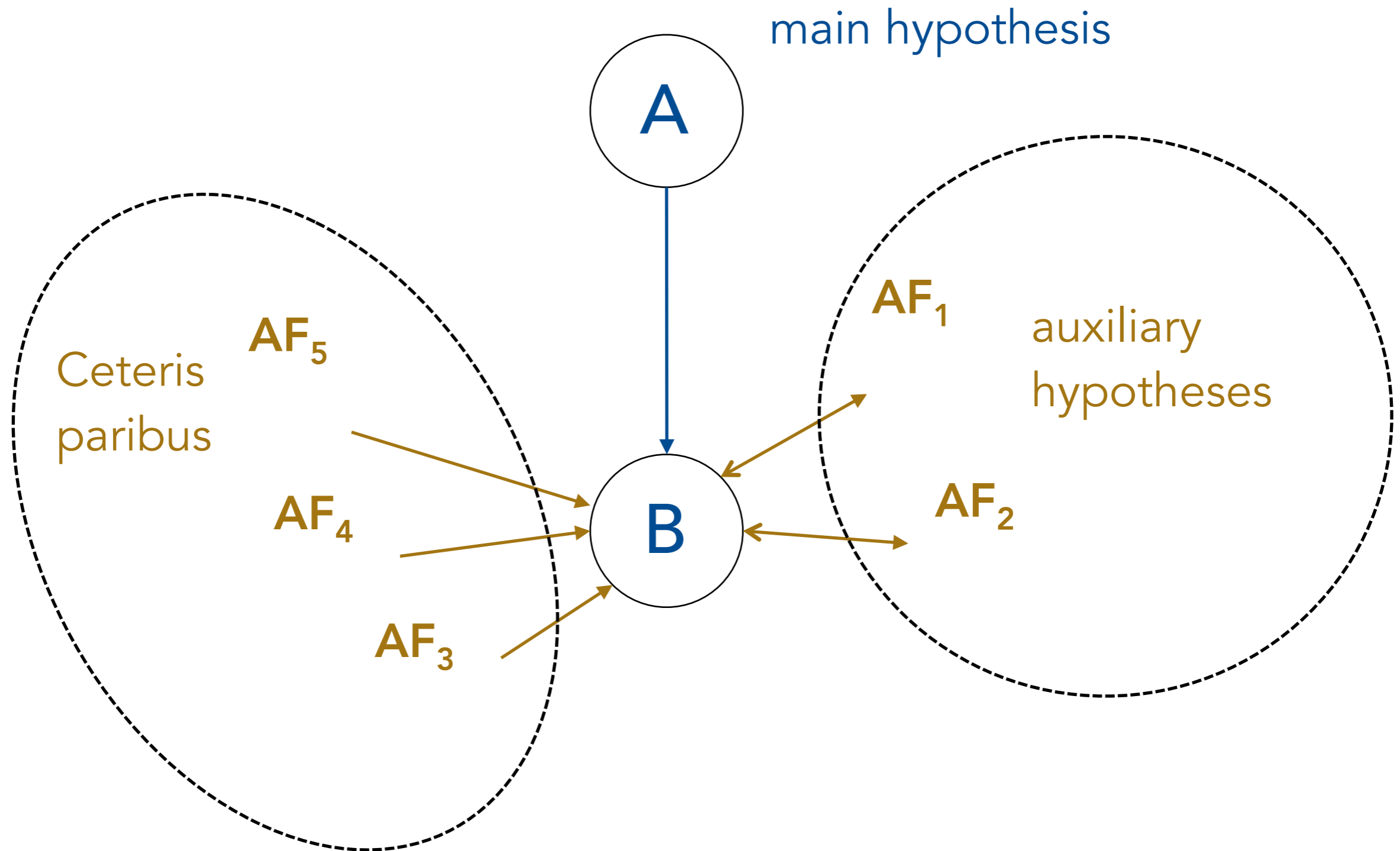
Application III: Refined falsificationism and the Ceteris Paribus clause

- **Formally:** three possibilities how to deal with a refuted statement:

$$L_1, L_2, L_3 \ldots L_r \wedge AC_1, AC_2, AC_3 \ldots AC_s \wedge CP \rightarrow T$$

$$\neg T$$

$$\neg(L_1, L_2, L_3 \ldots L_{r)} \vee \neg(AC_1, AC_2, AC_3 \ldots AC_{s)} \vee \neg CP$$

hypotheses false?   background knowledge false?

CP-Clause inadequate?
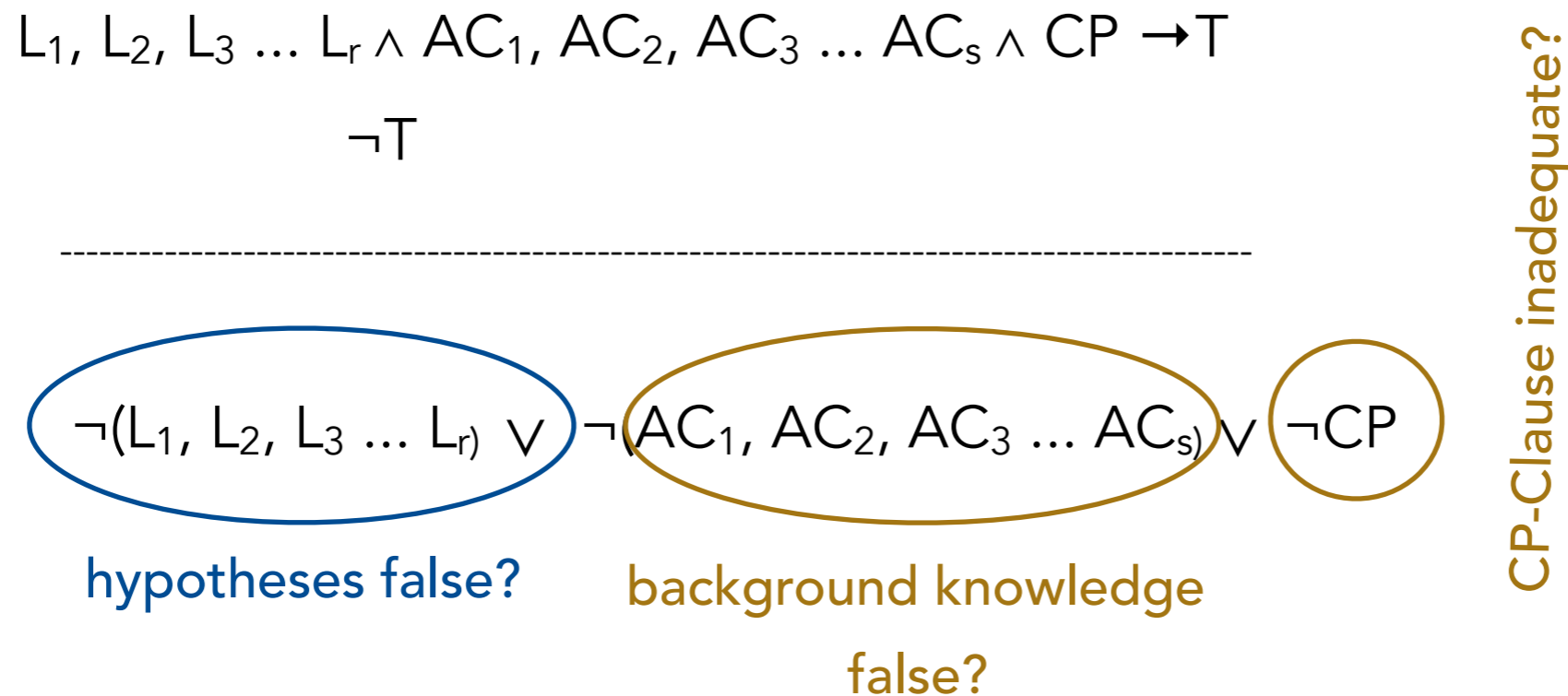
- **Falsificationism:** since two of these options potentially provide a means for *immunization against critique* their usage is subject to additional empirical qualifications.

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axiomatic variation

Axiomatic variation - what's that?

- A survey of different models in mainstream economics shows...

  - ... that economic research is often based on modifications of standard models, which employ one or two variations or even counterfactuals of standard assumption, but leave the general theoretical edifice intact.

  - This great variety of models is often used to denounce criticism.

  - How does this work in practice and how can we contextualize this epistemologically?

- Rule: Take a model from a textbook or research paper and tweak one or two assumptions, to advance an alternative argument ("axiomatic variation").

  - Example 1: Market for Lemons (Akerlof 1970) - "Create a story to tell"

Akerlof and the Market for Lemons

- **Standard assumption:** full information

- **Standard result:** market allocation is efficient

- **Tweaked assumption:** asymmetric information

- **Tweaked result:** market allocation is inefficient

- **Problem 1:** no clear criterion, whether to apply the standard or the tweaked version

- **Problem 2:** so many models - no coherence on aggregate level
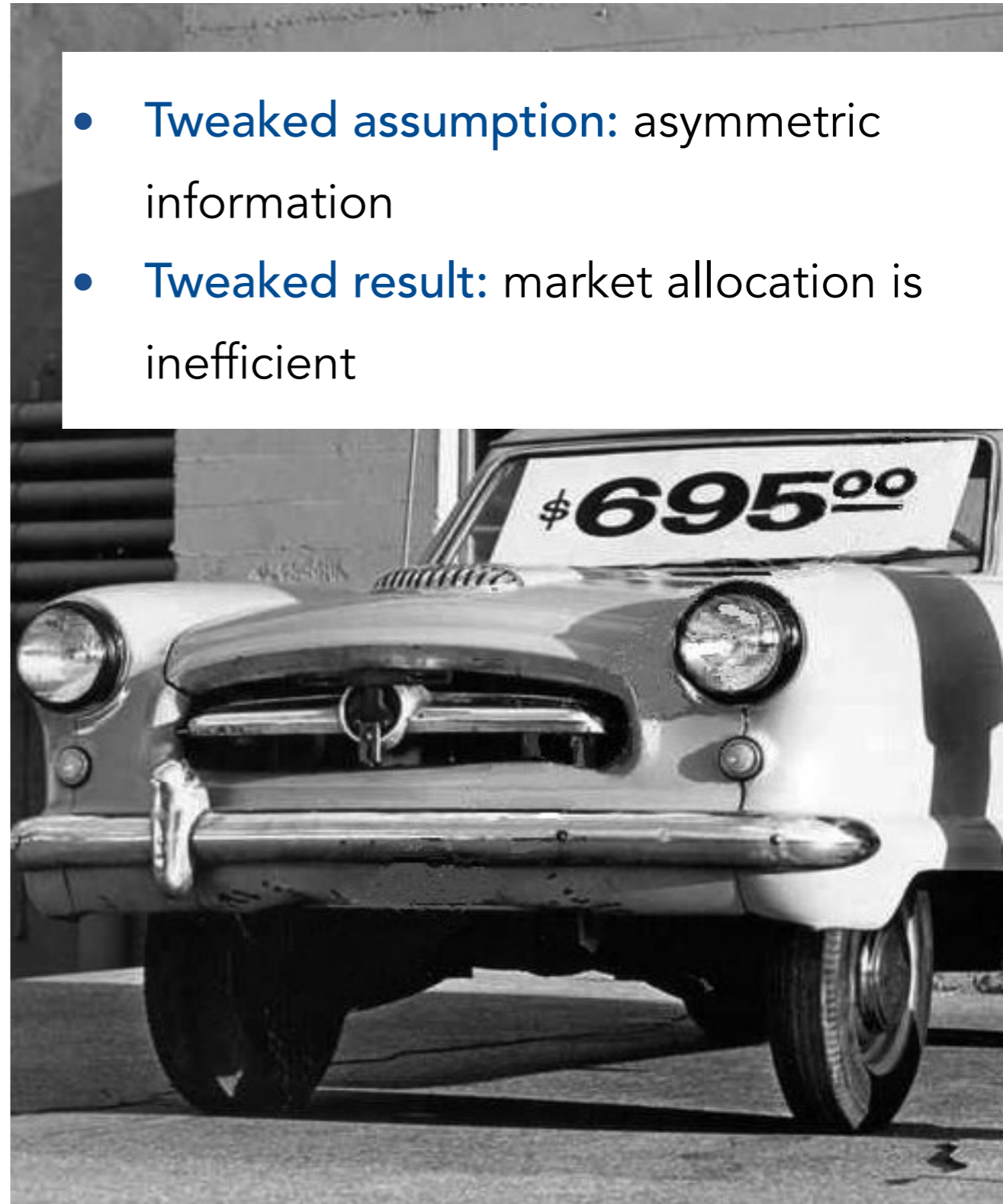
Coherence in Mainstream Economics

> " It is as if physicists sometimes supposed that force is proportional to acceleration and in other models took force to be proportional to acceleration squared. "

Hausman (1992: 52)

Axiomatic variation - epistemologically

standard model

asymmetric information

Full information as an
auxiliary assumption

standard model

vs.

Full information as a
law-like assumption

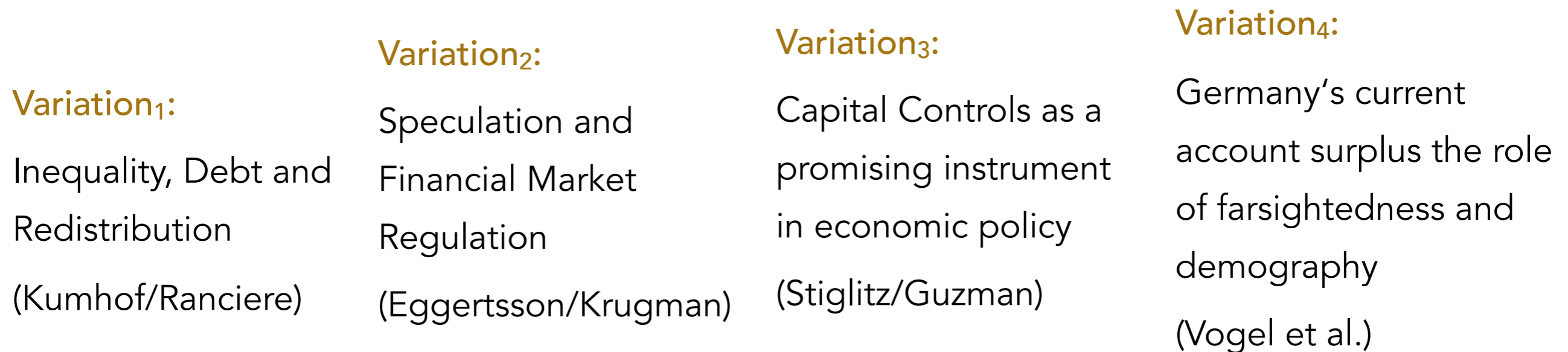asymmetric information

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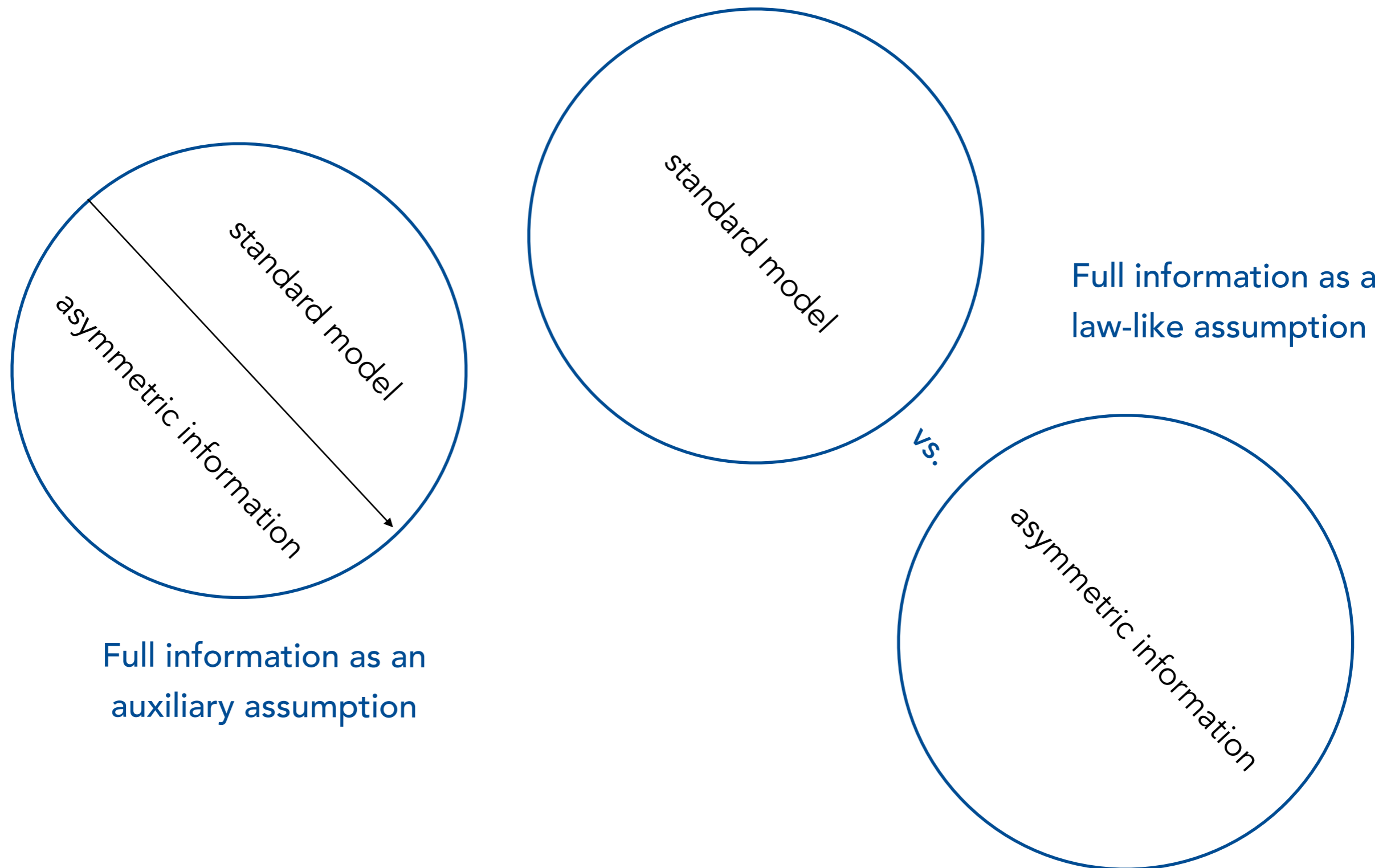
Axiomatic variation: A second example

- **Rule:** Take a model from a textbook or research paper and tweak one or two assumptions, to advance an alternative argument („axiomatic variation").

  - **Example 1:** Market for Lemons (Akerlof 1970) - *„Create a story to tell"*

  - **Example 2:** Behavioral Economics - *„Some assumptions are holier than others"*

Behavioral Economics and the standard model

> " There is thus a bewildering variety of evidence. Some pieces of evidence suggest that many people are driven by fairness considerations, other pieces indicate that virtually all people behave as if completely selfish, and still other types of evidence suggest that cooperation motives are crucial. In this paper we ask whether this conflicting evidence can be explained by a single simple model."

Fehr and Schmidt (1999), QJE, p. 818

Behavioral Economics and the standard model

"Our answer to this question is affirmative if one is willing to assume that, in addition to purely self-interested people, there are a fraction of people who are also motivated by fairness considerations. No other deviations from the standard economic approach are necessary to account for the evidence. In particular, we do not relax the rationality assumption."

Fehr and Schmidt (1999), QJE, p. 818-9

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Axiomatic variation vs. theoretical progress

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Axiomatic variation vs. theoretical progress

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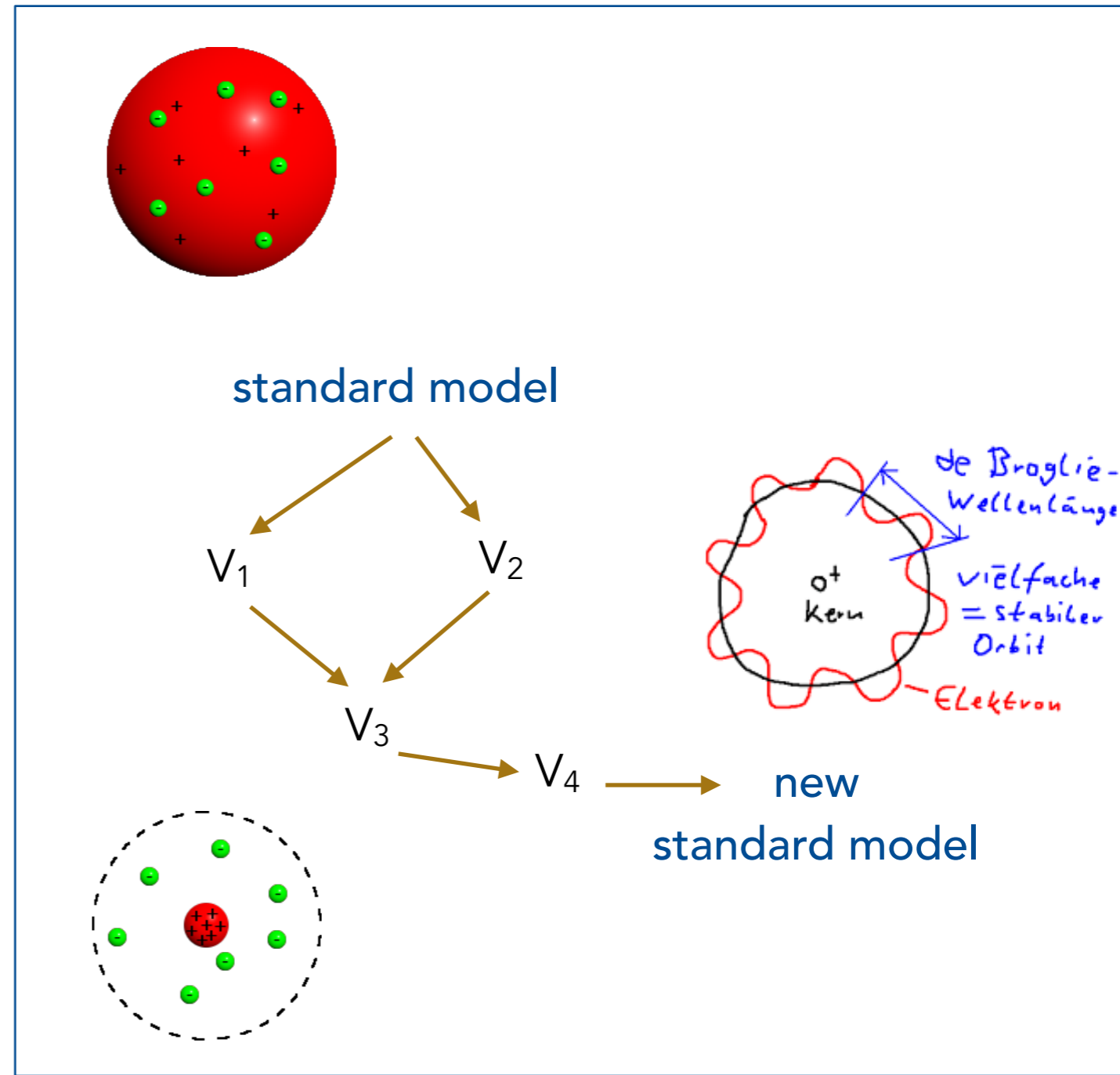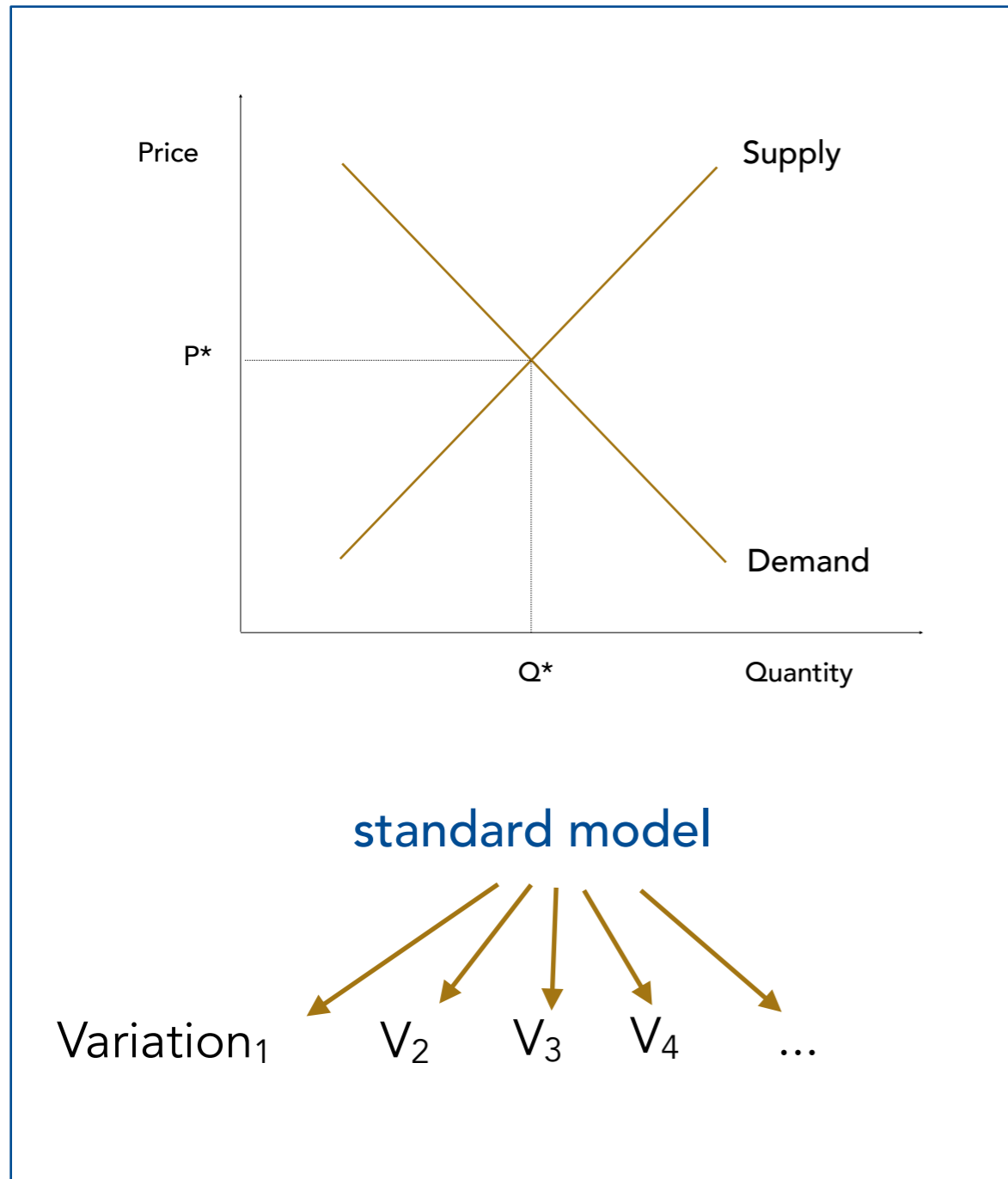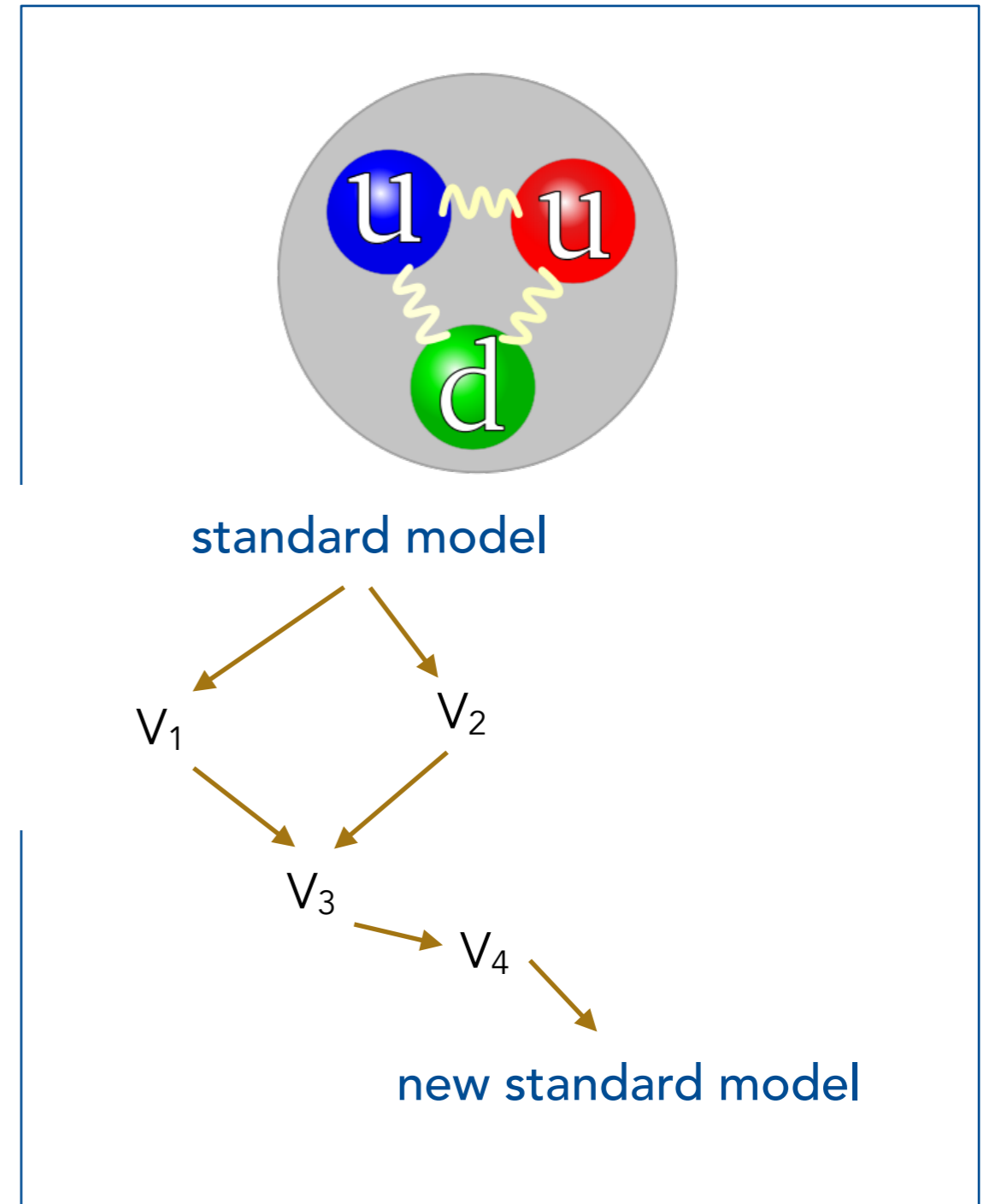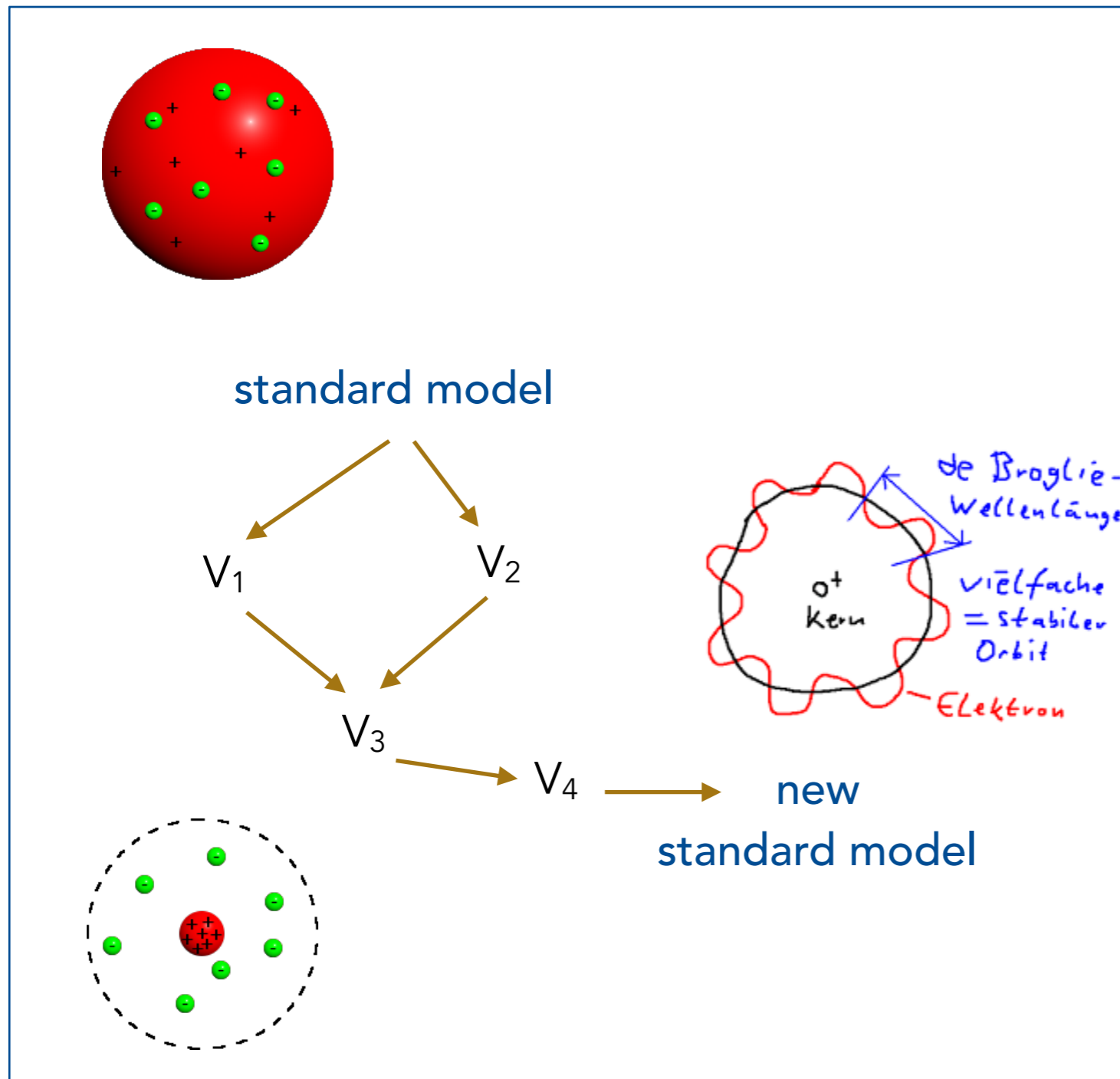
Axiomatic variation in policy debates

- **Rule:** Take a model from a textbook or research paper and tweak one or two assumptions, to advance an alternative argument („axiomatic variation").
  - **Example 1:** Market for Lemons (Akerlof 1970) - *„Create a story to tell"*
  - **Example 2:** Behavioral Economics - *„Some assumptions are holier than others"*
  - **Example 3:** Economic Policy - *„Modeling is policy by other means"*

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Axiomatic variation and the financial crisis in Europe: An ideological „battle of tweakings"

$$U_t^\tau = \varepsilon_t^b \left(\frac{1}{1 - \sigma_c} (C_t^\tau - H_t)^{1 - \sigma_c} - \frac{\varepsilon_t^L}{1 + \sigma_l} (\ell_t^\tau)^{1 + \sigma_l} \right)$$

Standardmodell: DSGE

Variation$_1$:

Inequality, Debt and Redistribution

(Kumhof/Ranciere)

Variation$_2$:

Speculation and Financial Market Regulation

(Eggertsson/Krugman)

Variation$_3$:

Capital Controls as a promising instrument in economic policy

(Stiglitz/Guzman)

Variation$_4$:

Germany's current account surplus the role of farsightedness and demography

(Vogel et al.)

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Axiomatic variation and the financial crisis in Europe: An ideological „battle of tweakings"

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Variation$_1$:
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Variation$_2$:
Speculation and Financial Market Regulation (Eggertsson/Krugman)

Variation$_3$:
Capital Controls as a promising instrument in economic policy (Stiglitz/Guzman)

„let's tweak it to the left..."

Variation$_4$:
Germany's current account surplus the role of farsightedness and demography (Vogel et al.)

„and tweak it to the right..."

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Axiomatic variation and the financial crisis in Europe:
An ideological „battle of tweakings"

> " I have always been impressed by the ability to predict an economist's positive [i.e. economic] view from my knowledge of his political orientation."

Rose Friedman,
Two Lucky People

ontology

Ontological individualism

"

there is no such thing as society. There are individual men and women, and there are families. And no government can do anything except through people, and people must look to themselves first."

Margaret Thatcher in *Woman's Own* (Oktober 1987)

Ontological individualism

> " [men], like mushrooms, come to full maturity, without all kind of engagement to each other "

Thomas Hobbes in *De Cive* (1642)
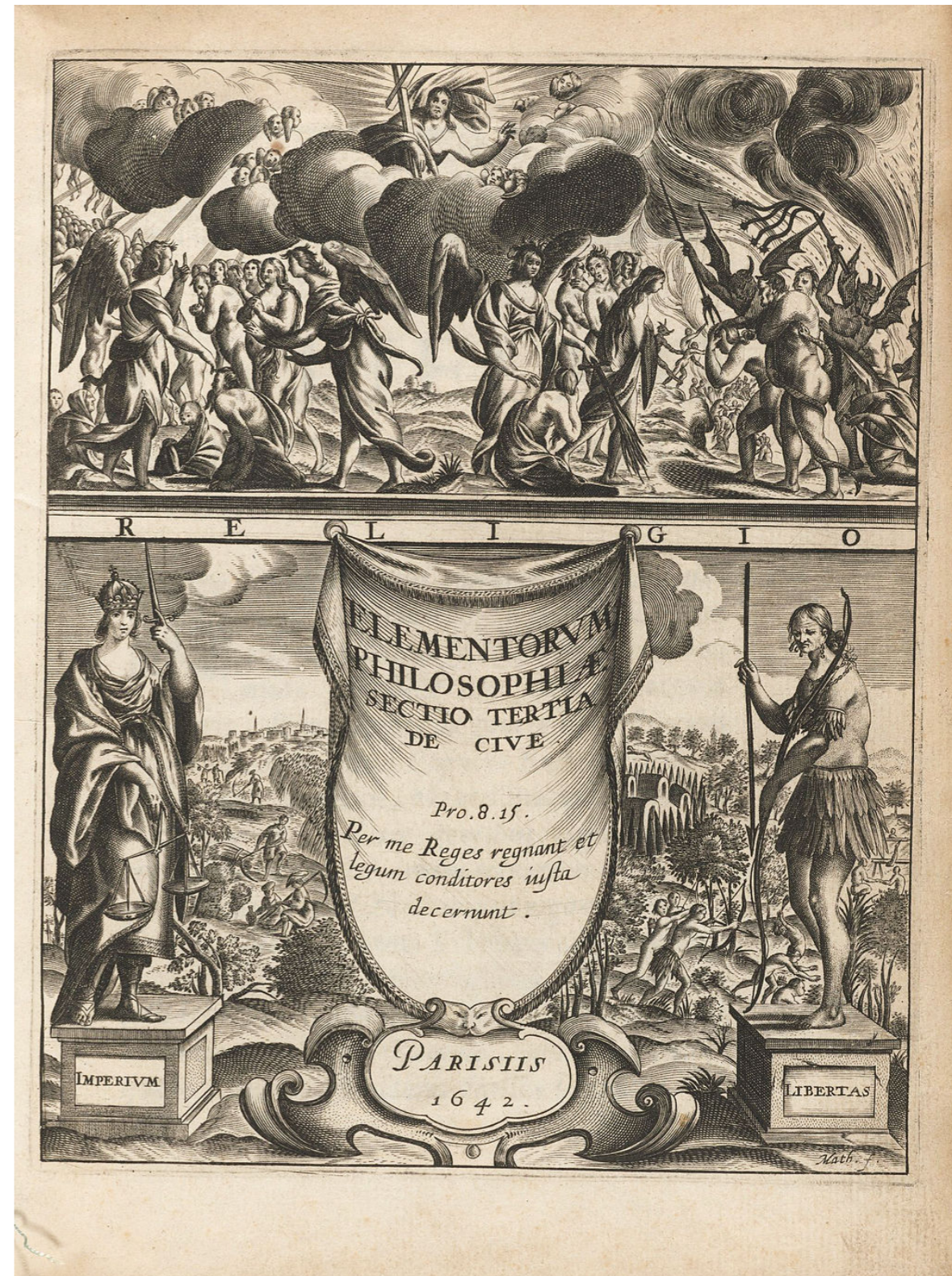
Ontological holism

" Truth is to be found in the whole."

Hegel: *Phänomenologie des Geistes,* 24

Ontological levels in economics

- **mainstream econ:** methodological individualism; i.e. micro is all that matters

- **evolutionary econ:** institutions matter; they are on the meso-level; hence the meso-level matters!

- **complexity econ:** it's all about relations and network structures; hence relations matter!

- **old institutionalism / marxism:** human wants (not: needs!) emerge from social interaction and social comparison; relations and social mediation matters!

- **(post-)keynesian econ:** mind the rationality-traps! that is why the macro-level ist the most decisive!

Systemism: basic idea

- Systemism…

  - …puts relation at center stage.

- (Social) Systems

  - composition: set of nodes

  - environment

  - structure/organization: relation between nodes

System

Environment

- Organization of relations

  - novel feature of systems: source of emergent properties.

  - emergent properties as „ontological novelties", which may carry mechanisms governing processes in systems.

  - e.g.: „familial relations - mutual caring - familial cohesion"
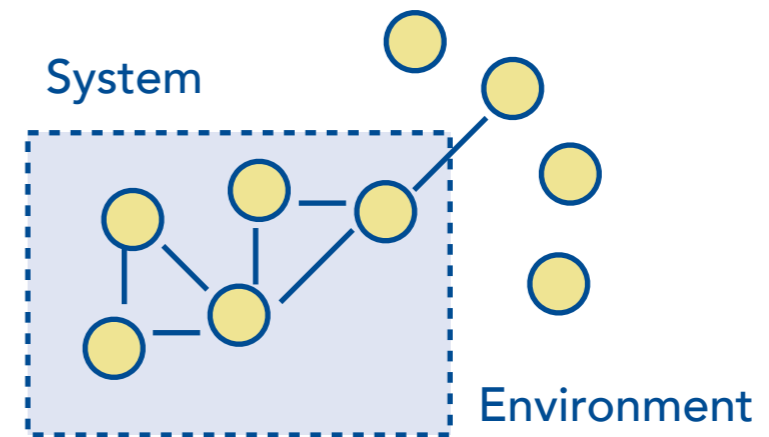
Systems, relations and emergence

> " [every entity is] a system or a part of one[, where] a system is a complex object every part or component of which is connected with other parts of the same object in such a manner that the whole possesses some features that its components lack—that is, emergent properties."

Bunge (1996): Finding Philosophy in Social Science, 20

System

Environment

relational emergent properties: a daughter, an employee

global emergent properties: a firm's success, a nation's culture

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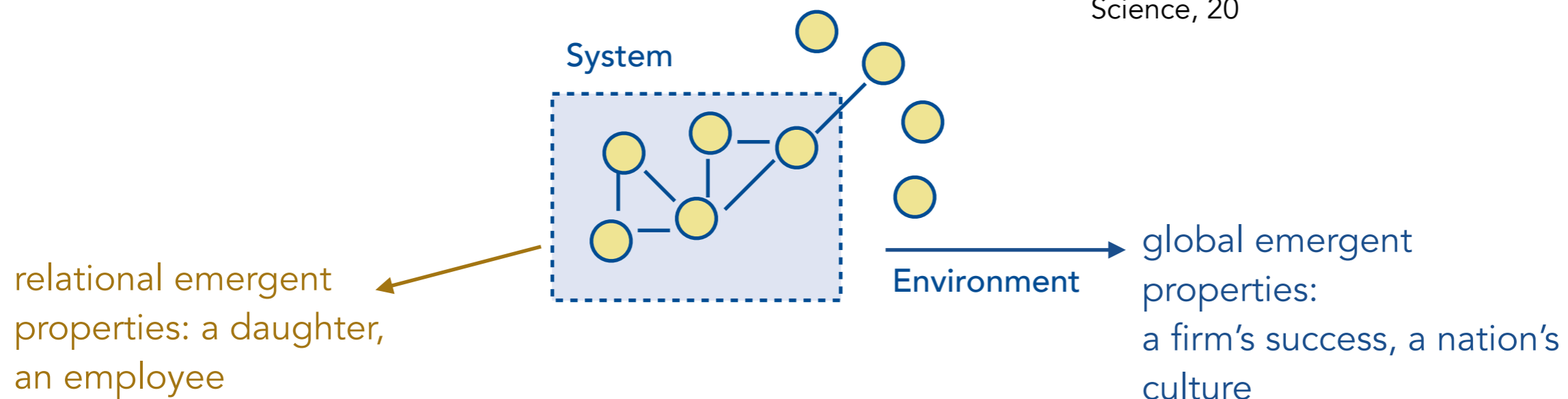
Applying Systemism:
The example of economic growth and population-stagnation

First: macro-relationship

Macro-Level	Economic Growth ------> Population stagnation
Micro-Level	Old-age security ——> Decline in Fertility

Afterwards: Development of a corresponding micro-explanation

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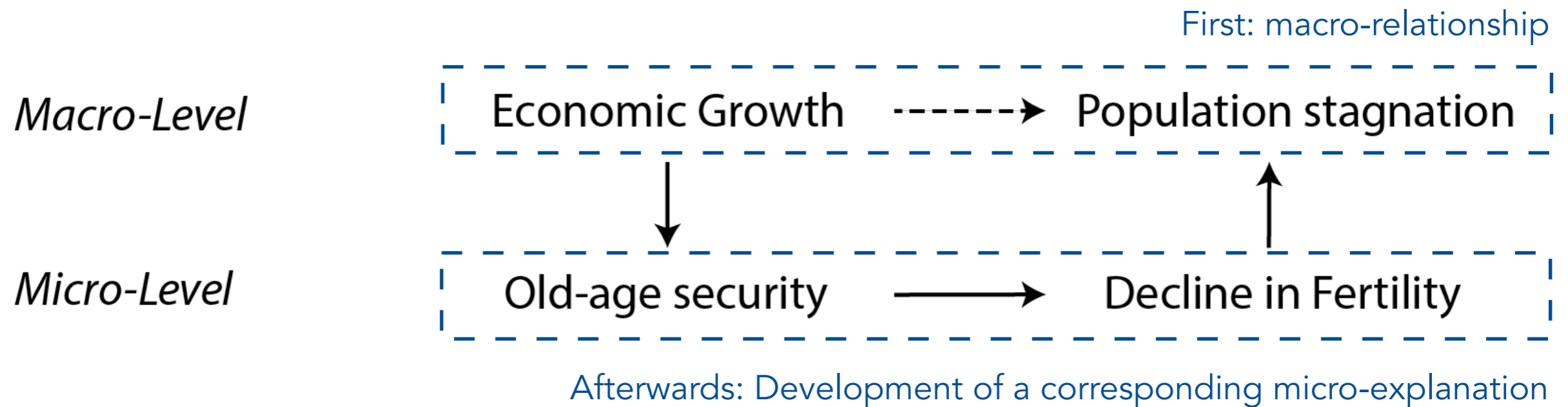
Applying Systemism:
Rationality traps and the paradox of thrift

macro-micro effects „Top-Down"

micro-macro effects: „Bottom-Up"

Macro-Level — Uncertain economic prospects → Economic Downturn

Micro-Level — Increase in precautionary savings → Decrease in consumption spending

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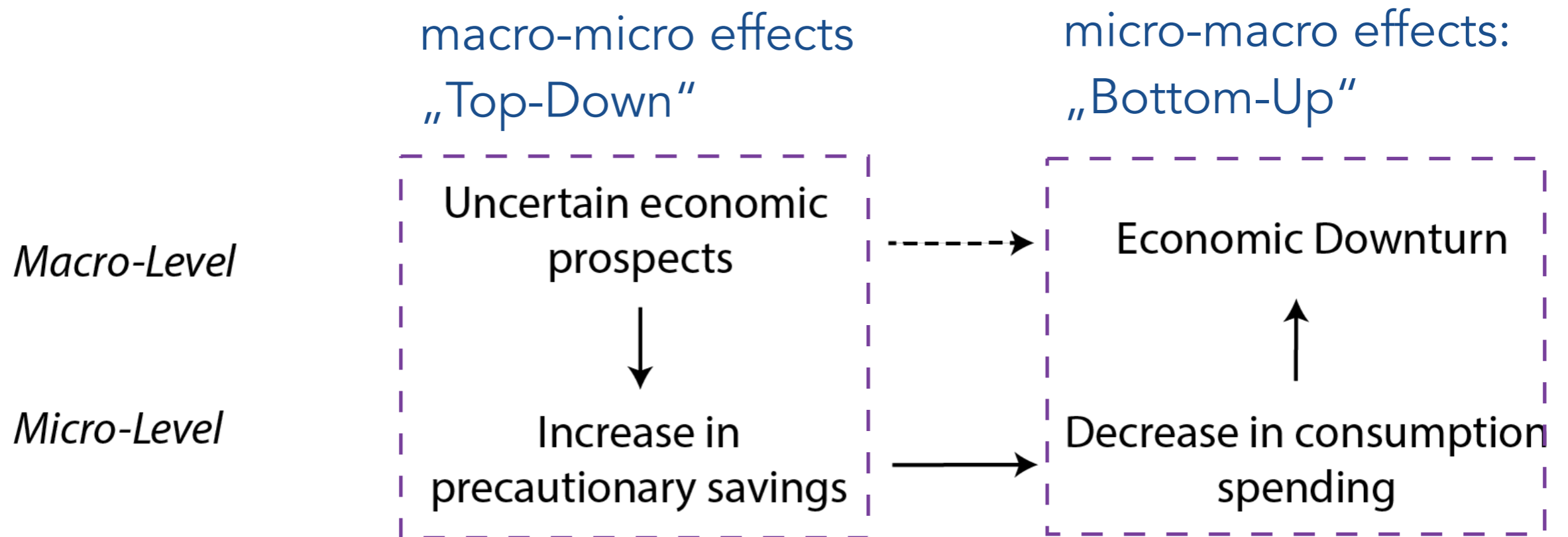
Applying Systemism: The financial crisis 2008ff:
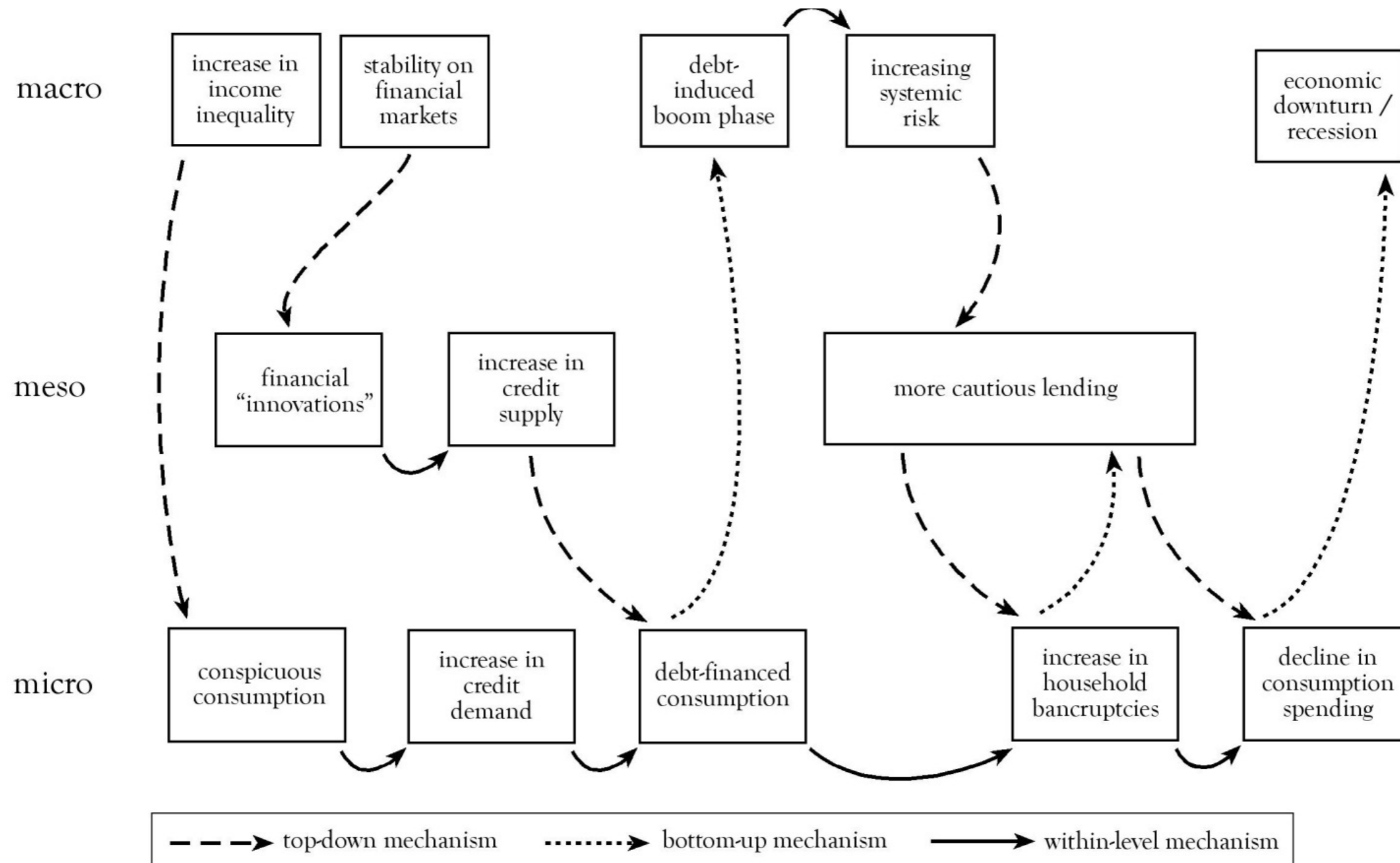
Kapeller/Schütz: Exploring Pluralist Economics: The Case of Minsky-Veblen Cycles. JEI, 47(2)

Systemism
as a conceptual alternative to individualism and holism

	Individualism	Holism	Systemism
Ontology	A society is an aggregate of persons – any super-individual totalities are fictitious.	A society is a whole transcending its members due to emergent and non-reducible collective properties.	A society is a system composed of changing subsystems and has global properties, both reducible and non-reducible.
Methodology	Social science is the study of the individual and to explain a social fact amounts to explaining individual action.	Social science is the study of social wholes, since only they may constitute social facts, which in turn determine individual behavior.	Social science is the study of social systems; their changing composition, environment and structure as well as the mechanisms they bring forth.

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Social explanations are historically contingent
Another specific challenge of the social sciences

- Often mechanisms only hold under specific circumstances / for specific groups

  - These groups and situations can have different temporal, spatial or demographic properties.

  - Hence, social mechanisms can be said to be „historically contingent" in the sense of being specifically tied some cultural, institutional or temporal context.

- Examples

  - Wealth dynamics and type of society (Equal distribution or Pareto Distribution?)

  - Means of payment and interpersonal trust (coinage or credit?)

  - Familial cohesion and family law.

  - Transport infrastructure in Denmark or Bolivia.

- A practical solution: Introduce historical contingencies as auxiliary assumptions

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Hypotheses and auxiliary assumptions in economic models

law-like hypotheses

Which are the underlying hypotheses put to test?

axioms

employed in the formal derivation of testable statements

auxiliary assumptions

Which conditions have to be fulfilled in case of a test?

logical ←→ empirical

Social explanations are historically contingent
Another specific challenge of the social sciences

- Dealing with historically contingent arguments and hypotheses

  - Introduce historical contingencies as auxiliary assumptions — Avoid inappropriate falsifications driven by the implicit assumption of a spatio-temporal universality of hypotheses in social research.

  - Als the natural sciences have to provide explicit descriptions of the systems of interest.

- Back to our examples!

  - Wealth dynamics and type of society (Equal distribution or Pareto Distribution?)

   H: Inheritable long-term assets do exist. (property).

  - Means of payment and interpersonal trust (coinage or credit?)

    H: There is high interpersonal trust.

  - Familial cohesion and family law.

    +

    H: There is no legal possibility to arrange a divorce.

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Social explanations are historically contingent
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- Zurück zu unseren Beispielen

    - Wealth dynamics and type of society (Equal distribution or Pareto Distribution?)

    „Assets": Relates to properties of individuals.

    - Means of payment and interpersonal trust (coinage or credit?)

    „Trust": Relates to relations between individuals

    - Familial cohesion and family law.

    System

    „Law": Relates to conditions imposed by the environment. ———→ Environm.
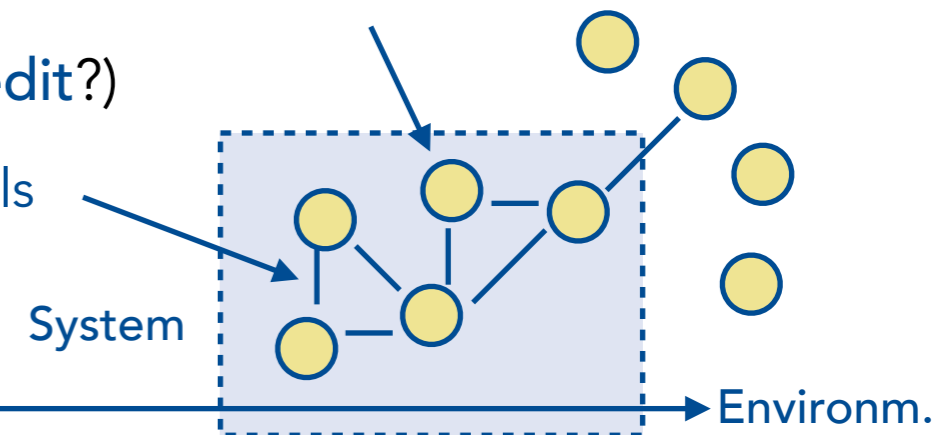
Systemism
as a conceptual foundations for integrating heterodoxy

- Mutual interdependencies of individual behavior and strategy

  - in the circular flow: rationality trap, paradox of thrift

  - in financial markets: „beauty contests" (Keynes) and expecting others' expectation

  - in business strategy: „perfect foresight" vs. „fundamental uncertainty"

  - in consumer choices: emulation of preferences and conventional standards in consumption
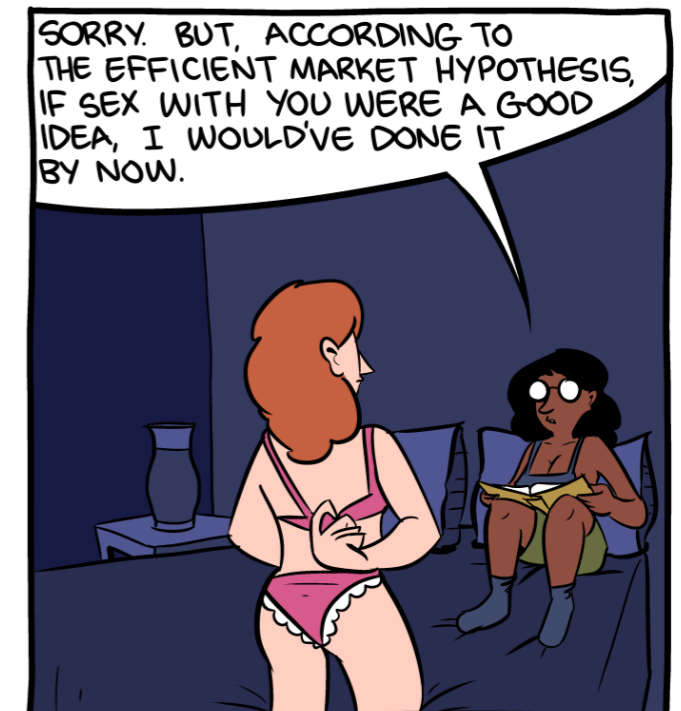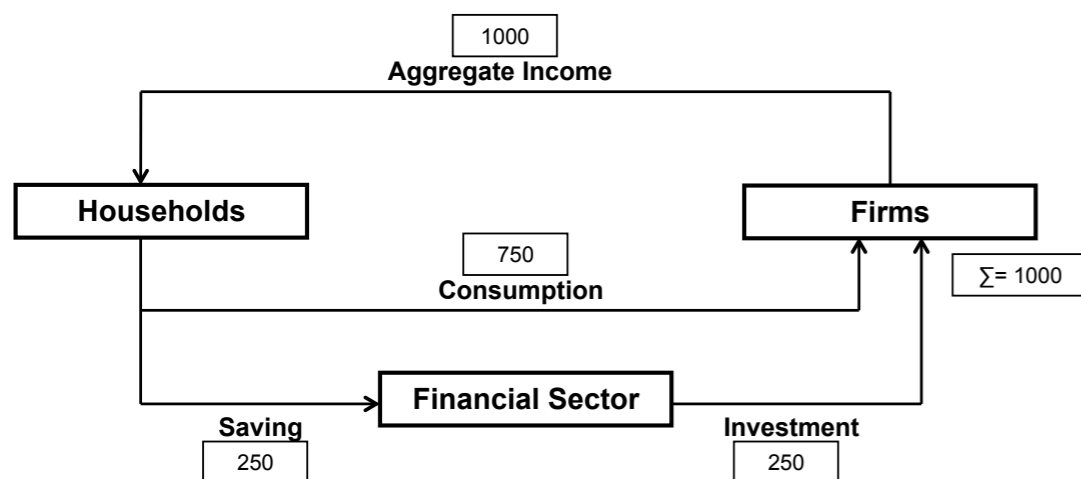
> " [i]n the face of complexity, an in-principle reductionist may be at the same time a pragmatic holist. "

Simon, Herbert A. (1962):
"The architecture of complexity." Proceedings of the American Philosophical Society, 106 (6): 467-482.

Individual behavior and aggregate outcomes
Changing relations/aggregation can change the nature of a situation

- Systemic view:
  - Organization of relations also has an impact on the transmission from individual behavior to aggregate outcomes.
  - Two extreme cases & the heterodox component in game theory.

		Player 1	
		remain silent (cooperate)	confess (defect)
Player 2	remain silent (cooperate)	1 / 1	0 / 10
	confess (defect)	10 / 0	5 / 5
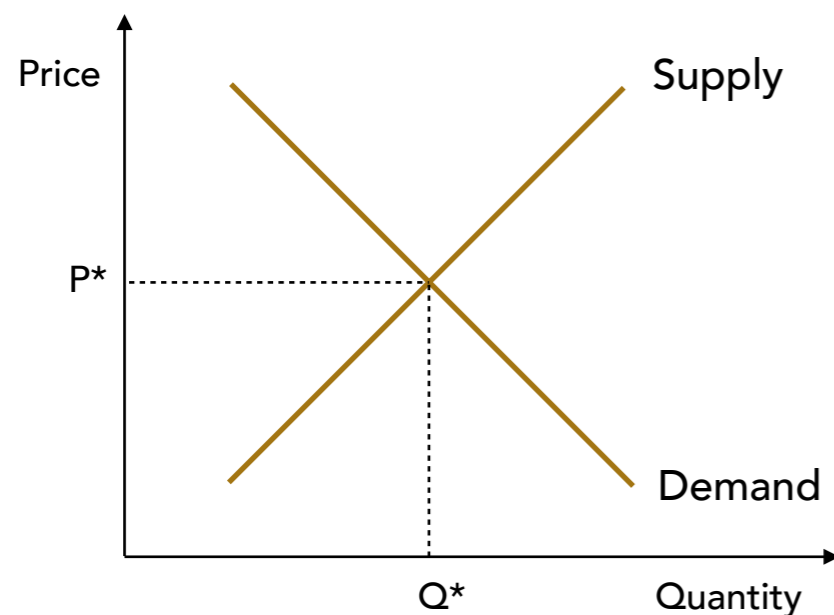
Neoclassical vision:
‚private vices create public benefits'
(Aggregation = simple summation)

Prisoner's Dilemma:
‚private vices leads to the worst case'
(Aggregation: strategic dependency/conflict)

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Individual behavior and aggregate outcomes
Changing relations/aggregation can change the nature of a situation

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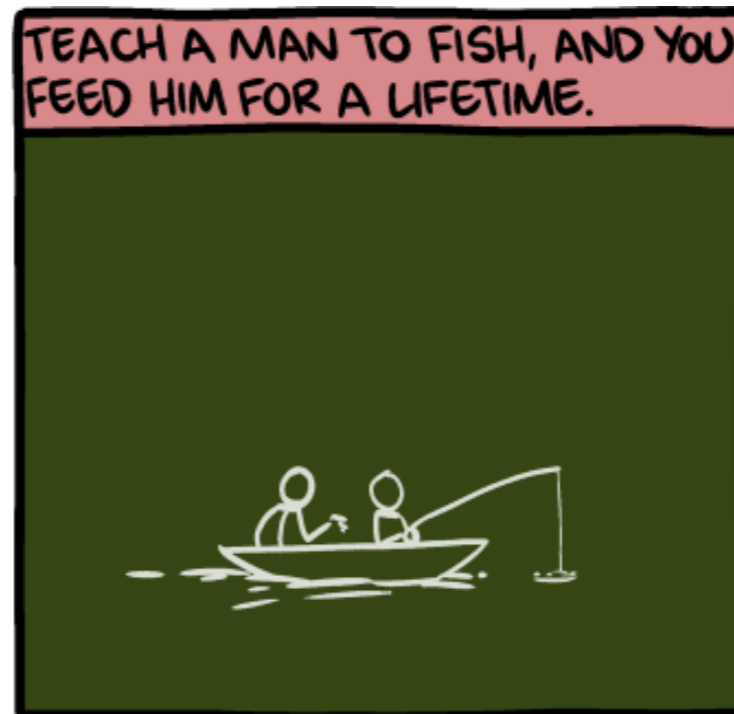
# paradigms and pluralism

Paradigms – the core idea

- Paradigma - a specific theoretical perspective or worldview

    - ...with specific theoretical assumptions (axiomatic dimension)

    - ...with a specific terms and ways of expression (terminological dimension)

    - ...with specific insitutions (journals, conferences... - sociological dimension)

    - ...with specific guiding ideas and heuristics (metaphorical dimension)

    - ...with a specific set of methods (methodological dimension)

    - ...with shared presumptions regarding the level of analysis (ontological dimension)

- Perception of reality influenced by social setting

    - „social constructivism" - different paradigms imply different worldviews

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Kuhn's picture

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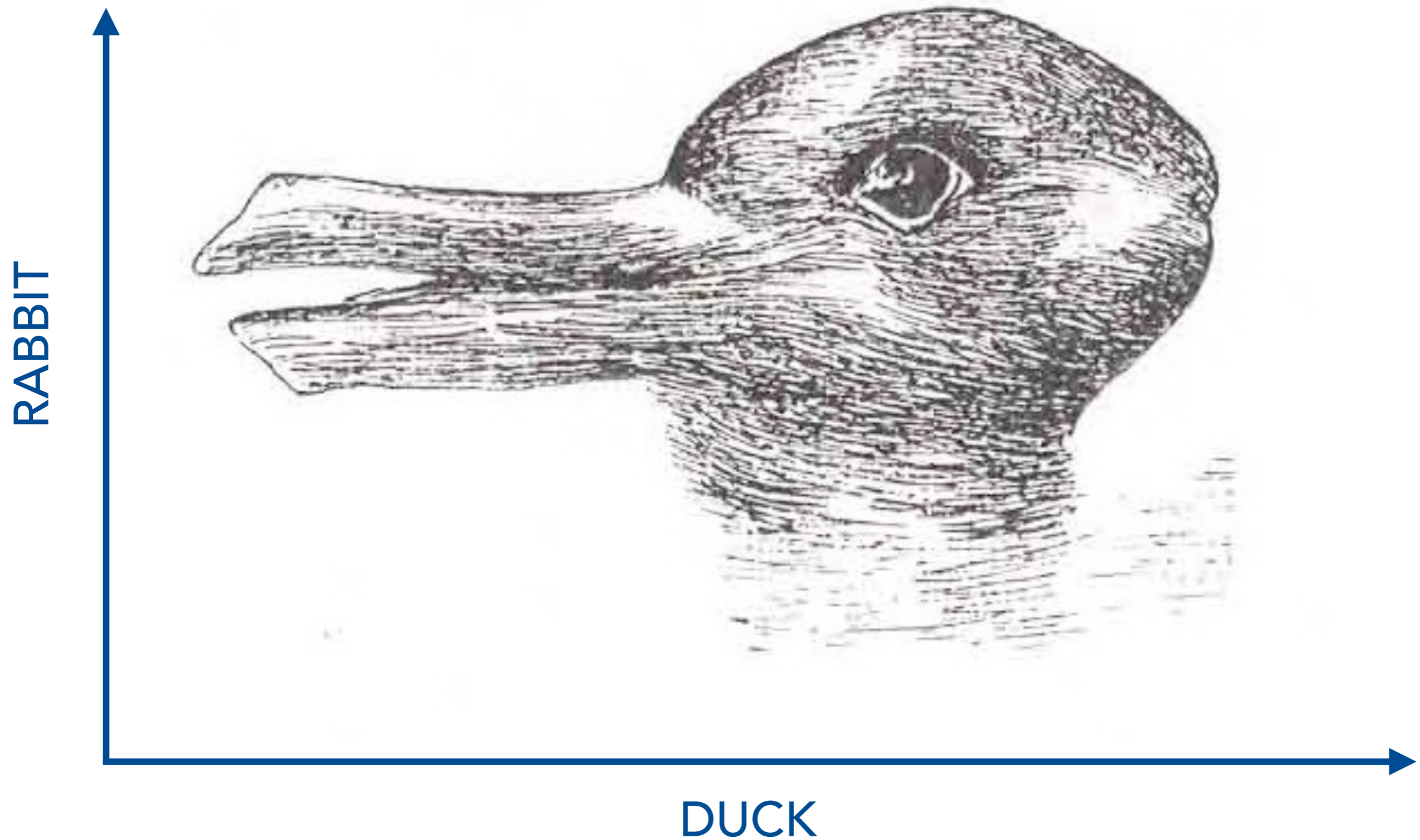
Paradigms in Economics:

Paradigmatic aspect	Neoclassical paradigm	Evolutionary paradigm	Post-Keynesian paradigm
Theoretical characteristics of paradigms ("styles of thought")			
Central problem (basic theoretical perspective)	Scarcity	Change	Unemployment
Solution (basic theoretical perspective: teleological)	Efficiency	Development	Full employment
Level of analysis (basic theoretical perspective: ontological)	Micro-Level (individual actors)	Meso-Level (Institutions, emergent phenomena, interactive processes)	Macro-Level (economic aggregates, money)
Actor conceptions (axiomatic dimension)	Optimizing rationality	Creativity and strategic rationality	Animal spirits and procedural rationality
Central property of markets (axiomatic dimension)	Equilibrium (Say's Law)	Creative destruction	Effective demand
Archetypical science (metaphorical dimension)	Physics (classical mechanics)	Biology (evolutionary theory)	Engineering (technical solutions)
Archetypical individual (metaphorical dimension)	P.A. Samuelson	J.A. Schumpeter	J.M. Keynes
Typical applications (practical dimensions)	Popular models (e.g. rational actor, perfect competition)	Research on innovation	Economic policy (fiscal and monetary policy)
Examples for idiosyncratic terms (terminological dimension)	"marginality"	"new combination"	"(fundamental) uncertainty"
Institutional characteristics of paradigms ("thought collectives")			
Important Institutions (institutional dimension)	- AER, QJE, JPE... - AEA, EEA...	- JEE, ICC, JEI... - AFEE, EAEPE...	- JPKE, CJE... - URPE
Dominant Methodologies (methodological dimension)	Formal Modelling / Econometrics	Simulations and case studies	Formal Modelling / Econometrics / Historical Studies
Quality Criteria (evaluative dimension)	Model-building methodology, significance tests	Focus on processes on micro and meso-level; problem-specific methodologies	Model-building methodology, significance tests, policy relevance

Dobusch/Kapeller (2012, JEI)

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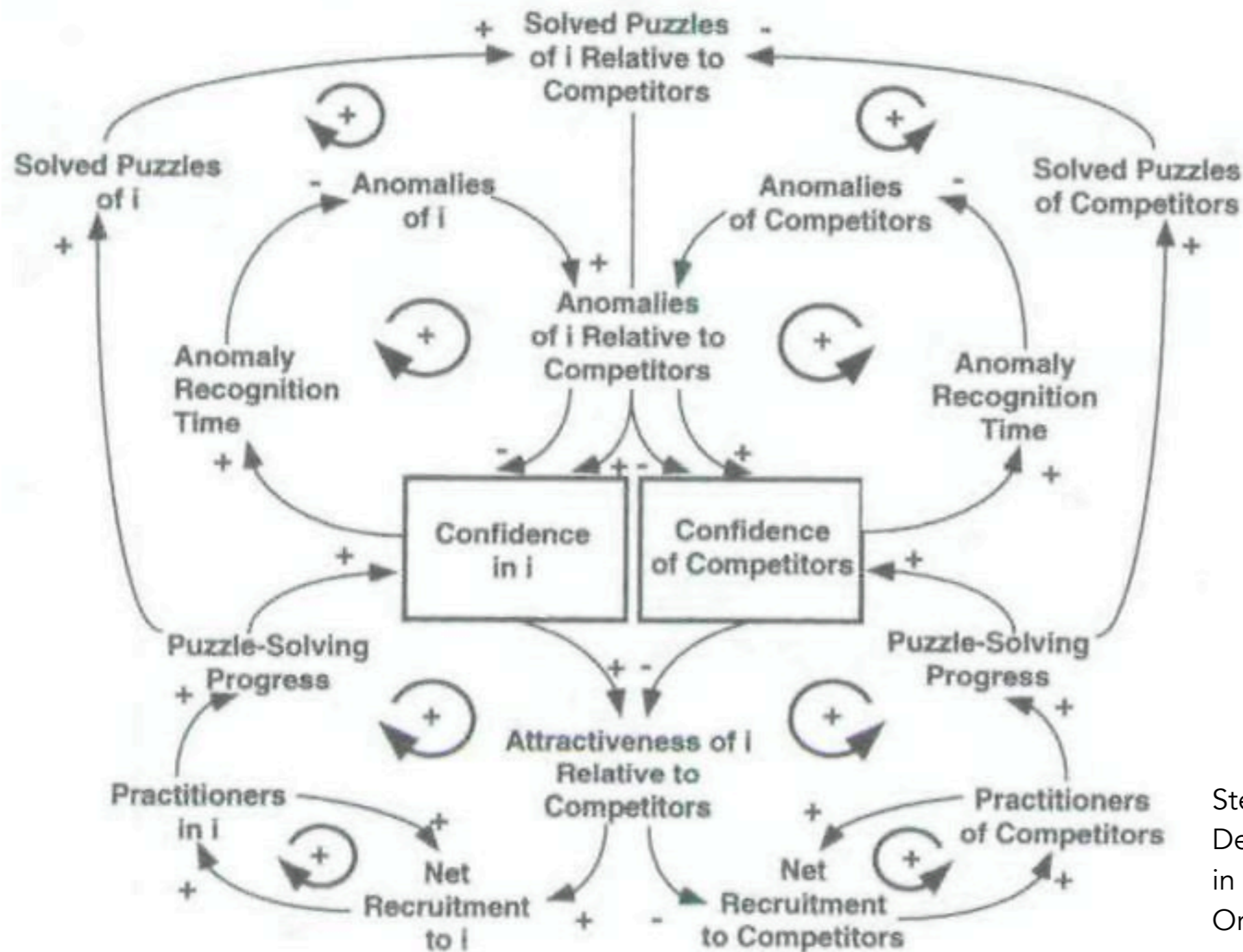# A battle of paradigms is about academic reproduction…

> " The competition between paradigms is not the sort of battle that can be resolved by proofs.

Thomas S. Kuhn, The Structure of Scientific Revolution (1962: 148)

> " Science advances one funeral at a time.

Max Planck

A battle of paradigms is about academic reproduction...

Sterman/Wittenberg (1999, 333): Path Dependence, Comeptition, and Success in the Dynamics of Scientific Revolution. Organization Science.

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Kuhn and Popper...

- ...are often conceived as intellectual opponents, but can be interpreted in a compatible way.

- One possible solution:

  - Normative theories of science think about logical and methodological rules and criteria and try to conceptualize idealized forms of science.

  - Kuhn represents a positive theory science and hence the covers the historical emergence and disappearence of specific thought-collectives. In doing so he delivers a sociological perspective on science.

  - In this view Philosophy and Sociology of Science are highly complementary, where the latter explains, why the former is not (yet) fully implemented ;-)
    (e.g. „preference falsification")

An important side-note:
The ‚theory-loadenness of observation'

- **Philosophical vantage point:** Observational statements require theoretical preconceptions; also in economics.

  - e.g. GDP: unpaid labor remains uncounted

  - e.g. Cobb-Douglas: capital/labor income share used as proxy for „marginal productivity" of each factor → **marginal utility theory** as prerequisite

  - e.g. ‚structural deficits' in Europe:

$$SB_t = FB_t - \epsilon_t OG_t - OE_t$$

nominal deficit   business-cycle correction   on/off-effects

- **Convergence or Divergence in the global economy?**

  - Also influenced by theory-ladenness.

  - The pluralist implication: look at different measures & compare them sensibly.

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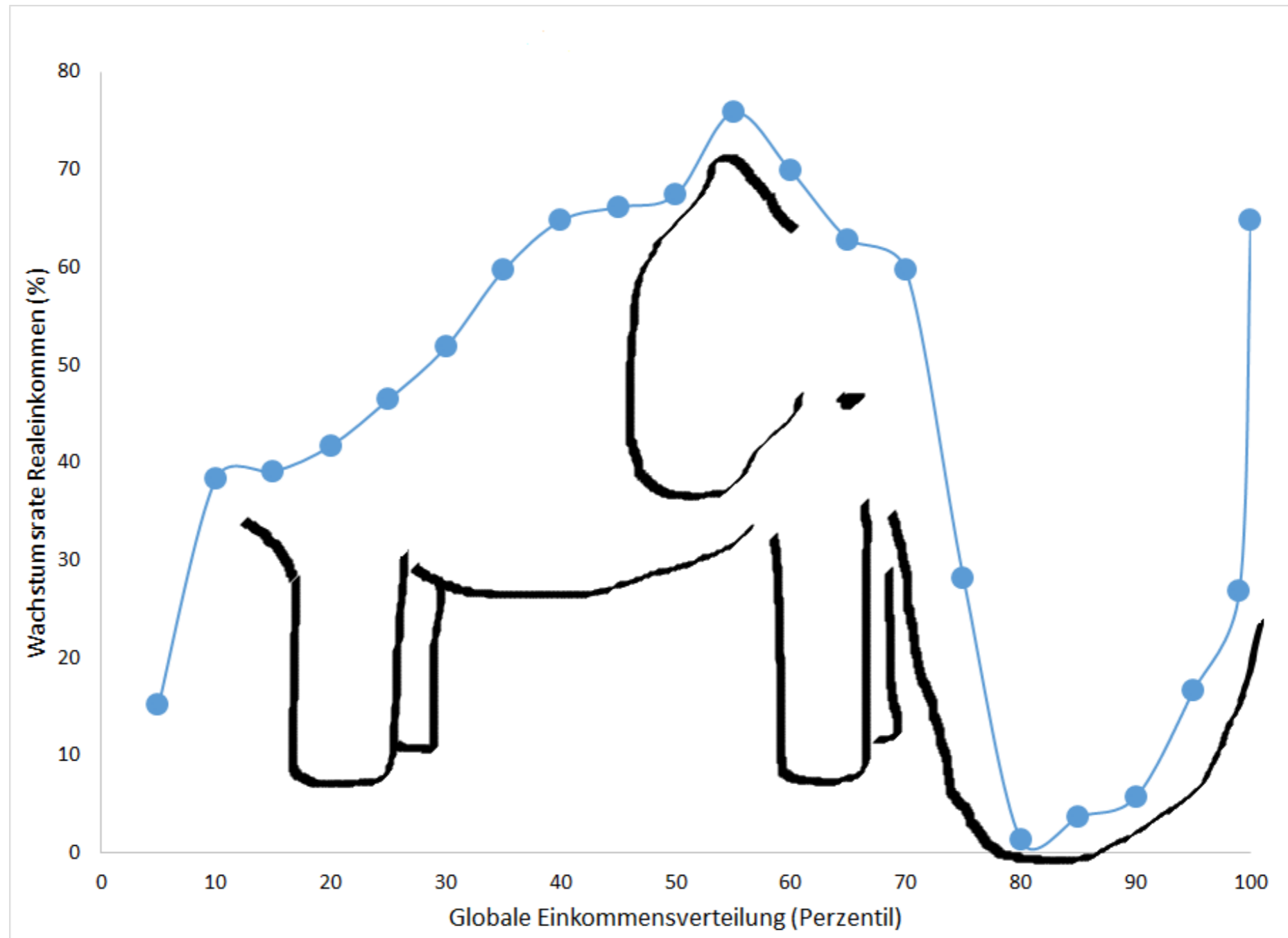
Pluralism & the theory-ladenness of observation
Convergence and Divergence

- The global income distribution between 1988 and 2008.

  - Looking at relative changes in incomes: The Elephant curve
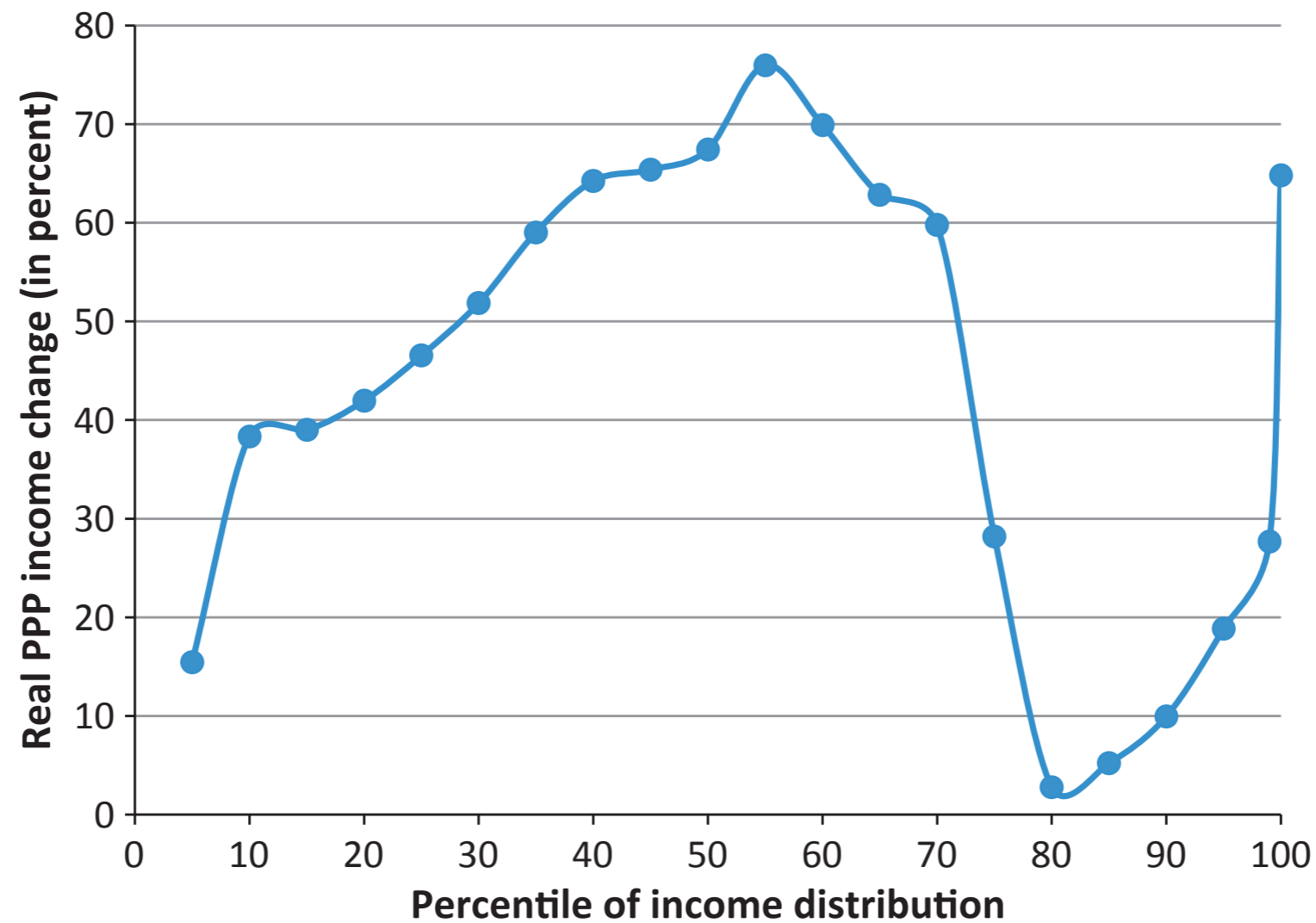

Milanovic (2013), *Global Politics, Data on: 1988-2008*

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„The Elephant Curve"
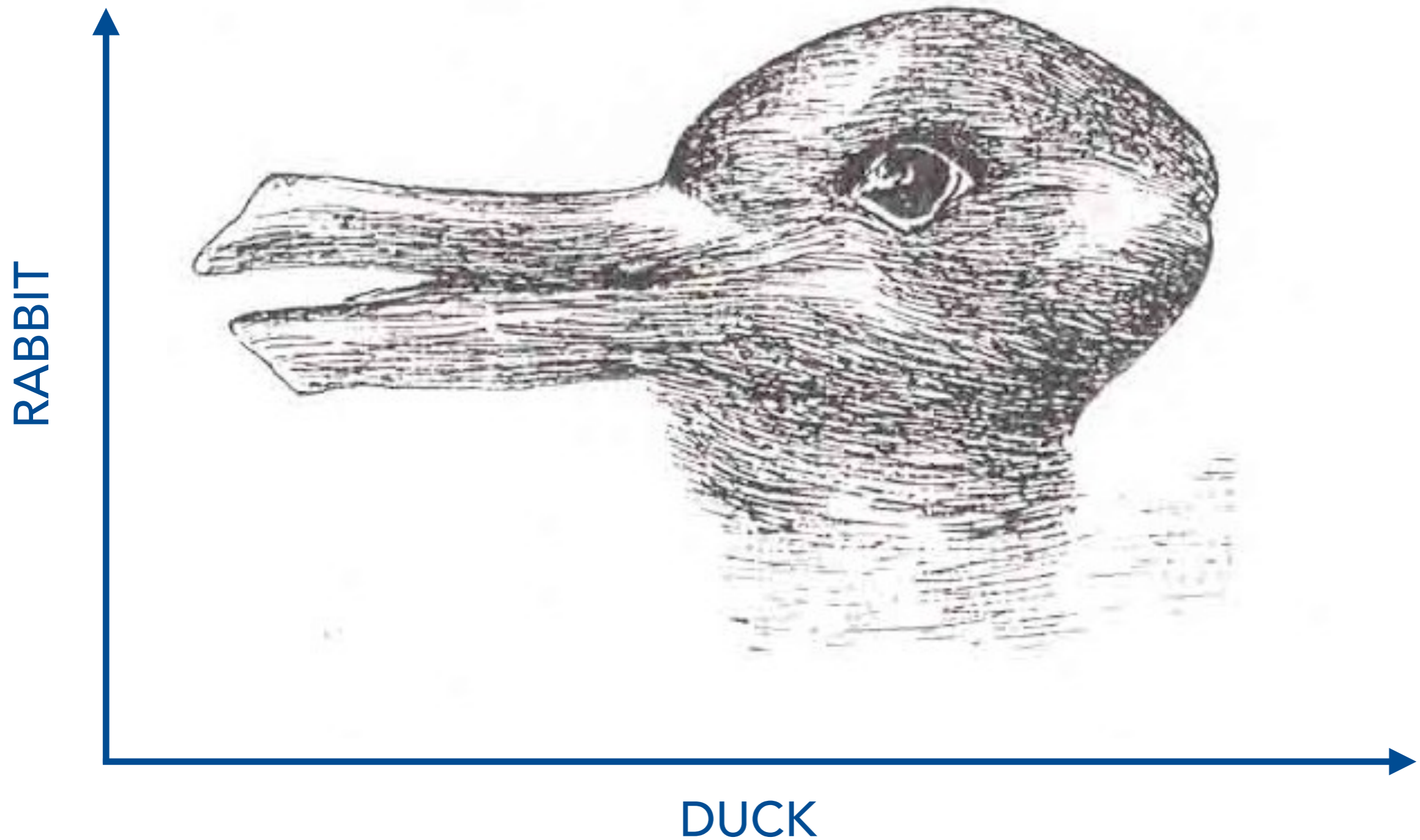
Pluralism & the theory-ladenness of observation
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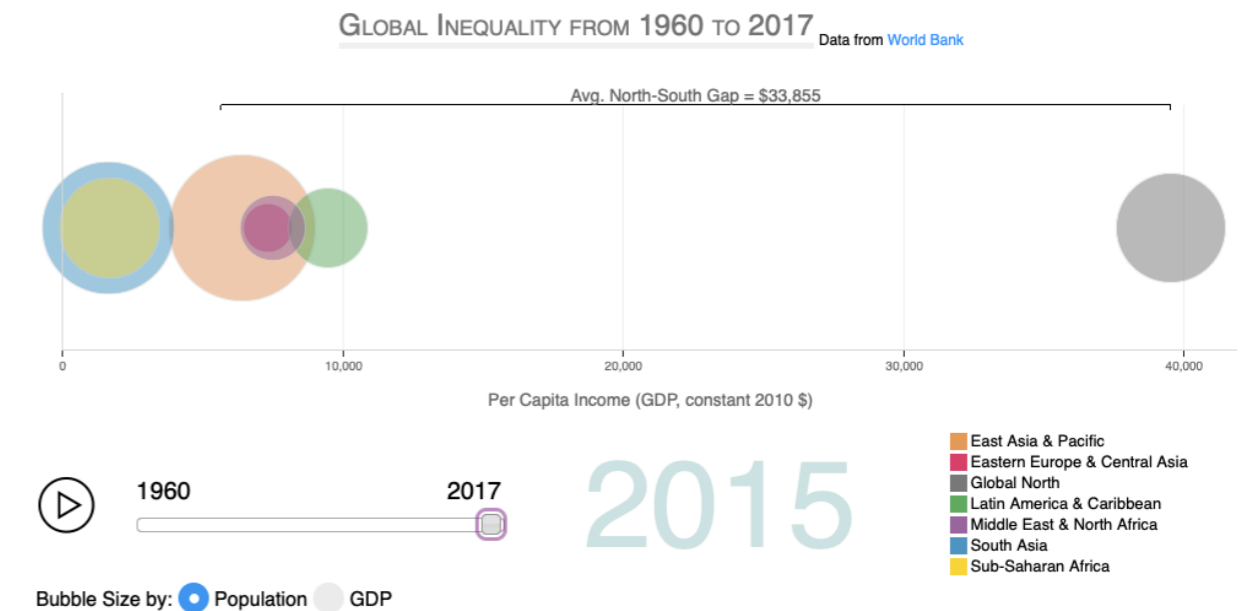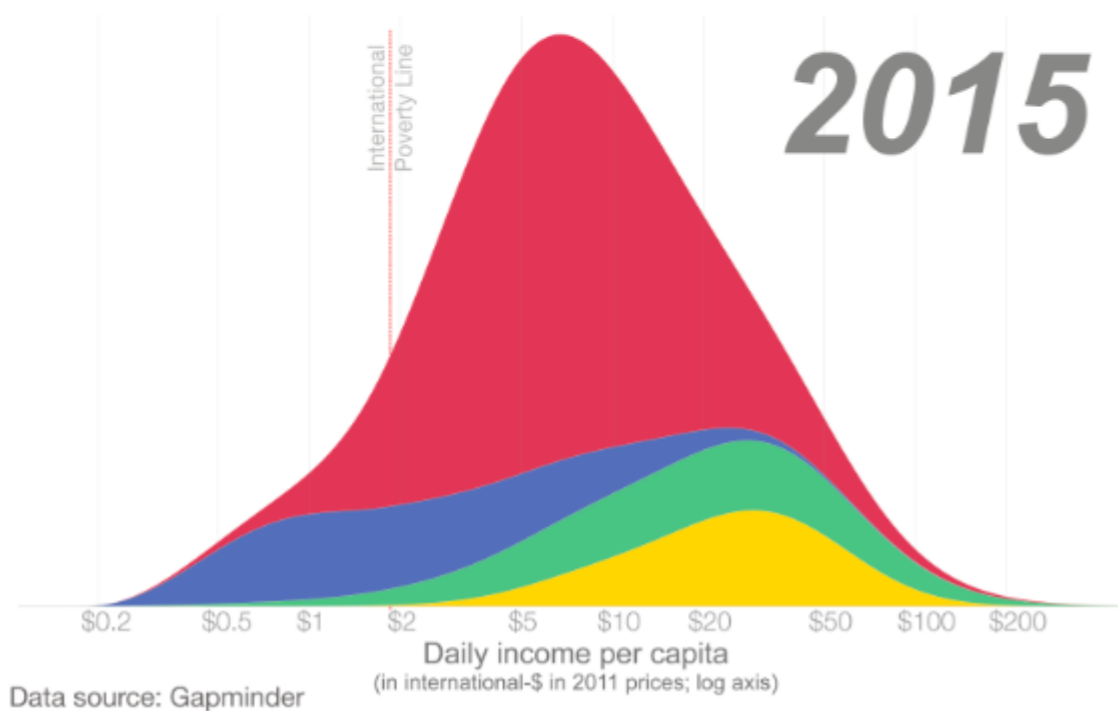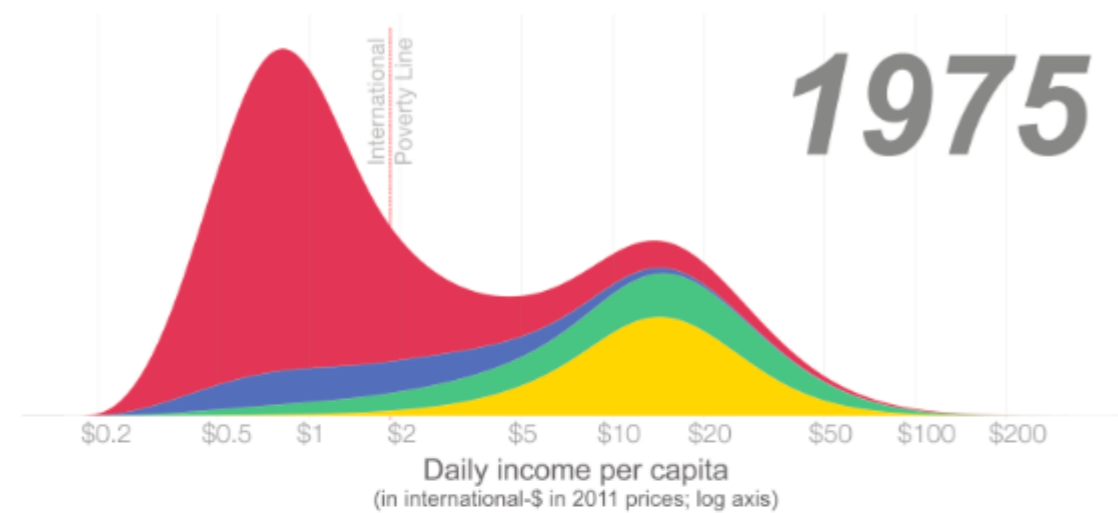 - Looking at the distribution of the pie of ‚total growth': The Giraffe curve

Distribution of the global absolute gains in income, 1988-2008: more than ½ of the gains went to the top 5%
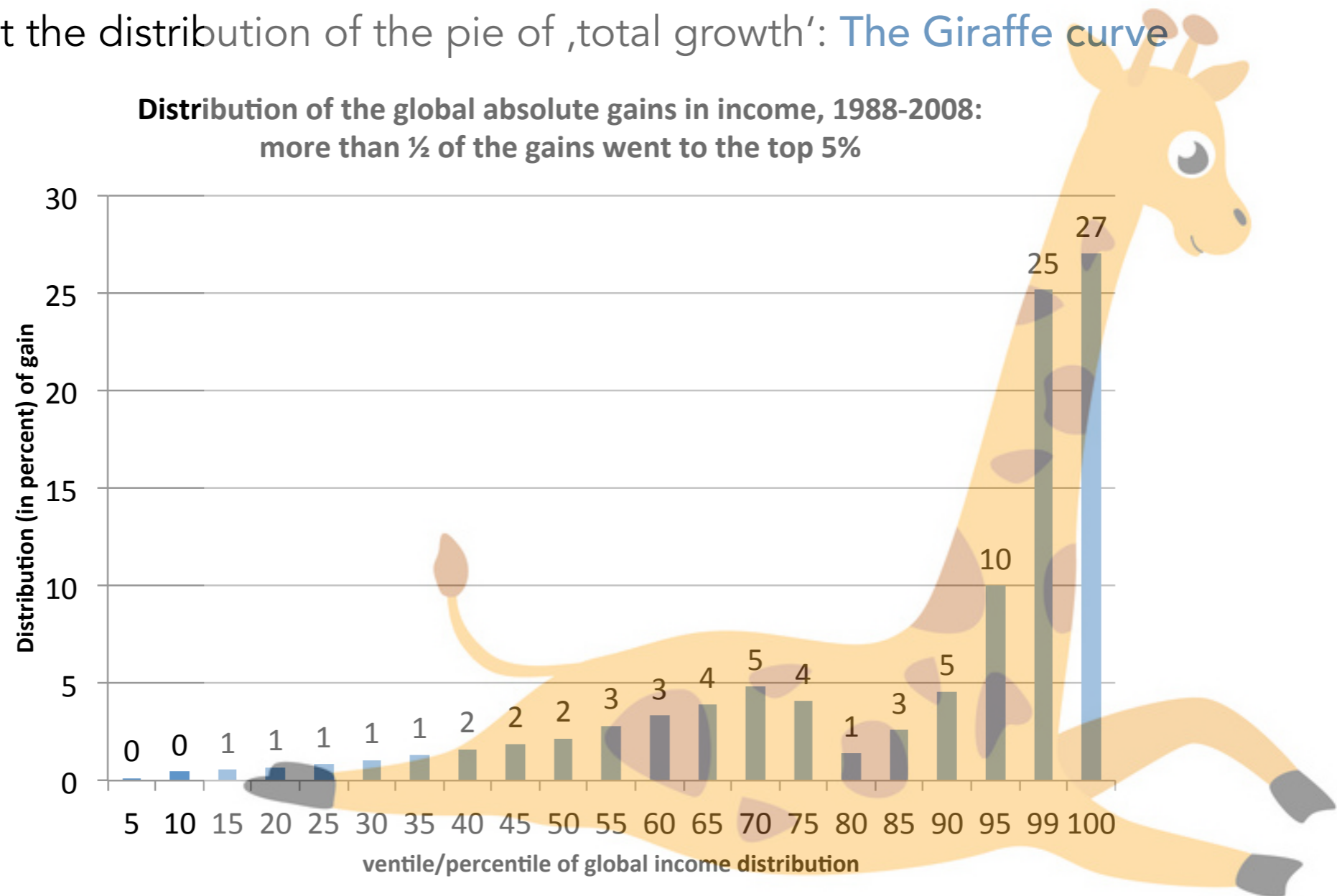
Milanovic (2014), *Lecture at the European Forum Alpbach*

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Kuhn's picture

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Pluralism & the theory-ladenness of observation
Convergence and Divergence

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https://www.jasonhickel.org/blog/2019/3/17/two-hump-world

The straightforward application: Looking at paradigms in economics
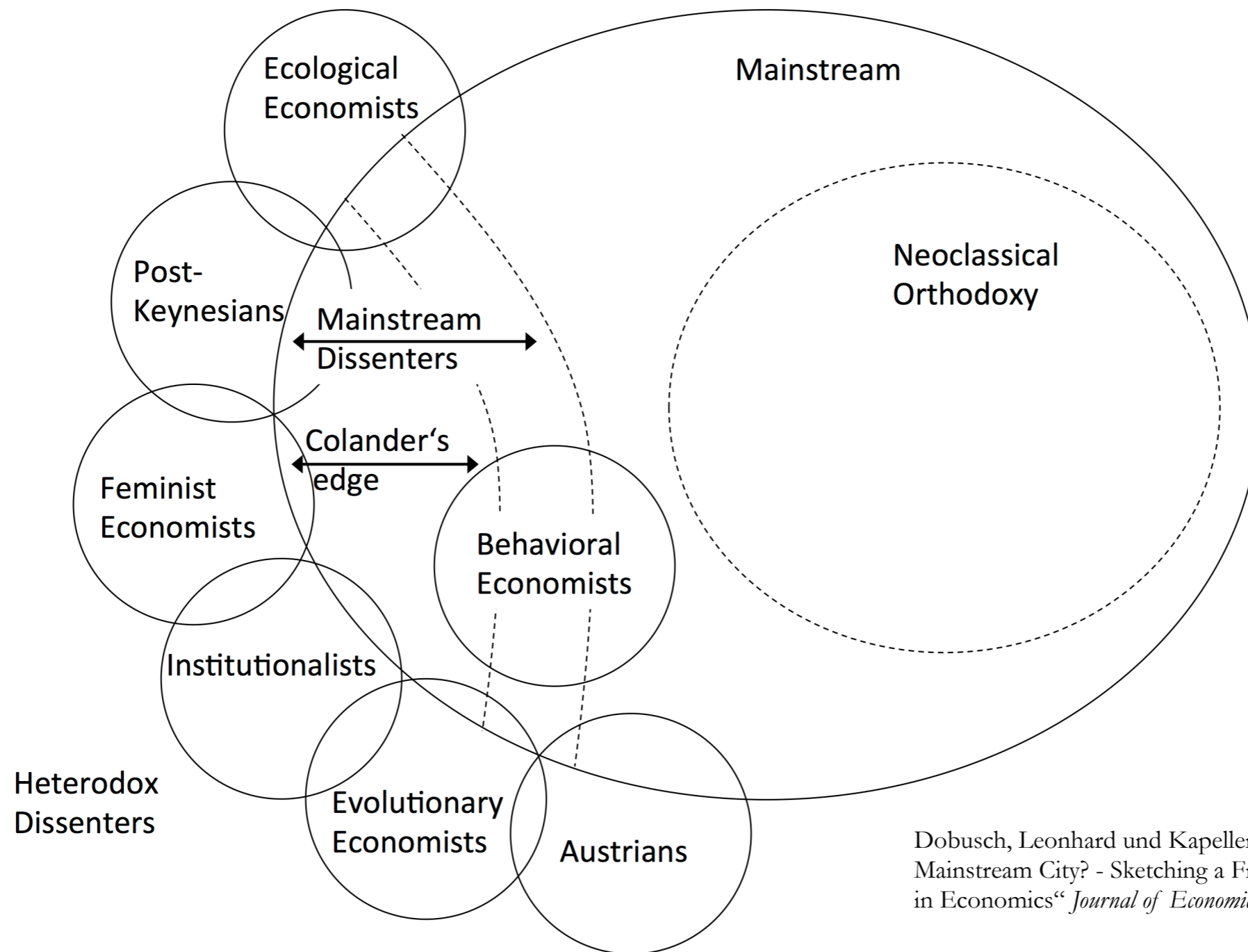
Dobusch, Leonhard und Kapeller, Jakob: „Heterodox United vs. Mainstream City? - Sketching a Framework for Interested Pluralism in Economics" *Journal of Economic Issues,* 46(4): 1035-1057.
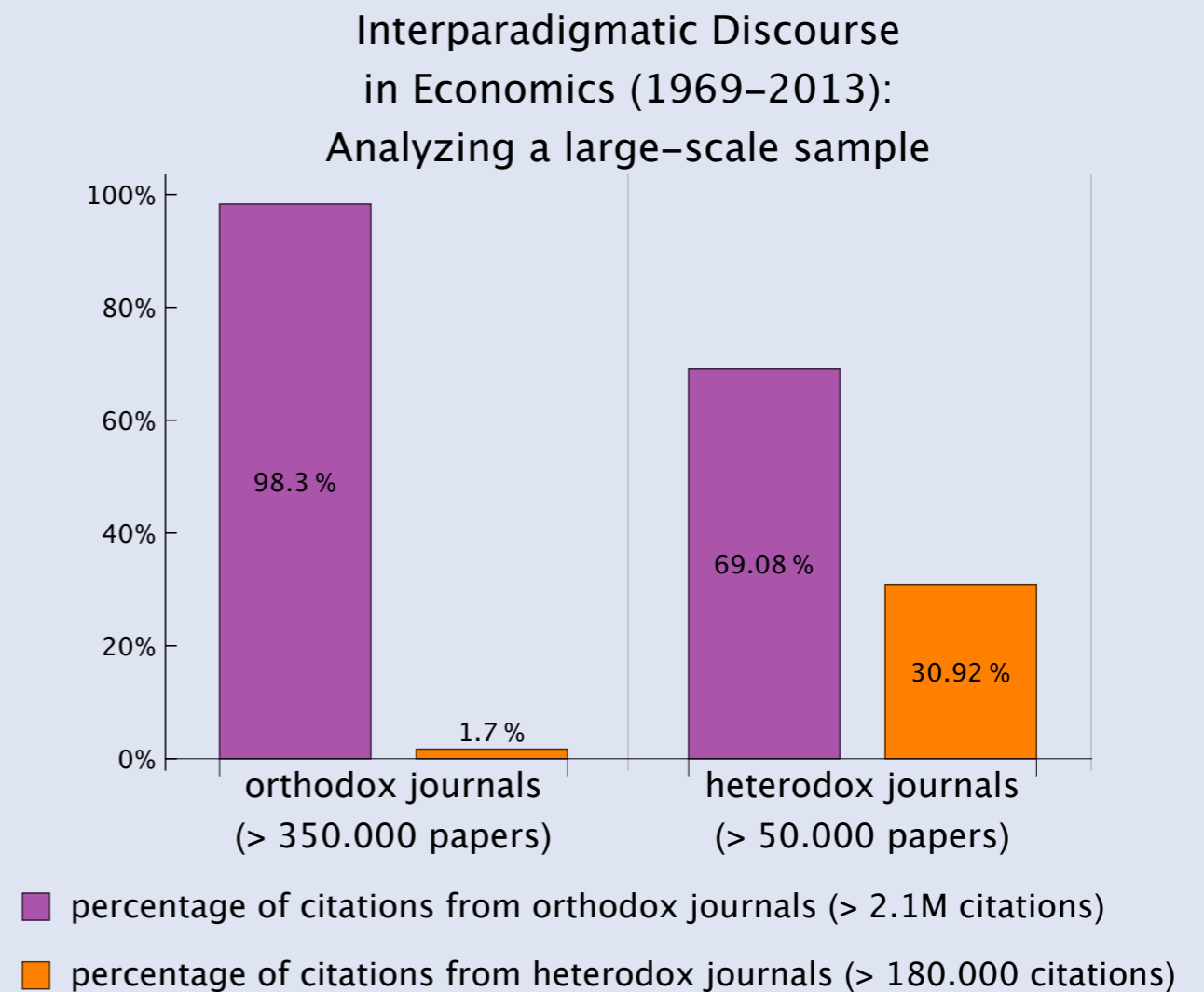
The straightforward way: Looking at paradigms in economics

- Empirical Question: How do these two groups interact?

  - Citation-data as a means for accessing scientific communication

  - Inter-Paradigm interaction as a proxy for „pluralism".

„Analyzing Pluralism"
Citation Patterns between Mainstream & Heterodoxy

- A classic finding:

  - Heterodox Econ is „open" for mainstream ideas, …

  - …while mainstream is discursively „closed".

- No reciprocity

  - Neither on the level of paradigms, nor when looking on single journals.

Interparadigmatic Discourse
in Economics (1969–2013):
Analyzing a large–scale sample

- percentage of citations from orthodox journals (> 2.1M citations)
- percentage of citations from heterodox journals (> 180.000 citations)

Aistleitner/Kapeller/Steinerberger (2017): Citation Patterns in Economics and Beyond. *Science in Context (forthcoming)*

Jakob Kapeller

What does mainstream economics think about heterodox economics?

> **"** My honest answer to that question, was that they don't think about it. For the most part, the mainstream is unaware of the existence of an 'outside-the-mainstream' heterodoxy."

<div align="right">(Colander 2010, 47)</div>
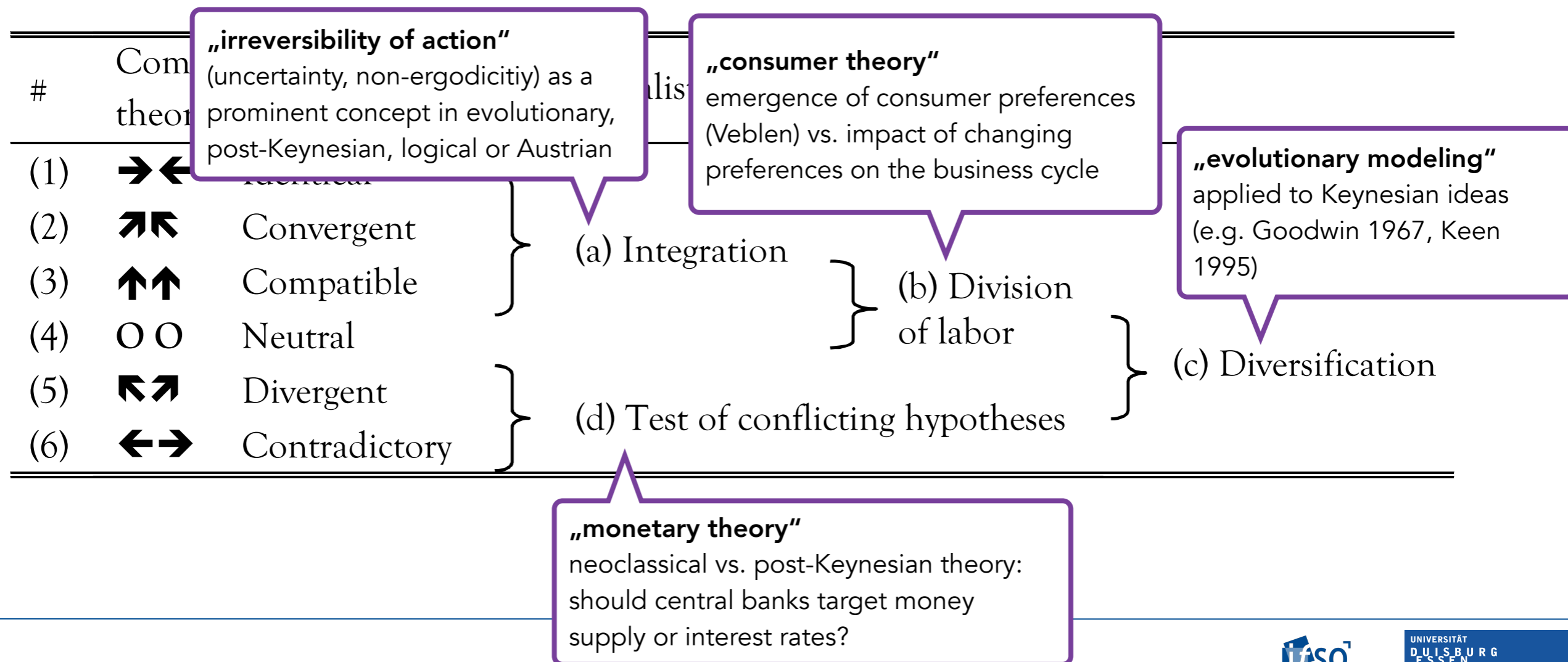
Pluralist interaction or paradigmatic monism?
Sketching a way out of the box…

Heterodox United vs. Mainstream City?
Sketching a Framework for Interested Pluralism in Economics

Leonhard Dobusch and Jakob Kapeller

#		Com... theor...
(1)	➔ ←	Identical
(2)	⬀ ⬁	Convergent
(3)	⬆ ⬆	Compatible
(4)	O O	Neutral
(5)	⬃ ⬀	Divergent
(6)	← ➔	Contradictory

(a) Integration

(b) Division of labor

(c) Diversification

(d) Test of conflicting hypotheses

„irreversibility of action"
(uncertainty, non-ergodicitiy) as a prominent concept in evolutionary, post-Keynesian, logical or Austrian

„consumer theory"
emergence of consumer preferences (Veblen) vs. impact of changing preferences on the business cycle

„evolutionary modeling"
applied to Keynesian ideas (e.g. Goodwin 1967, Keen 1995)

„monetary theory"
neoclassical vs. post-Keynesian theory: should central banks target money supply or interest rates?

performativity

Performativity in the social sciences

- ‚performativity' as a trendy term in science studies (and philosophy)

  - Often tied to John Austin's theory of speech acts.

  - locutionary – descriptive, illocutionary – following some target/intention, perlocutionary – having an effect on something, doing something

- Merton's self-fulfilling prophecy: A believe becoming ‚performative'

  - *„If everybody believes that some bank will default, this bank will default."*

  - *„The self-fulfilling prophecy is, in the beginning, a false definition of the situation evoking a new behaviour which makes the original false conception come 'true'."* (Merton 1968)

  - Real developments can be coined by wrong or lop-sided arguments, which, if convincing, can ‚become correct' due to the changes they invoke - a process often involved in, e.g., racism or other contexts of discrimination and conflict.

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Performativity in the social sciences
„an engine, not a camera!"

- Results in economic research may change the inner working of the subject

  - Performativity as a ‚social-science-thing', as it is much rarer in the natural sciences (e.g. Heisenberg's uncertainty relation). Relates to design (engine vs. camera) as opposed to explanation / prediction.

- Black-Scholes Model (Black und Scholes 1973)

  - Economic model for deriving optimal prices for options.

  - Performativity: Predictive failures of the model - which where large at the beginning - quickly vanished as financial market practitioners began to integrate the model in their actual decision-making.

  - Counter-Performativity: However, synchronisation of decision-making reinforces herd behavior, which is why the Black Scholes model has been seen as a main cause of the crash of 1987. (‚black monday')

  - Irony: A model based on the assumption of efficient markets created an inefficient bubble. (self-defeating prophecy)

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A case of performativity in macroeconomics
The EC's potential output model

Treaty of Maastricht

if $Y_{POT} > Y$ ➞ more fiscal leeway
if $Y_{POT} < Y$ ➞ less fiscal leeway

$$SB_t = FB_t - \epsilon_t OG_t - OE_t$$

structural balance

Kalman-Filtered Solow-Residual

$$YPOT_t = L_t^\alpha * K_t^{1-\alpha} * TFP_t$$

potential output

AMECO

NAIRU == Kalman Filter Unemployment Rate

$$\begin{bmatrix} u_t \\ \Delta rulc_t \end{bmatrix} = \begin{bmatrix} 1 & 0 & 1 & 0 \\ 0 & 0 & \beta_1 & \beta_2 \end{bmatrix} \begin{bmatrix} N_t \\ \eta_t \\ G_t \\ G_{t-1} \end{bmatrix} + \begin{bmatrix} 0 \\ V_t^{rulc} \end{bmatrix}$$

$$\begin{bmatrix} N_{t+1} \\ \eta_{t+1} \\ G_{t+1} \\ G_t \end{bmatrix} = \begin{bmatrix} 1 & 1 & 0 & 0 \\ 0 & 1 & 0 & 0 \\ 0 & 0 & \phi_1 & \phi_2 \\ 0 & 0 & 1 & 0 \end{bmatrix} \begin{bmatrix} N_t \\ \eta_t \\ G_t \\ G_{t-1} \end{bmatrix} + \begin{bmatrix} V_t^N \\ V_t^\eta \\ V_t^G \\ 0 \end{bmatrix}$$
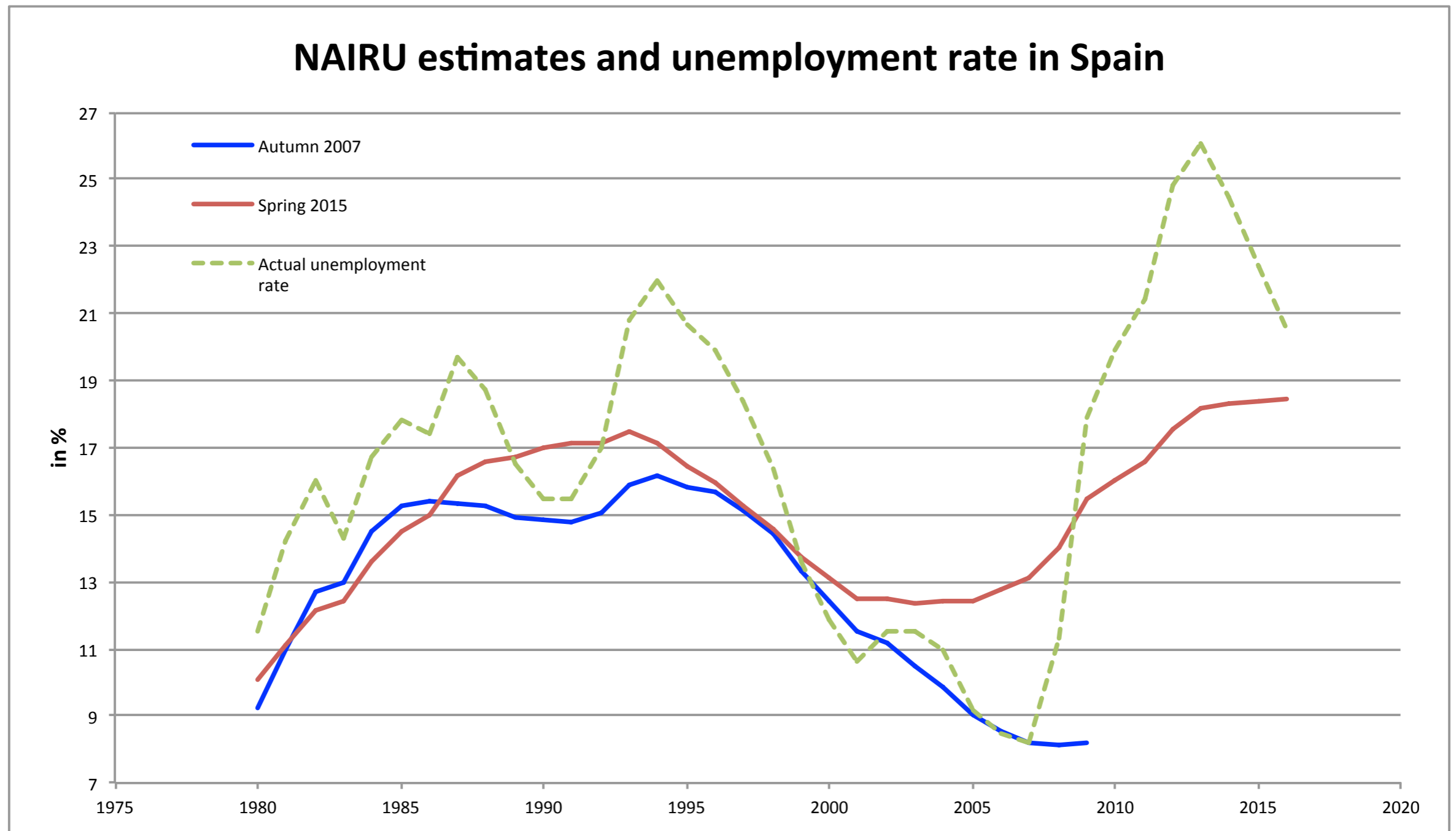
NAIRU estimates and unemployment rate in Spain

— Autumn 2007
— Spring 2015
--- Actual unemployment rate

in %

first: run recursions to obtain parameter values (numerical MaxLikelihood)
second: run filter with parameters to calculate N(AIRU)
third: smooth obtained values by rerunning the filter

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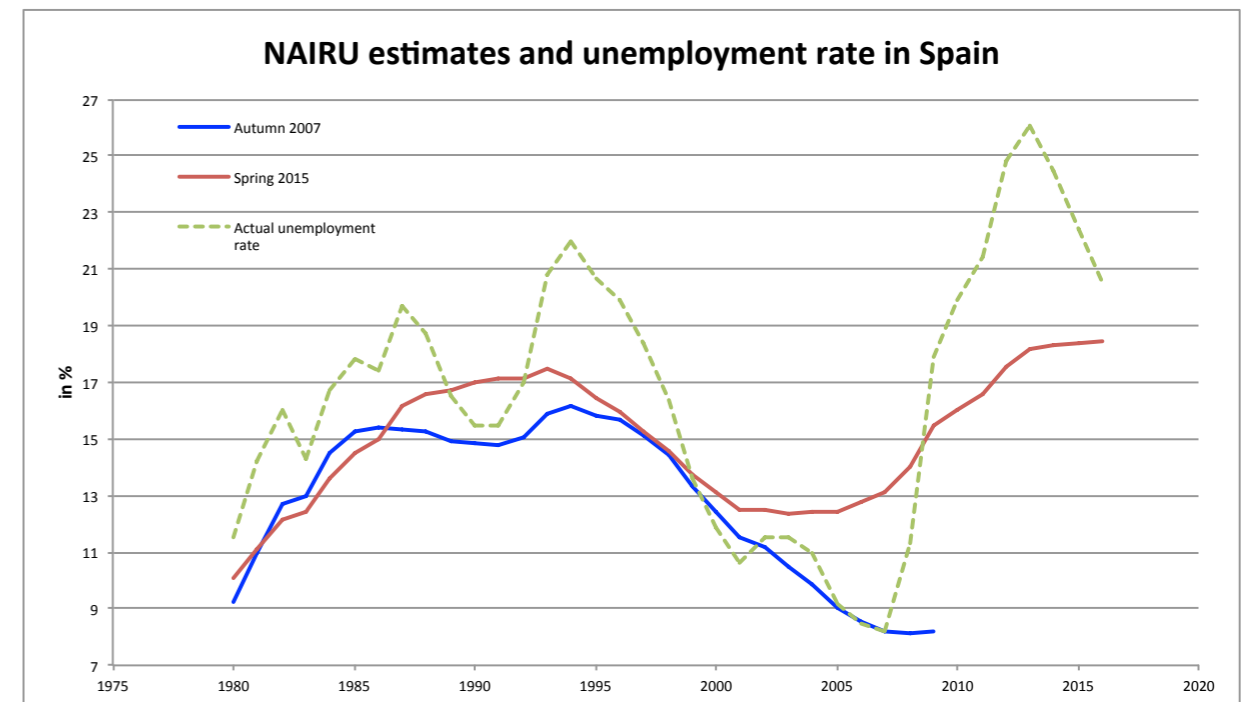
The pro-cyclicality of the EC's NAIRU estimates

NAIRU estimates and unemployment rate in Spain

Jakob Kapeller

The example of Spain

Table 3: Pro-cyclical NAIRU estimates and their impact on potential output, the output gap and structural balances

	NAIRU	PO	OG	CAB	
Post-crisis BUST	↓	↑	↓	↑	
Spain, Year 2009					
Estimate from Autumn 2011	14.2	998.0	-4.7	-8.9	
Estimate from Autumn 2011 with Autumn 2007 NAIRU	8.2	1043.5	-8.9	-6.9	

Notes. All potential output numbers were calculated at constant prices with the base 2005=100. NAIRU, non-accelerating (wage) inflation rate of unemployment (in %); PO, potential output (in billion €); OG, output gap (in % of PO); CAB, cyclically-adjusted budget balance (in % of PO).
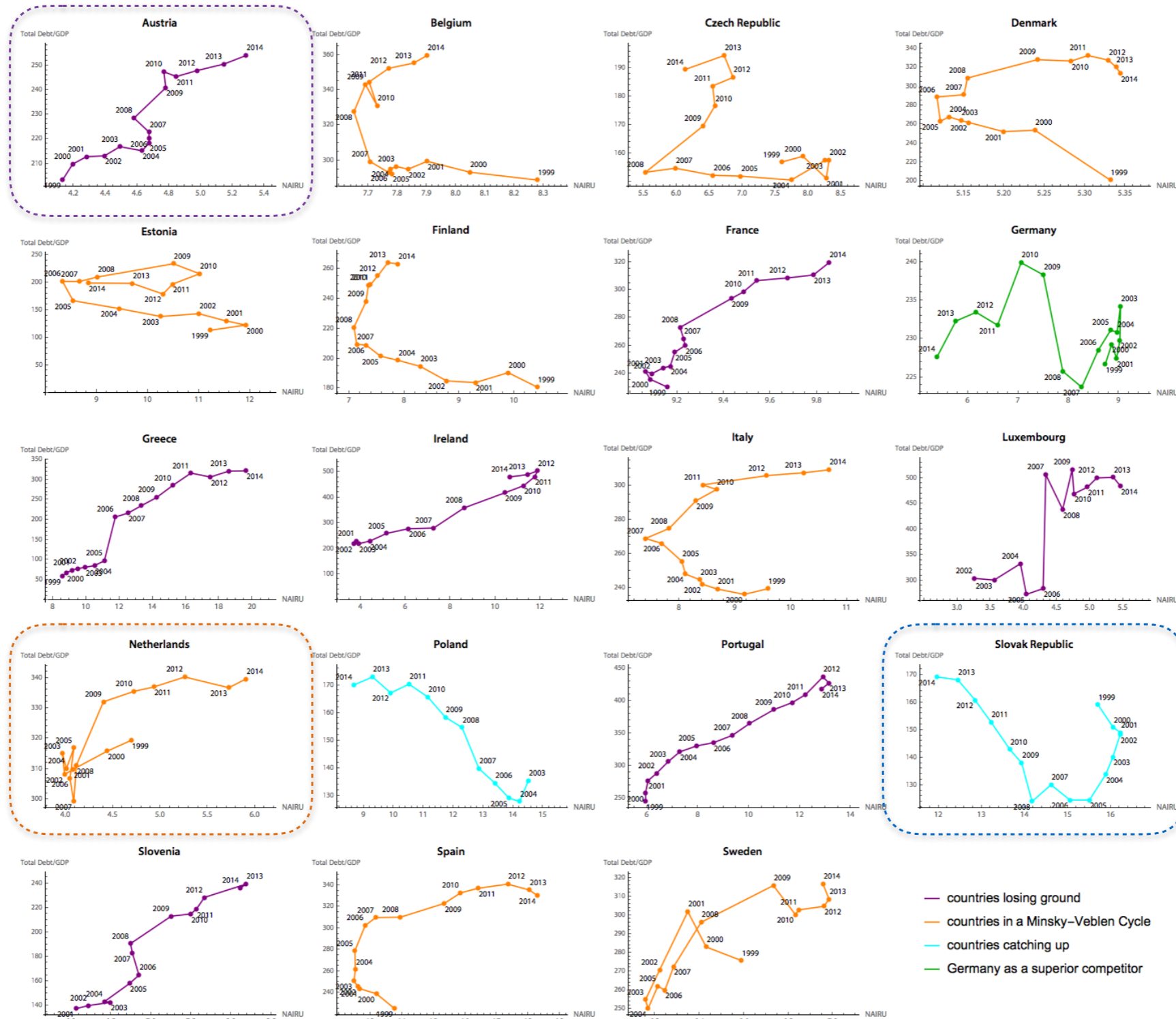
Debt and NAIRU:
Typical trajectories and the role of the crisis
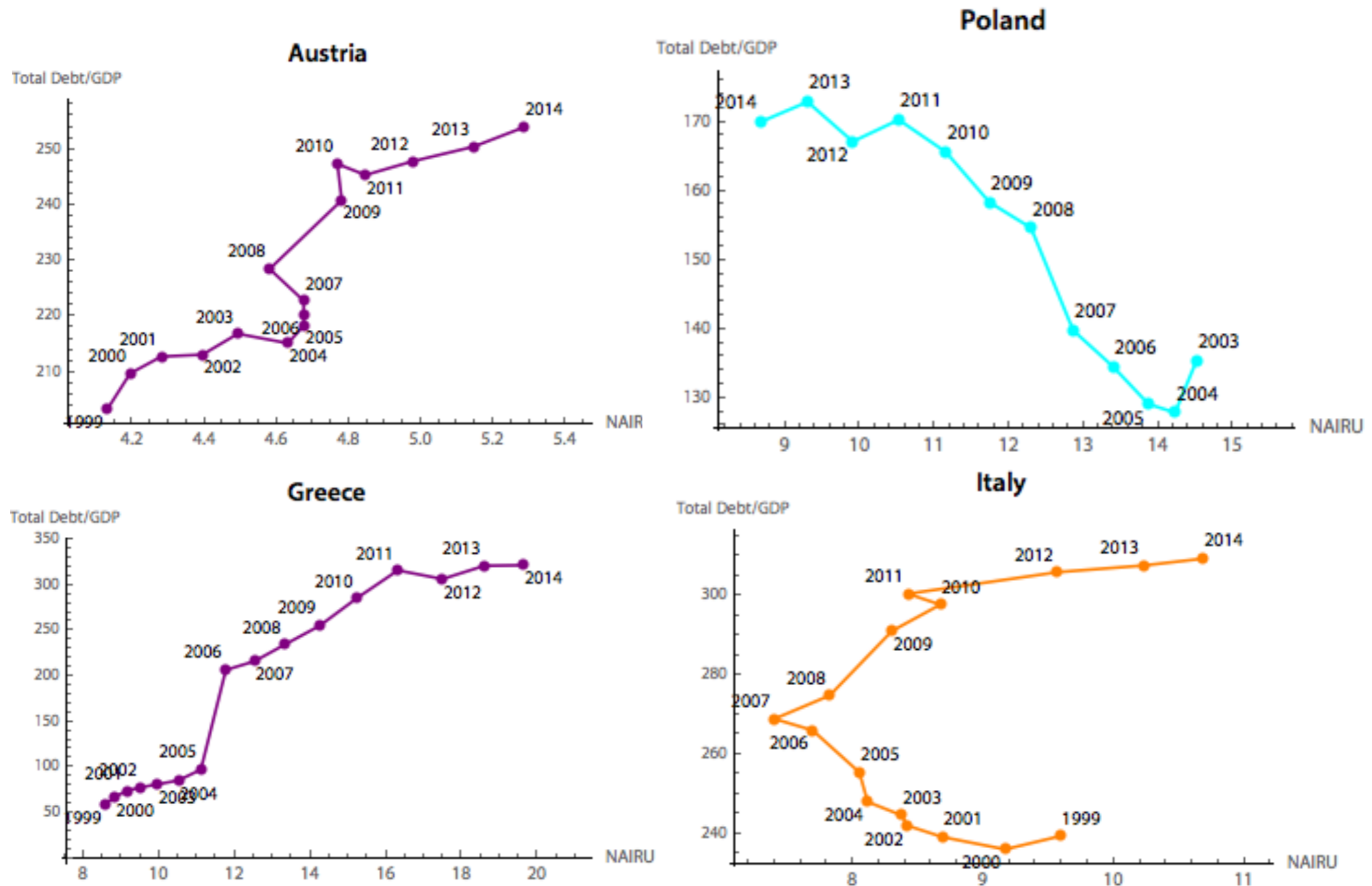
Total debt/GDP: sum of public debt/GDP (AMECO data) and private sector debt/GDP (OECD data)

successively less fiscal leeway

more fiscal leeway in boom, less fiscal leeway in crisis

successively greater fiscal leeway

— countries losing ground
— countries in a Minsky–Veblen Cycle
— countries catching up
— Germany as a superior competitor

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Pfadabhängigkeit in europäischen Ökonomien
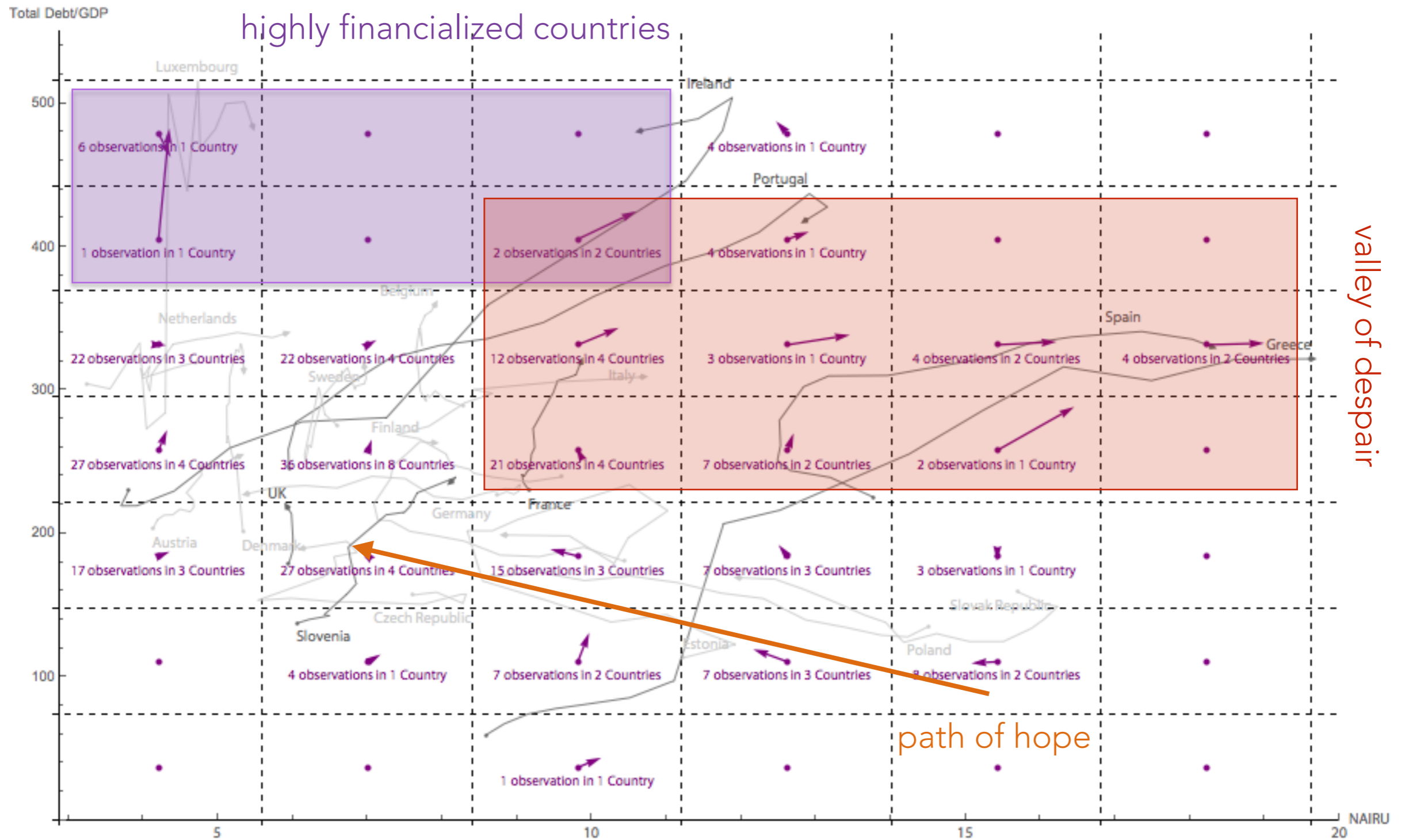
Heimberger/Kapeller (2017): The performativity of potential output. *Review of International Political Economy.*

Many thanks for your attention!