

# Oxymoron or ideal?

**Towards an applied economic methodology?**

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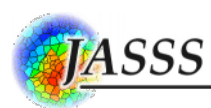
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# Main message

Economic methodology can **directly enhance economic practice**

It does so mainly by **addressing the two challenges of pluralism**

## Main references:



### How to Relate Models to Reality? An Epistemological Framework for the Validation and Verification of Computational Models

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*Journal of Artificial Societies and Social Simulation* 21(3) 8, 2018  
Doi: 10.18564/jasss.3772 Url: <http://jasss.soc.surrey.ac.uk/21/3/8.html>


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### Pluralism in economics: its critiques and their lessons

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# My personal motivation for these topics

- I am an **applied economist** who came to philosophy during his PhD
  - Rationality: choosing the right modelling framework for the question at hand
    - Intention: do not follow the (strict) conventions, but make a '**rational**' decision
  - I found the **analytical language** of EM appealing
    - Improve applied work and communication, facilitate critical initiatives
- 



“ The reciprocal relationship of epistemology and science is of noteworthy kind. They are dependent upon each other.

Epistemology without contact with science becomes an empty scheme. Science without epistemology is – insofar as it is thinkable at all – primitive and muddled.”

Albert Einstein

# What is ‘applied’ economic methodology?

## Applied Economic Methodology (AEM)

Studying economics with the goal of **directly informing and potentially changing** – rather than ‘just’ understanding – economic practice.

- Very much in line with what EM was in the first place (Mäki 2021) and the so called ‘Helsinki approach’ (Lehtinen 2021)
- But there is a tension with tendencies of EM as ‘making sense’ of what economists do:

“Many methodologists held that models have to provide explanations of actual phenomena for them to have any epistemic value.

[...]this led some to the rather pessimistic assessment that many economic modelling practices have no epistemic value.”

Grüne-Yanoff & Verreault-Julien (2021)

# What is ‘applied’ economic methodology?

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- Very much in line with what EM was in the first place (Mäki 2021) and the so called ‘Helsinki approach’ (Lehtinen 2021)
- But there is a tension with tendencies of EM as ‘making sense’ of what economists do:

“A growing number of authors have instead rejected the assumption that having an explanation of actual phenomena is necessary for epistemic value. Instead, they have argued that many scientific modelling efforts aim not at how-actually explanations but at how-possibly explanations.”

Grüne-Yanoff & Verreault-Julien (2021)

# Two examples for where AEM could shine

Improve modelling practice  
and communication

Justify and facilitate  
pluralism in economics

- In both cases, the main contribution of AEM:
  - Provide language and incentives to **explicate otherwise implicit** assumptions
  - Incentivise scholars to explicate ‘**unwritten and unquestioned**’ methodological rules
- Background assumption: interaction across epistemic communities desirable

Normal science

Epistemology

Ontology

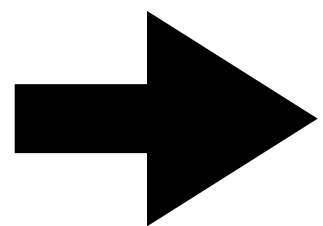
Degree of implicitness



# AEM can improve modelling practice

# How AEM can facilitate modelling practices

- **Assumption:** scholars aim to produce knowledge about certain phenomena
- **Argument:** this works better if concepts developed by EM were taken up
- **Example:** agent-based modelling in the social sciences
  - Situation: a **wide variety of different models** used to explain social phenomena
  - Problem: how to **relate models** to each other and compare them?

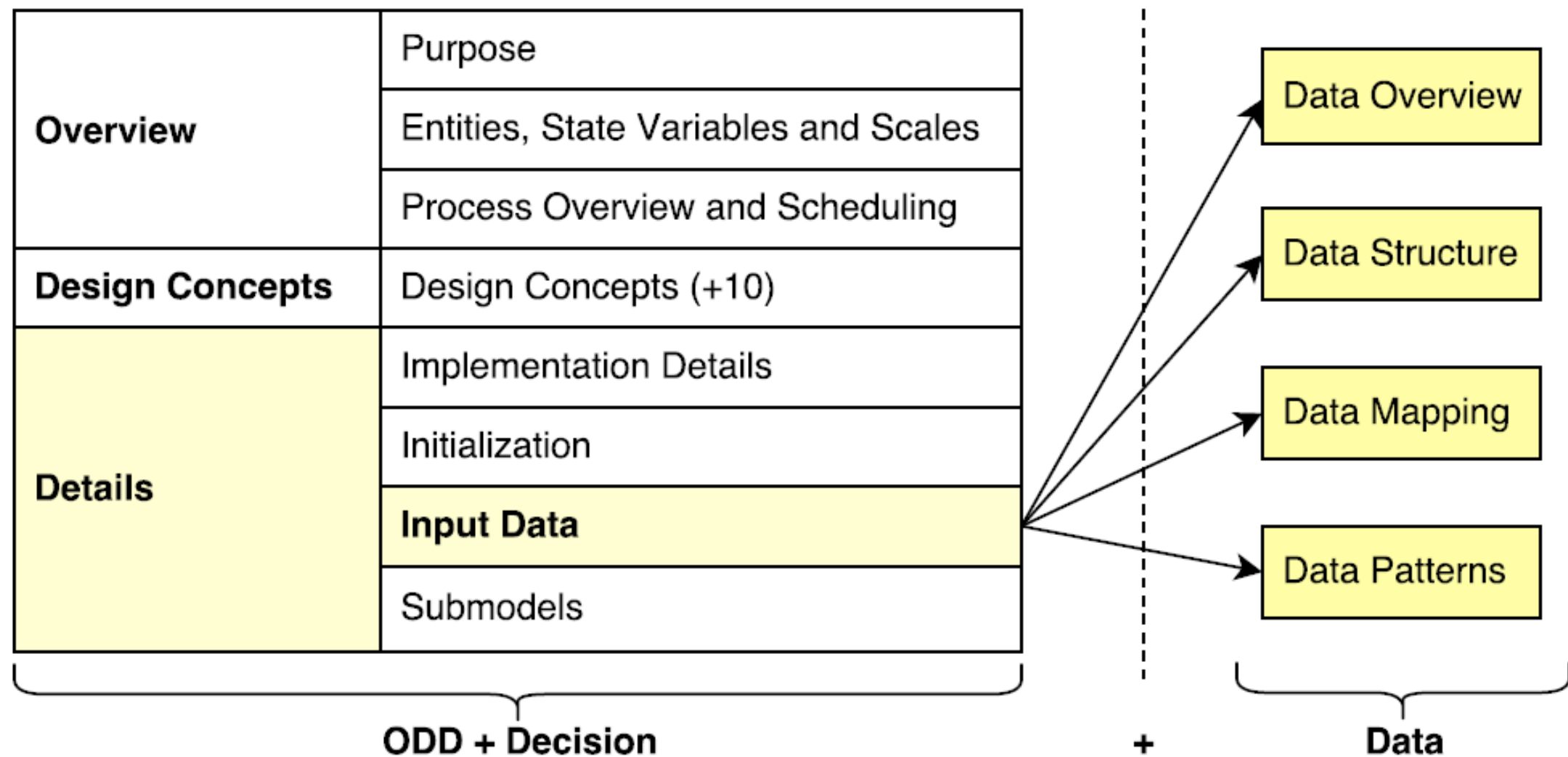


Need to certain **standards** in terms of model presentation

- Standards were developed for the technical presentation of the models...

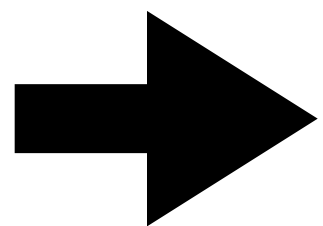


# Example for technical standards: ODD



# How AEM can facilitate modelling practices

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Need to certain **standards** in terms of model presentation

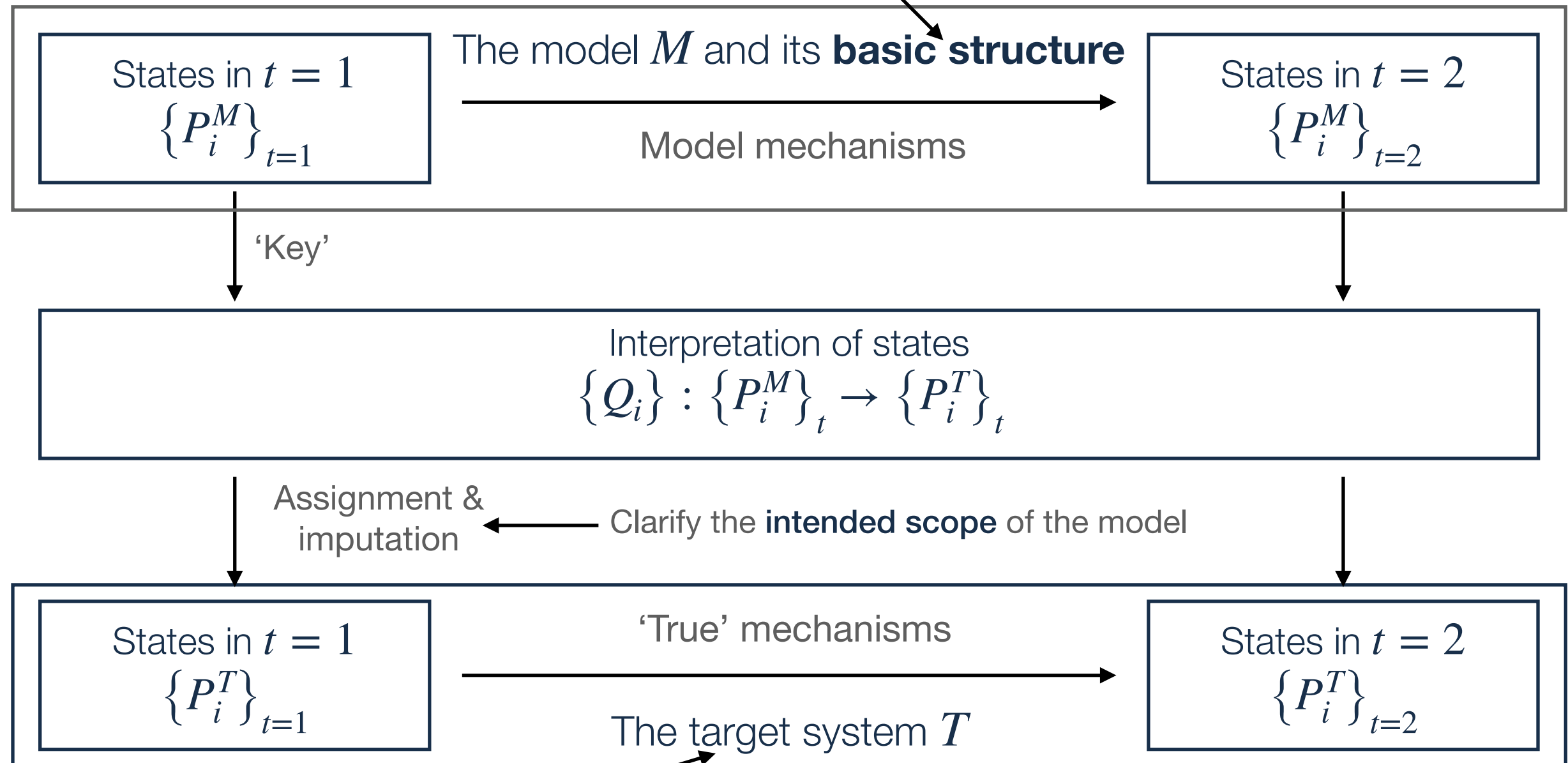
- Standards were developed for the technical presentation of the models...
  - ...but not in terms of the **epistemological strategy** of the researchers

# How about epistemological standards?

- An important part of the epistemological strategy of a researcher is her preferred way to **relate her model to the system under investigation** (SUI)
  - Ideas on what that means and how it should be done **vary greatly across research communities** → exacerbates communication
- Methodologists are studying these practices in various disciplines
  - Provide vocabulary and concepts to explicate how models can/should be used
  - Such **explicitness facilitates collaboration** as well as critical self-reflexion

# Possible epistemological framework

Justification with reference to the relative **representational capacities** of the structure (e.g., algorithms vs. functions)



# Benefits of epistemological frameworks

- Referring to such frameworks would **facilitate communication**
  - They also **require scholars to justify** aspects that are taken for granted
- Also helps **avoiding unconstructive debates**, e.g. with regard to the validation of a model
  - Explicate the **aspired fidelity criteria** used to evaluate the model
- My impression: philosophers greatly **underestimate** the frustration and inefficiency causes by a lack of explicitness
  - Especially **across disciplines and paradigms**
- Explicitness also **exposes potentially dubious informal rules** within a community:

# The methodological monism in economics

““ But after about five years of doing likelihood ratio tests on rational expectations models, I recall Bob Lucas and Ed Prescott both telling me that **those tests were rejecting too many good models.**”

Thomas Sargent

““ Every analysis is a model.”

Kenneth Arrow

““ There is a standing presumption in economics that, if an empirical statement is deduced from standard assumptions such as expected utility maximization and market-clearing, then that statement is **reliable.**”

Robert Sugden

- All this point to **informal rules** established within a certain **research community**
- Explicitly justifying (or questioning) them from time to time would help...

# AEM and pluralism

# Applied methodology and pluralism

- The previous contribution of AEM stressed the very immediate advantage of transparency for applied scholars
- Broader implication: methodology can address the **two fundamental challenges of plurality**
  - In the previous case: how to foster and exploit a **plurality of models**
  - Underlying (epistemological) conviction: **model pluralism**

## Plurality

**Descriptive** category, reporting the multiplicity of items.

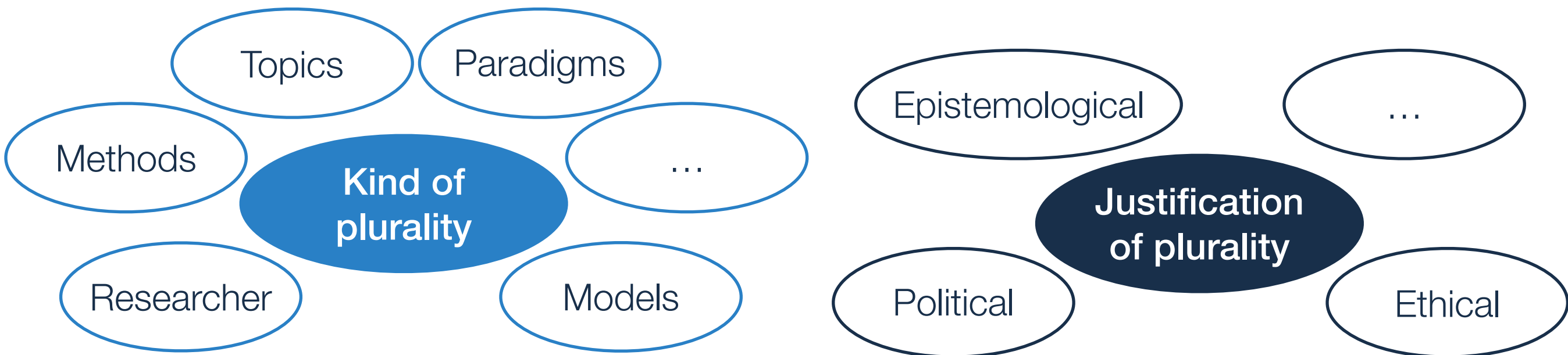
## Pluralism

**Normative** principle that demands of justifies plurality of some sort.

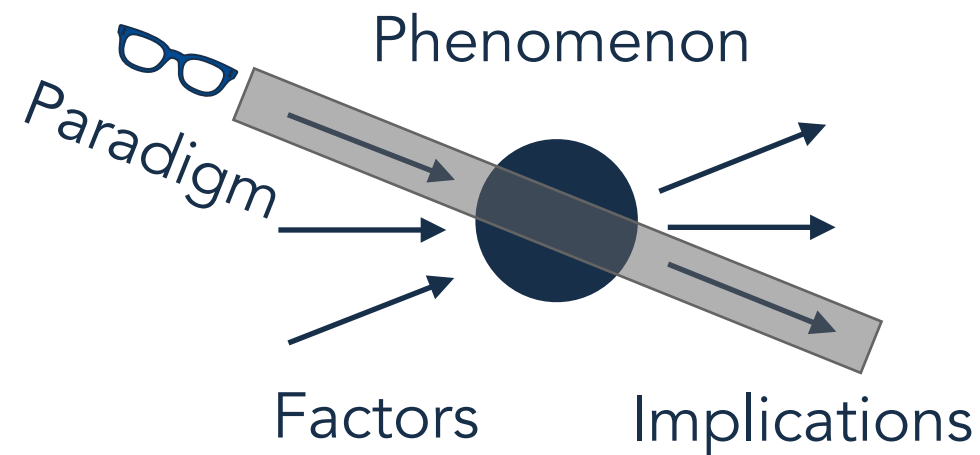
- My conviction: AEM can contribute similarly to pluralism more generally
  - And the demanded plurality would benefit economics as a science



# Pluralism in economics



- **Central conviction:** a greater plurality of [paradigms] would facilitate the [knowledge production] of economics
- Contributions of methodologists greatly needed:
  - Many justifications of pluralism remain superficial
  - How to realise alleged advantages of pluralism in practice not discussed extensively



# How to justify pluralism?

- A reasonable justification of pluralism requires philosophical, sociological, and economic reasoning – theoretical and applied
- Main thesis on the epistemological implications of a plurality of paradigms:

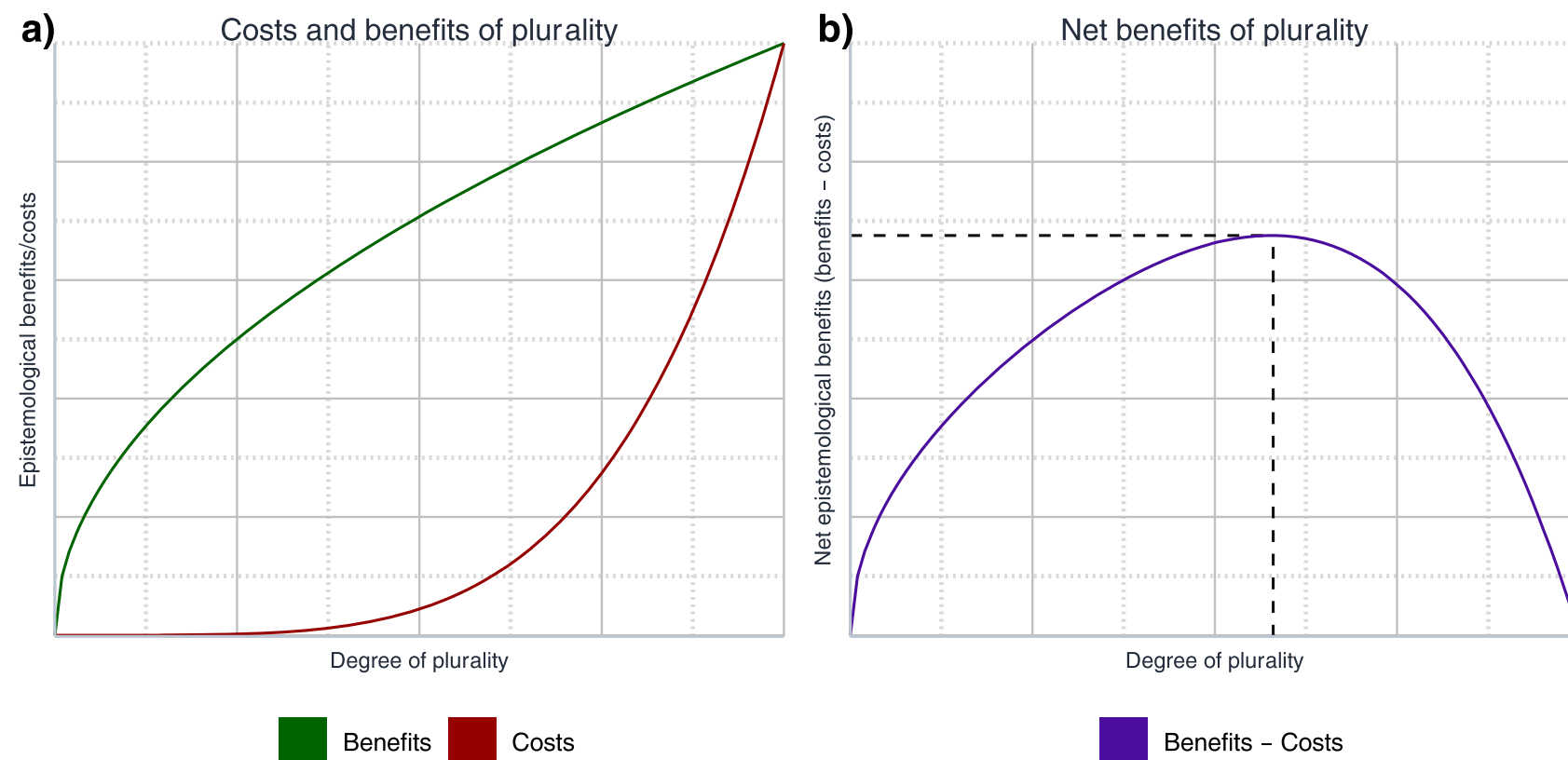
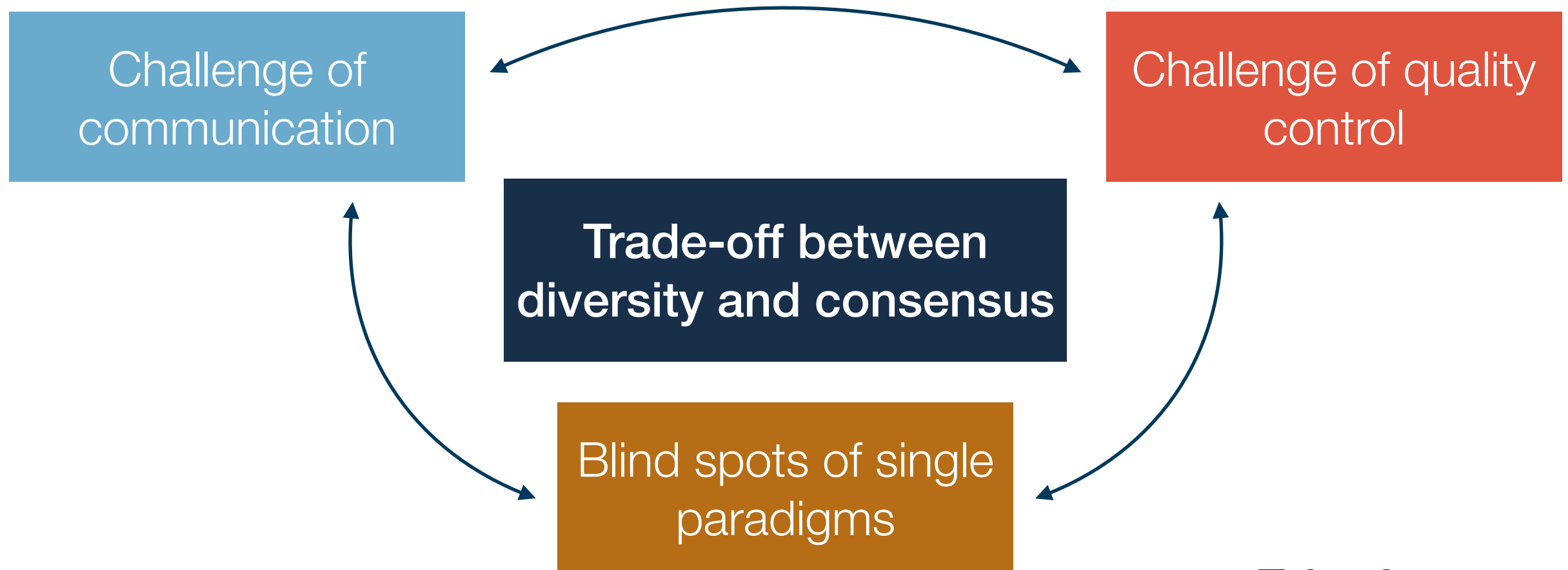


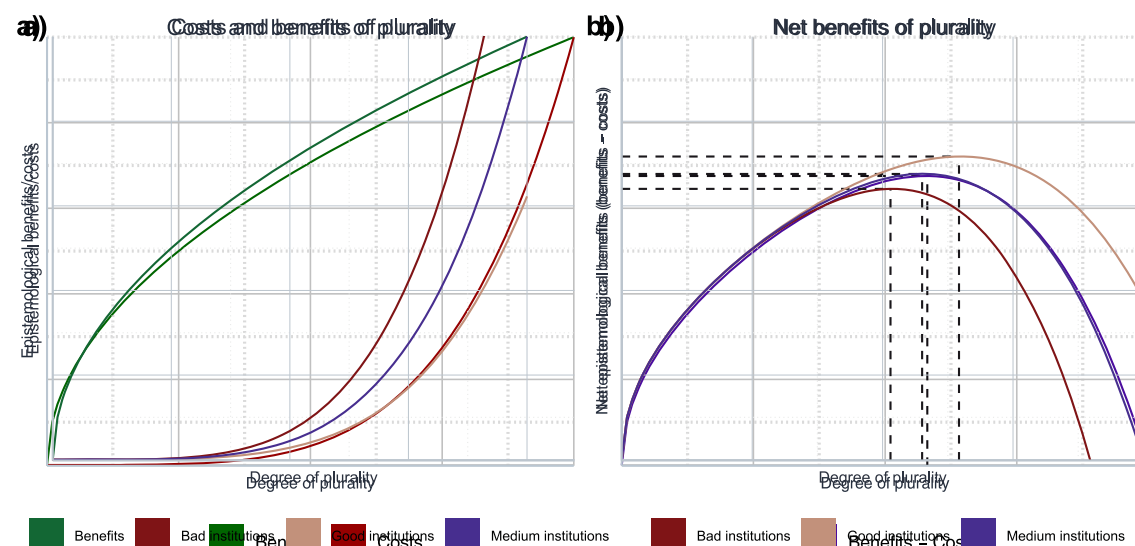
Figure: Gräbner & Strunk (2020)

# Merits and challenges



## Take-Aways

- Improving knowledge requires institutional change
- Requires methodological (and economic & sociological) thinking



# Conclusion

# Summary and conclusion

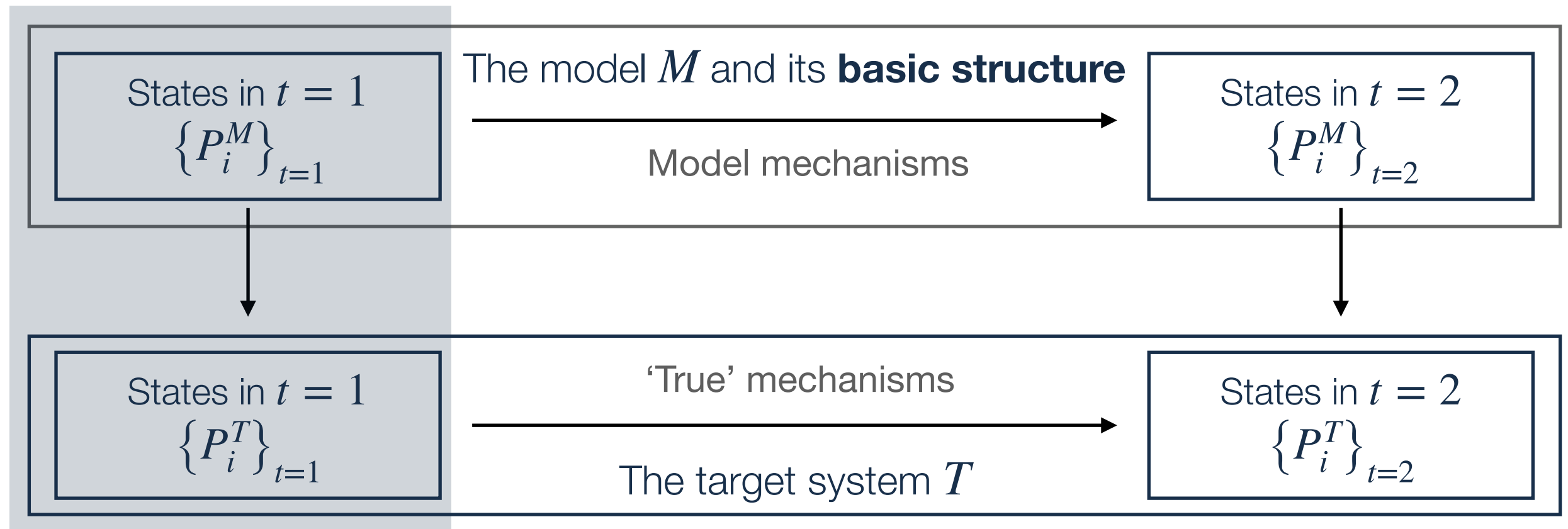
- Applied economic methodology can improve upon economic research practice
- Main channels:
  - **Facilitate communication** by providing an analytical meta-language
  - **Reflect** on unwritten and **informal methodological rules**
- Explicating one's epistemological position as part of a **pluralist strategy**
  - To discuss, facilitate, and justify pluralism, methodological, sociological, and economic reasoning is required
- Acquiring the complementary skills to do this properly difficult, but greatly needed
  - Enjoy your works within the P&E community 😊

# Appendix

# Possible epistemological framework

- Referring to such frameworks and their meta-language would **facilitate communication**
  - They also **require scholars to justify** aspects that are taken for granted
- They also help us to **avoid unconstructive debates** where we talk passed each other, e.g. with regard to the validation of a model
  - Explicate the **aspired fidelity criteria** used to evaluate the model
  - These criteria **determine the kind of validation** method to be used and explicate the actual kind of explanation sought

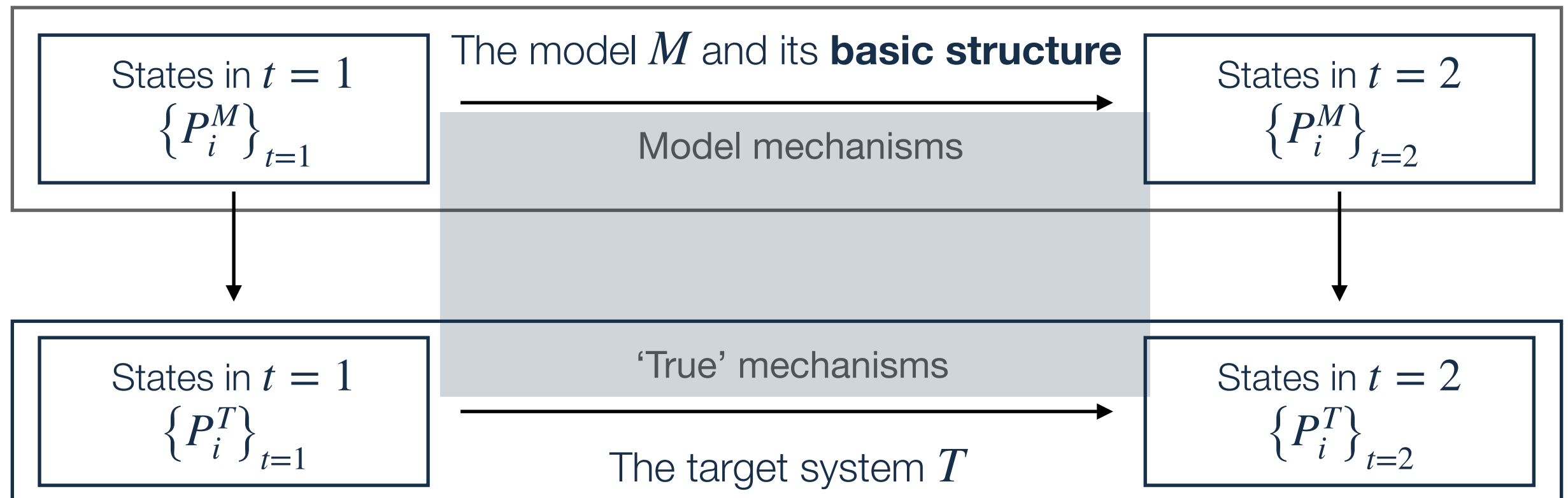
# Possible epistemological framework



- **Input validation:** does the model represent parts of  $T$  consistent with the intended scope?

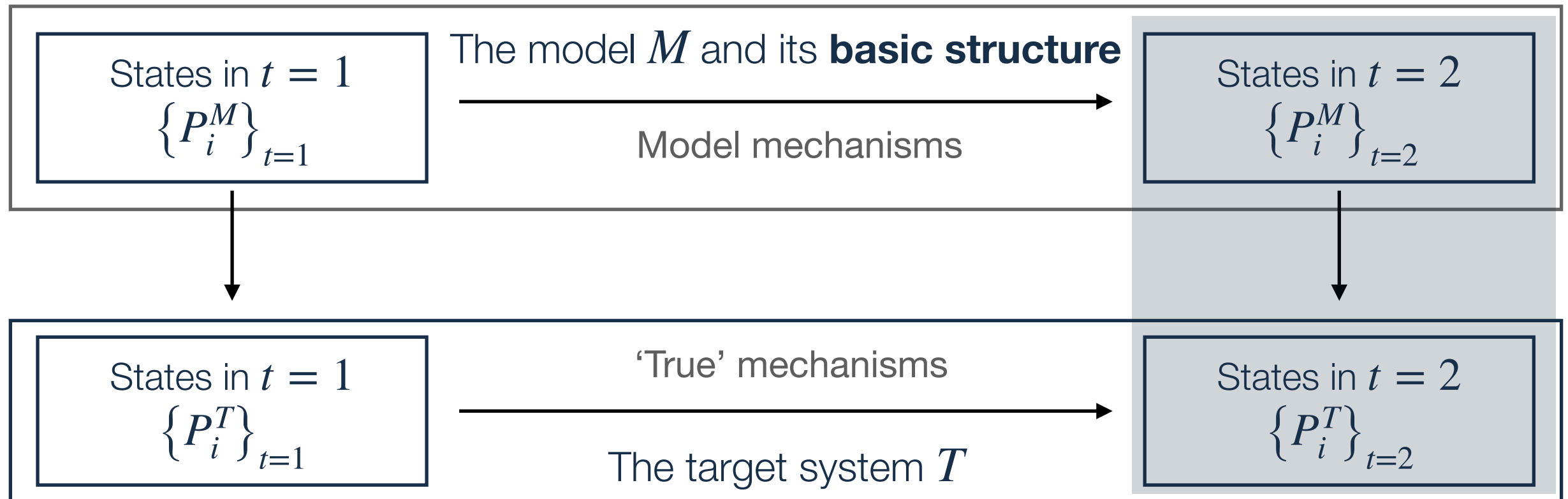


# Possible epistemological framework



- **Input validation:** does the model represent parts of  $T$  consistent with the intended scope?
- **Process validation:** does the model illuminate mechanisms in  $T$  consistent with the intended mechanistic adequacy?

# Possible epistemological framework



- **Descriptive output validation:** does the model replicate dynamics of  $T$  consistent with the **intended dynamic sufficiency**?
- **Predictive output validation:** does the model predict future states of  $T$  consistent with the **intended dynamic sufficiency**?

- Kind of pluralities