# Inquisitive Values, Inquisitive Appraisal and the Collective Inquiry

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# Introduction

# Epistemic values and epistemic appraisal

- Evaluation of the products of scientific inquiry (hypotheses, theories): guided by epistemic values (accuracy, explanatory power, consistency).
- Context of acceptance (what Nickles (2006) calls epistemic appraisal):
  - Hypothesis *endorsement* (acceptance for the purposes of application, Lacey (2015)), where non-epistemic values also play an important role.
  - Acceptance in the strong sense (Lacey's *holding*)

But there is also what Laudan called *context of pursuit*...

# Is the theory *worthy of pursuit*?

- Do scientists have open lines of inquiry in spite of the current problems their theory is facing?
- Do they have methodological means to address these problems and proceed towards their resolution (for example, running new experiments, acquiring additional data, etc.)?
- Mutually incompatible hypotheses can be worthy of pursuit at the same time.

# Inquisitive reasons

**Fleisher (2022), Fleisher (2023)**

- Inquisitive reasons: reasons that promote successful inquiry
  - Promise reasons (testability, heuristic analogies, etc.)
  - Social inquisitive reasons (promoting division of labor and productive debate, avoiding premature consensus)
- Fleisher et al. (2025): expert judgment should be informed by inquisitive reasons.

But what is successful inquiry?

What are the criteria for assessing individual inquiry?

What are the criteria for assessing collective inquiry?

# In this talk

- I will present an account of inquisitive (zetetic) values, which serve as the standards for inquisitive appraisal – the assessment of the process of inquiry (our strategies, heuristics, norms), what Nickles (2006) called heuristic appraisal.
- I will argue that:
  1. The appraisal of individual inquiry typically results in incommensurable outcomes.
  2. The appraisal of the collective inquiry requires weighing the joint mix of the given research strategies – which again can be challenging.

# What Are Inquisitive Values?

# A framework for values

**Values are**

*standards of evaluation* ascribed by an *agent* to a *unit of evaluation* in a certain *evaluative space*.

**Kinds of values**

- *instrumental*: if used to assess whether something is better or worse for the fulfillment of another value.
- *intrinsic*: ends in themselves.

# Defining epistemic values

**Epistemic values**

are standards of evaluation one assigns to scientific theories, methods or outcomes of scientific research, in the evaluative space centered around epistemic goals – knowledge, truth, understanding.

**Intrinsic and instrumental epistemic values (EVs):**

- Typical intrinsic EVs: truth, empirical adequacy
- Typical instrumental EVs: explanatory power, predictive accuracy, simplicity, fruitfulness

# Defining inquisitive values

**Inquisitive values**

are standards of evaluation ascribed by an agent to a process of inquiry (the research strategy, heuristic, research program), in the evaluative space centered around inquisitive goals.

**Inquisitive goals**

Programmatic character of inquiry, positive and negative heuristics, robustness of inquiry.

# Inquisitive values

**Intrinsic inquisitive values: prospective values**

programmatic character of inquiry, fruitfulness, prospective explanatory power, prospective inferential density, prospective consistency, prospective predictive accuracy, but also feasibility (cost-effectiveness)

**Instrumental inquisitive values**

simplicity, testability (what Steel (2015) considers extrinsic EVs).

# Paradigmatic inquisitive values (individual inquiry)

Šešelja and Straßer (2014)

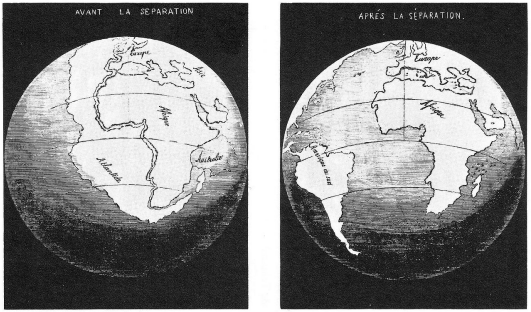
**Prospective explanatory power**

the presence of explanations that are considered to be significant at that point of the scientific development.

An explanation is significant if:

1. it addresses the phenomena for which the established or other pursued rivals have either no explanation, or have explanations which are weak (e.g. introducing new conceptual problems);
2. it addresses certain benchmark problems or questions in the given scientific domain in a novel way.

# Wegener's theory of continental drift




- Alfred Wegener (1912) – the theory of continental drift
- two other, rivaling theories:
  - contractionism
  - permanentism

# Wegener's theory was worthy of pursuit in the 1920s

Šešelja and Weber (2012)

- problem of the mechanism of the drift
- tentative responses in terms of potential models of the drift
- in particular: Holmes's model of the "seafloor-thinning".

# Another example of an inquisitive value

**Programmatic character of inquiry:**

inquiry is embedded in a theoretical and methodological framework that allows for the further research of the system to proceed in spite of the encountered problems, and towards their systematic resolution.

# Types of programmatic character

## Exploration-based programmatic character

- Driven by novelty.
- Wegener's drift program is a case in point.
- Typically high-risk, high-gain

## Exploitation-based programmatic character

- Driven by the deepening of existing methods and theoretical frameworks
- Typically low-risk, incremental research.

# Inquisitive appraisal

How do we conduct inquisitive appraisal of individual inquiries?

How would we compare the pursuitworthiness of the rival theories in the drift debate?

# Problems for a comparative inquisitive appraisal:

1. It may be difficult to compare the programmatic character of each research program
   - e.g. one may be exploration-based while the other exploitation-based
2. A research program may have a low temporary programmatic character, but high prospective external consistency
   - e.g. consistency with research programs in other domains.

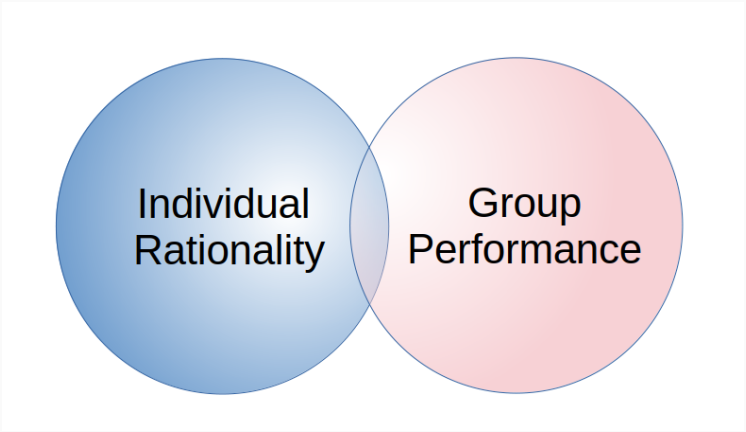
**May easily lead to**

Incommensurable outcomes

Could we evaluate individual inquiries in terms of collective inquisitive values?

# After all...

Independence Thesis (Mayo-Wilson et al., 2011)



# Inquisitive values of the collective inquiry

**Collective inquisitive values**

are standards of evaluation ascribed by an agent to a process of inquiry (the research strategy, heuristic), in the evaluative space centered around collective inquisitive goals:

- inquisitive health of an entire field: how well the field is functioning with regard to inquisitive values (similarly to the epistemic health as discussed by Piovarchy and Siskind (2023)).
- inquisitive robustness: robustness of inquiry with respect to perturbations and conditions of uncertainty (Šešelja and Straßer (2014)).

What exactly promotes these collective inquisitive values?

# Strategies that promote collective inquisitive values

Could we follow Fleisher's social inquisitive reasons?

- Prefer inquiries that promote an adequate division of labor
- Prefer inquiries that promote a productive debate

**This suggests a common pluralist approach:**

- Preferring diversity of research lines
- Preferring inquiries that stimulate disagreement

However, this isn’t that simple...

*British Journal for the Philosophy of Science*

# The Mix Matters: Exploring the Interplay between Epistemic and Zetetic Norms in Scientific Disagreement

Martin Justin, Dunja Šešelja, Christian Straßer and Borut Trpin

What is the rational response to a scientific disagreement? Many epistemologists argue that disagreement with an epistemic peer should generally lead to conciliation by lowering confidence in the disputed belief or even suspending judgment altogether. Although this conciliatory

# The mix matters and it complicates things...

**Pluralists' suggestion:**

Preferring diversity of research lines.

**Our model:**

- That's right, but it depends on the kind of diversity.
- Passive diversity: inquisitive steadfastness
- Active diversity: explore multiple hypotheses throughout the inquiry.
- This suggests a wide-open exploratory programmatic character

# The mix matters and it complicates things...

**Pluralists' suggestion:**

Preferring inquiries that stimulate disagreement.

**Our model suggests:**

1. Stimulating disagreement can be redundant if the field is already highly exploratory.
2. Disagreement helps if the field is homogeneous (exploitation-based programmatic character)

# Conclusion (or what should we do with all this?)

# To sum up

- Inquisitive appraisal in light of inquisitive values of individual inquiry tends to result in incommensurable outcomes.
- We can compare one project with its previous versions, but cross-project comparison, even within the same field, can be difficult.
- Even when it comes to collective inquisitive values, finding strategies that promote them can be difficult.
- A general research strategy (without understanding the epistemic climate in the field) may not be optimal.

# Consequences for science funding?

1. Threshold of pursuitworthiness, followed by the lottery? (as Shaw (2023) has argued)
2. Promoting disagreement in a field should be informed by how homogenous or exploratory it already is
3. Promoting diversity can be done in different ways, some of which outperform others.

# Future work

- Is the search for higher-order evidence of disagreement, early in research, valuable for the individual and/or collective inquiry?
- What is the impact of strategies that prioritize first-order evidence over higher-order evidence and the other way around, on the collective inquiry?

Thank you!

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