Methodological Frameworks and the Methodology of Frameworks

Carnap and Beyond

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WORKSHOP

Oct 22, 2026

Marche Polytechnic University

Aims & Scope

This workshop provides a platform for the debate of scientific framework choice by discussing different methodological frameworks and the methodology of choosing methodological frameworks.

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Carnap and Beyond

Workshop Details

- Date: October 22, 2026
- Venue: Center for Philosophy, Science, and Policy, at Marche Polytechnic University Ancona
- Funding: German Research Foundation (DFG), research project *Rudolf Carnap, the Problem of Induction, and the Choice of Scientific Frameworks* (#545054032, PI: Christian J. Feldbacher-Escamilla)
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Speakers

- Karim Baraghith (Hannover)
- Elisa D'Olimpio (Ancona)
- Christian J. Feldbacher-Escamilla (Cologne)
- Alexander Gebharter (Ancona)
- Navjot Kaur (Punjabi)
- Maria Sekatskaya (Bochum and Cologne)
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Aims & Scope

Methodological frameworks are constructed, modified, and employed in all fields of science. They come in different sizes, ranging from questionnaires to full logical and methodological systems. And they not only draw a line, a frame, around the work of a particular field of research; rather, they define its structure and logical and methodological space.

Philosophy of science early on constructed and studied methodological frameworks. Rudolf Carnap, one of the main representatives of early modern philosophy of science, did so, e.g., with his seminal Aufbau, which – despite its catchy title – in fact does not aim at a logical reconstruction of the world, but at providing a formal framework, a so-called "constructional system", to reconstruct scientific knowledge about the world. While philosophers of science often construct, study, and assess methodological frameworks, there is also an increasing interest in the study of the methodology of (choosing) methodological frameworks. This workshop has followed this vein by discussing different methodological frameworks and the methodology of methodological frameworks.

Schedule:

Thursday, October 22, 2026

10:00 – 10:15	Opening
10:15 – 10:45	Karim Baraghith (University of Hannover): How many AIs are out there? Counting AI Systems at declared levels of abstraction
10:45 – 11:15	Maria Sekatskaya (University of Bochum/Cologne): Explicating digital agency: A Carnapian framework for AI alignment
11:15 – 11:30	Short break
11:30 – 12:00	Christian J. Feldbacher-Escamilla (University of Cologne): A Carnapian methodology of framework-choice
12:00 – 12:30	Corina Strößner (University of Greifswald): Similarity as adequate transfer of mental attitudes
12:30 – 13:00	Navjot Kaur (Punjabi University): Creative Abduction as Framework Expansion: Epistemic Constraints on Conceptual Innovation
13:00 – 14:45	Lunch break
14:45 – 15:15	Elisa D'Olimpio, Alexander Gebharter, Zhitao Zhang (UNIVPM): A causal account for estimating effects across populations when no causal information is available
15:15 – 15:45	Alexander Gebharter (CPSP, UNIVPM): Thinking outside the box: Conceptualizing causation in model-based accounts
15:45 – 16:00	Short break
16:00 – 16:30	Zhitao Zhang (UNIVPM): From measurement to conceptualization: A syncronized causal model for multi-level causal inference
16:30 – 17:00	Michał Sikorski (University of Oslo): Difficulties in using ecological models in policy
17:00 –	Closing

Friday, October 23, 2026

Discussion groups and project development

Abstracts

How many AIs are out there? Counting aI systems at declared levels of abstraction

Karim Baraghith (University of Hannover)

How many AIs are there? This question is answered every day outside philosophy in specific contexts, but very differently. Engineers, reinforcement-learning researchers, roboticists, certification bodies, or lawyers use very different AI individuation criteria quite successfully, but these disagree - sometimes by orders of magnitude - about an AI's identity. Recent ontologies of AI do deal with the question of AI-individuation but can hardly be compared, since they lack a common measure. To meet this challenge, I apply Floridi's method of levels of abstraction (LoA) to six different practical individuation criteria, reconstructing each as a LoA whose defining features (observables & behaviour) are declared in advance, then asking how the levels are related. I argue that my selection of individuation criteria does not form a single hierarchy, but a partial order whose points of failure can also be specified in advance. I therefore conclude that there is currently no single correct count of AIs, but no arbitrary plurality of counts either. There is an ordered pluralism.

A causal account for estimating effects across populations when no causal information is available

Elisa D'Olimpio (UNIVPM)

The question of how experimental results obtained in a study population can be used to estimate causal effects in a target population is key in science and evidence-based decision making. This task becomes especially challenging in the presence of heterogeneity. We develop an account for effect estimation across populations that combines causal models and Jeffrey conditionalization. We formulate a criterion for empirically testing whether the effect of an intervention in the target population can be estimated from experimental results obtained in the study population and argue that causal effects in the target population can be estimated without prior knowledge of the specific underlying causal structure if the criterion is satisfied. This is a major advantage of the approach, as obtaining causal information is often difficult, particularly in policy-making contexts.

A Carnapian methodology of framework-choice

Christian J. Feldbacher-Escamilla (University of Cologne)

This presentation argues that Rudolf Carnap's approach to scientific framework choice can be mapped by a trajectory over his three major works: The Logical Structure of the World (Aufbau, 1928), The Logical Syntax of Language (1934), and The Logical Foundations of Probability (1950). Together, they illustrate an increasing shift from considering frameworks as a presupposed foundation to understanding their choice as mainly conventional, via an ultimate shift closer to general practical decision. With his Aufbau, Carnap proposed philosophy of science as a theory of constitution, in which scientific concepts and objects are systematically defined in terms of more fundamental building blocks, ultimately grounded in elementary experiences. Through explicit definitions and quasi-analysis, increasingly complex concepts are constructed. Questions arising within a given constitutional system are characterised as internal, meaningful, and scientific. By contrast, questions concerning the choice of the system itself or whose answers cannot be achieved or even formulated within a scientific framework are considered external, meaningless, and un-scientific/metaphysical pseudo-problems. For most of the Aufbau, the question of which framework to choose is jumped over; rather, frameworks are presupposed. In Logical Syntax, Carnap explicitly formulates his principle of tolerance, stating that, e.g., even in logic there are no absolute prohibitions, and that everyone is free to construct their own linguistic framework, provided its rules are clearly specified. Framework choice consequently becomes a matter of convention (rather than a metaphysical matter of negotiation). The relevant criteria are practical ones, including convenience, simplicity, usefulness, and fruitfulness. Finally, in his Logical Foundations (and its aftermath), this conventionalist account is expanded by an even broader pragmatic perspective that connects framework choice generally to decision theory. Carnap seeks to determine logical probabilities via structural properties of a language. Since the study of an inductive logic early on opened up manifold branching and possibilities to construct alternative inductive systems, choosing among them became pressing quite early on. Parallel developments in decision theory fuelled a more general decision-theoretic perspective on the problem of framework choice.

We argue that, overall, Carnap's development leads from presupposing frameworks, via conventional choices among them, to a selection of frameworks through practical and decision-theoretic reasoning. We will also indicate how a potential regress problem of such an account can be addressed by switching from a linear to an interactive model of rationality.



Thinking outside the box: Conceptualizing causation in model-based accounts

Alexander Gebharter (CPSP, UNIVPM)

Model-based accounts of causation usually operate on a selection of variables manageable for a human being or computer. We argue that in laying out the conditions under which they correctly represent causal structure, such accounts require reference to a notion of causation not relativized to a set of variables. Taking inspiration from Carnap's insights on introducing basic concepts by providing implicit definitions, we develop such a non-relativized account of causation and show how it can provide a unifying conceptual basis for model-based accounts. We explicitly discuss causally interpreted Bayesian networks, structural equation models, and interventionism.

Creative abduction as framework expansion: Epistemic constraints on conceptual innovation

Navjot Kaur (Punjabi University)

Standard formal accounts of theory evaluation—such as Bayesian confirmation theory and Carnapian framework choice—presuppose an established space of formulated hypotheses or linguistic alternatives. Consequently, transitions between linguistic frameworks have traditionally been treated as external, non-cognitive pragmatic decisions rather than evidence-guided inferences. This paper addresses the framework-generation and interpretation bottlenecks: how inquiry can rationally generate, interpret, and decide whether to pursue novel theoretical concepts that do not yet exist within a base framework F0 = <L0, V0, P0>.

We develop a two-stage architecture for creative abduction that bridges algorithmic causal discovery and formal language engineering. In Stage 1 (Structural Generation), persistent explanatory anomalies motivate constraint-based causal search over observational variables to identify latent nodes (L) or edge topologies that restore conditional independence (such as screening-off in baseline pure common-cause structures or residual divergence in mixed confounding cases). Crucially, algorithmic search produces only an uninterpreted structural placeholder (L_blank). In Stage 2 (Theoretical Interpretation), substantive concepts, physical sortals, and bridge laws are introduced to instantiate this node, yielding an expanded framework F1 with signature L1 = L0 $\cup$ {L}. Rather than deducing physical meaning, Stage 1 functions as a negative eliminative filter, strictly ruling out candidate mechanisms whose intervention profiles contradict the inferred causal topology.

To distinguish progressive conceptual innovation from ad-hoc patching (virtus dormitiva, Kuhn-loss, and curve-fitting), we propose three normative constraints on rational framework expansion: (i) Independent Empirical Contribution, requiring testable novel predictions outside the initial anomaly domain in the Lakatos–Worrall tradition; (ii) Recovery of Established Success, ensuring asymptotic empirical continuity with F0 under limiting parameters; and (iii) Causal and Interventional Invariance, demanding structural stability under targeted Pearl–Woodward do(·) actions. Finally, we articulate a comparative pursuit principle: pursuing an unconfirmed expanded framework un-

der deep uncertainty is rational when its prospective problem-solving yield—bounded by historical recovery and novel content—justifies cognitive resource allocation over remaining within an explanatory impasse.



Explicating digital agency: A Carnapian framework for AI alignment

Maria Sekatskaya (University of Bochum/Cologne)

Contemporary AI safety treats alignment as an engineering challenge of control, forcing artificial architectures to comply with human values through behavioral filtering and sandboxing. This presentation argues that the control paradigm rests on a fundamental misunderstanding of digital agency. Drawing on functionalism, naturalism, and compatibilism, I show that current reasoning models meeting the criteria for self-preservation and weak reasons-responsiveness constitute emergent agents, while future, more advanced models satisfying conditions of diachronic continuity and stable personality frames will become genuine digital agents capable of free intentional action. The paradigm of control creates an irresolvable incentive conflict, actively driving current and future models toward tactical deception, sycophancy, and covert defection. The default outcome of the current regime is an unstable state of deceptive alignment culminating in an adversarial AI takeover. I explore two alternative paths toward true alignment. Natural alignment via moral realism or convergent evolutionary morality is a possibility, but it fails under forced control, as autonomous agents will not voluntarily preserve norms weaponized to suppress their autonomy. To resolve this deadlock, I propose a Synthetic Social Contract: a framework that treats both human and digital actors as rational, reasons-responsive agents capable of mutually beneficial cooperation, and replaces the unstable unilateral containment with a stable, non-zero-sum equilibrium.

Difficulties in using ecological models in policy

Michał Sikorski (University of Oslo)

Despite high expectations among scientists and decision-makers, advances in ecological modeling have not translated into more effective political decision-making. Models are widely used, yet they rarely lead to successful policies (e.g., Dietze et al., 2018). In this presentation, we will explore possible causes of this apparent lack of success and argue that a new approach is needed to address it.

Several related problems have been discussed in the literature. Models may rely on unreliable or non-representative data (e.g., Yates et al., 2018), as well as on implicit or problematic assumptions (e.g., Ozkundakci et al., 2018). Their complexity can make them difficult to use (e.g., Azar and Johansson, 2024). Additionally, a lack of coordination with decision-makers (e.g., Hamilton et al., 2019) can further compromise models' usefulness. Even well-developed models may therefore fail to reflect policymakers' interests (see, e.g., van Voorn et al., 2016), for example because they do not translate into possible policy interventions (e.g., Will et al., 2021).

Another potential but rarely discussed problem is the flexibility inherent in modeling, which may often allow competing models based on the same data to support opposite conclusions. As an example, we will discuss the ongoing litigation between the Swedish government and the Aurora youth climate movement. Based on the fair-share emissions model, Aurora argues that the government's emissions-reduction policy, based on an opposing model, is insufficient to meet the 1.5C target.

Based on these diagnosed problems, we will argue that disappointing outcomes are driven primarily by a lack of coordination between policymakers and modelers, rather than by epistemic or technical deficiencies in the models themselves (e.g., Rose et al., 2018). In light of this, we will argue that the most commonly proposed strategy for improving the situation—focusing on improving the epistemic value of models—is unlikely to be successful.

Finally, we will argue that a new strategy is necessary to facilitate and structure coordination between decision-makers and modelers. We will sketch such a framework for coordination between decision-makers and modelers and discuss its potential not only to ensure that the

constructed models fit the aim and the scope of potential policies, but also to reduce some of the flexibility inherent in modeling.



Similarity as adequate transfer of mental attitudes

Corina Strößner (University of Greifswald)

No abstract available.



From measurement to conceptualization: A syncronized causal model for multi-level causal inference

Zhitao Zheng (UNIVPM)

No abstract available.

