5th Biennial Conference

BOOK OF ABSTRACTS

Kraków, Poland
September 9-10th 2024

East European Network for Philosophy of Science

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Morning Sessions

8:45: **Participants' registration**

09:00 – 09:15: **Welcome and Introduction**

09:15 – 10:15: **First Keynote / Chair:** Elena Popa (online)

Federica Russo: Causal Mosaic: a philosophical theory and a transdisciplinary collaborative approach

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10:45 – 13:15: **Parallel Sessions**

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18:15 – 19:10: **Closing remarks and the EENPS General Assembly** Magdalena Małecka (Coordinator of the EENPS)				

Causal Mosaic: a Philosophical Theory and a Transdisciplinary Collaborative Approach

Federica Russo [1]

[1] Utrecht University – Netherlands

Causality has been, and still is, a central topic in general philosophy of science as well as in specialised debates across the natural, social, biomedical, and now also the policy sciences. In this talk, I reconstruct some important steps in the debate of the past two decades, especially due to the establishment of the 'Causality in the Sciences' network and conference series. I explain the meta-philosophical approach of CitS, in its intention to get philosophy closer to the practice of science (and of policy making), and I present the philosophical journey that led connecting causality to germane concepts such as probability, explanation, or mechanism, up to the development of pluralist approach to causality that Illari and Russo have dubbed 'causal mosaic'. I further explain that, next to advancements in philosophical theorising, the CitS network has been a hub for transdisciplinary and collaborative approaches since its inception until the preparation of the forthcoming Routledge Handbook of Causality and Causal Methods, edited by Illari and Russo. I delve into this reconstruction of causality debates to make a more fundamental point about philosophical theorizing and about modes of collaboration in philosophy. I explain that the values promoted in the CitS exchanges are those of diversity & inclusion, dialogue, and mutual support. These values, I submit, do not just pertain to ethics but are epistemic values in a fundamental sense: they are embedded in the collaborative and collegial approach of CitS, and are also the building blocks of causal mosaic approach to causality.

Epistemic Trustworthiness and the Value-Free Ideal of Science

Kristina Rolin [1]

[1] Tampere University – Finland

I examine critically a received view about epistemically trustworthy experts and the value-free ideal of science. According to this view, to be epistemically trustworthy and to establish credibility in the eyes of citizens, scientific experts should aim to be as neutral as possible with respect to moral and social values when they provide research-based knowledge and advice for different publics. This view is thought to be feasible and justified in light of both epistemic and democratic considerations. I challenge this view by arguing against three recent attempts to defend the legacy of the value-free ideal of science. I also discuss alternative views by analyzing the role of moral and social values in building and maintaining epistemic trustworthiness.

(Dis)Trust in Public Health

Plenary Session:

Faik Kurtulmus [1], Silvia Caprioglio Panizza [2],
Jay Zameska [3], Elena Popa (moderator) [3]

1 Sabanci University – Turkey
2 University of Pardubice – Czech Republic
3 Jagiellonian University – Poland

Introduction: Values and Trust in Medicine and Public Health

Elena Popa

Trust in science has gained recent attention, particularly in connection to public health issues such as vaccination policy. The project 'Values, Trust and Decision Making in Public Health' has been investigating this issue through the lens of work on science and values, morally thick notions of trust, and public health ethics. A leading thread has been that trust in public health cannot be a purely epistemic notion and there is further work to be done on spelling out the relevant non-epistemic components. This plenary will bring together contributions from the philosophy of science, ethics, and philosophy of medicine, highlighting relevant notions of trust and distrust and exploring ethical aspects of dealing with epistemic risk in health contexts.

The Good Informant Account of Epistemic Trust

Faik Kurtulmus

In the philosophical literature, trust is understood as reliance plus some further factor. This paper proposes an account of this additional factor for epistemic trust by focusing on the act of informing. Informing someone involves more than just sincerely reporting facts, which is sufficient for epistemic reliance. It is a normatively rich act that generates responsibilities for the informer and entitlements for the audience. A good informant must effectively convey relevant information to the audience while

considering their existing knowledge, practical needs, and abilities to properly comprehend and utilize that information. We enjoy well-placed epistemic trust when we rely on a good informant because we have correctly identified them as such. The good informant account can provide insights into the role of values in trust, offer nuanced diagnoses of claims of mistrust, and help identify sources of inequality in opportunities to enjoy well-placed trust.

Distrust and Inattention in Minorities Healthcare

Silvia Caprioglio Panizza

The recent COVID pandemic has brought to the fore questions regarding distrust in medical experts and the public health system. Distrust in expert advice came from different social groups and for different reasons. I am interested in cases of communities where distrust finds greater justification, especially African Americans. Distrust in these communities is grounded in a) past blatantly harmful and discriminatory practices and b) current medical inequalities, including harm caused by improper attentional allocation. I discuss the merits of these reasons for distrust and which theories of trust and distrust help us in understanding these cases and how to address them from a public policy perspective.

The Asymmetry of Harm and Disease: Why Harm-Inclusive Definitions Dominate Under Uncertainty

Jay Zameska (Jagiellonian University)

The concept of disease remains controversial, but harm's disvalue is widely accepted, particularly in medicine and public health. I argue that since we're uncertain about which theory of disease is correct, but we're certain that harm is bad and should be reduced, we should favor harm-inclusive definitions. This guarantees that we avoid the error of neglecting genuinely harmful conditions due to a lack of consensus over the role of biological dysfunction or statistical normality. Harm-inclusive definitions also align with patient-centered approaches by focusing on suffering and promoting trust. The overarching point is that favoring harm-inclusive definitions is a way to manage epistemic risk and minimize the expected costs of being wrong about the concept of disease.

Mary Shepherd on the New Riddle of Induction

Marius Backmann [1]

[1] University of Bayreuth – Germany

In her *Essay upon the Relation of cause and Effect*, Mary Shepherd proposes a solution to Hume's problem of induction. I argue that in the wake of her discussion, Shepherd also touches on a variant of the *new* riddle of induction: she discusses how to distinguish between projectible kinds with ontologically powerful properties as their essences from gruified but empirically equivalent kinds. She proposes a solution based on natural kinds and a principle of ontological parsimony. I argue that her solution of the new riddle is as bound to fail as those of her modern successors like Brian Ellis are.

Keywords: New Riddle of Induction, Natural Kinds, Necessary Connections, Mary Shepherd

The Downward Paths to Structural Realism: An Internal Inconsistency and a Reconciliation Proposal

Kosmas Brousalis [1]

[1] National and Kapodistrian University of Athens – Greece

There are two main ways of arguing for the epistemic 'humility' thesis of Epistemic Structural Realism (ESR) that our knowledge of the unobservable realm can at most be structural. These correspond to what-adjusting Stathis Psillos' influential jargon (2001)-could be termed the "historical-epistemological downward path" and the "semantic downward path" to (Ramseyan) ESR. In this talk, I demonstrate that advocating both paths simultaneously results in an inconsistent position. After highlighting and clarifying the said inconsistency, I propose and partially motivate a way to reconcile the downward paths to ESR, which I call *Multiplicative ESR*. I lastly trace some of its implications.

Keywords: Scientific Realism, Epistemic Structural Realism, Downward Paths, Ramsey sentences, Multiplicative Structural Realism

The tasks of a philosophy of the humanities

Anton Crisan [1]

[1] Babes-Bolyai University [Cluj-Napoca] – Romania

The aim of the present paper is to contribute to the recent debates concerning the edification of a philosophy of the humanities. My thesis is that the humanities generate homogenized forms of inquiry and that focusing on these types of activities puts one in a position to discover certain aspects about their more general features. As such, I expand some theoretical instruments produced within the philosophy of science and deploy them for the humanities. I will mainly be concerned with the status of theoretical terms, the issue of preferred modes of argumentation and evidence detection as well as with ascertaining salient traits of a good hypotheses.

Keywords: philosophy of the humanities, pattern, note, taking, theoretical terms, inference

Normative Kinds: Values and Classificatory Decisions in Science and Policymaking

Raffaella Campaner [1], Davide Serpico [2],

Francesco Guala [2], Martina Bacaro [1], Jonathan Sholl [3]

[1] University of Bologna – Italy
[2] University of Milan – Italy
[3] University of Bordeaux – CNRS Immunoconcept – France

Contemporary debates about kinds are dominated by a broadly inferentialist perspective: real kinds are clusters of properties that support systematic and reliable predictions, explanations, and interventions (Boyd 1991, 2013; Craver 2009; Ereshefsky & Reydon 2015; Khalidi 2013; Kornblith 1993; Goodman 1955; Millikan 2017). This conception has important implications for debates about values in science: it implies that the extension of scientific concepts and categories is constantly negotiated not only because of our epistemic limitations, but also due to the inherently statistical and causal nature of the relations that hold between properties which, in principle, may be clustered in multiple ways.

Many kinds-concepts and categories, moreover, are used not only to *describe* but also to *prescribe*: they carry positive or negative connotations that may influence the behavior of laypeople, scientists, and policymakers. In this sense, the use and conceptualization of certain categories in science inevitably involve value-laden decisions concerning both epistemic and pragmatic purposes. For instance, concepts such as African American (Mallon 2016), female (Haslanger 2012), wellbeing (Hausman 2011), unemployment (Dupré 2007), emotion (Griffiths 2004), or disease (Ereshefsky 2009) are simultaneously descriptive and normative.

Although describing and prescribing seem to be distinct activities, attempts to draw a sharp line dividing descriptive and normative aspects of science have been notoriously problematic (Longino 1990; Douglas 2009; Kincaid et al. 2007). For example, various attempts have been made to take a purely descriptive stance with respect to concepts such as health, disease, welfare, or race, but their status is still intensely discussed (Alexandrova 2017; Giroux 2016; Zack 2017). Contemporary attempts to vindicate (and regulate) the influence of non-epistemic values on science – as in the classic "Inductive Risk Argument" – typically appeal to uncertainty (Douglas 2009; Rudner 1953).

This symposium aims to gather contributions assessing the role of values in scientific practice, classificatory decisions, and policymaking. How does the tension between epistemic and non-epistemic goals shape scientific categories? What is the tradeoff between the epistemic potential (generalizability, projectability, explanation) of certain categories and the feedback that such categories may have on science and our society via policymaking? Which non-epistemic values determine the choice of some categories over others? Is realism undermined by the fact that values play an ineliminable role in classificatory decisions? What theoretical models can best describe the relationship between epistemological and normative aspects of kinds?

The invited contributions will touch upon a number of case studies, from various areas of science, where normative considerations play important but different functions. Among them: the role of values in psychiatry nosology; epistemic and normative questions in the definition of addiction, particularly with respect to debated cases such as gambling and food consumption; normative considerations in the adoption and application of social interaction models in robotics; the role of values in epidemiology and in causal models of nutrition. After a short 5-minute introduction to the symposium, each of the four talks will last between 15 minutes + 5 for the Q&A. The symposium is thus expected to last 85/90 minutes in total.

Keywords: Normative Kinds, Natural Kinds, Values, Classification, Policymaking

Reasoning on an Inconsistent basis: The Case of Scientific Theories

Michalis Christou [1]

[1] University of Linz - Johannes Kepler Universität Linz – Austria

I will provide examples from the history of science where theories were inconsistent and scientists kept using and reasoning with them. This is prohibited by classical logic due to logical explosion, so the underlying logic cannot be classical. Therefore, a strong candidate is paraconsistent logic, which is non-explosive. I suggest that we need to accept the connection between the triptych *science-logic-reasoning*. This is because to argue that scientific reasoning is based on non-classical logic, we need to accept that *science* and *logic* go hand-in-hand, and that *logic* and *reasoning* are intimately connected. A connection that scientists do not always presuppose.

Keywords: Non, Classical Logic, Contradictions, Inconsistencies, History of Science

Truth and its Approximations: A Dynamic Relationship

Costanza Coloni [1]

[1] University of Cambridge [UK] – United Kingdom

In my talk, I will analyze the dynamic relationship between the concept of truth and approximate truth (AT) within the context of scientific realism. First, I will argue that the concept of AT has the potential to catalyze developments of the correspondence theory of truth (Popper 1963, Boyd 1990). Then, I will focus on the idea that AT is not only to be conceived as a "truth surrogate" (Resnik 1992) but also as a permanent status that cannot be overthrown (Elgin 2017). Finally, I will consider the role that truth approximation may play in the recent developments of scientific realism.

Keywords: truth approximation, truthlikeness, Popper, scientific realism, perspectival realism

Framework Confirmation as Newtonian Abduction

Erik Curiel [1,2]

[1] Universität Bonn = University of Bonn – Germany
[2] Black Hole Initiative, Harvard University – United States

Confirmation theory generally deals with individual scientific theories. The idea of confirmation for an entire framework (e.g., Newtonian mechanics en bloc) is usually dismissed: frameworks are not the kind of thing to admit of confirmation. I argue there is another form of scientific reasoning that has not received philosophical attention, what I call Newtonian abduction, that does provide confirmation for frameworks, and that in two separate, novel ways. I further argue that it is at least as important a form of reasoning in science as HD, induction and IBE.

Keywords: confirmation, scientific reasoning, frameworks and theories

Understanding as Perspective Taking in the Context of Artificial Intelligence (AI)

Richard David-Rus [1,2], Elena Popa [3]

[1] Richard David-Rus – Romania
[2] Institute of Anthropology Francisc I Rainer, Romanian Academy – Romania
[3] Jagiellonian University – Poland

Discussions around explanatory AI (XAI) raise technical issues and concerns about the audiences for explanations (Zednik 2019; Nyrup & Robinson 2022). Regarding the latter, XAI has to answer the explanatory needs of multiple stakeholders within an 'AI ecosystem' (Tomsett et al. 2018), which may be significantly different or even in conflict. In this context, there have been calls for focusing on understanding instead of explanation of AI systems because understanding takes into account 'the specific context, background knowledge, and interests of end-users and stakeholders of opaque models' (Páez 2019: 446). This paper explores how humanistic understanding in the form of perspective taking can help address the issue of conflicting explanatory interests, preparing the ground for democratic deliberation and explanatory legitimacy. This is important particularly in light of concerns about previous disregard of perspectives falling outside those of dominating groups and the risk of perpetuating pre-existing injustices (Gebru 2020).

The paper will first spell out the problem as one of partial incommensurability, which has ethical consequences. There are two sources of incommensurability: owing to explanations fitting different domain-specific goals and owing to the different needs of the stakeholders. We explore how the perspective taking procedure can help address this. While there are multiple interpretations of perspective taking, we focus on situating oneself in the web of relationships of the target subject or seeing the world in terms of how it affords actions and satisfies the interests of the target persons (Maibom 2022). This kind of understanding can be mapped into an explanatory sort of understanding modeled in terms of knowledge of aims and goals. A fully articulated account is provided by von Wright's (1971) approach to understanding in social and human sciences, which we will expand to the context of AI. One problem is that this view may be too restrictive, as stakeholders' positions go beyond their specific goals and interests. Taking this into account, we will argue that explanatory understanding in terms of goals can be incorporated under a broader, objective model. We will articulate this model drawing on Wilkenfeld's (2013) theory of understanding. Wilkenfeld holds that if one understands something, one can manipulate its representation in the right sort of way. As this model also incorporates context-sensitivity, it allows for correcting mistakes in representation. This is relevant for navigating partially commensurable explanations of AI systems. For illustration, we will discuss the case of understanding why AI algorithms used in precision medicine perpetuate gender bias and how including perspectives that do not frame the typical patient as male can help make a case for using data sets including information about gender (see Cirillo et al. 2021; Pot et al. 2019).

We conclude by exploring the uses of this framework for deliberation and negotiation: it brings the perspectives of the participants closer together and provides access to previously neglected interests and goals. At the same time, this will not by itself solve concerns about participation, which require changes in social structures.

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Keywords: XAI, humanistic understanding, perspective taking, goals, explanatory understanding, objectual understanding, incommensurability

Social Epistemologies of Science

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The symposium explores the intersection of social epistemology and philosophy of science by focusing on questions related to scientific knowledge production and its socio-cultural context. Its distinctive trajectory will be a comparative one, in that it will analyse how different approaches and traditions in contemporary philosophy of science conceptualise the social dimension of scientific knowledge. If, in fact, in recent decades the significance of the social dimension has been widely appreciated by different kinds of epistemologies of science, from historical and practical approaches to more formally minded methodologies, the nature, the philosophical import, and the exact specification of this dimension have varied considerably from approach to approach. By comparing and analysing different contemporary approaches in the social epistemology of science, the symposium provides a broad exploration of the social dimension of scientific knowledge.

The five talks composing this symposium include different methodological approaches to the overarching topic, including historically oriented case-studies of different scientific communi-ties, sociological analyses of the epistemic role of institutional structures, theoretical discussions of the values dynamics in scientific communities, formal accounts of social norms of research, and practice-based accounts of scientific inquiry. By including all these different approaches, the symposium aims to show two things. First, it seeks to highlight once more the importance of the social dimension of scientific knowledge for any contemporary epistemology of science. Secondly, it also aims at assessing the agreements and the disagreements between different contemporary approaches in the epistemology of science in how they conceptualise the social dimension of scientific knowledge.

One important aspect explored in the symposium is the role of historical case studies, exempli-fied by De Benedetto's examination of 19th-century craniology (based on his joint work with Michele Luchetti). Through historical analysis, this contribution uncovers how non-epistemic values such as social stability and hierarchical order influenced scientific practices, underscoring the complex interplay between social values and the development of scientific knowledge. Such historical insights not only deepen our understanding of past scientific endeavours but also shed light on contemporary scientific practices and their socio-cultural underpinnings.

Koskinen & Reijula examine the institutional structures and practices surrounding scientific knowledge production. Through their investigation of epistemic sustainability and by critically analysing institutional norms and practices, they highlight ways in which institutions can ensure or threaten the continued production of reliable and relevant knowledge over time, and address concerns related to the replication crisis, commercialization of science, and other challenges facing modern scientific research.

Politi proposes to investigate the role of values in shaping scientific inquiry and the idea of socially responsible science through a social epistemological perspective. By integrating ethical considerations with epistemic values, he advocates for a holistic approach to scientific rationality that acknowledges the ethical complexities inherent in scientific research, thus bridging the gap between cognitive and moral dimensions of scientific inquiry.

Trpin and Justin employ agent-based modelling to investigate the value of social coherence in scientific practice. By simulating social interactions within scientific communities, they ex-amine how social networks and communication pathways influence the coherence of scientific beliefs, offering valuable insights into truth-seeking and the pursuit of scientific goals within a social context.

Finally, Veigl embraces a practice-based approach to understanding epistemic systems. By focusing on concrete knowledge practices, she highlights the contextual embeddedness and heterogeneity inherent in epistemic systems, thus challenging idealised conceptions of scientific knowledge and fostering a more nuanced understanding of the epistemic landscape. The contributions of the symposium deepen our understanding of the complex interplay between scientific knowledge production and its socio-cultural context, thus enriching and expanding the discourse within the philosophy of science. In light of all this, then, it seems more adequate to talk about social epistemologies of science, rather than a social epistemology.

Keywords: social epistemology of science, social dimensions of scientific knowledge, values, institutional norms, scientific rationality, agent, based modeling, practice, based research

Diversity equals ability in binary decision problems

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Problem-solving groups are often taken to benefit from diversity. One of the cornerstones is the "diversity trumps ability" result by Hong and Page. Although the robustness of the model and results have been criticized or contextualized, the interplay between diversity and ability is rarely studied in radically different frameworks. In this paper, we will introduce a new framework to assess the collective epistemic benefits of diversity. We use this new framework to explore the trade-off between ability and diversity and find that there is no significant performance difference between teams of diverse agents and teams of best-performing agents.

Keywords: Epistemic diversity, collective intelligence, collaboration

Formalising extrapolation

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The extrapolator's circle is an epistemic paradox that is pervasive in evidence-based policy and medicine. We propose a Bayesian formalization of extrapolation that provides the required epistemic justificatory underpinning for this sort of inferential procedure. We identify several factors relevant for extrapolation and formally investigate how they are related to each other. The model can predict the expected likelihood of the policy's success in the target domain while, at the same time, giving full acknowledgement to one's degree of uncertainty about the causal structure as well as the fallibility of the inference.

Keywords: extrapolation, evidence based policy, Bayesian epistemology, causation

Embracing the Science or Denying the Facts: A Microphenomenological Exploration of Misinformation Phenotypes.

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This study presents an in-depth microphenomenological exploration of how individuals with different information susceptibility phenotypes process and react to scientific arguments regarding COVID-19 vaccine safety and efficacy. The study's qualitative approach, employing microphenomenological interviews (Petitmengin, 2006, 2009; Petitmengin et al., 2019), elucidates the subjective experiences of individuals classified as Consumers, Doubters, Duffers, and Knowers. These phenotypes were previously identified in # webimmunization research (Piksa, M., et al., 2022) and represent a spectrum of responses to scientific information. Consumers tend to integrate new information with prior knowledge and focus on the form and content of the presentation. They may experience a change in attitude, generally positive, leading to acceptance. However, doubts can arise due to perceived biases or disinterest, potentially leading to rejection of the information. Doubters, characterized by inherent skepticism, weigh personal experiences and emotional reactions heavily when assessing the credibility of information and authorities. Although they occasionally accept scientific arguments, their default response is to doubt or reject them.

Duffers exhibit skepticism towards the intent of scientific communications, often resulting in negative shifts in attitude and frequent rejection of the content. Their assessment of credibility and bias plays a significant role in their reaction to scientific presentations. Knowers, on the other hand, are adept at discerning the accuracy of information. They critically evaluate content and sources, which allows them to generally accept factual information, though they remain vigilant for potential biases that might influence their trust.

The study's findings reveal complex cognitive and emotional pathways that individuals navigate when confronted with scientific information. By examining the diachronic and synchronic dimensions of experience, our research offers a nuanced understanding of the factors that lead to the acceptance, doubt, or rejection of scientific claims. This microphenomenological approach captures the interplay between emotional responses, critical evaluation, and the influence of prior knowledge and experiences.

This study contributes significantly to research on perception and spreading of misinformation by providing a qualitative perspective on how subjects who exhibit different phenotypes of susceptibility to information interact with and interpret scientific content. The insights gained

from this research have implications for public health communication, highlighting the need tailored strategies that consider the diverse ways in which people process and respond to scientific information.

The research leading to these results has received funding from the EEA Financial Mechanism 2014-2021 Project: 2019/35/J/HS6/03498.

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Keywords: Microphenomenology, Applied phenomenology, Vaccine attitudes, Second person methods, Misinformation susceptibility, Scientific literacy

Diversity of opinion and consensus on truth

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John Stuart Mill suggested that diversity of opinions is always desirable, even in comparison to consensus on truth. But assuming we want to maximize attainment of truth, why should we ever prefer diversity of opinions over truth? I apply a Mill-style argument to the framework of epistemic networks. I show that, paradoxically, the addition of a particular kind of diversity of opinions is truth-conducive in some epistemic networks even when these networks appear to have reached consensus on truth. Consensus is time-dependent and may be temporary. We might have to sacrifice it so that network performance is better through time.

Keywords: epistemic networks, consensus, diversity of opinion

Probability and inference in Fritz London's phenomenological approach to philosophy of science

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The rumour that a phenomenological philosophy of science represents an antirealistic position has been challenged recently. One reason for this is the new reception of the 20th century physicist Fritz London, a phenomenologist who contributed to the discussion on the observer-problem in quantum mechanics. I argue against a one-sided, phenomenological interpretation of London's work and show that his ideas circle around an epistemological challenge that is currently still pressing in philosophy of science: the scientific experience of probability. In doing so, the question of inferencing objective knowledge in data-driven practices gains priority over the analysis of intentional acts.

Keywords: Quantum Mechanics, Phenomenology, Probability, Scientific Practice, Experience

Jan Matejko
"Astronomer Copernicus, or Conversations with God" 1873
Jagiellonian University, Collegium Novum

More info: https://en.wikipedia.org/wiki/
Astronomer_Copernicus,_or_Conversations_with_God

Exploring Michael Polanyi's Relevance in the Contemporary Debate on Social Engagement of Science

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This presentation will focus on the intricate topic of the social situatedness of knowledge, with an emphasis on relevant insights from Michael Polanyi amidst contemporary philosophical discourse. Drawing from the works of Philip Kitcher and Helen Longino, the presentation will explore the complexities surrounding the autonomy of science and its indispensable connection to broader societal engagement. Polanyi's nuanced perspectives serve as a guiding light, illuminating the symbiotic relationship between scientific inquiry and its socio-cultural context. The debate between Kitcher and Longino centers around the question of how to understand the social nature of scientific knowledge. Both Kitcher and Longino are philosophers of science who have developed influential theories regarding scientific knowledge and its relation to social factors. However, they differ in their views on the role of social factors in shaping scientific knowledge and the extent to which scientific inquiry is a social and collaborative endeavour. Central to this discussion is the concept of new rationality, which transcends traditional dichotomies between objectivity and subjectivity, highlighting the inherent social embeddedness of scientific knowledge production.

Keywords: social engagement, rationality, democracy, autonomy of science

Defining pseudoscience

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In my talk I will argue that fostering our understanding of pseudoscience should be considered crucial in pursuing the problem of demarcating science from non-science. I will focus of the definition of pseudoscience proposed by Hanson (2013), together with his account of science denialism as a form of pseudoscience (presented in Hanson 2017) to discuss how defining pseudoscience affects our take on the demarcation p roblem. Additionally, I will argue that Hansson's definition, while not without merits, misses the mark on adequacy.

Keywords: pseudoscience, demarcation problem

John Stuart Mill, scientific freedom, and vulnerable truths

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John Stuart Mill (1859) is often mentioned as having defended the idea that the search for factual truths should be regulated by an invisible-hand mechanism similar to the one envisioned by classical liberalism for real markets. As part of that vision, Mill claimed that even ideas that are – as a matter of fact – clearly false should nonetheless be circulated. This paper rebut his claims by showing that his model of scientific freedom fails to protect what Mill thought it should protect: vulnerable truths in the face of what he called the "tyranny of the majority."

Keywords: Mill, scientific freedom, argument from truth, invisible, hand mechanism, vulnerable truths, dogmatism versus epistemic diversity

Issues with selective realism's definition of essentiality

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According to selective realism, the theoretical elements that are essential to the theory's empirical success are worthy of realist commitment. An essential theoretical posit is a one that plays an indispensable role to the deductive derivation of novel predictions. I argue that selective realists' definition of essentiality is i nadequate: importantly, many scientific discoveries have been arrived at through non-deductive means, hence, one cannot grasp what made empirical success possible in terms of a deductive model. Indeed, explaining empirical success cannot be boiled down to an analysis of the content of the deductive derivation from theoretical posits to novel predictions.

Keywords: selective realism, essentiality, empirical success, case studies

Hermeneutical gaps in the scientific society

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Contemporary societies are pervaded by the scientific. This almost trivial observation relates to the omnipresence of scientific experts, but much more generally the reference to scientific concepts, theories and ways of understanding the world. In many circumstances, the authority granted by science is the only one accepted: To defeat a scientific claim (or one that has the trappings of science), one has to either undermine the scientific authority or provide a competing source. These observations are illustrated quite clearly by the public discourse on Covid-19 and the measures to fight the pandemic. While the universal claim of science is not universally accepted (at least yet), it still begs the question what challenges this universalism raises. In this paper, we concern ourselves with the issue of hermeneutical gaps. To do so, we first introduce the concept of hermeneutical injustice (see Fricker 2007). Hermeneutical injustice previals in a social setting if the shared interpretive resources are insufficient to the disadvantage of a social identity group. Such interpretive gaps make it difficult or even impossible for the disadvantaged group to make sense of and communicate a subset of their experiences. If the institutions of science reign supreme about our interpretations of the world (or at least aim to hold such a claim), they take on the responsibility to enact hermeneutical justice. For brevity, we just mention two sets of scientific concepts that played and play important and controversial roles in our hermeneutic practices. Historically, the concept of class offered an important tool to make sense of ways of life – most notably, of course, the factory worker of the industrialization. Competing class concepts offer varying accounts of social orles, the relationship between socio-econmoic status groups and the political and so on. An at present more salient case is the discussion on the diagnostic category of personality disorders. Though it is heavily contested (see for instance Dorfman & Reynolds, 2023), it is applied often as a comprehensive interpretive scheme for the lives of those it applies to, begging the question of its hermeneutical adequacy. The examples suggest that the scientific approach is contingently unable to supply hermeneutical justice. But we want to go further: A mere epistemic improvement of the concepts of science will not necessarily solve these problems. Here are two concerns: 1. Scientists are, even if selected from a diverse background, homogenized within the institution of science, especially with respect to their socio-economic status.

It is therefore dubious if scientists can access and satisfy the hermeneutical needs of different status groups. 2. More importantly, science is based around a number of values that guide the development of its theories and concepts and structure its institutions. But these norms and the values they aim for are not the values of everyone – and the epistemic authority of science does not, in any obvious way, extend to authority with respect to societal values in general. It is therefore questionable if science can shoulder the task of providing the resources required for hermeneutical justice, and hence whether its universal claim is sustainable.

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Keywords: Epistemic Injustice, Hermeneutical Injustice, Norms in Science, Values in Science

Tracking norms

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In an era of the ever-increasing popularity of digital methods in the philosophy of science, the question of the limits of such research is becoming increasingly pressing (Allen & Murdock, 2023; Lean et al., 2023; Pence, 2022). In our talk, we will explore the issue: can digital methods allow us to cross the descriptive-normative boundary? We will argue that actually we can cross this boundary through comparing and correlating the use of norm indicating vocabulary (referring to virtues or values) with the quality of (variously measured) research outputs in which this vocabulary was used.

Keywords: digital methods, NLP, normativity, scientific practice

Is progress realism realist enough?

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Starting from the question 'what does realism about spin amount to?', Juha Saatsi (2020) distinguishes two conceptions of scientific r ealism. Considering these two conceptions, he argues that the main problem faced by *truth-content realism* in relation to spin is that of underdetermination. According to his answer, '*progress realism* offers a d efensible p ositive epistemic attitude towards a theory such as quantum mechanics, while *truth-content realism* problematically involves "deep" metaphysics not supported by the overall empirical evidence'. In the talk, I shall argue against the underdetermination problem in relation to spin and I shall defend *truth-content realism* against *progress realism*.

Keywords: progress, realism, spin, truth, underdetermination

Scientific understanding and thought collectives

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This paper contributes to the discussion about the nature of scientific understanding and its relation to explanation. I argue that contemporary accounts of scientific understanding underestimate the importance of the collective character of scientific practices. To support my claim I refer to Ludwik Fleck's conception of thought collectives and thought styles. Accordingly, scientific understanding is a product of a thought collective, i.e. a community of scientists that exchange ideas. Furthermore, scientific understanding is shaped by a thought style (way of thinking of and perceiving a phenomenon under study) distinctive to the collective.

Keywords: scientific understanding, thought collective, Ludwik Fleck

The logical structure of analogies between artifacts and biology, and epistemic circularity: implications for scientific practice

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Short abstract (see attached file for extended abstract): In this talk I analyze the logical structure of analogies between the functions of artifacts and biological phenomena to show that they involve epistemic circularity. Moreover, such an epistemic circularity is not always malignant, and accounts for successful instances of analogies of this kind. I also conduct a case study from scientific practice that illustrates both the positive and malignant effects, and reflects on how to optimize the net effect of these analogies.

Keywords: Minimal logical teleology, Analogies, Scientific explanation, Epistemic circularity, Scientific modelling, Cognitive neuroscience

Strategic Science Skepticism and the Epistemology of (Dis)agreement

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Strategic science skeptics criticize scientific claims to promote non-epistemic (e.g. political and economic) goals. Such skeptics present arguments to support their criticisms of scientific claims. In this talk, I will analyze and debunk a neglected skeptical argument: the exploiting disagreement argument. The core of this argument is that one should lower one's confidence in a scientific claim when having learned that there is (expert) disagreement about this claim. I will develop a (Bayesian) justificatory account of agreement (and disagreement). I will use this account to debunk the skeptics' argument.

Keywords: Strategic science skepticism, agnotology, (Bayesian) social epistemology, expert testimony, epistemology of disagreement and agreement in science

Kant's Metachemistry

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An important part of Kant's supposedly stern verdict from 1787 that chemistry cannot become a "proper science" is usually neglected in recent discussions in the history and philosophy of chemistry – the denotation as systematic art. Although the final truth about the "world-in-itself" is inaccessible according to Kant, he admits empirically driven scientific progress, which can be clearly documented by his references to theoretical attempts – first Stahl, then Lavoisier. In fact, chemistry is – even today – a systematic art. The present paper tries to flesh out this claim using, along with Kant's own works, the commentaries of two critical chemist-philosophers, Hans Cornelius and Friedrich Paneth.

Keywords: Kant, chemistry, systematic art, experimentalism

Downward Causation and Thick Causation

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James Woodward in his articles argues that downward causation is present between the membrane potential and ionic conductances in the Hodgkin-Huxley model of the action potential. This presentation aims to challenge the adequacy of Woodward's notion of downward causation and in turn provide additional conditions for the same. First, a notion of levels is developed. Then, it is argued that, while thin causation is present between the above variables, there is no evidence for downward causation. New conditions are then proposed. It is argued that variables must have thick causal (productive) relations among them if they are to be considered to belong at the same level. In the HH model, the membrane potential and the ionic conductances do not exhibit productive relations between them. In order for downward causation from a higher level to exist, thick causation (i.e., productive relations) needs to exist at the higher level. HH model fails. Some other potential examples are considered.

Keywords: downward causation, levels, production, mechanism, HH model, thick causation

Wholehearted structural metaphysical emergence

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Structuralist accounts of emergence are gaining more and more prevalence. These theories try to provide an acceptable and substantial theory for non-reductive physicalism by describing emergent phenomena as real structures with real causal powers. I suggest that such structuralist accounts of emergence are tenable only within a specific ontology that includes (A) structural realism, (B) structural causation, and (C) deep reflexive causation. I argue that an ontology that allows (A), (B), and (C) cannot be purely physical and hence, structuralist non-reductive physicalism is incoherent.

Keywords: emergence, metaphysical emergence, structural realism, causation

Philosophy of the Historical Sciences

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The historical sciences are concerned with the inference of unobservable token events that happened at a particular time and space from their present traces such as information preserving receivers. The epistemology of the historical sciences is founded on the special ontological properties of the past. The philosophy of the historical sciences focuses on the questions of historiographic knowledge, knowledge of the past.

Keywords: historical sciences, epistemology, evidence, origins

Relevance of Non-epistemic Values in infectious disease models

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A question that has recently attracted much attention in values in science debates is whether non-epistemic values should play any role in the choice of scientific models and modeling decisions. While responding to this question, some philosophers of science have argued that non-epistemic values can legitimately influence the assessment of models when epistemic values alone are unable to guide the researchers in the midst of uncertainty. In such scenarios, in order to tackle the problem of uncertainty, it is legitimate to invoke non-epistemic values. Confronting the problem of uncertainty and the assessment of scientific hypotheses or models by appealing to non-epistemic values have been conceptualized and substantiated in different ways (Longino 1990; Douglas 2009; Steel 2010; Elliott 2011; Steel and Whyte 2012; Brown 2013; Hicks 2013; Intemann 2015, Varghese 2021). However, there are some constraints concerning the kinds of values which should be involved in scientific modelling and how such values should influence the research. For instance, climate change models involve a lot of uncertainties and scientists have to make decisions to what extent various risks may be acceptable (Biddle and Winsberg 2010; Winsberg 2012). However, critics say that even though there are constraints, making value judgment knowingly or unknowingly might invite bias during the interpretation of the data and imparting the outcomes (Betz 2007; Lackey 2007). Hence, a general suggestion is that even though eschewing values in scientific modelling is a strenuous task, scientists must nevertheless try to keep the values away as much as possible.

In the above mentioned context, I will analyze the practice of epidemic modelling which is an important tool to understand virus transmissions and a helpful tool for policymakers to make policy-oriented decisions. Policy-oriented research is best exemplified in infectious disease mod-els. These models usually aim to provide a guiding hand to the policymakers to make immediate public policy decisions such as lockdown, travel restrictions, availing health care facilities, and aiding financial assistance. Focusing on Covid-19 pandemic and some of the Covid-19 pandemic prediction and projection models, I will demonstrate that incorporating non-epistemic values is very relevant in various aspects of epidemic modelling. I will argue that the relevance of non-epistemic values in infectious disease modeling is not only limited to addressing uncertainties but also in assessing the features and the feasibility of a model, choosing and tweaking relevant input parameters for a better projection or prediction, and evaluating models which contain certain normative concepts. The contention is to show that appealing to non-epistemic values might help scientists to better achieve certain pragmatic and socially relevant aims. I will conclude the paper by addressing a possible objection and thereby defending my thesis.

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Keywords: Science and Values, Non, epistemic values, infectious disease models

Variability of the category academic discipline

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A study of the history of science in terms of categorization and formation of knowledge and research reveals their diversity and variability. The categorization of knowledge/science into separate (mono)disciplines is a relatively recent phenomenon, some 200 years old. Whereby an important differentiating factor between thinking about past knowledge formations and contemporary academic disciplines is to be found in their institutionalisation. The paper first walks through the basic historical ways of understanding discipline in order to move on to its contemporary interpretation. The contemporary concept of a discipline is discussed in terms of metatheoretical-methodological criteria (metatheoretical and methodological identity of the discipline) and then in terms of institutional-social criteria (institutional and social identity of the discipline). Finally, arguments are pointed out for the need to complement science practised in a disciplinary mode with an interdisciplinary approach.

The concept of discipline itself has been understood differently in the history of knowledge/ science and has undergone significant transformations. For example, the term was originally used in a didactic (teaching, school) context and was associated with the concept of doctrine (doctor –discipulus) and derived etymologically from docere in antiquity. The meaning spectrum of these terms belonging to the Latin area (Latinitas) in later antiquity and the Middle Ages expanded so that it encompassed three basic meanings: the process, content and result of education. The emergence of disciplines in the modern sense went hand in hand with a modification of the concept of discipline and a stronger emphasis on science practiced in research, organized in ap-propriate social institutions, and serving industry and the economy. It involved, among other things, the professionalization of research and the formation of academic/scientific communities closed due to the evaluation of research results, the value of which became subject to the control of relevant groups of scholars (experts).

Contemporary uses of the category of discipline (academic, research, scientific) are also varied. Despite the central character of this concept for the metatheoretical and organizational catego-rization of science and also the basic character of the category of monodiscipline in opposition to interdisciplinary forms of doing science, the concept of discipline is not very often the subject of metatheoretical reflection. The contemporary concept of discipline can be defined and analyzed in the aspect of metatheoretical-methodological criteria and is then determined by such cate-gories as the object of research, research aim, research problem, research method, the structure of research results, language, history, metatheoretical self-consciousness. On the other hand, in terms of institutional-social criteria, the concept of discipline can be defined by such categories as nomenclature, institutions, legal regulations, place, meaning and public perception, developers and research communities, effective social communication and evaluation of results, and again history.

The existence of so-called "interdisciplinary problems" and also the need to overcome the trend toward specialization in science by integrating research and knowledge are cited as the main arguments for the need to complement science practiced in a disciplinary mode with an interdisciplinary approach.

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Keywords: academic discipline, variability, knowledge formations

Academic Discussions on Human Enhancement Meet Science: A Quantitative Analysis

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The analysis of citation flow coming from a collection of scholarly articles might provide valuable insights into their thematic focus and the genealogy of their main concepts. In this study, we employ a topic model to delineate a subcorpus of 1360 papers representative of discussions on enhancing human life. Subsequently, we conduct a comprehensive analysis of almost 11,000 references cited in that subcorpus to quantitatively examine, from a bird's eye view, the degree of openness of this part of scholarship to the specialized knowledge produced in biosciences. Although almost half of the analyzed references point to journals classified as Natural Science and Engineering (NSE), we do not find strong evidence of the cognitive influence of recent discoveries in biosciences on discussions on human enhancement. We conclude that a big part of the discourse surrounding human enhancement is inflected with "science-fictional habits of mind." Our findings point to the need for a more science-informed approach in discussions on enhancing human life.

Keywords: metascience, enhancement, biosciences, topic modeling, citation analysis

Absolute time

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A reconstruction of the conception of absolute time is presented, with the intention of being as consistent as possible with both its description in "Principia" and Clarke's declarations in his polemic with Leibniz. It is shown that the main difference between it and its relational alternative consists in containing by the former non-relational properties, especially the property of being absolutely present, which enable enable defining McTaggart's A-series, indispensable for time flow. This is a clear advantage of the absolute time over the relational time.

Keywords: absolute time, relational structure, absolute properties, A, series, time flow

Reductionism In Vivo: Towards a Philosophy of Biochemistry

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[2] University of Birmingham [Birmingham] – United Kingdom
[3] University College, London – United Kingdom
[4] University of Exeter – United Kingdom

The symposium will consist of four contributions to the underdeveloped field of the philosophy of biochemistry. Because of biochemistry's interdisciplinary origins, one set of issues in this field centers on the relationships between biochemistry and the disciplines from which it emerged. Two of the contributions address these sorts of issues, one by considering how chemical explanations were extended to biological phenomena, and the other by considering the relations between biochemical and evolutionary explanations. Another set of philosophical issues in the philosophy of biochemistry are the result of its characteristically reductionist strategy for explaining biological phenomena. The other two contribution to the proposed symposium consider the potential risks of such reductionist approaches and how biochemists attempt to manage these risks in practice.

Keywords: biochemistry, reductive explanation, interdisciplinarity

The Hole Argument without the notion of isomorphism

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In this talk, I argue that the Hole Argument can be formulated without using the notion of isomorphism, so it is not threatened by the criticism of Halvorson and Manchak (2022). First, I suggest that the Gauge Theorem does not rely on the notion of isomorphism but on the notion of the diffeomorphism-invariance of the equations of local spacetime theories. Second, I postulate that we should use the notion of radical indeterminism instead of indeterminism simpliciter, and that the choice of a kind of maps for comparing models is tentative and should be adjusted if it leads to radical indeterminism.

Keywords: hole argument, symmetry, isomorphism, general relativity

AESTHETIC CONSIDERATIONS IN THE DEVELOPMENT OF PLATE TECTONICS

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Aesthetic considerations played a substantial role in the development and acceptance of plate tectonics, the highly successful organising theory of the earth sciences. Many of the key scientists involved in its development showed a clear preference for explanations that are simple, elegant, and unifying, and such broadly aesthetic considerations acted as important restrictions on potential explanations and guided the theoretical development. Far from disrupting research or acting merely as a tiebreaker between empirically equivalent hypotheses, aesthetic satisfaction acted as an important and useful restriction on theory development, showing that aesthetic considerations have an important part to play in scientific research.

Keywords: aesthetics in science, history of earth sciences, theoretical virtues, plate tectonics

Teleparallel underdetermination of gravity theories: is there a torsion/curvature-split?

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Teleparallel gravity makes exactly the same empirical predictions as general relativity, but does so by appealing to torsion rather than curvature. This underdetermination poses a significant threat to curvature as a real property of spacetime, and is attracting increased attention by philosophers. Here, a generalisation is conceptualised with roots going back to Hermann Weyl's direction curvature and Hans Reichenbach's classification of geometry. A solution is proposed by ontologically committing to neither curvature nor torsion, but instead to what they share in common: Lie flow. The torsion/curvature-split becomes akin to a gauge choice. I call this the "Lie Flow View".

Keywords: underdetermination, realism, geometric trinity of gravity, Hermann Weyl, Lie flow

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Objectivity and Variety in the Definition of Mental Disorder

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The paper argues that, instead of working on improving the DSM definition to try to bring it closer to the ideal of social objectivity, efforts should instead be devoted to advocating for a pluralistic view that accepts that the DSM definition coexists with other conceptions of mental disorder. Attention should be given to various definitions proposed outside the dominant view in psychiatry, including local perspectives, neurodivergent accounts, and alternative proposals from minorities. The debate over different definitions encourages critical interaction, by making biases explicit and opening new frameworks of interpretation. This approach keeps the debate open and avoids imposing a single perspective in psychiatry.

Keywords: Psychiatry, social objectivity, mental disorder, definition

Three ways of understanding Homeostatic Property Clusters in the philosophy of psychiatry

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My goal is to distinguish three ways of understanding Homeostatic Property Clusters (HPC) in the philosophy of psychiatry and argue that all of them face some problems arising from the inclusion of the psychological level. This poses a serious challenge to the HPC, given that its primary motivation was that it can smoothly combine the psychological level, crucial for the concept of mental illness, with others. My conclusion is that merging HPC with the psychological level is possible only after a significant weakening of the HPC approach, which may entail too great a theoretical cost.

Keywords: mental disorder, Homeostatic Property Clusters (HPC), natural kinds

Theory avoidance, Goodhart's law, and the biomedical model of mental disorder

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The (bio)medical or disease-centred model of mental disorder (or psychopathology) rests on the notion that mental disorders are rooted in impaired biological processes that can be treated with psychopharmacological interventions. Critiques of this model (Deacon 2013, Sarto-Jackson 2018) find support in a seemingly unrelated critique from the philosophy of science of well-being, on theory avoidance in construct validation (Alexandrova & Haybron 2016, Alexandrova 2017). In this paper, I synthesise these critiques and introduce a complementary novel application of 'Goodhart's law' from economics, in the 'Lucas critique' formulation (Goodhart 1984 (1975), Lucas 1976). I then show how the integration of psychiatry with systems approaches to biology and neuroscience is insufficient to overcome the combined critique, using the example of post-traumatic stress disorder (PTSD).

Keywords: mental health, construct validation, dysregulation, neuropsychiatry, psychopharmacology

Can Populations be Healthy?

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Methodological Collectivism is the view that properties such as 'being healthy' and 'being diseased' can be meaningfully and non-metaphorically ascribed to populations *without any* reference to the health properties of individuals that make up these populations. I present arguments against the most recent defence of *Methodological Collectivism* offered by Smart (2022). First, his case for *Methodological Collectivism* rests on the *fallacy of expertise* and conceptually and empirically questionable assumptions. Second, it cannot account for the fact that there are no uniform social functions across societies, formulating social reference classes is either impossible or value-laden, and some social functions are adaptive.

Keywords: Public health, Methodological Collectivism, Biostatistical Theory of Health, Social Dysfunction

Interactive disease kinds

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Covid-19 changed due to our pandemic response. As omicron took over from alpha, new symptoms came to pass. That makes Covid-19 an interactive disease kind, even on a strong disease model. On that model, disease kinds change if and only if their common causes change. Despite the neuroplasticity of the brain (Fagerberg 2023), I argue that we cannot separately intervene on the common causes of psychiatric disorders. In the attempt, we shall end up changing the disordered person instead of the disorder itself. Those who think psychiatric disorders are interactive must therefore give up a strong disease model.

Keywords: looping effects, natural kinds, disease, reactivity, neuroplasticity

Reflections on the structure of the evolutionary hierarchy: The evolutionary hierarchy is not nested

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The evolutionary world is normally considered as hierarchically organized. Cells are composed of organelles, but at the same time they aggregate to form multicellular organisms; multicellular organisms are composed of cells, but at the same time they engage in social interactions, sometimes forming colonies; etc. This view of the biological hierarchy assumes that entities at the higher level are composed of entities at the lower level and, additionally, that the biological hierarchy is nested. Nestedness is a form of transitivity of biological relations, and it primarily concerns compo-sitional relationships between entities at different levels of the hierarchy. Nestedness can be characterized as a follows: A biological hierarchy is nested whenever it occurs that, for every biological entity, if a bio-logical entity a belongs to another b, which in turns belongs to another c, then by definition a also belongs to c. Using the example from above: a cell in a bee belonging to a bee colony is both part of the bee and part of the bee colony. I refer to this view of the biological hierarchy as the received view, since it has been uncrit-ically by several authors over the years. For instance, Tëmkin & Eldredge (2015: 184) have recently said: "Biological evolutionary theory is ontologically committed to the existence of nested hierarchies in nature"; and, discussing the historical contributions of Woodwer to biol-ogy, Eronen & Brooks (2023, section 1) say: "This idea that levels of organization of organization form "nested" compositional hierarchies where there are wholes at higher levels and their com-ponents at lower levels, and the components themselves can be further decomposed into parts, remains one of the core features of the notion of levels of organization up to this day." But, do biological hierarchies need to be nested? Samir Okasha, for example, has questioned the necessity of nestedness in the context of the levels of selection debate. He says "the underlying causal mechanism (of evolution by natural selection) does not require nesting; it could work equally well with overlapping groups of lower-level units." (Okasha 2006: 44). Unfortunately, Okasha does not provide any empirical evidence supporting this lack of nestedness.

In this talk, I will cover this gap by relying on the case of host-microbiome evolutionary relationships. By relying on some case studies measuring the evolutionary trajectories of hosts, their microbiome, and the microbes withing their microbiome, I will provide evidence of the lack of nestedness of the biological hierarchy. Concretely, I will focus on the traits of the micro-biome involved in high horizontal gene transfer, which Suárez & Triviño (2020) call hologenomic adaptations. I will show that, evolutionarily, these traits are both part of the holobiont and the microbiomes bearing them. However, I will also show that the microbes are not part of the holobiont. Therefore, the evolutionary hierarchy is not nested for holobionts, showing empirical evidence of the claim originally stated in Okasha (2006).

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Keywords: Biological Hierarchy, Evolution, Microbiome, Levels of Organization

Disentangling tolerance in immunology

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While the concept of tolerance is crucial in immunology, it remains ambiguous. Usually, tolerance is understood in terms of immunological tolerance, i.e. "self"-tolerance and tolerance of "non-self", which has attracted significant attention from both immunologists and philosophers of immunology. In contrast, due to conceptual issues with "tolerance", little attention has been paid to so-called disease tolerance, the capacity to *endure* or to *bear* the negative effects of an insult without having a direct effect on the insult. This paper aims to clarify the distinction and in doing so to shed light on the concept of tolerance in immunology.

Keywords: philosophy of immunology, tolerance, inflammation

Pre-clinical and phase I clinical trials: bioethical analysis of the underlying injustice

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I will argue that pre-clinical research on nonhuman animals and phase I clinical trials share the same problem of systematic distributive injustice. In both phases of drug development the risks and burdens are unproportionally shifted to selected groups – nonhuman animals or socioeconomically disadvantaged people, while the benefits are available mostly to others. I will argue that this is a result of the insufficient recognition of participants situational vulnerability. I will show that from the perspective of risks-benefits distribution, the healthy volunteers situation in the clinical trials is more similar to nonhuman animals than participants in later phases of research.

Keywords: pre, clinical trials, phase I clinical trials, drug development, justice in research, situational vulnerability

Supervenience Does Not Work on Many Levels. An Alternative Argument for Fundamental Autonomy of Special Sciences Informed by Computational Complexity

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Nonreductive physicalism and nonreductive individualism claim that only physical/individual exists; mental/social supervenes on it; yet the higher level is autonomous. Both are criticised for being either epiphenomenalist or dualist, allowing for reduction or lacking real downward causal powers. Nonreductive individualism requires individual psychology to be causally closed. I address these issues by expanding on Bedau's weak emergence and introducing my argument based on the asymmetrical computational complexity of reduction vs downward causal laws, allowing for in-principle autonomous special sciences without the need for the incoherent multilevel supervenience, denying bridge laws or requiring causal closure of each.

Keywords: nonreductive physicalism, nonreductive individualism, autonomy of special sciences, weak emergence, computational complexity

How to advance the debate on the personal and subpersonal?

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In philosophy and cognitive science, disagreement persists over defining t he p ersonal versus subpersonal domains. Originally, Daniel Dennett introduced the distinction based on types of explanations. However, recent discussions suggest it should focus more on states and processes. This ongoing debate creates uncertainty about its conceptualization and practical application. To progress, I propose three desiderata for assessing the accounts of the personal/ subpersonal: extensional adequacy, explanatory adequacy, and the neutrality requirement. Using these, I evaluate recent proposals about how to understand the distinction between the personal and subpersonal, with the aim of contributing to the ongoing debate of this issue.

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Keywords: desiderata, personal/subpersonal, cognitive science, folk, psychology, pluralism

"Wawel Dragon Statue (Polish: Pomnik Smoka Wawelskiego) is a monument at the foot of the Wawel Hill in Kraków, Poland, in front of the Wawel Dragon's den, dedicated to the mythical Wawel Dragon. Installed in 1972, the statue is capable of letting out fire from its mouth every five minutes." Wikipedia https://en.wikipedia.org/wiki/Wawel_Dragon_(statue)

More info about the Legend: https://en.wikipedia.org/wiki/Wawel_Dragon

Dragons Den: https://www.atlasobscura.com/places/wawel-dragons-den

A framework for the feminist anthropology of science

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This research aims to establish a theoretical framework for the feminist anthropology of science. The research question I will answer is: what does it mean to do anthropology of science as a feminist? The core thesis I will defend goes as follows: feminist anthropology of science investigates contemporary science in practice to uncover gender bias in local scientific cultures or to illuminate whether the knowledge produced by the sciences it investigates is useful for feminist aims. To support my claim, my research strategy consists of finding ways to integrate feminist philosophy of science (FPoS) and critical anthropology of science (CAoS).

Keywords: feminist anthropology of science, gender bias, epistemic cultures

Defining c omputational mechanistic explanations (in cognitive neuroscience)

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I propose a definition of mechanistic computational explanation in cognitive neuroscience, building on the notion of contrastive mechanistic explanation. An explanation is computational only if: a) variation/change in continuous or discrete quantity Q is relevant for a contrastive explanandum; b) there is a family of related contrasts all explained by variations/changes in Q; and c) the variation in Q is etiologically relevant for producing some output distinct from determinates of Q.

Keywords: neural computation, computational explanation, mechanistic explanation, cognitive neuroscience

On the Non-neutrality of Philosophy of Economics for both Philosophy and Economics (Celebrating the 10th Anniversary of the Polish Philosophy of Economics Network)

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Krzysztof Nowak-Posadzy [3], Agnieszka Wincewicz-Price [4],
Aleksander Ostapiuk [5,6]

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3 Adam Mickiewicz University – Poland
4 Polish Economic Institute – Poland
[5,6] Wroclaw University of Economics and Business – Poland

There is a well-known adage that the relevance of the philosophy of science to scientists mirrors the relevance of ornithology to birds. We dissent. Viewing subjects from a distance can offer a deeper understanding of science, including economics. Statements about science are metascientific, not scientific; thus, reflection on science benefits from the philosophy of science's insights. Furthermore, the philosophy of science can significantly influence those engaged in scientific endeavors. Philosophers of science "can make important contributions to the theoretical development of the scientific discipline in question" (Salmon 2008, 32). Regarding the philos-ophy of economics, it can elucidate various challenges faced by economists, such as modeling interactions between micro- and macro-phenomena, understanding economic laws, generalizing results from randomized controlled trials (RCTs), and the possibility of value-neutral economics. Moreover, the philosophy of economics holds potential value for philosophy itself. Ethical judgments in economic theories of consumer choice, interpersonal comparisons of utility, and other issues offer philosophers intriguing research opportunities. Fundamentally, the problems of human choices are moral and thus warrant examination by both philosophers and economists. In light of these considerations, our symposium aims to explore the non-neutrality of the phi-losophy of economics for both fields. Participants will examine these issues from diverse per-spectives. More details are provided below. Additionally, we seize this occasion to celebrate the 10th anniversary of the Polish Philosophy of Economics Network.

Keywords: philosophy of economics, economic methodology, rationality

Nuclear Bunkers of Nowa Huta at Museum of Nowa Huta
Osiedle Centrum E 1

More information about the "underground city beneath Krakow's postwar socialist utopia":
https://www.atlasobscura.com/places/nuclear-shelters-bunkers-nowa-huta

Complexities of economic expertise

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I examine the hypothesis that the discipline of economics has three distinctive features which make questions related to economic expertise even more difficult than questions related to expertise in most other scientific disciplines. The features are: 1) Economics is in a distinctive way divided into a relatively uniform mainstream and a range of peripheral schools of thought. 2) Economics and its scientific standards have been strongly shaped by extra-academic interests. 3) The disciplinary identity of economics exhibits a curious ambiguity which renders opaque economists' true domain of expertise.

Keywords: expertise, economics, trust, schools of thought, science in society

What are consumer sentiment indicators a measure of?

Sarkia Matti [1]

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Consumer sentiment indicators have become a standard tool of economic policy-making and macroeconomic forecasting. Since consumer spending makes up 40 – 70 % of the GDP of most Western industrial economies, any tool that makes it possible to forecast changes in consumer spending would be valuable for businesses, central bankers, financial market participants, and politicians alike. Reflecting this central role, consumer sentiment is treated as one of the leading indicators of economic growth by several macroeconomic research institutes, such as the Conference Board and the US Department of Commerce. However, despite its widespread use, data about consumer sentiment differs from most other data that is employed in macroeconomic forecasting due to its reliance on survey-based research and the self-reports of individuals. This makes data about consumer sentiment harder to interpret and theoretically more controversial than seemingly more objective economic indicators, such as initial unemployment claims or housing starts.

Of course, many economic indicators raise some challenges about how to best quantify and mea-sure the phenomena that the concept ranges over (Cartwright&Runhardt 2014; Cartwright et al. 2017). For example, one might ask whether someone who works 1 hour per week should be described as employed or unemployed, or how to estimate value of economic activity that takes place outside public markets, such as the black economy or household work (Coyle 2015). However, as a psychological construct, the measurement of consumer sentiment arguably ampli-fies these difficulties. On the one hand, consumer sentiment cannot be operationalized in terms of consumer spending (as in "consumers who spend more are more confident"), if the former is used to forecast the latter. On the other hand, consumer sentiment cannot be defined so loosely that it has no connection to consumer spending whatsoever. This would be the case, if consumer sentiment simply measured the "mood" that consumers are in during the survey. To get around these difficulties, surveyors typically ask consumers about their perceptions and expectations concerning their personal finances as well as the general economy. How are such perceptions and expectations to be understood?

My paper connects controversies about the predictive value of consumer sentiment indicators to two rival interpretations of what consumer sentiment indicators are a measure of. According to the causal interpretation, consumer sentiment is a leading indicator of economic growth (i.e. an indicator that rises or falls before changes in GDP), because consumer is a causal force for consumer spending-a measure of consumers' "animal spirits". According to the correlational interpretation, consumers have access to information that enables them to portray economic conditions successfully, even if this does not influence their motivation to spend. Using causal graphs, I will argue that this rival interpretation is consistent both with

nmprp_wgle amlqskcp qclrgkclr _q _ jc_bgle glbga_rmp md camlmkga epmurf+gd rfcgp gldmpk_rgml gq npgt_rc _lb dmpu_pb+looking and portraying it as a lagging indicator if the information that they have access to is publicly available and backward-looking (e.g. information that they read in the newspapers). Thus the status of consumer sentiment indicators as a leading or lagging indicator of economic growth seems to depend not only on their statistical reliability but also in part on the ontology of consumer attitudes-i.e. what consumer sentiment indicators are a measure of.

Keywords: Consumer sentiment, measurement, philosophy of economics

What are causal relations in the economy? A defense of evidential pluralism

Mariusz Maziarz [1]

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Evidential Pluralism is a stance concerned with the epistemology of causality. It emerges from a normative reading of the Russo-Williamson Thesis that establishing causality in medicine typically requires both mechanistic evidence (results explaining how a purported cause produces its effect) and difference-making evidence (studies showing an association between the cause and effect). I use a case study of monetary policy mechanism to suppor the concept of causality by requiring from such relations both difference-making and mechanistic connection, and argue that such a theory is adequate to causal relations in the social sciences. The proponents of EP pointed at two views on causality underlying their methodological posi-tion: the epistemic theory of causality (Williamson 2005) and 'causal mosaic' pluralism (Illari and Russo 2014).

The view on causality adequate to economics has been thoroughly debated (e.g., Henschen 2018; Maziarz & Mróz 2020), but pluralism about the concept of cause seems to be endorsed by economists in their research. Endorsing such pluralism leads to the view that different research methods deliver evidence for various types of relations that are deemed causal by alternative philosophical accounts of causality what contrasts with EP (Shan&Williamson 2023).

To resolve this clash, I analyze the suggestion of Hall (2004) that causality is either dependence or production and proposals to unify the concept of causality by requiring from such relations both difference-making and mechanistic connection (Campaner 2006; Ney 2009; Joffe 2013). I argue that these proposals face some difficulties and offer an improved account. In particular, I draw inspiration from a probabilistic formulation of Menzies and Price's (1993, p. 190) agency theory and the New Mechanistic philosophy.

I put forward an ontological theory of generic (type-level) causality, claiming that X causes Y only if (1) there is a mechanism linking type X events with type Y events and (2) one can manipulate (the probability of) Y by acting on X. To support such a theory of causality, I realistically interpret examples of some well-established causal claims from economics and medicine and show, using case studies, that causal relations are always mediated by a mechanism and allow for manipulating, but these features of causality are only observable under specific conditions such as experimental isolation from other mechanisms. I analyze the mechanism of monetary policy and shed light on the connection between manipulability and mechanism. I also analyze the counterexamples for difference-making or mechanistic theories. I argue that my integrative theory of causality is adequate to the realistically interpreted examples from economics and medicine and handles these counterexamples better than monistic approaches. Furthermore, it

explains why EP is correct in normally requiring both difference-making a nd m echanistic evidence, but some causal inferences and policy decisions are based on only one type of evidence.

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Keywords: philosophy of economics, evidential pluralism, causality, social sciences

Causality, potential outcomes, and the policy process

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In this article, I contribute to the philosophical assessment of design-based empirical methods in economics. I elaborate on two potentially harmful consequences of the empirical turn in economics:

1) The research tends to focus only on one type of causal questions.
2) The research focuses on one small part, or more precisely, one single stage of the policy process, namely on "impact evaluation".

These problems originate from rather subjective ontological, epistemological, and methodolog-ical a priori presuppositions, made by empirical researchers, which turns out to be in tension with the claim of "objectivity" provided as justification for the whole empirical approach.

Keywords: causal inference, empirical turn, potential outcomes, background assumptions, policy process

Meaningful affordances in autism

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Autism spectrum disorder is a condition characterised by deficits in social inter-action and communication, repetitive patterns of behaviour, and hyper- or hyporeactivity to sensory input. Affordance-based Skilled Intentionality (Rietveld, Denys, & van Westen, 2018) that combines enactive and ecological views of cognition with the Free Energy Principle and Pre-dictive Processing was proposed as the framework from which to view autism integrally (Nešić, 2023). Skilled Intentionality distinguishes between a landscape of affordances (sociomaterial possibilities for a species) and a field of affordances (inviting possibilities for an individual in a situation). The ecological-enactive approach shows that autistic differences in bodily normativ-ity and their field of affordances stem from aberrant precision estimation (Constant, Bervoets, et al., 2018). It was argued that autistics have a narrow field, with shallow temporal depth, great intensity, and affective salience of the affordances that do come up in the field. Recently, the utility of the concept of affordance in psychopathology has been criticized. Ratcliffe and Broome (2022) have voiced this worry, saying that the affordance concept is not illuminative enough since things can afford action in all sorts of ways ('what matters' can be very diverse). Dings criticizes that most ecological and enactive frameworks lack something crucial since they conflate the notion of relevance with meaning regarding affordances. Such frameworks then only operate with relevance and are insufficiently fine-grained for the proper understanding of psychopathology (Dings, 2020, 2021). Dings goes on to argue that a distinction should be made between "merely relevant" possibilities for action and "meaningful" possibilities for action to refine the Gibsonian concept of affordances. Dings argues against Ratcliffe and Broome and provides a richer framework for affordances so that they can be applied to the understanding of authentic and autonomous agency.

He has argued that a distinction should be made between "merely relevant" possibilities for action and "meaningful" possibilities for action to refine the Gibsonian concept of affordances. Some affordances are experienced as low-level, and others are experienced as high-level (long-term goals). Accordingly, there is low-level ('how' to do something, movements) identification and high-level ('why', diachronic goals) identification of affordances in the experience of a particular object (Dings, 2021). So, there are affordances that are "merely relevant" (identified at a low level) and those that are meaningful (matter in this sense) and are identified at a higher level. Dings highlights those affordances on the higher level of abstraction, of concern for the narrative, and diachronic purposes (Dings, 2020, p. 63) (connects it with the notion of self-referentiality).

In my talk, I will apply these new concepts offered by Dings to the case of autism and ex-plore how they contribute to illuminating the nature of the disorder and if they lead to new therapeutic approaches. I will argue that the ecological-enactive approach to autism (Nešić,

2023), couched in the Skilled Intentionality Framework, can be improved with these new notions, though I also highlight the limitations. Meaningful affordances will prove to be a useful way of exploring and understanding autistic phenomenology and their being-in-the-world.

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Keywords: autism, affordance, meaning, skilled intentionality, field of affordances

On Constitutive Explanation in the Social Sciences

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Within the literature on social scientific explanation, it is commonly asserted that all social scientific explanation is causal explanation. A growing literature on so-called *constitutive explanation* has raised a challenge to this view. However, review of the existing literature suggests a lack of clarity on what constitutive explanations are taken to be and how exactly they relate to causal explanations. Furthermore, there is a lack of attention to the workings of actual constitutive explanations in the social sciences. This paper aims to address these shortcomings to clarify the nature of constitutive explanation within the social sciences.

Keywords: Constitutive explanation, Causal Explanation, Interpretivism

Evolution, Lineages and Kinds: on the requirements of evolutionary social constructivism

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For causal explanations, social sciences often invoke human kinds, for instance race or gender. While there is little controversy about why such categorisations are often useful for sustaining various epistemic tasks, it is subject to debate how they come about and under which conditions they refer to something real. Recent contributions by Ron Mallon and Marion Godman have suggested that human kinds are socially constructed via pathways established in the field of cultural evolution. This paper argues that while these approaches seem prima facie attractive, Godman employs a contested notion of cultural lineages that collapses her account towards Mallons.

Keywords: human kinds, lineages, cultural evolution, social constructivism

Stuck in the Middle With You: How-Plausibly Explanations of Syntax Processing in Computational Linguistics

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Models of natural language processing (NLP) based on artificial neural networks (ANNs) have been used in computational linguistics since the inauguration of connectionism in cognitive science. Different computational architectures were implemented–from recurrent neural networks (RNNs) in the 1990s to state-of-the-art long short-term memory networks (LSTMs) and transformers (TNNs). The extent to which these architectures are compatible with human linguistic competence, especially syntax or sentence processing, has always been controversial. From the perspective of transformational-generative grammar, models of NLP based on either RNNs, LSTMs, or TNNs lack explanatory power due to structural inadequacies: without manually specified hierarchical structure, they can't represent our allegedly innate grammatical knowledge based on hierarchical generalization. On the other hand, Lake & Murphy note that what matters is "(t)he question (w)hether the model's processes are *plausibly* similar to those of humans, possibly giving insight into human psychology" (2021: 25, my emphasis). The crux of the issue is, therefore, (A) whether these models plausibly represent our syntactic capacities given the specific computational architecture, and (B) whether they are explanatory in the context of computational linguistics.

I argue that the answer to both (A) and (B) is positive. I bolster my argument by (1) endorsing mechanistic explanation, (2) acknowledging different stages of mechanism discovery, and (3) distinguishing between what sort of mechanistic explanation is currently feasible in computa-tional linguistics given the specific constraints. I maintain that models of NLP based on ANNs offer mechanistic explanations thanks to constraints and details stemming from cognitive neuro-science and psycholinguistics, which, in turn, constitute the abstract mechanistic structure that is shared with the human brain as per functionalist assumption. Such constraints-embedded in different architectural features and hyperparameters-serve as inferential pincer movements that help narrow down the space of *possible* cognitive mechanisms (Stinson 2018). The details serve to probe the most *plausible* mechanism design within the model. The last step in this regard would be to validate insights regarding the interaction and organization of the mechanism parts via independent data.

In other words, I claim that these models offer us how-possibly and how-plausibly explana-tions (*cf.* Craver 2007) in computational linguistics.(1) Thus, for instance, Elman (1990, 1991) introduced RNNs as a means to explore whether such computational architecture along with its features could provide us with a *possible* explanation of human processing of grammatical structure. McCoy, Frank, & Linzen (2018) focus on a particular question formation, namely subject-auxiliary formation that Chomsky (1957, 1980) stipulated to be

quite rare in child-directed speech, and try out different computational architectures (i.e., RNNs and LSTMs) and architectural features (i.e., attention heads found in TNNs) on this NLP task. By having only hierarchical cues in the input sentences, these ANNs managed to produce hierarchical general-ization in a plausible way by avoiding ungrammatical linear processing, which aligns with human sentence processing. The implication is that the plausible explanation of syntax processing does not have to refer to either hierarchical or innate structure (contra transformational generative grammar) and that such explanations are feasible in computational linguistics relying on ANN-based models as tools for examining and simulating mechanisms that govern NLP.

(1) Unlike Buckner (2023) who believes that models based on ANNs can generally aspire to how-actually explanations of human cognitive processes, I refrain from such claims, at least in the context of their explanatory prospects in computational linguistics.

Keywords: Artificial Neural Networks, Computational Linguistics, Mechanistic Explanation, Natural Language Processing, Syntax

Memory metaphors in science and in folk psychology

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While the impact of memory metaphors in science is well-documented, less attention has been given to how they shape folk conceptualizations. In this talk, we present preliminary findings from a survey exploring folk conceptualizations of memory metaphors and their connection to people's metamemory. Our research, still ongoing, reveals a significant correlation between specific memory metaphors, epistemic attitudes, and beliefs about memory. This underscores the importance of studying memory metaphors and their impact on both the academic field and everyday understanding.

Keywords: memory, metaphors, science, folk psychology, x, phi

Back by popular demand, ontology. Productive tensions between anthropological and philosophical approaches to ontology

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In recent years "ontology" has made its way from philosophical vocabulary into the social sciences, where we are observing what is commonly described as the ontological turn. In this presentation, we analyze relations between *ontology* in anthropology and philosophy beyond simple homonymy or synonymy and show how this diagnosis allows for new interdisciplinary links and insights, while minimizing the risk of cross-disciplinary equivocation. Based on this analysis, we showcase the potential for contribution of ontological anthropology to contemporary philosophical debates, such as ontological gerrymandering, relativism and social ontology, and vice versa.

Keywords: philosophy of anthropology, ontology, social ontology, ontological gerrymandering, rivers as persons

Beyond the soundscape: acoustic affordances in the reproduction of developmental niches

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The concept of soundscape has been widely used in various research fields to examine the relationship between sound and human social life. However, this notion has not yet fully explained two critical aspects: how the dynamics underlying the multiple interactions between individ-uals and their sonic environment arise, and how these interactions affect the way individuals reproduce and modify their biocultural environments. To address these questions, this paper presents a framework that integrates the notion of developmental niches with a sociocultural and acoustically-oriented conceptualization of affordances.

Keywords: Soundscapes, acoustic affordances, developmental niche, cultural evolution

A Defence of Peer Review

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Philosophers of science have recently raised some criticism of peer review. Heesen and Bright, for example, argue that "pre-publication peer review should be abolished" (Heesen and Bright 2021, 635). Instead, they advocate for a system in which review takes place after publication. And Jamie Shaw has recently defended the use of lotteries as a means to determining the distribution of funding for scientific research (see Shaw 2 023). I defend peer review, specifically the use of pre-publication peer review of journal articles, the system that Heesen and Bright's criticism is aimed at. Critics of peer review often claim that peer review is unreliable. This criticism has been voice by scholars in other fields as well (see, for example, Cox et al. 1 993). First, I defend the reliability of peer review. I draw on an empirical study of peer review in a leading chemistry journal (see Bornmann and Daniel 2008). I argue that though there is evidence that there is a lack of inter-rater reliability, there is reason to believe that the ultimate judgments on manuscripts is valid. That is, the papers that are published are on the whole better than those that are not published. In fact, most of the 1899 manuscripts that were the object of Bornmann and Daniel's study were ultimately published in some journal. But those rejected by *Angewandte Chemie*, were (i) published in lower ranked journals, and (ii) in the aggregate were cited less frequently. Second, I offer a theoretical framework for understanding what peer review can reasonably deliver. In the spirit of Karl Popper, I argue that peer review is an eliminative process. It enables editors to effectively identify problems in manuscripts. It is thus effective at weeding out papers with mistakes, papers that would get published on Heesen and Bright's proposal.

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Keywords: peer review, reliability, validity

Understanding the output of black box AI models: interpretable and explainable AI are not the only games in town

Lilia Gurova [1]

[1] New Bulgarian University – Bulgaria

Many believe today that the output of black box AI models could not be properly understood if we do not know how the models have produced it; hence, the AI community should focus on building interpretable AI systems or explainable AI (XAI). It could be shown, however, that in some tasks at least (e.g. when used to generate testable hypotheses in social sciences) certain non-interpretable and non-explainable black box models are nonetheless able to yield understanding although the particular pathways that lead to the generated hypotheses remain unknown.

Keywords: AI assisted scientific understanding, understanding with black box AI models, de Regt's theory of scientific understanding, understanding and inference

Logic, reasoning and normativity – a bridge too far?

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[1] Université de Genève = University of Geneva – Switzerland

Is logic normative? Many share a strong intuition and answer with a resolute affirmation, following the established dogma claiming that logic is normative, while psychology is descriptive. However, the sentence 'Logic is normative' harbours an ambiguity (logic as a discipline or as a formal system) and it is elliptic (normative for agents and activities). Curiously, the assumption of normativity of logic is used in two different direction. The straightforward application is to impose supposedly normative constraints from logic to rationality. In the opposite direction, normativity is used to support a variety of i) trans-, ii) meta- and iii) intra-disciplinary claims to: i) shield logic from being a discipline that fails miserably at producing an adequate descriptive theory of human reasoning and separating it from disciplines like psychology or cognitive sciences (Russell 2020); ii) resolve the issue of logical monism and pluralism related to one or multiple correct logics; iii) clarify the notion of logical validity to be derived from normative principles of reasoning or doxastic revisions of rational agents.

Beyond the obvious suspicion that at least some combinations of the roles for the normative conception of logic seem hopelessly circular, I will argue that normative view of logic is orthogonal to the roles it is expected to play. It will become apparent that established dogma that psychology is descriptive, while logic is normative should not only be abandoned, but entirely reversed.

In the first part, I briefly discuss the disciplinary shift from psychologism (Mill 1843) intrinsically relating logic to mental states to Frege (1879), separating the contents from the judgements, to the contemporary practice of logic not requiring any reference to psychological concepts.

In order to relate the contemporary logical concepts back to norms of reasoning, one is required to formulate bridge principles which are supposed to i) capture the correct forms of reasoning of rational agents; ii) provide normative guidance to agents; iii) be used in the intra- and meta-logical discussions (consequence, validity, monism, pluralism). The doxastic states and related bridge principles hold a privileged position in the mainstream discussion (Harman 1984; MacFarlane 2004; Field 2009; Tajer 2022). This strategy leads to a series of entangled difficulties.

In the second part, I show that logic and bridge principles normative for reasoning of rational agents are not one-to-one. They depend on the type of i) mental states and related values; ii) the reasoning and iii) rational agents under consideration. Privileging doxastic states in the derivation of one correct logic is therefore questionable and exploring other propositional attitudes may lead to different formal systems, without supporting logical pluralism.

In the third part, I focus on doxastic bridge principles. I discuss the desiderata of value match, preservation and generation by rational agents in conformity with the normative bridges. I demonstrate, generalising the formal results of Tajer (2022), that the formulation of the bridges depends on the concept of rational agents and related doxastic correction criteria under discussion (externalist or internalist), concluding that the normative source is not be found in logic, but in psychological categories.

The final part is dedicated to the interplay between doxastic bridges understood as guiding principles and the notion of validity. I discuss the application of such bridges to the evaluation of the validity of the *ex falso quodlibet* (explosion) rule, arguing that limited rational agents can both accept its validity and reject its deployment. Additionally, I show that individualised guiding principles (MacFarlane 2004; Field 2009) are not an adequate guide for deriving the notion of logical validity.
Accepting MacFarlane's (2004) methodology would make the notion of logical consequence dependent on the notion of rationality and mental states, returning to logical psychologism and with the individual guiding principles to solipsism. The modern conception of logic is not normative, while the objects of study of psychology – mental states, attitudes, rationality and reasoning involve a normative dimension. It is time to reverse the dogma.

Keywords: Logic, reasoning, normativity, rationality, propositional attitudes, doxastic bridge principles

Representational link uncertainty in deep neural network models

Karaca Koray [1]

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I will argue that since Sullivan's account overlooks a key aspect of machine learning (ML) modelling, namely model representation, it fails to provide a proper characterization of link uncertainty (LU) in deep neural networks (DNNs). To this end, I will draw upon Gabriele Contessa's interpretational account of epistemic representation to argue that LU in DNNs is essentially due to the lack of adequate model representation, which I shall call *representational* LU (RLU). I will also argue that RLU can be reduced in DNNs to the extent that their representational requirements are shown to be satisfied through explainable AI models.

Keywords: machine learning, opacity, representational link uncertainty, explainable AI

Visual thinking and intuition in the construction of structures. The methodological perspectives in the mathematical practice of Cantor and Dedekind.

Karolina Tytko [1]

[1] UPJPII in Kraków – Poland

The paper is based on a case study of the mathematical practice of two 19th century mathematicians - Richard Dedekind (Dedekind 1930) and George Cantor (Cantor 1932). The analyses are based on their historical contributions to set theory (in particular, their constructions of the real numbers, Dedekind's model of the natural numbers, and Cantor's transfinite numbers). We also use some of the analyses of Blaszczyk (Blaszczyk 2005; Blaszczyk i Fila 2020). These two mathematicians dealt with similar mathematical objects and problems in the foundations of mathematics. For example, they tried to formulate the continuum problem and they developed and used set theory. However, their activities, solutions and constructed structures were different. The set of real numbers was constructed by Cantor in a way similar to the arithmetical proposal of Weierstrass, and by Dedekind in a way similar in some aspects to the geometrical proposal of Eudoxos-Euclid. In the case of set theory, Cantor developed it to construct a theory of transfinite numbers and - partly - to construct a proof against real infinitesimals. Dedekind used it to construct the model of the natural numbers (the simply infinite set).

We argue that these differences can be traced back to their intuitions, which have been shaped by various factors. We suggest that intuition is based on empirical, unconscious mental processes (Johnson-Laird 2008) involving visual imagery (Nanay 2021). In this case, we propose that examples of factors influencing their intuition could be the scientific environment in which they worked at the beginning of their research careers. And that such shaped intuition influences methodological and epistemological aspects of their mathematical practice.

We will consider the individual epistemic perspective of mathematical practice, but also its socio-historical ontological context. The proposal that could combine these two perspectives is social constructionism, i.e. the social ontological approach. In this approach we accept a certain basic, pragmatic ontology of mathematical objects and - at the same time - it is assumed that these objects are constructed and introduced through mathematical practice (Hartimo i Rytilä 2023, 290; Carter 2006, 16).

In order to describe some aspects of the methodological mechanisms and epistemological per-

spectives of the mathematical practice of George Cantor and Richard Dedekind, we will refer to the - more or less conscious - ability of Cantor and Dedekind to intentionally "grasp" certain perceived and constructing mathematical objects (structures). We note some differences between their individual "grasping" and use of the same objects and theories. We will propose two different perspectives that can be applied to Cantor and Dedekind: *in-structural* and *over-structural*. These perspectives will be presented with the help of Giaquinto's proposal of the possibility of visual thinking of mathematical structures (Giaquinto 2008), as well as Searl's symbolic notation of the intentional state about the object (Searle 1980). In particular, we'll present Giaquinto's description of how it is possible to "grasp" the mathematical structure (through his proposal of a visual category specification), and Searle's symbolic description of the psychological, intentional state (where we're dealing with mental, intentional attention to the respective objects).

Keywords: Cantor, Dedekind, visual thinking, intuition, construction of structures

The Root of Algocratic Illegitimacy

Mikhail Volkov [1]

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Would a political system based upon algorithmic decision-making possess legitimacy? John Danaher famously argues no: drawing on arguments against epistocracy, he contends that to be legitimate, a decision-making system must be non-opaque (comprehensible and contestable). This disqualifies a rule by complex black-box algorithms. My work argues this reasoning is incomplete. Anti-epistocratic arguments trace illegitimacy not to the system's opacity itself but to its downstream effects. I attempt to show that, comparatively, there is less reason to think that algocratic systems entail similarly malign downstream effects, raising the question about whether and how the illegitimacy of algocratic systems can be demonstrated.

Keywords: AI, Political Philosophy, Algocracy, Public Reason

Towards Artificial Morality: A Bottom-Up Approach

Renos Milias [1]

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Contemporary research on computer science, machine learning and artificial intelligence (AI) is reflecting on the prospects of designing AI systems capable of making moral choices. In the framework of decision-making machines, these systems are often called Artificial Moral Agents (AMAs)[1]. The term "agent" is used here to describe three main characteristics, namely interactivity, autonomy and adaptability, at a given Level of Abstraction (LoA)[2]. In this talk, we will discuss how can we approach, shape and implement morality in artificially intelligent systems.

Existing philosophical approaches on artificial morality may follow two main, distinct directions. On the one hand, the research focuses on defining and establishing a moral code in a software environment, a set of moral principles that can function in a strict, deterministic way during the decision-making of the AI systems (top-down approach). On the other hand, contemporary research suggests that AI systems can develop a rationalistic expression of moral sensibility through the educational procedures of a learning machine (bottom-up approach). Moreover, these two directions can overlap, making it possible to conceive a combination of the above methods, and to evaluate it practically[3].

In the talk, I will present a part of my research towards an explanatory integration of the above, focusing on the physicalistic aspects of morality in the bottom-up approach. The main standpoint is that the morality of AMAs could be considered as the outcome of a strictly deductive computational procedure related to the self-organization of the system and the optimization of its performance. Also, diverse ethical theories will be presented, alongside with their correspondence to different approaches on artificial morality. Lastly, the talk emphasizes into the need of creating simulations in multi-agent reinforcement learning (MARL) in order to investigate artificial morality.

Such explorations showcase the need for an active role of philosophy and for an interdisciplinary collaboration, in order to ground and understand the potentials and limitations of artificial morality. The insights gained by implementing the bottom-up approach in particular, are intended to inform the responsible design, development, and deployment of AMAs, ensuring that their moral decision-making aligns with ethical norms and values.

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Keywords: AI, Political Philosophy, Algocracy, Public Reason


11.09.2024, JAGIELLONIAN UNIVERSITY, KRAKÓW, POLAND
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SCHEDULE

11.09.2024

Part I

Keynotes and Invited Talks

9.00 am to 1.00 pm

Aleksandra Derra
(Nicolaus Copernicus University, PL)
Another Science is Possible.
Scientific Research after (not only) Feminist Intervention

Edward Nik-Khah
(Roanoke College, USA)
California Dreamin': Economists Become Expert Epistemologists
for Platform Capitalism (10.10 am to 11.10 am)

Poonam Pandey
(University of Vigo, ES)
Demarcating Risks: Boundary-work for Innovation and Governance
of Science and Technology (11.20 am to 12.05 pm)

Marcin Zaród
(SWPS University of Social Sciences and Humanities, PL) Critical
STS of Citizen Science (12.15 pm to 1:00 pm)

Lunch break (1.00 pm to 2.00 pm)

Part II

Workshop Part

2.00 pm to 6.00 pm

Lightning talks by participants (early-career scholars) (2 pm to 4 pm)
Group work (4.00 pm to 6.00 pm)
Summary of the workshop and general discussion (6.05 pm to 6.30 pm)
Social dinner (7.00 pm – 10.00 pm)

LOCATION

Jagiellonian University, Grodzka 52 building, Room 13

PARTICIPANTS

Rodrigo Anderle (Federal University of Bahia – UFBA, Brazil)
Tomasz Krawczyk (Jagiellonian University Medical College, Poland)
Rose Trappes (Bergen University, Norway)
Rory Kent (King's College, Cambridge, UK)
Daniele Molinari (University of Parma, Italy)
Julia Turska (Wageningen University, Netherlands)
Claudia Foltyn (Universität Augsburg, Germany)
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