Workshop *Invariance and Objectivity*

University of Vienna
June 28-29, 2023

Abstracts

1) Neil Dewar (University of Cambridge): "Against 'Perspicuity'"

Abstract: What makes an invariant representation worth having? Much discussion in the philosophy of physics claims that invariant representations are to be preferred because they are more "metaphysically perspicuous": that is, they correspond to the structure of reality more faithfully than their non-invariant counterparts. In this talk, I defend a more deflationary account of perspicuity, according to which perspicuous representations are those which best afford an understanding of the theory in which they occur—where the relevant notion of understanding is de Regt's *pragmatic* understanding, i.e., the capacity to effectively use the theory.

2) Inkeri Koskinen (University of Helsinki): "Unifying the Notion of Objectivity"

Abstract: Several philosophers of science have recently attempted to bring some unity to the notion of objectivity. These attempts typically start from the observation that there seem to be several distinct meanings of objectivity, and continue either by arguing that these meanings have more in common than has yet been recognised, or by giving an analysis of the conceptual heterogeneity. I will compare and contrast these attempts, focusing on the aims of the different accounts. Finally, I defend my view of what a satisfactory account of objectivity should offer: a description of the use of the concept, not the criteria of objectivity.

3) Martin Kusch (University of Vienna): "Objective Spirit, Objective Culture, Objective Knowledge: From Hegel to Popper (via Steinthal and Simmel)"

Abstract: In this paper, I sketch a development in the history of objectivity not covered in Daston and Galison's *Objectivity*: this development started with Hegel's account of "objektiver Geist" and eventually resulted in Popper's theory of "objective knowledge" and the "third world". I shall try to show that one intermediate step of the development is crucial: the debate between Steinthal, Lazarus and Simmel over the question whether "objective spirit" should be a descriptive or a normative category.

4) Alexander Reutlinger (LMU Munich): "Articulating Invariantism. Objectivity as Independence Revisited"

Abstract: Invariantism defines scientific objectivity via the notion of invariance. I will present a version of invariantism, according to which the key notion of invariance is spelled out more

precisely as a specific sort of counterfactual independence (building on Reutlinger 2021). This invariantist view – the counterfactual independence account of objectivity – needs to be articulated in a more nuanced manner. To do so, I will first explore under which conditions this version of invariantism is applicable to two different concepts of objectivity: epistemic and structural objectivity. In a second step, I will analyze what the epistemic import of (different concepts of) objectivity is, what objectivity contributes to generating scientific knowledge, if one adopts the sort of invariantism I propose.

5) Gil Sagi (University of Haifa): "Logicality and Invariance in Natural Language"

Abstract: Is there a relation of logical consequence in natural language? Logicality, in the philosophical literature, has been conceived of as a restrictive phenomenon that is at odds with the unbridled richness and complexity of natural language. This article claims that there is a relation of logical consequence in natural language, and moreover, that it is the subject matter of the bulk of current theories of formal semantics. I employ the framework of *semantic constraints* (Sagi 2014), which generalises the Tarskian definition of logical consequence. I apply the widely accepted criterion of invariance under isomorphisms (Sher 1996) generalised to the framework of semantic constraints (Sagi 2022), as well as a theory of Glanzberg (2014) to delineate the relation of logical consequence in natural language.

6) Georg Schiemer (University of Vienna): "What is Implicit Structure?"

Abstract: According to a dominant view in modern philosophy of mathematics, mathematics can be understood as the study of abstract structures. In this talk, I will compare two ways to think about the structural content of theories of pure mathematics. According to the first approach, the implicit structure or the structural properties of mathematical objects (such as groups, vector spaces, and graphs) are specified with reference to formal languages, usually based on some notion of definability. According to the second approach, structures are determined in terms of invariance criteria. For instance, the structural properties of a given mathematical system or its objects are often said to be those properties invariant under certain transformations of the system or under mappings between similar systems. In the talk, I will further investigate these two approaches to think about implicit structure in terms of invariance and definability conditions by drawing to several examples from finite geometry. Based on this, I will give a philosophical analysis of the conceptual differences between these methods and discuss their relevance for our present understanding of structuralism.

7) Gila Sher (University of California, San Diego): "Brute Facts and Strong Invariances: Objectivity, Necessity, and Laws"

Abstract: The world could have been different than it actually is. But whether it is a brute fact that the world is the way it is or not, there are invariances in the world. And strong invariance is connected to objectivity, necessity, and laws. Since there are strong and significant invariances in the world, there are significant things that are fixed across actual as well as counterfactual domains. And truths expressing principles governing these things are objective, necessary, and have the status of laws.

8) Iulian Danut Toader (University of Vienna): "Perspective-Sensitive Invariantism"

Abstract: The perspective-independence of scientific statements has been famously challenged by the Wigner's friend scenario in quantum theory. Recent extensions of this scenario have been taken, more radically, to challenge their observer-independence. My focus will be on the conditions for meeting the latter challenge.

9) Sophie Juliane Veigl (University of Vienna): "50 Shades of Objectivity in Feminist Philosophies of Science"

Abstract: Feminist epistemologists and philosophers of science have provided forceful critiques of the ideals of objectivity, rationality, and impartiality in the sciences. Central to these critiques lies the rejection of the "view from nowhere" and the emphasis on the contextuality and situatedness of all knowledge claims. At the same time, feminist scholars have been careful to demonstrate that feminist alternatives to "objectivity" do not entail epistemic relativism, a position they associate with giving up all standards to judge between different scientific theories. In this paper, I shall examine Sandra Harding's "strong objectivity" and Helen Longino's "social objectivity" as exemplars and assess how convincingly they avoid relativist tendencies and ask for the consequences if these conceptions allow for some (tamed) relativism.