Review of Giri, L., Melogno, P. and H. Miguel (eds.), *Perspectives on Kuhn*, Cham: Springer Nature International Publishing Press, 2023, 194 pp.*

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The book is part of a worldwide celebration around Thomas S. Kuhn's centenary, the impact of his work on philosophy and other disciplines, and what Kuhn's legacy does to the task of understanding science. The book is itself not only a result of intense research but also a rich debate of worldwide specialists about Kuhn's work and beyond Kuhn's work that happened in the *II Colloquium in the Philosophy and History of Science Río de la Plata 2018 "Kuhnian Studies: Past, Present and Future"*, held in Argentina and Uruguay. The book's aim, which was achieved through expertise, debate, and audience participation, was to go beyond the mere exegesis and interpretation of Kuhn's work. This book aims to present a perspective on Kuhn's work, which went through a live debate among experts. It is a perspective born from the community's minimal consensus, exploring topics within and outside the philosophy of science. Naturally, since the book is built from that colloquium, by the end of the book, the reader can have their own view about how much Kuhn's ideas are still alive in many areas, but also why they are still important to fundamentally understand scientists' work. This is allowed due to the diversity of authors, each shedding light on one subject of Kuhn's work or consequence instead of a single author thinking about all these subjects. The book has ten chapters, each exploring different subjects and aspects of Kuhn's work under direct dialogue. In this sense, my aim in this review is to briefly present these ten chapters, highlight that dialogue, and build a mosaic from them, specifically showing how the book advances the work about Kuhn's philosophy.

The chapter 1, "Kuhn, Coherentism and Perception" by H. Sankey, aims to develop further Kuukkanen's claim that Kuhn's view on science could be approached under coherentist terms. In other words, this is a chapter about epistemology, focusing on the theory of epistemic justification in Kuhn's account of science. The idea is to address questions whose answers were initially explored by Kuukkanen. According to Kuukkanen's coherentist interpretation of Kuhn's anti-foundationalism, these positions are aligned. The main reason for this is that epistemic consistency and accuracy in Kuhn's coherentism should be seen within an interconnected belief system. Sankey critiques Kuukkanen's coherentist interpretation as a shortfall since it lacks a crucial coherentist element: the rejection of non-doxastic sources (e.g., perceptual experiences) as justifications. Because of this critique, a path for Sankey to address the input objection to coherentism is an argument that our internally coherent system of belief is isolated from the inputs of reality (which is why another name for input objection is isolation objection). So, the justification from reality for our set of beliefs is not incorporated. According to Sankey, Kuhn's complex position relative to empiricist and coherentist paradigms shows why coherentism in Kuhn is not so simple, especially considered that Kuhn's work lacks the crucial element of coherentism, it "fails to explicitly deny the existence of basic beliefs which have a non-doxastic source of justification" (Giri, Melogno & Miguel 2023, p. 12). Sankey's text also carries another lesson; by

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analyzing the categories of philosophy of science under the categories of epistemology, we find many exceptions for not fitting Kuhn into one epistemological box.

In chapter 2, "Sankey on Kuhn and Epistemological Coherentism: A Commentary" by Juan V. Mayoral, points to a similar direction, although more restrictive, that Kuhn's epistemology may defy conventional labels (Giri, Melogno & Miguel 2023, p. 18). On the one hand, Mayoral suggests Kuhn's use of "the given" is more nuanced than what Sankey reasoned. However, Mayoral supports Sankey's position that Kuhn's critique of "the given" does not inherently align with coherentism. That being said, while Mayoral's view partially agrees with Sankey's, it goes beyond by highlighting that Kuhn's view on the scientific system of beliefs focuses on the evolution of scientific knowledge rather than a fixed epistemic stance. In other words, Mayoral argues that Kuhn's approach, shaped by Wittgenstein's position on epistemological matters, sustains his view that Kuhn is "scarcely akin to identifying his position as either coherentist or foundationalist" (Giri, Melogno & Miguel 2023, p. 23).

In this sense, both chapters feed discussions around the epistemological categorization of Kuhn's view, especially on epistemic justification, by offering an answer to it, which is to avoid simplistic classifications of Kuhn's epistemology. These chapters also provide interesting parallels between Wittgenstein's and Kuhn's positions on epistemological matters and Kuhn with Sellars positions on the myth of the given, pushing forward the view of Kuhn as a thinker who resists maybe all orthodoxy.

The chapter 3, "A Defense of Structure in Structure of Scientific Revolutions" by K. Brad Wray, addresses a different topic. It looks at whether some concepts in Kuhn's *Structure of Scientific Revolution* (SSR), like that of "normal science", "paradigm" and "structure", are more philosophical than historical, and what would be its present-day relevance. More especially, Wray disagrees with criticisms from historians like Lorraine Daston, who argued that the notion of structure is dusty, dated, and irrelevant to historical analysis (Giri, Melogno & Miguel 2023, pp. 25-26). Wray defends the concept of "structure" in SSR as a legitimate philosophical framework and still relevant, especially in studies of general philosophy of science. Wray traces structure's root connections with other areas, like sociology and relationships with psychology, making Kuhn's work fundamentally interdisciplinary. This characteristic makes Kuhn's work impact broader than what historians argue. Wray emphasizes that Kuhn's work is very applicable to modern scientific practices. As it rejects ideas such as true account of reality and deterministic trajectories in science, such as claimed by historicism (as defined by Popper), Kuhn's insights into scientific dynamics, of general trends, prove effective, without appealing to teleology in science development. Thus, Kuhn's structural approach avoids historicism while maintaining explanatory power regarding scientific change in general. In this sense, Kuhn's structuralism is useful in debates about changes in scientific theories and the value of other disciplines.

In chapter 4, commenting on Wray's text, Pablo Melogno writes "A Vindication of Structure in Structure of Scientific Revolutions: A Comment to K. Brad Wray", basically agreeing with Wray but bringing back the value of the history of science in Kuhn's work and to the notion of structure. Thus, Melogno aims to situate the Kuhnian notion of structure as relevant to philosophy and historiography. In a few words, Melogno's position is found between Wray's shift of Kuhn's use of structure in SSR into the philosophical domain, and Daston's rejection of Kuhn's view on historical structuralism. According to Melogno, SSR's defense of a structure to understand scientific changes is useful for historians' practice, balancing Kuhn's historiography generality with the singularity of historical episodes. Kuhn's structuralism represents the structural dynamics rather than specific causes, and consequently, it avoids deterministic historicism, as seen in Hegel's work. In other words, by focusing on historical dynamics and dialogue with philosophy of science, Melogno shows how Kuhn's framework is compatible with modern historiographical methods, paving the way for interdisciplinary applications of Kuhn's ideas and informing contemporary historical and philosophical debates. Melogno's angle on this debate is especially useful for those who work with integrated history and philosophy of science (Integrated HPS),

which avoids the separation of fields and debates (non-separation is different than homogenization) that, in practice, usually walk together. In addition, by putting himself between Wray and Daston's perspectives, Melogno gives Kuhn extended life in contemporary Integrated HPS research.

In chapter 5, "Kuhn's Reconstruction of Structure: The Theoretical Background" by Juan V. Mayoral, things turn again in another direction: about the theoretical background that informs both Kuhn's earlier and later work. Mayoral begins by emphasizing the lexical theory developed by Kuhn in his later work to understand his perspective on scientific development and on his SSR. Mayoral also examines how Kuhn's theoretical background was stable during his early and later years, reflecting on how lexical theory accommodates both stability and change as a reflection of the dynamics that scientific revolutions go through. Mayoral's chapter is helpful for those who want to understand ways of connecting Kuhn's early ideas and philosophical approach to his later lexical theory, highlighting the fact that changes in scientific practices reflect a pragmatic approach, which are helpful to the task of understanding scientific changes, disciplinary interplay going on during these periods, and how philosophy and history of science integrates.

In chapter 6, "A Role for Cognitive Agents from a Kuhnian Point of View: A Comment to Juan Vicente Mayoral" by Pío García, the focus concerning the communal perspective changes towards individual cognitive agents. García argues that the role played by individuals is overlooked in Kuhn's philosophy and proposes a compatibility account that integrates individual and communal perspectives. In a way, this is a complementary work, offering all other chapters dealing with communal agents a different perspective that could be adapted to almost all cases and studies. García argues that an individual's contribution balance well with communal dynamics, becoming an integral part of knowledge generation. In other words, the place of communities does not preclude us from offering an account of individual roles as a productive part of the progress of scientific knowledge. García's compatibility account uses the "interpretative individual" conception, which differs from the traditional "rational individual" conception (Giri, Melogno & Miguel 2023, p. 86). In the "interpretative individual" conception, the individual navigates scientific dynamics through context-sensitive understanding, values and innovation, useful in Kuhn's critique of traditional epistemology, operating under strict rules and views of facts as given (Giri, Melogno & Miguel 2023, p. 87). García's integration of lexical learning into the discussion of individual contributions provides a concrete mechanism for understanding variability in knowledge production, providing a useful framework for addressing longstanding debates about the relative roles of individuals and communities in scientific practice and the dynamics of knowledge development and paradigm change.

The chapter 7, "Incommensurability and Metaincommensurability: Kind Change, World Change, and Indirect Refutation" by Eric Oberheim, explores, on the one side, the concept of incommensurability, as developed by Thomas Kuhn and Paul Feyerabend in 1962, to clarify causes, consequences and implications, but also to debate the confusion surrounding incommensurability on the basis of the concept of metaincommensurability that is useful in the explorations of theoretical transitions between incommensurables. Concerning the task of clarifying Kuhn and Feyerabend's view of incommensurability, Oberheim makes a helpful job, especially for those that are not that familiar with those authors. Oberheim thinks that incommensurability is essential for scientific advancement, and that science's development is more complex than the traditional view supports, where realist claims leads to cumulative truth. It is valuable to add that, there are other forms of realism that don't claim associations of cumulative truth.

To the author, similarly to theoretical incommensurability, there is "metaincommensurability", which "is incommensurability on the meta-level…", i.e., "…between theories about scientific theories" (Giri, Melogno & Miguel 2023, p. 118). It is a higher-order inability to reconcile the philosophical frameworks underpinning different accounts of theoretical incommensurability. Oberheim shows how metaincommensurability brings indeed ineffability and problems for theorizing practices in science and

philosophy. This chapter confirms that incommensurability has many layers and sides, but more than that, it is a fact about science enterprise, just like metaincommensurability is a fact to explain that incommensurability is a fact about science. This chapter is highly detailed, and it has still much more to be done, connected, and discussed about it.

In chapter 8, "The Landscape of a Metaphysical Battlefield: A Comment on Eric Oberheim" by Leandro Giri, contributes to the debate between Oberheim and Sankey concerning their divergence about incommensurability. Giri explores metaphysical aspects in this debate, putting Oberheim's view into a contextual debate with Sankey, Paul Hoyningen-Huene, and others. Giri argues that the metaphysical commitments of Sankey and Oberheim, which he says have not differences (only their conclusions are different (Giri, Melogno & Miguel 2023, p. 129), reveals the points where their interpretations of incommensurability are more clearly shaped and should be investigated. Thus, Giri focus on three dimensions about how Sankey and Oberheim understand Kuhn and Feyerabend's versions of incommensurability. The three dimensions are "exegetic" (the interpretation given by Sankey and Oberheim), "phenomenological" (whether or not incommensurability exists in the world just like a biological species, i.e., realist or antirealist view), and "metaphysical" (concerning the origin of Sankey and Oberheim differences, where Sankey would dismiss incommensurability realism due to his scientific realist position). Giri says that Oberheim's view and Sankey's realist critique of incommensurability need to be more explicit. In this sense, Giri concludes that dismissive positions, whether realist or antirealist, lose sight of the fact that incommensurability invites pluralist positions on incommensurability, especially given that plural metaphysical assumptions behind those versions of incommensurability play an important role in shaping interpretations on such fundamental topics. Giri provides a novel perspective on this long debate by reframing incommensurability as a form of test for metaphysical coherence. Thus, although Giri stays focused on a theoretical debate of a balanced metaphysical pluralism, as between Sankey and Oberheim's view, it is clear that the author reached his goal in making the value of metaphysics for challenges brought by incommensurability. Therefore, future research will benefit from Giri's pluralist approach and the integration of diverse metaphysical positions to investigate paradigm transitions.

The chapter 9, "The Plausibility of Thomas Kuhn's Metaphysics" by Paul Hoyningen-Huene, aims to explore Kuhn's reasoning behind his claim that paradigms can result in "world changes", reconstructing from the SSR what drove Kuhn to talk about world change (Giri, Melogno & Miguel 2023, p. 141). He argues that even when paradigm changes involve changes that affect scientists' perception of data, those changes in perception do not imply ontological changes in the world. From a historian's perspective, Kuhn's terminology (world change) intends to reflect conceptualized worlds and their commitments under the respective paradigms. According to Hoyningen-Huene, this is why we should avoid Kuhn's linguistic mistake of not clarifying the differences between "change of world view" and "world change". In this sense, the scientific worldview comes with the paradigm to properly distinguish them, so the "objects of research are what the new paradigms say: immediately and without reflective distance" (Giri, Melogno & Miguel 2023, p. 151). In addition, worldviews, which refer to the world scientists' work, are plural and can carry falsehood. In contrast, world change refers to the world as it is, implying "absolute uniqueness and a categorical exclusion of falsity" (Giri, Melogno & Miguel 2023, p. 152). In this sense, historically, due to the way these two kinds of reasoning refer to the world-science interactions and how, tacitly with time, worldviews become part of our way of thinking and speaking, it is now understandable the process that leads us to misunderstandings. And not only us but also scientists, philosophers, and Kuhn fall under the same trap. Hoyningen-Huene says that, somehow, this way of referencing things "licences Kuhn's odd talk of the world change" (Giri, Melogno & Miguel 2023, p. 151), although, fundamentally, that way does not make the license and the confusion to be true.

In chapter 10, "Seeing, Talking, and Behaving… Ways of Inhabiting the World: A Comment on Paul Hoyningen-Huene" by Hernán Miguel, the author analyses Hoyningen-Huene's notions of "world change" versus "worldview change", and from it, Miguel builds up two further developments. The impossibility of a "paradigm-free" discussion of the world and some stability that follows the scientific world provides the scientific image with some continuity even through revolutionary times (Giri, Melogno & Miguel 2023, p. 155). In a sense, Miguel closely follows Kuhn in that scientific communication persists despite all changes coming from paradigm shifts and incommensurability. If this is the case, Miguel then answers how scientists communicate. Accordingly, scientists adopt a second-level discourse, and they usually try to include all the previously not seen world as pre-existent, which is now seen and explained, or problematized, from the perspective of the new epistemology. Because of these strategies to communicate, in some cases, scientists from different paradigms can share some terms that refer to the same phenomena but with different meanings. For instance, both Ptolemaic and Copernican paradigms describe the same celestial body, Earth's Moon, despite their epistemologies having different meanings about the Moon and that they would even point out to the same object in the sky. To Miguel, that brings a sense of continuity, which partly comes from more common-sense descriptions that lie within scientific theories. In this sense, Miguel's chapter deepens the discussion of Kuhn's notions of the world and the change in worldview presented by Hoyningen-Huene. Miguel works not only on the continuity, incommensurability, and the direct correlation between ontology and epistemology, as he offers a swift and accurate layered approach to meanings in scientific theories and communication, allowing us to understand and further investigate practical dimensions of a paradigm shift while dismissing discussions freed from paradigms. This chapter carries a fundamental contribution not only for Hoyningen-Huene's chapter and Kuhnian scholars but also for philosophers of science who are working with the problem of scientific communication across incommensurable paradigms.

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