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**Beyond Structure: New Frontiers of the Philosophy of Thomas Kuhn**

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**1. Introduction**

Thomas Kuhn (1922-1996) is widely considered as one of the most important philosophers of science of the twentieth century, while his *The Structure of Scientific Revolutions* (SSR) is regarded as one of the most influential works in the philosophy of science. In SSR, Kuhn famously introduced a cyclic historical model of the development of science, for which periods of normal science, made possible by the scientific community's consensus upon a paradigm, are occasionally disrupted by periods of extraordinary science (also called scientific revolutions), when new approaches are proposed and considered, and, eventually, a new paradigm replaces the old one. In that book, he developed the controversial and much-debated thesis of incommensurability, which states that there exists no neutral common ground for inter-paradigm comparison and evaluation. Alongside pioneers like Stephen Toulmin, Norwood Russell Hanson, Mary Hesse, and others, Kuhn contributed to the so-called historical turn in twentieth-century philosophy of science and to the establishment of the so-called History and Philosophy of Science (HPS). His influence goes beyond the philosophy of science and makes a huge impact not only on the history of science, but also on the sociology of science, and the social sciences more generally. In fact, Kuhn's work can also be regarded as driving the establishment of another field of study, namely Science and Technology Studies, or Science, Technology and Society (STS).

At the same time, however, the place of Kuhn within the philosophy of science remains ambiguous, if not problematic. On the one hand, as argued by Alexander Bird (2002),

despite the popularity of SSR, there is no proper ‘Kuhnian school of thought’ in HPS. In addition, it might be because of the extreme popularity of SSR that many of Kuhn’s later contributions have been either ignored or dismissed. The ‘mythological Kuhn’, the one that is celebrated as the great demystifying of science or ridiculed as a naïve thinker, keeps casting a long, thick shadow over the actual Kuhn. Some philosophers, in fact, are satisfied with a stereotypical image of Kuhn, based on some superficial reading of SSR, and reluctant to change it. As a result, many Kuhn scholars have to repeat old arguments to convince those sceptics.

Nevertheless, on the other hand, the interest towards Kuhn does not seem to fade away and the number of publications about his work does not seem to decrease. In a sense, the past two decades have seen the consolidation of a group of scholars devoted to the ‘Kuhn studies’. The times seem therefore mature not only to expand the Kuhnian scholarship but also to attempt to reflect on which directions it may take in the future.

The year 2022 is special for philosophers of science, especially Kuhn scholars, as it marks the 100th anniversary of the birth of Kuhn, the 60th anniversary of the publication of SSR, and the publication of Kuhn’s last (and unfinished) book, *The Plurality of Worlds* (Kuhn 2022). In the summer of the same year, we were kindly invited by prof. Vasso Kindi, Editor-in-Chief of *International Studies in the Philosophy of Science*, to edit a special issue on the philosophy of Thomas Kuhn. This opportunity, however, posed some challenges.

In the past few decades, several philosophers have published important works on Kuhn (see, among many others, Hoyningen-Huene 1993; Sankey 1994; Bird 2000; Marcum 2005; Andersen, Barker, and Chen 2006; Kuukkanen 2008; Wray 2011). While the wealth of the Kuhnian scholarship is an invaluable resource, it may also become a problem. One could not help but wonder: what else could be possibly said about the philosophy of Thomas Kuhn?

Since the beginning, we agreed on our main objective: preparing a volume that is not strictly ‘celebratory’ but that, rather, expands on Kuhn’s original insights and goes beyond the most discussed concepts and theses of SSR. In collecting the contributions to the present special issue, we realised that there are at least three different ways to go ‘beyond SSR’: (i) by scrutinising the development of Kuhn’s thought, from his pre- to his post-SSR writings; (ii) by contextualising Kuhn in the philosophical *milieu* of his time, thus interpreting his view as emerging from the intellectual exchanges he had with contemporary philosophers; (iii) by reinterpreting and developing some of his most

known ideas, in ways that perhaps Kuhn himself was not able to contemplate. The articles of this special issue go beyond SSR in one of these ways.

We also had another objective, namely to collect contributions of either early career researchers or members of some under-represented groups in philosophy, such as those from the non-English-speaking countries. The Kuhnian scholarship is alive and vibrant well across the globe, for instance, in Spain and in Latin America. It suffices to say that the first (and, so far, only) edition of the *Thalheimer Lectures* (Kuhn 2017), which Kuhn delivered at Johns Hopkins University in 1984, has been published in Spanish thanks to the interest and effort of Pablo Melogno, from Uruguay, and Hernán Miguel and Leandro Giri, from Argentina.<sup>1</sup> Unfortunately, the numerous and insightful contributions of the Kuhn scholars of the non-English-speaking world often remain invisible to mainstream global philosophy, for a number of reasons. English being the contemporary *lingua franca* in academia, articles written in other languages may remain inaccessible, if not invisible, to many scholars. Language, however, is only one of the various barriers. For example, articles written in what can be perceived as a non-canonical style, and relying on a non-canonical bibliography, may not easily pass the peer review process of leading international journals. A properly global philosophy, however, ought to do everything is possible to include valuable contributions from all around the world. With this special issue, we attempted to precisely do that.

## **2. Three Lines of New Enquiry**

In ‘Kuhn’s ‘The Nature of Conceptual Change’: The Search for a theory of meaning and the birth of taxonomies (1980-1994)’, Pablo Melogno provides a careful philological examination of the unpublished text of ‘The Natures of Conceptual Change’ (NDL), which Kuhn read in the Notre Dame Lectures in 1980. Melogno argues that these lectures are important to understand the development of Kuhn’s intellectual path. He shows that Lecture 1 can be viewed as an early version of ‘What are scientific revolutions?’ (Kuhn 1987) and of Chapter 2 of *Plurality of Worlds* (Kuhn 2022). Melogno also indicates that in Lecture 2 Kuhn first introduced the notion of taxonomy to analyse scientific change. In addition, he argues that Lecture 3 contains an extensive examination of the causal

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<sup>1</sup> Sadly, Pablo Melogno passed away after submitting his manuscript to this special issue.

theory of reference and sheds new light on the development of Kuhn's view about meaning.

Alongside its rigour, one of the most striking aspects of Melogno's contribution is its comparative approach. His article is not limited to the exegetical analysis of NDJ. Rather, it examines, on the one hand, how NDJ expands on some of the themes Kuhn began to explore in the 70s and, on the other hand, which of the views Kuhn developed in the 80s persisted in his last writings. What emerges, in short, is an account of Kuhn's evolving thought that puts into question the interpretation for which, late in his career, he underwent some sort of 'linguistic turn' (Bird 2002) that broke with his early approach. Such an account allows us to gain a more refined understanding of Kuhn's changing views on a number of philosophical issues and to distinguish different concepts, such as 'clusters' and 'taxonomies', that, as already argued by Politi (2020), often are treated as the same.

In 'The Normal and the Revolutionary: Kuhn's Conversations with Rorty', Juan V. Mayoral examines the forgotten, albeit important, exchanges between Richard Rorty and Kuhn in the 1970s and 1980s. As Kindi (forthcoming) points out, Kuhn's contemporary philosophers showed little interest in engaging with his work despite its enormous influence, especially on the philosophy of science. Rorty was one of the few philosophers who appreciated Kuhn's work and probably the only philosopher who seriously engaged with it in his own writings. Thus, Mayoral's examination of the unpublished letters between Kuhn and Rorty is particularly interesting. It not only sheds new light on Kuhn's intellectual development, but also carefully compares Kuhn's and Rorty's views on evidence, justification, and language.

In 'Specialisation by Value Divergence: The Role of Epistemic Values in the Branching of Scientific Disciplines', Matteo De Benedetto and Michele Luchetti discuss the phenomenon of specialisation in science. In some of his late writings, Kuhn characterized specialisation as a process of isolation driven by a form of semantic incommensurability, which poses a communication barrier between scientists from different specialties (Wray 2011). He illustrated his view by establishing an analogy between specialisation and biological speciation, a process in which a geographical barrier blocks cross-population interbreeding. The problem with the Kuhnian account is that many episodes of scientific specialisations do not primarily involve communication barriers, but rather differences in methodology (Politi 2018, 2019).

De Benedetto and Luchetti take stock of the issues with Kuhn's language-centred account of specialisation. At the same time, however, they show how his speciation analogy could be successfully extended to the methodology-centred account. Recent findings in evolutionary biology, in fact, demonstrate how speciation may actually occur in the absence of physical barriers, through the process of 'genetic divergence'. The analogue for scientific specialisation is what De Benedetto and Luchetti call 'value divergence' that, in their view, drives scientists to adopt of a new disciplinary matrix and establish their own 'niche' even in the absence of linguistic barriers that would impede successful cross-disciplinary communication. They illustrate this process by a historical episode, the emergence of molecular biology.

While the concepts of paradigm, incommensurability, and revolution have been widely analysed and discussed, for a long time Kuhn's concept of exemplar received little attention. Recently, few philosophers have recovered this concept and discussed it in relation to analogical reasoning, model-based epistemology, and scientific progress (Nickles 2003, 2012; Bird 2010; Shan 2019, 2020a, 2020b). In 'A Scientometric Approach to the Integrated History and Philosophy of Science: Entrenched Biomedical Standardisation and Citation-Exemplar', Karen Yan, Meng-Li Tsai, and Tsung-Ren Huang extend Kuhn's concept of exemplar in two ways. First, by applying it to the analysis in ongoing biomedical research, a field that, in order to be properly understood and analysed, require a reinterpretation, if not a transformation, of the traditional concepts developed by the general philosophy of science. Second, by introducing a special kind of exemplar, namely the 'citation exemplar'.

In their contribution, Yan, Tsai, and Huang accomplish several things. They employ a scientometric approach in order to open new avenues for a fruitful interaction, if not integration, between history and philosophy of science. Somehow continuing and complementing De Benedetto and Luchetti's arguments, they also show how the establishment of a citation exemplar and, therefore, of a new disciplinary matrix, is driven by methodological values.

It is very clear that this special issue is far from a systematic, or comprehensive attempt to explore the philosophy of Thomas Kuhn. That said, we contend that the three lines of new enquiry, illustrated by the articles in the collection, suggest some promising directions in the Kuhn studies.

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