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Interview: Paul Hoyningen-Huene¹



Paul Hoyningen-Huene was born in Pfronten/Allgäu, West Germany, in 1946. He studied Physics and Philosophy in Munich (1966-1971), Mathematical Physics in London (1971-72) and Theoretical Physics in Zurich (1975). The theoretical physicist and philosopher taught in Switzerland (1976-1998) and was a visiting scholar at the Massachusetts Institute of Technology with Thomas S. Kuhn (1984-85). Afterward, he published *Reconstructing Scientific Revolutions: Thomas S. Kuhn's Philosophy of Science* (1993), an original neo-Kantian interpretation of Thomas Kuhn's ideas. His numerous articles focus on Logic, the Philosophy of Biology, the Philosophy of Physical Sciences and the General Philosophy of Science. Throughout his career, Hoyningen-Huene also wrote about Paul Feyerabend's thesis

concerning the rationality of scientific development and theory comparison, Scientific Realism, Reductionism, Ethics of Science and Historiography of Science. The German thinker founded the Center for Philosophy and Ethics of Science at the Leibniz Universität Hannover (Germany) and intended to summarize his main ideas on the nature of scientific knowledge in the book *Systematicity: The Nature of Science* (2013).

Interviewed by

Luiz Henrique de Lacerda Abrahão² and Mauro L. Condé,³ in November 2022

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Luiz Henrique de Lacerda Abrahão (LHLA) and Mauro L. Condé: In *Reconstructing Scientific Revolutions: Thomas S. Kuhn's Philosophy of Science* (1993), you analyze Kuhn's thought from a neo-Kantian perspective. What were your primary philosophical readings before that? How was your path within Philosophy?

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Paul Hoyningen-Huene: Already in high school, I had contact with philosophy, exclusively of the continental brand. In my second year of studying physics at the University of Munich, I came in contact with Wolfgang Stegmüller and his assistants. At that time, analytic philosophy seemed wonderful to me, because suddenly I could understand philosophy and at the same time, it was comparatively easy. When you have enough mathematical skills to do a Ph.D. in theoretical physics (which I did), the sort of logic used in analytic philosophy at that time is a piece of cake. And due to Stegmüller's, I would say, manipulative influence I gained contempt for the continental tradition. In his (and the other logical empiricists') view, it was all nonsense, small wonder that I had difficulties understanding, for instance, Schelling's ideas on human freedom that I had read in a philosophical reading group in high school. However, things changed dramatically when I went to Zürich University in order to finish my Ph.D. in theoretical physics. At the Philosophical Seminar, there was a Hegel research group, and I had anticipated, given my training with Stegmüller, that this must be a bunch of idiots. However, much to my surprise, these were intelligent people, one could very meaningfully discuss with them, and they made me realize that I had not learned how to read difficult philosophical texts. Now I had to get to the bottom of that, and I founded a reading group in which we read, apart from Hegel, also Fichte and Kant. This finally freed me from the deep dogmatism of much of analytic philosophy where people, without having seriously read anything, just know that Heidegger, Hegel, Schelling, and the like are not worth anything. To keep balance, you find the same sort of dogmatism in parts of continental philosophy where people just know that Carnap or Quine are not really philosophers. In Zürich, for instance, being a realist implied for some that you hadn't really entered philosophy. To come back to the original question: When I started to work on *Reconstructing Scientific Revolutions* in 1982, I had some familiarity with Kant and could therefore discover traces of Kant in Kuhn that many analytic philosophers had overlooked (apart from Gerd Buchdahl, who had published on Kant).

LHLA and MLC: How the physicist who studied in Munich when he arrived in Switzerland, is already working with the philosophy of science?

Paul Hoyningen-Huene: After a year in London at the Imperial College doing a post-graduate course in theoretical physics and working on my dissertation (1971-72), I moved to Zürich, where I finished my Ph.D. in theoretical physics in 1975. I may note that all my work in physics concerned the asymmetry of time. I treated that problem in electrodynamics in my master thesis, and in non-equilibrium statistical mechanics in my Ph.D. thesis. So, in a way, I dealt with philosophical questions already during all my time in physics. As I had had some training in philosophy of science in Munich and had even a philosophy of science chapter in my diploma thesis in physics, one of the Zürich philosophy professors, Hermann Lübbe, hired me as an assistant in 1975. He needed someone with my competence at his chair.

LHLA and MLC: In your book *Systematicity* (2013), you seek to answer a classic question in the philosophy of science, "what is science?" in comparison to various positions, from Aristotle to contemporary thinkers. But the thesis developed in the book points to the fact that science distinguishes itself from other forms of knowledge by presenting greater systematicity at different levels, namely: descriptions, explanations, predictions, the defense of knowledge claims, critical discourse, epistemic connectedness, an ideal of completeness, knowledge generation, and the representation of knowledge. What path led you to formulate this position, and what reception has this proposal had in academic circles?

Paul Hoyningen-Huene: I had the idea of systematicity very early in my philosophical career, in 1979 or 1980, when I had been invited by the Geographical Institute of the University of Zürich to give a talk on the scientific character of geography. Geography at that time had many methodological/ideological controversies, and the Institute ran a seminar on these issues in the winter term 1980-81. There was one position on the foundations of geography developed by geographer Hans Carol that was usually heavily criticized. I thought that this position was underrated. In my paper, I had to say something general about science, and I stated, “science is systematic knowledge”. I added that there are three different meanings of “systematic” involved, the defense of knowledge claims, that scientific knowledge is structured, and that scientific knowledge aims at completeness (see Hoyningen-Huene 1982). After that talk and its publication, systematicity stayed dormant for more than a decade.

I started to work on systematicity again in 1993. At that time, I worked on many different projects at the same time, and systematicity was just one of them. The decisive turn came in 1998 when I became involved in the preparations of the World Conference of Science that was organized by ICSU (International Science Council) and UNESCO; the conference took place in 1999 in Budapest, Hungary. I was member of several ad hoc committees and was finally invited to give the first keynote speech in the first thematic session of the conference. The topic assigned to me was “the nature of science”. Thus, I presented the first sketch of systematicity theory in 1999 (see Hoyningen-Huene 2000).

The reception of systematicity theory has not been very intense, but very diverse. One can distinguish two main applications: retrospectively or contemporarily. Retrospective applications try to elucidate the science status of established or neglected disciplines or positions. Examples include clinical medicine, the medical anthropology of Fritz Hartman, and the music theory of Heinrich Schenker. Contemporary applications aim at understanding and/or improving the scientific status of a discipline or even transforming a discipline into a science. Examples include design science, comparative and international education, medicine in general, disaster science, conservation and restauration, organizational research, spatial planning, psychology, economics, music didactics, and archeology. Other applications concern the identification of pseudo-science or the general or educational “nature of science” discussion. I participate in some of those applications, partly in collaboration with the respective disciplinary specialists.

LHLA and MLC: Unfortunately, Brazil presents itself to the world with one of the worst indices when facing the Covid-19 Pandemic. Before the production of vaccines, the Brazilian government encouraged the population to “preventively” use drugs with no proven efficacy to treat the disease (The Presidency of Jair Bolsonaro. Inauguration on January 1, 2019, ended on December 31, 2022). A recent text by Berlivet and Löwy addressed the dispute (known as the “Hydroxychloroquine Controversies”) surrounding the issue and mentioned that Didier Raoult, the first scientist to defend such use of the medication, claims to have epistemological bases for this. See this excerpt from Berlivet and Löwy:

Those who criticized his clinical experiments, Raoult claimed in an interview aired on Radio Classique, on April 17, 2020, were simply not familiar with the teaching of Karl Popper, Thomas Kuhn, and Paul Feyerabend, who had shown that science is never static, and that—consequently—research methods are bound to be outdated sooner or later. This was precisely what had happened

to randomized clinical trials: Science had moved to a very different place, and the growing strings of unfair attacks leveled at his clinical trials of hydroxychloroquine merely revealed the depth of epistemological ignorance on the part of his detractors. (Berlivet and Löwy 2020, 7)

How do you think the appropriation that scientific denialism can make of the ideas of philosophers of science like Kuhn or Feyerabend?

Paul Hoyningen-Huene: It is inappropriate to use Kuhn and Feyerabend for such purposes; they do not support such denialism in any way. However, one should note that many of the provocative formulations of Feyerabend may be easily (mis-)read in such a way. In addition, one should critically note that also within the (social) sciences, Kuhn and Feyerabend have been used for various absolutely inappropriate purposes. One finds hundreds, if not thousands, of papers in which something is claimed about science with the reference, for instance, “see Kuhn 1962”, with no connection between the claim and Kuhn’s *The Structure of Scientific Revolutions*.

LHLA and MLC: Is it possible to confront the irrationalism of the anti-vaccination or the flat-earth movements without going back to the view of science as neutral, rational, objective knowledge guided by a single method?

Paul Hoyningen-Huene: If you want to claim that the anti-vaccination or the flat-earth movements are irrational, you *must* argue that science is much more neutral, rational, and objective than those movements, otherwise you do not have the basis to judge them as irrational. How to argue that science is so much superior? Reference to the (single) scientific method does clearly not work, because this single scientific method does not exist. But this situation was exactly the motive why I wrote *Systematicity!* What makes the difference between scientific knowledge and other kinds of knowledge, like everyday knowledge or professional knowledge? The higher degree of systematicity of the former, in nine dimensions.

LHLA and MLC: A collection of your writings about Kuhn’s and Feyerabend’s views on incommensurability was published in Portuguese about a decade ago (Hoyningen-Huene, 2014). Around the same time, the translation of your article “On Thomas Kuhn’s Philosophical significance” came out (Hoyningen-Huene, 2013). We can also find in this language your text “The incommensurability of scientific theories”, written with Eric Oberheim for *The Stanford Encyclopedia of Philosophy* (Hoyningen-Huene and Oberheim 2012). Tell us a bit about how you see the relation of your philosophical production with countries from the Global South.

Paul Hoyningen-Huene: When I began to come to South America more regularly, one of my ideas was to support philosophers of science to find better connections to the international philosophical scene. I know how difficult it is to start from a less advantageous point of departure to get into the international scene in philosophy: in the late 1970s, the philosophy of science in Germany and Switzerland was fairly provincial, at least in comparison to theoretical physics, where I was socialized. As I was privileged to get support by international scholars like Feyerabend and Kuhn which made my entering the international scene possible, I have been very open to support philosophers living in the periphery of international philosophy. So, I thought I might have some suggestions to South American philosophers of science. I was very shocked when I heard that the German structuralist school (Stegmüller and Sneed) had an immense influence in South America (probably due to Moulines) because, in the rest of the world, this movement was practically dead, including in

Germany. Apparently, this was not really seen in South America, so I tried to persuade my colleagues to discontinue this path because it is an impasse, alienating and isolating those philosophers from contemporary world philosophy.

LHLA and MLC: What role would the history and philosophy of science play nowadays? How do you envision the future of this field of knowledge?

Paul Hoyningen-Huene: I see history and philosophy of science mainly as a part of culture, less as an enterprise that demonstrates its usefulness by its productive function for the sciences and humanities themselves. It is like other parts of culture like a beautiful public garden, an opera performance, a heavy metal concert, or the science of cosmology. They should not be assessed by their – roughly speaking – contribution to the gross national product (GNP), but by their aesthetic or cognitive contributions to a meaningful life. In addition, there is an important function of history and philosophy of science that is, however, not really served well in the present. Our societies around the globe are deeply shaped by science and technology, and especially in the democratic countries the citizens who vote should be able to understand the fundamentals of this influence. There is only one source for a deeper understanding of the sciences and technology: not the sciences themselves, but a high-quality history and philosophy of science and technology. This is where I see a very important part of the mission of our field. For me, this is one of the very rewarding parts of my professional life: when a newspaper, a television station, an interdisciplinary panel, or any scientific or political institution asks me to contribute to the understanding of science and technology in general, or to specific problems arising in their fields. If we are willing in such situations to learn enough about the specifics of the respective disciplines and their problems, we can greatly contribute in a way that nobody else can.

LHLA and MLC: Thank you!

Paul Hoyningen-Huene: Thank you!

References

- Berlivet, Luc and Löwy, Ilana. 2020. Hydroxychloroquine Controversies: Clinical Trials, Epistemology, and the Democratization of Science. *Medical Anthropology Quarterly*, (0): 1–17. DOI: 10.1111/maq.12622
- Hoyningen-Huene, Paul, 1982. “Zur Konstitution des Gegenstandsbereichs der Geographie bei Hans Carol”. *Geographica Helvetica* 37 (1):23-34).
- Hoyningen-Huene, Paul, 2000. “The Nature of Science”. In: *World Conference on Science. Science for the Twenty-First Century: A New Commitment*, Ed. By Ana María Cetto. Paris: UNESCO, pp. 52-56.
- Hoyningen-Huene, Paul and Oberheim, Eric. 2012. A incomensurabilidade das Teorias Científicas. Trans. L. Nascimento and R. Severo. *Investigação Φ Filosófica*: vol. E2, artigo digital 1. <https://investigacao-filosofica.blogspot.com/2012/05/traducao-de-incomensurabilidade-das.html>
- Hoyningen-Huene, Paul. 2013. Sobre a Relevância Filosófica de Thomas Kuhn. In. Condé, Mauro L. and Penna-Forte, Marcelo (Ed.). 2013. *Thomas Kuhn: A Estrutura das Revoluções Científicas [50 anos]*. Belo Horizonte: Fino Traço.
- Hoyningen-Huene, Paul. 2014. *Kuhn, Feyerabend e Incomensurabilidade: Textos Selecionados*. Abrahão, Luiz Henrique da Lacerda. (Ed.). São Leopoldo: UNISINOS.