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Kuhn (1): Incommensurability, World Change and
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Epistemic diversity as methodological incommensurability

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Before I begin discussing the main topic of this presentation, I'd like to offer a subtle clarification. This talk isn't specifically Kuhnian or focused on Kuhnology, but rather Kuhnist in nature. By "Kuhnist," I don't mean to discuss my admiration for Kun Agüero, one of Argentina's greatest soccer players (though Messi, of course, shares that title). Allow me to elaborate on this distinction.

I draw inspiration from Umberto Eco's (1976, p. 1498) approach to the scholars of Charles S. Peirce's philosophy (albeit applied to the study of Thomas Kuhn). A Kuhnian line of research aims to expand upon Kuhn's ideas, while a Kuhniologist's pursuit involves tracing the historical evolution of Kuhn's thought. These two categories have been prominent in Kuhn studies. In contrast, a Kuhnist approach involves adopting some of Kuhn's ideas, concepts, and categories to adapt, and in some cases reformulate, these notions to address new or existing issues, constructing new theoretical frameworks. This talk and I fall into the Kuhnist category. My name is Carlos Garzón-Rodríguez, and I'd like to extend my apologies to both Kuhnians and Kuhniologists in the audience, as well as to the Kun Agüero fans who might have anticipated a different discussion. Let's begin.

As well-known to followers of Kuhnian and Kuhniologist thought, Thomas Kuhn introduced the concept of methodological incommensurability in "The Structure of Scientific Revolutions." However, he later moved away from this concept in subsequent works like "The Essential Tension." Nonetheless, I propose that the notion of methodological incommensurability (or what I'd like to term "axiological incommensurability") can still be expanded to encompass what some scholars refer to as "epistemic diversity."

The thesis of epistemic diversity posits the existence of distinct epistemic systems—complex frameworks of conditions that a group of knowers adopts for the generation, assessment, and validation of knowledge. These systems encompass epistemic norms, social constructs, and cognitive patterns (Dotson, 2014). While "epistemic system" may seem synonymous with "paradigm," as Kuhn initially defined it in "The Structure of Scientific Revolutions," the latter entails ontological and epistemological commitments leading to the potential for semantic incommensurability. Kuhn defined incommensurability between rival theories as an inability to translate between them due to a lack of shared language, resulting in translation failures and communication barriers.

I argue that the concept of an epistemic system, relevant to understanding epistemic diversity, doesn't necessarily entail such commitments. Rather, it signifies methodological incommensurability among distinct epistemic systems, particularly concerning epistemic values, relevance criteria, and theory evaluation. Howard Sankey explains,

> The idea of methodological incommensurability […] rests on the assumption that there are no fixed or independent standards to which appeal may be made in the comparison of alternative theories. Instead, standards of theory appraisal depend upon and vary with theory or paradigm. Competing theories may therefore be incommensurable in the methodological sense because there are no shared or neutral standards on the basis of which choice between such theories may be made. (2013, p. 34)

The term "methodological incommensurability" originates from Kuhn's concept that methodological standards wield authority over scientific inquiry. In "The Structure of

Scientific Revolutions," Kuhn portrays these standards as rules or criteria that steer the legitimate shaping of problems and solutions within a given paradigm. This implies that methodological standards primarily pertain to intra-paradigmatic contexts. However, these rules extend beyond mere methodological constraints; their scope surpasses the boundaries of strict scientific methodologies (such as abduction, deduction, induction) and goes beyond procedural guidelines for employing instruments or constructing experiments. They encompass not only the established laws within a paradigm but also criteria for epistemic evaluation, such as precision, fecundity, and scope. Due to this comprehensive coverage, I contend that the label "methodological incommensurability" might not aptly capture the essence, as it revolves more around specific epistemic values than mere methodology. This prompts consideration of alternative terms like "epistemic" or "axiological incommensurability," a discussion beyond the scope of this presentation. Regardless, Sankey posits that "methodological incommensurability arises from Kuhn's discussion in Structure as incommensurability due to the absence of common standards between paradigms." (2013, p. 35)

Nonetheless, Kuhn eventually abandoned the notion of methodological incommensurability in later writings, recognizing the influence of extraparadigmatic standards in paradigm or theory selection. However, he did not view these extraparadigmatic standards as algorithmic decision rules between rival theories or paradigms. For Kuhn, epistemic values serve as guiding principles for scientific exploration. If standards were universal algorithms, disagreements between theories would stem from incorrect or misapplied standards, rendering methodological incommensurability nonexistent. However, this perspective differs from Kuhn's post-"Structure" standpoint.

This prompts the question: Why persist with the term "methodological incommensurability?" While Kuhn acknowledges the role of extraparadigmatic epistemic standards as guiding principles rather than strict algorithms, he also concedes that scientists may interpret these values differently. This means that scientists can assign varying weights to shared epistemic values, preventing a common metric or hierarchy in evaluation standards. Nevertheless, I believe it's legitimate to consider the potential for differing weightings of valuation standards among epistemic systems. This, in turn, allows us to speak of methodological incommensurability between epistemic systems concerning

guiding principles (rather than algorithms). In essence, competing epistemic systems may differ in the way they interpret or weigh epistemic values, reflecting the perspectives of the research communities constituting those systems.

Assuming you accept this premise, we can outline three Kuhnian scenarios:

First Scenario:
Methodological incommensurability arises when epistemic systems (paradigms) vary in their endorsed problems and solutions based on epistemic values (cf. 1996. chap. 9).

We can appreciate this when Kuhn argues (quote):

> [Paradigm] are the source of the methods, problem-field, and standards of solution accepted by any mature scientific community at any given time'' (1996, p. 103)

> "In learning a paradigm, the scientist acquires theory, methods, and standards together, usually in an inextricable mixture. Therefore, when paradigms change, there are usually significant shifts in the criteria determining the legitimacy both of problems and of proposed solutions. (1996, p. 109)

Second Scenario:
Methodological incommensurability emerges when two epistemic systems share identical concepts in terms of epistemic values (e.g., precision, simplicity, elegance, predictive fecundity, explanatory fecundity, empirical adequacy) but assign different weights to these values when assessing theories.

This scenario indicates semantic commensurability combined with methodological (or axiological) incommensurability. For instance, as Ana Rosa Perez suggests, "one theory may offer more accurate predictions than another but be less consistent or have fewer applications (less scope)" (Perez, 2012, p. 132).

In Kuhn's words:

> “What was for Einstein an insupportable inconsistency in the old quantum theory, one that rendered the pursuit of normal science impossible, was for Bohr and others a difficulty that could be expected to work itself out by normal mean.” (Kuhn, Postscript SSR, 1996, p. 185).

> “Some scientists place more premium than others on originality and are correspondingly more willing to take risks; some scientists prefer comprehensive, unified theories to precise and detailed problem solutions of apparently narrower scope.” (Kuhn, 1977, p 325: “Objectivity, Value Judgement and Theory Choice”)

Third Scenario (following Kuhnian Ana Rosa Perez, 2012):

Methodological incommensurability arises when agreement exists on the weight assigned to epistemic values, but disagreement arises in applying that value to specific explanations due to differing conceptual interpretations of terms relating to epistemic values between rival theories or positions.
This scenario resembles methodological incommensurability through semantic incommensurability of terms referring to epistemic values.
As Ana Rosa Perez puts it:

> "For example, what it means for one theory to be more "simple" than another, and what aspects simplicity refers to, is something that is not precisely fixed by a community's commitment to this value." (Perez, 2012 p. 132.)

While these scenarios offer various implications, I'd like to highlight one point. All three scenarios eliminate the possibility of algorithmic procedures or decision rules among theories. Echoing Perez, these scenarios don't involve "mechanical rules in their application, unambiguous in their meaning, and capable of producing a single result whose application is neither uniform nor independent of local perspectives" (Perez, 2012, p. 131). Aligning with Kuhn's later perspective, theory or epistemic system selection hinges on arguments of plausibility and persuasiveness.

Thus far, I've discussed three possible methodological incommensurability scenarios derived from a Kuhnian (or perhaps Kuhnist) interpretation of Kuhn's work. Let's now delve into the Kuhnist aspect of this talk. I propose that these three scenarios don't encompass all potential forms of methodological incommensurability. In my view, at least two additional scenarios exist. The fourth scenario, "methodological incommensurability by insufficiency," and the fifth, "methodological incommensurability by inadequacy."

In the fourth scenario, methodological incommensurability arises when an epistemic system deems the epistemic values accepted by a rival system as insufficient. The fifth scenario involves methodological incommensurability when an epistemic system views the epistemic values embraced by a rival system as inadequate.

Methodological incommensurability by insufficiency occurs when an epistemic system encounters a crisis and changing the weighting of its accepted values fails to resolve the crisis. In such cases, new epistemic values compatible with the existing system must be introduced. These new values could alter the hierarchy of values or expand the system without completely overhauling the established hierarchy.

Methodological incommensurability by inadequacy comes in two forms: total or partial. Total inadequacy arises when an epistemic system faces a crisis and neither changing the weighting of values nor introducing new compatible values resolves the issue, necessitating a complete overhaul of the system's epistemic values. In contrast, partial inadequacy arises when a crisis demands a partial change in the epistemic values of the system. This entails discarding some values while retaining others, requiring a reevaluation of the weights of the remaining values. Unlike insufficiency, partial inadequacy involves adjusting the weighting based on the gains and losses from abandoning and incorporating values.

I acknowledge that these characterizations of methodological incommensurability remain abstract and require empirical, if not historical, substantiation. I'm currently exploring this further, beginning with the discussion on the theory of colors between Newton and Goethe. Unfortunately, I lack the space here to delve into that discussion. I've merely offered a glimpse into an ongoing work. My intent with these Kuhnist characterizations of methodological incommensurability is to outline a concept of epistemic

diversity that encompasses a range of epistemic systems competing in terms of inadequacy or insufficiency.

I appreciate your patience in listening to my presentation.

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