

KUHN, Thomas S. *The Last Writings of Thomas S. Kuhn: Incommensurability in Science*. Edited by Bojana Mladenović. Chicago: University of Chicago Press, 2022. xlviii + 302 pp. Cloth, \$27.50—When *The Structure of Scientific Revolutions* (hereon, “*Structure*”) was first published in 1962, Kuhn (1922–1996) warned readers that “space limits” forced him to present his views “in an extremely condensed and schematic form.” From the start, Kuhn saw *Structure* as an essay in need of much more careful elaboration: “This work remains an essay rather than the full-scale book my subject will ultimately demand” (Kuhn 1962, x). Kuhn endeavored to complete such a book late in his life but sadly died before completing the work. Nonetheless, we may gather a good sense of what this more careful study would have included by piecing together some important unpublished lecture notes and working drafts that Kuhn left behind.

In *The Last Writings of Thomas S. Kuhn: Incommensurability in Science*, editor Bojana Mladenović collects the most important three of these previously unpublished writings together, making them generally available for the first time. The bulk of the collection is taken up by the working draft (about two-thirds complete) of the book itself. This is preceded by two finished works that lend framing to that draft. In the essay “Scientific Knowledge as Historical Product” (1986), Kuhn contrasts his developmental approach to the epistemology and history of science with the traditional, foundationalist approach it seeks to displace. “The Presence of Past Science” (Shearman Lectures, 1987) summarizes Kuhn’s mature views on the history and philosophy of scientific development, canvassing much of the same terrain as the book was to cover in more detail. The collection also includes an introduction and abstracts by Mladenović, in which she provides context for the three writings, relates their themes, and fills in the blanks regarding the likely contents of unfinished chapters.

Like *Structure*, these works argue against the alethic stance that science progresses by accumulating progressively more truths. Also as in *Structure*, Kuhn denies that this amounts to rejecting science’s cognitive authority or a legitimate sense in which science may be said to progress. Indeed, Kuhn claims that it is by understanding the incoherence of an alethic account that we gain a more accurate understanding of science’s real cognitive authority and progress. It is Kuhn’s more elaborate explanation and defense of this claim that distinguishes these last writings.

As suggested by this collection’s subtitle, the central concept in Kuhn’s developed account is *incommensurability*. Kuhn goes beyond *Structure*’s more cursory remarks on incommensurability of paradigms, according to which different meanings assigned to terms lead to a breakdown of communication between normal-scientific traditions. On Kuhn’s developed account, semantic shifts still play a part in understanding scientific development, but the locus of these is specifically taxonomic or “kind terms.” “Holistic alterations of kind terms” (or “lexical redesigns”) indicate more fundamental, prelinguistic changes in ontology. Science develops by a sequence of such reconceptualizations of the world. As fundamental ontology changes, so does the taxonomic lexicon we use to communicate about the world. Scientific traditions are incommensurable when they cluster taxonomic kinds in fundamentally incompatible ways. Languages are incommensurable when claims expressible using one language’s lexicon are *in-principle* inexpressible (“untranslatable”) using the lexicon of the other.

One of the most striking ways in which Kuhn carefully steps back from well-known claims in *Structure* is in his reluctance to speak of scientific changes as revolutionary paradigm shifts. Indeed, Kuhn abandons talk of “paradigms” and “revolutions” altogether in his developed account. Kuhn’s earlier notion of a *paradigm* was repeatedly criticized for being polysemic, his use of the term correspondingly ambiguous (see Kuhn, “Second thoughts on paradigms” in *The Essential Tension*, 1977). Accepting these criticisms, Kuhn sets his most famous concept aside and replaces it with the more precise notion of a *structured kind set*—a tradition’s lexicon of kind terms, corresponding to its ontological “clustering” of the world. Ontological reconceptualizations and lexical redesigns then take the place of revolutionary paradigm shifts.

Far from being revolutionary from the actor’s perspective, scientific development occurs with smaller, isolable changes in local regions of the community’s structured kind sets. Kuhn views *Structure*’s revolutionary take on the development of science as misguided, involving a confusion between the forward-moving, actor’s perspective and the backward-looking, historian’s perspective. It is only insofar as past traditions are ontologically and lexically so distant from our present tradition that accurate historical understanding of their claims requires a revolutionary, gestalt shift in perspective. Kuhn emphasizes that it is a crucial task of the historian to do the ethnographic research necessary to understand the doctrines and claims of older traditions.

It is with these ideas in mind that Kuhn claims we uncover science's cognitive authority. Truth-evaluations fail to apply across incommensurable traditions. To look, for example, back on Aristotle's claim that voids cannot exist and bluntly proclaim it false is to fail to grasp Aristotle's claim properly. Aristotle's claim is not expressible in the terms of our own lexicon, as it involves a kind term properly understood only within a network of other such terms and differentiae, themselves reflecting an ontology incompatible with our own. Understanding such claims properly involves the learning of an unfamiliar language and ontology. Such an understanding of incommensurability and science's development leaves no room for the view that science progresses via a steady accumulation of truths. Science develops rather by way of reconceptualizations and lexical redesigns.

The cognitive authority of science, as seen in its progress and development, thus does not consist of a special ability to discover new truths so much as a unique role for engineering "more effective" ways of thinking about and conceptualizing the world—"better means to a given end." While we cannot make truth-value assessments and comparisons across incommensurable traditions, we can make other evaluative comparisons. Specifically, upon gaining sound, ethnographic understandings of past, foreign traditions, we may meaningfully ask how well their ontologies and lexicons served human, social goals. Given the meaningfulness of such comparisons and evaluations, Kuhn denies that this decidedly pragmatist take on scientific progress implies relativism about its objectivity. And he insists that "the truth-value game" remains essential but only within lexicons (and commensurable counterparts) where claims to truth retain their significance.

My own "space limits" have made it necessary to touch on just a few of the many philosophically rich ideas in *The Last Writings of Thomas S. Kuhn*. Especially with Mladenović's helpful commentary as guide, the works contained in this collection succeed in presenting the "extension in both scope and depth" (Kuhn 1962, xi) demanded by *Structure*. Kuhn's more careful and thorough explorations in these final works lead him to important nuances and modifications of his views, confirming the publisher's claim that this is indeed a "must-read follow up" to *Structure*.—Jonah N. Schupbach, *University of Utah*