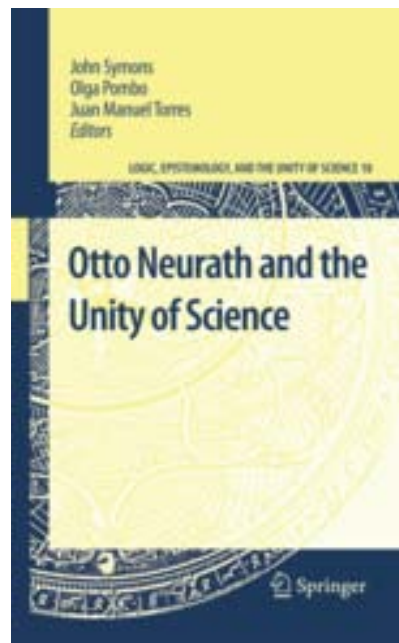


Otto Neurath and the Unity of Science,

John Symons; Olga Pombo; Juan Manuel Torres (Eds.) (2011)



Series: [Logic, Epistemology, and the Unity of Science](#),

Vol. 18, VIII, 264 p.

ISBN 978-94-007-0142-7

In the Vienna Circle's manifesto (1929), Neurath ushered in and extolled a scientific turn in philosophy he labelled the scientific world-conception. Beyond the intellectual, he added, '*the scientific world-conception serves life and life receives it*' (Carnap, Hahn and Neurath 1929/1973, 306, orig. ital.). Here the project of logical empiricism gets its Enlightenment dimension, with the old reforming, constructive and universalist ambitions, but with new and revised ideas and ideals of society, science and rationality (Uebel 1998). Neurath continued to maintain the view that, as predictive tools, all sciences are 'aids to creative life' (Neurath 1931/1973, 319), alongside his view of the complexity of life, e.g., the earthly plane of the empirical world that includes the human, private and social. It cannot surprise, then, that in this new transformative joint philosophical-social project he would urge that 'the goal ahead is *unified science*' (Carnap, Hahn and Neurath 1929/1973, 306, orig. ital.). Like science itself, unified science straddles any divide between theory and action, the world of physical objects and the world of social objectives, past and future, empirical reality and human realization. It is unity of science at the point of action (Cartwright et al 1991, Cartwright et al. 1996 and Cat et al. 1996, O'Neill 2003).

Neurath illustrated the fact that the holistic argument for unification from the complexity of life generalizes Duhem's holistic argument about prediction and testing with the example of a forest fire:

Certainly, different kinds of laws can be distinguished from each other: for example, chemical, biological or sociological laws; however, it can *not be said of a prediction of a concrete individual process that it depend on one definite kind of law only*. For example, whether a forest will burn down at a certain location on earth depends as much on the weather as on whether human intervention takes place or not. This intervention, however, can only be predicted if one knows the laws of human behaviour. *That is, under certain circumstances, it must be possible to connect all kinds of laws with each other*. Therefore all laws, whether chemical, climatological or sociological, must be conceived as parts of a system, namely of unified science. (Neurath 1931/1983, 59, orig. itals.)

Laws of one kind may apply nicely to systems, phenomena or events purely of one kind, but such things are not concrete individuals in the real world. We may think of them as useful models or abstractions; reality behaves more like them only in controlled settings, the outcome of engineering, of planned design and construction, that is, the materialized form of abstraction. Idealizations, like ideal types, dangerously assume real separability between properties (Neurath 1941/1983, 225). In this sense, necessary experimentation for the purpose of prediction and testing that control is key to observation and in turn observation controls theory. In general, from that point of view, exactness and scope requires the possibility of composing models, laws and sciences of different kinds. Science at the point of action is unified science.

Neurath's philosophical contributions to logical empiricism appear now more distinctly motivated and more clearly understood: It is to serve the valuable goal of unified science, within science, philosophy and society, that Neurath conceived the stress on two further epistemological aims, namely, the role of collective efforts and finally, by implication, intersubjectivity (*ibid.*). The argument from holism would in turn meet the requirements of the demarcation against metaphysics, since metaphysical terms and metaphysicians divide, whereas scientific terms and scientists unite. The boat images further illustrated Neurath's aim of unity, within its proper epistemological framework: as a historically situated, non-foundational and collective enterprise. Science is a model and a resource for society and society is in turn a model and resource for science.

In the context and the phase of the rise of logical empiricism, Neurath's arguments took a general intellectual formulation and application, with references to precedents from intellectual history such as Leibniz and L'Encyclopédie (see SCIENTIFIC UNITY), and an institutional expression in the form of the planned unity of science movement, with its different institutions (Institute of Unified Science), events (International Congresses for the Unity of Science) and publications (International Encyclopedia of Unified Science) (Neurath 1937a/1983, Reisch 1994).

What are the model and mode of unity? What is the alternative they oppose? Despite popular approaches suggesting a hierarchical, or pyramidal, structure, which he associated with, among others, Comte, Ostwald and then Carnap (in the *Aufbau* and in his subsequent doctrine of physicalism), he opposed the ideal of 'pyramidism' and a 'system-model': an axiomatic, precisely and deductively closed and complete hierarchy of conceptually pure, distinct and fixed sciences. He also dismissed the idea of ONE method and ONE ideal language, for instance, mathematics or physics, followed by all the other sciences (Neurath 1936/1983 and Neurath 1937b/1983). Since 1910 Neurath's

approach to the issue was thoroughly antireductionist: cognitively, logically and pragmatically. Each science would fail to deal with the connections to others (Neurath 1910/2004). In particular, electron talk, Neurath insisted, is irrelevant to understanding and predicting the complex behavior of social groups.

The imperative of unity required that ‘it must be possible to connect each law with every other law under certain circumstances, in order to obtain new formulations’ (Neurath 1931/1983, 59). Instead of the system-model, he proposed a weaker, dynamical and local model of integration he called the ‘encyclopedia-model’: a more or less coherent totality of scientific statements at a given time, in flux, incomplete, with linguistic imprecisions and logical indeterminacy and gaps, unified linguistically by the universal jargon of physicalist language (not Carnap’s physicalism)—mixture of ‘cluster’ and ‘formula’-, the cooperative and empiricist spirit, and the acceptance of a number of methods or techniques (probability, statistics, etc), all providing ‘cross-connections’ (Neurath 1936/1983, 145-158 and 213–229). The evolution of the sciences could be said to proceed from encyclopedias to encyclopedias (a model weaker and more pluralistic than those based on Kuhn’s paradigms and Foucault’s *epistèmes*, but closer to Carnap’s later notion of linguistic frameworks; from this perspective, it seems less paradoxical that Carnap published Kuhn’s *The Structure of Scientific Revolutions* in the last volume of the International Encyclopedia of Unified Science). Neurath spoke of a ‘mosaic’, an ‘aggregation’, an interdisciplinary ‘orchestration’ of the sciences as ‘systematisation from below’ rather than a ‘system from above’, especially, after World War II, carefully excluding any form of ‘authoritative integration’, even favoring ‘cooperation in fruitful discussion’ to a socialist, Nazi or totalitarian-sounding talk of a ‘programme’ (Neurath 1936/1983 and Neurath 1946/1983, 230–242). Correspondingly, his later political writings emphasized internationalism, democracy and plurality of institutional loyalties.

The disciplinary dismissal of philosophy, especially its talk of transcendental entities that make up metaphysical doctrines, hardly recommend calling Neurath’s views a philosophy. At the same time, his emphasis on science was coached in a framework that connected thought and action. One may speak of a program. Neurath’s program was intended to be and was pluralistic and ‘aggregational’ through and through, semantically, theoretically, disciplinarily, educationally, socially, politically.

I really recommend this book for you it is an amazing reading!

- **The book includes previously unpublished material from Neurath**
- **Offers the only current reevaluation of Neurath’s view of the unity of science**
- **Includes contributions from international experts**

This volume critically reexamines Otto Neurath’s conception of the unity of science. Some of the leading scholars of Neurath’s work, along with many prominent philosophers of science critically examine his place in the history of philosophy of science and evaluate the relevance of his work for contemporary debates concerning the unity of science.

Research Keywords » Logical empiricism – Otto Neurath – Philosophy of science – Unity of science

Related subjects » [Epistemology & Philosophy of Science](#) – [History of Science](#) – [Philosophical Traditions](#)

Table of contents

Preface; *John Symons*.- Introduction; *Olga Pombo and Juan Torres*.- Part 1 – Neurath.- Unity of Science and Logical Empiricism; *Otto Neurath*.- The Neurath-Horkeimer-Controversy Reconsidered. Otto Neurath's *Erwiderung* to Max Horkeimer's Attack against the Vienna Circle; *Karlheinz Barck*.- Otto Neurath's Epistemology and Its Paradoxes; *Jan Sebestik*.- Neurath and the Encyclopaedic Project of the Unity of Science; *Olga Pombo*.- Principles and Practices of Neurath's Language; *Ahti-Veikko Pietarinen*.- Conceptions of Reality – Schlick, Carnap, Neurath; *Thomas Bonk*.- Keeping Track of Neurath's Bill: Abstract Concepts, Stock Models and the Unity of Classical Physics; *Sheldon Steed, Gabriele Contessa and Nancy Cartwright*.- G. Itelson – A Socratic Philosopher; *Gideon Freudenthal and Tatiana Karachentsev*.- Part 2 – Unity.- Unity without Myths; *Daniel Andler*.- Two Unification Strategies: Analysis or Reduction, and Synthesis or Integration; *Mario Bunge*.- A Comprehensible World; *Robert L. Causey*.- Unified Science? Does Scientific Progress Necessarily Lead to a Unified Science?; *C. Ulises Moulines*.- The Achilles' Heel of the Program for the Unity of Science; *Juan Manuel Torres*.- Scientific Reasonableness and the Pragmatic Approach to the Unity of Science; *Andrés Rivadulla*.- Naturalism and the Unity of Science; *Jan Wolenski*.- Searching the Unity of Science: From Classical Logic to Abductive Logical Systems; *Angel Nepomuceno, Fernando Soler, Atocha Aliseda*.- Direct Abduction through Dual Resolution; *Fernando Soler, Angel Nepomuceno*.- Index.

Book Review: July 7, 2013 by [Juliodnd](#)

<http://bookinspections.wordpress.com/2013/07/07/book-review-otto-neurath-and-the-unity-of-science/>