PRESENTATION

The concept of incommensurability was introduced into the philosophy of science in 1962 by Paul K. Feyerabend and Thomas S. Kuhn. In that year Feyerabend's paper "Explanation, Reduction and Empiricism"[1] and Kuhn's book *The Structure of Scientific Revolutions*[2] were published. Though Feyerabend's and Kuhn's conceptions of incommensurability share some features, they are not identical, and both have undergone evolution; in the case of Kuhn particularly this evolution is undeniable. These circumstances account for some misunderstandings and disagreements in the debate on incommensurability. This debate, placed within the broader framework of the discussion on theory change in science, concerns the relationships between different scientific theories on the same domain, which are usually referred to, rather indistinctly, as alternative, competing or successive scientific theories. The incommensurability thesis asserts precisely that the relation between these theories is that of incommensurability. Nevertheless, since there is more than one conception of incommensurability, the examination and assessment of this thesis presupposes the clarification of what incommensurability is (or what components it includes) as well as of its assumptions and implications. This task calls for the conceptions of the authors who first proposed the incommensurability thesis -namely, Feyerabend and Kuhn- to be taken into account.

On the basis of Feyerabend's and Kuhn's conceptions as well as other positions on the debate on incommensurability one can distinguish three main components in this concept, namely semantic, methodological and ontological ones. The semantic component is clearly present in Kuhn's last conception of incommensurability, according to which the incommensurability of theories consists in the untranslatability between the languages in which these theories are formulated. The methodological aspect of incommensurability asserts that there is no neutral basis for the comparison of competing theories so that the choice among them cannot be rationally justified. According to the ontological component, such theories have different and even incompatible ontological commitments. These three

aspects are, of course, not unrelated, but opinions differ on their relative importance as constituents of the concept of incommensurability. However, in the actual debate on incommensurability, considerably influenced by Kuhn's last conception on this topic, there is a certain agreement on the priority of incommensurability as a semantic thesis.

One of the most important contributors to the actual debate on incommensurability is Howard Sankey. His 1994 book[3] constitutes the best defence and development of the position on the incommensurability thesis according to which meaning variance and translation failure are compatible with shared reference and hence with comparability of theories. In his paper in this volume Sankey presents his approach to incommensurability and defends the realist commitment of this approach, i.e., the compatibility of incommensurability with realism, against Kuhn's claims on the implications of his taxonomic version of incommensurability and against the objections formulated in 1996 by P. Hoyningen-Huene, E. Oberheim and H. Andersen in a critical study of Sankey 1994.[4] Howard Sankey made his manuscript available to P. Hoyningen-Huene and E. Oberheim so that they could take into account Sankey's reply to their critique.

In their paper in this volume E. Oberheim and P. Hoyningen-Huene argue that, according to Feyerabend's 1962 conception of incommensurability, incommensurability is not a semantic issue and involves a non-realist interpretation of science. Assuming this interpretation of science, at least for the sake of the argument, the authors object to using causal theories of reference, which presuppose a realist position, to solve the debate on incommensurability. Lastly, they introduce and discuss the meta-incommensurability hypothesis. While incommensurability concerns alternative scientific theories, meta-incommensurability would be a relation between alternative philosophical interpretations of science, such as realist and non-realist.

Brigitte Falkenburg's paper also deals with the relationships between incommensurability and realism, and especially with the question of whether the incommensurability of theories is compatible with a realist conception of physical magnitudes. To this end she concentrates on philosophical aspects of measurement theory. After examining some philosophical views on physical quantities, she makes the ontological implications of the Archimedean axiom of measurement theory explicit and argues that this axiom commits us to a modest version of realism.

Lastly, this editor's paper critically examines some aspects of Putnam's reference theory about natural kind terms and argues that this theory does not refute a referential version of the incommensurability thesis.

As the foregoing remarks indicate, the papers of this monographic section on incommensurability do chiefly turn on the relationships of incommensurability with realism and reference. These are precisely the topics that are in the middle of the actual debate on incommensurability.

Notes

[1] P.K. Feyerabend: 1962, 'Explanation, Reduction and Empiricism', in H. Feigl and G. Maxwell (eds.): *Scientific Explanation, Space, and Time* (*Minnesota Studies in the Philosophy of Science*, vol. 3), Minneapolis, University of Minnesota Press, pp. 28-97.

[2] T.S. Kuhn: 1962, *The Structure of Scientific Revolutions*, Chicago, The University of Chicago Press; 2nd. ed. 1970.

[3] H. Sankey: 1994, *The Incommensurability Thesis*, Aldershot, Avebury.

[4] P. Hoyningen-Huene, E. Oberheim and H. Andersen: 1996, 'On Incommensurability', *Studies in History and Philosophy of Science* 21, 131-141. Many remarks in this paper rest on theses formulated by Hoyningen-Huene in his book *Reconstructing Scientific Revolutions. Thomas S. Kuhn's Philosophy of Science*, Chicago, The University of Chicago Press, 1993.

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