Microreductionism and the Unity of Science

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Abstract

Based upon the presupposition of "hierarchical ontology," this essay first examined two versions of microreductionism proposed by Oppenheim and Putnam and Garfinkel respectively. It then drew a distinction between "entity reduction" and "property reduction" and established six types of scientific explanation. Furthermore, both reductionists and antireductionists are committed to a quite doubtful deductivist perspective and to the failed conceptual connection of reductionism with the thesis of the unity of science. Hence, I proposed a new conception of a unitary science — what I call "universal science." I accepted Vollmer's idea that the world hierarchy has the property of evolutionary unity and hence I proposed the possibility of establishing a universal science to grasp this property. Such a universal science would then consist of three types of explanatory laws: the constellational laws which explain how upper-level entities are structured from lower-level entities; the fifth-type laws that explain how monadic properties of entities at a certain level are resulted from the interactions among subordinate entities; and causal / functional laws that explain how same-level entities causally interact.