Structural Correspondence, Indirect Reference, and Partial Truth: Phlogiston Theory and Newtonian Mechanics

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Abstract

This paper elaborates on the following correspondence theorem (which has been defended and formally proved elsewhere): if theory T has been empirically successful in a domain of applications A, but was superseded later on by a different theory T* which was likewise successful in A, then under natural conditions T contains theoretical expressions f which were responsible for T's success and correspond (in A) to certain theoretical expressions f* of T*. I illustrate this theorem at hand of the phlogiston vs. oxygen theories of combustion, and the classical vs. relativistic theories of mass. The ontological consequences of the theorem are worked out in terms of the indirect reference and partial truth. The final section explains how the correspondence theorem may justify a weak version of scientific realism without presupposing the no-miracles argument.

Keywords:	correspondence principle, reference, theoretical terms, scientific realism, structural realism, empirical success, phlogiston, oxygen, phlogiston vs. oxygen theories of combustion, classical vs. relativistic theories of mass.
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