

# Cambridge Elements

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## STRUCTURE AND EQUIVALENCE

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## Structure and Equivalence

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**Abstract:** This Element explores what it means for two theories in physics to be equivalent (or inequivalent) and what lessons can be drawn about their structure as a result. It does so through a twofold approach. On the one hand, it provides a synoptic overview of the logical tools that have been employed in recent philosophy of physics to explore these topics: definition, translation, Ramsey sentences, and category theory. On the other, it provides a detailed case study of how these ideas may be applied to understand the dynamical and spatiotemporal structure of Newtonian mechanics – in particular, in light of the symmetries of Newtonian theory. In so doing, it brings together a great deal of exciting recent work in the literature and is sure to be a valuable companion for all those interested in these topics.

**Keywords:** structure, equivalence, physics, logic, symmetries

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