Contextual Emergence in the Description of Properties

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Abstract

The role of contingent contexts in formulating relations between properties of systems at different descriptive levels is addressed. Based on the distinction between necessary and sufficient conditions for interlevel relations, a comprehensive classification of such relations is proposed, providing a transparent conceptual framework for discussing particular versions of reduction, emergence, and supervenience. One of these versions, contextual emergence, is demonstrated using two physical examples: molecular structure and chirality, and thermal equilibrium and temperature. The concept of stability is emphasized as a basic guiding principle of contextual property emergence.

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