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Sommario/riassunto

Time asymmetric phenomena are successfully predicted by statistical mechanics. Yet the foundations of this theory are surprisingly shaky. Its explanation for the ease of mixing milk with coffee is incomplete, and even implies that un-mixing them should be just as easy. In this book the authors develop a new conceptual foundation for statistical mechanics that addresses this difficulty. Explaining the notions of macrostates, probability, measurement, memory, and the arrow of time

in statistical mechanics, they reach the startling conclusion that Maxwell's Demon, the famous perpetuum mobile, is consistent with the fundamental physical laws. Mathematical treatments are avoided where possible, and instead the authors use novel diagrams to illustrate the text. This is a fascinating book for graduate students and researchers interested in the foundations and philosophy of physics.