1.	Record Nr.	UNINA9910370256403321
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	Titolo	Laws and Explanations; Theories and Modal Possibilities / / by Arnold Koslow
	Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2019
	ISBN	3-030-18846-9
	Edizione	[1st ed. 2019.]
	Descrizione fisica	1 online resource (186 pages)
	Collana	Synthese Library, Studies in Epistemology, Logic, Methodology, and Philosophy of Science, , 0166-6991 ; ; 410
	Disciplina	501
	Soggetti	Philosophy and science Physics Mathematical logic Philosophy of Science History and Philosophical Foundations of Physics Mathematical Logic and Foundations
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Nota di bibliografia	Includes bibliographical references and index.
	Nota di contenuto	Part I: Appreciating and Burnishing the Past -- Chapter 1. Introduction -- Chapter 2. C.Hempel: In the beginning ... -- Chapter 3. Laws and their corresponding counterfactuals; an untenable connection -- Chapter 4. F. Dretske's Total rejection of the Hempel model. Universals and Magnitudes to the rescue -- Chapter 5. Prelude to D.Armstrong: A mathematical movement which inspired Ramsey, and left Russell and Armstrong unmoved -- Chapter 6. D.Armstrong's account of laws. Identity lost, regained, and lost again -- Part II: The Relatvization of Laws to Theoretical scenarios, Schematic Theories and Physical and Nomic modals -- Chapter 7. Laws and Accidental Generalizations. A new, minimal theory of the difference -- Chapter 8. E. Nagel and R. B. Braithwaite. Two neglected radical and radically different theories: one inspired by Hilbert, the other by Ramsey -- Chapter 9. D. Hilbert's Architectural structuralism, and Schematic Theories -- Chapter 10. Theories, their magnitude spaces, and the physical possibilities they provide -- Chapter 11. Theories, laws, and nomic possibilities (modals) -- Chapter 12. Schematic theories, subsumtion of laws, and non-

accidental generalizations.

Sommario/riassunto

The book has two parts: In the first, after a review of some seminal classical accounts of laws and explanations, a new account is proposed for distinguishing between laws and accidental generalizations (LAG). Among the new consequences of this proposal it is proved that any explanation of a contingent generalization shows that the generalization is not accidental. The second part involves physical theories, their modality, and their explanatory power. In particular, it is shown that (1) Each theory has a theoretical implication structure associated with it, such that there are new physical modal operators on these structures and also special modal entities that are in these structures. A special subset of the physical modals, the nomic modals are associated with the laws of theories. (2) The familiar idea that theories always explain laws by deduction of them has to be seriously modified in light of the fact that there are a host of physical theories (including for example, Newtonian Classical mechanics, Hamiltonian, and Lagrangian theory, and probability theory) that we believe are schematic (they do not have any truth value). Nevertheless, we think that there is a kind of non-deductive explanation and generality that they achieve by subsumtion under a schema.