

1. Record Nr.	UNINA9910300614203321
Autore	Fenstad Jens Erik
Titolo	Structures and Algorithms : Mathematics and the Nature of Knowledge // by Jens Erik Fenstad
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2018
ISBN	3-319-72974-8
Edizione	[1st ed. 2018.]
Descrizione fisica	1 online resource (138 pages)
Collana	Logic, Argumentation & Reasoning, Interdisciplinary Perspectives from the Humanities and Social Sciences, , 2214-9139 ; ; 15
Disciplina	100
Soggetti	Knowledge, Theory of Logic, Symbolic and mathematical Machine theory Mathematics - Philosophy Language and languages - Philosophy Epistemology Mathematical Logic and Foundations Formal Languages and Automata Theory Philosophy of Mathematics Philosophy of Language
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	1.Preface -- 2.Introduction -- 3.Mathematics and the nature of knowledge – an introductory essay -- 4.The miraculous left hand – Leonardo and the nature of knowledge -- 5.Relationships between the social and natural sciences -- 6.Changes in the knowledge system and their implications for the formative stage of scholars -- 7.Remarks on the science and technology of language -- 8.How mathematics is rooted in life -- 9.Tarski, truth and natural languages -- 10.Formal semantics, geometry and mind -- 11.Discours, Interaction and Communication -- 12.On what there is – infinitesimals and the nature of numbers.
Sommario/riassunto	This book explains exactly what human knowledge is. The key concepts in this book are structures and algorithms, i.e., what the readers “see”

and how they make use of what they see. Thus in comparison with some other books on the philosophy (or methodology) of science, which employ a syntactic approach, the author's approach is model theoretic or structural. Properly understood, it extends the current art and science of mathematical modeling to all fields of knowledge. The link between structure and algorithms is mathematics. But viewing "mathematics" as such a link is not exactly what readers most likely learned in school; thus, the task of this book is to explain what "mathematics" should actually mean. Chapter 1, an introductory essay, presents a general analysis of structures, algorithms and how they are to be linked. Several examples from the natural and social sciences, and from the history of knowledge, are provided in Chapters 2–6. In turn, Chapters 7 and 8 extend the analysis to include language and the mind. Structures are what the readers see. And, as abstract cultural objects, they can almost always be seen in many different ways. But certain structures, such as natural numbers and the basic theory of grammar, seem to have an absolute character. Any theory of knowledge grounded in human culture must explain how this is possible. The author's analysis of this cultural invariance, combining insights from evolutionary theory and neuroscience, is presented in the book's closing chapter. The book will be of interest to researchers, students and those outside academia who seek a deeper understanding of knowledge in our present-day society.
