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Nota di bibliografia	Includes bibliographical references.
Nota di contenuto	Preface -- Introduction -- Re-codings as the first pattern of change in mathematics -- Historical description of re-codings -- Philosophical reflections on re-codings -- Relativizations as the second pattern of change in mathematics -- A Historical description of relativizations in synthetic geometry -- Historical description of relativizations in algebra -- Philosophical reflections on relativizations -- Re-formulations as a third pattern of change in mathematics -- Re-formulations and concept-formation -- Re-formulations and problem-solving -- Re-formulations and theory-building -- Mathematics and change -- The question of revolutions in mathematics (Kuhn) -- The question of mathematical research programs (Lakatos) -- The question of stages of cognitive development (Piaget) -- Notes -- Bibliography.
Sommario/riassunto	This book offers a reconstruction of linguistic innovations in the history of mathematics; innovations which changed the ways in which mathematics was done, understood and philosophically interpreted. It argues that there are at least three ways in which the language of mathematics has been changed throughout its history, thus determining the lines of development that mathematics has followed. One of these patterns of change, called a re-coding, generates two developmental lines. The first of them connecting arithmetic, algebra,

differential and integral calculus and predicate calculus led to a gradual increase of the power of our calculating tools, turning difficult problems of the past into easy exercises. The second developmental line connecting synthetic geometry, analytic geometry, fractal geometry, and set theory led to a sophistication of the ways we construct geometrical objects, altering our perception of form and increasing our sensitivity to complex visual patterns. Another important pattern of change, called relativization, is illustrated by the development of synthetic geometry, connecting Euclid's geometry, projective geometry, non-Euclidean geometry, and Klein's Erlanger Programm up to Hilbert's Grundlagen der Geometrie. In this development the notions of space and geometric object underwent deep and radical changes culminating in the liberation of objects from the supremacy of space and so bringing to existence geometric objects which space would never tolerate. The book offers tools of analysis by means of which scholars and students of the history and philosophy of mathematics can attain better understanding of the various changes, which the subject of their study underwent in the course of history. The book brings also important insights for mathematics education connecting growth of language with the development of mathematical thought.