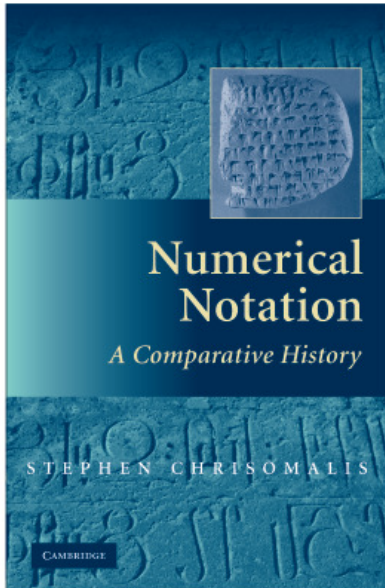


Numerical Notation

A Comparative History

Stephen Chrisomalis



This book is a cross-cultural reference volume of all attested numerical notation systems (graphic, non-phonetic systems for representing numbers), encompassing more than 100 such systems used over the past 5,500 years. Using a typology that defies progressive, unilinear evolutionary models of change, Stephen Chrisomalis identifies five basic types of numerical notation systems, using a cultural phylogenetic framework to show relationships between systems and to create a general theory of change in numerical systems. Numerical notation systems are primarily representational systems, not computational technologies. Cognitive factors that help explain how numerical systems change relate to general principles, such as conciseness or avoidance of ambiguity, which apply also to writing systems. The transformation and replacement of numerical notation systems relates to specific social, economic, and technological changes, such as the development of the printing press or the expansion of the global world-system.

“Stephen Chrisomalis’s *Numerical Notation* is an extraordinary book, comprehensively assembling information about a central human mode of notation, which is more widespread than writing systems and yet has never been fully explored. The author, who writes in an exceptionally lucid style, also offers cogent interpretations of the patterns that he identifies.” – John Baines, University of Oxford

“Numbers are necessary to reasoned human existence yet largely unconsidered by those who use them. This important book brings together, in a polished and erudite presentation, the latest thoughts on the origins, development, meanings, and theories of numbers. Few people could have pulled off such a study. That Chrisomalis has done so speaks to the magisterial authority of the volume and its fresh views on the cultural basis and historical contours of quantification.” – Stephen Houston, Brown University

“In this extraordinary and unprecedented book, Stephen Chrisomalis succeeds in doing for numerical notations what the great theorists of the last generation – Gelb, Dinger, and Cohen – did for written language, providing an account that is encyclopedic in scope, conceptually rich, and explanatorily adequate to account for the origins, the transformations, the social uses, and the psychological implications of the world’s remarkable systems for the notation of number.” – David Olson, author of *The World on Paper* and University Professor Emeritus, University of Toronto

“What this study has done is to remove the history of numerical notation from an outdated unilinear evolutionary scheme and place it in a new framework that puts no stock in progressivism as an inexorable consequence of history. It seems to me that no future work of numeral notation will be able to ignore this study. The detailed analysis and typology offered here, as well as the theoretical and interpretational exposition, sets a standard for future discussion of numerical notation as a social, technological, and cognitive phenomenon.” – Francesca Rochberg, University of California, Berkeley

“Stephen Chrisomalis’s *Numerical Notation* is a work of extraordinary scholarship and erudition. The author guides the reader on an informed and highly engaging survey of number naming systems around the world, from the cuneiform sexagesimal numeration of ancient Mesopotamia to the Indian-derived decimal numeration of much of the modern world. Along the way, Chrisomalis explores a host of intriguing intellectual historical questions relating to not just how different societies have met the challenges of classifying and naming quantities, but other matters of broad linguistic, philosophical, and anthropological interest. This book is destined to become a standard reference work in the field for many years to come.” – Gary Urton, Harvard University

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