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978-0-521-87818-0 - Numerical Notation: A Comparative History

Stephen Chrisomalis

Frontmatter

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NUMERICAL NOTATION

This book is a cross-cultural reference volume of all attested numerical notation systems (graphic, nonphonetic 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 and avoidance of ambiguity, which also apply to writing systems. The transformation and replacement of numerical notation systems relate to specific social, economic, and technological changes, such as the development of the printing press and the expansion of the global world-system.

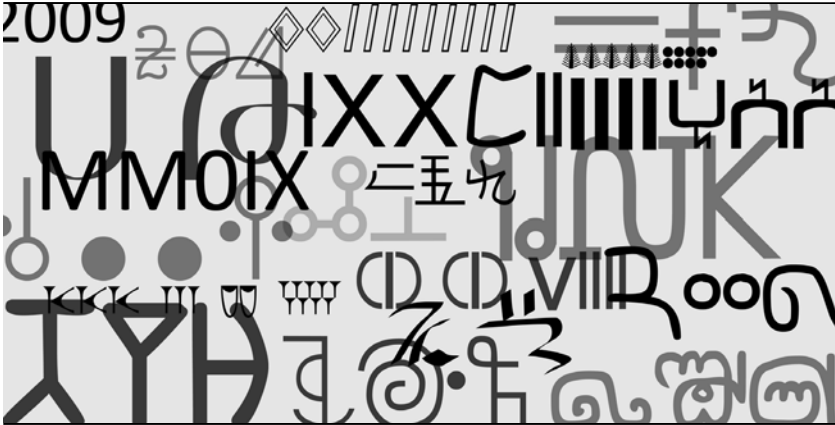
Stephen Chrisomalis is an assistant professor of anthropology at Wayne State University in Detroit, Michigan. He completed his Ph.D. at McGill University in Montreal, Quebec, where he studied under the late Bruce Trigger. Chrisomalis's work has appeared in journals including *Antiquity*, *Cambridge Archaeological Journal*, and *Cross-Cultural Research*. He is the editor of the *Stop: Toutes Directions* project and the author of the academic weblog *Glossographia*.

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Frontmatter

[More information](#)

CONTENTS

<i>Acknowledgments</i>	<i>page</i> vii
1 Introduction	1
2 Hieroglyphic Systems	34
3 Levantine Systems	68
4 Italic Systems	93
5 Alphabetic Systems	133
6 South Asian Systems	188
7 Mesopotamian Systems	228
8 East Asian Systems	259
9 Mesoamerican Systems	284
10 Miscellaneous Systems	309
11 Cognitive and Structural Analysis	360

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Frontmatter

[More information](#)

vi

CONTENTS

12	Social and Historical Analysis	401
13	Conclusion	430
	<i>Glossary</i>	435
	<i>Bibliography</i>	439
	<i>Index</i>	471

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[More information](#)

ACKNOWLEDGMENTS

Although the history of scholarship on numeration is lengthy and includes such illustrious figures as Alexander von Humboldt, Alfred Kroeber, and Oswald Spengler, its temporal and spatial breadth inevitably means that its practitioners frequently operate in a seeming near-vacuum. For this reason I am doubly grateful for the assistance I have received over the decade since this work's inception.

This book had its genesis during my time at McGill University. The late Bruce Trigger was the shepherd and guiding hand behind this book, beginning in its formative stages and continuing almost to the final draft. The central premise of this book stems from Bruce's conviction that comparative research is not only possible but indeed necessary in order for anthropology to be theoretically meaningful. Without Bruce's mentorship and support for me throughout this decidedly unorthodox anthropological pursuit, this book would not exist. Bruce's death in 2006 was a momentous loss for the discipline and for comparativism.

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Frontmatter

[More information](#)

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Scholars of numeration include historians, anthropologists, archaeologists, linguists, mathematicians, and psychologists, to name only a few, and it is all too easy in such a disparate crowd of research traditions to lack a sense of disciplinary cohesion and of one's scholarly influences. I therefore acknowledge my intellectual forebears in the comparative study of numerals, most notably Florian Cajori, Genevieve Guitel, Karl Menninger, Antoine Pihan, and David Eugene Smith. Although I disagree with his conclusions in many places, I thank Georges Ifrah, whose gargantuan and important *Histoire universelle des chiffres* (1998) inspired me to produce this volume.

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Frontmatter

[More information](#)

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ix

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Despite the advice and assistance of the abovementioned, and any others I have forgotten, I have doubtless made many errors of fact and interpretation, and I eagerly anticipate the opportunity to broaden my knowledge of numerical notation systems in the future.

NOTES ON STYLE

Throughout the book I have used the conventions “BC” and “AD” to refer to chronological periods. Where no era indicator is associated, AD dates are assumed; I do so only when the interpretation of a date is obvious.