

Cambridge University Press 978-1-107-01221-9 - The History of Mathematical Proof in Ancient Traditions Edited by Karine Chemla Table of Contents More information

Contents

List of figures [ix]
List of contributors [xii]
Note on references [xiv]
Acknowledgements [xv]

Prologue Historiography and history of mathematical proof: a research programme [1]
KARINE CHEMLA

PART I VIEWS ON THE HISTORIOGRAPHY
OF MATHEMATICAL PROOF

Shaping ancient Greek mathematics: the critical editions of Greek texts in the nineteenth century

- 1 The Euclidean ideal of proof in *The Elements* and philological uncertainties of Heiberg's edition of the text [69]

 BERNARD VITRAC
- 2 Diagrams and arguments in ancient Greek mathematics: lessons drawn from comparisons of the manuscript diagrams with those in modern critical editions [135] KEN SAITO AND NATHAN SIDOLI
- 3 The texture of Archimedes' writings: through Heiberg's veil [163] REVIEL NETZ

Shaping ancient Greek mathematics: the philosophers' contribution

4 John Philoponus and the conformity of mathematical proofs to Aristotelian demonstrations [206] ORNA HARARI

Forming views on the 'Others' on the basis of mathematical proof

5 Contextualizing Playfair and Colebrooke on proof and demonstration in the Indian mathematical tradition (1780–1820) [228]

DHRUV RAINA

V



Cambridge University Press 978-1-107-01221-9 - The History of Mathematical Proof in Ancient Traditions Edited by Karine Chemla Table of Contents More information

vi Contents

- 6 Overlooking mathematical justifications in the Sanskrit tradition: the nuanced case of G. F. W. Thibaut [260]

 AGATHE KELLER
- 7 The logical Greek *versus* the imaginative Oriental: on the historiography of 'non-Western' mathematics during the period 1820–1920 [274]

 FRANÇOIS CHARETTE

PART II HISTORY OF MATHEMATICAL PROOF IN ANCIENT TRADITIONS: THE OTHER EVIDENCE

Critical approaches to Greek practices of proof

8 The pluralism of Greek 'mathematics' [294] G. E. R. LLOYD

Proving with numbers: in Greece

- 9 Generalizing about polygonal numbers in ancient Greek mathematics [311]
 IAN MUELLER
- 10 Reasoning and symbolism in Diophantus: preliminary observations [327]REVIEL NETZ

Proving with numbers: establishing the correctness of algorithms

- 11 Mathematical justification as non-conceptualized practice: the Babylonian example [362]
 JENS HØYRUP
- 12 Interpretation of reverse algorithms in several Mesopotamian texts [384]
 CHRISTINE PROUST
- 13 Reading proofs in Chinese commentaries: algebraic proofs in an algorithmic context [423]
 KARINE CHEMLA
- 14 Dispelling mathematical doubts: assessing mathematical correctness of algorithms in Bhāskara's commentary on the mathematical chapter of the *Āryabhatīya* [487]

 AGATHE KELLER



Cambridge University Press 978-1-107-01221-9 - The History of Mathematical Proof in Ancient Traditions Edited by Karine Chemla Table of Contents More information

Contents

vii

The later persistence of traditions of proving in Asia: late evidence of traditions of proof

15 Argumentation for state examinations: demonstration in traditional Chinese and Vietnamese mathematics [509]

ALEXEL VOLKOV

The later persistence of traditions of proving in Asia: interactions of various traditions

16 A formal system of the *Gougu* method: a study on Li Rui's

Detailed Outline of Mathematical Procedures for the Right-Angled

Triangle [552]

TIAN MIAO

Index [574]