

Contents

Preface	11
Chapter 1. Between the logic of questions and proof theory. An overview	13
1.1. Introduction	13
1.2. Inferential Erotetic Logic	17
1.3. The logics of questions: the main paradigms	21
1.4. Questions and problem-solving strategies	25
1.5. Questions and relations between them	28
1.6. Questions and systems of questions	30
Chapter 2. Erotetic calculi for classical logic and for modal logics	33
2.1. Supplementing languages with sequents and questions	35
2.2. Erotetic rules for the classical case	39
2.2.1. Calculus $\mathbb{E}^{\mathbf{PQ}}$	43
2.2.2. Calculus $\mathbb{E}^{\mathbf{RPQ}}$	45
2.2.3. Calculus $\mathbb{E}^{\mathbf{LPQ}}$	46
2.2.4. Soundness and completeness in the classical case	47
2.2.5. Proof-search in erotetic calculi for FOL	57
2.3. The modal case	68
2.3.1. Language and semantics	70
2.3.2. Rules of modal erotetic calculi	72
Chapter 3. Erotetic calculi are calculi of questions	81
3.1. Erotetic implication: language $\mathcal{L}_{\mathbf{CPL}}^?$	84
3.2. Erotetic implication in $\mathcal{L}_{\mathbf{CPL}}^?$: a discussion	85
3.3. Erotetic implication: languages $\mathcal{L}_{\mathbf{L}}^?$	91
3.4. Erotetic implication: the modal case	97
3.5. Erotetic calculi and multiple-conclusion relations	100

3.5.1. Semantic interpretation	100
3.5.2. Proof-theoretical interpretation	102
Chapter 4. Erotetic calculi: proofs	111
4.1. Socratic trees	111
4.2. Translation into sequent systems for classical logic	121
4.3. Translation into sequent system for modal logic \mathbf{K}	126
4.4. Translations for non-symmetric, non-Euclidean extensions of \mathbf{K}	163
4.5. The case of analytic tableaux for classical logic	186
4.6. On analytic tableaux	204
4.7. A note on dual erotetic calculi for \mathbf{CPL}	210
Appendices	219
Appendix A. Provisos of applicability of R_π	219
Appendix B. Trees	222
Appendix C. Translations from $\mathbb{E}^{\mathbf{L}\tau}$ to $\mathbb{G}^{\mathbf{L}\tau}$: a summary	225
Bibliography	227
Author index	237
Subject index	239
List of symbols and abbreviations	243