Contents

Preface **6**

Introduction **9**

1 Two Traditions in the Philosophy of Language and Two Kinds of Metalanguage 9

2 Reason Relations, Vocabularies, and Metavocabularies . . . 14

3 Intrinsic Metavocabularies for Reason Relations and Conceptual Contents: Logic 24

4 Implication-Space Intrinsic-Explicative Metavocabularies for Reason Relations and Conceptual Roles 33

5 Conclusion 44

1 A Pragmatic Metavocabulary **50**

1.1 Semantic and Pragmatic Construals of a Fundamental Bipolarity 50

1.2 Reasons and Reason Relations: Symmetries and Asymmetries 56

1.3 Bilateral Pragmatic Renderings of Reason Relations 69

1.4 Conclusion 83

2 Logical Expressivism and the Open Structure of Reasons **87**

2.1 A Pragmatic Definition of Implication and Incompatibility . 87

2.2 Reasons and Logic: Logicism about Reasons 90

2.3 Reasons and Logic: Rational Expressivism about Logic . . . 95

2.4 The Structure of Reason Relations 111
2.5 Even More Radically Open Structures of Reason Relations . 125
2.6 Explicitation Closure and Rational Hysteresis 132
2.7 Conclusion: Expressivist Criteria of Adequacy for Logical Vocabulary 143

3 Introducing Logical Vocabulary: Making Reason Relations Logical 155
3.1 Sequent Calculi for Logical Expressivism 158
3.1.1 How Many Conclusions? 159
3.1.2 Adding Logical Vocabulary 161
3.1.3 Some Familiar Features of Logical Vocabulary 168
3.1.4 Radical Novelties 172
3.2 Making Reason Relations Explicit 180
3.2.1 The Idea of Making Reason Relations Explicit 180
3.2.2 Explicitation by Implication 184
3.2.3 Explicitation by Sequents 188
3.3 Making Local Structure Explicit 195
3.3.1 Regions of Monotonicity 196
3.3.2 Classicality, Contraction, and the General Case 201
3.3.3 Cautious Monotonicity and Cumulative Transitivity . 204
3.4 Conclusion 209
3.5 Appendix 221

4 Truth-Taking and Truth-Making: How They Share a Rational Form 231
4.1 Rational Forms 232
4.1.1 Representation and Truth 233
4.1.2 Functionalism and Modalism 240
4.1.3 Some Worries about Representation 245
4.1.4 Reason Relations for Representationalists 251

4.2 Truth-Maker Theory . . . 252
4.3 Articulating the Isomorphism . . . 262
4.3.1 The Idea Behind the Isomorphism . . . 263
4.3.2 Operational Rules . . . 268
4.3.3 Structural Rules . . . 272
4.4 Accommodating Open Reason Relations . . . 275
4.4.1 Nontransitive Truth-Maker Consequence . . . 275
4.4.2 Nonmonotonic Truth-Maker Consequence . . . 279
4.5 Conclusion . . . 283
4.6 Appendix . . . 291

5 Implication-Space Semantics: Content as Implicational Role 303
5.1 Formulating Implication-Space Semantics . . . 305
5.1.1 Implicational Roles . . . 305
5.1.2 Conceptual Content and Entailment . . . 310
5.1.3 Models and Interpretations . . . 313
5.2 Interpreting NMMS and Truth-Maker Theory . . . 318
5.2.1 Interpreting Normative Bilateralism . . . 318
5.2.2 Interpreting Truth-Maker Theory . . . 323
5.3 The Monoidal Structure of Reason Relations . . . 328
5.4 Noncontractive Reason Relations . . . 331
5.4.1 Noncontractive Material Consequence Relations . . . 331
5.4.2 Linear Logic . . . 333
5.5 Implicational Role Inclusion . . . 340
5.5.1 Foundations of Role Inclusion . . . 341
5.5.2 Logics Based on the Strong Kleene Scheme . . . 345
5.5.3 Logics of Content and Metaphysics . . . 353
5.5.4 Nonlogical Role Inclusions . . . 357
5.6 Conclusion . . . 362
5.7 Appendix . . . 367
5.7.1 Roles and Ranges of Subjunctive Robustness . . . 367

5.7.2 Implication-Space Semantics and NMMS 367
5.7.3 Implication-Space Semantics and Truth-maker Theory 371
5.7.4 Implication-Space Semantics for the Noncontractive Variant of NMMS 374
5.7.5 Implication-Space Semantics for Multiplicative Additive Linear Logic 376
5.7.6 Implicational Role Inclusions 380

6 Conclusion **398**
6.1 A Fourfold Perspective on Reason Relations 402
6.2 Rational Forms 411
6.3 Theorizing Open Reason Relations 416
6.4 The Logics of Open Reason Relations 422
6.5 Final Remarks 430

Epilogue: A Speculative Synthesis **437**
Rational Forms as Starting Points 439
Ideal Occurrences of Rational Forms: The World 446
The Pragmatic-Semantic Bifurcation Explained 453
Conclusion 459

Bibliography **463**