

Contents

1	From Logic to Mathematical Philosophy, DAVID MAKINSON, JACEK MALINOWSKI AND HEINRICH WANSING	1
	Introduction	1
	Modal Logic	3
	Non-Classical and Many-Valued Logics	4
	Belief Management	6
2	Commutativity of Quantifiers in Varying-Domain Kripke Models, ROBERT GOLDBLATT AND IAN HODKINSON	9
	Introduction and Overview	9
1	Model Structures	12
2	Premodels and Models	14
3	Soundness and \mathcal{M} -Equivalence	17
4	Validating CQ	20
5	A Countermodel to CQ	23
6	Completeness and the Barcan Formulas	28
	References	30
3	The Method of Tree-Hypersequents for Modal Propositional Logic, FRANCESCA POGGIOLESI	31
1	Introduction	31
2	The Calculi CSK^*	34
3	Admissibility of the Structural Rules	37
4	The Adequateness of the Calculi	43
5	Cut-Elimination Theorem for CSK^*	45
6	Conclusions and Further Work	49
	References	50
4	All Splitting Logics in the Lattice $\text{NExt}(\text{KTB})$, TOMASZ KOWALSKI AND YUTAKA MIYAZAKI	53
1	Introduction	53
2	Preliminaries	54
3	Splitting	56
4	Connected KTB-Frames	59
5	Few Splittings Theorem	61
6	Some Questions and Conjectures	65
	References	66

5	A Temporal Logic of Normative Systems, THOMAS ÅGOTNES, WIEBE VAN DER HOEK, JUAN A. RODRÍGUEZ-AGUILAR, CARLES SIERRA AND MICHAEL WOOLDRIDGE	69
1	Introduction	69
2	Normative Temporal Logic	70
3	Symbolic Representations	80
4	Model Checking	86
5	Case Study: Traffic Control	93
6	Discussion	100
	References	104
6	Reasoning with Justifications, MELVIN FITTING	107
1	Introduction	107
2	Hintikka's Logics of Knowledge	107
3	Awareness Logic	110
4	Explicit Justifications	110
5	Internalization	113
6	Information Hiding and Recovery	114
7	Original Intent	115
8	Realizations As First-Class Objects	116
9	Generalizations	120
10	The Goal	121
	References	122
7	Monotone Relations, Fixed Points and Recursive Definitions, JANUSZ CZELAKOWSKI	125
1	Partially Ordered Sets	127
2	Monotone Relations	134
3	Arithmetic Recursion and Fixed-Points	146
4	The Downward Löwenheim-Skolem-Tarski Theorem	161
	References	163
8	Processing Information from a Set of Sources, ARNON AVRON, JONATHAN BEN-NAIM AND BEATA KONIKOWSKA	165
1	Introduction	165
2	The Framework	166
3	Existential Strategy for Standard Structures	173
4	The Universal Strategy	179
5	Proof Systems for the Existential Strategy	179
6	Future Research	184

	References	185
9	The Classical Model Existence Theorem in Subclassical Predicate Logics I, JUI-LIN LEE	187
1	Introduction	187
2	Classical Model Existence Theorem in Propositional Logics	189
3	A Herbrand-Henkin Style Proof of the Classical Model Existence Theorem for Prenex Normal Form Sentences	191
4	Prenex Normal Form Theorem Holds in Logics Weaker than First Order Logic	195
5	Concluding Remarks	197
	References	198
10	Weak Implicational Logics Related to the Lambek Calculus—Gentzen versus Hilbert Formalisms, WOJCIECH ZIELONKA	201
1	Introduction	201
2	Preliminaries	203
3	The Associative Case	205
4	The Non-Associative Case	207
5	Hilbert-Style Formalism	209
	References	211
11	Faithful and Invariant Conditional Probability in Łukasiewicz Logic, DANIELE MUNDICI	213
	Introduction: Conditionals and de Finetti Coherence Criterion	213
1	The i -Dimensional Volume of a Formula	215
2	Conditionals in Łukasiewicz Propositional Logic L_∞	220
3	A Faithful Invariant Conditional for L_∞	222
4	Proof: Construction of a Faithful Conditional \mathcal{P}	224
5	Conclusion of the Proof: \mathcal{P} is Invariant	227
	References	231
12	A Fuzzy Logic Approach to Non-Scalar Hedges, STEPHAN VAN DER WAART VAN GULIK	233
1	Introduction	233
2	Lakoff's Proposal	234
3	Some New Machinery	237

4	The Generic Fuzzy Logic for Non-Scalar Hedges \mathbf{FL}_h . . .	240
5	Conclusion	247
	References	247
13	The Procedures for Belief Revision, PIOTR LUKOWSKI	249
1	Introduction	250
2	Nonmonotonicity on Classical Base	256
3	Nonmonotonicity on Intuitionistic Base	263
4	Generalization	266
	References	267
14	Shifting Priorities: Simple Representations for Twenty-Seven Iterated Theory Change Operators, HANS ROTT	269
1	Introduction	269
2	Representing Doxastic States: Prioritized Belief Bases, Entrenchment, Systems of Spheres	270
3	Variants of Expansion	275
4	Radical revision	276
5	Conservative Revision	277
6	Moderate Revision	278
7	Restrained Revision	279
8	Variants of Contraction	280
9	Refinement: Neither Revision nor Contraction	281
10	Two-Dimensional Operators: Revision by Comparison	282
11	Two-Dimensional Operators: Cantwell's Lowering	283
12	Gentle Raising and Lowering	285
13	Two-Dimensional Operators: Raising and Lowering by Strict Comparisons	285
14	Two-Dimensional Operators: Bounded Revision	286
15	Conclusion	288
	References	290
15	The Coherence of Theories—Dependencies and Weights, JASON JINGSHI LI, REX BING HUNG KWOK AND NORMAN Y. FOO	297
1	Introduction	297
2	Internalist Coherence	299
3	Application to Game Theory	311
4	Summary and Discussion	317
	References	317

16	On Meta-Knowledge and Truth, URSZULA	
	WYBRANIEC-SKARDOWSKA	319
	Introduction	319
1	Ideas	320
2	Main Assumptions of the Theory of Syntax and Semantics	322
3	Three Notions of Truthfulness	334
4	Final Remarks	339
	References	340