

# INDEX

- Abelian logic 35, 58ff, 100, 162, 215ff, 235
- Absolute value 172
- Affine linear logic 55ff, 94ff, 105-106, 111-112, 187ff, 252
- Antecedent part 52, 54
- Antiphase 240
- Arithmetical variety 164
  
- Balanced calculus 48, 54
- Barriers 111
- Basic logic 36, 281ff
- Bounded contraction 62ff, 99
- Bunched implications 130
  
- Canonical model 208, 209
- Categorical grammar 29-30, 272
- Classical residuated lattice 166, 187ff
  - free 193
  - local 194
  - locally finite 194
  - semisimple 192
  - simple 192
  - subdirectly irreducible 190
  - weakly simple 192
  - with a single atom 191
- Clausal formula 151
  
- Clause 146
  - parent 147
  - resolvent 147
- Cognate sequents 109
- Comparative logic 58ff, 100, 165
- Concise proof 104
- Conjunction set 78
- Connective 14
  - group-theoretical 14, 42
  - lattice-theoretical 14, 42
- Consequence 205
- Consequent part 52, 54
- Curry-Howard isomorphism 32
- Curry's Lemma 108
- Cut elimination 17ff, 87ff, 144
  
- Decision problem 100ff
- Deduction theorems 76ff
- De Morgan monoid 165
  - idempotent 165
- Derivability 75ff
- Dialetheism 23-24, 49, 235
- Disjunctive syllogism 219-220, 236ff
- Display equivalence 132
- Display logic 130ff
- Distance 176
- Downward set 244

- Dual absolute value 172
- Dunn-Mints calculi 127
- Exclusion 284
- Exponentials 65ff, 209ff, 252ff
- External rule 122-123
- Filtration 111
- Finite model property 111, 254
- Formula
  - auxiliary 5
  - clause set of  $a$  - 147
  - principal 5
  - side 5
- Frame 224
  - normal 236
  - normalization of  $a$  - 236
- Gaggle theory 255
- Grade 90
- Grammar 271
  - context-free 272
- History method 125
- HL** and its extensions 68ff, 203ff, 223ff
- Hypersequent 121ff
- Index
  - of a proofnet 142
  - of a sequent proof 90
- Internal rule 122-123
- Intmix 97
- Kernel 177
- Kripke's Lemma 110
- LA** 55ff, 94ff, 105-106
- Labelled deductive systems 145, 274
- Lambek calculus 29-30, 271ff
- LC** 58ff, 100
- Lexical assumption 272
- LG** 58ff, 100
- Lindenbaum algebra 206
- Lindenbaum's Lemma 81
- Linear logic 26, 28-29, 42ff, 65ff, 68ff, 99, 111-112, 137ff, 153-154, 161ff, 203ff, 240ff, 252ff, 298
- Literal 138, 146, 153-154
  - resolved upon 147
- LJ** 5, 7, 8
- LK** 5ff, 87ff, 101ff
- LL** 44ff, 99
- LL<sup>B</sup>** 50
- LL<sup>E</sup>** 65ff
- LL<sup>A</sup>** 49
- LLuk<sub>3</sub>** 117
- LLuk<sub>3</sub>'** 117
- LR** 131
- LR<sub>+</sub>** 127
- LR<sup>ND</sup>** 51ff, 97ff, 106ff
- LRM** 125-126
- LRMI** 125-126
- LRM<sup>ND</sup>** 62
- Lukasiewicz logics 25, 57, 63ff, 117ff, 154-155, 167, 215, 235
- $\ell$ -filter 172
- $\ell$ -group 162
- $\ell$ -ideal 172
  - canonical homomorphism of  $a$  - 177
  - congruence associated with  $a$  - 176
  - maximal 189
  - primary 189
  - prime 183
  - principal 182
  - regular 185
  - weakly prime 183
- $\ell$ -pregroup 165

- MacNeille space 247
- Many-valued logics 25
- Matching 204, 226, 242, 250
- Meaning of logical constants 4ff
- Mingle 62
- Mix 88
- Mixproof 88
- Model
  - algebraic 204
  - phase 250
  - Routley-Meyer 225
  - topolinear 253
- Multiple resolution 155
- MV-algebra 167
  
- Naive set theory 23, 26-28
- Nonmonotonic logics 24
- $N$ -sided sequent 116ff
  
- Operational semantics 222, 276
- Order 194
- Orthogonality relations 177
  
- Paraconsistency 22ff
- $p$ -count 47
- Phase structure 240
  - descriptive 247ff
  - general 242 ff
- Post-implication 15
- Post-negation 15
- Principal polar 247
- Proofnet 137ff
- Proof search algorithm 101
- Proof structure 138
  - inductive 139
  - section of  $a$  - 142
  - switching of  $a$  - 141
  
- Quantale
  - Girard 165, 210-211
  - rectangular 180
  
- Quantum logic 239, 281ff
  
- Radical 193
- Rank 89, 95
- Reduced sequent 103
- Relatedness logic 36
- Relational proof systems 145
- Relevance logic 21-22, 50ff, 97ff, 106ff, 127ff, 149ff, 165, 223ff, 235ff
- Residuated groupoid 275
  - powerset 276
- Residuated semigroup 275
- Resolution calculi 145ff
- Resolution rule 146
- Retro-implication 15
- Retro-negation 15
- RK** 146
- RL** 153
- Routley star 225
- RR** 149
- Rule 6ff
  - context-dependent 12
  - context-free 12
  
- S**-derivation 75
  - weak 78
- Semilattice-ordered monoid 180
- Sequent 5
- Sigma term 174
- Simple cut 135
- Single model property 214
- Splitting 166
- Squeeze lemma 229
- \*-autonomous lattice 161ff, 243ff
  - closure 209
  - homomorphism of  $a$  - 171
  - linear 183
  - orthogonally indecomposable 184
  - representable 180

- totally ordered 184
- weakly contractive 179
- weakly linear 183
- S-theory** 72
  - A*-complete 73
  - A*-consistent 73
  - A*-maximal 73
  - detached 73
  - $\neg$ -complete 73
  - $\neg$ -consistent 73
  - maximal 73
  - prime 73
  - regular 73
  - simply complete 73
  - simply consistent 73
  - T-S*-theory 229
  - weakly maximal 73
- Strong algebraic De Morgan law** 180
- Structural connective** 130
- Structure** 127
- Subdirect representation** 186
- Subintuitionistic logics** 277
- Succinct proof** 108
- Sugihara matrix** 165
- Topolinear space** 252
- Truth**
  - algebraic 204
  - phase-semantical 251
  - Routley-Meyer 226
- 2-semiclosed order** 180
- Type** 271
- Validity**
  - algebraic 205
  - phase-semantical 251
  - Routley-Meyer 226
- Valuation**
  - algebraic 203, 211
  - Routley-Meyer 224
- Value** 185
- Variable separation** 280
- Variable sharing** 51ff, 280
- Visibility** 11, 281ff



<http://www.springer.com/978-1-4020-0605-0>

Substructural Logics: A Primer

Paoli, F.

2002, XIII, 305 p., Hardcover

ISBN: 978-1-4020-0605-0