

Symbol Index

- \emptyset 258
- Nonrep* 294
- \mathbf{LR}^A 268
- \mathbf{Lr}^A 259
- \mathbf{Lr}_e^A 265
- ϵ 289
- Rep* 293
- Tree*^{...}(\dots) 290
- \mathbf{Wn}^A 259
- \mathbf{Wn}_e^A 265
- \top (as a game) 264
- \top (as a player) 258
- \perp (as a game) 264
- \perp (as a player) 258
- \neg (as an operation on games) 270
- \neg (as an operation on players) 258
- \neg (as an operation on runs) 259
- \wedge (as an operation on games) 273
- \vee (as an operation on games) 274
- \bigwedge (as an operation on games) 274
- \bigvee (as an operation on games) 274
- \rightarrow (as an operation on games) 277
- \forall (as an operation on games) 280
- \exists (as an operation on games) 281
- \sqcap 272
- \sqcup 272
- \square 272
- \sqcup 272
- \triangle 283
- ∇ 283
- λ 283
- Υ 284
- \succ 284
- δ 292
- \uparrow 293
- \circ 286
- \triangleleft 283
- $\overline{\Upsilon}$ 283
- \vdash 286
- \circ 290
- \spadesuit 259
- $\langle \rangle$ 259
- \leq 289
- \models 303
- $\#$ 306
- $\#$ 306
- \mapsto 308
- $\overline{\forall}$ 336
- $\overline{\vee}$ 336
- $\underline{\vee}$ 336
- $\overline{\Gamma}$ 336
- $e[A]$ 265
- $\langle \Phi \rangle A$ 262
- $A(x_1/t_1, \dots, x_n/t_n)$ 266
- Γ^α 273
- $\Gamma^{\leq u}$ 291

Subject Index

- abduction, 91
- action memory, 106
- admissible interpretation, 305
- affine logic (**AL**), 253, 320
- algorithmically solvable, 303
- analysis
 - intuitionistic, 360
- anaphora, 142, 143, 145
 - discourse anaphora, 141
- approximate reasoning, 211
- arity of a letter, 304
- arity of a relation symbol, 157
- arity of an atom, 304
- atom, 304
- attack markers, 159

- backward induction, 32
- backwards induction algorithm, 115
- bar, 358
- bargaining game, 129, **130**, 134
- bitstring, 289
- bitstring tree (BT), 289
- blind conjunction and disjunction, 283
- blind existential quantification, 281
- blind operations, 280
- blind universal quantification, 280
- blindly bound, 304
- blue content, 336
- bounding determiners, 144
- branch of a BT, 289
- branching corecurrence, 283, 293
- branching recurrence, 283, 292
- Brouwer's principle for functions, 354
- BT-structure, 290

- canonical tuple, 305
- Cantor space, 359
- capital 'S' semantics, 250
- choice conjunction, 272
- choice disjunction, 272
- choice existential quantification, 272
- choice operations, 271
- choice universal quantification, 272
- Church-Turing thesis, 251

- cirquent calculus, 258
- CL2**, 323
- CL4**, 308
- clean environment assumption, 329
- color (of a bit), 336
- colored bit, 336
- colored bitstring, 336
- colored bitstring tree (CBT), **336**
- complete branch of a BT, 290
- computability logic (CL), 6
- computable, 303
- computation branch, 301, 302
- computational problem, 251, 298
- computational resource, 252, 277
- configuration, 301
- conformity game, 37, 38
- consistency property, 237
- constant, 265, 304
- constant DBT, 292
- content (of a colored bit), 336
- content (of a colored bitstring), 336
- continuity principles, 352
- continuous choice
 - second axiom of, 355, 366
- continuum hypothesis, 368
- cooperative game, 107
- coordination game, 38, 46
- coordination problems, 102, 109
- copy-cat strategy (CCS), 329
- countable choice
 - first axiom of, 357
 - second axiom of, 366

- decorated bitstring tree (DBT), 290
- decoration, 290
- delay, 297
- depend (a game on a variable), 265
- determinacy, 155, 352, 353, 360
 - strong, 354
- determinacy theorem
 - intuitionistic, 366
- determiner, 145
 - majority determiner, 147
- dialogically signed expressions, 159

- dialogue, 162
 - play of, 162
 - state of, **160**
 - structural rules of, 162
- dialogue game, *see* game
- elementarization, 308
- elementary atom, 304
- elementary formula, 308
- elementary letter, 304
- empty string, 289
- environment, 251
- epistemic characterization theorems, 28, 31
- epistemic logic, 62
 - dialogical, 230, 241
 - explicit, 229
 - implicit, 229, 237
 - intuitionistic dialogical, 237
 - modal, 230
- EPM, 302
- evaluation game, 102, 119, 121, 135, 169, 241
 - fuzzy, 120
 - semantic, 104
 - strategic, 107, 114
- evolutionary game theory, 31
- excluded middle, 178, 255
- existential team, 107
- fair computation branch, 302
- fallacies, 58
- fan, 358
 - binary, 359
- fan theorem, 358, 363
- fan-law, 358
- force symbols, 159
- forcing relation, 238
- fuzzy logic, 119, 120, 129, 135, 210, 211, 224
- Gödel logic, 135, 212
- Gödel's Dialectica interpretation, 254
- game, 265
 - arity of, 265
 - breadth of, 260
 - constant, **259**
 - content of, 259
 - depend on a variable, 265
 - depth of, 259
 - dialogical, 3, 162
 - dialogue, 209, 213, 214
 - elementary, 264, 265
 - equivalent, 301
 - finitary, 265
 - finite, 260
 - finite-breadth, 260
 - finite-depth, 259
 - free, 260
 - instance of, **265**
 - perifinite-depth, 259
 - static, 298
 - strict, **261**
 - structure of, 259
 - unistructural, 267
- game theory, 3, 27
- game-theoretical semantics, 139–141, 169, 241
- general atom, 304
- general letter, 304
- general-base formula, 324
- generalized quantifier theory, 140
- granting permission, 302
- Hempelian generalization, 68, 69
- heterogeneous position, 260
- Heyting's intuitionistic calculus, 254
- HPM, 300
 - configuration of, **301**
- hypersequent, 216, 218
- hypersequent calculus, 215
- imperfect information, 107, 132, 134
- independence-friendly logic, 5, 101–103, 118, 241
- information sets on game tree histories, 104
- initial configuration, 301
- instable formula, 308
- internal informational resource, 315
- interpret, 305
- interpretation (as a function), 305
- interpretation (as a game), 305
- intuitionistic logic, 5, 156, 167, 229, 254, 352
- iterated strict dominance, 32
- iteration principle, 336
- König's lemma, 358
- Kleene's realizability, 254
- knowledge base, 315
- Kolmogorov complexity, 285
- Kolmogorov probability, 29, 33
- Kolmogorov's thesis, 254
- Kripke model, 238, 250
- label, 259
- leaf, 290
- linear logic, 6, 155, 182, 253
- local semantics, 159
- logical atom, 304
- logical omniscience, 242
- Lorenzen game, 4
- Lorenzen's game semantics, 254
- lowercase 's' semantics, 250
- ludics, 6
- Łukasiewicz logic, 117, 118, 135, 209, 212
- machine, 251
- mapping reducibility, 279

- modal logic, 62, 204, 250
 - intuitionistic, 235
- move, 258
 - illegal, **259**
 - labeled (labmove), 259
 - legal, **259**
 - nonreplicative, 291
 - replicative, 291
- move state, 300
- MV-algebra, 123, 136

- Nash equilibrium, 30, 31, 46, 107–109, 115, 131
- negation (operation on games), 270
- negative occurrence, 308
- node of a BT, 289
- non-logical atom, 304

- paradeterminacy, 356
- parallel conjunction, 273
- parallel corecurrence, 284
- parallel disjunction, 274
- parallel existential quantification, 274
- parallel operations, 273
- parallel recurrence, 283
- parallel universal quantification, 274
- partially ordered quantifiers, 105
- particle rule, 159, 161
- perfect memory, 106
- perfect recall, 115
- permission state, 302
- player function, 104
- position, 259
- positive occurrence, 308
- predeterminacy, 363
- predicate, 265
- predicate letter, 304
- prefixation, 262
- prelegal position, **290**
- Principle of Charity, 40, 41, 94
- probability, 210, 221
- procedural rule, 252
- product logic, 212
- profile, 114
- proof-conditional semantics, 156
- provider, 315

- quantifier, 139, 140
- quantifier (game operation), 269
 - sequential, 282
- quantifier independence, 102

- recurrence operations, 282
- reducible, 301
- reduction (as a game operation), 277
- reduction (as an EPM), 303
- reduction (as an HPM), 301
- run, 259
 - \neg , 259
 - \emptyset -illegal, 259
 - empty, 259
 - illegal, **259**
 - legal, **259**
 - lost, **259**
 - maximal, 259
 - prelegal, 291
 - spelled by a computation branch, 301
 - unillegal, 268
 - won, 259
- run tape, 300

- S4, 204, 238
- safe model, 135
- safe structure, 124, 125, 127, 128
- sequent, 321
- sequent calculus, 258
- sequential conjunction and disjunction, 283
- sequential corecurrence, 283
- sequential recurrence, 283
- singleton DBT, 290
- Skolem function, 105, 112, 175
- Skolem function rule, 188
- solution (as an EPM), 301, 303
- solution (as an HPM), 301
- solution concept, 27
- spread, 352, 353
 - \mathcal{H} -finitary, 360
- spread-law, 353
 - finitary, 358
- stable formula, 308
- static game, 251
- strategy, 107, **262**
 - anti-strategy, 355
 - copy-cat, 329
 - pure, 105
 - uniform, 105, **133**
 - weakly dominant, 109, 112, 113, 115
 - weakly dominated, 114
 - winning, 105, **127**, 154, 218
- strict repetition, **166**
- strong completeness, 311
- strong conjunction, 119, 122
- strong disjunction, 122
- structure (of a game), 259
- substitution, 324
- substitution of variables, 266
- substitutional instance, 324
- successor configuration, 301
- supervaluation, 210, 222, 224
- surface occurrence, 308

- Tarski semantics, 101, 110, 115
- term, 158, 266, 304
- Transformation principle, 52
- triangulation, 37, 40
- Turing reducibility, 284

underlying BT-structure, 291
uniform solution, 306
uniform-constructive soundness, 311
uniform-constructively sound axiomatization, 317
uniformly valid, 306
uniformly valid (formula), 306
utility function, 108

vagueness, 210, 220
valid (formula), **306**
valuation, 265

valuation tape, 300
variable, 265, 304
von Neumann and Morgenstern utility, 29, 33

win, 301
winnability, 251
winnable, 301
work tape, 300

yellow content, 336

Name Index

- Abramsky, Samson, 306
Aristotle, ix, 18, 59, 61, 73
Avron, Arnon, 216
- Becker, Oskar, 11
van Benthem, Johan, 9, 155, 241
Blass, Andreas, 6, 182, 287, 307
Brandon, Robert, 19
Brideman, Percy, x
Brouwer, L. E. J., 6, 229, 352, 358
de Bruin, Boudewijn, x
- Carnap, Rudolf, x, 10
Cintula, Petr, xi
Clark, Robin, xi
- Davidson, Donald, 40, 41, 94
Dingler, Hugo, x, 10
Dummett, Michael, 19, 20, 203
- Einstein, Albert, x
- Felscher, Walter, 6, 167
Fermüller, Christian, xi
Fine, Kit, 222
Fischer Servi, Gisèle, 243
Frege, Gottlob, 16, 70
- Gabbay, Dov, xi
Gentzen, Gerhard, 258
Giles, Robin, 209, 216
Girard, Jean-Yves, 6, 9
- Hájek, Petr, 211, 226
Haas, Gerrit, 167
Hausdorff, Felix, 368
Hempel, Gustav, x
Henkin, Leon, xii, 4, 154
Heyting, Arend, 6, 229, 254
Hintikka, Jaakko, xii, 4, 106, 132, 202, 229, 241
Hodges, Wilfrid, 7
Hosni, Hykel, x
Husserl, Edmund, x, 10
- Jagadeesan, Radha, 306
Japaridze, Giorgi, xi
- Kamlah, Wilhem, 203
Kant, Immanuel, xii
Keiff, Laurent, 242
Kolmogorov, Andrey, 29, 229, 254
Kripke, Saul, 238
- Lorenz, Kuno, 6, 167, 182, 205
Lorenzen, Paul, x, 3, 11, 205, 209, 306
- Majer, Ondrej, xi
Marion, Mathieu, x
Metcalfe, George, 212
Morris, Charles, x
Moschovakis, Joan Rand, 360
- Neurath, Otto, x
- Olivetti, Nicola, 212
- Peirce, Charles S., x, 4, 78
Pietarinen, Ahti-Veikko, 9
Plato, 18
Pottinger, Garrell, 216
- Quine, W. V. O., 40, 70, 94
- Rahman, Shahid, xi, 17, 167, 230, 242
Rebuschi, Manuel, xi, 206
Rückert, Helge, 22, 230
Russell, Bertrand, 70
- Saarinen, Esa, 153
Sandu, Gabriel, 9, 106, 132, 174
Schelling, Thomas, 39
Schwemmer, Oswald, 203
Sevenster, Merlijn, xi
Skolem, Thoralf, 175
Stalnaker, Robert, 32
Stegmüller, Wolfgang, 167

Tarski, Alfred, xiii, 9, 118, 124, 205
Tennant, Neil, 8
Tulenheimo, Tero, xi
Turing, Alan, 251

Veldman, Wim, xi
Wittgenstein, Ludwig, xii, 7, 16, 202
Woods, John, xi