

Index of notation

- $(D_1(\Pi), \emptyset)$, 323
 $(D_2(\Pi), \emptyset)$, 324
 $(D_3(\Pi), W_3(\Pi))$, 324
 (I^H, I^T) , 163
 (I^H, I^T, w) , 163
 $(\Delta^{\mathcal{I}}, \mathcal{I})$, 328
 $(\Pi, <)$, 478
 $(\mathcal{F}, T, \text{subs})$, 448
 (\leq_λ) , 99
 $\sim p_1, \dots, p_m, \text{not } q_1, \dots, \text{not } q_n$.[weight : level],
 406
ABox, 327
 AD_Π , 102
Abd, 145
 Abd_a , 145
Ans_sets, 354
Atleast(P, A), 363
Atmost(P, A), 363, 366
Circ($A; p$), 316
Circ($A; p; z_1, \dots, z_n$), 316
Cn, 320
Cn(S), 16
Cn(T), consequence of a theory, 109
Cn(Π), 38, 84
 $Cn_Z(\mathfrak{s})$, 234
Comp(Π), 100, 102
 $D(S)$, 322
DCA, 473
 D° , 140
 D_f , 311
 $D_n^E(A)$, 322
 E_QSAT_i , 281
 $F_A^P(X)$, 364
 F_Π^{wfs} , 352
 $F_{wfs}(P)$, 352
Filter(Π, Q), 145
 $G_A^P(X)$, 366
 $G_\Pi(S)$, 490
HB, 11
 description logic alphabet, 329
 HB_Π , 11
 $HB_{\mathcal{L}}$, 9
HT, 162
HU, 11
 HU_Π , 11
 $HU_{\mathcal{L}}$, 9
Head(Π), 14, 112
 $I \diamond x : r$, 373
 I^M , 373
 I^T , 373
 $I_{\mathcal{L}}$, 122
IFitting, 347
 $I_{Fitting}^P$, 347
KL, 467
 $L[a_1 = w_{a_1}, \dots, a_n = w_{a_n}, \text{not } b_1 = w_{b_1}]U$, 384
 $L\{a_1, \dots, a_n, \text{not } b_1, \dots, \text{not } b_m\}U$, 383
Lit(P), 15
Lit(\mathcal{L}), 15
Lit(Π), 15
Loop, 338
M, 372
ML, 467
 $MM(\Pi)$, 19, 167
 $M[[c]]$, 317
N(P), 358
Obs, 145
 Obs_a , 145
 Obs_l , 145
 $P < p$, 316
 P_A^+ , 120
 P_A^- , 120
P_simplified, 352
 Q , 145
 $Q \xrightarrow{\alpha} Q'(\Sigma)$, 447
 SEM^{as} , 341
 SEM^{wf} , 341
TBox, 327
 $T_\Pi(I)$, 95
 T_Π^0 , 19
 T_Π^1 , 22
 T_Π^{wfs} , 352
 $T_{wfs}(P)$, 352
U-components, 119

520

Index of notation

- $WFS(\Pi)$, 40
 X_p , 159
 $[T \models_{prop} q, T, q]$, 312
 $[]$, 200
 $[P, F, V]$, 311
 $[[LS]]$, 465
 $[[\Omega]]$, 465
 $[a_n, \dots, a_1]$, 200
 $C_{(\Pi, <)}^b$, 482
 $C_{(\Pi, <)}^d$, 481
 $\hat{C}_{(\Pi, <)}$, 478
 Δ^I , 328
 Δ_2^1 , 318
 $\Delta_{i+1} \mathbf{P}$, 279
 $\Delta_{mbt2}(p)$, 376
 $\Delta_{mbt3}(p)$, 376
 $\Delta_{mbt}(p)$, 376
 $\Gamma_{\Pi}(X)$, 480
 $\Gamma_{(D, W)}$, 323
 Γ_{si} , 433
 Γ_{sm} , 433
 Γ_{ti} , 433
 Γ_{tm} , 433
 Ω -extension, 491
 Ω -well-founded semantics, 491, 492
 Ω_{Π} , 491
 $\Pi \cup L$, 16
 $\Pi \leq \Pi'$, 110
 Π^* , 326
 Π_S , 110
 Π_i^0 , 282
 Π_i^1 , 282
 $\Pi_{\bar{S}}$, 110
 $\Pi_{i+1} \mathbf{P}$, 279
 Π_{new} , 155
 Π_{old} , 155
 $\Psi(\sigma, \alpha)$, 432
 $\Sigma_0 \mathbf{P}$, 279
 Σ_i^0 , 282
 Σ_i^1 , 282
 Σ_p , 87
 $\Sigma_{i+1} \mathbf{P}$, 279
 $\mathcal{T}_{(\Pi, <), X}(Y)$, 478
 \vdash , 337
 \vdash_{Π} , 337
 \bar{S} , 16
 \bar{I} , 16
 \mathbf{P} , 338
 \perp , 8, 328
 $\mathcal{I}(I)$, 484
 \mathcal{A} , 200
 domain description sub-language, 201
 observation sub-language, 202
 query sub-language, 203
 \mathcal{A}_c , 239
 \mathcal{A}_{ex} , 229
 $\mathcal{F}_I(F')$, 483
 $\mathcal{I}(\Pi)$, 134
 properties of, 137
 \mathcal{L}_B , 319
 $\mathcal{M}_0(\Pi)$, 19
 $\mathcal{M}^{\neg, \perp}(\Pi)$, 28
 \mathcal{P}_{Π} , 43
 $\mathcal{T}_I(T')$, 483
 \mathcal{V}_{Π} , 43
 \mathcal{I} , 328
 $\exists^{\neq n}$, 328
 $\exists^{\geq n}$, 326, 328
 $\exists^{\leq n}$, 328
 $\frac{p(d); j(d)}{c(d)}$, 323
 $\hat{\Pi}$, 488
 $\langle S, P, Cn \rangle$, 109
 $\langle T, F \rangle \leq \langle T', F' \rangle$, 489
 $\langle \Pi, A, O \rangle$, 470
 $\langle s_1, \dots, s_n \rangle$, 122
 \leq , 102
 \leq_{+-} , 102
 \leq_+ , 102
 \leq_- , 102
 \models , 37
 \models^{dl} , 329
 \models_{HB}^{dl} , 329
 \models_k , 472
 \models_{HT} , 163
 \models_{SEM} , 340
 \models_{SLDNF} , 450
 \models_{form} , 462
 \models_{open} , 472
 \models_{set} , 475
 \models_{wabd} , 153
 $\mu(S)$, 488
 $\neg S$, 16
 \neq^* , 37, 111
not S , 14
 π represents f , 138
 \preceq , 373
 σ , 122
 $\sigma_1 + \sigma_2$, 15
 $\sigma_{\mathcal{L}}$, 122
 $\sigma_i(f)$, 138
 $\sigma_o(f)$, 138
 $\sigma_{(\alpha_1, \dots, \alpha_i)}$, 432
 \mathbf{s} , 234
 \sqcap , 327, 328
 \sqcup , 328
 $\theta\eta$, 155
 θ , 155
 \hat{D} , 140
 \top , 328
 \triangleleft , 357
 \vdash_{HT} , 163
 $\{X_1/t_1, \dots, X_n/t_n\}$, 155
 $\{\pi, \sigma_i(\pi), \sigma_o(\pi), \text{dom}(\pi)\}$, 138
 $\{f, \sigma_i(f), \sigma_o(f), \text{dom}(f)\}$, 138
a.headof, 371
atoms(A), 14
atoms(σ), 15
atoms(p), 14
atoms(p₁, ..., p_n), 15
auto₁(Π), 321

Index of notation

521

- $auto_2(\Pi)$, 321
 $auto_3(\Pi)$, 322
 $bb(P)$, 355
 $body(r)$, 14
 $body^+(r)$, 14
 $body^-(r)$, 14
 $bot_U(\Pi)$, 114
 $c(D, X)$, 139
 $choice(A, L)$, 362
 $disj_to_normal(r)$
 application, 223
 $dom(f)$, 138
 $eval_U(\Pi, X)$, 114
 $expand(P, A)$, 363
 $expand_{dlv}(P, I)$, 374
 $ground(\Pi)$, 15
 $ground(r, \mathcal{L})$, 11
 $h_S(\Pi)$, 110
 $h_{\bar{S}}(\Pi)$, 110
 $head(r)$, 14, 109
 $heuristic(P, A)$, 369
 $heuristic_{dlv}(P, I)$, 375
 $ilp(p)$, 160
 $lfp(T_{\Pi}^0)$, 20
 $lit(\Pi)$, 15
 $lit(\sigma)$, 15
 $lit(p_1, \dots, p_n)$, 15
 $lit(r)$, 14
 $lookahead(P, A)$, 368
 $lookahead_once(P, A)$, 368
 $mbr^+(p)$, 375
 $mbr_i^+(p)$, 375
 $mbr^-(p)$, 375
 $mbr_i^-(p)$, 375
 $modified(P, I)$, 348
 $modify^+(\Pi, I)$, 352
 $modify^-(\Pi, I)$, 351
 $neg(r)$, 14, 109
 $normal_to_definite(\Pi)$, 167
 $not(l)$, 16
 $one_step(P, I)$, 347
 $one_step_{slg}(P, U)$, 360
 $p(1..n)$, 391
 $p(a; b)$, 391
 $p(s_1, \dots, s_n) = p(t_1, \dots, t_n)$, 446
 $pos(r)$, 14, 109
 $prop_circ_L(\Pi)$, 318
 qtr , 334
 $r \preceq r'$, 110
 $r.inactive$, 371
 $r.literal$, 371
 $reduce_{slg}$, 359
 $reduced(\Pi, l)$, 355
 $rem(\Pi, X)$, 119
 $smodels(P, A)$
 algorithm, 370
 $states(\sigma)$, 15
 $strong_prop(\Pi)$, 165
 $subs$, 448
 $support(p)$, 373
 $terms(\sigma)$, 15
 $top_U(\Pi)$, 114
 tr' , 334
 $tr(\mathcal{K})$, 331
 $tr(\pi)$, 460
 $tr_2(\pi)$, 461
 tr_n , 336
 val_I , 372
 $val_I(body(r))$, 372
 $val_I(head(r))$, 372
 $var(s)$, 88
 $wfs(\pi)$, 354
 \mathcal{ALCCQT} , 328
 $A \leftarrow B^+$, **not** B^- , 14
 $\mathcal{B}_{(\Pi, \ll)}(X)$, 481
 $\mathcal{E}_X(\Pi)$, 481
 (1.2.3), 10
 (1.2.1), 10
 $\#maxint$, 405

Index of terms

- A, 200
- F, 200
- NP, 279
- PSPACE, 279
- P, 279
- and, 327
- at-least, 327
- coNP, 280
- 3-valued interpretation, 339, 345, 482
- 3-valued model, 340
- 3-valued stable models, 489
- 4-valued, 345

- abducible, 146, 492
 - literal, 145
 - predicate, 470
- abductive entailment, 145
 - weak, 153
- acceptable
 - S with respect to $\hat{\Pi}$, 488
 - programs, 451
- actions, 200
 - overlapping, 422
 - with durations, 422
- active, 478
 - rule r with respect to a pair $\langle X, Y \rangle$, 14
- active databases, 430
- activity constraints, 186
 - not-require, 186
 - require, 186
- acyclic, 99, 451
- adding CWA, 117
- agents in a dynamic domain, 271
- aggregates, 67
- agree
 - two sets of literals, 16
 - with, 16, 346
- algorithm
 - answer set, 345
- allowed, 16
- alphabet
 - query, 37

- analytical hierarchy, 282
- And, 337
- anonymous variable, 405
- AnsDatalog
 - program, 13
- AnsDatalog^{-not}(3), 290
- AnsDatalog^{or}-not \neq , 301
- AnsProlog
 - acyclic, 99
 - classical disjunction, 69
 - constrained enumeration, 51
 - encoding DCSP, 186
 - exception, 74
 - exclusive-or, 71
 - finite enumeration, 48
 - first-order query, 53
 - general enumeration, 49
 - linear ordering, 65
 - negative cycle free, 103
 - normative statement, 73
 - program, 12
 - answer set, 21
 - predicate-order-consistency, 103
 - signed, 104
 - tight, 100
 - propositional satisfiability, 52
- AnsProlog program
 - semantics
 - sound approximation, 39
- AnsProlog⁻
 - program, 13
 - answer set, 21
 - Herbrand model, 17
 - rule
 - satisfaction of, 17
- AnsProlog^{-not}
 - program, 12
 - answer sets, 17
 - iterated fixpoint characterization, 19
 - model theoretic characterization, 17
- AnsProlog⁻
 - choice, 50

- first-order query, 54
- program, 13
 - Ω -extension, 491
 - Ω -well-founded semantics, 491
- answer set, 27, 29
- AnsProlog^{or}
 - program, 13
 - strong equivalence, 165
- AnsProlog^{not,⊥}
 - program, 13
 - answer set, 17
 - answer sets, 17
- AnsProlog^{¬,or,K,M}, 466
- AnsProlog^{¬,⊥}
 - partial Herbrand interpretation, 28
 - partial Herbrand model, 28
 - program, 13
 - answer set, 27, 29
 - inconsistent answer set, 30
 - tight, 101
- AnsProlog^{¬,not,⊥}
 - program
 - answer set, 28
- AnsProlog^{¬,not}
 - program
 - answer set, 28
- AnsProlog^{¬,or,⊥}
 - partial Herbrand interpretation, 33
 - partial Herbrand model, 33
 - program
 - answer set, 33
- AnsProlog^{¬,or,not,⊥}
 - program
 - answer set, 33
- AnsProlog^{¬,or}
 - finite enumeration, 48
 - general enumeration, 49
 - program
 - answer set, 33
 - cover of, 112
 - head consistent, 112
 - order-consistency, 120
 - signed, 109
- AnsProlog^{not,or,¬,⊥}, 459
- AnsProlog^{or,⊥}
 - program, 13
- AnsProlog^{(not,or,¬,⊥)*}, 461
- AnsProlog^{abd}, 470
- AnsProlog^{dlv}, 404
- AnsProlog^{set}, 475
- AnsPrologsm, 382
- ground, 383
- AnsProlog*
 - function, 40
 - motivation, 3
 - program, 11
 - being functional, 41
 - semantics, 16
 - vs circumscription, 6
 - vs classical logic, 6
 - vs default logic, 5
 - vs logic programming, 4
 - vs Prolog, 4
- AnsProlog*(n), 13
- AnsProlog-<¬, 477
 - program
 - b-answer sets, 481
 - d-answer sets, 479
 - w-answer sets, 478
- answer set
 - algorithm, 345
 - AnsProlog^{(not,or,¬,⊥)*}, 463
 - framework, 8
 - axiom alphabet, 8
 - signature, 11
 - language, 11
 - of (Π, Q), 145
 - planning, 226, 244
 - Turing computable, 99
- applicability of a rule, 448
- approximate planning, 261
- arithmetical hierarchy, 282
- ASK, 311
- Assertional Box, 327
- assertions, 109, 327
 - equality, 329
 - fact, 329
 - inclusion, 329
- assimilation of observations, 204
- assume-and-reduce, 358
 - main observation, 358
 - nondeterministic algorithm, 362
- assumption, 487
- atom, 9
 - dependency graph, 102
 - level of, 357
- atomic
 - concepts, 328
 - roles, 328
- attack, 487, 488
- autoepistemic
 - interpretation, 320
 - logic, 319
- b-answer sets, 481
- backward propagation, 363
- basic formulas, rules and programs, 462
- belief sets, 468
- blocks world example, 245
- body, 10
 - goal, 88
- branch and bound, 346
 - algorithm, 354
- brave
 - mode, 405
 - semantics, 301
- call-consistency, 97
- captures, 301
- cardinality
 - minimal models, 160

- cardinality constraint
 - encoding, 71
 - ground, 383
- categorical, 84
- cautious mode, 405
- Cautious Monotony, 337
- Calc, 457
- choice, 50
 - AnsProlog⁻, 50
 - smodels, 51
- circumscription, 316
 - parallel, 317
 - prioritized, 317
- Clark's completion, 90
- classical disjunction
 - AnsProlog, 69
- closed domain specification, 140
- closed under, 17
 - ground(Π), 19
 - a basic program, 462
 - AnsProlog⁻, *or* \perp program, 33
 - AnsProlog⁻, *not* \perp program, 28
- closed world assumption, 42
- CNF bids, 415
- coherent, 84
- combinatorial
 - auctions, 415
 - CNF bids, 415
 - in dlv, 408
 - in smodels, 402
 - multi-unit, 417
 - reserve price, 420
 - exchanges, 418
 - graph problem, 188
 - feedback vertex set, 191
 - Hamiltonian circuit, 188
 - k-clique, 189
 - k-colorability, 188
 - kernel, 191
- combined complexity, 285
- Comp(O), 247
- compactness, 311
- compatibility constraints, 186
- compilability, 311
- complementary literals, 16
- complete, 16
 - in class C , 281
 - lattice, 494
- compositional operator, 139
- compute statement, 387
- computed answer substitution of a query, 450
- concept languages, 326
- concepts, 327
 - atomic, 328
 - derived, 336
 - nonderived, 336
 - consistent, 327
 - equivalence, 327
 - satisfiable, 328
 - subsumes, 327, 328
- conclusion, 10
- conditional literal, 388, 389
- conditions of, 388
- conformant
 - plan, 204
 - planning, 409
- consequence of a theory $Cn(T)$, 109
- consequent, 323
- conservative extension, 86, 116
- conservative in making conclusions, 76
- consistent, 84
- constrained enumeration
 - AnsProlog, 51
- constraint, 10
 - deadline, 429
 - precedence, 429
 - quiescent state, 431
 - resource, 429
 - satisfaction
 - dynamic (DCSP), 186
 - satisfaction (CSP), 183
 - state, 431
 - state invariance, 431
 - state maintenance, 431
 - trajectory, 431
 - trajectory invariance, 431
 - trajectory maintenance, 431
- consumable resources, 422
- continuity, 495
- CONTRA, 166
- contrary
 - literals, 16, 86
 - rules, 86
- cover, 112
- CSP, 183
 - Schur, 185
- Cumulativity, 337
- current moment of time, 270
- Cut, 337
- CWA, 42, 117
- d-answer sets, 479
- D-consistent, 139
- D-covers, 139
- data complexity, 284
- data-complete, 285
- database
 - active, 430
 - evolution, 437
 - instance, 42
 - incomplete, 42
 - query, 40
 - schema
 - input, 42
 - output, 42
- Datalog, 40
- Datalog⁺, 301
- DCSP, 186
 - in AnsProlog, 186
- deadline constraint, 429
- decision problem, 279
- declarative, 1

- declarative formalism, 109
- deductive closure, 386
- default, 322
 - consequent, 323
 - justification, 323
 - prerequisite, 323
- default logic, 322
- defends, 487, 488
- dependency graph, 94, 223
 - literal, 108
- depends
 - even-oddly on, 102
 - evenly on, 102
 - oddly on, 102
 - on, 102, 357
 - positively on, 102
- DeRes, 457
- derived atomic concepts, 336
- description logic, 326
 - HB-interpretation, 329
 - HB-model, 329
 - knowledge base, 329
 - consistent, 329
 - satisfiable, 329
 - model, 329
- diagnosis, 273
- disagree
 - two sets of literals, 16
- Disjunctive Rationality, 337
- DLOOP, 167
- dlv
 - algorithm, 372
 - combinatorial auctions, 408
 - conformant planning, 409
 - function, 378
 - linear lists, 414
 - lists, 415
 - query, 405
 - sets, 413
 - system, 403
 - weak constraint, 406
- dlv [front-end-options] [general-options]
 - [file1, . . . , file_n], 407
- dlv-interpretation, 372
- domain
 - closure, 471
 - description, 201
 - inconsistent, 202
 - of a database, 42
 - predicate, 389, 390
 - restricted, 390
- domain completion, 139
- DSUC, 166
- DTM, 279, 496
- dynamic domain, 271
- effect proposition, 201
- elementary formula, 462
- Elimination of
 - contradiction – principle, 341
 - tautologies – principle, 340
- enumerate and eliminate, 170
- enumerated predicate, 388
 - conditions of, 388
- enumerating a set of rules, 480
- equality assertions, 329
- equivalence classes, 357
- equivalence of formulas, 463
- equivalent sets of equations, 446
- exception
 - AnsProlog, 74
- Exclusive supporting rule proposition, 85
- exclusive-or
 - AnsProlog, 71
- executability condition, 229
- expand, 129, 346
- expansion, 320
 - iterative, 322
 - of a query, 129
- explaining observations, 269, 272
- explanation, 145, 273
- explicit CWA, 74
- expressiveness, 286
- EXPTIME, 282
- extended query, 42
- extends, 204, 346
 - between dl_v-interpretations, 373
- extension, 323
- extension of a pre-*SLDNF*-forest, 448
- f-atom, 475
- f-specification, 138
- fact, 10
 - assertions, 329
 - ground, 10
- FAILURE, 166
- feedback vertex set, 191
- filter-abducibility, 144
 - application, 225
 - necessary conditions, 151
 - sufficiency conditions, 150
- filter-abducible, 146
- finite enumeration
 - AnsProlog, 48
 - AnsProlog^{*¬*, *OR*}, 48
- first-order query
 - AnsProlog, 53
 - AnsProlog^{*¬*}, 54
- Fitting's operator, 347
- fixed part
 - problem, 311
- fixpoint, 495
 - logic(FPL), 301
- flounder, 450
- floundering, 445
- fluent, 200
 - literal, 200
- FOL, 301
- folded rules, 156
- folding
 - MGs, 156
 - rules, 156

- folding (*cont.*)
 TSS, 156
 Forced atom proposition, 84
 Forced disjunct proposition, 85
 forest, 448
 main tree, 448
 formula
 in AnsProlog^{(not . or . \neg . \perp)^{*}}, 462
 FPL, 301
 FPL^{+ \exists} , 301
 frame based systems, 326
 frame problem, 77
 function
 inherent(i-function), 40
 literal(l-function), 41
 signature(s-function), 41
 functional specification, 138

 Gelfond–Lifschitz transformation, 22
 gen-literal, 10
 general enumeration
 AnsProlog, 49
 AnsProlog ^{\neg . or}, 49
 general forms, 287
 generalized stable model, 470
 generate and test, 170
 glb, 494
 GPPE, 166
 principle, 341
 greatest lower bound, 494
 greatest unfounded set, 482
 ground
 fact, 10
 term, 9
 grounded
 semantics, 488
 with respect to TMS, 325
 guarded version, 143

 Hamiltonian circuit, 188
 hard
 in class C , 281
 HB-interpretation, 329
 head, 10
 head consistent, 112
 head cycle free, 108
 applications, 223
 Herbrand Base
 of language \mathcal{L} , 9
 Herbrand interpretation, 17
 partial, 28
 Herbrand model, 17
 partial, 28
 Herbrand Universe, 9
 hide, 392
 histories
 reasoning with, 270
 HT-deduction system, 163
 HT-equivalence
 deduction of, 164
 HT-equivalent
 semantic definition, 163
 HT-interpretation, 163
 HT-model, 163
 human like reasoning, 2
 hypotheses, 487

 i-function, 40, 41
 I/O Specification, 87
 ILP, 160, 427
 immediate consequence operator, 19
 impossibility statements, 233
 inclusion assertions, 329
 primitive, 329
 incoherent, 84
 inconsistent
 with I , 483
 incremental extension, 139
 inherent function, 41
 inheritance
 hierarchy, 192
 of effects, 239
 initial program, 155
 initial situation
 reasoning about, 204
 initial state complete, 204
 initial variables, 186
 input
 extension, 141
 opening, 140
 signature, 138
 of π , 138
 input-output specification, 88
 integer linear constraints, 160
 integer linear programming, 160, 427
 integrity constraint, 47
 intensional answers, 327
 interior, 140
 interpolation, 129, 131
 algorithm, 134
 interpretation
 3-valued, 339
 intuitionistic logic, 164
 iterative expansion, 322

 justification, 323

 k-clique, 189
 k-colorability, 188
 kernel, 191
 KL-ONE, 326
 knapsack problem, 401
 knowledge base
 in description logic, 329

 l-function, 41, 42
 parameters, 42
 values, 42
 language
 declarative, 1
 independence, 123
 range-restricted programs, 123

- independent, 121
- procedural, 1
- tolerance, 121, 124, 223, 224
 - application, 223
- LDL⁺⁺, 457
- LDNF resolution, 450
- least
 - fixpoint, 495
 - interpretation, 17
 - upper bound, 494
- Left Logical Equivalence, 337
- level of an atom, 357
- linear ordering
 - AnsProlog, 65
- literal, 10
 - abducible, 145
 - bounded with respect to a level mapping, 451
 - dependency graph, 108
 - gen-literal, 10
 - naf-literal, 10
 - negative, 10
 - objective, 467
 - positive, 10
 - subjective, 467
- literals
 - complementary, 16
 - contrary, 16, 86
- local call consistency, 102
- local stratification, 98
- locally hierarchical programs, 168
- locally stratified, 103
- logic of here-and-there, 162
- logic program
 - ordered, 478
 - prioritized, 478
 - with preferences, 478
- lp-function, 41, 138
- lparse *file.sm* | smodels, 393
- lparse module, 382
- lub, 494
- machines
 - capacity of, 424
 - nonsharable, 422
- magic sets, 380
- main tree, 448
- maximal informativeness, 132
- mbt, 372
- mgu, 155
 - relevant, 446
- mini-ACC tournament scheduling, 397
- minimal interpretation, 17
- mixed integer programming, 159
- modal atom, 319
- modal nonmonotonic logic, 319
- mode, 87, 223
- model
 - 3-valued, 340
 - description logic knowledge base, 329
 - nonHerbrand, 315
- modular translation, 314
- monotonicity, 494
- most general unifier, 155
- multi-unit combinatorial auction, 417
- must be true, 372
- N-queens, 171
 - as a CSP, 184
- naf-literal, 10
 - negative, 10
 - positive, 10
- natural representation
 - of a query, 133
- NDTM, 279, 497
- Negation Rationality, 337
- NEXPTIME, 282
- no-op, 229
- nonderived atomic concepts, 336
- nonHerbrand
 - models, 315
- nonmonotonic logic, 2
- nonsharable machines, 422
- normal forms, 287
- normative statement
 - AnsProlog, 73
- objective literal, 467
- observable, 145, 146
- observation, 145
 - assimilation, 204
 - initial state complete, 204
 - language, 202
- occur check, 447
- open predicate, 470
- optimize statement, 387
- Or, 337
- order consistency, 102
 - AnsProlog^{¬,or} program, 120
- order consistent, 119
- ordered
 - databases, 301
 - programs, 478
- ordinal, 494
 - finite, 494
 - limit, 494
 - successor, 494
- output signature, 138
 - of π , 138
- output-functional
 - lp-function, 141
- overlapping actions, 422
- parallel circumscription, 317
- parameter, 42, 109
- parameterized answer set, 472
- part of a program, 125
- partial
 - evaluation, 114
 - Herbrand interpretation, 28
 - AnsProlog^{¬,⊥}, 28
 - AnsProlog^{¬,or,⊥}, 33

- partial (*cont.*)
 Herbrand model, 28
 AnsProlog^{-,↓}, 28
 AnsProlog^{-,or,↓}, 33
 interpretation, 345, 482
 stable models, 489
 partial order, 494
 path, 448
 perfect model, 99
 permissible, 123
 plan
 conformant, 204
 planning, 204
 conformant, 409
 with procedural constraints, 262
 polynomial hierarchy, 279
 polynomially
 balanced, 279
 decidable, 279
 positive order consistent, 100
 possibility space, 170
 possible history, 270
 postulates, 109
 pre-SLDNF-derivation, 449
 pre-SLDNF-forest, 448
 extension of, 448
 finitely failed, 449
 successful, 449
 precedence constraint, 429
 predicate-order-consistency, 103, 223
 application to language tolerance, 125
 predicate-order-consistent, 224
 premise, 10
 prerequisite-free program, 481
 prioritized
 circumscription, 317
 default, 192
 logic programs, 478
 problem, 311
 procedural, 1
 procedural constraints, 262
 producible resources, 422
 program complexity, 284
 program-complete, 285
 PROLOG, 2
 propositional satisfiability
 AnsProlog, 52
 pruning oscillation, 351
 pseudo derivation, 448
 PT naf-literals, 375
 Pure PROLOG, 440
 semantics, 440
 sufficiency conditions, 450
 QBF, 55
 qualification problem, 234
 quantified boolean formula
 existential, 58
 existential-universal, 62
 universal, 55
 universal-existential, 59
 query, 37
 alphabet, 37
 bounded with respect to a level mapping, 451
 computed answer substitution, 450
 database, 42
 dlw, 405
 entailment, 36
 extended, 42
 failed, 448
 floundered, 448
 language
 A, 203
 success, 448
 quiescent state constraints, 431
 ramification problem, 233
 range restricted, 16, 404
 Rationality, 337
 RCPS, 428
 RCS-AnsProlog system, 274
 realization theorem
 incremental extension, 141
 input extension, 143
 input opening, 143
 interpolation, 142
 reasoning about knowledge, 81
 recursive set, 497
 recursively enumerable, 497
 RED⁺, 166
 RED⁻, 166
 reduct, 22, 385
 of a formula, 462
 reduction
 Turing, 283
 Reduction principle, 341
 refinement operator, 139
 Reflexivity, 337
 regular occurrence, 462
 relation
 instance, 42
 incomplete, 42
 schema, 42
 relational
 algebra, 301
 calculus, 301
 relevance, 448
 relevant mgu, 446
 reserve price, 420
 resolvent, 447
 resolves, 447
 resource constraint, 429
 Resource constraint project scheduling, 428
 resources
 capacity of, 429
 consumable, 422
 producible, 422
 restricted monotonicity, 108
 Right Weakening, 337
 roles, 327
 rule, 10
 conclusion of, 10

- AnsProlog^{(not. or .¬.⊥)*}, 462
 - body of, 10
 - head of, 10
 - is applicable, 448
 - premise of, 10
 - satisfied, 373
 - rule-modular, 314
 - mapping, 314
 - s-atom, 475
 - s-function, 41, 43, 138
 - satisfiability, 280
 - satisfy a basic formula, 462
 - saturated, 16
 - set of literals, 158
 - schedule, 429
 - scheduling
 - RCPS, 428
 - Schur, 185
 - second-order formula, 283
 - SEM, 340
 - semantic networks, 326
 - Semantics of Pure PROLOG, 440
 - sentences, 109
 - separable, 142
 - sequence
 - continuous, 117, 495
 - monotone, 117, 495
 - set of equations
 - solved, 446
 - sets of equations
 - equivalent, 446
 - show, 392
 - signature
 - function, 43
 - input, 138
 - of π
 - input, 138
 - output, 138
 - output, 138
 - signed
 - AnsProlog^{¬. or} program, 109
 - program, 104
 - signing, 104, 109
 - singular occurrence, 462
 - situation, 200
 - initial, 200
 - skolem constant, 315
 - SLDNF forest, 449
 - SLDNF-derivation, 449
 - SLDNF-forest
 - finite, 449
 - finitely failed, 449
 - successful, 449
 - SLDNF-resolution, 450
 - SLG, 358
 - SLG-modified, 361
 - smodels, 363
 - $p(1..n)$, 391
 - $p(a; b)$, 391
 - #, 393
 - %, 393
 - aggregation, 412
 - choice, 51
 - combinatorial auctions, 402
 - const, 392
 - function, 392
 - hide, 392
 - knapsack problem, 401
 - linear lists, 414
 - lists, 415
 - lparse *file.sm* | smodels, 393
 - module, 383
 - sets, 413
 - show, 392
 - weight, 392
- solution, 115
 - solution to Π with respect to U , 115
 - solved set of equations, 446
 - sort ignorable, 223
 - sort specification, 122
 - sorted answer set framework, 122
 - sorts, 122
 - sound interpolation, 137
 - splitting
 - application, 229
 - application of, 116
 - adding CWA, 117
 - conservative extension, 116
 - sequence, 117
 - theorem, 118
 - set, 114
 - theorem, 115
 - stable, 223
 - classes, 485
 - model
 - 3-valued, 489
 - partial, 489
 - program, 89
 - set, 488
 - standardization apart, 448
 - state, 200
 - state constraints, 431
 - state invariance constraints, 431
 - state maintenance constraints, 431
 - static causal proposition, 234
 - stratification, 93
 - stratified, 94
 - STRIPS, 244
 - strong equivalence, 162, 165
 - of AnsProlog^{(not. or .¬.⊥)*} programs, 464
 - strongly connected components, 371
 - strongly range restricted, 389
 - structural properties
 - nonmonotonic entailment relation, 336
 - structure, 316
 - SUB, 166
 - subjective literal, 467
 - substitution, 155
 - substitutions
 - composition of, 155
 - more general, 155

530

Index of terms

- Subsumption principle, 341
- sufficiency conditions
 - Pure PROLOG, 450
- supported by, 16
- supporting rule proposition, 85
- supports
 - with respect to TMS, 325
- systematic removal of CWA, 80

- TAUT, 166
- temporal projection, 203
- term, 9
- terminating, 450
- Terminological Box, 327
- terminological systems, 326
- theory, 109
 - consequence of a, 109
- tight, 103
 - AnsProlog, 100
 - AnsProlog^{⊥, ⊥}, 101
 - program, 100
 - w.r.t. a set of literals, 101
- tile covering, 176
- TMS, 325
 - justification, 325
- trajectory constraints, 431
- trajectory invariance constraints, 431
- trajectory maintenance constraints, 431
- transfinite sequence, 495
- transformation sequence, 156
- transition function, 202
- tree
 - finitely failed, 448
 - successful, 448
- trigger, 430
- Truth maintenance system, 325
- Turing machine, 496
 - deterministic, 496
 - nondeterministic, 497
- Turing reduction, 283

- unfolded rules, 155
- unfolding, 155
 - unfolding rules, 155
 - unfounded set, 482
- unifier, 155, 446
 - most general, 155
 - of a set of equations, 446
- universal query problem, 334, 471
- unsatisfiability, 280
- upper-closure, 363
- upward-compatible
 - lp-functions, 141

- values, 42
- variant of a rule, 447
- varying part
 - problem, 311

- w-answer sets, 478
- weak abductive entailment, 153
- weak abductive reasoning, 152
- weak answer set, 153
- weak constraint, 406
- weak equivalence, 137
- weak exceptions, 75
- weak interpolation, 137
- weak-filter-abducible, 153
- weaker semantics, 340
- weight constraint, 384
 - encoding, 72
- well-founded relation, 102, 494
- well-founded semantics, 39, 482
 - alternating fixpoint characterization, 484
- well-moded, 88, 451
- well-supported, 85
- wfs-bb, 346
- winner determination, 402
- world view, 468

- XSB, 457

- Yale turkey shoot, 77, 203

- zebra, 178