

Symbol Index

The symbols are organised according to subject matter as follows:

1. Set theoretic notations
2. Basic model theoretic notations
3. Distinguished sets of formulas, theories or types
4. Relations among types, elements and sets.
5. Functions and operators defined in stability theory
6. Classes of models
7. Ranks
8. Specific theories
9. Notations about trees (of models)
10. Notations from algebra
11. Many sorts and L^{eq}
12. Special notations from Chapter XVIII

1. Set theoretic notations

$\alpha(\bar{a})$	image of \bar{a} under α 9
E_i	$\{\bar{e}_j^i < i\}$ 44
$I = \bigcup I$	a convention 317
κ^λ	cardinal exponentiation 9
$\lambda^{<\alpha}$	set of functions from initial segments of α into λ 9
λ^α	set of functions from α into λ 9
$\text{cf}(\delta)$	cofinality of δ 44
$\text{lg}(\bar{a})$	length of \bar{a} 9
$\text{rng}(\bar{a})$	range of \bar{a} 9
Λ_ω	ordinals of cofinality ω 214
$\text{mod } \lambda$	modulo λ 287
\oplus	natural sum of ordinals 162
$\text{ded}(\kappa)$	Dedekind of κ 90
Δ	symmetric difference 177

2. Basic model theoretic notations

$\bar{a} \in M$	finite sequence 9
$\bar{a} \cup B$	9

αp	image of p under α 14
$(\exists!^k x)\phi(x)$	there are exactly k 10
$(\exists! x)\phi(x)$	there is exactly one 10
$ T $	cardinality of T 10
$F^n(B)$	n -ary formulas over B 11
$F^n(T)$	n -ary formulas over set 11
$F(T)$	formulas over set (some n) 11
$L_{\infty, c^+}(Q_D)$	infinitary language with dimension quantifiers 6
L^{sk}	Skolem language 21
$M \models \phi(\bar{a})$	M satisfies ϕ 9
$\text{cl}(B)$	algebraic closure 17
Diag	diagram 74
$\text{dom } p$	domain of p 12
$\text{Th}(M)$	theory of M 9
$\text{Th}(M, B)$	theory of M with B named 9
M^{sk}	Skolem closure of M 21
$p B$	p restricted to B 12
$\phi(M; \bar{a})$	solutions of ϕ in M 9
$\phi(\bar{x})$	first order formula 9
$\phi(\bar{x}; \bar{a})$	first order formula; \bar{x} free, \bar{a} parameters 12, 57

$p(M)$	solutions of p in M 12
$p \vdash \phi(\bar{x})$	p implies ϕ 12
\prec	elementary substructure 10
$p \simeq q$	p and q represent the same formulas 64
$S^n(B)$	Stone space of B (fixed n) 12
$S(B)$	Stone space of B (some n) 1
$S^\omega(B)$	complete finite types over B 12
$S(T)$	complete finite types over \emptyset 12
$ T $	cardinality of T 10
$\text{Aut}_A(M)$	automorphisms of M fixing A 14
\mathcal{M}	the monster model 14
$t(A; B)$	type of A over B 12
$t(\bar{a}; A \cup \bar{a}) = t(\bar{a}'; A \cup \bar{a}')$	equal types with different domains 12
T^{sk}	Skolem closure of T 21
U_ϕ	types containing ϕ 12
$F(B)$	formulas over B (some n) 11

3. Distinguished sets of formulas, theories or types.

$\delta_M^J(\gamma)$	number of types in $D_{p,q}$ with dimension $\aleph_{\beta+\gamma}$ 297
A_B	formulas almost over B 106
$(\bar{a} \perp \bar{b}; C)$	\bar{a} orthogonal to \bar{b} over C 138
A_I	$\cup_{i \in I} A_i$ Shelah notation 317
$\text{Av}(X; A)$	average of X over A 120
\mathcal{B}	basis for regular types 303
$C \downarrow_A B$	A independent from B over C 46
$C(\Delta)$	conjunctions of instances of Δ 159
$\langle N_0, N_1, N_2 \rangle$	amalgam 318
$D(M)$	width of types realized in M 297
$d(p, B)$	definable extension of p to B 63
$d\phi(\bar{y}; \bar{z})$	defining formula for ϕ -types 60
$D_{p,q}(M)$	copies of p based on realizations of q in M 297
E_i	initial segment 43

DOP	dimensional order property 316
ENI-NDOP	not the eventually nonisolated dimensional order property 324
NDOP	not the dimensional order property 346
eni	essentially nonisolated 306
F_B	formulas which fork over B 106
$FE(A)$	finite equivalence relations over A 101
$FE^m(A)$	finite m -ary equivalence relations over A 101
F_p	automorphisms which fix p 166
$G_0(p)$	submodule of solutions to $\mathcal{G}_0(p)$ 95
$\Gamma_p(\phi, \kappa)$	ϕ -tree of height κ over p 55
G_M	automorphism group G restricted to M 311
$G(p)$	submodule of solutions to $\mathcal{G}(p)$ 95
\mathcal{G}	normal subgroup of $\text{Aut}(M)$ 311
$\mathcal{G}_0(p)$	pp formulas of finite index in p 95
$\mathcal{G}(p)$	pp formulas in p 95
$\phi(x, z, \bar{y})$	translate of $\phi(x, \bar{y})$ 166
$\text{Saut}_A(M)$	group of strong automorphisms of M 113
$stp(c; B) \perp q$	orthogonal type and strong type 139
N_B	nonforking formulas over B 106
$N(B, A)$	types in $S(B)$ which are free over A 73
$-F_B$	formulas whose negations fork over B 106
$(\phi/\psi; N) = [\phi(N) : \phi(N) \cap \psi(N)]$	index of ψ in ϕ 29
neni	not essentially nonisolated 306
$[p]$	equivalence class in fundamental order 64
p^+	positive primitive formulas in p 94
p^-	positive primitive formulas with negations in p 94

$p \parallel q$	p parallel to q 131
$p \perp^a q$	p almost orthogonal to q 143
$p \perp q$	p orthogonal to q 138
$p \perp^w q$	p weakly orthogonal to q 143
p^B	free extension of p to B 73
p_ϕ	restriction of p to ϕ 55
$R(M, A)$	realizations in M of regular types over A 262
$\mathcal{R}(A)$	regular types over A 293
$\mathcal{R}(P)$	regular types over prime model 303
$S_\phi(A)$	complete ϕ -types over A 55
$W(M, A)$	types of weight 1 over A realized in M 267

4. Relations among types, elements and sets.

$A \approx_{q, \mu} B$	μ -quasi-isomorphism 357
$A \downarrow_C B$	A independent from B over C 35
$(\bar{a} \triangleright \bar{b}; C)$	\bar{a} dominates \bar{b} over C 153
$\bar{a} \triangleright_C \bar{b}$	\bar{a} dominates \bar{b} over C 153
$(C \downarrow B; A)$	C independent from B over A 73
$\bar{c} \downarrow_A B$	\bar{c} independent from B over A 73
$(\bar{c} \downarrow B; A)$	\bar{c} independent from B over A 73
\mathcal{F}	abstract freeness relation 38
\mathcal{F}_R	independence defined by rank 157
\square	bidominant 153, 240
\square^e	eventually bidominant 155
$p \sim_A q$	p conjugate to q 71
$p \geq_C q$	$p \geq q$ in fundamental order 64
$p \triangleright_C q$	p dominates q over C 153
$(p \triangleright q; C)$	p dominates q over C 153
$(p \downarrow B; A)$	p free from B over A 72
$p \mathcal{F} A$	p free over A 38
$p \vdash_K q$	p bidominant q in K 237
$p \vdash_K q$	p compels q in K 237
$t(\bar{c}; B) \mathcal{F} A$	type of \bar{c} over B free from A 38
$X_1 \sim_A X_2$	X_1 conjugate to X_2 128

5. Functions and operators defined in stability theory.

ap	left translate of p by a 163
$\delta_M^J(\gamma)$	copies of p based on realizations of q in M 297
$\beta(p)$	bound of p 75
$\delta(A)$	width of types over A 293
$\delta(\mathcal{R}(A))$	width of types over A 293
$\delta(X)$	width of a family of regular types 293
$F_\Gamma(A)$	fixed set of automorphisms fixing \hat{p} 177
$G_{\hat{p}}$	stabilizer of \hat{p} 173
$F_{\hat{p}}$	fixed set of $G_{\hat{p}}$ 173
\mathbf{I}	a notion of isolation 192
$I(\aleph_\alpha, K)$	number of members of K at \aleph_α 236
$I^*(\aleph_\alpha, K)$	number of members of K below \aleph_α 236
$I(\kappa, K)$	number of members of K at κ 236
$\kappa(T)$	limit on forking sequence 82
$\kappa^1(T)$	variant on $\kappa(T)$ 83
$\kappa_r(T)$	regular approximation to $\kappa(T)$ 82
$\bar{\kappa}(T)$	bound on forking sequence 42, 82
$\lambda_0(\mathbf{I})$	minimal size of \mathbf{I} -prime model 197, 296
$\lambda(T)$	least stability cardinal of T 87
$\text{cl}(B)$	algebraic closure of B 17
$d\text{cl}(B)$	definable closure of B 173
$\text{dim}(E, A, B)$	dimension of E over A in B 129
$\text{dim}(R(M, A))$	dimension of realizations of regular types over A in M 262
$\text{dp}(p)$	depth of p 352
$\text{dp}(T)$	depth of T 352
$\mu(p)$	multiplicity of p 87
$\mu_\phi(p)$	ϕ -multiplicity of p 87
$\mu(T)$	multiplicity of T 87
$\otimes r_i$	product of types 269
$p \upharpoonright B$	p restricted to B 73
$p \otimes q$	free product of types 269
$T(\gamma, \alpha)$	tree counting function 351
$t(\gamma, \alpha)$	tree counting function 351

6. Classes of models

AT	models 193
AT$_{\lambda}$	λ -compact models 193
S	strongly ($\kappa(T)$) saturated models 193
SET$_{\lambda}$	λ -saturated models 193
S$_{\lambda}$	strongly λ -saturated models 193
K$_{\alpha}$	members of K with cardinality \aleph_{α} 236
K$_{\leq\alpha}$	members of K with cardinality at most \aleph_{α} 236
I	a notion of isolation 192

7. Ranks

ϕ -rank	159
R$_C$	continuous (infinity) rank 159
R$_{\Delta}$	local rank 159
R$_M$	Morley rank 159
U(p)	U -rank of p 160

8. Specific theories

CEF$_{\kappa}$	κ cross-cutting equivalence relations (finite splitting) 81
CEF$_{\omega}^{+}$	ω cross-cutting equivalence relations (finite splitting) and addition 81
CEI$_{\kappa}$	κ cross-cutting equivalence relations (infinite splitting) 81
EER$_{\beta}$	β expanding equivalence relations 353
REF$_{\alpha}^{+}$	α refining equivalence relations (finite splitting) and addition 81
REF$_{\alpha}$	α refining equivalence relations (finite splitting) 81
REI$_{\alpha}$	α refining equivalence relations (infinite splitting) 80
T$_R$	theory of R -modules 25
Z	the integers 4
Z$_{(2)}$	the integers localized at 2 145
Z$_m$	the integers mod m 4

9. Notations about trees (of models)

a$<$	all predecessors of a 50
a$\#$	elements incomparable with a 50, 344
a$^{-}$	the predecessor of a 343
a$<$	all predecessors of a 343
a$>$	cone strictly above a 343
A$^{+}$	successors of the node A 348
A$_{+}$	elements that generate successors of the node A 348
a$_{>}^1$	successors of a 342
a$_{\geq}$	cone above a 50, 344
A$_I$	Shelah notation 317
a$_{>}^{n+1}$	set of $n + 1$ st successors of a 342
a\prec	\prec -predecessors of a 50
A$_{\langle \rangle}$	bottom node 343
$\langle N_0, N_1, N_2 \rangle$	amalgam 318
I$^{+}$	successors of the ideal I 348
I$_{+}$	elements that generate successors of the ideal I 348
I = \bigcup I	a convention 31
L$_{\beta, \alpha, \kappa}$	number of labels 355
dp$_{\kappa}(a)$	κ -depth of a 350
ht(a)	height of a 344
M$_J$	prime model over ideal J 345
P$_{\beta, \alpha, \kappa}$	number of partial labels 355
Pr(x)	predecessors of x 195
T(γ, α)	tree counting function 351
t(γ, α)	tree counting function 351

10. Notations from algebra

[a, b]	commutator 168
αp	image of p under α 14
C$_G(a)$	centralizer of a in G 93
$\chi_{\phi, \psi, n}$	invariants sentence 29
\oplus	direct sum 4
$f_r(y)$	multiplication by r 25
F$^{+}$	additive group of field 97
Gal	Galois extension 167
M$^{<\kappa}$	κ th direct sum of module M 29
M$^{\kappa}$	κ th direct power of module M 29
p$^{+}$	positive primitive formulas in p 94

- | | | | |
|---|--|--------------------------|---|
| p^- | positive primitive formulas with negations in p 94 | $P_{\bar{a}}$ | same as $P_{\psi(\bar{x};\bar{a})}$ 177 |
| $r!y$ | r factorial times y 25 | $S_=$ | equality sort 171 |
| Z | the integers 4 | S_E | sort attached to E 171 |
| $Z_{(2)}$ | the integers localized at 2 145 | T^{eq} | expansion of T to L^{eq} 171 |
| Z_m | the integers mod m 4 | 12. Chapter XVIII | |
| 11. Many sorts and L^{eq} | | a/A | p needs a over A 366 |
| F_E | function from equality sort to sort S_E 171 | \sim | similar 393 |
| $F_{\Gamma}(A)$ | fixed set of automorphisms fixing \hat{p} 177 | I | 379 |
| $G_{\hat{p}}$ | stabilizer of \hat{p} 173 | I^e | 379 |
| $F_{\hat{p}}$ | fixed set of $G_{\hat{p}}$ 173 | $I_{\hat{s}}$ | 378 |
| F^{ϕ} | map from instances of ϕ to their names 174 | I_s | 378 |
| \mathcal{F} | a Boolean algebra of formulas 177 | J_b | 378 |
| I | ideal of small formulas 177 | $J_{b,q}$ | 378 |
| L^{eq} | language for expansion by naming equivalence classes 171 | J_r | 378 |
| stp^{eq} | strong type extended to L^{eq} 172 | J_s | 378 |
| M^{eq} | expansion of M to L^{eq} 171 | \bar{S} | 380 |
| p^{eq} | p extended to L^{eq} 172 | \bar{T} | 380 |
| $P_{\psi(\bar{x};\bar{a})}$ | distinguished $\psi(\bar{x};\bar{a})$ -extensions 177 | \hat{s} | 369 |
| | | \tilde{Q}_a | 375 |
| | | \bar{R}_a | 375 |
| | | \tilde{S}_a | 375 |
| | | $Q_{a,b}$ | 375 |
| | | R_a | 375 |
| | | R^e | 377 |
| | | S_a | 375 |
| | | \bar{s} | 380 |
| | | S^e | 377 |
| | | \bar{t} | 380 |

