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Index of symbols and abbreviations

For the basic notation and symbols used throughout the book see pp. xii–xiii. This list includes notation introduced in the text and used repeatedly without reference. The page numbers in the right-hand column show the number of the page where first used.

ABC	asymmetric broadcast channel 354
AEP	asymptotic equipartition property 58
AVC	arbitrarily varying channel 209
A*VC	224
AVS	arbitrarily varying source 135
BC	broadcast channel 354
BCC	broadcast channel with confidential messages 414
BSC	binary symmetric channel 97
(c, Γ)	input constraint 91
$c(P)$	91
$C,\ C_\varepsilon$	capacity, ε-capacity 84
C_0	zero-error capacity 84, 95
$C_{0,\mathrm{f}}$	zero-error capacity with feedback 104
$C(\mathsf{A}, \varepsilon) = C_W(\mathsf{A}, \varepsilon)$	ε-capacity of a set 89
$C(\Gamma)$	capacity-constraint function 91, 120
$C(G)$	capacity of graph G 186
$C(G, P)$	graph capacity within distribution P 186
$C(\mathcal{G})$	Sperner capacity of digraph family $\mathcal{G}$ 196
$C(\mathcal{G}, P)$	Sperner capacity within distribution P 196
$C = C(W)$	capacity of DMC $\{W\}$ 88
$C(\mathcal{W})$	175
$C_\mathrm{a} = C_\mathrm{a}(\mathcal{W})$	a-capacity of AVC $\{\mathcal{W}\}$ 210
$C_\mathrm{m} = C_\mathrm{m}(\mathcal{W})$	m-capacity of AVC $\{\mathcal{W}\}$ 210
C_S	secrecy capacity 411
C_{SK}	secret key capacity 424
$C_{PK}(\mathsf{A}),\ C_{PK}(\mathsf{A}\|\mathsf{D})$	private key capacity 436
$\mathcal{C}(\mathsf{M} \to \mathsf{X}, \mathsf{Y} \to \mathsf{M}')$	family of codes 214
CR	common randomness 421
CSI	channel state information 104
$\chi(G)$	chromatic number of graph G 101
d.e.s.	doubly exponentially surely 404
d_H	Hamming distance 40
$d(G),\ d_G(x)$	degree of hypergraph G or its vertex x 189
$d(\mathbf{x}, \mathbf{y}) = \frac{1}{k}\sum d(x_i, y_i)$	averaging distortion measure 108
$(d, \Delta),\ (\mathbf{d}, \mathbf{\Delta})$	fidelity criterion 107, 252
$d(P, W)$	108

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d_W	distortion measure associated with channel W 165
D_c	set of inputs to be reproduced at c 252, 280
$D(P\|\|Q)$	informational divergence 7
$D(V\|\|W\|P)$	conditional divergence 18
DM	discrete memoryless
DMC	discrete memoryless channel 84
DMS	discrete memoryless source 3
DMMS	discrete memoryless multiple source 246
$e(W, f, \varphi)$	maximum probability of error 83
$\bar{e}(W, f, \varphi)$	average probability of error 83
$e_m(W, f, \varphi)$	probability of erroneous transmission of message m 83
$e(\mathcal{W}, f, \varphi)$	maximum probability of error, family of channels 154
$\bar{e}(\mathcal{W}, f, \varphi)$	average probability of error, family of channels 154
$E(G)$, $\mathcal{E}(G)$	set of edges (hyperedges) of graph (hypergraph) G 185, 189
$E(R) = E(R, W)$	reliability function 152
$E_{\mathrm{r}}(R) = E_{\mathrm{r}}(R, W)$	random conding exponent 152
$E_{\mathrm{r}}(R, P) = E_{\mathrm{r}}(R, P, W)$	random coding exponent, constant composition codes 147
$E_{\mathrm{sp}}(R) = E_{\mathrm{sp}}(R, W)$	sphere packing exponent 152
$E_{\mathrm{sp}}(R, P) = E_{\mathrm{sp}}(R, P, W)$	sphere packing exponent, constant composition codes 149
$E_{\mathrm{x}}(R) = E_{\mathrm{x}}(R, W)$	expurgated exponent 165
$E_{\mathrm{x}}(R, P) = E_{\mathrm{x}}(R, P, W)$	expurgated exponent, constant composition codes 165
$\mathcal{F}(X; Y, Z\|X)$	region of achievable entropy triples 305
$g_W(\mathsf{A}, \eta)$	image size 85
$G(W)$	graph associated with channel W 101
$\mathcal{G}(G)$	digraph family generated by graph G 201
$\mathcal{G}(X; Y; Z\|X)$	region of achievable exponent triples 305
$\mathcal{G}(Y; Z\|X)$	projection of $\mathcal{G}(X; Y; Z\|X)$ 317
$\mathcal{G}^*(X; Y; Z\|X)$	323
$\Gamma\mathsf{B}$, $\Gamma^l\mathsf{B}$	Hamming neighborhood, l-neighborhood 71
$H(G, P)$	graph entropy 141
$H(P)$, $H(X)$	entropy 3, 4
$H(\mathbf{x})$	entropy of individual sequence 35
$H_\alpha(P)$	Rényi entropy of order α 13
$H_\infty(P)$	minentropy 13
$\bar{H}(X^\infty)$	entropy rate 51
$H(Y\|X)$, $H(W\|P)$	conditional entropy 8, 18
$\mathcal{H}(X; Y; Z\|X)$	304
$\mathcal{H}_k(X; Y; Z\|X)$	304
$\mathcal{H}^*(X; Y; Z\|X)$	313
$\mathcal{H}^*(Y; Z\|X)$	317
$I(X \wedge Y)$, $I(P, W)$	mutual information 8, 34
$I(\mathbf{x} \wedge \mathbf{y})$	mutual information of individual sequences 35
$I(X \wedge Y\|Z)$	conditional mutual information 35
$I(P, \mathcal{W})$	154
$l(\mathbf{x})$	length of a sequence 49
$\bar{l}(f)$	average codeword length 49
LMTR	limit of minimum transmission ratio xix
$\Lambda(\mathsf{A})$, $\Lambda(\mathsf{A}\|\mathsf{D})$	440
$\mathsf{M} = \mathsf{M}_f$	message set 83
MA	multiple-access 272
MAC	multiple-access channel 272
MMI	maximum mutual information 100, 147
$[n]$	the set $\{1, \ldots, n\}$ 193
$N(a\|\mathbf{x})$, $N(a, b\|\mathbf{x}, \mathbf{y})$	16, 17
NSN	normal source network 254
OS	omniscience 436

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$\omega(G),\ \omega_s(D)$	size of largest clique or symmetric clique of graph G or digraph D 101, 185, 194
$P_{\mathbf{x}},\ P_{\mathbf{x},\mathbf{y}}$	type, joint type of sequences 16, 17
PK	private key 426
$r(f, X^k),\ r(k)$	redundancy, minimax redundany 67, 68
R_{cr}	critical rate 152
R^*_{cr}	173
$R(\Delta),\ R_\varepsilon(\Delta)$	108
$R(\Delta) = R(P, \Delta)$	rate-distortion function 108, 120
$R_{OS}(\mathsf{A}),\ R_{OS}(\mathsf{A}\|\mathsf{D})$	smallest achievable OS rate 436
$\mathcal{R}(X, Y, Z)$	achievable rate region of fork network 247
$\mathcal{R}(\langle X\rangle, Y)$	361
$s(P)$	support size of P 24
S_b	250
$\mathsf{S}_W(x)$	support of the distribution $W(\,.\,\|x)$ 184
$S(K\|Z)$	security index 400
SK	secret key 421
SMD	standard minimum distance 211
$\mathsf{T}_P = \mathsf{T}^k_P$	set of sequences of type P 16
$\mathsf{T}_{[P]_\delta} = \mathsf{T}^k_{[P]_\delta},\ \mathsf{T}_{[X]_\delta} = \mathsf{T}^k_{[X]_\delta}$	set of typical sequences with given δ 20
$\mathsf{T}_{[P]} = \mathsf{T}^k_{[P]},\ \mathsf{T}_{[X]} = \mathsf{T}^k_{[X]}$	set of typical sequences with $\delta = \delta_k$, cf. Delta-Convention 21
$\mathsf{T}_V(\mathbf{x}) = \mathsf{T}^k_V(\mathbf{x})$	V-shell 18
$\mathsf{T}_{[W]_\delta}(\mathbf{x}) = \mathsf{T}^k_{[W]_\delta}(\mathbf{x})$ $\mathsf{T}_{[Y\|X]_\delta}(\mathbf{x}) = \mathsf{T}^k_{[Y\|X]_\delta}(\mathbf{x})$	set of generated sequences with given δ 20
$\mathsf{T}_{[W]}(\mathbf{x}),\ \mathsf{T}_{[Y\|X]}(\mathbf{x})$	set of generated sequences with $\delta = \delta_k$, cf. Delta-Convention 21
$\mathsf{T}_{[W]}(\mathsf{A}) \triangleq \bigcup_{\mathbf{x}\in\mathsf{A}} \mathsf{T}_{[W]}(\mathbf{x})$	306
$\tau(G),\ \tau^*(G)$	edge covering resp. fractional edge covering number of hypergraph G 189
$V(G)$	vertex set of (hyper)graph G 185, 189
$\{W\} = \{W : \mathsf{X} \to \mathsf{Y}\}$	discrete memoryless channel 84
$\{\mathcal{W}\} = \{\mathcal{W} : \mathsf{X} \to \mathsf{Y}\}$	arbitrarily varying channel 209
X_{A}	vector of RVs $X_a,\ a \in \mathsf{A}$ 246
X_{A}	Cartesian product of sets $\mathsf{X}_a,\ a \in \mathsf{A}$ 251

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