

I am sorry that quite tiny typos are included in the following list.

List of Errata/Comments (Chap.1)

page	line	Error	Correction
5	12	$a_i = b_{i-1}$	$a_i > b_{i-1}$
6	3	$-\infty$ (2nd one)	∞
	-9,-8	$\mu(\{1, 1\})$ et al.	$\mu(\{(1, 1)\})$ et al.
7	5	$F_i(x)$	$F_i(x_i)$
	13	λ (twice)	μ
8	4	$(a + \delta..$	$[a + \delta..$
21	10	$\int \varphi - q $	$\int \varphi - q dx$
	13	$\delta - j$	δ_j
23	-5	1.5.3	Theorem 1.5.3
	-3	Theorem 1.4.4	Lemma 1.4.4
25	12	Theorems 1.4.5 and 1.4.7	Lemma 1.4.5 and Theorem 1.4.7
35	-5	$\mu_1(dy)\mu_2(dx)$	$\mu_1(dx)\mu_2(dy)$

List of Errata/Comments (Chap.2)

page	line	Error	Correction
39	-14	$A_j = \Omega$	$A_j \neq \Omega$
40	-10	$x, y, x \wedge y$	$x_i, y_i(x \wedge y)_i$
49	2	var (many others)	var
55	14	a.s.	a.e.
64	1	Example 8.3.1	Exercise 8.3.1
66	-14	of the theorem	delete
67	9	$n \rightarrow \infty$	$m \rightarrow \infty$
68	5	a.s.	delete
	8	$P(X = 1) = a_n$	$P(X_n = 1) = a_n$
69	10	$\exp(-n(H - \epsilon))$	$\exp(-n(H - \epsilon))$
71	15	part ii	part (ii)
	-5	$ P(B\Delta C $	$P(B\Delta C)$
76	9,10	$ X $ (3 times)	$ X_i $
	11	$\leq m^{-1+1/p}p^{-1}E(...$	$= m^{-1+1/p}E(...$
	-1	$ X_i $ (twice)	$ X_1 $
77	10,11	$ X_i $	$ X_1 $
	-12, -9, -8	$ X_i $	$ X_1 $
78	-12	a_n	$a(n)$
	-1	state k	a state (?)
80	8	T_n	T_K
82	-5	and	and (is independent of) the renewals...
		$[0, t + \epsilon]$	$[0, t + h]$
83	-10	$\leq$	$=$
	-4	the first $\leq$	$=$
86	2	$T_{n+1} = \infty$	$T_{n+1} - T_n > 1$
	13	$m = 1$	$i = 1$
87	11	$m = 1$	$i = 1$
88	-10	$dU(y)$	$dU(s)$
89	-10	2.6.4	Theorem 2.6.4
90	-8	$F(t)$	F
91	13	$\gamma(n), \gamma(m), \gamma(\ell)$	$\gamma_n, \gamma_m, \gamma_\ell$
	21	ϕ (3 times)	φ
	22	X^+, X^-	X_i^+, X_i^-
92	1	θ_-	θ_+
	11,-8,-4	ϕ	φ
93	2, -11, -4,-3 (many)	ϕ	φ
	14	$\varphi'(\theta)\varphi(\theta)$	$\varphi'(\theta)/\varphi(\theta)$
	15	$\frac{\lambda}{\lambda - \theta}$	$\frac{\lambda - \theta}{\lambda}$
94	-6,-2	ϕ	φ
95	14,18, -11 -9,-7,-2 (many)	ϕ	φ
	-6	$e^{x_o - 2\delta)\theta}$	$e^{(x_o - 2\delta)\theta}$
96	-8	Theorem 2.7.1	Lemma 2.7.1

List of Errata/Comments (Chap.3) 1

“(done!)” means that corrections have been made in the online version.

page	line	Error	Correction
102	-6	Here and ... Y_n .	delete or move to another place ?
104	4	$g(X)$	$g(X_\infty)$
105	-4	$\Rightarrow_v F$	$\Rightarrow_v F$ (done!)
	-3	$F_n(r)$ (twice)	$F_{n(k)}(r)$
106	6	$\Rightarrow_v F$	$\Rightarrow_v F$ (done!)
108	-12	Polya	Pólya (many !) OK?
113	10	the next result	Exercise 3.3.3 below
115	14	$(-2/u, 2/u)$	$[-2/u, 2/u]$
	-15	$\int_{ x \geq 2/u}$	$\int_{ x > 2/u}$
117	-5	Lemma 3.3.2	Lemma 3.3.19
118	-4	$-ia$	ia
119	-8	ϕ	φ
123	-4	Lemma 3.3.2	Lemma 3.3.19
	-2	and using Exercise 3.3.18	Delete or change ?
124	3	$1/er$	$1/3r$
126	12	X (3 times)	X_i
		$1/19$	$-1/19$
	-8	X (3 times)	X_i
134	-11	P	P_∞
	-6	i.i.d.	independent random variables
135	14		add $\square$ (the end of the proof)
136	6	$\leq$	$=$ (important!)
	8	$=$	$\leq$
	9	$13n$	$\frac{1}{n}$
	12	E (both of LHS and RHS)	E_n
	14	$E(g_n - b_n)^r$	$E_n(g_n - b_n)^r$
	16	$E((g_n - b_n)/a_n)^r$	$E_n((g_n - b_n)/a_n)^r$
	-2	(1.4)	Theorem 3.1.2
137	3, 6	X	X_i
	8	inequality	equality
	-2	integrable	integrable. Then
138	-9	$\psi(\theta)$	$\exp(-\theta^2/2)$
	-3	G' (twice)	$\mathcal{N}'$
139	1	(3.3.3)	Lemma 3.3.19

List of Errata/Comments (Chap.3, continued)

page	line	Error	Correction
142	11	(3.3.3)	(3.3.2)
	12	$\varphi(u)$	e^{iuX}
		$\frac{u^2}{2}$	$\frac{u^2}{6}$
152	-5	$\bar{P}(T_n = s)$	$f_{T_n}(s)$
153	-15	$t_0 < t_1 \dots$	$t_0 < t_1 < \dots$
	-12	$\lambda(t_i - t_{i-1})^{k_i}$	$(\lambda(t_i - t_{i-1}))^{k_i}$
	-3	$P(U = S)$	$P(V = S)$
	-2	I	I
156	-10	the last exercise	Theorem 3.7.4
	-7	of balls n ,	of balls, (delete n)
157	-8	process	process $N(t)$
	-4	$\{N(9t) = n\}$	$\{N(t) = n\}$
	-2	$(\lambda t^n$	$(\lambda t)^n$
	-1	v	V
163	7	C	C and $t_0 > 0$
165	3	$y \geq 0$	$y > 0$
166	-5	a_{kn}	a_{nk}
	-4		in the next theorem gives the ...
167	14	$[0, \infty)$	$(0, \infty)$
169	-15	$it\xi_i$	$it\xi_j$ is better
172	10	, let	. Let
173	9	F_N	F_n
175	9	$\square$	delete
	-7	$\Gamma_{i,j}$	Γ_{ij}

Questions in Chapter 3:

- (i) Does “AA” in Exercise 3.3.13 on page 118 mean “Alcoholics Anonymous” ?
- (ii) The word “nonhomogeneous Poisson process” is not defined. Maybe it is OK.

List of Errata/Comments (Chap.4)

page	line	Error	Correction
182	12	ϕ	φ
185	-2	$h = 1_A$	$g = 1_A$
		Example 4.1.1	Example 4.1.6
187	7	A_o	A_0
	8	$F(x, y))$	$F(x, y)$
188	-5,-4	X_n 4 times	S_n
189	14	$M_n E(X_{n+1} \mathcal{F}_n) = Y_n$	$M_n E(Y_{n+1} \mathcal{F}_n) = M_n$
	15	$Y_i = e^{\theta \xi_i}$ and	delete
		$Y_i = \exp(\theta \xi) / \phi(\theta)$	$Y_i = \exp(\theta \xi_i) / \phi(\theta)$
	-10	Theorem 4.1.2	Theorem 4.1.13 (ii)
191	4	(4.1.14)	Theorem 4.1.14
195	-5	A_n	B_n (done!)
	-2	$B_n = \sum_{m=1}^n E(1_{A_m} \mathcal{F}_{m-1})$	$A_n = \sum_{m=1}^n E(1_{B_m} \mathcal{F}_{m-1})$ (done!)
	-1	$\sum_{m=1}^n 1_{A_m} - E(1_{A_m} \mathcal{F}_{m-1})$	$\sum_{m=1}^n 1_{B_m} - E(1_{B_m} \mathcal{F}_{m-1})$ (done!)
199	2	$\sum_{m=1}^{\infty} \log q_m > -\infty$	$\{\sum_{m=1}^{\infty} \log q_m > -\infty\}$
200	12	ξ_k^{n+1}	ξ_i^{n+1} (k is fixed)
201		many ϕ 's	φ
205	-2	(4.2.11)	Theorem 4.2.11
206	10	$\cdots (X_m - X_\ell)$	$\cdots (X_m - X_\ell)$
	-4	Exercise 4.1.2	Example 4.2.2.
207	4.4.1		Insert "Under the conditions of Theorem 4.4.1,"
	4.4.3		Add "For $\mathcal{F}_M$, see Section 5.2."
	4.4.6	Exercise 4.2.2	Example 4.2.2
	4.4.8	4.4.2	Theorem 4.4.2
208	-14,-13	A_n	A_∞
	-3	4.4.6	Theorem 4.4.6
209	-11, -8	$B(m)$	B_m
212	-8,-9	ϕ	φ
219	15	ϕ	φ
222	10	(4.2.11)	Theorem 4.2.11
223	15	S_n	S_n^2
	-9	$P_1(T_M < T_0) = \frac{M-1}{M}$	$P_1(T_0 < T_M) = \frac{M-1}{M}$
224	6	$N \wedge N$	$N \wedge n$
226	12	$(1-p)/p$	$(1-p)/p$
	-5	$= \text{var}(X_i) = EX_i u^2 - (EX_i)^2$	$= \text{var}(\xi_i) = E\xi_i^2 - (E\xi_i)^2$
227	12	$Y_n = X_{n \wedge T}$	$Y_n = X_{n \wedge \tau}$
228	-17	$(0, -x)$	$(0, x)$

List of Errata/Comments (Chap.5)

page	line	Error	Correction
233	-1	$t \rightarrow \infty$	$n \rightarrow \infty$
239	13	Ω_0	Ω_o
241	2	$P(S_n - S_N \geq 0)$	$P(S_n - S_N \geq 0 N < \infty)$
	4	$\omega_{n-m} \geq a$	$S_{n-m} \geq a$
	5	$\omega_n \geq a$	$S_n \geq a$
242	-8	τ_A	V_A
	-1	$g(H < H)$	$g(H, H)$
243	9	(5.2.6)	Theorem 5.2.6
246	-16,-15	$n > 0$	$n \geq 0$ (important)
248	-14	Stararred	Starred ?
250	12	$2n!$	$(2n)!$
254	2,5,7(twice)	φ	ϕ
	-9	e^{itx} (twice)	$e^{it \cdot x}$
255	4,7,10,-9,-7,-4	φ	ϕ
	-12	$(1 - \cos(x/\delta))/\pi x^2/\delta$	$(1 - \cos(x/\delta))/(\pi x^2/\delta)$
257	5(3 times),7,9, -9,-1	φ	ϕ
258	2	φ	ϕ
261	8	$\mu(p(x, y) = \pi(y)p(y, x))$	$\mu(x)p(x, y) = \mu(y)p(y, x)$
263	-14	hit 0	hit j
264	-13	distribution	measure
	-9	distribution	distribution π
269	-11	Cesaro	Cesàro
270	-8	aperiodic	aperiodic
273	-4, -2	$P_\mu - \text{a.s.}$	P_μ -a.s.
274	12	$n \rightarrow N_n(z)$	$n \mapsto N_n(z)$
	-1	$\{x : p^n(x, x) > 0\}$	$\{n : p^n(x, x) > 0\}$
276	-18	P_μ a.s.	P_μ -a.s.
	-15	X_0	X_n
277	1	e_j	$e(j)$
279	5	$(x, y) \rightarrow p(x, y)$	$(x, y) \mapsto p(x, y)$
280	-19	V	v
281	-12	Lemma 5.3.2	Theorem 5.3.2
282	5	G_k	$G_{k,\delta}$
	6	$X(T_m) = \inf\{n \geq T_{m-1}\}$	$T_m = \inf\{n > T_{m-1} : X(n) \in G_{k,\delta}\}$
	-2	Lemma 5.8.8	Theorem 5.8.8
283	-13	$e^{-\lambda(y)}$	$e^{-\lambda y}$
284	13	Exercise 5.4.2	Exercise 5.4.2) [insert “)”]
	-10	Exercise 5.8.13	Lemma 5.8.13

List of Errata/Comments (Chap.6)

page	line	Error	Correction
288	-1		A in (iii) should be an invariant set.
291	-12	Theorem 6.2.2	Theorem 6.2.1
292	6	Section 7.1	Section 6.1
295	-7	Theorem 6.1.4	Exercise 6.1.4
297	-18	Y_1, Y_2, Y_3 .	$Y_1, Y_2, Y_3, \dots$ (done!)
300	9	$\bar{X}$	$\overline{X}$
	-12	three	five
301	-5	$i_1 < i_2 < \dots i_k$	$i_1 < i_2 < \dots < i_k$
302	-1	(6.1)	Theorem 6.4.1
303	2	ν	0
	-14	Section 2.6	Section 2.7
304	3	L_1, L_2	$L_{0,1}, L_{0,2}$

List of Errata/Comments (Chap.7)

page	line	Error	Correction
305	-9	$t \rightarrow B_t$	$t \mapsto B_t$
306	-4	$t \rightarrow B_t$	$t \mapsto B_t$
307	-11	(7.1) in Appendix 3	Theorem A.3.1
308	4	$t \rightarrow \omega(t)$	$t \mapsto \omega(t)$
	-10	$X(i2^{-n})$	$X((j-1)2^{-n})$
309	7	$1 - 2^{-\gamma} > 1$	$1 - 2^{-\gamma} > 0$
	12	A	$\frac{3}{1 - 2^{-\gamma}}$
310	8	$n \rightarrow A_n$	$n \mapsto A_n$
314	2	$t \rightarrow B_t$	$t \mapsto B_t$
316	-18,-17,-14	$t \rightarrow$	$t \mapsto$
317	11	$m/2^{-n} < \leq (m+1)2^{-n}$	$m2^{-n} < t \leq (m+1)2^{-n}$
	14,22	Section 4.1	Section 5.2
318	14	$(s, \omega) \rightarrow$	$(s, \omega) \mapsto$
	-14	$x \rightarrow E_x f(B_t)$	$x \mapsto E_x f(B_t)$
	-2	Excercise 7.3.5	Theorem 7.3.5
319	3	$x \rightarrow$	$x \mapsto$
321	15	7.3.9	Theorem 7.3.9
	17	$f(T_b) \circ \theta_{T_a}$	$f(T_b \circ \theta_{T_a})$
322	11	$a \rightarrow \phi_a(\lambda)$	$a \mapsto \varphi_a(\lambda)$
323	-5	$P(T_a \leq t)$	$P_0(T_a \leq t)$
324	-13	8.6	8.1
325	3	$e^{-x^2/2}$	$e^{-x^2/2s}$
	6	$P(A_{s,s+h})$	$P_0(A_{s,s+h})$

List of Errata/Comments (Chap.7) continued

325	-13	Section 8.2	Section 7.2
326	15	$E(\exp \dots)$	$E_x(\exp \dots)$
	-1,-2,-3	p on the LHS's	p_t (done!)
327	8	$t \rightarrow E_x \dots$	$t \mapsto E_x \dots$
	Thm 7.5.9	7 E 's	E_0
	-4	$T = \inf\{B_t \notin (-a, a)\}$	$T = \inf\{t : B_t \notin (-a, a)\}$
328	1	$a > 0$	$a, b > 0$ and $\inf \emptyset = \infty$
329	10	$g_i(\omega)$	$g_i^n(\omega)$
	-9	$f'(B_{t_i^n})$	$f'(B_{t_j^n})$
331	-13,-12	$(B(t_{i+1}^n) - B(t_i^n))$	$(B(t_{i+1}^n) - B(t_i^n))$
	-12	+	= (should be alinged)
	-12	$(B(t_{j+1}^n) - B(t_j^n))$	$(B(t_{j+1}^n) - B(t_j^n))$
	-10	$B(t^n - i)$	$B(t_i^n)$
	-8	$(B(t_{i+1}^n) - B(t_i^n))^2$	$(B(t_{i+1}^n) - B(t_i^n))^2$
333	12	2^{-n}	$t2^{-n}$
	-16	$C_1 = E\chi^{1/2}$	$C_1 = E \chi ^{1/2}$
	-14, -12	$\frac{\partial^2 f}{\partial x^2}$	$\frac{\partial^2 f}{\partial t \partial x}$
334	2	$\mu - \frac{\sigma^2}{2}$	$\mu + \frac{\sigma^2}{2}$
	3	$\mu = \sigma^2/2$	$\mu = -\sigma^2/2$
	6	D_{ij}	$D_{ij}f$
	-14	$t_i^n ti/2^n$	$t_i^n = ti/2^n$
335	6	$E(G_k G_\ell \mathcal{F}_{t_k^n})$	$E(G_k G_\ell \mathcal{F}_{t_\ell^n})$
	11	$f \in C^2$	that f is a polynomial
		$f(x) - a + bx$	$f(x) = a + bx$

List of Errata/Comments (Chap.8)

page	line	Error	Correction
336	1	section	chapter
338	-12	Lemma 3.2.13	Exercise 3.2.13
339	12	Subection	Subsection
340	5	$b \rightarrow$	$b \mapsto$
	-5	$m \rightarrow \tau_m^n$	$m \mapsto \tau_m^n$
342	-15	By Exercises	By Theorems
343	10	$A \rightarrow \infty$	$A \uparrow \infty$
	-7	(i)	(ii)
344	1	observe	and observe
345	11		Label (a) to refer on the -11-th line .
346	14, 18	Exercise 4.1.2	Theorem 4.1.2
347	1	Exercise 1.3 in Chapter 4	Exercise 4.1.2
	4	(e)	(8.2.3)
348	6	$n \rightarrow$	$n \mapsto$
	15	$\omega(m+n)$	ω_{m+n}
350	7	theorem	Theorem (done!) Delete 8.3.2.
	-11	$\ f\ _\infty$	$\ f\ _\infty^2$
	-9	Exercise 5.6 in Chapter 5	Exercise 5.6.3
	-5	Exercise 7.1	Exercise 8.3.1
	-5	(ξ_n, ξ_{n+1})	$f(\xi_n, \xi_{n+1})$
351	5	Theorem 8.3.5	Theorem 8.3.2
	7	Remark 8.3.2	Remark
	10	Example 7.3	Example 8.3.5
353	11	Remark 8.3.3	Remark
	12	(b)	(8.3.3)
	12	(c)	(8.3.4)
	14	$E X_0 ^{2+\delta}$	$E X_n ^{2+\delta}$
355	5	$x \rightarrow F(x)$	$x \mapsto F(x)$
358	2	$Y = B_s^0$	$Y = B_t^0$
	9	$(1-t)(1-s)/(1-s)$	$(1-t)(t-s)/(1-s)$
359	-13	n (twice)	m
360	8	Exercise 7.4.8	Exercise 7.4.3
	10	$(1-t)B(t/1-t)$	$(1-t)B(t/(1-t))$
	-4	Lemma 1.2.6	Theorem 1.2.6
361	-11	$t \rightarrow$	$t \mapsto$
362	6	$t \rightarrow \log \log t$	$t \mapsto \log \log t$
	13		Insert “a.s.”
363	-4	$ X_n $	$ S_n $

List of Errata/Comments (Chap.9)

page	line	Error	Correction
364	-6		Insert “If $r < x < R$,”
	-5	$\psi(x) = \phi(x)$	$\psi(x) = \varphi(x)$
365	14	$T_0 < \infty$	$S_0 < \infty$
370	-15	continuity of g	continuous
	-14		Friedman(1964) is not in the References
371	8	$\exp(c(s_i^n))$	$\exp(c(s_i^n))]$ (Insert ”]”)
	-10	c_t^t	c_t
372	4,5	$B_h^i - x$	$B_i(h) - x_i$ (cf. pp.368-369)
	5	$B_h^j - x$	$B_j(h) - x_j$
	6	$W_i(t), W_i^2(t) = t$ and $W_i(t)W_j(t)$	$B_i(t), B_i(t)^2 - t$ and $B_i(t)B_j(t)$
	7		Insert $\frac{1}{2}$ before the summation
	12,14	c_t^t (4 times)	c_t
	15	$(t, x) \rightarrow$	$(t, x) \mapsto$
373	3	c_t^t and c_s^t	c_t (it is enough)
	-17	,and apply (2.6b)	delete ?
	-9	$c, x)$	$c(x)$

List of Errata/Comments (Chap.9, continued)

374	6	$u(B(t \wedge T_n))$	$u(B(t \wedge T_n))$
	11	$T_{k+1} + k \leq T_{k+1} + k + 1$	$T_{k+1} + k \leq t \leq T_{k+1} + k + 1$
375	4,5	$\partial D(x, r)$	$\partial B(x, r)$
	10	$D(x, \delta)$	R^d
	-6	$[a_n, a_n]$	$[-a_n, a_n]$
	-1	$= 1$	$= 0$
376	5,10,13,14	$\rightarrow$	$\mapsto$
	-3	$\geq$	$=$
		$ B_t $	$ B_s $
377	-4	θ on the numerator	θ_i
378	-13	$x \in H$	$(x, y) \in H$
	-6	$D $	$D\}$
379	10	open set G	open set
	13	$u(B_y)$	$u(B_t)$
	-3	$B_t \in G$	$B_t \notin G$
380	-4	(2.4)	delete
382	9	$x \rightarrow G(x, 0)$	$x \mapsto G(x, 0)$
	-14	$\phi(x) = x $	$\varphi(x) = x $
383	-12	τ_D (twice)	τ_B
385	-6	$y \rightarrow G_H(x, y)$	$y \mapsto G_H(x, y)$
386	1		noindent
390	-4	(6.3a)	Lemma 9.8.3
391	-3	σ	τ_B (written as τ_D in the next page)
	-1	$E_x v(B_\sigma \exp(c_\sigma))$	$E_x v(B(\tau_B)) \exp(c_{\tau(B)})$
392	2	$E_x v(B(\sigma) \exp(c_\sigma))$	$E_x v(B(\tau_B))$
	2,3	τ_D (3 times)	τ_B
	6,7	g (3 times)	c
	11	(4.5a) and (4.5b)	Lemma 9.5.9
393	-3	(6.3)	Theorem 9.8.7

List of Errata/Comments (Appendix)

page	line	Error	Correction
397	11	a set	(the set) F
	-13	is (A.1.2)	(A.1.2) is
398	6	... (A.1.1)	... (A.1.1)) “insert)”
	-1	Theorem A.1.7	Lemma A.1.7
399	-18	,where	. (period)
	-17	(ii)	(iii)
	-14	$\cup i = 1^n$	$\cup_{i=1}^n$
	-11, -10	B	C
	-7	A.1.2	Lemma A.1.2
	-6	in Section A.1	delete
	-3	$\mu^*(E_i)$	$\mu^*(B_i)$
	-1	$\sum_{i=1}^{\infty}$	$\cup_{i=1}^{\infty}$
400	-10	$(\mathbf{R}, \mathcal{R}^d)$	$(\mathbf{R}^d, \mathcal{R}^d)$
401	-12,-11	sphere(s)	ball(s)
403	9	$C_n^* \cap_{m=1}^{n-1} (C_m^* \times \mathbf{R}^{n-m})$	$C_n^* \cap (\cap_{m=1}^{n-1} (C_m^* \times \mathbf{R}^{n-m}))$
405	-6	$\alpha^+ + \alpha^-$	$\alpha_+ + \alpha_-$
408	3	$x \rightarrow$	$x \mapsto$

List of Errata/Comments (References)

page	line	Error	Correction
411	9	Skorkhod	Skorokhod
414	-7	SSR	SSSR

Add :

A.Friedman, Partial Differential Equations of Paraboloc Type, Prentice-Hall International, 1964. (cf. p.370)