**TECHNICAL ERRATA ON FIRST EDITION**

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**STOCHASTIC PROCESSES WITH APPLICATIONS, WILEY, N.Y.,1991**

**BY**

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1. p. 12, (5.3): Replace n by $\frac{n}{k}$ on right side of (5.3)

2. p. 18, line 11 from top: $X_{t_n} - X_{t_{n-1}}$

3. p. 30, line 8 from top: $f^2_\sigma(t)$ should be $f_{\sigma^2}(t)$

4. p. 40, line 15 from bottom: $ES_n = ES_0$

5. p. 43, (13.20): $\tau_{-1}$ should be $\tau_{-a}$

6. p. 53, line 8 from the top: $\tau^{(r)}$ should be $\tau^{(n)}$

7. p. 69, Exc. 1 (iv): $|q-p|^{-1}$ should be $(q-p)^{-1}$

8. p. 70, Exc. 4: In 4(i) replace the equality by: *(Levy's Inequality)* $P(max_{n\le N} S_n \ge y) \le 2P(S_N \ge y)$ Delete 4(ii)

9. p. 71, Exc. 10i: $P(T_y = N) \sim \frac{2|y|}{(2\pi)^{1/2}} N^{-3/2}$

10. p. 79, Exc. 3 should appear in Section I.10.

11. p. 85, Exc. 6(i): the right hand side should read: $\sum_{k=-\infty}^{\infty}[e^{-(2kx)^2/2} - e^{-(2kx+y)^2/2}]$

12. p. 85, Exc. 7: $B_t^+$ in line 2 should be $B_t^*$

13. p. 88, Exc.7: 'symmetric' should be 'asymmetric'

14. p. 88, Exc. 12(ii),(iii): Assume $EX_n = 0$ for all $n$

15. p. 93, 6 lines from top: Delete $\mu$ in $\mu_{i_k}$. Should read $\mu_{i_1 \dots i_k}(dx_{i_1} \cdots dx_{i_k})$.

16. p. 123, line 14 from the bottom: Insert '$> 0$' ($A = \{n \ge 1 : p_{ii}^{(n)} > 0\}$).

17. p. 127, (6.7): Superscript $N+1$ on the left side should be $n+1$.

18. p. 130: line 14 from bottom, Should read: spectral radius is the largest magnitude of eigenvalues of $A$.

19. p. 137, line 13 from the top: The reference should be to Exercise 6 (not Exercise 7)

20. p. 137, (8.15): should be $(2p-1)$ in place of $(1-2p)$ (or replace $p > \frac{1}{2}$ by $p < \frac{1}{2}$)

21. p. 140, (9.8): first sum should start with $m = n+1$

22. p. 194, Exc 4(iv): should read $Z_n = X_n$, $n < T$ and $Z_n = Y_n$ for $n \ge T$.

23. p. 196, Exc 7 should appear in Section II.8 instead of II.6

24. p. 197, Exc 2 should appear in Section II.7 instead of II.6

25. p. 197, Exc 6(c), last line should read: with transition law $\mathbf{p}$ and starting at $i$

26. p. 197, Exc 7(i): the largest magnitude of the eigenvalues of $A$

27. p. 199, Exc 1: Should be in Section II.6 with $g_k = q^k \cdot p$, for $k = 0, 1, 2, \ldots$.

28. p. 200, Exc 5, Should read: A *tree graph* on $r$ vertices $v_1 \ldots v_r$ is a *connected graph* that contains no cycles. [That is, ... uniqe sequence $e_1, e_2, \ldots, e_r$ of edges $e_i = \{v_{k_i}, v_{m_i}\}$ such that $u \in e_r, e_i \cap e_{i+1} \neq \emptyset, i = 1, \ldots, r-1$.] The *degree* ... .

29. p. 202, Exc 1(ii): insert $n$ in hint: $P(|Y_n| > n\epsilon \ i.o.)$

30. p. 203, Exc 8: $p_n = p^{n-1}(1-p)$, $n = 1, 2, \ldots$

31. p. 215, line 12 from the top: In (ii), $\int_B$ should be inserted before the second term on the left.

32. p. 247, line 10 from the top: 'propostional' should be 'proportional'

33. p. 256, Exc 4: should read $\alpha_1 = e^{-\lambda_1}$ is the largest nontrivial (i.e. $\neq 1$) eigenvalue of p. $\psi_1$ is the eigenvector corresponding to $\alpha_1$.

34. p. 262, Second line of (1.4) should read $j < i$.

35. p. 275, After (4.14) add (See Exc 7).

36. p. 277, line 18 from top: Proposition 5.3 should be 5.2

37. p. 277, line 5 from bottom: add (See Exc 2).

38. p. 278, line 5 from top: Prop 5.3 should be 5.2

39. p. 278, lines 7,8 from top: $X_{\tau_1}$ should be $X_{\tau_2}$, $X_{\tau_n}$ should be $X_{\tau_{n+1}}$.

40. p. 279, line 4 from top, insert at the end: on the set $\{Y_k = i_k : k \geq 0\}$, $k = 1, 2, \ldots$.

41. p. 280, Second line of Prop 5.6 should have $\{X_t\}$ in place of $\{Y_t\}$.

42. p. 285, line 4 from the bottom: The reference should be to Example 8.3 (not Example 8.2).

43. p. 290, line 7 from top: $\lambda_{m+1}$ should be $\lambda_{m+i}$

44. p. 302, line 8 from top: $\{V_t : 0 \leq u \leq t\}$ should be $\{V_u : 0 \leq u \leq t\}$

45. p. 303, line 5 from top: $o(\tau)$ should be $o(1)$

46. p. 307, (8.15): The right side should be divided by $\lambda_j$.

47. p. 307, third line after (8.15): the right side of the display should be divided by $\lambda_j$.

48. p. 309, line 12 from top: The second and third sums in display (8.26) are $\sum_{y=N}^{\infty} \frac{\alpha^y}{\beta^y N! N^{y-N}} = \frac{N^N}{N!} \sum_{y=N}^{\infty} (\frac{\alpha}{N\beta})^y$.

49. p. 309, lines of (8.27): delete $\frac{1}{(\alpha+\beta)}$, $\frac{1}{(\alpha+j\beta)}$, $\frac{1}{(\alpha+N\beta)}$ wherever it appears in display (8.27).

50. p. 325, display (11.2): first sum is over $\mathbf{n} \in \mathbf{Z}^d$

51. p. 326, Figure 11.1: $(\sigma_0(0))$ should be $(\sigma_{\mathbf{n}}(0))$

52. p. 329, display 11.10: insert $d$: Should be $2dp_{\mathbf{mn}}$ in second line of display (11.10)

53. p. 333, Exc 3: $\rho(u) > 0$

54. p. 334, line 1 from the top: Replace "positive" by "nonzero"

55. p. 363, line 6 from bottom: $(S, \mathcal{F})$ replaced by $(\Sigma, \mathcal{G})$

56. p. 363, line 5 from bottom: $\mathcal{F}$ replaced by $\mathcal{G}$

57. p. 364, line 8 from top: $\mathcal{F}$ should be $\mathcal{G}$

58. p. 364, line 14 from bottom, Should read: to $\eta$ in the metric $\rho$ as $k \to \infty$, then $\sigma_{\mathbf{n}}^{D(\eta_k)}(t) = \sigma_{\mathbf{m}(\mathbf{n},t)}^{D(\eta_k)}(0) \to \sigma_{\mathbf{m}(\mathbf{n},t)}^{D(\eta)}(0) = \sigma_{\mathbf{n}}^{D(\eta)}(t)$ a.s. as $k \to \infty$.

59. p. 364, line 12 from bottom, display should be: $1 - 2P_{\eta_k}(\sigma_{\mathbf{n}}(t) = -1) = E\sigma_{\mathbf{n}}^{D\eta_k)}(t) \to E\sigma_{\mathbf{n}}^{D(\eta)}(t) = 1 - 2P_{\eta}(\sigma_n(t) = -1)$

60. p. 369, (1.4): should be $p(t_1; x, y_1) \ldots$

61. p. 373, (2.12): $||f||$ should be $||f^{''}||$

62. p. 374, line 2 from top: $|f(y) - f(x)|$ should be $|f^{''}(y) - f^{''}(x)|$

63. p. 375, line 3 from bottom: $x = X_u$ should be $x = X_s$

64. p. 380, (2:44): Delete square brackets on the right hand side, and insert one parenthesis after $-\partial/\partial x$

65. p. 398, (6.18): should be $\int_{[a,\infty)}$

66. p. 414, (8.38): first line replace $\frac{x}{d}$ by $\frac{d-x}{d}$

67. p. 476, Exc 4(v): $\sigma^2 = \gamma^2\sigma_0^2$ and not $\sigma^2 = \gamma\sigma_0^2$

68. p. 566, (1.18): should be $\mathcal{F}_\alpha$ not $\mathcal{F}_s$ in display (1.18)

69. p. 571, (1.35): delete first minus sign

70. p. 576, (2.29): delete last $= o(t)$. Remove period after as $t \downarrow 0$

71. p. 577, first line of (2.31): $dx$ should be $ds$

72. p. 578, (2.34): Insert $\int_\alpha^t$ after $\sum_{i=1}^k$

73. p. 590, line 9 from top: $P(|X_t^x - x| > \epsilon)$

74. p. 597, display (4.37): Insert one prime on the right side: $\sigma\sigma'$

75. p. 598, display (4.39): Insert one prime on the right side: $\sigma\sigma'$

76. p. 608, last line: $dB_s$

77. p. 609, first line: $dB_s$

78. p. 617, display (T.3.30): Insert '$\sigma'(X_t^x)$' after $Z_t^{0,x}$ in the $dB_t$ term on the right side of last line of (T.3.30): last line of (T.3.30) should read: $\mathbf{A}g(\mathbf{X}_t^{\mathbf{x}})Z_t^{0,\mathbf{x}}dt + Z_t^{0,x}(\sigma'(\mathbf{X}_t^{\mathbf{x}})\text{ grad } g(\mathbf{X}_t^{\mathbf{x}}) + g(\mathbf{X}_t^{\mathbf{x}})f(\mathbf{X}_t^{\mathbf{x}})) \cdot d\mathbf{B}_t$

79. p. 618, lines 3, 4 from the top: The statement (a) should read: (a) Then for every $t \geq 0$, the probability measures $P$ and $Q$ are absolutely continuous with respect to each other on $(\Omega, \mathcal{F}_t)$, with $dQ/dP = Z_t^{0,\mathbf{x}}$.

80. p. 618, lines 14, 15 from the bottom should read: Then $P$ and $Q$ are absolutely continuous with respect to each other on $(\Omega, \mathcal{F}_t)$, with $dQ/dP = Z_t^{0,\mathbf{x}}$.

81. p. 619, (T.3.36): $c(s)$ should be replaced by $\mu(\mathbf{X}_s^{0,\mathbf{x}})$.

82. p. 619, line following (T.3.36) should read: It is enough to show.

83. p. 619, line following (T.3.37) should read: In view of Theorem T.3.5, (T.3.37) follows ...

84. p. 620, line 4 from the top: Insert $(r)$: Should read $\bar{\beta}(r) :=$

85. p. 626, line 17 from top: $I = [a, b)$

86. p. 628, line 6 from the bottom: Insert 'a'. ($\phi$ is a convex...)

87. p. 648, line 12 from bottom: $a$ should be $\alpha$

88. p. 649, Corr 6.2: insert "identically distributed" after uncorrelated

89. p. 652, first line of Corr 7.3: $X_{n,k_n}$ should be $X_{k_n,n}$

90. p. 654, Missing factor $\frac{1}{2\pi}$ in (8.4) on the right, missing factor $2\pi$ on the left in (8.5).

91. p. 668, line 15 from the top: the pages are '507–511' (not '503–511')

92. p. 670, page reference to Ornstein-Uhlenbeck process: Insert page numbers 480, 581, 598. Delete page number 580.

93. p. 672, Add p.14 to Stirling formula reference