Corrections to *Theory of Statistics* (First Printing)

This file was last updated *May 21, 2015*

If you find errors in the book not listed here or if you wish to offer comments on the book, send them to mark "at" stat.cmu.edu.

- p. vii 2nd paragraph line 3: "as motivated" should be "as motivated by"

Chapter 1

Section 1.1

- p. 2: A footnote is needed to clarify some notation. (9/23/97)

  There is a gif version of revised p. 2 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p2.ps`.)

- p. 3: line -2: "$2\Phi(-c)$" should read "$1 - 2\Phi(-c)$" (6/5/03)

- p. 4 line -11: "with $N(\theta, 1)$" should be "with $N(\theta, 1)$ distribution"

Section 1.3

- p. 13 in footnote 10: "$(S, \mathcal{A})$" should be "$(S, \mathcal{A}_X)$"

- p. 15 line 14: "$t_{a_0}(\mu_0, \sqrt{(1/n + 1/\lambda_0)b_0/a_0})$" should be "$t_{a_0}(\mu_0, [1/n + 1/\lambda_0]b_0/a_0)$"

- p. 17 first line of Example 1.34: "X has $Bin(n, \theta)$" should be "X has $Bin(n, \theta)$ distribution"

- p. 18 in (1.37): "$d\mu_\Theta$" should be "$d\mu_{\Theta|X_1,\ldots,X_n}$"

- p. 18 line -12: "$t_{a_1}(\mu_1, \sqrt{[1/m + 1/\lambda_1]b_1/a_1})$" should be "$t_{a_1}(\mu_1, [1/m + 1/\lambda_1]b_1/a_1)$"

- p. 19 line 8: "$\int Z(x)dP_\theta(x)$" should be "$\int f(x)dP_\theta(x)$" (2/1/00)

Section 1.5

- p. 36 footnote 26: "This theorem" should be "This corollary"

- p. 39, proof of Lemma 1.67: all of the $\binom{N}{n}$ symbols should be permutations instead, namely $N!/(N-n)!$. (5/21/15)

- p. 52 line 7: "$t_{a_1}(\mu_1, \sqrt{[1/m + 1/\lambda_1]b_1/a_1})$ densities converge to the $t_{a_1}(\mu_1, \sqrt{b_1/[a_1\lambda_1]})$" should be "$t_{a_1}(\mu_1, [1/m + 1/\lambda_1]b_1/a_1)$ densities converge to the $t_{a_1}(\mu_1, b_1/[a_1\lambda_1])$"

Section 1.6

- p. 52 line -8: "$y_{n-1}^{\alpha_n - 1}$" should be "$y_{n-1}^{\alpha_{n-1} - 1}$" (7/14/99)

- p. 53 middle expression in (1.92): "$Y_1, \ldots, Y_n)$" should be "$(Y_1, \ldots, Y_n)$"
- p. 54, last line of main text: switch "B_i^1" and "B_i^0" (11/17/99)
- p. 55 lines 7 and 18: "$\frac{\beta_i}{\alpha(\mathcal{X})}$" should be "$\frac{\beta_j}{\alpha(\mathcal{X})}$" in both places (11/17/99)
- p. 55 line 13: "$x \in B_j^1$" should be "$x \in B_j^0$" (11/17/99)
- p. 56 first equation in proof of Theorem 1.97: The **P** and Pr should both be italic P.
- p. 56 line -17: "$I_{B\epsilon}$ " should be "I_{B_ϵ}" (5/1/01)
- p. 56 line -14: "$a_n = \alpha(\mathcal{X})/[\alpha(\mathcal{X})+n-1]$" should be "$a_n \leq \alpha(\mathcal{X})/[\alpha(\mathcal{X})+n-1]$"
- p. 70 line -5: "$(c_n + 1)$" should be "$(kc_n + 1)$"

Section 1.7

- p. 73 problem 3: n is used both as a dummy and as a fixed value. In the first line, "X_{n+i}" should be "X_{m+i}" and in the second line, "$X_1, \ldots, X_n$ should be $X_1, \ldots, X_m$". (1/7/99)
- p. 74 problem 11: after the displayed formula, "$x = \sum_{j=1}^m x_i$" should be "$x = \sum_{j=1}^m x_j$". (2/19/01)
- p. 74 line -2: "how many observations" should be "how many Y_i observations"
- p. 78 problem 34(c): "(refp202)" should be "(b)" (8/25/97)
- p. 80 problem 43: "α is a finite measure" should read "α is a finite measure with no point masses" (4/24/00)

Chapter 2

Section 2.1

- p. 84 last line of footnote: "predictive" is misspelled (2/21/00)
- p. 85 second line of Definition 2.8: "$\Theta : \mathcal{P}_0 \to \Omega$" should be "let Θ" (2/9/99)
- p. 85 line -4: "$r(\cdot|t)$" should be "$r(\cdot, t)$"
- p. 86 line 6: "$r(\cdot|t)$"should be "$r(\cdot, t)$"
- p. 87 line -13 and line -7: "Theorem 2.6" should be "Lemma 2.6"
- p. 90 line 11: "$I_{[t,\infty)}(\theta)/\theta^n$." should be "$cI_{[t,\infty)}(\theta)/\theta^n$, where $c = 1/\int_t^\infty \psi^{-n} d\mu_\Theta(\psi)$." (2/14/00)

- p. 91 line 5: "$\sum_{i=1}^{\infty} c_i m_2(t, \theta_i)$" should be "$\left(\sum_{i=1}^{\infty} c_i m_2(t, \theta_i)\right)^{-1}$" (2/23/99)
- p. 95 line -9: "density" should be "distribution" (2/18/99)

Section 2.2

- p. 104: The last paragraph contains some incorrect statements. (2/15/01)

  There is a gif version of revised p. 104 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p104.ps`.)
- p. 108 line -7: "The two sides of (2.75) are" should be "The two sides of (2.75) are r times"

Section 2.3

- p. 111: Example 2.81 should appear after Example 2.85 (page 113). The reason is that the attempt to compute Fisher information is based on the second derivative of the log-likelihood which is not introduced until page 112.

  There is a gif version of revised p. 111 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p111.ps`.)
- p. 113 last line of Example 2.85: "$[p(1-p)^2]$" should be "$[p(1-p)]$"
- p.114 lines 9–11: "$\frac{\partial}{\partial \theta_i} \log f_{X|Y,\Theta}(X|Y, \theta)$" should be "$\frac{\partial}{\partial \theta_j} \log f_{X|Y,\Theta}(X|Y, \theta)$" on all three lines.
- p. 118 line 17: "$= -\mathrm{E}_{\theta_0}$" should be "$= \mathrm{E}_{\theta_0}$"
- p. 119 line 17: "$, U\Theta$" should be "U, Θ"
- p. 119 line -7: "Example 2.52; see page 100" should be "Example 2.46; see page 97"
- p. 120 line 8: "$\mathrm{E}(M_0) = 1/3$ and $\mathrm{E}(N_0) = 1/2$" should be "$\mathrm{E}(M_0) = N/3$ and $\mathrm{E}(N_0) = N/2$"

Section 2.4

- p. 128 line 11: "exits" should be "exists"

Section 2.5

- p. 138 problem 9(a): "density X" should be "density of X"
- p. 139 problem 13: in the displayed equation, "$\theta^\top x$" should be "$\theta^\top x_i$" (8/27/97)
- p. 140 problem 16 line 3: "$2\pi\theta^2$" should be "$\pi\theta^2$"

- p. 141 problem 24(b): add the sentence "Let Θ have a nondegenerate prior distribution." (8/27/97)
- p. 143 problem 43: "$-\mathrm{E}_\theta\left(\partial^2 \log f_{X|T,\Theta}(X|t,\theta)/\partial\theta_i\partial\theta_j\right)$" should be "$-\mathrm{E}_\theta\left(\partial^2 \log f_{X|\Theta}(X|\theta)/\partial\theta_i\partial\theta_j \middle| T=t\right)$" (9/3/97)
- p. 143 problem 46(b) line 2: "$\Pr(\Theta = 1|Y_n)$" should be "$\Pr(\Theta = 1|Y_n = q)$" (2/21/00)

Chapter 3

Section 3.1

- p. 146 line -5: "$(v-a)^2$" should be "$(v-\delta(x))^2$"
- p. 147 line 17: "all at least one" should be "at least one"
- p. 147 line 23: "$X = (X_1, \ldots, X_{10})$" should be "$X = \sum_{i=1}^{10} X_i$" (3/11/99)
- p. 147 in (3.11) and line -9: "$dF_{V|X}$" should be "$d\mu_{V|X}$"
- p. 148 line 1: "$dF_{V|X}$" should be "$d\mu_{V|X}$"

Section 3.2

- p. 155 in Example 3.30: "$\log(c/x)I_{(x,c)}(\theta)$" should be "$I_{(x,c)}(\theta)/[\theta\log(c/x)]$" and "$(c-x)\log\left(\frac{c}{x}\right)$" should be "$(c-x)/\log\left(\frac{c}{x}\right)$". (11/4/97)
- p. 159 line -9: "$N(0,\sigma_0^2 n)$." should be "$N(0,\sigma_0^2 n)$ density." (9/12/00)
- p. 168 in Example 3.62: the denominator of the displayed formula for $R(\theta,\delta)$ should be $(\alpha+\beta+n)^2$
- p. 169 line 1: "$\inf_\delta(\lambda_0,\delta)$" should be "$\inf_\delta r(\lambda_0,\delta)$"
- p. 170 line 6: "$x \notin C$" should be "$x \notin \overline{C}$"
- p. 170 line 8: "$\partial_L \in R$" should be "$\partial_L \subseteq R$"
- p. 174 line -9: "be A" should be "let A be"
- p. 175 lines 7–8: "of the following forms:" should be "equal (æ $[\nu]$) to one of the following forms:" (11/11/97)
- p. 176 in (3.90): "$d\mu(x)$" should be "$d\nu(x)$"
- p. 176 first line after (3.90): "δ" should be "δ^*"
- p. 177 line 8, line -8 (two places), line -7: "ϕ_{k^*}" should be "$\phi_{k^*,\gamma}$"
- p. 177 lines -1 and -2: "P_0" should be "P_1". (9/20/01)
- p. 178 line 12: "Theorem 3.91" should be "Proposition 3.91"

- p. 179 line 3: "μ" should be "ν" (11/12/97)

Section 3.3

- p. 186 line 5: "preference" should be "preferences" (both places)
- p. 192 line 20, line 21, footnote 21: "Archemedian" should be "Archimedean"
- p. 193 line 4, line 8, line 10, line 15: "Archemedian" should be "Archimedean"
- p. 194 line 3: "Archemedian" should be "Archimedean"
- p. 196-197: The proof of Lemma 3.130 has an error. Fortunately, a simpler lemma will suffice. (1/21/00)

  There are gif versions of revised p. 196 and revised p. 197 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p197-197.ps`.)
- p. 198 footnote 30: "Archemedian" should be "Archimedean"
- p. 199 lines 6 and 7: "$Q(B_n)$" should be "$Q(A_i)$"
- p. 204 line 22: "$U_x(H_1) = U_x(H_2)$" should be "$U_x(H_1) = U_x(H_2)$ for $x \in D_q$"
- p. 205 in Theorem 3.147: "Archemedian" should be "Archimedean"
- p. 206 line 9: "r_i" should be "t_i"

Section 3.4

- p. 209 problem 10: "$\aleph = \Omega = (0,1)$" should be "$\Omega = (0,1)$, $\aleph = [0,1]$," (11/12/97)
- p. 210 exercise 18: "Suppose that P_θ say that $X \sim Geo(\theta)$, that is," should be "Suppose that" (9/18/00)
- p. 212 problem 33: "Archemedian" should be "Archimedean"

Chapter 4

Section 4.1

- p. 215 line -4: "$L(v,1) > L(v,0)$" should be $L(v,1) \geq L(v,0)$" and "$L(v,1) < L(v,0)$" should be $L(v,1) \leq L(v,0)$" (11/1/00)
- p. 216 line 18: "the 0-1 loss is sufficient." should be "the 0-1 loss might be used." (11/1/00)
- p. 217 line -16: "$2\Phi(|x|)$" should be $2[1 - \Phi(-|x|)]$"

Section 4.2

- p. 219 line 5: "$t_{n-1}(\overline{x}, s/\sqrt{n})$" should be "$t_{n-1}(\overline{x}, s^2/n)$"
- p. 221 line 21: "$(1 - p_1)$" on the bottom branch should be "$(1 - p_0)$" (12/3/97)
- pp. 222, 229, 283, and 285: There are some misleading statements made about Bayes factors. (1/21/00)

  There are gif versions of revised p. 222, revised p. 229, revised p. 283, and revised p. 285 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p222plus.ps`.)

Section 4.3

- p. 231 Example 4.36 line 2: "0.05 test" should be "0.95 test" (5/6/98)
- p. 243 line -9 "$\theta > \theta_0$" should be "$\theta \geq \theta_0$" (10/10/97)
- p. 243 line -7: "$\phi(\theta_0)$" should be "$\beta_\phi(\theta_0)$"
- p. 244 line 7: "hypotheses" should be "hypothesis"
- p. 246 footnote 17: "Lemma 4.78" should be "Corollary 4.80"
- p. 247 second line of proof of Lemma 4.78: remove the phrase "which satisfies the preceding inequality constraints" (10/12/00)
- p. 248 last two lines in Corollary 4.80: "$\phi(x)$" should be "$\phi_0(x)$" on the right-hand sides of both inequalities (4/23/99)

Section 4.4

- p. 254 line 4: "$\mathcal{B}$" should be "B"
- p. 254 next line after Def 4.94: "test" should be "tests"
- p. 254 top row of posterior risk table in Example 4.95: "$a = 0$" and "$a = 1$" should be switched. (4/13/99)

Section 4.5

- p. 269 line -5: "family" should be "family distribution" (11/26/97)
- p. 272: A factor was left out of three equations in Example 4.131. In addition, there is a typo on line 12 (θ_i should be Θ_i). (4/27/98)

  There is a gif version of revised p. 272 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p272.ps`.)
- p. 275 line 9: "with" should be "that"

Section 4.6

- p. 283 line 17: "$p(x)$" should be "$p_H(x)$"
- p. 285 line 20: "if only if" should be "only if"

Section 4.7

- p. 285 problem 2: "$d(\theta)$" should be "$d(v)$" (9/10/97)
- p. 285 problem 2: "$d > 0$" should be "$d \geq 0$" (11/1/00)
- p. 286 problem 4: "for every prior" should be "for every prior for which there exists a formal Bayes rule," (11/1/00)
- p. 286 problem 5: "$(0, \infty) \times \mathbb{R}$" should be "$\mathbb{R} \times (0, \infty)$" (9/5/97)
- p. 286 problem 6: The first displayed equation should be

$$f_{\Theta|X}(\theta|x) = \begin{cases} p_1 & \text{if } \theta = \theta_0, \\ \frac{(1-p_1)\sqrt{1+\tau^2}}{\tau\sqrt{2\pi}} \exp\left[-\frac{1+\tau^2}{2\tau^2}(\theta - \theta_1)^2\right] & \text{if } \theta \neq \theta_0, \end{cases}$$

  (11/24/97)
- p. 288 problem 19(d): add the hint "Read Example 4.146." (1/21/00)
- p. 288 last line of problem 23: "level α test is the" should read "level α one-sided test is a" (4/21/99)
- p. 290 problem 36: The density should be 0 for $x < 0$. (10/5/01)
- p. 291 first line of problem 42(b): "in that" should be "in which" (10/18/00)
- p. 294 problem 65(c): "Prove that" should be "Prove that for all $\theta \in \Omega_A$" (12/23/97)

Chapter 5

Section 5.1

- p. 298 line 3: "estimator that" should be "estimator with finite variance that"
- p. 298 line -2: "estimator δ" should be "estimator δ with finite variance"
- p. 298 line -1: "$U \in \mathcal{U}$" should be "$U \in \mathcal{U}$ with finite variance" (11/7/00)
- p. 312 line 1: "the difference" should be "half of the difference" (1/29/98)
- p. 314-315: The discussion of the Huber estimator has a serious error.

  There are gif versions of revised p. 314 and revised p. 315 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p314-315.ps`.)

Section 5.2

- p. 320 line 9: "$1 - [n/\alpha^{1/n} - n + 1]$" should be $1 - \alpha[n/\alpha^{1/n} - n + 1]$" (9/16/99)

Section 5.3

- p. 333 in (5.85): "$ell = 0$" should be "$\ell = 0$"

Section 5.4

- p. 341 problem 15(a): "Let r" should be "Let $r \geq 0$" (1/30/98)
- p. 342 problem 26 line 4: add "if $n \geq 2$" to the end of the sentence
- p. 343 problem 43: "y-intercept" should be "x-intercept" (9/28/99)

Chapter 6

Section 6.1

- p. 345 line 7: "length" should be "dimension"
- p. 347 lines -8 and -6: "I_n" should be "I_{n-1}" in both places (11/17/99)
- p. 348 and 352: There was a common oversight in the proofs of Theorems 6.10 and 6.19. (3/18/98)

  There are gif versions of revised p. 348 and revised p. 352 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p348_352.ps`.)
- p. 348 line 4: "MRE estimator" should be "MRE estimator for squared-error loss"
- p. 351 line 17: "$X \exp(1/n)$" should be "$X_{(n)} \exp(1/n)$"
- p. 352 line 1: "In a scale problem with one-dimensional parameter" should be "Under the same conditions as in Theorem 6.18"
- p. 352 last line: "real" should be "nonzero"

Section 6.2

- p. 360 line 10: "to small" should be "too small"

Section 6.3

- p. 376 lines -4, -3: " will not apply to point hypotheses or to" should be "is not useful for point hypotheses or for"
- p. 380 line 3: "test" should be "tests" (4/2/98)
- p. 385 line 1: "(σ, μ)" should be "(μ, σ)"

Chapter 7

Section 7.1

- pp. 394 to 398: In the definitions of "small order of r_n" and "large order of r_n," together with their stochastic versions, there is no benefit to allowing $\{r_n\}_{n=1}^{\infty}$ to be an arbitrary sequence of real numbers. The definitions should have been written with the requirement that $r_n > 0$ for all n. Aside from removing all of the unnecessary absolute values from the r_ns and s_ns that appear on pages 394-398, the following corrections are also needed:

  - p. 394, second line of Definition 7.1: "sequence of real numbers" should be "sequence of positive numbers".
  - p. 395, line 3: "c is real and nonzero" should be "$c > 0$".
  - p. 395, line 4: the last "x" should be "x_n". (5/19/03)
  - p. 395, line 14: "sequence of real numbers" should be "sequence of positive numbers".
  - p. 396, second line of Definition 7.3: "sequence of numbers" should be "sequence of positive numbers".(3/5/01)

  There is a gif version of revised p. 394, revised p. 395, revised p. 396, revised p. 397, revised p. 398, and a postscript version.

- p. 400: Theorem 7.20 should start with the sentence: "Let $\mathcal{X}$ and $\mathcal{Y}$ be subsets of Euclidean spaces." (8/5/97)

- p. 401: The paragraph before Corollary 7.21 is incorrect and there are a couple of other minor typos on this page. (8/5/97)

  There is a gif version of revised p. 401 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p401.ps`.)

Section 7.2

- p. 408 last line of statement of Theorem 7.35: put parentheses around $p_{\min\{i,j\}} - p_i p_j$ (11/24/98)

- p. 411 line 6: "Example 7.30" should be "Example 7.39"

- p. 412 line 4: the right-hand side of the equation should be

$$\frac{1}{n}\left(a^2\left[\frac{2}{p} - 4\right] + 1\right),$$

Section 7.3

- p. 413 line 17: "$\sqrt{2/\pi} = 0.798$" should be "$2/\pi = 0.637$"

- p. 413 line 18: "0.798" should be "0.637"
- p. 413 Example 7.46 line 4: "Then r is the" should read "Then $|r|$ is the" (3/21/00)
- p. 414 lines 9, 19, 22: "$\overline{X}$" should be "$\overline{X}_n$"
- p. 415 first line of Theorem 7.49: "X_1" should be "X_n"
- p. 415: the conditions of Theorem 7.49 should include the sentence "Let Ω be a metric space." (8/5/97)
- p. 416 line 7: "$x \in \mathcal{X}$" should be "$x \in \mathcal{X}^\infty$"
- p. 417 footnote 16 line 3: "Usc" should be "USC"
- p. 418 line 3: "at θ for every θ" shuld be "in θ for every x"
- p. 419 line 8: "$\partial \log c(\theta)/\partial\theta_i$" should be "$-\partial \log c(\theta)/\partial\theta_i$"
- p. 419 line 8: Insert the sentence "Let $X_1 = (Y_1, \ldots, Y_k)$." and the following displayed equation should begin "$\mathrm{Cov}_\theta(Y_i, Y_j)$" rather than "$\mathrm{Cov}_\theta(X_i, X_j)$". (10/14/99)
- p. 422 line 15: "The ith coordinate" should be "The jth coordinate" (2/20/98)
- p. 426 line -12: "from that" should be "from which"
- p. 426 line -4: "$\partial^2\psi(x,\theta)/\partial\theta^2$ is continuous in θ." should read "$\partial\psi_j(x,\theta)/\partial\theta_t$ exists in a neighborhood of θ_0 for all j and t." (5/9/00)
- p. 427: Several typos appear in the statement and proof of Theorem 7.75. (10/21/99)

  There is a gif version of revised p. 427 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p427.ps`.)

Section 7.4

- p. 431 line 21: "at most $\exp(-nc/2)$" should be "at most $m\exp(-nc/2)$" (10/21/99)
- p. 432 line 16: "at least $\mu_\Theta(C_\delta)\exp(nc/4)/2$" should be "at least $\mu_\Theta(C_\delta)\exp(nc/4)/(2m)$" (10/21/99)
- p. 437 line -6: "$I_{int(\Omega)}$" should be "$I_{int(\Omega)^C}$" (11/9/99)
- p. 437 line -5: "X" should be "X_n"
- p. 440 last line: should read

$$P'_{\theta_0}(\Sigma_n^{\frac{1}{2}}\psi + \hat{\Theta}_n \in N_0(\delta), \text{ for all } \psi \in B) > 1 - \frac{\epsilon}{2}.$$

- p. 444 in Example 7.104: minus signs are too short
- p. 445 first displayed equation in proof of Theorem 7.106: all three θs on the right-hand side should be θ_0. (1/14/99)
- p. 447 line 11: "$(X^n, \mathcal{B}^n)$" should be "$(\mathcal{X}^n, \mathcal{B}^n)$"
- p. 447: Theorem 7.108 needs an additional condition and one of the conditions needs to be simplified. The proof requires only modest change since the additional condition was implicitly assumed.

  There are gif versions of revised p. 447 and revised p. 448 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p447-448.ps`.)
- p. 449 line -7: "Since $\hat{\theta} - \theta^* = o(1)$" should be "So"
- p. 451 Figure 7.114: the horizontal axis should be labeled "y" rather than "λ"
- p. 453: Theorem 7.116 needs an additional condition and one of the conditions needs to be simplified. The proof requires only modest change since the additional condition was implicitly assumed.

  There are gif versions of revised p. 453 and revised p. 454 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p453-454.ps`.)
- p. 454 line 7: "$\psi^*(x^n)$" should be "$\psi^*(x^n; \gamma)$"
- p. 455 line 5: "θ' by $\hat{\theta}$ and $\psi'(\gamma)$ by $\psi^*(\gamma)$" should be "$\hat{\theta}$ by θ' and $\psi^*(\gamma)$ by $\psi'(\gamma)$" (3/16/98)
- p. 457 line 7: "$= \cup_{k=n}^{\infty} E_k\}$" should be "$\} = \cup_{k=n}^{\infty} E_k$"
- p. 457 last line: "$A \cap C$" should be "$A \times C$"
- p. 458 line 12: the last set needs "$\bigcap_{\epsilon > 0}$" in front of it

Section 7.5

- p. 459: the conditions of Theorem 7.125 should include the following sentence "Assume that the MLE for the parameter space Ω_H is consistent also." (8/5/97)
- p. 462 lines 8 and 14: remove ",0" from subscript of q wherever it appears
- p. 462 line 12: "$b^\top a^{-1} b$" should be "$b^\top A^{-1} b$" (3/10/98)
- p. 463 line -3: "matrix" should be "matrix based on one reduced observation"
- p. 467 line 20: "$q_i(\psi)_i^Y$" should be "$q_i(\psi)^{Y_i}$"

- p. 467 in Example 7.136: "$-\Phi([r_{i-1}-\mu]/\sigma)$" missing in formula for $q_i(\psi)$

Section 7.6

- p. 468 problem 10 line 1: "$N(\theta, 1)$" should be "$N(\theta, 1)$ distribution"
- p. 468 problem 11 (8/14/01)
  - line 2: "$sin^2(z/2)'$" should be "$\sin^2(z/2)$"
  - line 4: "2σ" should be "$2\sigma^2$"
  - line 6: "$c =$" should be "$c = \frac{1}{\sqrt{2\pi\sigma}}$"
- p. 470 problem 24 line 3: "Pr" should be "Pr"
- p. 470 problem 24(a): Should read "Show that the relative rate of convergence (defined in Example 7.46 on page 413) of U_n to T_n is 0." (3/20/00)
- p. 471 problem 28: "prove that" should be "prove that for each fixed θ"
- p. 473 problem 43: "Consider the joint asymptotic distribution of $\sqrt{n}([\hat{\Theta}_n, T_n^T - \theta\mathbf{1})$" should be "Assume that $\sqrt{n}([\hat{\Theta}_n, T_n]^\top - \theta\vec{1})$ converges in distribution" (3/3/98)
- p. 474 problem 47: "Prove that there exists a subset $A \subseteq \Omega$ with $\mu_\Theta(A) = 1$ such that for every $\theta \in A$" should be "For each $A \in \tau$, prove that there exists $B \in \tau$ with $\mu_\Theta(B) = 1$ such that for every $\theta \in B$"
- p. 474 problem 48: add the sentence "Assume that Θ has a continuous bounded strictly positive prior density."
- p. 474 problem 50(a): "Use Laplace's" should be "Try to use Laplace's" (2/20/98)
- p. 475 problem 51: Replace the last sentence by "Modify the Laplace approximation of Theorem 7.116 by replacing $\hat{\theta}$ by θ' and $\psi^*(\gamma)$ by $\psi'(\gamma)$ and by replacing σ_n^2 and σ_n^{*2} by observed Fisher information. Prove that the approximate Bayes factor in (4.27) is the same as this modified Laplace approximation divided by $f_\Gamma(\gamma_0)$." (3/16/98)
- p. 475 problem 52 line 2: "(P_1, P_2)" should be "$(P_1, P_2, 1 - P_1 - P_2)$"

Chapter 8

Section 8.2

- p. 490 line 1: "note first note" should be "first note"

Section 8.5

- p. 519 footnote 17: "Chibb" should be "Chib"

Section 8.6

- p. 527 in (8.63): In the denominator of the fraction on the right-hand side, "$\sup_n$" should read "$\sup_n n$". (11/27/01)
- p. 529 last line: comma missing at the end

Chapter 9

Section 9.2

- p. 557 Theorem 9.44 and second line of proof: All of the α's and β's that appear without subscripts (3 of each) should have subscript 0. (7/1/04)
- p. 558 line 1: "$\alpha_0 \leq \alpha_1$, $\beta_0 \leq \beta_1$" should be "$\alpha_1 \leq \alpha_0$, $\beta_1 \leq \beta_0$" (7/1/04)

Appendix A

Section A.1

- p. 571 line 8: "A collection" should be "A nonempty collection" (1/11/99)
- p. 572 line 2: "extended" should be "nonnegative extended"
- p. 572 last paragraph of Section A.1.1: the following sentence should be added to the end of the paragraph "When an abstract measure is mentioned in this text, it will generally be safe to assume that it is σ-finite unless the contrary is clear from context."
- p. 573 second line of Sec. A.1.3: "Reimann" should be "Riemann"
- p. 573 fourth line of Sec. A.1.3: "function exists" should be "function over a closed and bounded interval exists"
- p. 575 lines 10-11: "g is μ_2 integrable" should be "the integral of g with respect to μ_2 is defined" (9/3/97)

Section A.2

- p. 578 in Theorem A.22: "Cratheodory" should be "Caratheodory"

Section A.3

- p. 582 line 19: "equals $\mathcal{A}$" should be "contains $\mathcal{A}$" (5/21/02)
- p. 584 line -2: "$f : S \to \mathbb{R}$" should be $f : S \to T$" (5/19/00)
- p. 585 line -18: "$\prod_{\beta \in \aleph}^{n} B_\beta$" should be "$\prod_{\beta \in \aleph} B_\beta$" (5/21/02)
- p. 587 line 2: "Let A_{1f}" should be "Let $\mathcal{A}_{1f}$" (11/28/06)
- p. 587 line 13: "with respect to A_{1f}" should be "with respect to $\mathcal{A}_{1f}$" (1/15/02)
- p. 587 line 13: "$A_t \in \mathcal{A}_{1f}$" should be "$A_t \in \mathcal{A}_2$"

Section A.4

- p. 588 first line of Proposition A.49: "probability" should be "measure" (5/21/02)
- p. 589 displayed formula in Theorem A.50: "$f(s)$" should be "$f_n(s)$" (5/21/02)
- p. 591 line 6: "of" should be "on"
- p. 592 line 14: "σ-finite" should "finite" (7/18/02)
- p. 592 in Theorem A.60: "σ-finite" should "finite"

Section A.5

- p. 593 line -7 "$\mu_i(A_in)$" should be "$\mu_i(A_{in})$" (5/21/02)
- p. 593 line -6 "Then let $f_{B,n} =$" should be "Then let $f_{B,n}(x) =$" (5/21/02)
- p. 594 line 3 "$\mu_2(D_m \cap E_n)_x$" should be "$\mu_2((D_m \cap E_n)_x)$" (5/21/02)
- p. 594 line 8: "Lemma A.64" should be "Lemma A.61" (1/18/99)
- p. 594 line -10: "$\nu_1((B_n)_x)$ " should be "$\nu_1(B_n)$" (1/16/01)
- p. 595 Lemma A.67: Insert the sentence "Assume the conditions of Lemma A.64" at the start. (5/21/02)
- p. 596 in statement of Fubini's theorem: "$d\mu$" should be "$d\mu_1 \times \mu_2$"
- p. 596 line line -12: "$\int |f(x,y)d\mu_2(y)$" should be "$\int |f(x,y)|d\mu_2(y)$" (5/21/02)

Section A.6

- p. 598 line 1: "is μ_2 integrable" should be "and the integral of g with respect to μ_2 is defined" (9/3/97)
- p. 599 line -21: "$A = \cup_{k=1}^{\infty}$" should be $A = \cup_{k=0}^{\infty}$" (5/21/02)
- p. 599 line -13: All three E's in this displayed equation should be A's. (5/21/02)
- p. 599 lines -9, -8: "integrable functions" should be "functions whose integrals are defined" (9/3/97)
- p. 600 line 23: "all $x \in C_0$" should be "almost all $x \in C_0$" (8/5/97)
- p. 600 last displayed equation: "(a)" should be "(s)"

Section A.7

- p. 603 problem 8: In line 2 "$\mathcal{A} = \mathcal{C} \cup \mathcal{D}$, where" should be removed. Also in line 4, "For $C \in \mathcal{C}$, define $\mu^*(C) = \mu(C)$." is superfluous.
- p. 603 problem 13: In line 1 "measurable spaces" should be "measurable spaces such that $\mathcal{A}_3$ contains all singletons"
- p. 603 problem 13: In line 2 "measurable for" should be "measurable and onto for"

Appendix B

Section B.1

- p. 609 line 4: "$\mathrm{E}(X|Y = y)$" should be "$\mathrm{E}(X|Y = t)$"
- p. 609 line 4: add "and $B = Y^{-1}(C)$" to the end of the sentence (9/4/01)
- p. 611 second paragraph of Section B.1.3: the following sentence should be added to the end of the paragraph "That is, $X_n \to X$, a.s. means that $\{s : X_n(s)$ does not converge to $X(s)\} \subseteq E$ with $\Pr(E) = 0$."

Section B.2

- p. 612 line 4: "an so" should be "and so" (5/21/02)
- p. 613 line 9: "$h : X :\to$" should be "$h : \mathcal{X} \to$" (5/21/02)

Section B.3

- p. 620 lines 3-4: ".)" should be "))."
- p. 630 line 4: "$\Pr\left(X \bigcap\right.$" should be "$\Pr\left(C \bigcap\right.$"
- p. 633 line 2 of Theorem B.75: "measurable" should be "Borel"

Section B.4

- p. 637: (B.84) has an error which requires several small changes to the proof.

  There is a gif version of revised p. 637 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p637.ps`.)
- p. 639: The proofs of two parts of Theorem B.90 have errors, a small typo in the proof of part 3 and an unwarranted claim in part 2. The proof of part 2 is actually made simpler.

  There is a gif version of revised p. 639 and a postscript version. (1/29/02) (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p639.ps`.)
- p. 643, Example B.100: Insert ", with $\sigma > 0$." at the end of the first sentence. (10/15/08)

Section B.5

- p. 647 line 2: "$\{X_n, \mathcal{F}_n\}$" should be "$\{(X_n, \mathcal{F}_n)\}$"
- p. 649 line 4: "$C = \mathrm{E}(X)/[2\delta]$" should be "$C = 2\mathrm{E}(X)/\delta$"
- p. 649 Theorem B.122: The condition "with $\mathrm{E}|X_{-1}| < \infty$" is superfluous. Also, "is finite with probability 1" should read "has finite mean"
- p. 650 Corollary B.123: The condition "with $\mathrm{E}|X_1| < \infty$" is superfluous. Also, "is finite with probability 1" should read "has finite mean"
- p. 650 Theorem B.124: "and X_∞ is finite a.s." is superfluous.
- p.650 line 2 in proof of Theorem B.124: "$\lim_{n\to-\infty}$" should read "$\lim_{n\to\infty}$". (2/8/02)
- p. 653 proof of B.133: We only define $P(C)$ for product sets, but the consistency insures that P extends in a well-defined manner to the field of finite unions of cylinder sets.

  There is a gif version of revised p. 653 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p653.ps`.)

Section B.6

- p. 656 3rd line of Theorem B.138: "$\mu : \mathcal{C} \to \mathbb{R}$" should be "$\mu : \mathcal{A} \to \mathbb{R}$"
- p. 656 Definition B.137: The value of d_α cannot be left unconstrained. It needs to be the largest possible value that will still prevent the agent from losing more than a prespecified amount M.

  There is a gif version of revised p. 656 and a postscript version. (The postscript file is in `http://www.stat.cmu.edu/~mark/advt/pages/p656.ps`.)

Section B.7

- p. 661 line 5: "$U^2 < f(X)$" should be "$U^2 > f(X)$"

Section B.8

- p. 661 problem 1: In lines 2-3 "the probability that" should be removed.
- p. 662 problem 6: In line 3 "$\sum_1^\infty$" should be "$\sum_{n=1}^\infty$"
- p. 662 problem 7: The displayed formula should be

$$F_{X,Y}(x,y) = \begin{cases} \frac{\Phi(y)}{2} + \frac{\Phi(x-1)}{2} & \text{if } y-1 \le x < y+1, \\ \Phi(y) & \text{if } x \ge y+1, \\ \frac{\Phi(x+1)}{2} + \frac{\Phi(x-1)}{2} & \text{otherwise.} \end{cases}$$

Appendix D

Section D.2

- p. 673 line 3: "$(1-p)^{1-x}$" should be"$(1-p)^{n-x}$"

Index

- p. 691: "Chibb" should be "Chib" (9/10/01)
- p. 694: "Archemedian" should be "Archimedean"

Updates to the reference list:

- Kadane, Schervish, and Seidenfeld (1993) is cited on page 564. The revised reference (page 683) is:
  Kadane, J. B., Schervish, M. J., and Seidenfeld, T. (1996). Reasoning to a foregone conclusion. *Journal of the American Statistical Association*, **91**, 1228–1235.

- Schervish (1994b) is cited on pages 257, 282, and 285. The revised reference (page 686) is:
  Schervish, M. J. (1996). *P*-values: What they are and what they are not. *American Statistician*, **50**, 203–206.

- Seidenfeld, Schervish, and Kadane (1992) is cited on page 183. The revised reference (page 687) is:
  Seidenfeld, T., Schervish, M. J., and Kadane, J. B. (1995). A representation of partially ordered preferences. *Annals of Statistics*, **23**, 2168–2217.