Errata
Introduction to Probability, 2nd Edition
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(last updated 11/23/2023)

- p. 48, line −5: Change "n-element subset" to "n-element set"
- p. 79, line 11: Change "if $k << n$" to "$k = 0, 1, \ldots, n$"
- p. 95, middle paragraph: Adjust the size of the left brackets
- p. 123, line 11: The solution to this problem was inadvertently included (Problem 2.19 is not a starred problem). Moreover the solution given in the text for part (a) is incorrect. The correct solution is given in the on-line solutions.
- p. 161: In Fig. 3.13 change "q" to "θ"
- p. 192, line 9: Change twice "$\prod_{i=1}^n \mathbf{E}[X_i^2]$" to "$\prod_{i=1}^n (\mathbf{E}[X_i])^2$"
- p. 215: line 4 of the caption of Fig. 4.8, change "=" to "≈"
- p. 226, line 9: Change "$E[X]$" to "$E[\hat{X}]$"
- p. 230, line 13: Change "$M(s) = E[s^{sx}]$" to "$M(s) = E[s^{sX}]$"
- p. 281, line −1: Change "$P(Y \geq \epsilon) = P(X_1 \geq \epsilon, \ldots, X_n \geq \epsilon) = (1-\epsilon)^n$" to "$P(Y \geq \epsilon) \leq P(Y_n \geq \epsilon) = P(X_1 \geq \epsilon, \ldots, X_n \geq \epsilon) = (1-\epsilon)^n$"
- p. 307, line −4: Change "Gary" to "Garry"
- p. 314, line −13: Change "until" to "up to and including"
- p. 317, line 9: Change "$\approx \mathbf{P}(A \cup B)$" to "$= \mathbf{P}(A \cup B)$"
- p. 403, line −4: Change the equation to

$$E[Y_n] = P(X < 1/n)E[Y_n \mid X < 1/n] = \frac{1}{n} \cdot n = 1.$$

- p. 445, line −14: "1/5" should read "$1/\sqrt{5}$"
- p. 454, line 10: "$\hat{\Theta}$" should read "$\hat{\Theta}_L$"
- p. 480, line −4: Change "θ_i" to "θ_1"
- p. 481, line −4: The formula for $\hat{\theta}_1$ should be changed to

$$\hat{\theta}_1 = \frac{1}{b - a\bar{x}^2} \left(\frac{1}{n} \sum_{i=1}^n x_i y_i - a\bar{x}\bar{y} \right),$$

where

$$a = \frac{n\sigma_0^2}{\sigma^2 + n\sigma_0^2}, \qquad b = \frac{\sigma^2 + \sigma_1^2 \sum_{i=1}^n x_i^2}{n\sigma_1^2}.$$

Note that the non-Bayesian formula on p. 477 is recovered if we let σ_0 and σ_1 go to infinity. In that case, a approaches 1, and b approaches $\sum_{i=1}^n x_i^2$.

- p. 511, line −14, −15: Change three occurrences of $e^{-\theta}$ to $e^{-n\theta}$
- p. 513, line 2: Delete ≤ 1

Corrections to the 3rd printing:

The following are corrections to the third printing of the book, and have been fixed in subsequent printings (Nov. 2013 and later).

- p. 79, line −2: Change "Polish" to "Prussian"
- p. 279, line −4: Change "05675" to "0.5675"

- p. 319, line $-5, 6$: Change "events at different times are independent, it follows that the random variables $L_1, L_2, \ldots$ are independent." to "events relating to arrivals at different times are independent, it follows that the events $L_1, L_2, \ldots$ are independent."
- p. 385, figure caption: "Problem 11" should read "Problem 13"
- p. 427, line -14: Change "$= c(k)p_\Theta(i)\, p_i^k(1-p_i)^{n-k}$" to "$= c(k)p_\Theta(i)\binom{n}{k} p_i^k(1-p_i)^{n-k}$"
- p. 427, lines $-1, -2$, p. 428 line 1: Change equation to

$$\begin{aligned}\mathbf{P}(\text{error}) &= \mathbf{P}(\Theta = 1, X > k^*) + \mathbf{P}(\Theta = 2, X \le k^*) \\ &= p_\Theta(1) \sum_{k=k^*+1}^{n} \binom{n}{k} p_1^k(1-p_1)^{n-k} + p_\Theta(2) \sum_{k=1}^{k^*} \binom{n}{k} p_2^k(1-p_2)^{n-k} \\ &= \frac{1}{2}\left(\sum_{k=k^*+1}^{n} \binom{n}{k} p_1^k(1-p_1)^{n-k} + \sum_{k=1}^{k^*} \binom{n}{k} p_2^k(1-p_2)^{n-k} \right).\end{aligned}$$

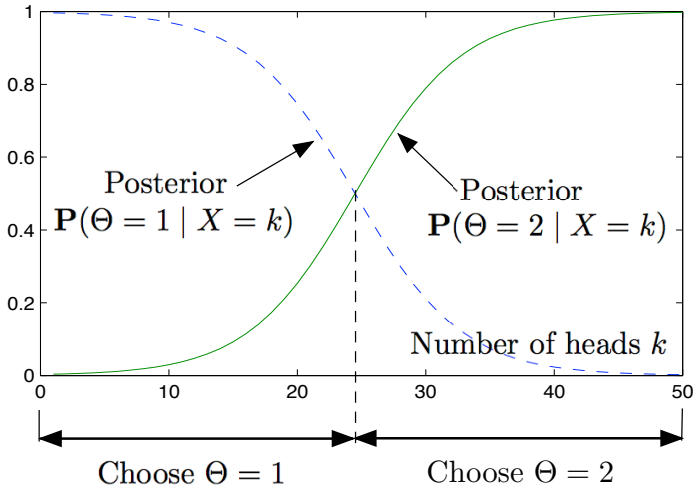
- p. 428, line 2: Delete "where $c(k)$ is a positive normalizing constant."
- p. 496, line -8: "(i)-(ii)" should read "(i)-(iii)"
- p. 499, item (iv): three occurrences of "$L(X)$" should be replaced by "S"
- p. 519, line -2: "95%" should read "5%"
- p. 520, line 6: "95%" should read "5%"

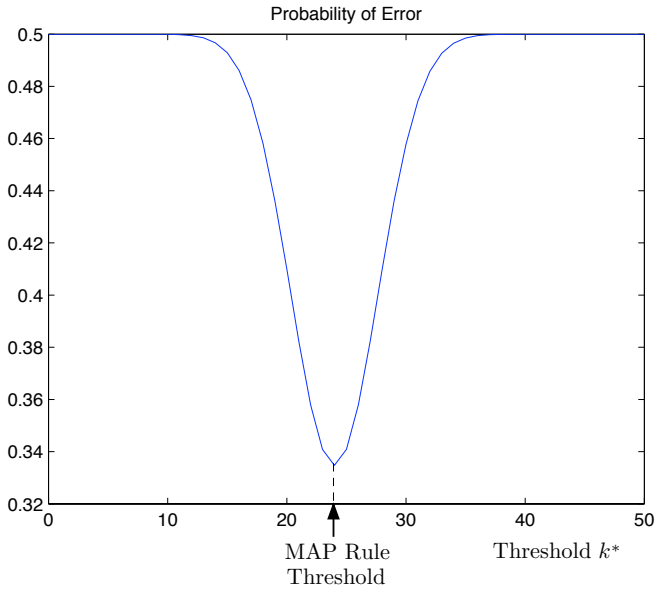
Corrections to the 1st and 2nd printing:

The following are corrections to the first and second printing of the book, and have been fixed in the third printing. Books from the 2nd and 3rd printing can be identified by the entry "Second printing" or "Third printing" below the ISBN number in the copyright page in the front.

- p. 10, line $+3$: "$(A_2 \cup A_2)$" should read "$(A_2 \cup A_3)$"
- p. 74, line -6: "if x is any possible value of X" should read "for any real number x"
- p. 79, first displayed equation: replace "$k = 0, 1, \ldots, n,$" with "if $k \ll n$,"
- p. 81, l. 2: "view it" should read "view Z"
- p. 105. In the first two displayed equations, "$p_{x|A_i}(x \mid A_i)$" should read $p_{X|A_i}(x)$ (three times)
- p. 134, line -3: the second sum should read $\sum_{\{y|h(y)=v\}} p_Y(y)$
- p. 161, 3rd line of footnote: "two sets of perpendicular lines" should read "two perpendicular sets of parallel lines"
- p. 204, caption of Figure 4.1: "4.20" should read "4.2"
- p. 205, second line of caption of Figure 4.2: "Y" should read "aX"
- p. 226, line 12: "$X = \tilde{X} + \hat{X}$" should read "$X = \hat{X} - \tilde{X}$"
- p. 260, line 9: "SECTION 4.4" should read "SECTION 4.5"
- p. 271, line -1: "level" should read "levels"
- p. 284, line 2: "Some Useful Inequalities" should read "Markov and Chebyshev Inequalities"
- p. 322, line -11: "U is the time of the first arrival" should read "U is the time of the last arrival"
- p. 326, line 2: "SECTION 7.1" should read "SECTION 6.1"
- p. 329, line -12: "SECTION 7.2" should read "SECTION 6.2"
- p. 334, line 16: in the definition of the event A, "$f_Y(y)\delta$" should read "$\lambda\delta$"
- p. 344, Figure 7.4: remove the superfluous label "r" above the bottom arc
- p. 346, Fig. 7.5: the upper-rightmost transition probability is given as p_{ij}, but it should be p_{1j}.
- p. 376, lines 13 and 14: "frequency" should read "expected frequency" (twice)
- p. 378, line 16: "statistics" should read "behavior"
- p. 390, title of Problem 21: "Expected long-term" should read "Long-term expected"
- p. 394, lines 1-3: "expected long-term" should read "long-term expected" (three times)
- p. 396, part (b) of Problem 30: rephrase as "Do the n-step transition probabilities starting from state 1, $r_{1j}(n)$, converge? If so to what values?"

- p. 396, part (c) of Problem 30: rephrase as "Do the n-step transition probabilities starting from state 6, $r_{6j}(n)$, converge? If so to what values?"
- p. 427, 428: The fonts for figures 8.5 and 8.6 were corrupted. The corrected figures are shown below





- p. 434, last line: $\frac{k^2}{n}$ should read $\left(\frac{k}{n}\right)^2$
- p. 474, line -10: "and variance 0.245" should read "and variance $\hat{S}_n^2/n$"
- p. 495, line 10: "right-hand side" should read "left-hand side"
- p. 497, line -7: for greater generality, "hypothesis "$H_0 : \theta = \theta^*$" "" should read "hypothesis H_0"
- p. 508, Iine 12: Item (a) should read: "Let $\theta = (p_1, \mu_1, \sigma_1, \ldots, p_m, \mu_m, \sigma_m)$. Write the likelihood and log-likelihood functions for θ."