Errata for Pitman, Probability, 1993 Springer-Verlag

Prepared by Mike Leong, mleong@berkeley.edu
Mathematics and Statistics Coordinator at the Student Learning Center
University of California, Berkeley

The errata summary table has the following fields:

Src: Person who found the error
            AA = Ani Adihikari
            RL = Russell Lyons
Disc: I have discussed this problem with the author, Jim Pitman.
Location: Section of the text or the solution manual
Text: Page number in the text
Ans: Page number from the answer part of the text
SM: Page number from the solution manual
Type: Type of correction

The Student Version of Errata does not have any solutions, only the corrections.

Last revised date: 3/19/08

Errata Summary Table

Chapter 1

Src	Disc	Location	Text	Ans	SM	Type
	Y	1.1 Text	7			Fix the diagram.
RL	Y	1.5.7a	55			Punctuation
	Y	1.5.7d	55			Change the wording of problem.
RL	Y	1.R.10	75			Character typo

Chapter 2

Src	Disc	Location	Text	Ans	SM	Type
		2.2 Text	104			Missing word
	Y	2.3 Text	113			Incorrect expression
		2.R.7		536	32	Answer is slightly off numerically.
	Y	2.R.15a		536	OK	Answer has a typo.
		2.R.20b	134			Change the parameters in the problem.
	Y	2.R.26b	135			Missing word
		2.R.29	135		35	Suggestion: Clarify problem. Extra word
		2.R.36	137			Suggestion: Modify expression.
	Y	2.R.37	137			Incorrect expression in problem

Chapter 3

Src	Disc	Location	Text	Ans	SM	Type
		3.1 Text	155			Clarify the example problem.
		3.3.1b		538	49	Answer is slightly off numerically.
		3.3.15b	203			Suggestion: Clarify problem.
	Y	3.3.31b	207			Incorrect expression in problem
		3.3.31c	207			Suggestion: Clarify problem.
		3.4.5d	218			Grammar
	Y	3.6.3f		539	69	Incorrect answer
	Y	3.R.11		540	OK	Incorrect answer
	Y	3.R.23a		540	OK	Answer has a typo.
	Y	3.R.23b	253			Suggestion: Change the question.
	Y	3.R.23d		540	79	Answer is slightly off numerically.
	Y	3.R.31e	255			Caveat
		3.R.38c	258			Character typo
		3.R.41a		540	84	Answer is slightly off numerically.

Chapter 4

Src	Disc	Location	Text	Ans	SM	Type
		4.2.2a	293		93	Duplicate problem, Incorrect answer
		4.R.7c	334			Suggestion: Change variable name
		4.R.9b		None	113	Incorrect answer
	Y	4.R.9d		None	113	Incorrect answer
RL	Y	4.R.13c				Transfer to another section.
		4.R.19b	336	542	115	Duplicate problem, Incorrect answer

Chapter 5

Src	Disc	Location	Text	Ans	SM	Type
		5.3 Text	365			Reference wrong exercise.
		5.3.7c		543	131	Answer is slightly off numerically.
	Y	5.4.3a		544	137	Write the answer in a more logical form.
	Y	5.4.3c		544	137	Incorrect answer
		5.4.7a		544	OK	Incorrect answer
		5.R.3b		544	144	Incorrect answer
		5.R.3c		544	144	Incorrect answer
		5.R.25a		545	152	Incorrect answer
		5.R.25c		545	152	Incorrect answer
		5.R.26	390			Duplicate
		5.R.26c	390			Typo in problem
		5.R.29b		545	153	Incorrect answer
		5.R.33a		545	154	Incorrect answer

Chapter 6

Src	Disc	Location	Text	Ans	SM	Type
	Y	6.1.1e		545		Answer has a numerical typo.
		6.1.6	399			Spelling
	Y	6.2.6	407			Suggestion: Clarify problem.
		6.2.13	408			Extra word
		6.3.17c	429			Expression typo
	Y	6.4 Text	441			Expression typo
RL	Y	6.4 Text	441			Expression typo
RL	Y	6.4.14	446		175	Get rid of an unnecessary expression.
RL	Y	6.5 Text	451			Spelling
RL		6.5 Text	456			Clarification
	Y	6.5 Text	460			Expression typo
		6.5.10	463			Suggestion: Clarify problem.
		6.R.22	469			Suggestion: Clarify problem.

Errata

1.1 Text (Discussed)

- Text: page 7
- Fix the diagram.
  Diagram should have a line to separate EVEN and RED.

1.5.7a (Discussed)

  (source: Russell Lyons)
- Text: page 55
- Punctuation
  Remove the comma: "as described in Example 1, in case the…"

1.5.7d (Discussed)

- Text: page 55
- Change the wording of problem.
  If I were randomizing with (1/2, 1/4, 1/4), how should you respond, and how would your response perform over the long run?

1.R.10 (Discussed)

  (source: Russell Lyons)
- Text: page 75
- Character typo
  Replace the Type 0 (number 0) with Type O (letter O).

2.2 Text

- Text: page 104, 4th line from the bottom
- Missing word
  Add the word "is": The skewness is positive for…

2.3 (Discussed)

- Text: page 113, line 1
- Incorrect expression
  The expression should be $(k-m)$ instead of $(m-k)$.

2.R.7

- Text Answer: page 536
- Answer is slightly off numerically.
  The answer should be 1027 instead of 1025.

2.R.15a (Discussed)

- Text Answer: page 536
- Answer has a typo.

  The answer should be $\binom{20}{5}(0.4)^5(0.6)^{15}$ instead of $\binom{20}{5}(0.4)^5(0.6)^1 5$.

2.R.20b

- Text: page 134
- Change the parameters in the problem.
  If $p = 0.99$ instead of $p = 0.01$, then the problem is more realistic and it would match the solution.

2.R.26b (Discussed)

- Text: page 135
- Missing word
  Add the word "at": there is <u>at</u> least

2.R.29

- Text: page 135
- Suggestion: Clarify problem.
  Getting a triple of symbols means getting at least 3 of the same symbols. Since in poker, a 3 of a kind means getting exactly 3 of a kind, a student may interpret this wording in the same way.

2.R.36

- Text: page 137
- Suggestion: Modify expression.
  Replace the less than or equal to with strictly less than.
  Write $P(b + 1 \text{ to } n) < \varepsilon P(m + 1 \text{ to } n)$ instead of $P(b + 1 \text{ to } n) \leq \varepsilon P(m + 1 \text{ to } n)$.

2.R.37 (Discussed)

- Text: page 137
- Incorrect expression in problem

  The expression should be $C = \int_{-\infty}^{\infty} e^{-\frac{1}{2}z^2} dz$ instead of $C = \int_{-\infty}^{\infty} \phi(z) dz$.

3.1 Text

- Text: page 155
- Clarify the problem.
  The question in the problem was never posed. Find the probability of getting 1 four, 2 fives, 3 sixes, and 4 others.

3.3.1b

- Text Answer: page 538
- Answer is slightly off numerically.
  The answer should be 0.841 instead of 0.88 from the solution of 0.86 from the text.

3.3.15b

- Text: page 203
- Suggestion: Clarify problem.
  Define D_1 and D_2 as *iid* random variables from D.
  Replace $E(D_1)$ and $SD(D_1)$ with $E(D)$ and $SD(D)$.

3.3.31b (Discussed)

- Text: page 207
- Incorrect expression in problem

  The expression should be $P(S_{2m} = 9m) \approx \dfrac{1}{\sqrt{33\pi m}}$ instead of $\dfrac{2}{\sqrt{33\pi m}}$.

3.3.31c

- Text: page 207
- Suggestion: Clarify problem.
  State that $b > 0$.

3.4.5d

- Solution Manual: page 218
- Grammar
  Neither Bill nor Tom gets a head

3.6.3f (Discussed)

- Text Answer: page 539
- Incorrect answer

  The answer should be $P(C \mid D) = \dfrac{(12)_4}{(48)_4} \cdot \dfrac{1}{4}$ instead of $P(C \mid D) = \dfrac{1}{4}$.

3.R.11 (Discussed)

- Text Answer: page 540
- Incorrect answer
  The answer should be $P(X = 2) < P(X > 2) < P(X < 2)$ instead of
  $P(X > 2) < P(X = 2) < P(X < 2)$.

3.R.23a (Discussed)

- Text Answer: page 540
- Answer has a typo.

  The answer should be $\dfrac{2^k (n)_k \cdot k}{(2n)_{k+1}}$ instead of $\dfrac{2^k (n)_k}{(2n)_{k+1}}$.

3.R.23b (Discussed)

- Text: page 253
- Suggestion: Change the question.
  Since the Rayleigh distribution has not been introduced yet, ask for $P(H \geq k)$ or
  $P(H < k)$ as $n \to \infty$.

3.R.23d (Discussed)

- Text Answer: page 540
- Answer is slightly off numerically.
  $E(H) = \sqrt{\pi n} = \sqrt{\pi 100} = 17.72 \approx 18$ instead of 17

3.R.31e (Discussed)

- Text: page 255
- Caveat
  (S_n, T_n) are independent on a macroscopic level, but not on a microscopic level.

3.R.38c

- Text: page 258
- Character typo
  Replace the last c), which is there twice, with d).

3.R.41a

- Text: page 540
- Answer is slightly off numerically.
  The answer is 2,357 instead of 2,350.

4.2.2a

- Text: page 293
- Duplicate problem
  4.R.19 and 4.2.2 are the same problem.

4.R.7c

- Text: page 334
- Suggestion: Change variable name.
  Find $P(|X| > x)$ for $x \geq 0$ instead of $P(|X| > y)$.

4.R.9b

- Solution Manual: page 113
- Incorrect answer

  The answer should be $c = \dfrac{1}{\sqrt{\pi b}}$ instead of $c = \dfrac{1}{\sqrt{\pi b}}$.

4.R.9d (Discussed)

- Solution Manual: page 113
- Incorrect answer

  The answer should be $c = \dfrac{a}{2}$ instead of $c = \dfrac{1}{2a}$.

  The answer should be variance $= \dfrac{2}{a^2}$ instead of variance $= \dfrac{2}{a^4}$.

4.R.13c (Discussed)

  (source: Russell Lyons)
- Transfer to another section.
  This problem is more suited for Chapter 5.

4.R.19b

- Text: page 336
- Duplicate problem
  4.R.19 and 4.2.2 are the same problem.

- Text: page 542
- Solution Manual: page 115
- Incorrect answer

  The answer should be $= 20\log_2(10) - \dfrac{\log(\log(2))}{\log(2)}$ instead of $20\log_2(10) - \log(2)$.

4.R.28c (Discussed)

- Solution Manual: page 117
- Incorrect answer

  The answer in part c) should be $Var(X) = \dfrac{1}{2} - \left(\dfrac{2}{\pi}\right)^2$ instead of $Var(X) = 1 - \left(\dfrac{2}{\pi}\right)^2$

5.3 Text

- Text: page 365
- Reference wrong exercise.
  Replace Exercise 26 with Exercise 28

5.3.7c

- Text Answer: page 543
- Solution Manual: page 131
- Answer is slightly off numerically.
  The answer should be 0.9802 instead of 0.9795.

5.4.3a (Discussed)

- Text Answer: page 544
- Solution Manual: page 137
- Write the answer in a more logical form.

  Since $\alpha < \beta$, write it as $\dfrac{\alpha\beta}{\beta - \alpha}\left(e^{-\alpha z} - e^{-\beta z}\right)$ instead of $\dfrac{\alpha\beta}{\alpha - \beta}\left(e^{-\beta z} - e^{-\alpha z}\right)$.

5.4.3c (Discussed)

- Text Answer: page 544
- Solution Manual: page 137
- Incorrect answer

  The answer should be $\dfrac{\sqrt{\alpha^2 + \beta^2}}{\alpha\beta}$ instead of $\sqrt{\dfrac{\alpha^2 + \beta^2}{\alpha\beta}}$.

5.4.7a

- Text Answer: page 544
- Incorrect answer

  The answer should be $\int \frac{1}{|x|} f_{X,Y}(x, z/x) dx$ instead of $\int \frac{1}{|x|} f_{X,Y}(z, z/x) dx$.

5.R.3b

- Text Answer: page 544
- Solution Manual: page 144
- Incorrect answer

  The answer should be $\frac{\pi}{64} \approx 0.0491$ instead of $\frac{\pi}{81} \approx 0.03878$.

5.R.3c

- Text Answer: page 544
- Solution Manual: page 144
- Incorrect answer

  The answer should be $\frac{8\sqrt{2}-1}{32} \approx 0.3223$ instead of ≈ 0.2896.

5.R.25a

- Text Answer: page 545
- Incorrect answer

  The answer should be $\frac{n!}{(k-1)!(m-k-1)!(n-m)!} x^{(k-1)} (y-x)^{(m-k-1)} (1-y)^{(n-m)}$ instead of

  $\frac{n!}{(k-1)!(m-k-1)!(n-m)!} x^{(k-1)} (y-x)^{(m-k-1)} (1-y)^{(n-m-1)}$.

5.R.25c

- Text Answer: page 545
- Incorrect answer
  The answer should be $Beta(k, m-k)$ instead of $Beta(k, m-k+1)$.

5.R.26

- Text: page 390
- Duplicate problem
  This problem is same as 6.R.30. It is better to leave this problem for Chapter 6, so the students can compute $E(XY)$ conditionally.

5.R.26c

- Text: page 390
- Typo
  The expression should be $n = 101$ instead of $n = 100$. (n should be an odd numer.)

5.R.29b

- Text Answer: page 545
- Solution Manual: page 153
- Incorrect answer

The answer should be $\dfrac{2}{\pi}\left[1-\dfrac{\sqrt{x^2-1}}{x}\right]$ instead of $\dfrac{2}{\pi}\left[1-\sqrt{\dfrac{x^2-1}{x}}\right]$.

5.R.33a

- Text Answer: page 545
- Solution Manual: page 154
- Incorrect answer

The answer should be $\dfrac{2}{\sqrt{7}}$ instead of $\sqrt{\dfrac{1}{2}}$.

6.1.1e (Discussed)

- Text Answer: page 545
- Answer has a numerical typo.
  The answer should be $P(X=0\,|\,Y=1)=1/3$ instead of $P(X=0\,|\,Y=0)=1/3$
  The answer should be $P(X=1\,|\,Y=2)=2/3$ instead of $P(X=1\,|\,Y=0)=2/3$.

6.1.6

- Text: page 399
- Character typo
  Change: Poissson to Poisson.

6.2.6 (Discussed)

- Text: page 407
- Suggestion: Clarify problem.
  Define $P(\text{all } X_i\text{'s} < t \,|\, N=0)=1$.

6.2.13

- Text: page 408
- Extra word
  Delete the word, "in": the number of successes <u>in</u> of n independent Bernoulli(p) trials

6.3.17c

- Text: page 429
- Expression typo
  The expression should be X_k instead of X_n.

6.4 Text (Discussed)

- Text: page 441
- Expression typo
  The expression should be $Cov(X_j, X_k)$ instead of $Cov(X_j X_k)$.

6.4 Text

(source: Russell Lyons)

- Text: page 441
- Expression typo
  The 4 n's in Example 7 should be N's.

6.5 Text (Discussed)

- Text: page 460
- Expression typo
  The expression should be $W = b_1 Z_1 + b_2 Z_2$ instead of $W = a_1 Z_1 + a_2 Z_2$.

6.5.10

- Text: page 463
- Suggestion: Clarify problem.
  Replace $(aV + bW, cV + dW)$ with $(aV_1 + bW_1, cV_2 + dW_2)$.

6.R.22

- Text: page 469
- Suggestion: Clarify problem.
  Find a upper bound c such that the following: $P(X < c) > 0.99$.