

**Errata for the SECOND EDITION of “A First Look at Rigorous Probability”,
by Jeffrey S. Rosenthal, World Scientific Publishing Co., 2006.**

Errata to Second Printing, 2007:

[With thanks to Orn Arnaldsson, Chris Mansley, Kohei Nagamachi, Patrick Rabau, Mohsen Soltanifar, Hermann Thorisson.]

- p. 19, Exercise 2.5.6, and also p. 21, proof of Lemma 2.6.2: replace “ $A_1, A_2, \dots \in \mathcal{J}$ ” by “ A_1, A_2, \dots are finite unions of elements of \mathcal{J} ”.
- p. 23, Exercise 2.6.4: “ $\mathbf{P}(\emptyset) = 1$ ” should be “ $\mathbf{P}(\Omega) = 1$ ”.
- p. 23, Exercise 2.7.3: part (b) is erroneous and should be omitted.
- p. 30, last line of proof of Proposition 3.1.5: “ $\{X \leq x\}$ ” should be “ $\{Z \leq x\}$ ”.
- p. 33, line 7: second “ $\mathbf{P}(X \in T)$ ” should be “ $\mathbf{P}(Y \in S)$ ”.
- p. 39, Exercise 3.6.8: replace “ $d \leq b + c - a$ ” by “ $d \geq b + c - a$ ”, and “ $d > b + c - a$ ” by “ $d < b + c - a$ ”.
- p. 40, Exercise 3.6.14: insert “independent” before “non-negative”.
- p. 74, the proof of Lemma 7.1.2 is sloppily written and should be replaced by:

Since F is right-continuous, we have that $\inf\{x; F(x) \geq u\} = \min\{x; F(x) \geq u\}$, i.e. the infimum is actually obtained. It follows that $\phi(u) \leq x$ if and only if $u \leq F(x)$. Hence, since $0 \leq F(x) \leq 1$, we obtain that $\mathbf{P}(\phi(U) \leq x) = \mathbf{P}(U \leq F(x)) = F(x)$.
- p. 118, line -5: “ $F(w) \geq b$ ” should be “ $F(z) \geq b$ ”.
- p. 126, statement of Lemma 11.1.2: “ $\phi(t)$ ” should be “ e^{itx} ”.
- p. 131, line 9: “ \lim ” should be “ \lim_k ” (twice); “ F_n ” should be “ F_{n_k} ” (twice); and “ μ_n ” should be “ μ_{n_k} ”.
- p. 166, lines 6–7: “bets \$1 on tails, then if they win they bet \$2 on heads” should be “bets \$1 on heads, then if they win they bet \$2 on tails”.
- p. 173, Exercise 14.4.1: should say “ $\mathbf{P}(Z_i = 1) = \mathbf{P}(Z_i = 0) = 1/2$ ”, and “ $X_1 = 2Z_1 - 1$ ”.

Errata to First Printing, 2006 (to be corrected in Second Printing, 2007):

[With thanks to Joe Blitzstein, Saad Siddiqui, Emil Zeuthen.]

- p. 9, line 10 from bottom: “*all intervals*” should be “*all subsets*”.
- p. 18, eqn. (2.5.2): “ $P(B)$ ” should be “ $\mathbf{P}(B)$ ”.
- p. 19, the last sentence in the proof of corollary 2.5.4 is questionable (since we may have $D_n \notin \mathcal{J}$), and should be replaced by:

It then follows from (2.5.5) that

$$\mathbf{P}\left(\bigcup_n B_n\right) = \mathbf{P}\left(\bigcup_n D_n\right) = \mathbf{P}\left(\bigcup_n \bigcup_{i=1}^{k_n} J_{ni}\right) = \sum_n \sum_{i=1}^{k_n} \mathbf{P}(J_{ni}).$$

On the other hand,

$$B_n = \bigcup_{m \leq n} \bigcup_{i=1}^{k_m} (J_{mi} \cap B_n)$$

and the union is disjoint, with $J_{ni} \subseteq B_n$, so

$$\mathbf{P}(B_n) = \sum_{m \leq n} \sum_{i=1}^{k_m} \mathbf{P}(J_{mi} \cap B_n) \geq \sum_{i=1}^{k_n} \mathbf{P}(J_{ni} \cap B_n) = \sum_{i=1}^{k_n} \mathbf{P}(J_{ni}),$$

and hence

$$\sum_n \mathbf{P}(B_n) \geq \sum_n \sum_{i=1}^{k_n} \mathbf{P}(J_{ni}) = \mathbf{P}\left(\bigcup_n B_n\right).$$

- p. 20, eqn. (2.5.10): “ $(\infty, x]$ ” should be “ $(-\infty, x]$ ”.
- p. 22, line 10 from bottom: “ P_1 ” should be “ \mathbf{P}_1 ”, and “ P_2 ” should be “ \mathbf{P}_2 ”.
- p. 151, first line of Section 13.1: “We being” should be “We begin”.
- p. 162, last line: “ $X_n = 5$ ” should be “ $X_n = -5$ ”.
- p. 205, Exercise A.4.5: “contraction” should be “contradiction”.
- p. 206, line 4: “ $g(x)/h(x)$ ” should be “ $|g(x)/h(x)|$ ”.
- p. 206, line 7: “limsup” should be “lim”.