ERRATA TO "REAL ANALYSIS," 2nd edition

(first five printings)

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The following errata were corrected in the sixth printing. Additional errata found since these corrections were made are in a separate document.

Page 15, lines 10–11: "totally bounded" should be in boldface.

Page 23, line 5: $E_\beta = X \quad\to\quad E_\beta = X_\beta$

Page 25, line 16: parctice $\quad\to\quad$ practice

Page 27, Exercise 10: $\mu_E(\mathcal{A}) \quad\to\quad \mu_E(A)$

Page 29, line 3: $\mu(E_j) \quad\to\quad \rho(E_j)$

Page 29, line -11: a large $\quad\to\quad$ is a large

Page 31, Proposition 1.13b: μ^* measurable $\quad\to\quad$ μ^*-measurable

Page 34, lines 11 and -6: $\sum_1^\infty \mu(I_j) \quad\to\quad \sum_1^\infty \mu_0(I_j)$

Page 34, line -4: $(a_j\, b_j + \delta_j) \quad\to\quad (a_j,\, b_j + \delta_j)$

Page 35, first displayed formula: $(-x, 0] \quad\to\quad (x, 0]$

Page 36, line -16: $\mu(E) \le \sum_1^\infty \mu((a_j, b_j)) + \epsilon \quad\to\quad \sum_1^\infty \mu((a_j, b_j)) \le \mu(E) + \epsilon$

Page 36, line -7: $\epsilon 2^{-j} \quad\to\quad \epsilon 2^{-|j|}/3$

Page 38, line 2: the interval $\quad\to\quad$ the open interval

Page 38, line 21: $a_n = b_n \quad\to\quad a_n < b_n$

Page 40, lines -5, -4, -3: $\mathcal{M}(E) \quad\to\quad \mathcal{M}(\mathcal{E})$

Page 40, line -2: $\beta \quad\to\quad \alpha$

Page 41, line -5: to technical $\quad\to\quad$ some technical

Page 44, line -12: $f \quad\to\quad f_\alpha$

Page 45, line 4 of proof of Prop. 2.6: $\mathcal{C}_{\mathbb{C}\times\mathbb{C}} \quad\to\quad \mathcal{B}_{\mathbb{C}\times\mathbb{C}}$

Page 45, line -7: $\lim_{j\to\infty} f(x) \quad\to\quad \lim_{j\to\infty} f_j(x)$

Page 49, line -1: $\int_A d\mu \quad\to\quad \int_A \phi\, d\mu$

Page 50, line 2: $\bigcup_1^n \quad\to\quad \bigcup_{j=1}^n$

Page 50, line 3: $\bigcup_1^n F_k \quad\to\quad \bigcup_1^m F_k$

Page 56, line 7: $F'(x) \quad\to\quad F'(t)$

Page 60, Exercise 31b: $\sum_1^\infty \quad\to\quad -\sum_1^\infty$

Page 64, last displayed formula: $\nu(E_j) \quad\to\quad \nu(B_j)$

Page 64, line -6: $\mathcal{M}\times\mathcal{N} \quad\to\quad \mathcal{M}\otimes\mathcal{N}$

Page 65, Proposition 2.34a: $\mathcal{M}\times\mathcal{N} \quad\to\quad \mathcal{M}\otimes\mathcal{N}$

Page 67, next-to-last line of Theorem 2.37: $h(x) \quad\to\quad h(y)$

Page 70, proof of Theorem 2.40, line 3: $R_j \quad \to \quad T_j$

Page 70, proof of Theorem 2.40, line 5: $F_j \quad \to \quad T_j$

Page 71, proof of Theorem 2.42, line 9: f is $\quad \to \quad f \circ \tau_a$ is

Page 74, line 6: is suffices $\quad \to \quad$ it suffices

Page 76: Replace lines 4–10 by the following:
Next, let $W_K = \Omega \cap \{x : |x| < K \text{ and } |\det D_x G| < K\}$. If E is a Borel subset of W_K, by Theorem 2.40 there is a decreasing sequence of open sets $U_j \subset W_{K+1}$ such that $E \subset \bigcap_1^\infty U_j$ and $m(\bigcap_1^\infty U_j \setminus E) = 0$. By the preceding estimate and the dominated convergence theorem,

$$m(G(E)) \le m\Big(G\Big(\bigcap_1^\infty U_j\Big)\Big) = \lim m(G(U_j)) \le \lim \int_{U_j} |\det D_x G|\, dx = \int_E |\det D_x G|\, dx.$$

Finally, if E is any Borel subset of Ω, we apply this argument to $E \cap W_K$, let $K \to \infty$, and conclude via the monotone convergence theorem that $m(G(E)) \le \int_E |\det D_x G|\, dx$.

Page 83, line 20: X is Borel isomorphic $\quad \to \quad (X, \mathcal{M})$ is Borel isomorphic

Page 85, line 10: seting $\quad \to \quad$ setting

Page 86, line -14: $-\infty \quad \to \quad +\infty$

Page 87, line 11: if $X \quad \to \quad$ of X

Page 88, Exercise 7a: $E \in \mathcal{M} \quad \to \quad F \in \mathcal{M}$

Page 90, line -18: $f + e\chi_E \quad \to \quad f + \epsilon\chi_E$

Page 91, line 7: as the as the $\quad \to \quad$ as the

Page 91, line 8: $d\mu/d\nu \quad \to \quad d\nu/d\mu$

Page 91, line -5: finction $\quad \to \quad$ function

Page 92, line -2: measures $\quad \to \quad \sigma$-finite measures

Page 93, Exercise 17: Assume ν is also σ-finite. (This is necessary: Consider $\mu =$ Lebesgue measure on $\mathbb{R}$ and $\mathcal{N} =$ the σ-algebra of countable or co-countable sets.)

Page 93, last line before Theorem 3.12: Delete "to apply them".

Page 94, line 4: The first ν should be $|\nu|$.

Page 94, first line of proof of Prop. 3.14: $\nu_j \quad \to \quad d\nu_j$

Page 94, line -1: $d\mu \quad \to \quad d\nu$

Page 99, lines 3–4: The bullets should be replaced by "(i)" and "(ii)".

Page 99, first line of proof of Theorem 3.22: $d\mu \quad \to \quad dm$

Page 101, line -18 μ finite $\quad \to \quad \mu$ is finite

Page 103, line 3: $F(x_j) + F(x_{j-1}) \quad \to \quad F(x_j) - F(x_{j-1})$

Page 103, line -5: The comma at the end should be a period.

Page 107, line 14: $dF(x)\, dG(x) \quad \to \quad dF(x)\, dG(y)$

Page 114, line -1: Delete "$x \in V$ and" (which is redundant).

Page 116, line -9: lebeled $\rightarrow$ labeled

Page 116, line -1: $a \rightarrow A$

Page 117, line 13: space $\rightarrow$ spaces

Page 117, line 23: over x $\rightarrow$ over k

Page 131, line 3 of proof of Proposition 4.31: $\overline{V} = \quad \rightarrow \quad \overline{V} \subset$

Page 135, line -1: $E \subset \mathcal{U} \rightarrow E \in \mathcal{U}$

Page 138, Exercise 58: $\{X_\alpha\}_\alpha \in A \rightarrow \{X_\alpha\}_{\alpha \in A}$

Page 142, Exercise 70d: ((Hint: $\rightarrow$ (Hint:

Page 143, last line before Proposition 4.53: Exercise 20 $\rightarrow$ Exercise 19.

Page 156, Exercise 15b: $\mathcal{M} \rightarrow \mathcal{N}(T)$

Page 161, line -14: $B(r_1, x_1) \rightarrow B(r_0, x_0)$

Page 162: The displayed formula in the proof of the open mapping theorem should read: $y = -Tx_1 + (y + y_1) \in \overline{T(-x_1 + B_1)} \subset \overline{T(B_2)}$.

Page 163, lines -4 and -3: $x - x_0 \rightarrow x + x_0$

Page 165, Exercise 40, line 3: $\mathcal{N} \rightarrow \mathbb{N}$

Page 166, line 11: $p_\alpha(x - x_j) \rightarrow p_{\alpha_j}(x - x_j)$

Page 169, line 1 of proof of Proposition 5.17: $\|T_1| \rightarrow \|T_1\|$

Page 171, lines -6 and -3: $\mathcal{X} \rightarrow \mathcal{H}$ (3 places)

Page 174, line 12: is has $\rightarrow$ it has

Page 177, Exercise 55a: $+\|x - y\|^2 \rightarrow -\|x - y\|^2$

Page 182, last line of statement of Hölder's inequality: $\alpha\beta \neq 0 \rightarrow \alpha, \beta$ not both 0.

Page 191, line 8: Exercises 23–24 $\rightarrow$ Exercises 23–25

Page 191, line 9: Exercise 25 $\rightarrow$ Exercise 19

Page 193, line 4 of Theorem 6.18: Insert "then" before "the integral".

Page 199, line -6 measurable $\rightarrow$ Borel measurable

Page 210, line -5: [15] the $\rightarrow$ [15] for the

Page 221, Exercise 15h: meausre $\rightarrow$ measure

Page 224: The last assertion in Proposition 7.19b is false as it stands. (Take μ_n to be the point mass at $-n$ and $\mu = 0$. Exercise: Find the mistake in the proof.) The conclusion is correct under either of the following additional hypotheses: (i) $\|\mu_n\| \rightarrow \|\mu\|$. (ii) $\sup_n F_n(-N) \rightarrow 0$ as $N \rightarrow \infty$.

Page 240, line -12: $\int (f * g) * h(x) \rightarrow (f * g) * h(x)$

Page 252, line -1: Insert integral sign after last equal sign.

Page 253, line -9: $f \rightarrow \widehat{f}$

Page 255, Exercise 15a: $[a, a] \rightarrow [-a, a]$

Page 255, Exercise 15b: $\mathcal{H} \rightarrow \mathcal{H}_a$ (2 places)

Page 255, Exercise 18b: The integral in square brackets should be squared.

Page 270, equation (8.47): $\mu \times \nu \quad \to \quad \mu * \nu$

Page 278, first display: $\int e^{-i\xi\cdot x}\,dx \quad \to \quad \int e^{-i\xi\cdot x} f(x)\,dx$

Page 283, line 16: Insert period at end.

Page 311, line 1: $\Lambda_s f \quad \to \quad \Lambda_k f$

Page 316, line −4: $Y_n \quad \to \quad Y_N$ and $B_n \quad \to \quad B_N$

Page 321, line 6: number $\quad \to \quad$ numbers

Page 325, line 3 of §10.3: $e^{(t-\mu)^2/2\sigma} \quad \to \quad e^{-(t-\mu)^2/2\sigma^2}$

Page 336: In the statement of the Law of the Iterated Logarithm, the hypothesis of L^3 can be weakened to L^2. See P. Hartman and A. Wintner, On the law of the iterated logarithm, *Amer. J. Math.* **63** (1941), 169–176.

Page 347, line −5: $|\det A|^n \quad \to \quad (\det A)^n$

Page 350, third bullet, line 4: Consder $\quad \to \quad$ Consider

Page 350, third bullet, lines 4–5: $n \quad \to \quad m$ (2 places)

Page 355, Exercise 15, line 2: dimension $2p \quad \to \quad$ dimension $\geq 2p$

Page 361, Exercise 18a: Delete “Exercise 15 or”.

Page 363, line −5: $H_o \quad \to \quad H_p$

Page 365, references 3 and 4: The author is L. Alaoglu (in both cases).