ERRATA TO “REAL ANALYSIS,” 2nd edition
(6th and later printings)
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Page 7, line 12: $Y \cup \{y_0\} \rightarrow B \cup \{y_0\}$
Page 7, line -12: $X \in \rightarrow x \in$
Page 8, next-to-last line of proof of Proposition 0.10: $E \rightarrow X$
Page 12, line 17: $a \in \mathbb{R} \rightarrow x \in \mathbb{R}$ (two places)
Page 14, line 16: $x \in X \rightarrow x \in X_1$
Page 14, line 17: whenever $\rightarrow$ whenever
Page 22, line 2: subset $\rightarrow$ subset
Page 24, Exercise 1, line 1: A family $\rightarrow$ A nonempty family
Page 24, Exercise 3a: disjoint $\rightarrow$ disjoint nonempty
Page 29, Proposition 1.10: The hypothesis that $X \in \mathcal{E}$ was included only to guarantee that $\mu^*(A)$ is well-defined for all $A \subset X$, and with the understanding that $\inf(\emptyset) = +\infty$, it is unnecessary. The proof extends to the general case without change, as the condition $\mu^*(\bigcup A_j) \leq \sum \mu^*(A_j)$ is nontrivial only when $\mu^*(A_j) \leq \infty$ for all $j$.
Page 34, line 1: $\bigcup_{1}^{n} J_j \rightarrow \bigcup_{1}^{m} J_j$
Page 35, line -3: open h-intervals $\rightarrow$ open intervals
Page 37, line -1: countable $\rightarrow$ countable set.
Page 38, line -4: $\sum_{0}^{\infty} \rightarrow \sum_{1}^{\infty}$
Page 40, line 2 of §1.6: 2.7 $\rightarrow$ 2.8
Page 45, line 5: $[\infty, \infty] \rightarrow [-\infty, \infty]$
Page 45, line 8: 2.3 $\rightarrow$ 1.2
Page 47, Figure 2.1: The graph of $\phi_1$ should have an extra “step” where the ordinate goes from 1 to $\frac{3}{2}$ and then from $\frac{3}{2}$ to 2, rather than directly from 1 to 2.
Page 49, line -8: inegrals $\rightarrow$ integrals
Page 56, last line of proof of Theorem 2.27: $(x, t) \rightarrow (x, t_0)$
Page 60, Exercise 27c: $\log(b/a) \rightarrow \log(a/b)$
Page 60, Exercise 31e: $s^2 \rightarrow a^2$
Page 61, line 9: repectively $\rightarrow$ respectively
Page 66, line -4: $\bigcap_{1}^{\infty} E_n \rightarrow E = \bigcap_{1}^{\infty} E_n$
Page 67, next-to-last line of Theorem 2.37: $\int f^y d\nu \rightarrow \int f^y d\mu$. 
Page 69, Exercise 49a: \( M \times N \rightarrow M \otimes N \)

Page 69, Exercise 50: Either assume \( f < \infty \) everywhere or use the condition \( y < f(x) \) to define \( G_f \). Also, \( M \times \mathcal{B}_\mathbb{R} \rightarrow M \otimes \mathcal{B}_\mathbb{R} \).

Page 70, proof of Theorem 2.40, line 2: rectangles \( \rightarrow \) rectangles, which may be assumed bounded,

Page 72, line 5: definitons \( \rightarrow \) definitions

Page 75, line 9: \( \sum_j (x_j - a_j)(\partial g/\partial x_j)(y) \rightarrow \sum_k (x_k - a_k)(\partial g_j/\partial x_k)(y) \)

Page 76, line 6: \( \bigcup_{1}^{\infty} U_j \rightarrow \bigcap_{1}^{\infty} U_j \)

Page 76, line -7: \( f \circ G \rightarrow f \circ G \mid \det DG \)

Page 76, line -5: \( G(\Omega)) \rightarrow G(\Omega) \)

Page 77, Exercise 58: \( \int \rightarrow \int_0^\infty \)

Page 79, line 2: \( (a, b] \times E \rightarrow (a, b] \times E \) or \( (a, \infty) \times E \)

Page 87, line 3: \( \nu(A_j) > \sum \rightarrow \nu(A_j) \geq \sum \)

Page 88, Exercise 6: \( \int f \, d\mu \rightarrow \int_E f \, d\mu \)

Page 90, line -6: \( f \rightarrow f_j \)

Page 102: (3.24) should be interpreted as “\( T_F(b) = T_F(a) + \sup\{\ldots\} \)” in the case \( T_F(b) = T_F(a) = \infty \).

Page 104, line 7 of proof of Lemma 3.28: \( x_0 < \cdots \rightarrow x = x_0 < \cdots \)

Page 104, line -12: \( \sum_1^n \rightarrow \sum_1^m \)

Page 105, line 5 of proof of Proposition 3.32: \( \mu(U_j) < \delta \rightarrow m(U_j) < \delta \)

Page 105, proof of Proposition 3.32: The displayed inequalities are valid provided \( F \) is monotone, which may be assumed without loss of generality.

Page 106, line 4: greatest integer less than \( \delta^{-1}(b - a) + 1 \) \( \rightarrow \) smallest integer greater than \( \delta^{-1}(b - a) \)

Page 107, Exercise 28b: \( \mu_{T_F(E)} \rightarrow \mu_{T_F}(E) \)

Page 115, line -12: Proposition \( \rightarrow \) Proposition

Page 120, line -2: a neighborhood \( \rightarrow \) an open neighborhood

Page 125, line 16: is a set \( \rightarrow \) is a nonempty set

Page 144, line 12: an LCH \( \rightarrow \) a noncompact LCH

Page 145, paragraph after the end-of-proof sign, line 3: locally compact \( \rightarrow \) locally compact and noncompact

Page 146, Exercise 73: In the definition of completely regular algebra, add the condition that the algebra be closed under complex conjugation. Also, in parts (a), (b), and (d), the word “Hausdorff” is redundant since it is incorporated in the definition of “compactification” on p. 144.

Page 146, Exercise 73c: contains \( F \) \( \rightarrow \) contains \( F \) and the constant functions
Page 146, Exercise 73d: Insert “(up to homeomorphisms)” after “of $X$”.
Page 159, next-to-last line of proof of Theorem 5.8: Moreover $\rightarrow$ Moreover
Page 165, line 6: $x \in X \rightarrow x \in \mathcal{X}$
Page 166, line −2 of proof of Theorem 5.14: $(1 - t)x + (1 - t)z \rightarrow (1 - t)x - (1 - t)z$
Page 166, line −1: $U_{x_{\alpha_j \epsilon_j}} \rightarrow U_{0_{\alpha_j \epsilon_j}}$
Page 167, line 3: $p_{\alpha_j}(y) < \epsilon \rightarrow p_{\alpha_j}(y) \leq \epsilon$
Page 167, bulleted item at bottom (continuing to next page): $C^X$ should be replaced by the space of locally bounded functions on $X$, i.e., the space of all complex-valued functions $f$ on $X$ such that $p_K(f) < \infty$ for all $K$.
Page 174, line 2: parallelogram $\rightarrow$ parallelogram
Page 174, lines −8 and −4: $X \rightarrow \mathcal{H}$
Page 177, line 1: $e_{\alpha} \rightarrow u_{\alpha}$ and $X \rightarrow \mathcal{H}$
Page 179, next-to-last line of notes for §5.1: coincides with $\rightarrow$ extends
Page 179, line −2: $x_1 \in \mathcal{X}_0 \rightarrow x_0 \in \mathcal{X}_0$
Page 196, Exercise 28b: $J_1f \rightarrow J_\alpha f$ (Hint: Focus on the behavior of $J_\alpha f(x)$ as $x \rightarrow \infty$.)
Page 197, line −2: on $(0, \infty)$, $\rightarrow$ on $[0, \infty)$ such that $\phi(0) = 0$,
Page 204, last line of (6.33): $C_j^{p_j} \rightarrow C_j^{q_j}$
Page 206, Theorem 6.36, line 4: $1 \leq p < \infty \rightarrow 1 \leq p < q/(q - 1)$
Page 208, Exercise 41: For the case $p = \infty$, assume $\mu$ semifinite.
Page 208, Exercise 45, lines 3 and 4: $T$ is weak type $(1, n\alpha^{-1})$ and strong type $(p, r)$ where $1 < p < n(n - \alpha)^{-1}$ and $r^{-1} = p^{-1} - (n - \alpha)n^{-1}$.
Page 210, final sentence: Theorem 6.36 was discovered independently, a little earlier than [51], by D. R. Adams (A trace inequality for generalized potentials, Studia Math. 48 (1973), 99–105).
Page 212, line 13: a Borel measure $\rightarrow$ a Borel measure that is finite on compact sets
Page 217, lines 7 and 8: $f \rightarrow f_1$
Page 224, Exercise 18, line 1: $M(X) \rightarrow M(X)$
Page 225, Exercise 24b: $\int f \, d\mu \rightarrow 0$
Page 225, Exercise 24c: $F(x) \rightarrow 0$
Page 225, Exercise 27: $k$ functionals $\rightarrow k$ bounded functionals

Page 226, proof of Theorem 7.20, next-to-last line: $\pi_1(K) \times \pi_2(K) \rightarrow \pi_X(K) \times \pi_Y(K)$

Page 226, proof of Theorem 7.20, last line: $= \rightarrow \leq$

Page 226, line 2 of Proposition 7.21: $X \otimes Y \rightarrow X \times Y$

Page 226, line $-2$: $\mathcal{U} \times \mathcal{V} \rightarrow U \times V$

Page 227, 4th and 3rd lines before Lemma 7.23: Replace the clause “Exercises 12 and . . . $\mu \hat{\times} \nu$” by “Exercise 12 shows that $\mu \hat{\times} \nu(\{0\} \times \mathbb{R}) \neq 0 = \mu \times \nu(\{0\} \times \mathbb{R})$”. (The semifinite part of $\mu \hat{\times} \nu$ disagrees with $\mu \times \nu$ on $\{(x, x) : x \in [0, 1]\}$; see Exercise 2.46.)

Page 228, line 3: $\bigcap_1^n \rightarrow \bigcap_1^n$

Page 229, line $-10$: $\mathcal{B}_X \times \mathcal{B}_Y \rightarrow \mathcal{B}_X \otimes \mathcal{B}_Y$

Page 232, line 5 of paragraph 3: $L^1(\mu) \rightarrow L^1(\hat{\mu})^*$

Page 242, line 12: $\|g\|_{(N+n+1, \alpha)} \rightarrow \|g\|_{(N+n+1, 0)}$

Page 246, Exercise 9: Assume $p < \infty$.

Page 247, line 2 of Theorem 8.19: $\mathbb{T}^n \rightarrow \mathbb{Z}^n$

Page 250, line $-2$: $\sum_{|\gamma| \leq |\beta|} \|f\|_{(N+n+1, \gamma)} \rightarrow \sum_{|\gamma| \leq |\beta|} \|f\|_{(N+n+1, \gamma)}$

Page 251, line 4: $-2\pi ae^{-\pi ax^2} \rightarrow -2\pi ae^{-\pi ax^2}$

Page 254, line 5: $\mathbb{Z}^N \rightarrow \mathbb{Z}^n$

Page 254, line 4 of proof of Theorem 8.32: $8.35 \rightarrow 8.31$

Page 255, Exercise 16a: $\|f\|_u \rightarrow \|f_k\|_u$

Page 256, line 1: right $\rightarrow$ left

Page 259, line 9: $f_2 * \phi_t(\xi) \rightarrow f_2 * \phi_t(x)$

Page 259, line 3 of proof of Theorem 8.36: The sum on the right should be $\sum_{\kappa \in \mathbb{Z}^n}$.

Page 261, line 7: $e^{-2\pi i\kappa x} \rightarrow e^{2\pi i\kappa x}$

Page 264, line 4: $e^{2\pi (2m+1)x} \rightarrow e^{2\pi(2m+1)x}$

Page 268, formula (8.46): $\frac{1}{2} - x - [x] \rightarrow \frac{1}{2} - x + [x]$

Page 269, line 6: $S_m(a_j) \rightarrow S_m f(a_j)$

Page 269, Exercise 35a: $\phi \rightarrow \phi_m$ (two places)

Page 272, Exercise 39: On line 2, positive $\rightarrow$ nonnegative. Also, replace line 3 by the following: at $\frac{a}{m}$, $\frac{a+1}{m}$, $\frac{a+m-1}{m}$ for some $a \in [0, 1)$ and $m \in \mathbb{N}$, in which case $\hat{\mu}(jm) = e^{-2\pi ij\alpha}$ for all $j \in \mathbb{Z}$.

Page 273, line 7: if for all $\rightarrow$ for all

Page 274, line $-1$: $(t^2 + |x|^2)^{-\frac{n+1}{2}} \rightarrow (t^2 + |x|^2)^{\frac{n+1}{2}}$

Page 276, Exercise 43: $e^{-|x|/2} \rightarrow \frac{1}{2} e^{-|x|}$

Page 286, line 3: $\phi(y) \rightarrow \phi(x)$

Page 286, lines $-13$ and $-5$, and page 287, lines 1 and 3: $U \rightarrow V$

Page 288, line $-10$: $\psi(\varepsilon x) \rightarrow \psi(x/\varepsilon)$
Page 289, Exercise 7, line 2: \( f \) agrees \( \rightarrow \) there exists a constant \( c \) such that \( f + c \) agrees

Page 291, Exercise 13: \( f * \psi_t \rightarrow F * \psi_t \)

Page 293, line -2: \( (1 + |x|)^N \rightarrow (1 + |x|)^{-N} \)

Page 293, line -1: \( \| \phi \|_{(0,N)} \rightarrow \| \phi \|_{(N,0)} \)

Page 294, line 3: by (ii) \( \rightarrow \) by the preceding example

Page 296, line 9: \( x_j \rightarrow \xi_j \)

Page 297, line 7: One \( \rightarrow \) On

Page 300, Exercise 28, line 2: \(|\xi|^{\alpha - 2} \rightarrow |x|^{\alpha - 2} \)

Page 303, lines 5–6: Fourier transform is \( \hat{g}(\xi) \rightarrow \) inverse Fourier transform is \( g^\vee(\xi) \)

Page 303, line 7: \( (1 + |\xi|^2)^s \rightarrow (1 + |\xi|^2)^{-s} \)

Page 309, Exercise 34c: \( \Lambda_a \rightarrow \Lambda_\alpha \). Also, apologies for the two conflicting uses of the letter \( \alpha \); one might prefer to replace \( \partial^\alpha \) and \( |\alpha| \) by \( \partial^\beta \) and \( |\beta| \).

Page 323, line 5: \( \limsup_n n^{-1}|S_n| < \epsilon \rightarrow \limsup_n n^{-1}|S_n| \leq \epsilon \)

Page 325, Exercise 17, line 2: sample \( \rightarrow \) sample

Page 325, Exercise 17, line 9: \( X_j - M_j \rightarrow X_j - M_n \)

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

Page 326, line -6: \( X_n \rightarrow X_j \)

Page 331, line -7: \( \exp(\cdots) \rightarrow \exp(\cdots) \)

Page 332, formula (10.23): \( \exp(\cdots) \rightarrow \exp(\cdots) \)

Page 341, proof of Proposition 11.3, line 3: it \( \rightarrow \) if

Page 344, proof of Theorem 11.9, end of line 2: Delete “\( h \in C^+_c \) and”.

Page 348, Exercise 9c: In general it is not \( \mu \) that is decomposable but rather its extension \( \pi \) to the \( \sigma \)-algebra of \( \mu^* \)-measurable sets as explained on p. 215.

Page 349, line 3: \( \mu^*(A) \cup \mu^*(B) \rightarrow \mu^*(A) + \mu^*(B) \)

Page 349, line -11: \( B^2k^{-3} \rightarrow B^2k^{-3} \)

Page 349, line -7: \( \sum_{n+1}^\infty \rightarrow \sum_n^\infty \)

Page 350, proof of Proposition 11.17: Concerning the applicability of Proposition 1.10, see the correction to Page 29 in this errata list.

Page 357, Figure 11.1(b): In the bottom figure, the small triangle in the center should not be shaded.

Page 358, line 10: \( C_\ell(X) \rightarrow C(X) \)

Page 358, line -7: \( x_{i_1 \ldots i_k} \rightarrow x_{i_1 \ldots i_k} \)

Page 362, first display: \( \frac{\partial y_i}{\partial x_k} \frac{\partial y_j}{\partial x_l} \rightarrow \frac{\partial y_k}{\partial x_i} \frac{\partial y_l}{\partial x_j} \)
Page 373, reference 131: of → in
Page 373, reference 139: in → on
Page 378, line -2: $CS' → S'$