ERRATA to “INTRODUCTION TO PARTIAL DIFFERENTIAL EQUATIONS” (2nd ed.)
G. B. Folland
Last updated June 20, 2021

Additional corrections will be gratefully received at folland@math.washington.edu.

Page 2, line −7: \(a_n \rightarrow \alpha_n\)
Page 3, line 1 after “Function Spaces”: dente \(\rightarrow\) denote
Page 7, proof of Prop. 0.6, line 4: \(re^{-r^2} \rightarrow re^{-\pi r^2}\)
Page 12, line 14: \(e^{1/(1-t^2)} \rightarrow e^{1/(t^2-1)}\)
Page 16, line 5: remains \(\rightarrow\) remains
Page 18, line −6: graddaddy \(\rightarrow\) granddaddy
Page 43, second-to-last displayed equation: \(\partial_j^t \rightarrow \partial_j^t\)
Page 43, last displayed equation: \(|\alpha|_j \rightarrow |\alpha_j|\)
Page 61, Lemma 1.53: You can replace \((d/2)^k\) by \(d^k\), and the proof is trivial. (Exercise!)
Page 67, 3rd line of proof of Theorem 2.1: \(\hat{f} \rightarrow \hat{u}\)
Page 69, line 2: \(C^1 \rightarrow C^2\)
Page 77, line −7: Insert “the final paragraph of” before “§4B.”
Page 84, line 12: (2.31) \(\rightarrow\) (2.32)
Page 87, line 7: \(\delta(x, y) \rightarrow \delta(x - y)\)
Page 87, first line after Claim (2.38): called \(\rightarrow\) called
Page 91, line 1: (2.37) \(\rightarrow\) (2.40)
Page 97, second display in proof of Theorem 2.48: \(\omega_{n-1} \rightarrow \omega_n\)
Page 97, next line after preceding item: (2.44) \(\rightarrow\) (2.46)
Page 99, line −10: \(P_k \Delta P_j \rightarrow \overline{P_k} \Delta P_j\)
Page 100, line −10: ser \(\rightarrow\) set
Page 100, line −1: proerties \(\rightarrow\) properties
Page 105, lines 9 and 14: \(\frac{n-1}{r} \rightarrow \frac{n-1}{r} f'(r)\)
Page 109, Exercise 5, Hint: \(e^{i\theta} \rightarrow e^{ik\theta}\)
Page 112, line −5: corvilinear \(\rightarrow\) curvilinear
Page 113, line 11: \(\frac{\partial^2 U}{\partial y_j^2} \rightarrow \frac{\partial^2 U}{\partial y_j^2}\)
Page 118, Remark, line 2: \(C^1(\Omega) \rightarrow C^2(\Omega)\)
Page 119, last line of proof of Prop. 3.6: right \(\rightarrow\) left
Page 121, Proposition (3.10), line 5: \(\|f\|_\infty \rightarrow \|f\|_p\)
Page 121, line −3: (3.11) \(\rightarrow\) (3.10)
Page 125, line 12: \( \nu(x) \cdot y \rightarrow \nu(x) \cdot (y - x) \)

Page 133, Exercise 1: The asserted formula for \( u(x) \) should be multiplied by \( R^{n-1} \) (including the case \( n = 2 \)).

Page 134, Exercise 2: The integrand of the second integral should be \( f(y)N(y) \).

Page 137, line 1: \( (3.35) \rightarrow (3.36) \)

Page 141, line -19: in in \( \rightarrow \) in

Page 145, line 4: \( K(x, t) \rightarrow K(x - x_0, t_0 - t) \) (two places)

Page 150, lines 1 and 2: \( k_\psi \rightarrow \kappa_\psi \)

Page 157, line 4: \( 3H \rightarrow 2H \)

Page 173, formula (5.22): \( \frac{1}{1:3\ldots(n-1)} \rightarrow \frac{2}{1:3\ldots(n-1)} \) and \( \int_{|y|=1} \rightarrow \int_{|y|\leq1} \)

Page 174, formula (5.24): \( \partial_t u - \Delta u \rightarrow \partial_t^2 u - \Delta u \)

Page 175, line 4 and line -3: \( \partial_t v - \Delta v \rightarrow \partial_t^2 v - \Delta v \)

Page 176, formula (5.27): \( \phi \in C^\infty_c \rightarrow \psi \in C^\infty_c \)

Page 177, line -6: \( \partial_t \hat{u}(\xi, t) \rightarrow \partial_t \hat{u}(\xi, 0) \)

Page 181, 4th line before (5.32): if \( \rightarrow \) of

Page 182, Exercise 1: (4.19) and (4.20) \( \rightarrow \) (5.19) and (5.20)

Page 184, formula (5.33), first line: \( \partial_t u \rightarrow \partial_t^2 u \)

Page 192, line 9: if \( \rightarrow \) of

Page 192, line -3: at as \( \rightarrow \) as

Page 194, line 3 of Proof: \( \|f\|_s \rightarrow C\|f\|_s \)

Page 195, next-to-last line of Remark 1: Example 1 \( \rightarrow \) Example 2

Page 201, lines 9 and 11: \( f_{kj} \rightarrow \hat{f}_{kj} \)

Page 203, line -8: \( (1 + t^2)^{(s-1)/2} \rightarrow (1 + t^2)^{(s-1)/2} \)

Page 204, line -4: \( u \rightarrow f \)

Page 205, lines 5, 7, and 8: \( u \rightarrow f \)

Page 207, line 2: \( \|\phi\|_{s-x} \rightarrow \|\phi\|_{s+x} \)

Page 208, line 6: There should be no restriction on the support of \( g \) in this formula. However, let \( \phi \) be a function in \( C^\infty_c(\Theta^{-1}(\Omega'_1)) \) with \( \phi = 1 \) on \( \Theta^{-1}(\Omega'_0) \); then \( \int (f \circ \Theta)g = \int (f \circ \Theta)\phi g \), so one can replace \( g \) by \( \phi g \) in the subsequent argument. Since the map \( g \mapsto \phi g \) is bounded on \( H_s \) for all \( s \), this yields the desired estimate in the end.

Page 208, line -5: only \( \rightarrow \) any

Page 210, formula (6.27): \( |\alpha| \leq k \rightarrow |\alpha| = k \)

Page 212, lines 9 and 10: \( |\alpha| \leq k \rightarrow |\alpha| = k \)

Page 216, line -2: \( Lu \rightarrow P(D)u \)

Page 218, line 2: (6.30) \( \rightarrow \) (6.33) and \( Lu \rightarrow P(D)u \)
Page 224, line 8: $\int_N(r) \rightarrow \int_{N(r)}$

Page 225, line 1: if $\rightarrow$ of

Page 225, Theorem (6.47): $S \rightarrow \partial \Omega$ (two places)

Page 226, Theorem (6.51), line 2: $\partial^\alpha u \rightarrow \partial^\alpha f$

Page 227, Proposition (6.52): (1) In the first sentence, add the hypothesis $|\alpha| = k + 1$. (2) On both sides of the displayed inequality, the norm $\| \cdot \|_{k,N(r)}$ should be $\| \cdot \|_{0,N(r)}$.

Page 227, proof of Proposition (6.52): (6.21) $\rightarrow$ (6.20)

Page 228, Exercise 1: $\Omega$ should be $\{re^{i\theta} : -\pi < \theta < \pi, \frac{1}{2} < r < 1\}$.

Page 229, proof of Proposition (7.1), line 7: $P_{\xi'}(x) \rightarrow P_{\xi'}(z)$

Page 231, display before (7.3): $\partial^\alpha u \rightarrow \partial^\beta u$

Page 233, line $-1$: $\alpha_n \leq j + 1 \rightarrow \alpha_n \geq j + 1$

Page 235, line $-6$: (5.6) $\rightarrow$ (7.6)

Page 245, line $-9$: Put absolute value signs around the whole sum.

Page 248, lines 2 and 3 of section E: $X \rightarrow X$

Page 275, Proposition 8.11(a): the set $\Omega - \Omega = \{x - y : x, y \in \Omega\} \rightarrow$ the set $\Omega$

Page 275, proof of Prop. 8.11, line 3: $\Omega - \Omega \rightarrow -\Omega + x$ (2 places)

Page 275, proof of Prop. 8.11: Replace the material beginning with “Moreover” by the following: Moreover, if $\Omega$ is dense, then so is $-\Omega + x$. Thus, for each $x \in \Omega$, $p_2^\alpha(x, \cdot)$ vanishes on a dense set and so vanishes identically; hence so does $p(x, \cdot)$. On the other hand, if $\Omega$ is not dense, we can take $p(x, \xi) = \psi(x)e^{-2\pi ix \cdot \xi}\hat{\phi}(-\xi)$ where $\psi \in C_c^\infty(\Omega)$ and $\phi \in C_c^\infty(\mathbb{R}^n \setminus \Omega)$, for then $p_2^\alpha(x, z) = \psi(x)\phi(x - z)$ and hence $p_2^\alpha(x, x - y) = \psi(x)\phi(y) = 0$ for $x, y \in \Omega$.

Page 280, line $-7$: $D_\xi^\beta \rightarrow D_\xi^\alpha$

Page 287, line 9: $dy \rightarrow dy$

Page 289, next-to-last line of proof of Corollary (8.32): $\Psi^{-\infty} \rightarrow S^{-\infty}$

Page 290, line 3 of proof: $u(x)v(y) \rightarrow u(y)v(x)$

Page 293, line 4: then then $\rightarrow$ then

Page 305, line 3: and and $\rightarrow$ and

Page 323, Huygens phenomenon and Huygens principle: 167 $\rightarrow$ 172