Corrections to
Advanced Real Analysis*, *Digital Second Edition

Corrections to Chapter III

Note: The items below point to corrections in both the digital second edition and the printed first edition.

Page 72, Proposition 3.15, statement up to the formula. Change to read "Let H be the subset of $\mathbb{R}^N = \{(x', x_N) \mid x' \in \mathbb{R}^{N-1} \text{ and } x_N \in \mathbb{R}\}$ with $x_N > 0$. Suppose that u and v are C^2 functions on an open subset of $\mathbb{R}^N$ containing the closure $\overline{H}$ and that at least one of u and v is compactly supported. Then".

Page 72, Proposition 3.15, display in statement. Change "R^+" to "H", and change "x_n" to "x_N" in two places.

Page 72, Proposition 3.15, line 2 of proof. Change "$\mathbb{R}^{N-1}$" to "$\mathbb{R}^N$", and change "$(R^+)^{\text{cl}}$" to "$\overline{H}$".

Page 73, end of top paragraph. Change "R^+" to "H".

Page 99, Problem 3. In the first line, change "open unit disk in $\mathbb{R}^2$" to "open disk in $\mathbb{R}^2$ with $x^2 + y^2 < \frac{1}{2}$."

Page 100, line 6. Change "$T \in \mathcal{S}(\mathbb{R}^N)$" to "$T \in \mathcal{S}'(\mathbb{R}^N)$".

Corrections to Chapter X

Note: The corrections below were kindly pointed out by Ehssan Khanmohammadi. They affect only the digital second edition, since the printed first edition does not contain Chapter X.

Page 436, line −13. In the definition of ω_0, change "$\omega|\mathcal{F}f(t\omega)|^2$" to "$\omega|\mathcal{F}f(\omega)|^2$".

Page 437, line −4. Change "$\sigma_{g,t}$" to "$\sigma_{g,t}^2$".

Page 439, line −6. Insert "s_N" after the second limit sign.

Page 440, lines −11 and −10. Delete ", so that $c_{-k} = \int_{-1/2}^{1/2} (\mathcal{F}f)(\omega) e^{2\pi i k\omega}\, d\omega$".

Page 440, line −8. Change "$\mathcal{F}f(\omega) =$" to "$\mathcal{F}f(\omega) = \sum_{k=-\infty}^{\infty} c_k e^{2\pi i k\omega} =$".

Page 443, line 2 of Section 2. Change "$\psi(2^j - k)$" to "$\psi(2^j x - k)$".

Page 453, line $(*)$. Change "$|(P_m g)(x_n)$" to "$|(P_m g)(x_n)|$".

Page 453, line after $(*)$. Change "$(f - Jg) + g$" to "$(f - Jg) + Jg$".

Page 456, line 5. Change "$\nu(\frac{1}{2}y)$" to "$\nu(y)$".

Page 456, line 13. Change "is in V_0, which is contained in V_1, and" to "is in V_1 and".

Page 457, line 5. Change "$b_0 = 1\sqrt{2}$" to "$b_0 = 1/\sqrt{2}$".

Page 457, line 12. Change "period $\frac{1}{2}$" to "period 1".

Page 458, line −4. Change "*Basic,*" to "*Basic*),".

Page 459, line 6 of Lemma 10.12. Change "$\alpha(\delta_{\cdot k}) = h_{0,k}$" to "$\alpha(\delta_{\cdot k}) = \varphi_{0,k}$".

Page 459, line −7. Change "$\beta^{-1}\alpha^{-1}(\varphi_{0,k})$" to "$\beta^{-1}\alpha^{-1}(\varphi_{0,k})(\mathcal{F}\varphi)(y)$".

Page 459, line −3. Delete "(a) gives".

Page 462, line 3. Change second "$(\mathcal{F}f)$" to "$(\mathcal{F}\varphi)$".

Page 462, line 5. Change "$(\mathcal{F}f)(y + \frac{1}{2}l)\overline{(\mathcal{F}\varphi)(y + \frac{1}{2}l)}$" to "$|(\mathcal{F}\varphi)(y + \frac{1}{2}l)|^2$".

Page 463, line 3. Change "$m_f(\frac{1}{2}y)(\mathcal{F}f)(\frac{1}{2}y)$" to "$m_f(\frac{1}{2}y)(\mathcal{F}\varphi)(\frac{1}{2}y)$".

Page 463, line 7 of proof of Theorem 10.10b. Change "$\sum_l |m_0(\frac{1}{2}y + \frac{1}{2})|^2$" to "$\sum_l |m_0(\frac{1}{2}y + \frac{1}{2}l + \frac{1}{2})|^2$".

Page 464, line 4 of top display. Change "$|(\mathcal{F}\psi)(y)|^2|\,dy$" to "$|(\mathcal{F}\psi)(y)|^2\,dy$"

Page 467, lines −5 to −3. Change "$\nu(\frac{1}{2}y)$" to "$\nu(y)$" in three places.

Page 468, line 6. Change "$\sin(2\pi(x - \frac{1}{2}) - \sin(\pi(x - \frac{1}{2})$" to "$\sin(2\pi(x - \frac{1}{2})) - \sin(\pi(x - \frac{1}{2}))$".

Page 471, line 4 of Proposition 10.17. Delete "Suppose that $V_0 \subseteq V_1$, so that $\{V_j\}$ is an increasing sequence."

Page 471, line 6 of Proposition 10.17. Change "$\bigcup_{j=-\infty}^{\infty} V_j$" to "$\sum_{j=-\infty}^{\infty} V_j$ generated by all the V_j".

Page 471, after statement of Proposition 10.17. Insert

"REMARK. We use this result only when $V_0 \subseteq V_1$, in which case $\{V_j\}$ is an increasing sequence and $\sum_{j=-\infty}^{\infty} V_j = \bigcup_{j=-\infty}^{\infty} V_j$."

Page 480, line −2. Change "$|\sin \pi z|^2$" to "$|\sin z|^2$".

Page 482, Theorem 10.25e. Change "period $\frac{1}{2}$" to "period 2".

Page 483, line 6 of the proof. Change "$\beta^{-1}\alpha^{-1}(c)$" to "$\beta^{-1}\alpha^{-1}(f)$".

Page 484, line −11. Change "$-e^{\pi iy}\nu(y/2)$" to "$e^{\pi iy}\nu(y)$".

Page 484, line −10. Change "$e^{\pi iy}\nu(y/2)$" to "$-e^{2\pi iy}\nu(y)$".

Page 484, line −9. Change "$e^{\pi iy}\nu(y/2)$" to "$-e^{2\pi iy}\nu(y)$".

Page 484, line −8. Change "$\nu(y) = e^{-2\pi iy}$ and $\nu(y/2) = e^{-\pi iy}$" to "$\nu(y) = -e^{-2\pi iy}$".

Page 485, formula (††). Change "${}^1\gamma_{1,0}$" to "${}^1\gamma_{1,k}$".

Page 485, formula (‡). Change "$u_k\gamma(2x - k)$" to "$u_k{}^1\gamma(2x - k)$".

Page 495, Theorem 10.33e. Change "period $\frac{1}{2}$" to "period 2".

Page 501, two lines before "REMARKS." Change "$0 \le y \le 1$" to "$0 \le w \le 1$".

Page 501, Lemma 10.35, line 1. Change "$\sum_{k=0}^{N-1} \binom{2N-1}{k} w^k (1-w)^{N-k}$" to "$\sum_{k=0}^{N-1} \binom{2N-1}{k} w^k (1-w)^{N-k-1}$".

Page 502, line −2. Change "w^k" to "y^k".

Page 503, line −6. Delete "$0 =$" at left side.

Page 503, line −2. Change "$R(\frac{1}{2} - \frac{1}{2}(1-w))$" to "$R(\frac{1}{2} - (1-w))$".

Page 503, line −1. Change "$R(\frac{1}{2}w) = -R(\frac{1}{2}w)$" to "$R(-w) = -R(w)$".

Page 505, two lines after (∗∗). Change "with $\overline{z_0}$" to "with $1/\overline{z_0}$".

Page 507, line −5. Change "$h(1)$" to "$h(0)$".

Page 508, first display. Change "a_j" on the left side to "a_k".

Page 509, line −5. Change "$\|T_k(f - f_n\|_2$" to "$\|T_k(f - f_n)\|_2$".

Page 510, line 12. Change "$(\frac{1}{2}y + l))$" to "$(\frac{1}{2}y + l)$".

Page 510, line 13. Change "$m_0(\frac{1}{2}y + \frac{1}{2}))$" to "$m_0(\frac{1}{2}y + \frac{1}{2})$".

Page 510, line 14. Change "$m_0(\frac{1}{2}y + \frac{1}{2}))$" to "$m_0(\frac{1}{2}y + \frac{1}{2})$".

Page 511, line 7. Change "$C_1|\mathcal{F}\varphi)(y)|$" to "$C_1|(\mathcal{F}\varphi)(y)|$".

Page 511, line 15. Change "$\inf_{|y|\le 1/2} |\mathcal{F}\varphi)(y)|$" to "$\inf_{|y|\le 1/2} |(\mathcal{F}\varphi)(y)|$".

Page 511, line 17. Change "$|y \le 2^{n-1}$" to "$|y| \le 2^{n-1}$".

Page 513, first displayed line. Change "$\sin(2^{J-1})$" to "$\sin(2^{-J+1}\pi y)$". The result no longer fits in the available space. Thus run the equation into the text, put a period at the end of the displayed part, and change "and therefore" to "Therefore".

Page 513, footnote, line 2. Change "$\nu(y/2)$" to "$\nu(y)$".

Page 516, line 9. Change "proof the" to "proof of the".

Page 516, three lines before "Proof of Theorem 10.39". Change "$e^{-2\pi i 2N}$" to "$e^{-2\pi i(2N-1)x}$". The result no longer fits in the available space, but it fits if one changes "the ones" to "those".

Page 516, line 3 of "Proof of Theorem 10.39". Change "$m_0(y) = 1$" to "$m_0(0) = 1$".

Page 517, line 1. Change "$h(1)$" to "$h(0)$".

Page 517, line 5. Change "$\nu(\frac{1}{2}y)$" to "$\nu(y)$".

Page 517, line 6. Change "$\nu(\frac{1}{2}y)$" to "$\nu(y)$".

Page 517, line 7. Change "$e^{-4\pi iy}$" to "$e^{-2\pi iy}$".

Page 517, line 2 of Lemma 10.40. Change "in a open" to "in an open".

Page 518, line 6 of the proof. Change "$-\xi < -M$" to "$\xi < -M$".

Page 518, line 8 of the proof. Change "$\operatorname{Re} z$" to "$\operatorname{Im} z$".

Page 518, line 12 of the proof. Change "an arbitrary" to "arbitrary".

Page 519, line 8. Change "$=$" to "$\leq$".

Page 521, line 4. Change "$\sum_{k=-2n}^{2n}$" to "$\sum_{k=0}^{2n}$".

Page 521, line 2 of Proposition 10.43. Change "wavelet of wavelet of" to "wavelet of".

Page 521, line -2. Change "10.42" to "10.39".

Page 522, line 1. Change "$e^{\pi i N y}$" to "$e^{-\pi i N y}$".

Page 523, line 5. Change "10.42" to "10.43".

Page 523, line 14. Change "10.41" to "10.43".

Page 524, line 3 of big display. Change "$=$" to "$\leq$".

Page 524, line 6 of big display. Change "$j(h)$" to "$(j(h)+1)$".

Page 524, line -1. Change "$2\pi C(2^{1-\alpha}-1)^{-1}|h|^{\alpha}$" to "$2\pi C 2^{1-\alpha}(2^{1-\alpha}-1)^{-1}|h|^{\alpha}$".

Page 525, line 4 of top display. Change "$2^{-\alpha j(h)}$" to "$2^{-\alpha(j(h)+1)}$".

Page 525, line 5 of top display. Delete the line.

Page 525, line 6 of top display. Change "$2^{\alpha}|h|^{\alpha}$" to "$|h|^{\alpha}$".

Page 525, two lines before $(**)$. Change "$|y|(\mathcal{F}f)(y)|$" to "$|y|\,|(\mathcal{F}f)(y)|$".

Page 525, line before $(**)$. Move footnote mark from the word "inequality" to the word "prove".

Page 525, line $(**)$. Change "4π" to "c".

Page 525, line after $(**)$. Change "$|h| \leq 1$" to "$|h| \leq 1$; this inequality follows with $c = 4\pi$ by applying the Mean Value Theorem to the real and imaginary parts separately".

Page 525, line -5. Change "$\int$" to "$\int_{\mathbb{R}}$".

Page 525, line -4. Change "$\leq 4\pi|y|$" to "$\leq c|y|$".

Page 526, Proposition 10.47, line 2. Change "$\{2^{j/2}\psi(2^j x - j)\}_{j,k\in\mathbb{Z}}$" to "$\{2^{j/2}\psi(2^j x - k)\}_{j,k\in\mathbb{Z}}$".

Page 527, line -9. Change "$\{2^{j/2}\psi(2^j x - j)\}_{j,k\in\mathbb{Z}}$" to "$\{2^{j/2}\psi(2^j x - k)\}_{j,k\in\mathbb{Z}}$".

Page 527, line -7. Change "$\{2^{j/2}\psi(2^j x - j)\}_{j,k\in\mathbb{Z}}$" to "$\{2^{j/2}\psi(2^j x - k)\}_{j,k\in\mathbb{Z}}$".

Page 532, line 13. Change "$L^2(\mathbb{R})$" to "V_j".

Page 534, line -9. Change "$c_{j,k}$" to "$c_{j,l}$".

Page 538, line -1. Change "$\big(F(u,v)/(\alpha Q(u,v)\big)$" to "$\big(F(u,v)/(\alpha Q(u,v))\big)$".

Page 541, line -7. Change "$2^{j/2}\varphi(2^j - k)$" to "$2^{j/2}\varphi(2^j x - k)$".

Page 542, line 5. Change "$2^{j/2}\psi(2^j - k)$" to "$2^{j/2}\psi(2^j x - k)$".

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