MISPRINTS AND SMALL CHANGES IN "LINEAR FUNCTIONAL ANALYSIS"

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Information about possible new misprits is sincerely appreciated. Please contact the author through (jcerda@ub.edu or jcerdamartin@gmail.com).

More information will be available on the author web page http://www.mat.ub.edu/~cerda/

p. 23, l. -10 says "Borel measure", should say "complex Borel measure".
p. 55, l. -11 says "$P_t(x) = \frac{1}{\pi}\frac{x}{t^2+x^2}$", should say "$P_t(x) = \frac{1}{\pi}\frac{t}{x^2+t^2}$"; l. -9 says "$P(x) = \frac{1}{\pi}\frac{x}{t^2+x^2}$", should say "$P(x) = \frac{1}{\pi}\frac{1}{x^2+1}$".
p. 56, l. 7 says "$e^{2\pi it/T}$", should say "$e^{2\pi ikt/T}$"; l. -10 says "$\lim_{\lambda\to\infty}\int_\delta^{T-\delta}|K_\lambda(x)|\,dx = 0$ fo all $0<\delta<T$", should say $\lim_{\lambda\to\infty}\int_{\delta<|x|<T/2}|K_\lambda(x)|\,dx = 0$ for every $0<\delta<T/2$".
p. 63, l. 5, 6, 7 and 8 should be "$h = f - g$, and $s_k^2 = s_k - s_k^1$. By dominated convergence, $s_k \to f$, $s_k^1 \to g$, and $s_k^2 \to h$ in in L^p, L^{p_0} and L^{p_1} respectively.

Then $Ts_k^1 \to Tg$ in L^{p_0} and $Ts_k^2 \to Th$ in L^{p_1}, and, by taking subsequences if necessary, also $Ts_k \to Tf$ a.e.".
p. 80, l. 8 says "$\sum_{n=1}^{k+1} 2^{-n}$", should say "$\sum_{n=1}^{k+1}$".
p. 95, l. -6 says "$z(H)$", should say "$T(H)$".
p. 98, l. 10 says "$= \frac{S}{4}$", should say "$= \frac{S}{2}$".
p. 103, l. 2 to 5, better: "If $f = \mathrm{sgn}\,(h)\chi_A$, then $v(f) \geq (\|v\|_{(L^1)'} + \varepsilon)\mu(A)$ and, since also $v(f) \leq \|v\|_{(L^1)'}\|f\|_1 = \|v\|_{(L^1)'}\mu(A)$, we arrive to a contradiction.".
p. 106, l. -8 and -7 say "$(1/|t|)v(|t|z \pm y) \leq (1/|t|)q(|t|z \pm y)$", should say "$|t|v(|t|^{-1}z \pm y) \leq |t|q(|t|^{-1}z \pm y)$".
p. 110, l. -6 says "$E \setminus F$", should say "$E \setminus \bar{F}$".
p. 111, l. -5 says "Theorem 4.20 and Theorem 4.21,", should say "Theorem 4.20,".
p. 112, l. -5 says "closed subspace", should say "subspace".
p. 113 Theorem 4.24 says
"Suppose E is a locally convex space. The closed linear span $\overline{[A]}$ of a subset A of E coincides with A^{oo}, the annihilator in E of $A^o \subset E'$, so that A is total in E if and only if $A^o = \{0\}$.

Thus, a vector subspace F of E is closed if and only if $F^{oo} = F$."
Better say:
"Suppose E is a locally convex space. The closed linear span $\overline{[A]}$ of a subset A of E coincides with A^{oo}, the annihilator in E of $A^o \subset E'$. Thus, a vector subspace F of E is closed if and only if $F^{oo} = F$, and A is total in E if and only if $A^o = \{0\}$.".
p.128, l. 4 says "We have a similar situation with", should say "Note that $E' \subset \mathbf{K}^E$ and the weak* convergence of a sequence in E' is the restriction of".
p.128, l. 5, 8 and 10 say "$\mathbf{C}^X$", should say "$\mathbf{K}^E$."; suppress lines 6,7 and 8; before Theorem 5.1, add the following paragraph:

"By defining $\hat{x}(u) := u(x)$, we obtain an injection $x \in E \hookrightarrow \widehat{x} \in \mathcal{E}$ that allows us to also consider $(\mathcal{E}, E)$ as a dual couple. In this way, if E is a locally convex space, then (E', E) is also a dual couple."
p. 133, l. -4 says "$b^2 + 2xb \leq 0$", should say: "$b^2 + 2xb \leq 1$".
p. 146, l. 6 says "$f * \rho \in \mathcal{E}(\mathbf{R}^n)$ and $\mathrm{supp}\,(f * \rho) \subset K + \bar{B}(0,\delta) = K(\delta)$", should say: "$\varphi * \rho \in \mathcal{E}(\mathbf{R}^n)$ and $\mathrm{supp}\,(\varphi * \rho) \subset K + \bar{B}(0, 2\delta) = K(2\delta)$".
p. 149, l. 16 says "Ru is a distribution on Ω_1, and R :", should say "$T'u$ is a distribution on Ω_1, and T' :".
p. 151, l. 10 says "adjoint", should say "transpose"; l. -3 says "$f \in \mathcal{E}^1(\Omega)$", should say "$f \in \mathcal{E}(\Omega)$".
p. 160, l. 4 says "$u(\varphi) =$", should say "$u(\tilde{\varphi}) =$".
p. 165, l. 6, 10 and 13 say "$\triangle *$", should say "$E_n *$"; l. -10 says "LE_n", should say "$\triangle E_n$".
p. 170, l. 8, 10 and 11 say "$\int_a^{\xi-} - \int_{\xi+}^b$", should say "$\int_a^{\xi-} + \int_{\xi+}^b$". Also, write $-qG_\xi$ instead of qG_ξ
p. 192, l. 7 and 9 say $e^{2k\pi ia\cdot x}$, should say $e^{2\pi ia\cdot x}$; suppress l. -6 and l. -5, and translate the label of footnote 4; before subsection 7.3.2, add **Remark 7.13.** If $\varphi \in \mathcal{S}(\mathbf{R}^n)$ and $u \in \mathcal{S}'(\mathbf{R}^n)$, then the convolution $(u * \varphi)(x) := \langle \tau_x\tilde{\varphi}, u\rangle$ is a well-defined function $u * \varphi \in \mathcal{S}'(\mathbf{R}^n)$ and $\widehat{u * \varphi} = \widehat{\varphi}\widehat{u}$. Cf. Exercise 7.26
p. 201, l. 8 says "$P_t(x) = \frac{1}{\pi}\frac{x}{t^2+x^2}$", should say "$P_t(x) = \frac{1}{\pi}\frac{t}{x^2+t^2}$".

p. 204, l. -10 says "$\varphi \in \mathcal{S}(\mathbf{R})$", better say "$\varphi \in \mathcal{D}(\mathbf{R})$".
p. 205, after l. 14, add "This identity follows by applying the inversion theorem to the identity

$$\widehat{H\varphi} * \widehat{H\varphi} = \widehat{\varphi} * \widehat{\varphi} + 2m(\xi)\widehat{\varphi} * \widehat{H\varphi},$$

where $m(\xi) := -i\ \mathrm{sgn}(\xi)$, which is proved by noticing that the right hand side $(\widehat{\varphi} * \widehat{\varphi})(\xi) + 2m(\xi)(\widehat{\varphi} * \widehat{H\varphi})(\xi)$ is

$$\int_{\mathbf{R}} \varphi(\eta)\varphi(\xi-\eta)\, d\eta + 2m(\xi)\int_{\mathbf{R}} \varphi(\eta)\varphi(\xi-\eta)m(\eta)\, d\eta$$

or

$$\int_{\mathbf{R}} \varphi(\eta)\varphi(\xi-\eta)\, d\eta + 2m(\xi)\int_{\mathbf{R}} \varphi(\eta)\varphi(\xi-\eta)m(\xi-\eta)\, d\eta.$$

The average of these expressions is

$$(\widehat{\varphi} * \widehat{\varphi})(\xi) + 2m(\xi)(\widehat{\varphi} * \widehat{H\varphi})(\xi) = \int_{\mathbf{R}} \varphi(\eta)\varphi(\xi-\eta)[1 + m(\xi))(m(\eta) + m(\xi-\eta))]\, d\eta,$$

and $1 + m(\xi)(m(\eta) + m(\xi-\eta)) = m(\eta)m(\xi-\eta)$. So, $\int_{\mathbf{R}} \varphi(\eta)\varphi(\xi-\eta)m(\eta)m(\xi-\eta)\, d\eta = (\widehat{H\varphi} * \widehat{H\varphi})(\xi)$. "
p. 208, l. -14 and l. -13 say "4π", should say "$4\pi^2$".
p. 211, l. 8 and 11, three places, say "$_{L^p(}$", should say "$_{L^2(}$"; l. -11 says "for functions", should say "for real functions".
p. 219, l. 14, says "$((-\triangle)^{-1}\varphi, \psi)_2 = (\nabla\varphi, \nabla\psi)_2 = (\varphi, \psi)_D = (\varphi, (-\triangle)^{-1}\psi)_2$", should say "$(\varphi, (-\triangle)^{-1}\psi)_2 = ((-\triangle)^{-1}\varphi, (-\triangle)^{-1}\psi)_D = \overline{((-\triangle)^{-1}\psi, (-\triangle)^{-1}\varphi)_D} = ((-\triangle)^{-1}\varphi, \psi)_2$"; l. -7 says "since $\triangle : H_0^1(\Omega) \to L^2(\Omega)$ is injective" , better say "since $\triangle$ is injective on $H_0^1(\Omega)$".
p. 221, l. -6, -5, -3 and -2, four places, say "H^{t+1}", should say "H^{t-1}"; l. -2 and -1, say "H^{t-1}", should say "H^{t+1}".
p. 224, add
"**Exercise 7.26** Suppose that $x \in \mathbf{R}^n$, $\varphi \in \mathcal{S}(\mathbf{R}^n)$ and $u \in \mathcal{S}'(\mathbf{R}^n)$, and denote $(u * \varphi)(x) := \langle \tau_x\tilde{\varphi}, u\rangle$. Prove the following facts:
(a) $(u * \varphi)(x)$ is continuous with respect to u in $\mathcal{S}'(\mathbf{R}^n)$, with respect to φ in $\mathcal{S}(\mathbf{R}^n)$, and with respect to x in $\mathbf{R}^n$.
(b) $u * \varphi$ is a tempered distribution.
(c) If $\psi \in \mathcal{D}(\mathbf{R}^n)$, $\langle \psi, u * \varphi\rangle = u\Big(\int_{\mathbf{R}^n} \psi(x)(\tau_x\tilde{\varphi})(\cdot)\, dx\Big)$. Extend this identity to the case $\psi \in \mathcal{S}(\mathbf{R}^n)$.
(d) The mapping $(u, \varphi) \in \mathcal{S}'(\mathbf{R}^n) \times \mathcal{S}(\mathbf{R}^n) \mapsto u * \varphi \in \mathcal{S}'(\mathbf{R}^n)$ is continuous with respect to u and φ.
(e) $\widehat{u * \varphi} = \widehat{\varphi}\widehat{u}$.
(f) The identities of Theorem 7.23 hold for every $\varphi \in \mathcal{S}(\mathbf{R}^n)$.
p. 300, l. -1 says "first part.", should say "first part if $\lambda_k \geq 0$; if not, consider $\lambda_k = \lambda_k^+ - \lambda_k^-$.".
p. 304, Exercise 3.5 says "Use the open mapping theorem", should say "Show that $A\|f^{(n)}\|_1 \leq \|f^{(n)}\|_p \leq B\|f^{(n)}\|_\infty$ and $|f^{(n)}(x)| \leq |\int_a^x f^{(n+1)}| \leq \|f^{(n+1)}\|_1$".
p. 316, after l. 7, add
"Exercise 7.26. To prove (b), check that $|(u * \varphi)(x)| \leq C(1 + |x|^2)^N$ " by proving an estimate $q_N(\tau_x\varphi) \leq 2^N(1 + |x|^2)^N q_N(\varphi)$. To prove (e), show that, for any $\widehat{\psi} \in \mathcal{D}(\mathbf{R}^n)$, $\langle \widehat{\psi}, \widehat{u * \varphi}\rangle = \langle \widehat{\psi}, \widehat{\varphi}\widehat{u}\rangle$.