COMMENTS TO
G. GRUBB: "DISTRIBUTIONS AND OPERATORS"

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Corrections, *updated May 6, 2017.*

Notation: x means page x, with x^y indicating line y from above, x_y indicating line y from below.

4^{15} replace "differention" by "differentiation"

10^6 replace "$f_2(x) \geq 0$ for all x" by $f_2(t) \geq 0$ for all t"

13^{19+23} replace "$p_{j,k}$" by "$p_{k,j}$"

14_7 replace "mapping T" by "linear mapping T" (as in Theorem B.18)

18^{12+18} replace "L^1" by "L_1"

24_{8+7} replace "$i = 0$" by "$j = 0$"

24_7 add the sentence "The conclusion of Theorem 2.17 also holds when the V_j are arbitrary open sets, since they can be replaced by bounded sets $V_j \cap B(0,R)$ with R taken so large that $K \subset B(0,R)$."

42^5 replace "$(\overset{\smile}{\varphi}$" by "$(\check{\varphi}$"

42_{10} replace "(2.35)" by "(2.32)"

44_{15} replace "$J \circ T^{-1}$" by "JT^{-1}"

60^{13} add the line "here $\partial f = g$."

62_{14} replace "(C.11)" by "(C.10)"

63^4 replace "v" by "u" in two places

64_7 replace "$\chi_N u$" by "$\chi_N u = \chi(x/N)u$"

65^{2+5+6} replace "L^2" by "L_2" in the subscripts

65_2 replace "$B(0, \frac{1}{j})$" by "$B(x, \frac{1}{j})$"

66 let the footnote refer to (3.60) instead of (3.43)

72_{11} change the definition of $\tilde{v}_\delta$ to

$$\tilde{v}_\delta(x) = \tilde{u}(\tfrac{\alpha+\beta}{2} + \tfrac{1}{1-\delta}(x - \tfrac{\alpha+\beta}{2}))$$

73^9 replace "perioodic" by "periodic"

76^{16} replace "$m-1)$" by "$m-1$"

79_9 replace "$dy_n dx'$" by "$dx' dy_n$"

83_9 replace "$\Omega_b = \{x \in \mathbb{R}^n \mid 0 \leq x_j \leq b\}$" by "$\overline{\Omega}_b$, where $\Omega_b = \{x \in \mathbb{R}^n \mid 0 < x_j < b\}$"

84^6 replace "Ω_R" by "Ω_b"

84^9 replace "the lemma" by "Theorem 4.29"

89^7 replace "$(H, V, l(u,v))$" by "$(H, V, l_0(u,v))$"

121_8 replace "$(-1)^{m-1}(m-1)!$" by "$\frac{(-1)^{m-1}}{(m-1)!}$"

126_{14} replace "Exercise 12.36" by "Exercise 12.35"

126_{10} replace "this theorem" by "Theorem 6.3"

127_1 add "(The constant $4/3$ can e.g. be found as the maximum of $(1+2s+2t)/(1+s+t+st)$ for $s = |x|^2$, $t = |y|^2 \in \overline{\mathbb{R}}_+$.)"

135_4 replace "$d\eta d\zeta$" by "$d\zeta d\eta$"

136^{17} replace "when u" by "when φ"

141^{7-10} replace "each $\varphi \in C_0^\infty(\Omega)$, that ... , and $D_j\varphi \in C_0^\infty(\Omega)$." by "each η_l as in Corollary 2.14:

$$\eta_l D_j u = \eta_l D_j(\eta_{l+1}u) \in H^{s-1}(\mathbb{R}^n),$$

since $\eta_{l+1} = 1$ on $\operatorname{supp}\eta_l$, and here $\eta_{l+1}u \in H^s(\mathbb{R}^n)$ implies $\eta_l D_j(\eta_{l+1}u) \in H^{s-1}(\mathbb{R}^n)$ by Lemma 6.7."

158^1 replace "Show that" by "Let $\operatorname{Re} b > -2$. Show that"

187^{17} add the sentences "For $u \in \mathscr{D}'(\Omega)$ on can obtain this by using a parametrix Q together with nested cutoff functions as in the proof of Theorem 6.29. The induction argument is to write

$$P\psi_{j+1}u = [P, \psi_{j+1}]\psi_j u + \psi_{j+1}Pu + \psi_{j+1}P(\psi_j - 1)u,$$

where $[P, \psi_{j+1}]$ is of order $d - 1$, $\psi_{j+1}Pu \in H^s$ and $\psi_{j+1}P(\psi_j - 1)u \in C^\infty$, so that application of Q lifts the regularity one step."

224^{11} replace "belong to $\mathscr{S}(\overline{\mathbb{R}}_+^n)$" by "belongs to $\mathscr{O}_M(\mathbb{R}^{n-1}, \mathscr{S}(\overline{\mathbb{R}}_+))$"

224^{12} replace "then also" by "then"

224_8 replace "$dx_n d\xi'$" by "dx"

226_{9-7} "$\rho_{(m)}$" should be "$\varrho_{(m)}$" (such wrong fonts occur here and there in the book)

305_{13} replace "$\mathscr{S}'(\mathbb{R})$" by "$\mathscr{D}'(\mathbb{R})$"

320^{15} replace "LiC^-" by "C^-"

349_3 replace "$|p(\xi)| \le C$ for $\xi \in X$" by "$|p(x)| \le C$ for $x \in \Omega$"

350_{11} replace "βax_2" by "$\beta a(x_2$"

352_{13} replace "12.9 3°" by "12.9"

353_5 add the sentence "Moreover, H is dense in V^*; this is seen e.g. by observing that the mapping $f \mapsto \ell_f$ from H to V^* is the adjoint of the injection of V into H; here one can apply Theorem 12.7."

359_8 replace "at" by "as"

362^{11} replace "$e^i\theta$" by "$e^{i\theta}$"

368^{19+20} remove "see in particular Exercise 4.14"

370^{23} remove "rr"

434^5 replace "Exercise B.1" by "Exercise B.3"

436_1 the signs "|" are superfluous

437^{6-10} The proof "In fact, if ... 1°." can be replaced by a shorter proof: "In fact, assume that for some x_0, $|\Lambda(x_0)| > (\varepsilon/\delta)p(x_0)$.

Then $\Lambda(x_0) \neq 0$, and $p(|\Lambda(x_0)|^{-1}\varepsilon x_0) < \delta$. By $(*)$, this implies $\varepsilon > |\Lambda(|\Lambda(x_0)|^{-1}\varepsilon x_0)| = \varepsilon$, a contradiction. This shows 1°."

437^{13} the signs "|" are superfluous

448^{18} replace "order m" by "order k"