Bernstein Functions: Theory and Applications (2nd edition)

de Gruyter, Studies in Mathematics 37, Berlin 2012, ISBN: 978-3-11-025229-3

by

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List of misprints and smaller additions for the 2nd edition. Date: December 2, 2022.

PAGE, LINE	READS	SHOULD READ
p. 6, l. 11 above	$e^{-\lambda s}$ (under the integral)	$e^{-\lambda t}$
p. 25, formula (3.7)	$\mathrm{Re} z \geq 0$	$\mathrm{Re} z > 0$
p. 36, l. 7/8 above	*delete the words* “if it is hermitian, i.e. $f(s^*) = \overline{f(s)}$, and”	*Comment:* In fact, a function f satisfying the condition (4.2) for all $n \in \mathbb{N}$, $s_1, \dots, s_n \in S$ and $c_1, \dots, c_n \in \mathbb{C}$ is **automatically** hermitian. Therefore, it is not necessary to require this in the statement. The proof that (4.2) implies the hermitian property of f is exactly the argument used in the proof of Lemma 4.2: Observe that (4.2) means that the matrix $F = \big(f(s_j) + \overline{f(s_k)} - f(s_j + s_k^*)\big)_{j,k=1}^n$ is a hermitian matrix, i.e. $\overline{F} = F^\top$. For $n = 2$, $s_1 = 0$ and $s_2 = s$ we get $\begin{pmatrix} f(0) & f(s) + f(0) - f(s) \\ f(0) + \overline{f(s)} - f(s^*) & f(s) + \overline{f(s)} - f(s+s^*) \end{pmatrix} = \begin{pmatrix} f(0) & f(0) + \overline{f(s)} - f(s^*) \\ f(0) & f(s) + \overline{f(s)} - f(s+s^*) \end{pmatrix}^\top$ $= \overline{\begin{pmatrix} f(0) & f(0) + \overline{f(s)} - f(s^*) \\ f(0) & f(s) + \overline{f(s)} - f(s+s^*) \end{pmatrix}} = \begin{pmatrix} \overline{f(0)} & \overline{f(0)} + f(s) - \overline{f(s^*)} \\ \overline{f(0)} & \overline{f(s)} + f(s) - \overline{f(s+s^*)} \end{pmatrix}$ If we compare the top left entries we get $f(0) = \overline{f(0)}$ and for the bottom left entries we then get $\overline{f(s)} = f(s^*)$.
p. 41, l. 2 below	continuous negative definite functions	lower bounded continuous negative definite functions
p. 57, l. 5 above	$0 < \alpha \leq 1$	$0 < \alpha < 1$
		continues on next page

PAGE, LINE	READS	SHOULD READ
		An additional comment: If $\alpha = 1$ the two integrations lead to $f(\lambda) = f''(1)(\lambda \log \lambda - \lambda) + f''(1)C\lambda$. Since this function grows faster than any linear function, this is not a Bernstein function, ruling out the case $\alpha = 1$.
p. 61, l. 13 above, Theorem 5.22 (i)	$f = \mathscr{L}\pi$	$e^{-f} = \mathscr{L}\pi$
p. 73, l. 5 above, (6.2)	$\frac{2}{\pi}\int_{-\infty}^{\infty} \frac{\mathrm{Im} f_n(-s+ih)}{(s+z)^3}\,ds$	$-\frac{2}{\pi}\int_{-\infty}^{\infty} \frac{\mathrm{Im} f_n(-s+ih)}{(s+z)^3}\,ds$
p. 74, l. 11 above	$\frac{2}{\pi}\int_{-\infty}^{\infty} \cdots ds$	$-\frac{2}{\pi}\int_{-\infty}^{\infty} \cdots ds$
p. 74, l. 8 below	$\int_{-\infty}^{\infty} \cdots \Pi(ds)$	$-\int_{-\infty}^{\infty} \cdots \Pi(ds)$
p. 77, l. 9 below	$\mathbb{C} \setminus (-\infty, 0]$	$\mathbb{C} \setminus \mathbb{R}$
p. 106, l. 7 above	$\gamma \in (0, 1-\alpha]$	$\gamma \in (\alpha, 1-\alpha]$
p. 106, l. 9/10 above	Theorem 3.6	Proposition 3.6
p. 106, l. 12 above	$\left\| \arg\left(z^\gamma f(z^\alpha)\right)\right\| = (\alpha+\gamma)\omega \le \omega < \pi$	$0 < (\gamma-\alpha)\omega \le \arg\left(z^\gamma f(z^\alpha)\right) \le (\gamma+\alpha)\omega \le \omega < \pi$
p. 115, l. 8 below	differentiate (8.9)	differentiate (8.4)
p. 127, l. 2 after Table 9.1	$\log\left(1+\frac{\lambda}{a_n}\right) - \log\left(1+\frac{\lambda}{b_n}\right)$	$\log\left(1+\frac{\lambda}{b_n}\right) - \log\left(1+\frac{\lambda}{a_n}\right)$ (i.e. sign error)
p. 218, (13.30)	$A^f I_k$	$A^f I_k u$
p. 218, (13.31)	$I_k A^f$	$I_k A^f u$
p. 221, l. 10 below	$\mathrm{Im}[(f(z) - f_k(z))/f(z)]$	$\mathrm{Im}[(f(z) - f_k(z))/f_k(z)]$
p. 320, entry 37	$\frac{\log(\sqrt{a\lambda}+\sqrt{b})}{\sqrt{\lambda}}$	$\sqrt{\lambda}\log(\sqrt{a\lambda}+\sqrt{b})$
p. 374, formula (A.3)	*add the following condition*	$\sup_{n\in\mathbb{N}} \mu_n(E) < \infty$