Correction to “On Malgrange Theorem for Nuclear Holomorphic Functions in Open Balls of a Banach Space”

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The proofs and the main results of [1] are correct but we must make some modifications in the preparatory results. In the proof of Lemma 11 the constant D depends on k and this brings problems to the proof of Proposition 7. Thus the following remarks are to be considered by the reader.

In Proposition 7 we must state that the bijection is between the set of convolution operators of type zero (see Definition 23 in [1]) and the set of continuous linear forms in $\mathcal{H}'_{Nb}(B_R)$ of type zero. An element T of $\mathcal{H}'_{Nb}(B_R)$ is of type zero if $\hat{T}$ (see Definition 18 in [1]) is of exponential type zero (see Definition 19 in [1]). In the statements of Lemmas 10, 11, 12, 14, 16 we must consider T of type zero. Lemma 9 is correct but we must replace it by “If $T \in \mathcal{H}'_{Nb}(B_R)$ is of type zero, then for each $\varepsilon > 0$ there is $c(\varepsilon)$ positive such that $\|T * P_j\|_{N,\rho} \leq c(\varepsilon)(\varepsilon + \rho)^j \|P_j\|_N$ for all P_j in $\mathcal{P}_N(^jE)$, $\rho \in (0, R)$ and $j \in \mathbb{N}$ ”. The proof is straightforward if we consider first polynomials of finite type and the fact that for each $\varepsilon > 0$ there is $c(\varepsilon) > 0$ such that $|T(\hat{\varphi}^\ell)| \leq c(\varepsilon) \varepsilon^\ell \|\varphi\|^\ell$ for all $\varphi \in E'$ and $\ell \in \mathbb{N}$. In the proof of Lemma 11 (*) implies that $T * g \in \mathcal{H}'_{Nb}(B_R)$. By the results of [2] it follows that $T * g = \sum_{n=0}^{\infty} T * (n!)^{-1} \hat{d}^n g(0)$ pointwise. An application of the new Lemma 9 implies Lemma 11. Lemma 17 must be considered for $f \in \mathcal{H}'_{Nb}(E)$ and the proof is as in [2], page 56. In the proof of Proposition 7 we must consider T of type zero, $\mathcal{O}$ of type zero and f replaced by P_k , the Taylor polynomial of f at 0 of degree k , for all $k \in \mathbb{N}$. The result follows by taking limits as $k \rightarrow \infty$ in both sides of the equalities. Finally the reference to [5] in page 121 of [1] must be replaced by Corollaire 1, page 134, in [3]. Typographical mistakes: in page 114 in lines 6, 8, 10 and 12 from the bottom it should be ρ^n instead of ρ^{-n} . In page 115, line 5 from the bottom we must write $\hat{d}^{i+n} f(0)$ instead of $d^{i+n} f(0)$.

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References

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