

New proofs of some theorems on infinitely differentiable functions: Corrigenda

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In a recent note [1], Arkeryd presents a counterexample to my conjecture [2]. The same example appears in a preprint by von Grudzinski [3], who also points out that the corollary to Theorem 2 does not follow from the proof of the theorem as stated. The fact that $x^3 + xy^3$ and $x^3 + xy^3 + y^3$ are right equivalent, but not under quasi-identity, provides a counterexample. The proof on p. 170 of [2] that $\xi_i^{(k+1)} = O(|x|)$ is also incorrect. In order to establish this result, we note that, from equation (31), it suffices to show that $\xi(0, t) = 0$ for all t . But, from equation (30), $f(\xi(0, t)) = 0$. If now 0 is an isolated zero of f , we are done. If not, we may assume $\xi(0, t) = 0$ without loss of generality. The corollary to Theorem 4 shows that this latter case is, in fact, vacuous.

References

- [1] Leif Arkeryd, "A counter-example to a conjecture by Deakin", *Bull. Austral. Math. Soc.* 18 (1978), 293-294.
- [2] Michael A.B. Deakin, "New proofs of some theorems on infinitely differentiable functions", *Bull. Austral. Math. Soc.* 17 (1977), 161-175.

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- [3] Olaf von Grudzinski, "A note on right-equivalence of map-germs", submitted.

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