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A Corrigendum to the paper 'Connecting direct limit topologies with metrics on infinite-dimensional manifolds'

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The Main Theorem is not correct because Lemma 2 is false. However, adding the following assumption to the Main Theorem and the condition $(*)$ in Section 1, Main Theorem and Corollaries 2–5 and 7 are valid:

id: $(M_i, \tau_2^i) \to (M_i, \tau_1^i)$ *is a fine homotopy equivalence.*

The proof of Main Theorem (with Lemma 3) is valid without any changes. Corollary 1 is true since it can be proved that every $(\mathbb{R}^\infty, \sigma)$-manifold (or every (Q^∞, Σ)-manifold) satisfies the condition above. Corollary 6 is now nonsense. The Proposition should be changed as follows:

PROPOSITION. *Let $M = (M, \tau)$ be an $\mathbb{R}^\infty$-manifold (or a Q^∞-manifold), d a continuous metric on M and τ_d the topology generated by d. Then (M, τ, τ_d) is an $(\mathbb{R}^\infty, \sigma)$-manifold (or a (Q^∞, Σ)-manifold) if and only if* id: $(M, \tau) \to (M, \tau_d)$ *is a fine homotopy equivalence and each compact set in (M, τ_d) is a strong Z-set.*

For details, refer to [BS].

The author would like to express his sincere thanks to Banakh for showing a counterexample to him.

Reference

[BS] Banakh, T. and Sakai, K.: Characterizations of $(\mathbb{R}^\infty, \sigma)$- or (Q^∞, Σ)-manifolds and their applications. Preprint.