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ERRATUM TO: A PERSISTENTLY SINGULAR MAP OF $\mathbb{T}^n$ THAT IS C^1 ROBUSTLY TRANSITIVE

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ERRATUM TO: A PERSISTENTLY SINGULAR MAP OF $\mathbb{T}^n$ THAT IS C^1 ROBUSTLY TRANSITIVE

by Juan C. Morelli

This is a correction to:

A persistently singular map of $\mathbb{T}^n$ that is C^1 robustly transitive.
Bull. Soc. Math. France **149** (2021), no. 3, p. 501–519.

April 30, 2022.

Lemma 3.14. — *For every small open neighborhood U of $(0,1)'$ in $\mathbb{T}^n$ and $U' \subset U$ any open subset, there exists $m_0 \in \mathbb{N}$ such that* $\operatorname{diam}(\pi(G^{-m}(U'))) \geq \frac{2}{13} - 2a_0$ *for all $m \geq m_0$.*

This comes from the fact that the expanding regions of g_1 and g_2 in Lemma 2.5 are at distance $\frac{2}{13} - 2a_0$. The proof of Lemma 3.14 is correct up to the very last sentence, with the detail that this is the maximum lower bound we can ensure for the diameter of the preimage set (recall that a_0 is fixed in the proof of Lemma 2.5, and can be taken as small as desired).

Lemma 3.14 is used to prove Lemma 3.15. To see why Lemma 3.15 holds for such $\pi(G^{-m}(U'))$ sets, we still need to argue that there exists $d \geq 0$ such that $G^{-d}(U') \cap \lambda \neq \emptyset$.

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Recall that $\|g_1 - h_1^{-1} \circ G_{|N} \circ h_1\| < \varepsilon$ with $h_1 : \{0\} \times S^1 \to N$ as close to the canonical inclusion as desired, and recall that $g_1 : S^1 \to S^1$ is defined in the proof of Lemma 2.5, as close to the identity map as desired.

Then, since λ is transversal to N and $(0,1)'$ is a saddle for G which only contracts in $G_{|N}$, there exist $k_0 \geq m_0+1$ and $l \geq 0$ such that $G^{-k_0}(U') \cap G^l(\lambda) \neq \emptyset$, because since $\bigcup_{s\in\mathbb{N}} g_1^s(\pi \circ \lambda)$ does not miss the set $\pi(G^{-k_0}(U'))$ because of its large diameter (approximately $\frac{1}{7}$), $\bigcup_{s\in\mathbb{N}} G^s(\lambda)$ does not miss the set $G^{-k_0}(U')$ either.

So let $d = k_0 + l$. The rest of the proof is unchanged.