CORRECTIONS TO LECTURES ON COARSE GEOMETRY

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Berndt Grave has kindly pointed out two errors in my Lectures on Coarse Geometry [1], to which I should draw attention.

In Theorem 2.27 it is asserted that a continuously controlled coarse structure is proper. The proof, however, is not valid unless the control is with respect to a *metrizable* compactification (compare 2.33 and the subsequent discussion). The error is in the use of Urysohn’s lemma: in a general compact Hausdorff space it may not be possible to find a continuous real-valued function that vanishes *exactly* on a given closed set.

The other error is a mistake in the logical ordering of the material. Proposition 3.7 is not valid with the given definition of ‘gauge’ (the diagonal might not be uniform with respect to $E$). Amend Definition 3.5 by requiring that a gauge be doubling in the sense of Definition 3.11.

Steve Ferry and his students point out that I mangled part of the statement and proof of Rosenblatt’s theorem, 3.59, for which I want to apologize. It is not true that if all the eigenvalues of $T$ have absolute value 1, then it acts as an automorphism of finite order on $\mathbb{Z}^n$ (how did I write that?); consider $\begin{pmatrix} 1 & 1 \\ 0 & 1 \end{pmatrix}$. Thus, it is not true that this hypothesis implies that $\Gamma$ is virtually abelian. What is true is that $\Gamma$ is virtually nilpotent (and therefore of polynomial growth). (The finiteness statement that I was trying to get at is that every eigenvalue of $T$ is a root of unity, so that some power of $T$ is strictly upper triangular.) For this material one should refer to Rosenblatt’s original paper, [2].

REFERENCES


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