ERRATA: *SMALL ISOSPECTRAL AND NONISOMETRIC ORBIFOLDS OF DIMENSION* 2 *AND* 3

BENJAMIN LINOWITZ AND JOHN VOIGHT

This note gives some errata for the article *Small isospectral and nonisometric orbifolds of dimension* 2 *and* 3 [1].

Errata

(1) Theorem D, Example 6.3: The example is not a manifold. In Lemma 5.1, we characterized when there are no torsion elements in a group Γ^1 coming from norm 1 units, but this example concerns a larger group Γ^+. We would have needed to check in addition that for every totally positive unit $u \in \operatorname{nrd}(\Gamma)$ that $F(\sqrt{-u})$ does not embed in B. In fact, there is such an embedding for the example, and consequently there are nontrivial 2-torsion elements in Γ. (Such a nontrivial 2-torsion element can be given explicitly.) The authors thank Aurel Page for pointing out this mistake.

Theorem D did not claim to find the smallest example, so the infraction is minor—in particular, the other results in the paper are unaffected, and the 2-manifold example remains correct.

We can find an example to replace Theorem D which is only a bit bigger as follows. Let $F = \mathbb{Q}(t)$ be the quintic field with discriminant -43535 and defining polynomial $x^5 - x^4 + 3x^3 - 3x + 1$. Let $B = \left(\dfrac{3t^3 - 2, -13}{F}\right)$, so that B is ramified at the three real places of F and the prime ideal $\mathfrak{p} = (t^4 - t^3 + 3t^2 - t - 2)$ of norm 13. The algebra B contains two conjugacy classes of maximal orders, does not admit an embedding of a quadratic cyclotomic extension of F and obviously exhibits no selectivity as selectivity can only occur in quaternion algebras unramified at all finite primes. Thus the hyperbolic 3-manifolds associated to two non-conjugate maximal orders will be isospectral. The volume of these isospectral manifolds is $51.024566\ldots$ So in Theorem D, $39.2406\ldots$ should be replaced with this larger volume.

Consequently, the remarks on Theorem D at the end of the paper must also be adjusted upwards, but they remain as daunting as they were before.

References

[1] Benjamin Linowitz and John Voight, *Small isospectral and nonisometric orbifolds of dimension* 2 *and* 3, Math. Z. **281** (2015), no. 1, 523–569.

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