ERRATUM TO "HARMONIC MAASS FORMS ASSOCIATED TO REAL QUADRATIC FIELDS"

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In our previous paper [1], we obtained arithmetic information about the Fourier coefficients of harmonic Maass forms associated to Hecke weight one theta series. Regrettably, the denominator bound $\kappa_{\mathfrak{m}}$ as stated in Theorem 1.1 and Theorem 6.5 is incorrect, and should be modified as follow.

In the last paragraph of the proof of Theorem 4.5, the denominator bound from [3, Theorem 4.7] is the square root of the size of the finite quadratic module L^*/L. Instead of $\sqrt{AM}$ and $N\sqrt{AM}$ as stated, these should be $M\sqrt{D}$ and $MN\sqrt{D}$ instead. From (4.2.12), we see that the denominator bound of the right hand side is then given by

$$\phi(N)N(M\sqrt{D})(NM\sqrt{D})(6AN') = 24A^3(N')^5D\phi(N),$$

where we have applied Prop. 4.1 and choice $NM = 2A(N')^2$ in (4.2.3) to get the bound $6AN'$. Therefore, the constant κ_L in (4.2.7) should be $24A^3(N')^5\phi(N)D$, and can be chosen to divide $24A^3M^5D\phi(2AM)$ when $N = 2AM$ and $N' = M$. The same proofs then show that the constants κ in Theorem 5.1 and $\kappa_{\mathfrak{m}}$ in Theorem 1.1 and Theorem 6.5 can be chosen as

$$\kappa = 48DM^5\phi(2M),\ \kappa_{\mathfrak{m}} = 96DM^5\phi(2M). \tag{1}$$

Though the bound can be improved to $48DM$ and $96DM$ respectively (see [2]), the dependence on D is necessary, which was missing from [1].

References

[1] Pierre Charollois, Yingkun Li, Harmonic Maass forms associated to real quadratic fields, JEMS 22, 1115–1148 (2020).

[2] Yingkun Li, Markus Schwagenscheidt, Mock modular forms with integral Fourier coefficients, preprint, arxiv:2101.05583 (2021).

[3] Nils Scheithauer, The Weil Representation of $SL_2(\mathbb{Z})$ and Some Applications, Int. Math. Res. Not., no. 8, 1488–1545 (2009).

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