ERRATUM TO "AN ADDITIVE PROBLEM IN THE FOURIER COEFFICIENTS OF CUSP FORMS"

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The bound [Ha, (5)] is false in general, but it is true for prime q. See Example 9.9 and Proposition 9.4 in [KnLi]. This necessitates to slightly weaken the main results of [Ha], and update their proofs.

We update the proof of [Ha, Theorem 1] as follows. On [Ha, p. 356], we define the set of denominators $\mathcal{Q}$ as

$$\mathcal{Q} = \left\{ q \in [Q, 2Q] : q = Nabp \text{ for some prime } p \nmid Nab \right\}.$$

Then the proof goes through as before, except that the right-hand sides of [Ha, (22) & (24)] aquire an additional factor of $(ab)^{1/2}$. As a result, on [Ha, p. 359], the natural choice of Q is given by

$$\delta^3 Q^5 = (cab)^2,$$

and this yields [Ha, Theorem 1] with $(ab)^{1/10}$ in place of $(ab)^{-1/10}$.

We update the proof of [Ha, Theorem 2] as follows. In [Ha, (29)] and subsequent bounds, we enlarge $(ab)^{3/10}$ to $(ab)^{1/2}$, and $L^{27/10}$ to $L^{31/10}$. So the last display in the paper should read

$$S_\chi \ll (qMq^{-10/31}M^{9/31})^{1/2+\epsilon} \ll q^{21/62+\epsilon} M^{20/31},$$

and [Ha, Proposition 4] should be updated accordingly. As a result, in [Ha, Theorem 2], the subconvexity saving $1/54$ needs to be lowered to $1/62$.

References

[Ha] G. Harcos, *An additive problem in the Fourier coefficients of cusp forms*, Math. Ann. **326** (2003), 347–365.

[KnLi] A. Knightly, C. Li, *Kuznetsov's trace formula and the Hecke eigenvalues of Maass forms*, Mem. Amer. Math. Soc. **224** (2013), no. 1055, vi+132 pp.

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