COFFICIENTS OF HALF-INTEGRAL WEIGHT MODULAR FORMS

Jan H. Bruinier and Ken Ono

Corrigendum to: Journal of Number Theory, **99**, (2003) 164-179.

Theorem 1 and Theorem 2.3 are not stated correctly. In these two results, the integer M is required to be an odd prime. For completeness, here are the correct statements.

Theorem 1. *Let* $f(z)=\sum_{n=1}^{\infty}a(n)q^n\in S_{\lambda+\frac{1}{2}}(N,\chi)\cap\mathbb{Z}[[q]]$ *be a half-integral weight cusp form, and let* χ *be a real Dirichlet character. If* M *is an odd prime and there is a positive integer* n *for which* $\gcd(a(n),M)=1$*, then at least one of the following is true:*

(1) *If* $0\leq r<M$*, then*

$$\#\{0\leq n\leq X\ :\ a(n)\equiv r\pmod{M}\}\gg_{r,M}\begin{cases}\sqrt{X}/\log X & \text{if } 1\leq r<M,\\ X & \text{if } r=0.\end{cases}$$

(2) *There are finitely many square-free integers, say* $n_1,n_2,\dots,n_t$*, for which*

$$f(z)\equiv\sum_{i=1}^{t}\sum_{m=1}^{\infty}a(n_im^2)q^{n_im^2}\pmod{M}.$$

Moreover if $\gcd(M,N)=1$*,* $\epsilon\in\{\pm1\}$ *and* $p\nmid NM$ *is a prime with* $\left(\frac{n_i}{p}\right)\in\{0,\epsilon\}$ *for each* $1\leq i\leq t$*, then* $(p-1)f(z)$ *is an eigenform modulo* M *of the half-integral weight Hecke operator* $T(p^2,\lambda,\chi)$*. In particular, we have*

$$(p-1)f(z)\mid T(p^2,\lambda,\chi)\equiv\epsilon\chi(p)\left(\frac{(-1)^{\lambda}}{p}\right)(p^{\lambda}+p^{\lambda-1})(p-1)f(z)\pmod{M}.$$

Theorem 2.3. *Suppose that* $f(z)$ *and* M *are as in Theorem 1. If there is a positive integer* n *for which* $\gcd(a(n),M)=1$*, then at least one of the following is true:*

(1) *If* $0\leq r<M$*, then there are infinitely many integers* n *for which* $a(n)\equiv r\pmod{M}$*.*
(2) *There are finitely many square-free integers, say* $n_1<n_2<\dots<n_t$*, for which*

$$f(z)\equiv\sum_{i=1}^{t}\sum_{m=1}^{\infty}a(n_im^2)q^{n_im^2}\pmod{M}.$$

Mathematisches Institut, Universität Köln, Weyertal 86-90, D-50931, Köln, Germany
E-mail address: bruinier@math.uni-koeln.de

Department of Mathematics, University of Wisconsin, Madison, Wisconsin, 53706
E-mail address: ono@math.wisc.edu

Typeset by $\mathcal{A}\mathcal{M}\mathcal{S}$-TEX