Correction to: On Fourier coefficients of Siegel modular forms of degree two with respect to congruence subgroups

Masataka Chida¹ · Hidenori Katsurada² · Kohji Matsumoto³

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There are several inaccurate points and misprints in our article [1].

1. The statement of Theorem 1.1 is to be modified as follows.

- (i) The left-hand side of (1.4) is to be multiplied by 2.
- (ii) When k is odd, the term $\delta(Q, T)$ is to be replaced by

$$\delta_k(Q, T) := \sum_{\substack{U \in \mathrm{GL}(2, \mathbb{Z}) \\ UQ^tU = T}} |U|^k.$$

This (ii) was pointed out by Knightly and Li [3].

As mentioned in the proof of Proposition 2.1, the definition of Klingen's A_n (in [4]) is different from the definition of our $\Gamma_1^{(2)}(\infty)$, and hence the right-hand sides of (2.1) and (2.2) in the statement of Proposition 2.1 are to be multiplied by 2. This is the reason of (i). Note that the right-hand sides of (2.3) and (2.5) are hence also to be multiplied by 2.

The point (ii) is coming from the inaccuracy in Proposition 3.2. The statement of Proposition 3.2 is correct when k is even, but when k is odd, the correct statement is $\Sigma_0 = \delta_k(Q, T)$. This is because the third line of the proof of Proposition 3.2 is to be read as

$$H_Q(M, Z) = e(\mathrm{tr}(Q \cdot M(Z))) j(M, Z)^{-k} = e(\mathrm{tr}(Q \cdot {}^tUZU)) \cdot |U|^k.$$

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✉ Kohji Matsumoto
kohjimat@math.nagoya-u.ac.jp
Masataka Chida
chida@mail.dendai.ac.jp
Hidenori Katsurada
hidenori@mmm.muroran-it.ac.jp

¹ Department of Mathematics, School of Science and Technology for Future Life, Tokyo Denki University, 5 Senju Asahi-cho, Adachi-ku, Tokyo 120-8551, Japan

² Muroran Institute of Technology, 27-1 Mizumoto, Muroran 050-8585, Japan

³ Graduate School of Mathematics, Nagoya University, Chikusa-ku, Nagoya 464-8602, Japan

After the above changes (i) and (ii), we can check that our Theorem 1.1 agrees with Theorem 1.1 of Knightly and Li [3].

2. In the statement of Theorem 1.3, the condition “there is no $U \in \mathrm{GL}(2, \mathbb{Z})$ satisfying $UQ^tU = T$ ” is to be understood as follows. Let

$$f(Z) = \sum_{j=1}^J c_j g_N(Z, Q_j)$$

be a linear combination of $f \in S_k(\Gamma_0^{(2)}(N))$ by Poincaré series. Then the exact condition is to be: “for each Q_j ($1 \leq j \leq J$), there is no $U \in \mathrm{GL}(2, \mathbb{Z})$ satisfying $UQ_j^tU = T$ ”. It is to be noted that the implied constants in the formulas (a) and (b) in the statement of Theorem 1.3 depend on f .

3. In the statements of Lemma 4.1 and Lemma 4.2, there are the following misprints. First, in the statements of Lemma 4.1, $(c_1, d_1) = 1$ is to be read as $(Nc_1, d_1) = 1$, and $\mathrm{mod} \ c_1$ is to be read as $\mathrm{mod} \ Nc_1$. (The same correction for $\mathrm{mod} \ c_1$ should also be done in the sentence just before the statement of Lemma 4.2.) Secondly, in the statement of Lemma 4.2, the plus sign before the last term in the exponential is to be replaced by the minus sign. These two misprints were pointed out by Dickson [2].

Also in the statement of Lemma 4.2, the meaning of $(-1)^{k/2}$ is a little ambiguous when k is odd. It is to be understood as i^{-k} .

We remark that, in the course of the proof of Lemma 4.2, there appears the factor $|U|^k|V|^k$ when k is odd, where $U \in G_1$ and $V \in G_2$. However, the representatives U and V can be chosen as $|U| \cdot |V| = 1$, so the factor $|U|^k|V|^k$ does not affect the result.

4. Other misprints.

On the right-hand side of the formula (2.6), S is to be read as Z .

On the formula (5.7), the equality is to be replaced by $\ll$.

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