

**ERRATA:**  
**EXPLICIT METHODS FOR HILBERT MODULAR FORMS**

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This note gives some errata for the article *Explicit methods for Hilbert modular forms* [1]. Thanks to Nuno Freitas.

- (1) Page 137, paragraph after (1.4), “then (1.1) is equivalent to”: This is not correct (it is OK only for  $k = 2$ ), even with the algebraic normalization. Statement (1.1) is equivalent to

$$f(\gamma z)(d(\gamma z))^{k/2} = f(z)(dz)^{k/2}$$

but if  $k$  is odd one must worry about what branch of the square root to take.

- (2) Page 137, paragraph after (1.4), “(Because of our normalization...)”: This statement is probably confusing, as the term *local system* in this context refers to vector-valued forms, while we are talking about line bundles. Instead, one should work with line bundles, and consider the action of  $\Gamma_0(N)$  on  $\mathcal{H} \times \mathbb{C}$  by

$$(z, v) \mapsto \left( \gamma z, \frac{j(\gamma, z)^k}{(\det \gamma)^{k-1}} v \right)$$

for  $\gamma \in \Gamma_0(N)$  and  $(z, v) \in \mathcal{H} \times \mathbb{C}$ , which gives rise to a line bundle on  $X_0(N) = \Gamma_0(N) \backslash \mathcal{H}$  whose sections are modular forms of weight  $k$ . These agree with differential forms up to a twist by a power of the determinant; our normalization is more convenient in algebraic contexts, but in any case the Hecke module structure is the same.

- (3) Page 140, line after (2.4), “then (3.3) is equivalent to”: Should be “(2.2)”, not (3.3).  
 (4) Page 140, after (2.5), “we may write  $\mathfrak{n} = \nu \mathfrak{d}^{-1}$  for some  $\nu \in \mathfrak{d}_+^{-1}$ ”: Should be  $\mathfrak{n} = \nu \mathfrak{d}$ . We are taking  $\nu \in \mathfrak{d}_+^{-1}$ , so

$$\nu \mathfrak{d} \subseteq \mathfrak{d}^{-1} \mathfrak{d} = \mathbb{Z}_F$$

giving the desired sum over integral ideals  $\mathfrak{n} = \nu \mathfrak{d}$ .

- (5) Page 145, (3.5), line -4, “Let  $\mathfrak{p}$  be a prime of  $\mathbb{Z}_F$ ”: Need  $\mathfrak{p} \nmid \mathfrak{D}\mathfrak{N}$ .  
 (6) Page 146, last line, “extends by linearity to all of  $S_2^B(\mathfrak{N})$ ”: Not needed: definition (3.8) already makes sense in all cases.  
 (7) Page 148, line 9, “let  $w_i = \#(\mathcal{O}_i/\mathbb{Z}_F^\times)$ ”: should be  $e_i =$ .  
 (8) Example 6.3, line -4: Should be “the isogeny theorem of Faltings”.  
 (9) Example 6.4, line -6: Should be “ $\mathbb{F}_9$ ”, not  $F_9$ .  
 (10) Example 6.4, line -5:  $\mathfrak{p}$  should be  $\mathfrak{N}$ .  
 (11) Lemma 7.11, “second one”: Possibly confusing, should be “second variable”.

## REFERENCES

- [1] Lassina Dembélé and John Voight, *Explicit methods for Hilbert modular forms*, Elliptic curves, Hilbert modular forms and Galois deformations, Birkhauser, Basel, 2013, 135–198.