VANISHING THEOREMS FOR TORSION AUTOMORPHIC SHEAVES ON GENERAL PEL-TYPE SHIMURA VARIETIES — ERRATA

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(1) In Thm. 1.8, f denotes the reduction of $\mathcal{F}$, which should have been introduced in the paragraph preceding Ass. 1.4 or earlier.
(2) In Sec. 4.4, "$\mathcal{E}_{\mathrm{P}_1,R}(W)^{\mathrm{can}}$" and "$\mathcal{E}_{\mathrm{P}_1,R}(W)^{\mathrm{sub}}$" should be "$\mathcal{E}^{\mathrm{can}}_{\mathrm{P}_1,R}(W)$" and "$\mathcal{E}^{\mathrm{sub}}_{\mathrm{P}_1,R}(W)$", respectively; and "$\mathcal{E}_{\mathrm{G}_1,R}(W)^{\mathrm{can}}$" and "$\mathcal{E}_{\mathrm{G}_1,R}(W)^{\mathrm{sub}}$" should be "$\mathcal{E}^{\mathrm{can}}_{\mathrm{G}_1,R}(W)$" and "$\mathcal{E}^{\mathrm{sub}}_{\mathrm{G}_1,R}(W)$", respectively.
(3) In Sec. 6.2, the dual of $\mathfrak{u}_R^-$ should be distinguished from $\mathfrak{u}_R$ when $p = 2$ and $\mathrm{G}_\tau \cong \mathrm{Sp}_{2r_\tau} \underset{\mathbb{Z}}{\otimes} R_1$ for some $\tau \in \Upsilon$. (To salvage this, either assume that $p > 2$ when $\mathrm{G}_\tau \cong \mathrm{Sp}_{2r_\tau} \underset{\mathbb{Z}}{\otimes} R_1$ for some $\tau \in \Upsilon$, which is harmless because our conditions on weights almost always force $p > 2$; or, in the third and later paragraphs of Sec. 6.2, replace all $\mathfrak{u}_R$ with $(\mathfrak{u}_R^-)^\vee$.)
(4) In the proof of Prop. 6.8, the "w" in the last sentence should be "z".
(5) The assertion in Prop. 7.2 that "$\underline{W}_\nu^{\mathrm{can}}$ has trivial tensor square as a line bundle over $\mathsf{M}^{\mathrm{tor}}_{\mathcal{H},\Sigma,1}$ if its coefficients $(k_\tau)_{\tau\in\Upsilon}$ of ν satisfy $k_\tau + k_{\tau\circ c} = 0$" is too strong. (This inherits a similar mistake in [1, Prop. 7.10].) The correct assertion is that "$\underline{W}_\nu^{\mathrm{can}}$ defines a torsion element in the Picard group of $\mathsf{M}^{\mathrm{tor}}_{\mathcal{H},\Sigma,1}$ if its coefficients satisfy the condition that $(k_\tau)_{\tau\in\Upsilon}$ of ν satisfy $k_\tau + k_{\tau\circ c} = 0$". The same argument in the errata for [1] also works here, with the automorphic bundles replaced with their canonical extensions.
(6) In Thm. 8.13(1)–(2) and Cor. 8.14(1), all instances of "$\mathrm{X}^{+,<_{\mathrm{w}p}}_{\mathrm{G}_1}$" should be "$\mathrm{X}^{+,<_{\mathrm{re}p}}_{\mathrm{G}_1}$" (which are the ones used in Cor. 7.24, on which this statement is based). Also, "$A^i_{\nu,\mathrm{can}}(\mathcal{H};R) = 0$ for every $i < d - l(w(\nu))$" should be "$A^i_{\nu,\mathrm{can}}(\mathcal{H};R) = 0$ for every $i < d - l(w(\nu + \nu_-))$"; "$A^i_{\nu,\mathrm{sub}}(\mathcal{H};R) = 0$ for every $i > d - l(w(\nu))$" should be "$A^i_{\nu,\mathrm{sub}}(\mathcal{H};R) = 0$ for every $i > d - l(w(\nu - \nu_+))$"; and "$A^i_{\nu,\mathrm{int}}(\mathcal{H};R) = 0$ for every $i \neq d - l(w(\nu))$" should be "$A^i_{\nu,\mathrm{int}}(\mathcal{H};R) = 0$ for every $i \notin [d - l(w(\nu + \nu_-)), d - l(w(\nu - \nu_+))]$". (There were similar mistakes in [1, Thm. 8.7(1)].)
(7) In Cor. 8.14(1) and Thm. 8.23(3), the sentences should be reformatted to make it clear that, for the conclusions to hold, both conditions on $\nu - \nu_+$ and on $\nu + \nu_-$ must be satisfied.
(8) In Thm. 8.23, "$A^i_{\nu,\mathrm{can}}(\mathcal{H};\mathbb{C}) = 0$ for every $i < d - l(w(\nu))$" should be "$A^i_{\nu,\mathrm{can}}(\mathcal{H};\mathbb{C}) = 0$ for every $i < d - l(w(\nu + \nu_-))$"; "$A^i_{\nu,\mathrm{sub}}(\mathcal{H};\mathbb{C}) = 0$ for every $i > d - l(w(\nu))$" should be "$A^i_{\nu,\mathrm{sub}}(\mathcal{H};\mathbb{C}) = 0$ for every $i > d - l(w(\nu - \nu_+))$"; and "$A^i_{\nu,\mathrm{int}}(\mathcal{H};\mathbb{C}) = 0$ for every $i \neq d - l(w(\nu))$" should

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be "$A^i_{\nu,\mathrm{int}}(\mathcal{H};\mathbb{C}) = 0$ for every $i \notin [d - l(w(\nu + \nu_-)), d - l(w(\nu - \nu_+))]$". (There were similar mistakes in [1, Thm. 8.20].)

(9) In Rem. 8.24, "$\mu(\nu)$ is regular" should be "ν is cohomological and $\mu(\nu)$ is regular". (There was a similar imprecision in [1, Rem. 8.21].)

References

[1] K.-W. Lan and J. Suh, *Vanishing theorems for torsion automorphic sheaves on compact PEL-type Shimura varieties*, Duke Math. J. **161** (2012), no. 6, 1113–1170.

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