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CORRIGENDUM TO MY PAPER "THE RANKIN-SELBERG METHOD ON CONGRUENCE SUBGROUPS"

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The proof of the theorem in [1] uses the assertion that $\mathcal{D}_\Gamma = \bigcup \alpha_i \mathcal{D}$, $\alpha_i \in SL(2, \mathbb{Q})$. This assertion is incorrect. The correct assertion should be that $\mathcal{D}_\Gamma = K \bigcup \alpha_i \mathcal{D}$, $\alpha_i \in GL(2, \mathbb{Q})$, K a compact set. The proof should be adjusted as follows.

Let

$$\tilde{\mathcal{D}} = \Gamma_\infty \backslash \mathcal{H} - \mathcal{D} = \left(\bigcup_{\gamma \in \Gamma_\infty \backslash \Gamma} \gamma K \right) \bigcup \left(\bigcup_{i=1}^{h} \bigcup_{\substack{\gamma \in \Gamma_\infty \backslash \Gamma \\ \gamma \neq I \text{ or } \alpha_i \neq 1}} \gamma(\alpha_i \mathcal{D}) \right).$$

Equation (6) of [1] should be replaced by

$$\begin{aligned}
(1)\quad R_\infty(F, s) &= \int_0^\infty \int_0^1 [F(z) - \psi_\infty(y)]\, y^s \frac{dx\, dy}{y^2} \\
&= \int\int_{\Gamma_\infty \backslash \mathcal{H}} [F(z) - \psi_\infty(y)]\, y^s \frac{dx\, dy}{y^2} \\
&= \int\int_{\cup_{\gamma \in \Gamma_\infty \backslash \Gamma} \gamma \mathcal{D}_\Gamma} [F(z) - \psi_\infty(y)]\, y^s \frac{dx\, dy}{y^2} \\
&= \int\int_{\cup_{\gamma \in \Gamma_\infty \backslash \Gamma} \gamma (K \cup \cup_{i=1}^{h} \alpha_i \mathcal{D})} [F(z) - \psi_\infty(y)]\, y^s \frac{dx\, dy}{y^2} \\
&= \int\int_{(\cup_{\gamma \in \Gamma_\infty \backslash \Gamma} \gamma K) \cup \left(\cup_{i=1}^{h} \cup_{\substack{\gamma \in \Gamma_\infty \backslash \Gamma \\ \gamma \neq 1 \text{ or } \alpha_i \neq I}} \gamma(\alpha_i \mathcal{D}) \right)} F(z) y^s \frac{dx\, dy}{y^2} \\
&\quad - \int\int_{\tilde{\mathcal{D}}} \psi_\infty(y) y^s \frac{dx\, dy}{y^2} + \int\int_{\mathcal{D}} [F(z) - \psi_\infty(y)]\, y^s \frac{dx\, dy}{y^2} \\
&= \int\int_{\cup_{\gamma \in \Gamma_\infty \backslash \Gamma} \gamma K} F(z) y^s \frac{dx\, dy}{y^2} + \int\int_{\cup_{i=1}^{h} \cup_{\substack{\gamma \in \Gamma_\infty \backslash \Gamma \\ \gamma \neq 1 \text{ or } \alpha_i \neq I}} \gamma(\alpha_i \mathcal{D})} F(z) y^s \frac{dx\, dy}{y^2}
\end{aligned}$$

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