CORRIGENDUM: THE HASSE PRINCIPLE FOR SYSTEMS OF DIAGONAL CUBIC FORMS

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The definition (2.2) in our recent paper [1] requires adjustment in order that the ensuing induction can be carried out successfully[1], and should be replaced by

$$\delta(\rho, w) = \begin{cases} 1, & \text{when } w = 3\rho - 1, \\ \max\{0, w - 3\rho + 1\}, & \text{otherwise.} \end{cases}$$

The middle case of the definition of $\delta^*(\rho, u, t)$ in equation (2.3) now becomes superfluous, and during the course of the proof of Lemma 2.4, every occurrence of the exponent $\delta(1, u)$ should be replaced by $\delta(1, u - 1)$.

The first two conclusions of Lemma 2.3 remain unchanged by this adjustment, as well as their proofs, save that equation (2.6) is justified by noting that $\delta(\rho, t-1) \leqslant \delta(\rho, t)$, and in this case $\delta(\rho-1, t-1) \leqslant 1+\delta(\rho, t)$. The final conclusion of Lemma 2.3 should now be subject to the strict inequality $t < u+\rho-1$. Here, since $\rho \geqslant 3$, when $u \leqslant 2$ one has $\delta(\rho - 1, t) \leqslant \delta(\rho - 1, \rho) \leqslant \delta(\rho, t)$, and when $u \geqslant 3$ instead $\delta(\rho - 2, t - u) \leqslant \delta(\rho - 2, \rho - 2) \leqslant \delta(\rho - 1, t - u)$. The desired conclusion follows.

Finally, the definition of type II matrices in the proof of Lemma 2.4 is incomplete. Thus, when $t = u + 1$ or $\rho = 2$ and D is not of type I, we interchange columns and apply elementary row operations to ensure that $\gamma_t = d_{1,t}\alpha_1$ with $d_{1,t} \neq 0$, and also that $d_{2,j} \neq 0$ for $1 \leqslant j \leqslant u$. We describe the resulting matrix as having type II.

References

[1] J. Brüdern and T. D. Wooley, *The Hasse principle for systems of diagonal cubic forms*, Math. Ann. **364** (2016), no. 3-4, 1255–1274.

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