

CORRIGENDUM TO “VARIANTS OF LEHMER’S SPECULATION FOR NEWFORMS”

JENNIFER S. BALAKRISHNAN, WILLIAM CRAIG, KEN ONO, AND WEI-LUN TSAI

ABSTRACT. The results in [1] were proved for ordinary primes ℓ for Hecke newforms. This hypothesis was accidentally omitted from some theorem statements in [1]. For the record, here we identify the results that require this hypothesis.

1. CORRECTED STATEMENTS

The results in [1] rely on the hypothesis that the relevant primes ℓ are ordinary, which means that $\ell \nmid \tau(\ell)$ (resp. $\ell \nmid a_f(\ell)$). Although this hypothesis is explicitly used in proofs throughout the paper, it was accidentally omitted¹ from the statements of Theorem 1.1, Theorems 1.3-1.5 and Theorem 3.2 in [1]. For example, Theorems 1.1 and 1.5 should read as follows.

Theorem 1.1. *Suppose that ℓ is an odd prime for which $\ell \nmid \tau(\ell)$. If $\tau(n) = \pm \ell^m$, with $m \in \mathbb{Z}^+$, then $n = p^{d-1}$, where p and $d \mid \ell(\ell^2 - 1)$ are odd primes. Furthermore, $\tau(n) = \pm \ell^m$ for at most finitely many n .*

Theorem 1.5. *If $n > 1$ is divisible by only ordinary primes, then*

$$\Omega(\tau(n)) \geq \sum_{\substack{p \mid n \\ \text{prime}}} (\sigma_0(\text{ord}_p(n) + 1) - 1) \geq \omega(n).$$

REFERENCES

- [1] J. Balakrishnan, W. Craig, K. Ono, and W.-L. Tsai, *Variants of Lehmer’s speculation for newforms*, Adv. Math. **428** (2023), Art. 109141.

DEPARTMENT OF MATHEMATICS AND STATISTICS, BOSTON UNIVERSITY, BOSTON, MA 02215
Email address: jbala@bu.edu

MATHEMATICAL INSTITUTE, UNIVERSITY OF COLOGNE, GYRHOFSTR. 8B, COLOGNE 50931, GERMANY
Email address: wcraig@uni-koeln.de

DEPARTMENT OF MATHEMATICS, UNIVERSITY OF VIRGINIA, CHARLOTTESVILLE, VA 22904
Email address: ken.ono691@virginia.edu

DEPARTMENT OF MATHEMATICS, UNIVERSITY OF SOUTH CAROLINA, COLUMBIA, SC 29208
Email address: tsaiwlun@gmail.com

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¹Theorem 1.2 does not require this hypothesis.