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Correction to:

“On a positivity property of the Riemann ξ-function”

(Acta Arith. 89 (1999), 217–234)

by

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In my paper [1] Lemma 3.1 is incorrectly stated. It should read as follows:

**Lemma 3.1 (Unconditional).** For $σ_0 ≠ 0$, the condition

\[
\frac{1}{σ_0^2 + (γ + t)^2} + \frac{1}{σ_0^2 + (γ - t)^2} ≥ \frac{2}{σ_0^2 + γ^2}
\]

holds if and only if either $t = 0$ or

\[
3γ^2 ≥ σ_0^2 + t^2.
\]

The cases of equality coincide.

*Proof.* If $t = 0$ equality holds so we may assume $t ≠ 0$. Since $σ_0 ≠ 0$ no denominator vanishes, so we can clear denominators, to find that (3.3) is equivalent to

\[
(σ_0^2 + γ^2)(2σ_0^2 + 2t^2 + 2γ^2) ≥ 2(σ_0^2 + (γ + t)^2)(σ_0^2 + (γ - t)^2).
\]

Dividing by two and simplifying yields

\[
3γ^2 t^2 ≥ σ_0^2 t^2 + t^4.
\]

Since $t ≠ 0$ we can divide by $t^2$ to obtain (3.4). All steps are reversible. □

Lemma 3.1 is applied in Lemma 3.2 of [1], where we note that equation (3.6) follows from the corrected form of Lemma 3.1.

Finally, in the equation (3.8) of [1] the term on the right $-1/(s-1)$ should have its sign reversed, to $1/(s-1)$.

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References


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