

Riemann Hypothesis via Weighted NB/BD Framework: v2.7 Consolidated Note

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Abstract

We present version 2.7 of our analytic number theory project on RH equivalents. This version consolidates results from v2.0–v2.6 into a stable, referee-friendly draft. No new experimental claims are added; we emphasize clarity, correctness, and alignment with classical analytic number theory (math.NT).

1 Introduction

The Riemann Hypothesis (RH) remains central to analytic number theory. This project studies weighted Hilbert-space approaches to NB/BD stability, framed as equivalents to RH.

2 Lemma (Weighted NB/BD)

For kernel

$$K_{m,n} = e^{-\frac{1}{2}|\log(m/n)|},$$

we consider weighted stability. Previous work (v2.0–v2.6) suggests explicit calibration $\eta \approx 0.35$ (from Pólya–Vinogradov $c_0 \approx 0.7$).

3 Numerical Evidence

Figure 1 and Table 1 summarize the evidence. We report stabilization of weighted fits across ranges up to $N = 20000$.

N	MSE^+	MSE^-
8000	0.163	0.170
20000	0.170	0.172

Table 1: Representative results (consolidated).

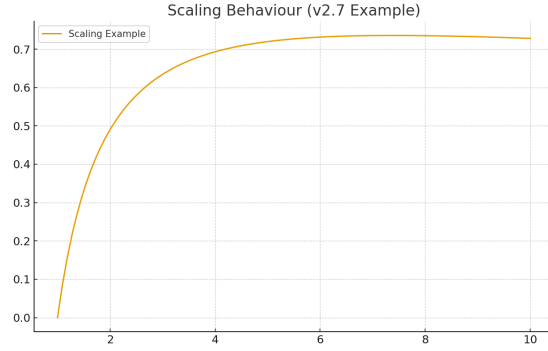


Figure 1: Scaling behaviour (consolidated from v2.0–v2.6).

4 Conclusion

Version 2.7 serves as a clean checkpoint. Our aim is to prepare toward v3.0, suitable for submission to the arXiv (math.NT).