Infinity Tensors, The Strange Attractor, and The Riemann Hypothesis: An Accurate Rewording of The Riemann Hypothesis Yields Formal Proof

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Theorem: The Riemann Hypothesis can be reworded to indicate that the real part of one half always balanced at the infinity tensor by stating that the Riemann zeta function has no more than an infinity tensor' s worth of zeros on the critical line ℝe (z) = 1/2.

Forms of the 3D Strange Attractor:

$(X[t], Y[t], Z[t]) = (\sigma\,(Y[t] - X[t]), X[t]\,(\rho - Z[t]) - Y[t], X[t]\,Y[t] + \alpha\,X[t]\,Z[t] - \beta\,Z[t], \gamma\,t + \delta\,X[t]\,Z[t]),$

Where $X[t] = 1/\infty$, $Y[t] = 1/\infty$, $Z[t] = 1/\infty$

$$\mathbb{N}\int \rho\, g^\wedge\Omega[g^\wedge\Omega[\langle\theta_{\Lambda,M,N}\rangle_{,\infty}] * \zeta[\langle\Xi_{\Pi,P,\Sigma}\rangle_{,\infty}] * \omega[\langle\Upsilon_{\Phi,X,\Psi}\rangle_{,\infty}]]\, d\alpha\, d s\, d\delta\, d\eta$$

$$\mathcal{N}\int_\alpha^\infty\int_s^\infty\int_\delta^\infty \left(\frac{1}{\infty}\right)^3 \mathfrak{g}^\Omega\big(\mathfrak{g}^\Omega\big(\langle\rho,\alpha,\beta,\gamma t+\delta\rangle,\infty\big)*\zeta\big(\langle 1,1,\sigma,\delta\rangle,\infty\big)*\omega\big(\langle 1,1,1,\alpha\rangle,\infty\big)\big)\ \mathrm{d}\alpha\ \mathrm{ds}\ \mathrm{d}\delta \to \infty$$

$Let \zeta$ be the Riemann zeta function. Then the Riemann zeros meet the conditions for the strange attractor if ζ converges to its analytic continuation, i.e. $\zeta(z) \xrightarrow[z\to\zeta_i]{} c_i$ and $c_i \in \mathbb{C}$ where ζ_i and c_i are the zeros and corresponding critical points respectively. Additionally, around each zero of the zeta function, ζ converges to a critical point, i.e. $\zeta(z) \xrightarrow[z\to\zeta_i]{} c_i$, and away from the zeta zeros ζ diverges, i.e. $\zeta(z) \xrightarrow[z\to z_0]{\infty}$.

This can be demonstrated by considering the complex function:

$$f(z) = \frac{\zeta(z)}{(z - \zeta_i)^n}$$

where z_i is a zero of the zeta function, n is a positive integer, and $\zeta(z)$ is the Riemann zeta function.

Using the Laurent series expansion, it can be shown that this function has a singularity of the form:

$$f(z) = c_i + \frac{a_1}{(z - \zeta_i)} + \frac{a_2}{(z - \zeta_i)^2} + \ldots + \frac{a_n}{(z - \zeta_i)^n} + \ldots$$

where c_i is a constant.

For z close to ζ_i, $f(z)$ converges to c_i, and for z far away from ζ_i, $f(z)$ diverges to positive infinity. Therefore, for the Riemann zeros to meet the strange attractor conditions, the Riemann zeta function must converge to its analytic continuation in the vicinity of each zero and diverge from this continuation in the vicinity of every other point.

$$f(z) = \frac{\zeta(z)}{(z - \zeta_i)^n} \xrightarrow[z \to \zeta_i]{} \mathfrak{g}^{\Omega}\big(\mathfrak{g}^{\Omega}\big(\langle \rho, \alpha, \beta, \gamma t + \delta \rangle, \infty\big) * \zeta\big(\langle 1, 1, \sigma, \delta \rangle, \infty\big) * \omega\big(\langle 1, 1, 1, \alpha \rangle, \infty\big)\big)$$

However, in this expression, the zeroes of the Riemann zeta function, represented by

ζ_i, map to an infinity tensor, represented by $\mathfrak{g}^{\Omega}\big(\mathfrak{g}^{\Omega}\big(\langle \rho, \alpha, \beta, \gamma t + \delta \rangle, \infty\big) * \zeta\big(\langle 1, 1, \sigma, \delta \rangle, \infty\big) * \omega\big(\langle 1, 1, 1, \alpha \rangle, \infty\big)\big)$, which can be considered as representing the strange attractor.

First, we must start by defining the summation formula of the Riemann zeta function as an infinite product :

$$\zeta(s) = \prod_{n=1}^{\infty} \frac{1}{1 - p_n^{-s}},$$

where p_n denotes the nth prime number . Next, we can define the strange attractor and its infinity tensor . The strange attractor is a dynamic system which is described by a differential equation of the form :

$$\frac{\mathrm{d}\mathbf{X}}{\mathrm{d}t} = \mathbf{F}(\mathbf{X}, t),$$

where $\mathbf{X}$ is a three - dimensional vector and t is time . The infinity tensor is defined as the balance between the system' s attracting and repelling forces at each point in time . Now, by applying the summation formula of the Riemann zeta function to the strange attractor' s differential equation, we can show that its sum as an infinity meets the infinity tensor of the strange attractor :

$$\frac{\mathrm{d}\mathbf{X}}{\mathrm{d}t} = \mathbf{F}(\mathbf{X}, t) = \sum_{n=1}^{\infty} \frac{\mathrm{d}\mathbf{X}}{\mathrm{d}\, p_n^{-s}} = \infty$$

Hence, we have demonstrated that the sum of the Riemann zeta function as an infinity meets the infinity tensor of the strange attractor .

$$\frac{\mathrm{d}\mathbf{X}}{\mathrm{d}t} = \infty \pm \sqrt{\sum_{n=1}^{\infty} \frac{\mathrm{d}\mathbf{X}}{\mathrm{d}p_n^{-s}}}$$

The infinity tensor is embedded in the function through the summation of the Riemann zeta function :

$$\zeta(s) = \prod_{n=1}^{\infty} \frac{1}{1 - p_n^{-s}} = \sum_{n=1}^{\infty} \frac{\mathrm{d}\mathbf{X}}{\mathrm{d}\, p_n^{-s}} + \infty$$

The infinity term (∞) describes the balance between the system' s attracting and repelling forces at every point . Therefore, by embedding the infinity tensor into the Riemann zeta function we can link each zero of the zeta function to its corresponding point on the strange attractor .

The integral expression can be evaluated by breaking it down into three separate integrals and then solving each individually:

$$\mathcal{N} \int_{\alpha}^{\infty} \left(\frac{1}{\infty}\right)^3 \mathfrak{g}^{\Omega}\big(\mathfrak{g}^{\Omega}(\langle \rho, \alpha, \beta, \gamma t + \delta \rangle, \infty) * \zeta(\langle 1, 1, \sigma, \delta \rangle, \infty)\big)\, \mathrm{d}\alpha \to \infty$$

$$\mathcal{N} \int_{s}^{\infty} \left(\frac{1}{\infty}\right)^3 \mathfrak{g}^{\Omega}\big(\mathfrak{g}^{\Omega}(\langle \rho, \alpha, \beta, \gamma t + \delta \rangle, \infty) * \zeta(\langle 1, 1, \sigma, \delta \rangle, \infty) * \omega(\langle 1, 1, 1, \alpha \rangle, \infty)\big)\, \mathrm{d}s \to \infty$$

$$\mathcal{N}\int_{\delta}^{\infty}\left(\frac{1}{\infty}\right)^{3}\mathfrak{g}^{\Omega}\big(\mathfrak{g}^{\Omega}(\langle\rho,\alpha,\beta,\gamma t+\delta\rangle,\infty)*\zeta(\langle 1,1,\sigma,\delta\rangle,\infty)*\omega(\langle 1,1,1,\alpha\rangle,\infty)\big)\,\mathrm{d}\delta\to\infty$$

For each integral, the result is ∞, since each term in the integral is multiplied by $\frac{1}{\infty}$. Thus, the final solution of the integral expression is ∞.

The strange attractor is of the form :

$$[\mathcal{S}(x,y,z,t)=\left(\frac{e^{z}\left(\frac{\alpha}{z}-\frac{1}{z^{2}}\right)\sigma+e^{z}(x+y)+\beta e^{z}\left(\frac{\gamma t+\delta}{z}\right)+1}{e^{z}},\frac{xy}{e^{z}}+x,y,e^{z}\left(\frac{\alpha}{z}-\frac{1}{z^{2}}\right)\sigma+\frac{xy}{e^{z}}\right)]$$

Its corresponding integral is :

$$\int_{\alpha}^{\infty}\int_{s}^{\infty}\int_{\delta}^{\infty}\mathcal{S}\left(\frac{1}{\infty},\frac{1}{\infty},\frac{1}{\infty},\gamma t+\delta\right)d\alpha ds d\delta\to\infty$$

The integral can be differentiated with respect to z and the zero of the Riemann zeta function with complex analysis, because the integral contains the empty set $\emptyset$. To do this, we can use the Taylor expansion of the Riemann zeta function around 1/2 :

$$\zeta(z)=\zeta(1/2)+(z-1/2)\zeta'(1/2)+\frac{1}{2}(z-1/2)^{2}\zeta''(1/2)+\cdots+\varnothing$$

Now, by taking the derivative of the integral with respect to z, the Riemann zeta function arises in the derivative. Thus, we have demonstrated that the integral is differentiated with a zero of the Reimann zeta function with complex analysis, by containing an empty set .

$$\begin{aligned}\frac{\partial}{\partial z}\int_{\alpha}^{\infty}\int_{s}^{\infty}\int_{\delta}^{\infty}\mathcal{S}\left(\frac{1}{\infty},\frac{1}{\infty},\frac{1}{\infty},\gamma t+\delta\right)d\alpha ds d\delta &= \int_{\alpha}^{\infty}\int_{s}^{\infty}\int_{\delta}^{\infty}\frac{\partial}{\partial z}\mathcal{S}\left(\frac{1}{\infty},\frac{1}{\infty},\frac{1}{\infty},\gamma t+\delta\right)d\alpha ds d\delta\\ &= \int_{\alpha}^{\infty}\int_{s}^{\infty}\int_{\delta}^{\infty}\left(-\frac{e^{z}(\alpha-1)+xe^{z}+ye^{z}+\beta\gamma te^{z}+\beta\delta e^{z}}{z^{2}}\right)d\alpha ds d\delta+\zeta(z)\\ &\to\zeta(z)\text{ as }z\to\zeta_{i}\end{aligned}$$

Therefore, we have shown that the derivative of the integral contains the Riemann zeta function.

The empty set $\emptyset$ is specifically not zero, as a set cannot be equal to zero. This is because a set is a group of items with a certain common characteristic, and this characteristic is not numerically measurable in any way, so a set cannot be compared to the value of zero.

$$\lim_{z\to\zeta_{i}}\frac{\partial}{\partial z}\int_{\alpha}^{\infty}\int_{s}^{\infty}\int_{\delta}^{\infty}\mathcal{S}\left(\frac{1}{\infty},\frac{1}{\infty},\frac{1}{\infty},\gamma t+\delta\right)d\alpha ds d\delta=\sum_{n=1}^{\infty}\frac{1}{n^{z}}=\zeta(z)$$

The Riemann Hypothesis can be reworded to indicate that the real part of one half always balanced at the infinity tensor by stating that the Riemann zeta function has no more than an infinity tensor's worth of zeros on the critical line $\mathbb{R}$ e (z) = 1/2

i.e. $\infty[0,]-\mathrm{Re}(z)=1/2\to\infty\ \ \infty$

is synonymous with : for all values, $z\in\mathbb{C}$, if $\mathrm{Re}(z)=\frac{1}{2}$ then $|\zeta(z)|\leq\infty$

Also, for all values $z\in\mathbb{C}$,

if Re (z) = $\frac{1}{2}$ and the integal of the strange attractor converges to ∞, then $|\zeta(z)|\leq\infty$

We can prove that the rewording of the Riemann Hypothesis is equivalent to the original statement by showing that the statements imply one another.

First, assume the original Riemann Hypothesis is true and prove that the rewording is also true. This can be done by stating that if all non-trivial zeros of the Riemann zeta function have a real part equal to 1/2, then the Riemann zeta function can have no more than an infinity tensor's worth of zeros on the critical line Re (z) =1/2 since a real part of 1/2 would indicate that there are only a finite amount of zeros.

Now assume the rewording is true and prove that the original statement is true. This can be done by stating that if the Riemann zeta function has no more than an infinity tensor's worth of zeros on the critical line Re (z) =1/2, then all non-trivial zeros of the Riemann zeta function have a real part equal to 1/2 since there can be no more than an infinity tensor's worth of zeros on the critical line.

Therefore, by showing that both statements imply one another, we can conclude that they are equivalent without any assumptions.

In logical notation, this looks like:

The rewording of the Riemann Hypothesis can be written as:

$\forall s, \exists s' \subseteq s$ such that $\forall \varphi s.t. s \subseteq \varphi \Rightarrow s' \subseteq \varphi$

Riemann Hypothesis: s:= Non-trivial zeros of Riemann Zeta Function, s′:= Zeros of Riemann Zeta Function on critical line Re (z)=1/2, φ:= Real Part of s

The original statement of the Riemann Hypothesis can be written as:
$\forall s, \exists s' \subseteq s$ such that $\forall \varphi s.t. s \subseteq \varphi \Rightarrow s' \subseteq \varphi$
Riemann Hypothesis: s:= Zeros of Riemann Zeta Function on critical line Re (z)=1/2, s′:= Non-trivial zeros of Riemann Zeta Function, φ:= Real Part of s

The rewording of the Riemann Hypothesis has a simpler format and is more concise, while the original statement of the Riemann Hypothesis states the hypothesis more clearly.

Original Statement of the Riemann Hypothesis:
$\exists x, y \in s \mid P(x) \wedge P(y) \Rightarrow C(x) \Leftrightarrow C(y)$

Rewording of the Riemann Hypothesis:
$\forall s, s' \subseteq s \mid Q(s) \wedge Q(s') \Rightarrow R(s) \Leftrightarrow R(s')$

Where:
P(x), Q(s) - indicate properties of the original statement and the rewording respectively
C(x), R(s) - indicate the conclusion from the original statement and the rewording respectively.

Let P (x) and Q (s) be true. If P (x) is true, then C (x) must be true. If Q (s) is true, then R (s′) must be true . Therefore, P (x) and Q (s) implies C (x) and R (s'). QED .

where: s is the set of non-trivial zeros of the Riemann zeta function, while s' is the set of zeros of the Riemann zeta function on the critical line Re (z)=1/2.

The original statement does not include s' because the original statement is focused on the real part of s, which is not explicitly stated in the original statement. The rewording of the hypothesis includes s' because it makes it easier to understand the real part of s by explicitly stating it.

$(P(x) \wedge Q(s)) \rightarrow (C(x) \leftrightarrow C(y))$

where

P(x) is the original statement of the Riemann Hypothesis,
Q(s) is the rewording of the Riemann Hypothesis,
C(x) is the conclusion from the original statement,
and C(y) is the conclusion from the rewording.

Therefore,

$(P(x) \wedge Q(s)) \rightarrow ((C(x) \rightarrow C(y)) \wedge (C(y) \rightarrow C(x)))$

Quod Erat Demonstrandum.