

Original Article

The Riemann Hypothesis: A Symmetrical Transportation Overlay by a Gauge Point that Reveals the Compress States of the Golden Ratio

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Abstract - This article is centered on the logical framework of the Riemann Hypotheses. The latter allows the detachment principle to be the transport mechanism to explore the symmetrical nature of the golden ratio. In doing so, a gauge point is established to put to rest the error term associated with the Lagrange Method. This is where the recursive nature of the data-driven algorithm of Artificial Intelligence (AI) could be useful. This is because the information lies only in the data itself. This does not withstand the universal components and paradoxes that will be associated with the result.

Keywords - Riemann Hypothesis, Artificial Intelligence, Transport Mechanism, Knapsack Bundle.

1. Introduction

The concept of the logarithm introduces the concept of the sliding rules, which is rooted in the projection of the multiplication principle. This process is illustrated below for convenience. Multiplication can also be viewed as a compression principle on the number line. This concept lends itself to the reality presented by the familiar decimal extension. Indeed, all numbers can be represented on the interval that lies between zero and 1, which is simply a compressed space. Thus, the golden ratio can be viewed as a compressed space where the necessary and sufficient rules to navigate the Riemann Hypothesis can be parsed together. The yin-yang principles have a symmetrical structure that uses the transport mechanism through the detachment principle. The latter lends itself to the compression demands of the golden ratio requirement.

These articles reinforce fundamental knowledge of the arithmetic domain and set the stage for a coordinated compression displacement point, where a gauge configuration is established. With this, the discourse between the estimation principle vs. precision reality can be exposed. After all, the Riemann Hypothesis requires the error correcting principle to be rendered insignificant when addressing the contents of the knapsack volume of prime numbers given any x values under study.

The need to find the average gap between primes is paramount. The latter will help make the search for the max gap between primes a relic of the past. The literary gap is that the Riemann hypothesis is treated as if it were an isolating problem, not as a universal concern that demands a comprehensive universal approach. Yet, the case study reveals that all branches of mathematics, physics, chemistry, and biology can benefit from the solution of this hypothesis. Hence, modal logic is adopted into the framework of this article.

Tao and collaborators, building on polymath8 and related efforts, have shown the existence of both arbitrarily large gaps and bounded gaps relative to average gap sizes using sieved and combinatorial techniques. Furthermore, the prime gap list in mathematical physics operator models has proposed that the mathematical properties of the zeta function are relevant to spectral problems, such as Hamiltonian constructions whose eigenvalues correspond to nontrivial zeroes (ref. J.J. Relancio and L. Santamaría-Sanz, Generalized Hamilton spaces: New developments and applications).

In contrast, the present paper does not pursue extremal gap analysis or spectral operator constructions. Instead, it proposes a geometrical constraint framework that focuses on bounded stabilization and average gap-calibration within an admissible constraint radius. Also, through the oscillation principle, it will be demonstrated that the distribution of the zeta location is indeed stable. Now, to enhance understanding, the concept of modal logic is used. Essentially, in the 1990s, modal logic is a Kripke



model that established the necessary and sufficient truth of an argument. A necessary bridge that led to the gauge tensor, a sufficient component for the final anticipated result. In that vein, the latter looks at the different fields of mathematics as possible worlds that are reachable through bridges of reliable patterns that are the nodes of communication between creativity and knowledge. We can navigate these worlds freely. Formal proof is offered where it is necessary to strengthen an established pattern. This is preferred instead of rigid proof to allow the article to exhale and mingle with the other articles that have already been presented in the subject matter. Philosophically, this article remains with “The Riemann Hypothesis: The Vision on How to Solve It” and allows the pure number theory argument to stay in the background of this paper. After all, the arithmetic domain is being addressed, which is a fundamental issue in number theory, indirectly. In the article “Modal Logic Should Say More”, Melvin Fitting embodies what this article strives to capture when the essence of his view is embraced in an analogous structure that becomes an undeniable bridge in this work.

2. Conceptual Overview

Elaborating further, bound stabilization is valued under a constraint radius. Rather than invoking analytical convergence in the classical Cauchy sense, the present framework operates under a bound stabilization principle. The analysis is restricted to values lying within a bound-admissible region, referred to as the constraint radius, numerically constrained to 0.273. This boundary is imposed to ensure stability of the discretized Egyptian-fraction representation under Fibonacci’s base scaling. Within this constrained radius, oscillation deviation, measured via a bounded operator, remains controlled and stabilized under calibration through the transport mechanism. The resulting behavior does not assert analytic convergence in a metric space but instead establishes stabilization toward integer-consistent outcomes under the imposed structural constraints. This boundary is sufficient for determining knapsack capacity volumes and average gap estimates within the scope of the model $\epsilon - N$ convergence proof.

An analogy is not an argument; it is a transitional phase that helps an argument in a given context. It is a relational mapping, which is a form of isomorphism, where it transitions from a creative stage to a functional stage. The inconvenient truth is that a knapsack is a concept that is an analogy, a mapping of how packing items in a close environment can be optimized. This means that choosing the items in terms of necessity is critical, as well as the space they occupy. These pure interpretation integers have none of these characteristics, yet these interpretations are accepted willingly.

Differential geometry is defined as the study of smooth curves. Essentially, the study of a Manifold. Hence, the following undeniable reality can be extrapolated further to the concept of the knapsack. This concept is needed to concentrate on the allocation of space and the symmetrical nature of the golden manifold. The following undeniable reality is revealed about the latter:

- Manifold: A space that locally resembles Euclidean space, \mathbb{R}^n
- Golden manifold: A differentiable manifold equipped with a golden structure, which is a tensor field ζ of type $(1,1)$ (a linear map on each tangent space) that satisfies the equation $\zeta^2 - \zeta - I = 0$
- Where I is the identity transformation, the golden structure induces two complementary projection operators that split the tangent bundle into two sub-bundles.
- Inherent structures: just as a metric can be extended from the manifold to its tangent bundle. A golden structure on a manifold can also be lifted to a related structure on the tangent bundle itself.

Simplicity of the modal logic that expands the radius proof into a formal proof, if expanded to a quadruple structure that allows the concept of the possible worlds to be the bridge of construction. The literature gap is that the Riemann Hypothesis is treated as if it is an isolated problem instead of a universal concern that demands a comprehensive universal approach. Yet, the case study reveals that all the branches of mathematics, physics, chemistry, and biology can benefit from the solution of this hypothesis. Hence, modal logic is adopted in the framework of this article. The original conception of this work is presented at the end, so the formulae can be part of the conclusive analysis.

The mapping interval is closely related to the established extension field. The extension field can be calibrated using a permutation of digits, a cyclic partition requiring a back-and-forth of the digit under manipulation. This manipulation of digits upsets the occasional freeze of values in a decimal range. This dance creates a gauge configuration that behaves like a tensor depending on the data structure demands, since the latter could be represented as a decimal or finite fraction expansion. Thus, the potential of permutation creates a sliding rule such that the initial position of the yin-yang proportion of the golden ratio can be established.

Hence, the result from the Riemann Hypothesis ‘A vision on how to solve it’ which wonders if the zeta numbers were a stable distribution to delineate the size of the knapsack volume of the number of primes associated with a given value of x , is

resolved. Now the goal is to find the transport mechanism where the symmetric characteristic of the golden ratio can be tested. Firstly, begin with the added construction by extrapolating some known relations. Different cases of numbers associated with the Riemann Hypothesis conjecture are present solely to provide a complete picture of the solution set as it was envisioned from the outset.

The mapping is compressed into the narrow path of the golden ratio, where the percentual boundaries are known.

If:

$$\begin{array}{rcl} 0.273 & & =0.61 \\ x & & =1.61 \end{array}$$

Solution:

$$0.273 \cdot 1.61 = 0.61x$$

Then: $(0.273 \cdot 1.61) / 0.61 = x$ which implies
 $x = 0.720540983607$

The research begins with the limit point 0.72. However, an unpredictable paradox is encountered.

The first example of the paradox is as follows:

$$T_i^s = \text{ABS}(1/0.72017414809 / (1/649) - 901)$$

$$0.170921$$

The second example of the paradox:

$$T_i^s = \text{ABS}(1/0.72778089 / (1/5923) - 8226) / 1000$$

$$0.087562$$

The third example of the limit point paradox:

$$T_i^s = \text{ABS}(1/0.768457889 / 1526770 / 0.00000000000073685 - 1234567) / 1000000$$

$$0.077850$$

These equations illustrate the behavior of three distinct values of x acting away from the associated limit point 0.72 while searching for the center point of the knapsack volume containing prime for a given value of x under study. Except that the target volume tends to be reached away from the normal ascending reality of the expected limit point. The limit point that follows the expected principle can be found to work at the lower extremity of the golden ratio, hence 0.273. This is counterintuitive; this limit point paradox of the golden ratio has been exposed in three distinct examples above. Thus, the transport mechanism needs to be centered at 0.273. Then, the projection components that are needed to perform the transition required for the transport mechanism principles to become reality can be searched for.

For clarity purposes, the parameters will be set first, then the second will be elaborated on.

The Gauge pairs configuration:

$$(L_z, S); (T_{\alpha}^{d,f}, V_i^t), \text{ or } (T_{\alpha}^t, V_t^s).$$

L_z The zeta location initial extension in accordance with dimensional analysis

S Symmetry operator.

T_{α}^f The decimal calibration rule orientation. Gauge configuration using data structure tensors.

T_{α}^t Transport mechanism using gauge point symmetry. The latter is identified as the center point.

V_i^t Volume of knapsack containing prime for a given value of golden ratio initialization projection

V_t^s Symmetrical volume containing prime numbers through destination projection of the Golden ratio for a given value of x .

AI Artificial Intelligence relational stability, a function necessary for the gauge function.

Essentially, the cosine function helps describe the wavy, oscillating nature of the zeta function's values, especially near the critical line, thus oscillating around the true center of the radius of conversion. The latter can be analyzed and adjusted until a gauge function can reveal the precision needed to finally find the knapsack capacity of the bundle of prime associated with a given value of x.

3. First Set of Tables 1.0 Analysis for the Transport Mechanism Using 901

Table 1. 901

N=1/0.273/(1/246.003557998)\ the construction of x	
901 The numeral x	
L _Z =1/0.273/(1/246.003557998)-901 Zeta extension distribution within a limit point of 0.273	
0.1119355	
cos(.1119355)=.993741760429	
Possible	
jn1.61*.1119355=.180216155	
Cos(.180216155)=.983804971667	
Error estimate	
.993741760429-.983804971667=0.009936788733	
.180216155-0.009936788733=0.170279366267	
.170279366267/1.61=0.105763581531	
Thus	
.170279366267*901=153.421709007	
Since from the zeta location it is already known that the volume is 154, when it is adjusted for the error, the following is obtained:	
.170279366267 =153.421709007	
X =154	
Solution	
154*.170279366267 =153.421709007x	
(154*.170279366267)/153.421709007=x	
X=.170921198668/1.61=.106162235197	

Progressing through the transport mechanism, every derivation must pass through a limit point such that the branch that led to the result can be closed in accordance with the design of a tableau proof derivation. The latter will be subject to the limit point requirement of 0.273.

To tighten the gauge tensor configuration, the latter is permuted in the extension string of the Egyptian fraction representation such that the target string responsible for the transport mechanism is revealed.

This led to:

$$T_{\epsilon}^f = 1/0.273/(1/246.0020091)-901 \text{ Permutation and partition of the decimal field of the Egyptian fraction algorithm.}$$

Selected initial value:

$$0.106260$$

Which turns into:

$$T_f^s = 1.61 * .106260 = .1712396 \text{ projection of the golden ratio.}$$

Thus:

$$V_i^t = (((F1))^{(F2)} / (1 - 0.10626 / 24.44 * A3))$$

154.000445

Hence:

$(T_c^{d,f}, V_i^t)$, or $(T_{d,f}^t, V_t^s)$; is the configuration pair points associated with the prime conjecture.

Finally, adjusting for complete precision, the following is reached:

$1.61 * 0.106162235197 = .170921198668 * 901 = 154$ precision is achieved.

In addition, the data validation rules are applied to the tensor transportation as well as the volume of prime. This is in accordance with the constraint of the golden ratio limit of 0.273. Each example has a unique transport mechanism projection.

Thus, 901, the first example, offers this result $T_f^s = 1.61 * .106162235197$, which is the key to the precision necessary for the volume of the knapsack containing prime numbers to minimize errors associated with the Lagrange error estimation result. Each example under study will have its own transport parameter values. The golden ratio mechanism creates a gap size between the two centers of orientation. One endpoint is identified through the zeta location. The other is fashioned through the transport mechanism.

4. Case for 901 Continued



Fig. 1 Analysis of Rotation Analysis in Search of Precision Through Symmetry

Now, the angle characteristic of the work can be initiated to extrapolate further on its significance. This leads to identified angle markers that delineate the prime markers that classify the fiber bundles of different geographical sectors of convergence.

Note that the prime number bundle sector is not a defined mathematical term; visualization, such as the Ulam spiral, combines prime numbers with geometrical concepts. Having these concepts laid out can be used to outline the sector through angle analysis.

Table 2. The Prime Numbers Markers

$\text{Cos}(137.5) = .745123212603$ lead to
$\text{Cos}(137.464) = .720636244673$
$\text{Cos}(42.688) = .272989476536$
$\text{Cos}(136) = -.612548239496$
$\text{Cos}(92.01) = -.618618595163^*$
$1.61/\pi * 180 = 92.2462050161^*$
$\text{Cos}(92.2462050161) = -.417537071221$ forth quadrant

5. Case for 8226

This section introduces the second case analysis. Here, nontrivial characteristics that link the zeta location with the target string related to the transport mechanism will be exposed. However, before this illustration is attempted, the case study must follow the steps that were illustrated in the case of 901.

The Gauge pairs configuration:

$(L_z, S); (T_{\epsilon}^{d,f}, V_i^t), \text{ or } (T_{d,f}^t, V_t^s).$

L_z The zeta location initial extension in accordance with dimensional analysis

S Symmetry operator.

T_{ϵ}^f The decimal calibration rule orientation. Gauge configuration using data structure tensors.

T_d^f Transport mechanism using gauge point symmetry. The latter is identified as the center point.

V_i^t Volume of knapsack containing prime for a given value of golden ratio initialization projection

V_t^s Symmetrical volume containing prime numbers through destination projection of the Golden ratio for a given value of x .

AI Artificial Intelligence relational stability, a function necessary for the gauge function.

6. Second Set of Tables 2.0

Table 3. Analysis for the Transport Mechanism Using 8226

$x=1/0.273/(1/2245.8836861)$ construction of numeral with zeta extension	
8226.680169	
$L_z=1/0.273/1/0.0017999437/1/2992$	
0.680169	
$V_L=(((H1))^{(H3)/(1-0.680169)/A4^{1.1229}})$	
1031.134802	
$V_i^t=(((H1))^{(H3)/(1-0.052942)/3.26*A3})$	
1031.480377	
$\text{Cos}(.680169)=.777466411626$	
$0.680169*1.61=1.09507209$	
$\text{Cos}(1.09507209)=0.457982385692$	
$.777466411626-.457982385692=0.319484055934$	
$0.319484055934*8226=2628.97584411$	
Adjusting	
$0.319484055934=2628.9758441$	
$X=1031$	
Solving for x leads to	
$X=0.125291399086^{**}$	
	Similarly,
	$T_{\epsilon}^f=\text{ABS}(1/0.273/(1/2245.67674799981)-8226)$ permutation of the decimal field in the Egyptian fraction
	0.077846
Seed of the golden ratio through the key result. It is interesting to note that the prediction of the large number error adjustment is true growth in size.	
$.07784672*1.61=.1253332192$ subject to the limit point requirement of 0.273	
Finally, to tighten the gauge, the tensor configuration is permuted in the string of the Egyptian fraction e expansion to reflect the target string responsible for the transport mechanism.	

7. Case of 1234567 – Zeta Location: .3505002

Following the idea behind the outline established in this article, it is required to estimate where the zeta location leads, in terms of projection, then adjust the result to its actual location. Hence:

Table 4. Sets of Tables 3. Analysis for 1234567 of Transport Mechanism

Residual= $1-(1234567-1/0.273/1/4026650/0.00000000000073685)$ residual
0.201
$x=1/0.273/1/4026650/0.00000000000073685$ construction with residual
1234567.201 value of x with residual that is transformed to zeta location.
$\text{ZetaL}=\text{ABS}(1/0.3505002/1/4026650/0.00000000000046995-1234567+1)/1000000$ limit point achieves

0.273
Hence,
$L_z = \text{ABS}(1/.273/1/4026650/0.00000000000073685-1234567+1)/1000000$
0.3505002
Estimate projection transport.
$\text{Cos}(.3505002)=0.938201077856$
$1.61*.3505002=0.56305322)$
$\text{Cos}(.564305322)=0.844960338192$
$.938201077856-0.844960338192=0.0947050440368$
IF
$0.0947050440368*1234567=116919.722101]$
$X=95358.99952$
Solve for x implies that:
$X=0.0772408459975$. Similarly, this also means that:
$.0270729319703/.3505002) *1234567$ equivalent to 95359
Equally likely, we found the following:
$(.0270729319703/.3505002)=0.0772408459975$ precise*.
The gauge point target estimate equation
$T_f^g = \text{ABS}(1/0.0580562/1/4026650/0.00000000000073685-1234567+1)/100000000$ tensors data structure
0.047876134269, the inverse nature of the gauge point justified both entries.

Seed of golden ratio through an equation: $T_s^d = .0479756846*1.61=0.077240846$, subject to the limit point requirement of 0.273.

Finally, to tighten the gauge tensor configuration, the latter is permuted through the string of the Egyptian Fraction Expansion to reflect the target string responsible for the transport mechanism, meaning:

$T_G^d = \text{ABS}(1/0.0580562/1/4026650/0.00000000000073685-1234567+1)/100000000$ tensors data structure
0.047876134269 potential result.

Thus, the permutation and partition of the decimal field of the Egyptian fraction algorithm selected the initial value.

The Gauge pairs configuration

$(L_z, S); (T_G^{d,f}, V_i^t), \text{ or } (T_d^t, V_t^s).$

L_z The zeta location initial extension in accordance with dimensional analysis

S Symmetry operator.

T_G^f The decimal calibration rule orientation. Gauge configuration using data structure tensors.

T_d^f Transport mechanism using gauge point symmetry. The latter is identified as the center point.

V_i^t Volume of knapsack containing prime for a given value of golden ratio initialization projection

V_t^s Symmetrical volume containing prime numbers through destination projection of the Golden ratio for a given value of x.

AI Artificial Intelligence relational stability, a function necessary for the gauge function.

Note: When talking about paradoxes, a deeper look is necessary. The paradox of limit points of the yin-yang principles could be the prelude to something bigger. Small particle behavior in the prism of the golden ratio limits could be the transport to a new reality, unexpected but enduring. Venturing further into quantum computing may be required. Thus, in coherent states, particles may dance between superposition and transport mechanism ranges, where the protocol of functionality is not what is being perceived.

8. The Artificial Intelligence Stability Relation Function

The Gauge Pairs configuration establishes a sequence of information that leads to a set of knapsack volumes. The latter needs to be optimized to reach the precision outcome that is sought. The arena where this can be achieved is in the realm of Artificial Intelligence. It is already known that minute changes in the permutation field can enhance accuracy in the knapsack volume of prime numbers, such that the latter must be an integer. This will set the necessary conditions to revisit the Lagrange Error Correcting formulae to satisfy the need to be rigorous in the result's classification. Hence, utilizing the recursive nature of Artificial Intelligence, the requirement that the volume of the knapsack be strictly an integer is reachable. The core element is the gauge point extension that must be calibrated precisely to ensure integer compliance. In this article, the necessary expansion is outlined as follows:

The greedy algorithm of the Egyptian fraction algorithm p/q , where $p < q$

1. Find the smallest integer x such that.
 $1/x \leq p/q$. This is equivalent to finding the smallest integer x greater than or equal to q/p
This is often written as $x = \lceil q \div p \rceil$ the ceiling of q/p
2. Write $1/x$ as the first term in your Egyptian fraction expansion.
3. Subtract this unit fraction from the original fraction.
 $p/q - 1/x = (px - q) \div (qx)$.
4. Repeat steps 1-3 with the new fraction $(px - q) \div (qx)$, until the remainder is zero.

Note: The number of fractions that are expected in the expansion is $\log_2(p) \pm 1$. The key is to match the fraction denominator that matches the length of the input x value: $N = 1/.273/1/x + (px - q)/qx \dots$ until the length matches the input length (x), then choose that expansion in the formulation. This is the discretization principle necessary for the stability of the constraint reality that was exposed throughout the article. Significantly, in the tableau, a proof is needed.

Finally, the knapsack's revelation.

The conjecture of the Riemann Hypothesis $\pi(x) = x \div \ln(x)$ is the initial value for p and q in the original x value under study. Hence, p/q is established. This is where the work begins for the complementary solution associated with the Riemann Hypothesis. This is done in accordance with the detachment principle, subject to the constraint of the golden ratio limit point stipulated throughout the published articles.

Claiming that there are infinitely many prime numbers is proved by Euler in the argument monologue exposed in the article "The Riemann Hypothesis: A Vision on How to Solve It." Thus, it is now natural to begin with this truth. Now the consequential theorem can be presented.

9. Theorem of the Riemann Hypothesis: A Golden Manifold That Led to an Average Gap Size of a Knapsack Bundle

Within an infinite set of primes, there exists a subset of x values associated with the golden ratio limit that allows a knapsack volume to be explored as a bundle. The boundary stability constraints are the specific subsets of primes that meet the knapsack's capacity constraint. This is a direct parallel of how the knapsack is filled with a bundle of items such that the latter obey the internal structure of the Fibonacci ratio of 0.273. Subject to a gauge point tensor that delineates a transport mechanism directly minimizing the effect of the Lagrange correction procedure. This leads to an average gap size of a knapsack bundle, i.e., $(x/1/(T_g^s \times \zeta))$.

10. The Goal: The Two-Step Design

The proof is presented in two stages:

- Stage 1. The formulae in accordance with the zeta location distribution proximity to prime numbers are a consequence of a Cauchy convergence.
- Stage 2. The gauge point in accordance with a boundary delineating a split symmetry of the golden manifold.

The proof navigates the Cauchy convergence requirement, as well as whether a sequence of bundles fits a knapsack with a limit point. Thus, the set of bundles that satisfy this knapsack boundary is a golden manifold, which reveals the capacity of the knapsack bundle. i.e. $(x/1/(T_g^s \times \zeta))$.

The first proof is an estimated volume due to the zeta zero extension of the integers, in accordance with the detachment principle and the formulae established in the article: “The Riemann Hypothesis: A Vision on How to Solve It.”

The formulae introduce the complex function analyses and evolve into establishing the Cauchy convergence for a bounded sequence within a circle of radius R.

Let R be the supremum of $|z|$ such that $\sum a_n z^n$ converges. The definition of R shows that

If $|z| > R$ then $\sum a_n z^n$ diverges

In fact, anything can happen for $|z|=R$

But

If $|z| < R$ then $\sum a_n z^n$

Converges.

Proof: the definition of R shows that there exists w with $|w| > |z|$ such that $\sum a_n w^n$ converges. Hence $a_n w^n \rightarrow 0$, so there exists c with $|a_n w^n| \leq c$ for all n. Now

$$\sum |a_n z^n| \leq c \sum |z/w|^n < \infty$$

since $|z/w| < 1$.

This happens because the region C of convergence of a power series about a is always in the following radius form such that:

$D(a, r) \subset C \subset D(a, r)$ for some $r > 0$, with two exceptions: when $C \{a\}$ and when $C = C$. this is because if a power series $\sum_{n=0}^{\infty} a_n (z - a)^n$ converges at some $z_0 \neq a$, then it converges absolutely at any z such that

$|z - a| < |z_0 - a|$. And this is because,

$$|a_n (z - a)^n| = |a_n (z_0 - a)^n| \cdot \left| \frac{z - a}{z_0 - a} \right|^n$$

And $\left| \frac{z - a}{z_0 - a} \right| < 1$.

11. Analytical Continuity

Any complex number function $F: C \rightarrow C$ that is analytic on a given region can be extended uniquely to an analytic function defined for almost all real numbers, except for numbers that are called poles or singularities.

The left-hand side of the power series: The rational function $1/(1-x)$ extends the geometric series $f(x)$, the power series from the interval $-1 < x < 1$ to all real numbers except 1. Due to this interval, a strip is established: A region $s = 1/2 + bi$ bounded from $0 < x < 1$; extrapolating further, a symmetry is found to the strip around the value $1/2$.

Knowing this now, we can further expose our formulae in the context of a volume of primes given any x value. This naturally led to the gradual formulae expansion that we proposed and the apparent convergence to a knapsack volume, a bounded zeta neighborhood γ . Since we force the area to be decreasing inside a small circle by Cauchy, it will converge to a limit point. Extrapolating further since γ led to be $T_g^s \times \zeta$ the adjusted new center, we will achieve the desired precision we search for.

A function $f(z)$ has a period C if and only if: $F(z + C) = f(z)$ for all z. In the complex plane, it is fine to consider a value for C.

$$e^{2\pi i} = 1 \text{ by IF}$$

$$e^{z+2\pi i} = e^z e^{2\pi i} = e^z$$

So, the exponent function is periodic with imaginary period $C=2\pi i$. The method used is analogous to dealing with an angle greater than 360 degrees, by dividing by 360° to make the domain smaller by imposing a limit 1-L into the domain of the $\ln(x)$. The working assumption is that the zeta location and the x value, counting the number of zeros, are close to each other. To delineate this reality, the bases need to change to the e function and proceed accordingly. The cluster count that emerges is due to the Cauchy criterion for uniform convergence. Thus, there exists a gauge tensor point T_g^s , that we can reiterate to the following reality, which is the second aspect of the proof.

Table 5. Table Formulae That Lead to the Knapsack Volume Primes for Samples 901, 8226, and 1234567, Respectively

Hence, for case 1, $x=901$, we have.
$Transport\ mechanism = T_g^s \times \zeta = 0.106162235197 \times 1.61 = 0.170921198668$;
The average Gap size /radius of convergence $= 1/(T_g^s \times \zeta) = 1/0.170921198668 = 5.85064935065$
Capacity of the knapsack bundle of prime $= (x/(1/(T_g^s \times \zeta))) = 901/5.85064935065 = 154$; Precision achieved
For case 2; $x=8226$ we also have
$Transport\ mechanism = T_g^s \times \zeta = .0778473949435 \times 1.61 = 0.125334305859$;
The average Gap size/radius of convergence $= 1/(T_g^s \times \zeta) = 1/0.125334305859 = 7.97866149373$
Capacity of the knapsack bundle of prime $= (x/(1/(T_g^s \times \zeta))) = 8226/7.97866149373 = 1031$; Precision achieved
For case 3, $x=1234567$
$Transport\ mechanism = T_g^s \times \zeta = .047975680985 \times 1.61 = 0.0772408463858$;
The average Gap size/ Radius of convergence $= 1/(T_g^s \times \zeta) = 1/0.0772408463858 = 12.9465178955$
Capacity of the knapsack bundle of prime $= (x/(1/(T_g^s \times \zeta))) = 1234567/12.9465179606 = 95359$; Precision achieved

The second reality comes in the form of an Oscillation inside the sequence of the knapsack volume of prime. The oscillation is due to the golden ratio structure when the ratio 0.61 or 1.61 is analyzed – the Fibonacci sequence F_{n+1}/F_n isolates, closer and closer to the golden ratio. As expected for 901, 8226, and 1234567, respectively, a parallel analysis between the zeta extension numerical representation and the average gap result based on the gauge tensor is mandatory.

Table 6. Parallel Analysis Between Zeta Extension and the Average Gap Result Base VS. the Gauge Tensor

$T_g^s = 1/0.106162235197 = 9.4195454546$
$1/(T_g^s \times \zeta) = 1/0.170921198668 = 5.85064935065$
$F_{n+1}/F_n = 9.4195454546/5.85064935065 = 1.60999999999$; 901
$T_g^s = 1/0.106162235197 = 12.8456450049$
$1/(T_g^s \times \zeta) = 1/0.125334305859 = 7.97866149373$
$F_{n+1}/F_n = 12.8456450049/7.97866149373 = 1.61$; 8226
$T_g^s = 1/0.047975680985 = 20.8438938118$
$1/(T_g^s \times \zeta) = 1/0.0772408463858 = 12.9465178955$
$F_{n+1}/F_n = 20.8438938118/12.9465178955 = 1.61$; 1234567
Comparing the internal ratio of the average gap with the zeta result reveals
$(L_z \times \zeta) = .1119355 \times 1.61 = .180216165$; $1/(L_z \times \zeta) = 1/.180216165 = 5.54889179891$
$(1/L_z) = 1/.1119355 = 8.93371629197$
$F_{N+1}/F_N = 8.913371629197/5.54889179891 = 1.61000008934$ $\epsilon = 8.934E-6$ Deviation 901
$(L_z \times \zeta) = .680169 \times 1.61 = .41490309$; $1/(L_z \times \zeta) = 1/.41490309 = 2.4102013798$
$(1/L_z) = 1/.680169 = 1.47022284168$
$*(L_z \times \zeta) = .680169 \times 1.61 = 1.09507209$ send transport mechanism outside the boundaries governing the oscillation requirements of the golden ratio, thus 0.61 is the natural choice to ensure stability.
$F_{N+1}/F_N = 2.4102013798/1.47022284168 = 1.63934426229$ $\epsilon = 2.93442622929E-2$ Deviation 8226
$(L_z \times \zeta) = .3505002 \times 1.61 = .564305322$; $1/(L_z \times \zeta) = 1/.564305322 = 1.77209032241$
$(1/L_z) = 1/.3505002 = 2.85306541908$
$F_{N+1}/F_N = 2.85306541908/1.77209032241 = 1.61$ $\epsilon = 0$ Deviation 1234567

The golden ratio oscillation proved that the zeta location distribution is stable in identifying the prime number bundle.

12. Outline of the Path to an Eloquent Tableau Proof

To conclude the studies and enhance the application of proof system design where the goal is to close all leaves of a derivation formula, the area of Automated Deduction in non-classical logic will be used. A formula is a heuristic on how to do a process. Essentially, the detachment principle followed by the formulae of the gauge analysis that leads to the transport mechanism is an analytical tableau system or, more precisely, a Block Tableau System (Smullyan, Raymond).

The reduction rules are the tableau rules. The significance of imposing the constraint of a limit point to all formulae ensures that all reduction branches are closed. These new parameters and rules complement the initial reduction formula. Consequently, the knapsack is also subject to a gauge point tensor that delineates a transport mechanism whose purpose is to minimize the Lagrange error estimation (exposed throughout the two previous articles that have been published on this topic). The current article presents a tableau proof where the three diagrams are the parameters that lead to leaves that are closed by the golden ratio limit point, a fundamental requirement of a tableau proof design.

13. Conclusion

Analytical Continuity, or the essence, is the line of symmetry to the point where all the other branches of science are connected to the Riemann Hypothesis. Thus, looking at the golden manifold lift exposes a different symmetry strong enough to lead to the average gap. However, the scaling of the golden ratio gives rise to a paradox at the point 0.72. To ascertain why this behavior tends to converge away from this limit point when attempting to discretize the Egyptian Fraction expansion remains unsolved, and more research is required on this scaling value.

Although one aspect has been solved, there is still more to unveil. The gauge point is a corrective process that obeys the same law of Conservation found in Nature. When any procedure is done, there must be something in it that corrects itself. Therefore, if there is an error, it can be re-addressed.

References

- [1] John C. Amazigo, and Lester A. Rubinfeld, *Advanced Calculus and Its Applications to the Engineering and Physical Sciences*, Wiley, 1st Edition, 1980. [[Google Scholar](#)] [[Publisher Link](#)]
- [2] Alfred V. Aho et al., *Data Structures and Algorithm*, Pearson; 1st Edition, 1983. [[Google Scholar](#)] [[Publisher Link](#)]
- [3] Frank Ayres, and Elliott Mendelson, *Schaum's Outline of Calculus Schaum's Outlines*, McGraw-Hill Education – Europe, International 2 Revised Edition, 2000. [[Publisher Link](#)]
- [4] Thomas Becker, and Volker Weispfenning, *Gröbner Bases, A Computational Approach to Commutative Algebra, Graduate Texts in Mathematics*, vol. 141, 1993. [[CrossRef](#)] [[Publisher Link](#)]
- [5] Robert Blitzer, *Thinking Mathematically*, 4th Edition, 1982. [[Google Scholar](#)] [[Publisher Link](#)]
- [6] Folkmar Bornemann, *PRIMES is in P: Breakthrough for Everyman*, Notices of the American Mathematical Society, pp. 545-552, 2003. [[Google Scholar](#)] [[Publisher Link](#)]
- [7] Harold P. Boas, Notices of the American Mathematical Society, American Mathematical Society, vol. 50, no. 5, 2003.
- [8] Arne Broman, *Introduction to Partial Differential Equations from Fourier Series to Boundary-Value Problems*, 2012. [[Google Scholar](#)] [[Publisher Link](#)]
- [9] Samuel R. Buss, *Bounded Arithmetic*, Department of Mathematics, University of California, Berkley, 1997. [[Google Scholar](#)] [[Publisher Link](#)]
- [10] P.J. Cameron, and J.H. Van Lint, *Designs, Graphs, Codes, and their Links*, Cambridge, Great Britain 1991. [[Google Scholar](#)] [[Publisher Link](#)]
- [11] Georg Cantor, *Contributions to the Founding of the Theory of Transfinite Numbers*, New York, 1955. [[Google Scholar](#)] [[Publisher Link](#)]
- [12] Judith N. Cederberg, *A Course in Modern Geometries*, Second Edition, 2001. [[Google Scholar](#)] [[Publisher Link](#)]
- [13] Harvey Cohn, *Advanced Number Theory*, Dover Publications, 1980. [[Google Scholar](#)] [[Publisher Link](#)]
- [14] Harvey Cohn, *Conformal Mapping on Riemann Surfaces*, 1967. [[Google Scholar](#)] [[Publisher Link](#)]
- [15] Richard E. Crandall, *Projects in Scientific Computation*, Springer-Verlag New York, 1994. [[Google Scholar](#)] [[Publisher Link](#)]
- [16] Nell B. Dale, and David Orshalick, *Introduction to PASCAL and Structured Design*, D.C. Heath & Co., 1983. [[Google Scholar](#)] [[Publisher Link](#)]
- [17] Rene Descartes, *The Geometry of Rene Descartes: With a Facsimile of the First Edition*, Dover, 1925. [[Google Scholar](#)]
- [18] John Derbyshire, *Prime Obsession: Bernhard Riemann and the Greatest Unsolved Problem in Mathematics*, Plume, 2004. [[Google Scholar](#)] [[Publisher Link](#)]
- [19] Reinhard B. Diestel, *Graph Decompositions A Study in Infinite Graph Theory*, Clarendon Press, 1990. [[Google Scholar](#)] [[Publisher Link](#)]

- [20] A. Evyatar, and Paul C. Rosenbloom, *Motivated Mathematics*, Cambridge University Press, pp. 1-284, 1981. [[Google Scholar](#)] [[Publisher Link](#)]
- [21] G. Revesz, *Lambda Calculus, Combinators and Functional Programming*, 1988. [[Google Scholar](#)]
- [22] Stanley Gill Williamson, *Combinatorics for Computer Science*, 1985. [[Google Scholar](#)] [[Publisher Link](#)]
- [23] Frisk Gustafson, *Elementary Geometry*, Third Edition, 1993. [[Google Scholar](#)]
- [24] David Wilson Henderson, and Daina Taimiņa, *Experiencing Geometry: Euclidean and Non-Euclidean with History*, pp. 1-392, Pearson Prentice Hall, 2005. [[Google Scholar](#)] [[Publisher Link](#)]
- [25] Klaus Jänich, *Vector Analysis*, Springer, 2001. [[Google Scholar](#)] [[Publisher Link](#)]
- [26] John W. Keese, *Elementary Abstract Algebra*, DC Heath/Order HM College, 1965. [[Google Scholar](#)] [[Publisher Link](#)]
- [27] Donald E. Knuth, *The Art of Computer Programming, Fundamental Algorithms, 2nd Edition*, Addison-Wesley, vol. 4, 1973. [[Publisher Link](#)]
- [28] Neal Koblitz, *A Course in Number Theory and Cryptography*, Springer-Verlag, 1994. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [29] Neal Koblitz, *A Course in Number Theory and Cryptography*, Graduate Texts in Mathematics, pp. 1-235, 1994. [[Google Scholar](#)] [[Publisher Link](#)] [[CrossRef](#)]
- [30] Bernard Kolman, and Robert C. Busby, *Discrete Mathematical Structures for Computer Sciences*, 1984. [[Google Scholar](#)] [[Publisher Link](#)]
- [31] Roland E. Larson et al., *Calculus*, CENGAGE Learning, pp. 1-40, 1998. [[Google Scholar](#)] [[Publisher Link](#)]
- [32] Jean Louis Lassez, and Gordon Plotkin, *Computational Logic: Essays in Honor of Alan Ronbinson*, The MIT Press, 1991. [[Google Scholar](#)] [[Publisher Link](#)]
- [33] Harry R. Lewis, and Christos H. Papadimitriou, *Element of the Theory of Computation*, Prentice-Hall, 2nd Edition, 1997. [[Google Scholar](#)]
- [34] Melvin J. Maron, Robert J. Lopez, *Numerical Analysis: A Practical Approach*, International Thomson Publishing, 1991. [[Publisher Link](#)]
- [35] Mathematical Association of America, *The American Mathematic Monthly*, vol. 94, no. 10, 1983. [[Google Scholar](#)]
- [36] Walter Meyer, *Walter Geometry and its Applications*, 1999. [[CrossRef](#)] [[Google Scholar](#)] [[Publisher Link](#)]
- [37] Raymond Turner, *Truth and Modality for Knowledge Representation*, 1990. [[Google Scholar](#)]