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Demonstrate a new set of infinite constructions: dimensionless circular logarithms --- 'The Axiom of Infinity' reveals the random balanced exchange and combination mechanism of universe-mathematical evenness

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Abstract: This paper discovered for the first time a new mathematical infinite construction set and " the symmetric and asymmetric, random and non-random balanced exchange combination mechanism of the even-number 'infinity axiom' ". It is called "dimensionless circular logarithm". The circular logarithm axiomatization is proposed: the group combination itself divided by itself is not necessarily 1, which resolves the difficulty of "multiplication combination and addition combination" cannot be integrated. Regarding sensitive topics such as algebra-geometry-number theory-group combination: axiomatization, continuum, four color theorem, category theory, Riemann zero conjecture, Langlands program, elementary particles, etc., a simple circular logarithm formula is used to unify the analysis and solution in $\{0, \pm 1\}$. Important calculation example: "neutrinos, quarks, Higgs particles" are connected with dimensionless construction sets, describing the "central zero point-Higgs particle" with the 'infinity axiom' to drive the cyclic evolution mechanism of the universe-mathematical world.
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About the author: Wang Yiping, from Haining, Zhejiang Province Born on December 4, 1937, graduated from Zhejiang University in 1961, senior engineer of the Association of Retired Science and Technology Workers in Quzhou, Zhejiang, engaged in architectural design, basic mathematical theory, and rotating machinery engineering research. For the first time, he discovered a new infinite construction set and the "symmetric and asymmetric, random and non-random equilibrium exchange mechanism of the even 'infinite axiom' ", proposed the circular logarithm axiomatization hypothesis, and established a dimensionless circular logarithm construction system. He has published more than 60 papers and obtained 9 national invention patents including "Three-Dimensional Vortex Aircraft Engine" and "Three-Dimensional Vortex Ship Internal Combustion Engine". From 2021 to 2024, he won the "Grand Prize" of the China Artificial Intelligence Society Competition (Theoretical Innovation Group) for four consecutive years. Book: Wang Yiping, Li Xiaojian, He Huacan, Zheng Zhijie "Group Combination-Circular Logarithmic Infinite Construction Set Principles and Applications-Exploration of Mathematical Grand Unification".

1. Introduction

1.1. Dimensionless Circular Logarithm Mathematical Construction Set

1.1.1. The historical background of “dimensionless circular logarithm construction”

For example, the symbols of the ancient Chinese mathematics "Book of Changes" in 6,000 BC , the ternary system derived from the "Taixuan Jing" written by Yang Xiong of the Han Dynasty after studying the binary system of "Book of Changes" , and the "999 Multiplication Table" (only the symmetric multiplication of ternary numbers) . "Sun Zi Suan Jing" records that "numbers have numerical values and positional values", and its counting rules say: " **For all calculations, first know their positions . " One vertical and ten horizontal, a hundred stands and a thousand is rigid. A thousand and ten face each other, and a million is equivalent** ." It also records that " **Tao gives birth to one, one gives birth to two, two gives birth to three, and three gives birth to all things** ." It fully interprets the interactive concept of "heaven, earth, and man". It is the earliest work on the ternary system in the world. It is the earliest in the world to point out the establishment and development direction of mathematics and philosophy.

the 17th to the 20th century, European mathematics established a "numerical analysis" system centered on dualism, including logarithms, least squares method, equation theory, binomial theorem, relativity, and Cartesian coordinates, which connected algebra and geometry. Later, various schools and calculation methods were developed. Some new ideas and viewpoints emerged: the topological idea of "a mathematical object changing from one shape to another shape continuously", and this mathematical object is formed by algebraic patterns - geometric topology.

When Euclidean, non-Euclidean and geometric Riemannian geometries centered on geometric figures created the combination of algebra and geometry, they were connected by the work of Cayley and Klein, and many mathematical achievements emerged, such as algebraic invariants, the concept of birational transformations, the function-theoretic method of algebraic geometry, arithmetic methods, algebraic geometry of surfaces, and so on.

Stimulated by Galois's concept of group set, Cantor proposed set theory, and mathematical development established analytical number theory, analytical algebra, analytical geometry and other analytical disciplines. Due to the introduction of complex function theory, the development of ordinary differential equations and partial differential equations has been immeasurably expanded . Mathematician Cantor (Georg Cantor 1845-1918) set theory opened the modern mathematical history period, and mathematics generally used analysis defined by logical language.

Many branches of mathematics emerged in a big explosion, all of which focused on the strict study of the n-dimensional geometric-algebraic concepts brought about by the " ellipse " of symmetry dualism; a large number of functions and their properties, derivatives, integrals, infinite series, algebraic numbers and transcendental numbers, rational and irrational number theory, infinite sets and Hilbert space, Euclidean space, logical analysis, category theory, and the results of the geometric Langlands program were studied. This series of results constitutes the mathematical system.

In 1931, Gödel pointed out with his incompleteness theorem that any axiom system without contradiction, as long as it contains statements of elementary arithmetic, must have an undecidable proposition, and its truth or falsity cannot be determined by this set of axioms. This overturned the basic research of mathematics at that time . In particular, it posed a challenge to the "Hilbert Program" proposed by David Hilbert. The Hilbert Program aims to prove the completeness and consistency of mathematics .

In 1931, Gödel's "Incompleteness Theorem" thoroughly criticized the mathematical system established in Europe for 400 years since the 17th century, such as the "incompleteness" of the "set theory axiom system and Hilbert's number theory axiomatization", almost completely negating their mathematical foundations and causing the contradiction of "mathematical grand unification". It is called the "fourth mathematical crisis". It points out that any compatible formal system, as long as it contains Peano arithmetic axioms, can construct true propositions that cannot be proved in the system. Cohen further proved that this system cannot prove its own "truth" . Gödel's incompleteness theorem broke the tranquility of mathematical analysis.

This article proposes the following questions to supplement the mathematical foundation theory of the above current (referring to the "object" targeted by Gödel's incompleteness theorem) :

For example: Elementary number theory: (Peano axioms): 3+4=7, 3 · 4=12,

Set theory: (ZFC axiom system) Intersection $A \cap B=\{x|x \in A \text{ and } x \in B\}$; Union $A \cup B=\{x|x \in A, \text{ or } x \in B\}$.

Category theory: (Axiomatic set theory): $X \in C$, $F(idx) = idF(x)$; $A \to B$ (morphism) ,

(1) On what basis do the axioms say that they are valid?

(2) What is the basis for its establishment?

(3) Are these bases complete?

The Chinese circular logarithm team used the dimensionless 'axiom of infinity' to prove that the "incompleteness and insufficiency" of all current mathematical analysis has not gotten rid of the "dilemma" of whether the mathematical foundation is solid . A new mathematical crisis exists : Is there a third infinite construction set between Cantor's "natural number set and real number set"? Once this crisis is resolved, mathematics will usher in a new era.

For example, the current mathematical dilemma is manifested as:

(1) The latest achievement of logical analysis is "Category Theory". Category theory refers to "morphisms and functors" between "objects"; set theory refers to "elements and mappings" (collectively called "commutative" systems). This is manifested as "elements-objects and commutative systems " that do not satisfy the "balance" condition and cannot be directly exchanged, combined, or decomposed .

(2) The achievements of numerical analysis include "Numerical Analysis: Calculus, Functional Analysis, Lie Algebra, ... " and the formalist school represented by Hilbert. These achievements emphasize "how to achieve 'balance'?". They are collectively called "balance" systems , which are manifested as "balances" that do not satisfy the "exchange" conditions and cannot be directly balanced and exchanged by combination decomposition .

Gödel revealed that in most cases, such as in number theory or real analysis, you can never find a complete set of axioms . Every time you add a proposition as an axiom, there will always be another proposition that appears outside the scope of your research. So, how can the " language description " or " checking program " be established to check their authenticity? In layman's terms, "the system itself is incomplete and cannot prove its own integrity." In order for this process to proceed, you need to know what kind of axioms you have at hand . You can start with a finite set of axioms , such as Euclidean geometry, or more generally allow an infinite list of axioms , as long as you can mechanically determine whether a given proposition is an axiom. In computer science, this is called a recursive set of axioms . Although an infinite list of axioms sounds a bit strange, in fact, in the usual theory of natural numbers, there is such a thing called the Peano axioms . Now it seems that axioms without mathematical proofs are still not rigorous. Some people have proposed that computers have the function of "self-monitoring". Since the premise is the "discrete-symmetric" hypothesis, the logic language defined in modern times is based on the operation, language, and program of the "group theory" based on the "discrete and symmetric" hypothesis, and computers are made to replace human physical labor. In fact, the universal existence of " continuous (entangled state) -asymmetry" has not been satisfactorily resolved , and its application has been limited.

On the other hand, the development of mathematics has brought about algebraic equations, tensor analysis, differential geometry, etc., which are called "product functions (multiplication combinations)" and "sum functions (addition combinations)" to form the concept of construction sets. Their incompleteness and insufficiency are manifested in the sharp contradictions between "compatibility and completeness" and "macro and micro". Many fundamental mathematical problems of the century are stuck here and cannot be solved.

At present, the foundations of mathematics are all based on " numerical analysis", ignoring the fact that " any calculation method must first know its position " , ignoring "place value", and emphasizing " numerical " analysis. As a result, the mathematical system established in Europe over the past 400 years has insurmountable congenital defects since the "cubic equation" . The overall mathematical system has more and more calculation methods and is becoming more and more complex, and cannot achieve "zero error" accuracy.

People often ask :

(1) The most basic numerical analysis in mathematics is the addition combination $\sum(3+4=7)$ and the multiplication combination $\prod(3\cdot4\cdot8=96)$;

(2) logical analysis of (union $A\cup B$), (intersection $A\cap B$) and (union $A\cup B\cup C$), (intersection $A\cap B\cap C$) ; category theory of "$A^{n}\rightarrow B^{m}$", and a series of (balance, morphism , commutation, projection, combination, analysis, set) ; function numerical analysis of "balance, equality (→=)" and the logical rule "if and only if", including the "axiom of choice".

Why do we say they can be established?

Fact: Traditional mathematics relies on intuitive " axiomatization of number theory " and "axiomatization of set theory" to become " self-evident " without mathematical proof. In other words, the "axioms" seem "reasonable" but are actually "irrational" and they need mathematical proof.

Logical analysis (internal and external) in mathematics and philosophy emphasizes the "symmetry-discreteness" of the "binary number $\{2\}^{2n}$". In fact, binary numerical values or logical objects are themselves asymmetric. When faced with the " asymmetry - continuity" of the ternary number $\{3\}^{2n}$, there is no solution but to say "there are no ternary numbers", which has misled the development of the mathematical system for hundreds of years.

European mathematicians have not noticed or ignored the ancient Chinese mathematical principle of " knowing the position before calculating ". In other words, the establishment of a mathematical system must start with "position value". Due to historical conditions, this "dimensionless" mechanism has not been discovered , so that it has not been discovered that the numerical effect hides the "even symmetry and asymmetry , randomness and non-randomness 'infinite axiom' balance exchange mechanism" unique to dimensionless construction. Its appearance has fundamentally changed the current " element-object " balance that cannot be exchanged, and "logical morphisms cannot be balanced". It is also impossible to prove their "truth or falsity". It is manifested as:

Na; ≠ Nb ; Na↔Nb ; is different from $N^{a}\leftrightarrow N^{b}$;

Among them: the symbol (↔) is called the random and non-random balance and exchange combination mechanism of the 'axiom of infinity'.

The completeness and sufficiency of the 'axiom of infinity' inspired numerical analysis and logical analysis, and was realized , demonstrated and unified in the dimensionless circular logarithmic environment .

(2) In the 17th to 20th centuries, the development of European mathematics reached its peak. For example, Cantor's set theory, Hilbert space, and category theory space were all developing towards infinity and had reached the ceiling level. This means that there is little room for development.

Facts have proved that mathematics itself is not that complicated. It has strict mathematical rules that must be followed. The influence of the axiomatization of natural numbers and set theory has made mathematics so complicated, which is inseparable from "approximate calculation" and has lost the true meaning of "simplified and zero-error" calculation in mathematics.

Can we be optimistic about the mathematical foundation of traditional mathematics which cannot realize random mutual inversion proof ?

Klein said : "After Gödel's incompleteness theorem, there has been no real progress in mathematics." The difficulty lies in "infinity" . Due to historical conditions, the true connotation is not explained . At that time, there was no "dimensionless construction set", and the real specific connotation of the "infinite axiom" was also unknown. This is the "infinite construction set" that this article will explain. It attempts to solve the problem of "ultimate foundation and ultimate meaning" that Weyl mentioned in mathematics.

The most fundamental controversy in the foundations of mathematics: Is there a third infinite set of constructions between the "natural number set and the real number set"? Cantor said "no". Gödel said "yes". Who is right? No one has proved it.

Einstein said, "God does not throw grain," which means "there may be underlying rules in nature." Mathematicians and scientists have speculated that there may be a natural rule that humans have not yet discovered, which has become the biggest unsolved case in the foundation of mathematics in this century .

numerical analysis and logical analysis of mathematics involve basic mathematical problems. If they cannot be reasonably proved or solved, the mathematical system that Europe has been proud of for 400 years will not be optimistic. The development of modern mathematics and classical mathematics may fall short. Mathematicians hope that a "new infinite construction set" will appear soon to solve the mathematical dilemma of the current "fourth mathematical crisis" .

In 1905, Einstein - Lorentz first proposed the " dimensionless ratio " of "the ratio of speed to the constant speed of light" , which was adapted to the theory of relativity of gravity and became one of the two major pillars of physics in the 20th century. Due to historical constraints , many people cannot understand the inner mysteries of "dimensionless", so the theory of relativity has not been deeply applied in the field of mathematics. Einstein had a flash of inspiration in "Special Theory of Relativity" and had a "germination of dimensionless ideas ". In the last 40 years of his life, he imagined raising "dimensionless" to "structure", but it was not completed. However, despite the opposition of many people , Einstein's theory of relativity has been physically proven in many fields and has become one of the two pillars of physics in the 20th century.

So far, the entire mathematical system has not yet jumped out of the framework of dualistic symmetry to adapt to the analysis of $\{2\}^{2n}$. As for the ternary symmetry and asymmetry analysis to adapt to the analysis of $\{3\}^{2n}$, there has been no satisfactory progress . In the past hundred years, many mathematical disciplines have not made in-depth or substantial progress, which has also hindered the development and production of supercomputers.

In 1967, American mathematician Langlands proposed a set of far-reaching conjectures. These conjectures pointed out that three relatively independently developed branches of mathematics: number theory, algebraic geometry and group representation theory, pointed out that they are closely related . But what kind of relationship ? No answer. Known as the Langlands reciprocity conjecture, they are ideas composed of a series of conjectures, which later evolved into the Langlands Program, known as the "grand unified theory" in mathematics.

According to the Langlands Program, the final result of mathematical analysis may be: " The entire field of mathematics is unified by a simple formula, combining algebra, geometry, number theory and group theory." Where are they?

How to find a third-party construction set that satisfies "conjugate reciprocal central zero-point symmetry for random 'balance and exchange'"? If it can be proven successful, then the mathematical foundation of this system is solid.

This article expounds on " a new infinite construction set: dimensionless circular logarithms and the unique even-numbered symmetry and asymmetry, the balanced exchange mechanism of the random and non-random 'infinite axioms'", and randomly verifies the "unity of balance and exchange", "unity of completeness and compatibility", and "unity of macro and micro" between the external and external, internal and internal, and external and internal combinations of the "element - object " group , in an attempt to solve the new " fourth mathematical crisis ".

In formal logic, mathematical propositions and their proofs are described in a symbolic language, where we can mechanically check the validity of each proof, so we can irrefutably prove a theorem starting from a set of axioms. In theory, such a proof can be checked on a computer, and in fact such a validity check program already exists .

The circular logarithm team led by Chinese scholar Wang Yiping has inherited the achievements of mathematicians from ancient and modern times at home and abroad. Since China's "reform and opening up" , it has gone through more than 40 years of exploration since May 25, 1982, which is recorded. It has overcome many unimaginable difficulties, and has continuously expanded the team in the exploration. It has attracted a group of experts , scholars, and teachers to spontaneously form a team of more than 30 people. For the first time, it discovered the third "infinite construction set" defined by dimensionless language and the symmetry and asymmetry of the "evenness" unique to dimensionless construction , the balance exchange mechanism of randomness and non-randomness , and the zero error analysis of dimensionless {0, ±1} with random self-proving "true and false" . It is called the "infinite axiom" . It is manifested as the logical zero error arithmetic analysis of "irrelevant mathematical models and no specific (mass) elements" described by dimensionless language definition . It embodies the functions of analysis, deciphering, tolerance, balance, exchange and unification of "dimensionless construction".

After Gödel's " Incompleteness Theorem", the mathematical foundation of the entire mathematical system was questioned or denied. Traditional mathematics faced such historical conditions and the background of the times, and the " dimensionless circular logarithm " was produced .

(1) Discovery: Between the natural number set and the real number set, the "infinite construction set - circular logarithm" defined by dimensionless language and the dimensionless unique "infinite axiom" random equilibrium exchange and reciprocity are self-proven , proving the defects of the existing "axiomatic" mathematical foundation with the identity of the third-party construction set . It is proposed to use mathematical integrity, including infinite axioms , taking into account the unity of "balance and exchange", "completeness and compatibility", and using a simple circular logarithm formula to almost cover all the analytical methods of current mathematical "numerical analysis and logical analysis".

(2) Proof: The balanced calculation of numerical analysis cannot solve the exchange; the morphism exchange of logical analysis cannot balance the calculation. For example , the sequence proof defect of Peano's axiom "1+1=2 , 1+ 2 = 3 can only achieve balance and exchange under the conditions of a third-party mathematical construction set". Further use the third construction set of the new dimensionless circular logarithm to describe or prove: any "function-group combination-space-digitizable object" generated (including Peano's axiom) can be converted into numerical characteristic moduli (positive and negative mean functions) and place-valued circular logarithms and central zeros (critical lines, critical points), and the shared property K controls their convergence, stability and uniqueness analysis, and analyzes the mathematical system defined by the dimensionless language.

(3) Establishment: A complete and unified theory of "dimensionless circular logarithm", realizing the balanced exchange mechanism of symmetry and asymmetry , randomness and non-randomness of arbitrary functions , and the compatibility of "discreteness and compatibility", integrated into an integrated "circular logarithm space". It has opened up a new dimensionless system of "numerical-place value analysis" to carry out zero-error logical arithmetic calculations "regardless of mathematical models and without specific (mass) element content", unified the zero-error analysis of the entire mathematical world in dimensionless {0, ±1} , and become the most profound, abstract and basic dimensionless "circular logarithm space" . From the perspective of the history of mathematical development, "dimensionless construction" is a substantial progress and fundamental breakthrough in the nearly 100 years since Gödel's incompleteness theorem in 1931. It shows that a new era of analysis and application of "dimensionless circular logarithm" has arrived! It has opened up a historical period of "mathematical grand unification" ! It has demonstrated China's new contribution to the development of world mathematics and science!

1.1.2. Mathematical and philosophical foundations of dimensionless circular logarithmic construction sets

Gödel's incompleteness theorem has two main parts:

The first incompleteness theorem: For any mathematical system, if it contains an arithmetic system, then this system cannot satisfy both completeness and consistency. In other words, if we can do arithmetic in a mathematical system, either the system is self-contradictory or there are some conclusions that we cannot prove even if they are true.

The second incompleteness theorem: For any mathematical system, if it contains an arithmetic system, then we cannot prove its consistency within the system. This is called "undecidable " .

Undecidability is a problem in existing logical rules, including Aristotle's linguistic logic and Frege-Russell's mathematical logic. Even in formal systems (including natural number theory), they are not always applicable in a complete sense (such as the law of the excluded middle).

The properties that a formal system may have are completeness, consistency, and the existence of a valid axiomatization. The incompleteness theorem states that any formal system that contains the axioms of Peano arithmetic cannot have all three of these properties.

In mathematics, the concept of completeness is closely related to the properties of a space. For example, in a topological vector space, a subset is considered complete if its extension (i.e. the set of all possible linear combinations) is dense in the overall space. This means that the subset contains enough elements that any other element can be linearly combined from the elements in the subset. In real number theory, the completeness of the real numbers is reflected in the nested closed interval theorem. This theorem states that for any set of gradually shrinking closed intervals, there will eventually be a common point, which proves that the set of real numbers is a complete system.

In mathematics, consistency means that everything is consistent from the beginning to the end, along the branches of theorems and inferences. If you use the correct conclusions to deduce, you will definitely get the correct conclusions. For example: mathematics is built from the foundation, along the branches of theorems and inferences, and it is consistent from beginning to end. We call things that are consistent with this towering tree "correct".

Axiomatization is a concept in mathematics and logic that refers to the set of theorems in a formal system being recursively enumerable. This means that, in theory, it is possible to enumerate all theorems in the system using a computer program without listing any non-theorems.

Self-consistency and contradiction are two different aspects of judging the validity of theories and propositions. Self-consistency ensures the logical consistency within the theory, while contradiction reveals the inconsistency between the theory and the facts. A theory that is both self-consistent and consistent with the facts is credible.

Later, the development of traditional logic was more distorted than formalistic. Because, according to Engels, the relationship between traditional logic and dialectical logic is a metaphor for the relationship between elementary mathematics and higher mathematics. It can be considered that dialectical logic studies the laws of the rational stage of human cognition, while traditional logic studies the laws of the intellectual stage of human cognition. It is not surprising that traditional logic has gone beyond its scope of application and has been applied to the entire process of human cognition, making it a tool of sophistry and falling into paradox.

Hegel believed that traditional logic could be a tool for sophistry because Hegel confused traditional logic with metaphysics, thus absolutizing the limitations of traditional logic. But just as turning truth into fallacy beyond the scope of application of truth does not mean that truth itself is fallacy, turning traditional logic into a tool for sophistry beyond the scope of application of traditional logic does not mean that traditional logic itself is a purely "formal" thing. The above content is excerpted from: Chen Shiqing : " The Metaphysics of Economics " China Times Economic Publishing House 2011.2 2nd edition.

Recent scholarship has often applied mathematical logic techniques to Aristotle's theories. In the eyes of many, this reveals many similarities in methods and interests between Aristotle and modern logicians. The concretization of traditional logical content and the abstraction, mathematization, and symbolization of form are symmetrical, two-way, and synchronous processes. Symbolization is not the same as formalization.

Symmetrical logic is a thinking law based on the law of symmetry. It is a logic of symmetry between heaven and man, thinking and existence, thinking content and thinking form, thinking subject and thinking object, thinking level and thinking object, scientific essence and objective essence. Symmetrical logic enables the unity of thinking content and thinking form implied in formal logic to be demonstrated. It provides a way of thinking sufficient for studying complex systems theory. Ordinary logic is an expansion of the main content of traditional logic, which is permeated with the inclusive and grand logic view.

The development of mathematics in the early 20th century led to the discussion of the foundation of mathematics, which gave rise to three major schools of mathematics. These schools were formed around different discussions on the philosophical foundations of mathematics, mainly referring to the axiomatization of set theory, logicism, formalism or intuitionism - none of which achieved their goals . They were mainly formed between 1900 and 1930. Representative figures include Russell, Hilbert and Brouwer.

In summary, the philosophical foundation of existing mathematical logic: the results of "numerical analysis, logical analysis" of any natural exploration object (including Peano axioms) have the "symmetry and asymmetry" conditions of "evenness" and cannot be directly balanced and exchanged (morphism, mapping, projection, combination, decomposition). It is called "undecidable".

At the end of the 20th century, American mathematician Klein said in "Mathematical Thought from Ancient to Modern Times": All mathematical developments since 1930 have left two major unresolved problems:

(1) To prove the compatibility of unrestricted classical analysis and set theory.

(2) To establish mathematics on a strictly intuitive basis or to determine the limits of this approach.

In both problems the difficulty arises from the infinity used in infinite sets and infinite programs.

How to solve these two math problems ?

The Chinese circular logarithm team discovered for the first time that there is a third new type "between real numbers and natural numbers": infinite construction sets and a unique "infinite axiom" mechanism , and proposed the "dimensionless circular logarithm axiomatization hypothesis": "multiplication of combined unit cells (geometric mean) / addition of combined unit cells (arithmetic mean) **≤1** ", becoming a dimensionless circular logarithm space that is "independent of mathematical models and has no specific (mass) element content" interference. Solve the key problems of uniformly converting " symmetry and asymmetry" into the "evenness" (referring to conjugate mutual inverse equilibrium symmetry) characteristics of dimensionless circular logarithms, as well as the "random equilibrium exchange combination decomposition" and "random self-authentication" mechanisms of the "infinite axiom" mechanism. Satisfy the "compatibility of unrestricted classical analysis and set theory" and "compatibility of unrestricted classical analysis and set theory".

Specific performance:

(1) Based on the non-repeating combination of infinite sets, the set is an infinite sub-item, and each sub-item can extract the "numerical characteristic modulus" and dimensionless "place value circular logarithm " form. Dividing the

infinite set by the average value of the infinite set has "integer, reciprocity, isomorphism , homomorphism ", and the existence of the central zero point (limit) of the circular logarithm that satisfies the "completeness (external group combination) and "compatibility" (internal group combination) integration , consistency and effective axiomatization" and stability of the infinite set, including recursively enumerable and decidable " infinity " and "evenness" of the same dimensionless circular logarithm. The symmetry condition of the "evenness" of the same factor is called dimensionless "symmetric logic" , which becomes "random and non-random balanced exchange combination and reciprocity self-evidence", called "infinite axiom".

(2) "Dimensionless position-valued circular logarithm axiomatization" is a random self-proving truth without specific numerical values and only reciprocity. The position circular logarithm here only represents the position of the numerical value, which is not limited to natural numbers and real numbers. It can include rational numbers, irrational numbers, and any logical algebra . Any mathematizable unity is called " element- object". It only expresses its " position-sequence " and has no direct connection with the original mathematical model and digital content. It is called "position-value circular logarithm", which successfully avoids "interference of specific elements" and ensures accurate zero-error analysis. It is called "dimensionless construction".

1.1.3. Dimensionless circular logarithm construction set and axiomatization

Peano's natural number axiom system is a very important concept in mathematics. The dimensionless circular logarithm converts the comparison between the real number set and the natural number set into a "position-sequence" system defined in a dimensionless language. According to the rigorous definition and construction of natural numbers, it ensures the effective control and reliability of the basic operations and properties of " elements- objects" in mathematics.

Peano did not solve the axiomatization of natural language defined by dimensionless language. At present, Peano's axioms are expressed in the form of logical language definition: (Quoted from the Internet):

P(0)→(∀ nP(n)→P(n+1))→ ∀ nP(n)P(0)\to(\foralln.

P(n) \to P(n+1)) \to \forall nP(n)

Without axiomatic systems, there would be no modern set theory, ordinal analysis, model theory, etc.

However, Peano axioms adopt the unified conversion of "the form of natural number language definition and logical language definition" into " the infinite place-valued circular logarithm $(1-\eta^2)^K$ corresponding to the 'infinity axiom' defined in dimensionless language " model , and the true proposition W describing "element- object " can be converted into the inverse proposition W_0 .

$W = (1 - \eta^2)^K W_0$;

$(1-\eta^2)^K=(1-\eta_1^2)^K+1-\eta_2^2)^K+\ldots+(1-\eta_n^2)^K=\{0,\pm1\}$;

Here $(1-\eta^2)^K$ only represents the sequence of " element- object". Through circular logarithms, any high-order and low-order sequences are converted into dimensionless circular logarithms of isomorphism and "first-order sequences" of power functions. {0,±1} represents the logical application range or area of dimensionless circular logarithms without specific object content and the central zero point.

In this way, the unity of " discreteness and continuity " in the transformation of dimensionless circular logarithms is the unity of completeness and compatibility . This is the verification and explanation of the "continuum problem".

The random equilibrium exchange combination of the "infinite axioms" unique to the dimensionless circular logarithmic construction set can randomly "prove its own truth", satisfying what Klein said: "Prove the compatibility of unrestricted classical analysis and set theory, and establish mathematics on a rigorous and intuitive foundation."

✷**Define** an infinite set of "element objects" (multiplication and combination) units:

$\{X\}^Z=\prod\{{}^Z\sqrt{(x_1 x_2 \ldots x_S \ldots x_Z)}\}^Z$;

✷**Define** an infinite set of "element objects" (plus combinations) units:

$\{X_0\}^Z=\sum[(P-1)!/(S-0)!\ ]\prod_{(S=P)}\{(x_1+\ldots+x_S+\ldots+x_Z)\}$;

✷**Define** the place value circular logarithm: The place value circular logarithm is equal to the dimensionless circular logarithm obtained by multiplying the combination characteristic modulus by the addition of the combination characteristic modulus.

$(1-\eta^2)^K=[\{X\}/\{X_0\}]^{K(Z)}$;

Where: (n=Z) represents an infinite set and an infinite program expansion. In the following explanation and proof, any finite (Z`S) in the infinite is used as a substitute. At this time, the circular logarithmic factors only represent their place values-positions and power functions , and there is no specific numerical content, which is called the third-party construction set .

The proof is "irrelevant to mathematical models, without specific numerical elements", and the deduction that the dimensionless system itself does not interfere with itself (that is, factors without numerical meaning are sequential and cannot interfere with factors without numerical meaning).

dimensionless structure itself is based on the balanced exchange combination of random and non-random "infinite axioms" and has the function of random "self-authentication".

The compactness, isomorphism, and mutual inverse symmetry of dimensionless number sequences correspond to two types of undecidable "truth" in the current mathematical system (referring to the numerical analysis of classical mathematics natural numbers, elementary mathematics, and higher mathematics (elements cannot be exchanged in balance) and the unbalanced object morphisms of logical mathematics, set theory, and category theory) in the recursive principle, and are converted into a deductive logic proof of the third-party dimensionless circular logarithm .

It has nothing to do with mathematical models, and there is no interference from specific elements outside the system. The dimensionless circular logarithmic factors within the system itself have an "even property", and the same factors (symmetric and asymmetric) are balanced and exchangeable, and are stable and decidable. Under the dimensionless construction set, there is no interference from other "elements-objects", and "the system itself randomly proves its own truth or falsity" , becoming the "axiomatic" of integrity.

Propose the axiomatic hypothesis of circular logarithms and establish its own axiomatic system. Achieve high-algorithm, high-computing power with zero error and accuracy of more than $\mathbf{10}^{\wedge 220}$, ensuring the fairness, rationality, authority and "truth" of the "infinite axiom" .

1.1.4 Axiomatic proof of balanced commutative combination of binary numbers (1)

The "asymmetry (a≠b)(3≠4)" based on the multiplication combination cannot be directly balanced and exchanged, which is called "undecidable". Physicist Heisenberg called "uncertainty" that the multiplication of two numbers is equal to a constant because the reciprocal relationship between (a and b) cannot be determined.

How to balance the exchange of (a and b), (3 and 4)? Under the same dimensionless circular logarithm factor (η^2), the positive property and the zero point of the circular logarithm are used to convert the properties to the negative direction, which reflects the exchange of the circular logarithm and drives the balanced exchange of "(a and b), (3 and 4)", so that "combination" (multiplication combination, addition combination) can be carried out.

Certificate【1】

For example, the undecidable natural numbers of binary numbers (a and b) (3 and 4) are:

Add the combined characteristic modulus: 3+4=7, (1/2)(3+4)=3.5", which can also be the "union: (union A∪B)" defined in logical language.

Multiplication of the combination of characteristic modulo: 3·4=12, unit cell √12", can also be defined in logical language as "intersection: (intersection A∩B)

Dimensionless circular logarithm: $(1-\eta^2)^{(K=+1)}=\sqrt{12}/3.5\leq 1$;

Binary number addition combinations express positive and negative symmetry using circular logarithmic factors :

Circular logarithmic value factor: [(-0.5)/5+(+0.5)]/3.5=0;

Additive combination relationship between roots and circular logarithms :

$3=(1-\eta^2)^{K=+1)}(3.5)$; $4=(1-\eta^2)^{(K=-1)}(3.5)$;

$(1+\eta_{[A]}^2)^{(K=+1)}=(1-0.5)^{(K=+1)}(3.5)^{(1)}=3$;

$(1+\eta_{[B]}^2)^{(K=+1)}=(1+0.5)^{(K=+1)}(3.5)^{(1)}=4$;

$3+4=[(1-\eta^2)^K+(1+\eta^2)]^K\cdot(1+1=2)\cdot(3.5)^{(1)}$;

$3+4=(2\cdot 3.5)=7$;

Among them, the "additive combination" is represented by the addition of the circular logarithmic factor of the first order $(1-\eta_{[A]}^2)$ and the first order $(1-\eta_{[B]}^2)$ [(1+1)=2],

Binary number multiplication combinations represented by the same circular logarithmic factors can randomly produce balanced exchange combinations :

multiplication and combination relationship between roots and circular logarithms :

$(1-\eta^2)^{(K=+1)}=3/(3.5)$; $(1-\eta^2)^{(K=-1)}=4/(3.5)$;

$3\cdot 4=[(1-\eta^2)^{(K=+1)}\cdot(1-\eta^2)^{(K=-1)}]\cdot(3.5)^{(1+1=2)}$;

$3\cdot 4=12=(1-\eta^2)^{(K=`1)}\cdot(3.5)^{(1+1=2)}$;

Among them: the product combination is expressed as $[(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[B]}^2)^{(K=-1)}]=(2)$, and the power function is (1+ 1=2),

The additive combination is expressed as a circular logarithmic factor $[(1-\eta_{[A]}^2)^{K`}(1-\eta_{[B]}^2)^{K}]=(1+1=2)$,

Commutative basis for binary numbers:

The above-mentioned addition and multiplication combinations all keep the nature of numbers unchanged, the proposition unchanged, the characteristic modulus unchanged, and the circular logarithmic properties unchanged. Under the same circular logarithmic factor (η^2), the symmetry of the "evenness" of the circular logarithmic center zero point undergoes random and non-random balanced exchange and combination, which drives the balance of the numerical "element-object".

$(1-\eta^2)^{(K=+1)} \leftrightarrow$ [$(1-\eta^2)^{(K=+1)}$ drives 3 /(3.5)[$\leftrightarrow$ [$(1-\eta^2)^{(K=+1)}$ drives 4 /(3.5)]

Realize exchange and combination: [3 ↔ 4] (called mapping, morphism) ;

This proves the insufficiency of the "symmetry of even numbers" in the "balanced commutative combination" of "number theory axiomatization and set theory axiomatization".

In particular, driven by the balanced exchange of dimensionless circular logarithms, the mathematical basis of "multiplication combination and addition combination" of 3↔4 is realized. The third-party dimensionless identity verification proves that the "combination" of two numbers 3+4=7 , 3 · 4=12 is based on the unique even number balanced exchange mechanism of dimensionless construction.

Because it is an "independent mathematical model", it does not distinguish between combinations, that is, "addition combination, multiplication combination" are all combinations, and the combination is called "self-invariant combination", and "self divided by itself is not necessarily "1" becomes the basis of the dimensionless circular logarithm axiomatization hypothesis. It explains the reason for the random combination of "3+4=7, 3 · 4=12" and infinite axioms . It becomes the mathematical basis of even numbers $\{2\}^{2n \text{ that}}$ does not rely on the axiomatization of natural numbers based on Peano axioms and the corresponding set theory and category theory (ordered sets) .

1.1.5. Balanced commutative axiomatization of ternary numbers (2)

Ternary numbers are a difficult mathematical problem. In the ancient Chinese mathematics "Tao Te Ching", it is recorded that "two gives birth to three, and three gives birth to all things". For centuries, many famous mathematicians have been at a loss for the "two gives birth to three" problem. Some people classify it as "advanced mathematics" for a certain reason. The difficulty lies in: confusing the analysis of "symmetry and asymmetry" included in the symmetry of even numbers. The asymmetry analysis of ternary numbers refers to the asymmetry of the topological combination of the probability combination of one ternary number and the multiplication combination of two ternary numbers . For example, Aristotle's logical syllogism theory, Hamilton, Gauss and many other mathematicians could not solve it and denied the existence of "ternary numbers". So far, "the complex analysis of ternary numbers is still blank."

In particular, the syllogism theory of Aristotle's logic "such as: A∈B∈C ", if B does not exist, then C does not exist", which proves that "ternary numbers" do not hold. Aristotle provided a large number of examples of practical syllogisms in his works, but failed to formalize this kind of reasoning. Until now, there is still a lot of debate about whether this kind of reasoning can be formalized, which reflects the complexity, profundity and fundamentality of ternary number analysis.

When: "real numbers and natural numbers form dimensionless circular logarithm construction sets in a one-to-one correspondence" and can become the first-order/second-order cardinality of power functions, under asymmetric conditions, can the "evenness" of the central zero point of the infinite set continue to play the role of symmetry between power functions and central zero points? If it is solved, the understanding of the syllogism theory of Aristotle's logic will inevitably change, affecting the entire mathematical-philosophical foundation. This is a mathematical problem that mathematicians are very concerned about.

Three numbers are selected to verify the axiomatization of the "ternary number" combination with dimensionless circular logarithms. The difficulty is that the "asymmetric distribution" of ternary numbers (referring to the topological combination of the decomposition of the three-dimensional center point into a probability combination of one dimensional number and a multiplication combination of two dimensional numbers) has strong asymmetry.

The core of ternary numbers is: the central zero line (critical line) and central zero point (critical point) that satisfy the unique "evenness" of dimensionless construction, and perform "symmetric and asymmetric" balance and exchange. This "symmetry" is called "evenness" and refers to the uneven symmetrical distribution and asymmetric value of the number of ternary numbers.

Asymmetric distribution based on ternary numbers:

$(a \neq b \neq c)$, $(ab \neq bc \neq ca)$, $(ab \neq c, bc \neq a, ca \neq b)$,

The inability to balance the exchange directly is called "undecidable". The key is that the "multiplication combination" of ternary numbers has a new "asymmetric distribution" state of ternary numbers, which is beyond the "symmetric distribution" of binary numbers that mathematicians are accustomed to, and the difficulty of solving it is beyond expectations.

(1) Cantor (1845-1918), the founder of set theory, amazingly created transfinite cardinals and transfinite ordinals. For a finite set, the cardinality is the number of elements in the set. For an infinite set, a new cardinality must be introduced. The cardinality of a natural number set is represented by (alef 0). The cardinality is sometimes also called the cardinality of a set or the extent of a set. The cardinality that is equivalent to the natural number N and the real number set R is called a transfinite cardinality or a transfinite sequence (continuous cardinality).

(2) Dimensionless circular logarithms are called arbitrary functions (referring to natural numbers N and real number sets R, as well as objects that can be digitized) and are divided into two types: numerical characteristic modulus (a combination of specific numerical values) and dimensionless place-valued circular logarithms (indicating the

location and sequence of numerical locations) with a central zero point as the transformation point.

First: infinite numerical characteristic modulus (positive, median and inverse mean functions), which have "additive combinations and multiplicative combinations" respectively, and the convergence and stability of its construction set are controlled by the property attribute K=(+1,±0,-1,±1).

Second: the dimensionless place value circular logarithm of infinite sequence, the dimensionless establishment has the characteristics of "no mathematical model" and "no specific (mass) element content". The characteristic modulus and circular logarithm have a shared power function, avoiding the interference of specific elements and expanding in an orderly manner. It effectively prevents mode confusion and mode collapse, ensuring high-precision analysis with zero error.

Third: Infinite sequence of place value circular logarithms, under the concept of "self divided by itself is not necessarily 1", the central zero point will inevitably appear between the forward and reverse conversions during convergence and expansion, and its function and importance have not been reasonably resolved. The dimensionless circular logarithm plays the unique "even symmetry and asymmetry balance exchange mechanism" of dimensionless, fully demonstrating the indispensable and important role of the central zero point, solving the problem that numerical balance cannot be exchanged and logical morphism cannot be balanced.

(3) The set theory states that “self divided by itself is always 1 ” and proposes the “discrete and symmetric hypothesis”. It is difficult to “determine” where their central zero point is. The dimensionless circular logarithm axiomatization hypothesis “self divided by itself is not necessarily 1 ” is proposed. The dimensionless “not necessarily 1 ” is manifested in that they are not specific natural numbers. The absolute value of the discriminant circular logarithm factor is “less than or equal to ≤1”, which has the characteristics of “completeness and compatibility” and “evenness” of completeness (that is, evenness has two concepts of symmetry and asymmetry). The property attributes control the fact of “intersection” between their positive and negative directions. The dimensionless circular logarithm defines them as “central zero points” and has the “evenness” conjugation and reciprocal asymmetry mechanism that is unique to dimensionless construction. This mechanism controls the balance and exchange function between true propositions and inverse propositions in the form of invariant propositions, invariant characteristic modules, and invariant isomorphic circular logarithms, and in the form of property attributes “positive, negative, and negative changes”.

The analysis of ternary numbers is currently a "blank" area in mathematics. Based on the "asymmetry" of multiplication combinations , such as:

(a≠b≠c), (3≠4≠8), (3·4≠4·8≠8·3)" or (union A∪B∪C), (intersection A∩B∩C) ;

The inability to balance the exchange directly is called "undecidable". Physicist Heisenberg called "uncertainty" that is, the multiplication of three numbers equals a constant, so the reciprocal relationship (a, b, and c) cannot be determined.

How to balance the exchange of (a and b and c), (3 and 4 and 8)? Under the same dimensionless circular logarithm factor (η^2), the positive direction of the property attribute and the zero point of the circular logarithm are converted to the negative direction , which reflects the exchange of the circular logarithm and drives the balanced exchange of "(a and b), (3 and 4)", so that "combination" (multiplication combination, addition combination) can be carried out .

Certificate【2】

For example, the undecidable natural numbers of binary numbers (a, b, and c), (2, 4, and 9) are:

Add the combined feature modulus: 2+4+9=15, (1/3)(2+4+9)=5", which can also be the "union: ABC" defined in the logical language.

Multiplication combinatorial characteristic modulus: 2 · 4 · 9 = 72 , unit cell $^{(3)}\sqrt{72}$ ", which can also be the "intersection: ABC" defined in logical language.

Dimensionless circular logarithm: $(1-\eta^2)^{(K=+1)}={}^{(3)}\sqrt{72}/5\leq 1$;

ternary numbers expresses the positive and negative symmetry by circular logarithmic factors :

Circular logarithmic value factor: [(+4)+(-1)+(-3)]/5=0;

The relationship between roots and circular logarithms:

$(1+\eta_{[A]}^2)^{(K=+1)}=(1+(4/5)^2)^{(K=+1)}\cdot(\mathbf{5})^{(1)}=9$;

$(1+\eta_{[B]}^2)^{(K=+1)}=(1-(1/5)^2)^{(K=+1)}\cdot(\mathbf{5})^{(1)}=4$;

$(1+\eta_{[C]}^2)^{(K=+1)}=(1-(3/5)^2)^{(K=+1)}\cdot(\mathbf{5})^{(1)}=2$;

$9\cdot 4\cdot 2=[(1-\eta_{[A]}^2)^{(K=+1)}\cdot(1-\eta_{[BC]}^2)^{(K=-1)}]\cdot(\mathbf{5})^{(1+2=3)}$;

Among them: the product combination is the addition of the power function of the first order $(1-\eta_{[A]}^2)$ and the second order $(1-\eta_{[BC]}^2)$ [(1+2)=3],

$(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[BC]}^2)^{(K=-1)}+(1-\eta_{[C]}^2)^{(K=-1)}$; corresponding $(\mathbf{5})^{(1+2=3)}$;

additive combination is represented by a random balanced exchange combination of the same circular

logarithmic factors :
$[(+\eta_{[A]}^2)+(-\eta_{[B]}^2]^{(K=+1)}+(-\eta_{[C]}^2)^{(K=-1)}$; corresponding to $[(1+2)=3]\cdot(5)^{(1)}$;

Commutative basis of ternaries :

Without changing the proposition, characteristic modulus, circular logarithmic properties, under the same circular logarithmic factor (η^{2}), the symmetry of the " evenness " of the circular logarithmic center zero point undergoes random and non-random balanced exchange combinations , leading to the balance of the numerical "element-object" .
$(1-\eta^2)^{(K=+1)}\leftrightarrow[(1-\eta_{[A]}^2)^{(K=+1)}]\leftrightarrow[(1-\eta_{[BC]}^2)^{(K=-1)}$,

The exchange combination after achieving equilibrium: { 9 ↔ [4 ↔ 2] } (called mapping, morphism) ;

The above binary/ternary proof,

(1) It fills the gap of “asymmetry of even numbers” in the “balanced commutative combination” of “axiomatization of number theory and axiomatization of set theory”.

In particular, driven by the balanced exchange of dimensionless circular logarithms, the mathematical basis for the balanced exchange combination of "multiplication combination, addition combination" is realized. The third-party dimensionless identity verification has verified that the binary number "combination" 3+4=7, 3·4=12; the ternary number "combination" 9+4+2 =15 , 9 · 4 · 2= 72 is based on the even-numbered random balanced exchange combination mechanism unique to dimensionless construction , and has no direct combination relationship with the digital "element object" (addition and multiplication, union and intersection) itself, which is the reason why the digital "element-object" cannot be directly decomposed by balanced exchange combination .

(2) The mathematical deduction is manifested in that after the dimensionless circular logarithm is balanced, the exchange combination of the circular logarithm, through the central zero-point symmetry of the circular logarithm, drives the balance exchange (mapping, morphism) combination of "number-element-object", maintaining the invariance of the mathematical nature and the correctness of mathematical deduction driven by the dimensionless (random mutual reversibility and self-proving truth or falsity). In other words, the mathematical foundation of mathematical analysis that people have been working on for 400 years has no direct relationship with "number-element-object". This mathematical concept completely subverts the traditional concept of mathematical combination.

For example: the characteristic modulus $\{\mathbf{D}_0\}^{(n)}$of an algebraic space is expressed as the average radius : $\{D_0\}^{(1)}$ (corresponding to 1-dimensional power); $\{\mathbf{D}_0\}^{(2)}$ (2-dimensional power); $\{\mathbf{D}_0\}^{(3)}$ (3-dimensional power).

the characteristic mode of geometric space $\{\mathbf{R}_0\}^{(n)}$is expressed as a perfect circle pattern : $\{\mathbf{R}_0\}^{(1)}$ (corresponding axis); $\{R_0\}^{(2)}$ (plane); $\{R_0\}^{(3)}$ (three-dimensional space).

The circular logarithm center zero point (K=±0} exchange (conversion) function: exchange between the positive (K=+1) (parabola) and neutral (K=±1) (ellipse) and reverse (K=-1) (hyperbola) states, expressed as the intersection point (line, surface , body) of two intersecting straight lines (curves, planes, surfaces) of conjugate asymmetry , is converted into dimensionless position value circular logarithm symmetry in the range of {0,±1} under the control of dimensionless circular logarithm and property attributes , leading to the problem of balanced exchange combination of symmetry and asymmetry .

In other words, the "balanced exchange and combination" condition of dimensionless construction must first satisfy the "balance" unique to dimensionless construction before the "exchange and combination " unique to dimensionless construction can occur. This solves the "central zero point and balanced exchange and combination problem" under the " asymmetry " condition that traditional mathematical logic does not have .

In this way, Weyl believed that "mathematics is an infinite science", but they cannot be carried out directly. As Klein said in "Mathematical Thoughts from Ancient to Modern Times", "mathematizing" is probably a creative activity of human beings, like language or music, with original originality, and its historical determination does not allow objective rationalization. This mathematical axiomatization can only be randomly driven to balance exchange combinations under the "infinite axioms" unique to dimensionless constructions.

Because it is an "independent mathematical model" , both "additional combinations and multiplication combinations" are combinations. The total "element-object" combination is said to have "self-invariance", and "self divided by itself is not necessarily "1", which becomes the basis for the dimensionless circular logarithm axiomatization hypothesis. It explains the reason for the random combination of "multiplication combinations and addition combinations" and the infinite axioms. It becomes the mathematical basis for the symmetric $\mathbf{\{2\}^{2n}}$ and asymmetric $\mathbf{\{3\}^{2n}}$ even number distribution that does not rely on the Peano axioms natural number axiomatization and set theory, category theory (ordered sets) .

In other words, the reciprocity of the continuum hypothesis exists, such as: the "parallel" axiomatization of the first Euclidean principle is replaced by the non-Euclidean "non-parallel" intersecting curves; the "must be 1" of the discrete-symmetric set theory is replaced by the "not necessarily 1" of the continuous-asymmetric circular logarithm. Their " (dimensionless circular logarithm) intersection" is called the " dimensionless central zero point axiom". That is, the "intersection point" changes synchronously in the three-dimensional space central zero line (outside the characteristic mode) of the ternary number conversion to the circular logarithm central zero point conjugate reciprocal equilibrium symmetry , and the central zero point (inside the group combination) is resolved .

1.1.6. Dimensionless construction uses a unique "evenness" random equilibrium exchange combination mechanism.

The dimensionless circular logarithm has an eternal , omnipresent , and unique "even random equilibrium exchange combination mechanism" . Physicists may call it "ghost, neutrino", and the central zero point of the circular logarithm is called "ghost particle") . Philosophers and mathematicians call it: "conjugate symmetry" and "symmetric logic" . At present, people often focus on its "symmetry, balance, and mapping" (axiomaticization without mathematical proof). The "evenness" of integrity should be a "symmetric and asymmetric balance and exchange combination mechanism" with integrity, solving the balance, exchange and combination problems of symmetry and asymmetry . At the same time, it also proves the defects of the "ternary number" problem in traditional mathematical logic , and the important role of the central zero point of "evenness" in the equilibrium exchange combination , proves the existence of "ternary numbers", and adjusts the concept of "symmetry" related to incompleteness in mathematics and philosophy. It is called "dimensionalless circular logarithm axiomatization".

The integrity of even numbers is shown as follows:

(1) The even-numbered central zero line symmetry deals with the relationship between the "synchronous changes of the central zero line of the characteristic mode and the surrounding elements" of the characteristic mode (external).

(2) The even-numbered central zero-point symmetry deals with the relationship between the central zero point of the characteristic module and the surrounding elements (position-value) of the characteristic module (interior).

Solving these two relationships reflects the unique integrity of dimensionless construction, " the balanced exchange and combination mechanism of even symmetry and asymmetry , randomness and non-randomness'infinite axiom' ", as well as the "no interference of specific elements" and random automatic proof of "authenticity" . At the same time, the third party identity of the dimensionless construction set drives the balanced exchange and combination mechanism of "element-object" , becoming a touchstone for verifying other arbitrary construction sets.

【Number example】

Based on the known "multiplication combination" unit cell and "addition combination" unit cell, we can analyze the two variable functions. In this way, the undecidable natural number (abc) = (8 · 3 · 4) = 96 becomes a decidable axiomatization through the dimensionless circular logarithm.

"First/Second plus combined eigenmodes",

Known: Ternary: "1st/2nd/3rd/0th factorial combination

Multiply the characteristic modulus : (8 · 3 · 4)=96, $\{^{(3)}\sqrt{96}\}^{(n=3,2,1,0)}$.

Add feature mode: $\{\mathbf{D}_0\}^{(1)}=(1/3)(3+4+8)=5^{(1)}$; (1 - 1 probability combination);

$\{\mathbf{D}_0\}^{(2)}=(1/3)(3\cdot4+4\cdot8+8\cdot3)=(12+32+24)=22.6\approx5^{(2)}$ (2-2 topological combination);

Dimensionless circular logarithm: $(1-\eta^2)^{(K=+1)}={}^{(3)}\sqrt{96}/5\leq1$;

For example: the central zero line of the ternary number (ABC) (corresponding to the characteristic module sequence (ABC) symmetry $(1-\eta_{[A]}^2)^{(K=+1)}$, $(1-\eta_{[BC]}^2)^{(K=-1)}$

number (abc) (corresponding to the characteristic module internal number relationship abc) symmetry $(1-\eta_{[a]}^2)^{(Kw=+1)}$, $(1-\eta_{[bc]}^2)^{(Kw=-1)}$

the symmetry of the circular logarithm numerical factor given $\{^{(3)}\sqrt{96}\}$ and $\{\mathbf{D}_0\}^{(1)}=5$:

The zero line of the circular logarithm: $(1-\eta_{[C]}^2)^{(K=\pm1)}=1$, corresponding to the characteristic mode $\{\mathbf{D}_0\}^{(2)}$

The zero point of the circular logarithm: $(1-\eta_{[C]}^2)^{(K=\pm0)}=0$, corresponding to the characteristic mode $\{\mathbf{D}_0\}^{(1)}$,

For example, probability has circular logarithmic numerical factor symmetry: (Note: the circular logarithmic numerical factor is not equal to the place value factor).

Balanced symmetry of circular logarithmic numerical factors : $(\eta_\Delta^2)=[(5+3)=(5-2)+(5-1)]/5=0$;

The three root numbers have probabilistic combinations and topological combinations:

Add the (probability) combination number:

$\boldsymbol{j}\,a=\boldsymbol{j}\,8=(1-\eta_{[a]}^2)^{(Kw=+1)}\{\mathbf{D}_0\}^{(1)}=(1+3/5)^K\{5\}^{(1)}$;

$\boldsymbol{i}\,b=\boldsymbol{i}\,3=(1-\eta_{b]}^2)^{(Kw=-1)}\{\mathbf{D}_0\}^{(1)}=(1-2/5)^K\{5\}^{(1)}$;

$\boldsymbol{k}\,c=\boldsymbol{k}\,4=(1-\eta_{[c]})^{(Kw=-1)}\{\mathbf{D}_0\}^{(1)}=(1-1/5)^K\{5\}^{(1)}$;

Multiply (topologically) combinatorial numbers:

$\boldsymbol{ji}\,ab=\mathbf{ji}\,(8\cdot3)=(1-\eta_{[ab]}^2)^{(K=-1)}(3.5)^{(2)}$; $\boldsymbol{ji}\,ab(1-\eta^2)^{(K=-1)}$ corresponds to the equilibrium $\boldsymbol{k}c(1-\eta^2)^{(K=+1)}$;

$\boldsymbol{ik}\,bc=\mathbf{ik}\,(3\cdot4)=(1-\eta_{[bc]}^2)^{(K=-1)}(3.5)^{(2)}$; $\boldsymbol{ik}\,bc(1-\eta^2)^{(K=-1)}$ corresponds to the equilibrium $\boldsymbol{j}a(1-\eta^2)^{(K=+1)}$;

$\boldsymbol{kj}\,ca=\boldsymbol{ji}\,(4\cdot8)=(1-\eta_{[ca]}^2)^{(K=-1)}(3.5)^{(2)}$; $\boldsymbol{kj}\,ca(1-\eta^2)^{(K=-1)}$ corresponds to the equilibrium $\boldsymbol{i}b(1-\eta^2)^{(K=+1)}$;

Among them: In the three-dimensional rectangular coordinate system: the normal line of the plane projection and the axis projection become conjugate and inverse asymmetry at the center zero point, and become conjugate and inverse symmetry driven by the center zero point of the circular logarithm.

Associative law of dimensionless circular logarithms (addition and multiplication are the same):

Circular logarithmic combination of ternary number ABC series :

$(1-\eta_{[jik]}{}^2)^K=(1-\eta_{[ABC]}{}^2)^{(K=+1)}+(1-\eta_{[ABC]}{}^2)^{(K=\pm1)}+(1-\eta_{[ABC]}{}^2)^{(K=-1)}=\{0,2\}$;

Probability symmetry of the central zero line (critical line) of the ternary number ABC:

$(1-\eta_{[jik]}{}^2)^{(K=\pm1)}=(1-\eta_{[A]}{}^2)^{(K=+1)}+(1-\eta_{[B]}{}^2)^{(K=\pm0)}+(1-\eta_{[C]}{}^2)^{(K=+1)}=\{0,1\}$;

Topological symmetry of the central zero line (critical line) of the ternary number ABC:

$(1-\eta_{[jik]})^{(K=\pm0)}=(1-\eta_{[AB]}{}^2)^{(K=+1)}+(1-\eta_{[BC]}{}^2)^{(K=-1)}+(1-\eta_{[CA]}{}^2)^{(K=+1)}=0,1\}$;

Topological symmetry of the central zero point (critical point) of the ternary number abc:

$(1-\eta_{[jik]}{}^2)^{(Kw=\pm1)}=(1-\eta_{[ab]}{}^2)^{(Kw=+1)}+(1-\eta_{[bc]}{}^2)^{(Kw=-1)}+(1-\eta_{[ca]}{}^2)^{(Kw=-1)}=0,1\}$;

The complex analysis of circular logarithmic three-dimensional space satisfies the three-dimensional Hamiltonian-Wang Yiping quaternion exchange rule and forms a three-dimensional eight-quadrant space.

Symmetrical balance exchange in three-dimensional space:

$(1-\eta_{[j]}{}^2)^{(K=+1)}=(1-\eta_{[ik]}{}^2)^{(K=-1)}=(1-\eta_{[i]}{}^2)^{(K=-1)}+(1-\eta_{[k]}{}^2)^{(K=-1)}$;

$(1-\eta_{[i]}{}^2)^{(K=+1)}=(1-\eta_{[kj]}{}^2)^{(K=-1)}=(1-\eta_{[k]}{}^2)^{(K=-1)}+(1-\eta_{[j]}{}^2)^{(K=-1)}$;

$(1-\eta_{[k]}{}^2)^{(K=+1)}=(1-\eta_{[ji]}{}^2)^{(K=-1)}=(1-\eta_{[j]}{}^2)^{(K=-1)}+(1-\eta_{[i]}{}^2)^{(K=-1)}$;

Among them: three-dimensional rectangular coordinate system,

The probability is a "1-1 combination" (***j***a , ***i***b , ***k***c) projected on the (**XYZ**) axis. The topology is a "2-2 combination" (***ik***bc , ***kj***ca , ***ji***ab) on the plane (**YOZ,ZOX,XOY**)

Plane projection. It becomes a dimensionless even random conjugate mutual inverse balanced symmetric combination. The circular logarithm drives the "element-object" to realize the random balanced exchange combination of the "infinite axiom". Therefore, proving that the nature of mathematics remains unchanged and dimensionless construction is the real realization of the correctness of mathematical deduction.

Balance and exchange combination rules: invariant propositions, invariant characteristic moduli, invariant isomorphic circular logarithms, called "three invariants", through the balanced transformation combination of the properties of circular logarithms , the true proposition is converted into the inverse proposition, and the balance exchange rule of dimensionless circular logarithms that satisfies the "**RMI** rule" proposed by Chinese mathematician **Xu Lizhi** is called the "dimensionless **RMI** rule". More precisely, the dimensionless **RMI** rule is realized through the dimensionless "circular logarithm space" .

The dimensionless three-dimensional space complex analysis symmetry satisfies the axiomatic associative law, commutative law , closure and other characteristics . The multiplication combination and addition combination are respectively converted into the " addition combination " of the circular logarithm factor and the circular logarithm power function through the circular logarithm .

Asymmetric ternary numbers are converted into dimensionless circular logarithms, which become the addition exchange between the corresponding three circular logarithms. And the numerical " multiplication combination " of ternary numbers is converted into " one addition combination and two addition combinations" circular logarithms, and the three addition numbers are exchanged to explain the axiomatization of odd numbers "1+2=3" and the mathematical basis of complex analysis of ternary numbers. (The above is explained in another special topic, omitted)

1.1.7. The random self-verification of the “even-number equilibrium exchange mechanism” of dimensionless circular logarithms

Under the dimensionless circular logarithm axiom system, as a third-party dimensionless language definition, the reliability of the " elements- objects" of traditional mathematics (referring to: natural language numerical analysis and logical language analysis), as well as the " elements- objects" that traditional mathematics cannot or cannot accurately analyze, can all be converted into dimensionless circular logarithm analysis to become a new mathematical foundation with "zero error, authority, and truthfulness."

To quote Gödel-Cohen:

(i) In any consistent mathematical formalism, as long as it is strong enough to imply the axioms of Peano arithmetic , one can construct propositions in it that can neither be proved nor disproved in the system.

This theorem is one of the most famous theorems outside of mathematics , and it is also one of the most misunderstood. There is a theorem in formal logic that is equally easy to misstate, and there are many propositions that sound a lot like Gödel's incompleteness theorem, but are in fact wrong.

Gödel's first incompleteness theorem shows that any system that is strong enough to contain the " Peano arithmetic axioms " is a natural number-real number system. Note that the "natural number-real number system" refers to the "digital formalization" (a tangible or intangible concrete object with a one-to-one correspondence between specific numbers), and the axiomatic correspondence system adopted . The "self-evident" "axioms" must be incomplete without mathematical proof or other methods of proof. It contains propositions that can neither be proved to be true nor false.

As mentioned in the Peano arithmetic axioms : Peano's natural number axiom system is a very important concept in numbers. By rigorously defining and constructing natural numbers, a natural number axiom system is formed, which ensures the validity and correctness of the basic operations and properties of natural numbers in mathematics.

Peano's five axioms are stated informally as follows:

(1) 1 is a natural number (later 0 was added);

(2) Every definite natural number a has a definite successor number a', which is also a natural number (the successor number a' of a number is the number immediately following this number (a+1), for example, 1'=2, 2'=3, etc.) ;

(3) 0 is not the successor of a natural number;

(4) Different natural numbers have different successor numbers. If the successor numbers of natural numbers b and c are both natural number a, then b=c;

(5) If 1 is not the successor of any natural number ; if any proposition about natural numbers is proved to be true for the natural number 1, and if it is true for the natural number n, it can be proved to be true for n' as well, then the proposition is true for all natural numbers.

This axiom is also called the "induction postulate", which guarantees the correctness of mathematical induction. The "induction postulate" can be used to prove that 0 is the only natural number that is not a successor, because if the proposition is "n=0 or n is the successor of another number", then the conditions of the induction postulate are met. If only positive integers are considered, the 0 in the axiom should be replaced by 1, and the natural numbers should be replaced by positive integers.

The theorem is then more formally defined as follows:

First : From: The Dedekind-Peano structure is a triple (X, x, f) that satisfies the following conditions:

(1), X is a set, x is an element in X, and f is a mapping from X to itself.(2), X is not in the range of f; (3), f is injective; (4), if A is a subset of X and satisfies: x belongs to A, and if a belongs to A, then f(a) also belongs to A, then A = X.

Second: The basic assumptions about natural number sets derived from Piarro's axioms: (1) P (natural number set) is not an empty set; (2) there exists a one-to-one mapping of direct successor elements a→a in P; (3) the set of images of successor element mappings is a proper subset of P; (4) if any subset of P contains both non-successor elements and successor elements of every element in the subset, then this subset coincides with P. These four assumptions can be used to prove many theorems that are often seen but whose origins are unknown! For example, the assumption (4) is the theoretical basis for the widely used first principle of induction (mathematical induction).

The so-called natural numbers (dimensional system) start from 0, one after another, forming an infinite group. Natural numbers are numbers used to measure the number of things or to express the order of things. They are an infinite set of numbers represented by the numbers 0, 1, 2, 3, 4, ... The natural number set has addition (subtraction) and multiplication (division) operations, and the associative law, distributive law, and commutative law are valid under axiomatic conditions. The result of adding or multiplying two natural numbers is still a natural number; they can also be subtracted or divided, but the results of subtraction and division are not necessarily natural numbers, so subtraction and division operations are not always valid in the natural number set. Natural numbers include non-negative integers, positive integers, and now also include 0. Natural numbers introduce Peano arithmetic axioms , the simplest of which is:

"1+1=2", "1+2=3", "$a^{(1)} \cdot a^{(1)} = a^{(1+1=2)}$", "$a^{(1)} \cdot a^{(2)} = a^{(1+2=3)}$", ….

For example, "the "evenness" of mathematical form includes even numbers (symmetrical distribution) and odd numbers (asymmetrical distribution)", "the complete understanding of the "evenness" of "symmetrical logic" in formal logic should include symmetry $\{2\}^{2n}$ and asymmetry $\{3\}^{2n}$".

At present, there are no strict "axioms" in mathematics or philosophy that point out the "even and odd numbers " of mathematics, the symmetric distribution $\{2\}^{2n}$ and the asymmetric distribution $\{3\}^{2n}$ ", and whether there is a "balance and exchange" mechanism between arbitrary asymmetric objects?

In other words, the "mathematical formalization" or "formal logicization" of the "self-evident" axioms is incomplete . Strict mathematical proof is necessary to discover their completeness, the symmetry and asymmetry of the "infinite axioms" of "evenness", the random and non-random balance and exchange mechanism.

Therefore, the following key issues must be addressed:

(1) Why can't the "axiomatic" nature of various analytical models in traditional mathematics be self-proven?

(2) $\sum(1-\eta^2)^{(Kw=`1)}$ How do the various analysis models (internal and external) reflect the "balance and exchange mechanism"?

(3) $\sum(1-\eta^2)^{(Kw=`1)}$ What is the basis for the feasibility of the combination of " commutative law, associative law, distributive law , and law of excluded middle" in each analysis model (internal and external) ?

"Axioms" must be mathematically proven. At present, all traditional mathematical "axioms" must be replaced by dimensionless "infinite axioms". This is a basic mathematical problem involving the stability, accuracy, and feasibility of basic constructs . If it cannot be proven, then the mathematics, philosophy, physics, economics, and various analytical systems, calculation methods, and concepts that Europe has proudly established for 400 years will be overturned, or at least "the mathematical foundation will be weak."

Therefore, the fact that traditional mathematical systems are incomplete is not particularly surprising. For example, if the parallel postulate is removed in Euclidean geometry , an incomplete compatibility system is obtained. The compatibility of classical mathematics does not completely prove its " equilibrium point and random equilibrium exchange mechanism" ; the set theory-category theory of logical mathematics uses the "discrete-symmetry" or "topological mapping morphism" hypothesis, and there is no random equilibrium exchange mechanism of the center point . Such mathematical systems are not complete. An incomplete system simply means that all necessary axioms have not yet been found.

After formalizing the proof of the first theorem within the system, Gödel proved his second theorem, which states that

(ii) Any consistent formal system cannot be used to prove its own consistency.

This result undermines a philosophical attempt in mathematics known as the " Hilbert Project ", in which David Hilbert proposed that the consistency of a more complex system like real analysis could be proved by means of simpler systems , and that ultimately the consistency of all mathematics could be reduced to the consistency of elementary arithmetic . Gödel's second theorem proved that the consistency of elementary arithmetic could not be proved within itself , and therefore could not be used to prove the consistency of a stronger system.

So: Peano's axioms must be followed, but the reliability of their axioms needs to be proved mathematically. It proves that the compatibility of the symmetry and asymmetry (i.e. conjugated reciprocal symmetry and asymmetry) of the incomplete "evenness" between " traditional mathematical models " (natural numbers and real numbers, logical analysis, and any dimensional numerical values that can be digitized) cannot be directly exchanged. Of course, "it cannot be used to prove its own compatibility."

Here, the Peano axiom is mathematically proved to be a set of dimensionless circular logarithms constructed by a third party - an irrelevant mathematical model, without specific (mass) element content, only indicating the location and sequence of specific (mass) element content, effectively eliminating the interference of specific elements and maintaining the commonality of "evenness", which is called "positional circular logarithm" in mathematics and "conjugate symmetry" in philosophy. In fact, "evenness" includes "symmetry and asymmetry". However, traditional mathematical philosophy avoids "conjugate asymmetry".

In particular, this "evenness" symmetry has many names such as "conjugate symmetry", "pair set", etc. , emphasizing the "symmetry aspect". Some philosophers call "conjugate symmetry" the advanced stage of the development of dialectical logic and the most advanced philosophical concept. Facts show that the complete "conjugate symmetry" is that the "evenness" has "symmetry and asymmetry" (that is, conjugate mutual inversion symmetry and asymmetry), and it must also have the integration of completeness (external) and compatibility (internal) , so that it can randomly carry out balanced exchange groups and mutual inversion in a random self-proving mathematical environment .

If, from the perspective of dimensionless construction sets, mathematics itself (nature) cannot be balanced exchange combinations, operations (deductions) rely on the "additive combination" of dimensionless circular logarithms (circular logarithmic factors and circular logarithmic power function factors), and the symmetry of the central zero point of the circular logarithm must also drive the balanced exchange combination of "elements-objects". Strictly speaking, "the basic concepts of traditional mathematics are not valid." In other words: the emergence of dimensionless constructions has caused a fundamental reform of traditional mathematical concepts.

At present, without discovering the "axiom of infinity", philosophers and mathematicians have not noticed or explained that there is also an "asymmetric side" in "conjugate symmetry, even pairs, completeness, compatibility,...", etc. They have not seen or have no way to solve the key "even number" including the " asymmetry " of numerical and positional values. How to convert the "asymmetry " into " symmetry " to achieve random balance and connection problems.

Among them: there is no objection to the symmetry of even-numbered "binary numbers", and there is no objection to the analytical symmetry of "ternary numbers" using the "Cardan formula", but it is a special case of an incomplete "compatibility system". There has been no way to analyze the asymmetric solution of "ternary numbers", which reflects that various philosophical schools, mathematical schools, and various mathematical calculation methods have insurmountable congenital defects, which are called incomplete "compatibility".

Therefore, Gödel's second theorem means that it is not feasible to prove the complete "compatibility" with the current incomplete "compatibility ; it is not feasible to prove the completeness with the incomplete completeness ".

Similarly, it is also not feasible to prove the completeness "conjugate symmetry (which should also have completeness proof)" with the incompleteness of philosophy "conjugate symmetry".

For example, the ancient Chinese mathematics "Tao Te Ching" records that "Tao gives birth to one, one gives birth to two". After developing the (incomplete) symmetry of "mathematical analysis", it did not solve the key problems of "two gives birth to three, three gives birth to all things": philosophy, mathematics, physics, economics, biology, artificial intelligence algorithms, etc. This means that future generations must consider using new mathematical methods that are not currently available to solve the "two gives birth to three" problem of "conjugate symmetry-evenness" of completeness. That is, the "symmetry and asymmetry of evenness" "compatibility-completeness" are integrated into an "integration" problem.

Fact: "Dimensionless system" is: the 'infinite axiom' unique to infinite construction sets, and the superiority of " no mathematical model, no specific (mass) element content ". Completely solve: the incompleteness of "evenness (inside, outside)" of dimensional system (referring to all elements-objects of Gödel's theorem, the same below) , convert it into the "evenness (inside, outside)" integrity mechanism of "dimensionless system" , satisfy the "compatibility-completeness integration", and form the completeness "conjugate symmetry-evenness" balance exchange mechanism, which is not available in current traditional mathematics and philosophy.

The circular logarithm construction set converts " elements- objects" into dimensionless circular logarithms. With the unique "evenness" (i.e., conjugate equilibrium reciprocal symmetry) of the dimensionless construction set, it has a symmetric and asymmetric equilibrium exchange mechanism with random and non-random determinability . It has the advantage of self-proving "authenticity" of "no interference from specific elements" of the logically dimensionless "infinity axiom" , and can drive the verification of the authenticity of " elements- objects" of other systems as a third party.

combination and truth of dimensionless construction set evenness

Today's cognition and facts: The "evenness-common symmetry" of the so-called "system" has two abstract contents of "symmetry and asymmetry". The "axiomatic" systems of traditional mathematics do not have complete compatibility and cannot directly balance exchange combinations . The dimensionless system uses circular logarithms and property attributes to uniformly convert the " evenness symmetry and asymmetry of the traditional mathematical system " into the " symmetry of the evenness of the dimensionless construction " and the central zero line (critical line) and central zero point (critical point) of the circular logarithm , driving the " element-object " of the "element-object" to perform random balance and exchange combination mechanisms, proving that the incompleteness of the traditional mathematical "axiomatic" system itself cannot be balanced and exchanged, and can only be carried out under the drive of the "infinite axiom" mechanism of the "dimensionless construction system" . This is why the set axiomatization and Hilbert number theory axiomatization "system" need to be constructed through a third party "dimensionless construction proof."

The continuum hypothesis problem also proposes a transfinite cardinality (2ω) , that is, the "characteristic modulus" corresponding to the central zero line (critical line) - the central zero point (critical point). Its unique "even number" symmetry central zero point (critical line) is the largest transfinite cardinality (2ω) , that is, the "circular logarithmic central zero point" , corresponding to the largest and most stable numerical characteristic modulus, that is, the "circular logarithmic central zero point is the largest "equal to 1", and the left and right sides are less than 1 respectively ", proving that "continuum and discrete can be integrated" description, that is, the discrete and continuous "continuum hypothesis" problem.

Here, the third-party dimensionless construction includes the set of recursive methods through the "dimensionless circular logarithm axiomatization". The compactness, isomorphism, homomorphism, homology, homotopy, and compactness of the infinite axioms correspond to the central zero line (critical line) and central zero point (critical point) that become the "evenness" random equilibrium exchange combination integration of the "infinite axioms" including symmetry and asymmetry as well as randomness and non-randomness definitions , as well as the integration of the "evenness" complete symmetry and completeness of the dimensionless system , which in turn proves that the "itself" of the dimensionless system is the determinism and decidability of the "evenness" random equilibrium exchange combination .

Dimensionless completeness can also verify that the incompleteness of the traditional mathematical "dimensional" system pointed out by Gödel's incompleteness theorem is correct , and it also has a proof of "sufficiency" .

The dimensionless construction of the random exchange process of the asymmetric "evenness" of the circular logarithmic center zero point: the dimensionless circular logarithmic center zero line (critical line) series: (adapt to the characteristic mode outside) (there is a proof later, omitted)

$A=\{^{(3)}\sqrt{X}\}^{(1)}=(1-\eta_{[A]}^2)^{(K=-1)}\{D_0\}^{(1)}$

$\leftrightarrow [\ (1-\eta_{[ABC]}^2)^{(K=-1)} \leftrightarrow (1-\eta_{[ABC]}^2)^{(K=\pm 0)} \leftrightarrow (1-\eta_{[ABC]}^2)^{(K=+1)}\ ] \cdot \{D_0\}^{(3)}$

$\leftrightarrow (1-\eta_{[A]}{}^{2})^{(K=-1)}\{D_0\}^{(1)} + (1-\eta_{[BC]}{}^{2})^{(K=+1)}\{\mathbf{D}_0\}^{(2)}$
$= (1-\eta_{[BC]}{}^{2})^{(K=+1)}\{D_0\}^{(2)} = \{^{(3)}\sqrt{\mathbf{D}}\}^{(2)} = BC;$

Abbreviation for exchange: $A \leftrightarrow (ABC)^{(K=\pm 0)} \leftrightarrow (B+C);$

Among them: This balanced exchange combination has already taken place inside the central zero point of the 'Axiom of Infinity'.

The dimensionless system has high strength of "evenness, stability, zero error, and reliability. The zero error accuracy of the highest algorithm and the highest computing power reaches the **10** $^{\mathbf{222th}}$ power universe level . At this level, the universe becomes what physicists call "high chaos soup fortress".

The dimensionless construction set describes:

(1) The dimensionless circular logarithm drives the "infinite axiomatization " of the balance and transformation of the world's symmetry and asymmetry .

(2) A new philosophy and a new mathematical foundation for the completeness of mathematical axiomatization.

(3) The most advanced , abstract and basic mathematical system for the development of complete " symmetrical logic " and dialectical logic .

It can be seen that the dimensionless 'infinity axiom' proves the "truth" of circular logarithms . Only the collection of truth can become " truth". Truth is the eternal progress of objective axioms after verification . It includes the automatic, conscious, random and non-random transformation, reform and change of itself and its internal and external environment.

1.2. Dimensionless circular logarithmic construction and philosophical space

The traditional concept of space refers to the indirect and generalized reflection of the existence of objects in space by the human brain. It involves shape, size, distance, depth, direction, and the abstract circular logarithm defined by dimensionless language. It is built on the basis of spatial perception and is an abstraction and generalization of spatial perception. It not only relies on various spatial (internal and external) representations obtained by groups and individuals from life experience, but also relies on various words that express spatial relationships.

From a philosophical perspective, dimensionless space is the "space" that is the component of specific things. It generally refers to the "programming language" of mathematical models and artificial intelligence algorithms established by mathematics, philosophy, physics, and the spiritual world. It is the object of cognition that people decompose and abstract from specific things. It is absolutely abstract things and relatively abstract things, meta-entities and meta-entities, etc. It corresponds to the "one-to-one correspondence" of "objects (including digital analysis and logical analysis)" defined by dimensionless language, and is a balanced exchange unified abstract body of reciprocal transformation of even conjugate symmetry and asymmetry. It is an ordinary group and individual (internal and external) member that exists in the macro and micro collectives of the world and cannot be felt but can be known by people. It is a specific thing that can be directly felt by the human senses or observed and measured by instruments. It can be converted into "irrelevant mathematical models, no specific (mass) element content" in the rules of nature, a certain mentality and form, and has a dimensionless form of position-sequence. Specific things all have the specific provisions of dimensionless "space". Descriptions of specific or abstract things without "space" provisions do not exist at all. Space and time are a unity of opposites; space includes cosmic space, information space, cyberspace, thinking space, physical three-dimensional space, abstract analysis of the human brain, and the dimensional transformation (balanced exchange) in mathematics, physics, and thinking into dimensionless circular logarithmic space, etc. All belong to the category of space and have their own specific internal and external meanings. They are collectively called the mathematical and philosophical "circular logarithmic structure and space" defined by dimensionless language.

Philosophy includes formal logic and dialectical logic. Formal logic is a set of rules for definition, classification, judgment and reasoning. Dialectical logic refers to a philosophy, which is another name for dialectics. Its main content is Hegel's three major philosophical propositions: unity of opposites, quantitative change and qualitative change, and negation of negation. Formal logic refers to traditional logic , which refers to deductive logic in a narrow sense and inductive logic in a broad sense . Since "formal logic" is essentially intellectual logic , modern mathematical logic has not exceeded the scope of "formal logic" or traditional logic . Aristotle 's instrumentalism is the basis for the development of formal logic . It can be said that there would be no formal logic without instrumentalism.

Traditional philosophical logic often emphasizes the symmetry of "binary". No philosopher has ever proposed the "symmetry and asymmetry" of "ternary" existence, and how to transform it into symmetry. In other words, traditional philosophy is based on the incomplete system of traditional mathematics, and it also has "incompleteness".

In mathematics, the definition and construction of various spaces are the basis of modern mathematical research. These spatial concepts provide a more systematic framework to deal with various complex problems by constraining and extending the properties of sets. Why define so many different mathematical spaces?

As the study progressed, we discovered that these spaces are not just a pile of theory, but an important tool for solving problems. From metric spaces for measuring distances to Sobolev spaces for dealing with high-dimensional functions, their definitions are unique and adapted to different types of mathematical problems, just like a toolbox customized for each special task. This article proposes the "dimensionless circular logarithmic space"

Limited by historical conditions, we cannot or do not see the dimensionless-specific " 'infinite axiom' symmetry and asymmetry , randomness and non-randomness equilibrium exchange mechanism", and when we encounter the "ternary" asymmetric distribution, we " avoid " it and say "there are no ternary numbers", but "avoiding" cannot solve real problems . Some people propose the role of "God" to deceive " believers " . Some philosophers and mathematicians say that "physics is followed by mathematics, mathematics is followed by philosophy, and philosophy is followed by God". Mathematicians such as Newton later entered monasteries. Can this method "avoid" the laws of world development and progress?

Now we boldly say from a realistic point of view: "Behind physics is mathematics, behind mathematics is philosophy, and behind philosophy is dimensionless construction." It seems that the dimensionless circular logarithmic construction is "vague and vague", but in fact they strictly "correspond one to one" to the real world and spiritual world of nature.

This law of nature has the dimensionless unique " 'infinite axiom' even number symmetry and asymmetry , random and non-random positive and negative reciprocity balance exchange combination mechanism". The dimensionless structure describes the eternal "balance conversion combination " of all things in the universe. The entire universe is a random and non-random "balance exchange" of "elements-objects" driven by the dimensionless circular logarithm . This is the charm of nature, and it is also the most abstract, profound and basic rule of nature. In other words, philosophy, like mathematics, has "keep pace with the times", constantly developing true mathematical-philosophical problems, and feeding back to the physical and real world.

1.2.1. Syllogism .

The foundation of syllogism was laid by Aristotle in the First Analytic. He specialized in the so-called categorical syllogism, which is a syllogism consisting of simple declarative sentences and their variants containing modal words such as necessary and possible. Later, Stoic logicians studied other forms of syllogistic reasoning , especially those belonging to propositional logic. It became the inference formula of Western logic, a kind of logical calculus, which uses formal methods to deal with logical reasoning, especially the reasoning used in philosophy and mathematics. Since the formalized reasoning process is similar to algebraic calculus , the correctness of this type of reasoning depends only on their form and has nothing to do with the content. Here, concepts, reasoning, etc. are decomposed into the most basic elements, and the reasoning process is represented as a formal deformation made according to certain specific rules starting from the starting formula. Its purpose is to achieve a forward reasoning, or from cause to result .

Since the deduction in the traditional axiomatic syllogistic system depends entirely on the operational principle of the connection of symbols, without relying on any intuition or understanding of the meaning of these symbols, it can be regarded as a formal deductive system in the sense of modern technology. Such a system should have internal consistency, independence and completeness .

Aristotle's logic and his theory of syllogisms have had an unparalleled influence on the history of Western thought. It did not always remain that way. Kant believed that Aristotle had discovered everything there is to know about logic, and the historian of logic Prantl drew the inference that anything new that any logician after Aristotle came up with was actually confusing, stupid, or illegitimate.

The so-called syllogism refers to the major premise, minor premise and conclusion. A logically rigorous refutation must go through these three steps. Its symbol is: Major premise: Wherever M is P Minor premise: Wherever S is M.

Conclusion: Wherever S is P. In layman's terms, if M contains P, and P contains S, and if P does not exist, then S does not exist either.

Verification of dimensionless circular logarithm: It can be found that Aristotle's logic and his syllogism theory have major flaws - they did not find the balance and conversion mechanism of symmetry and asymmetry of "evenness" between the three-segment elements.

For example, Aristotle's three-stage elements {M, P, S} have internal symmetry and asymmetry of "evenness" , which can produce random balance and conversion relationships under certain conditions . If M contains P, then if P does not exist, S can also exist. The three-dimensional complex analysis of the dimensionless circular logarithm is used in mathematics , which reveals that the derivation of this syllogistic system (internal and external asymmetry) completely depends on the operational principle of symbolic connection, and must still comply with the balance and exchange mechanism existing within the philosophical object.

As a dimensionless third party, it is found that the three elements {M, P, S} have an inherent interaction relationship, which overturns the Aristotle syllogism relationship of Aristotle's incomplete logic applied in traditional mathematical philosophy:

P(S)(→=)↔M↔(→=)S(P) ; P(S) (→=) S(P) ;

Among them: (→=) , (↔) represents the "balanced exchange" mechanism of even symmetry and asymmetry of morphisms, mappings, projections, and transformations.

1.2.2 Dimensionless circular logarithm and mathematical analysis

To date , the mathematical system established in Europe over the past 400 years has various schools and computational theories, which can be summarized as "numerical analysis" defined by " dimensional " “Dimensional”Refers to the object specified by Gödels incompleteness theorem)natural language (including mass) and "logical analysis" defined by modern logical language. Two traditional mathematical systems.

（1）, Numerical analysis is a function analysis of finite elements defined in natural language. It starts with the symmetric solution of quadratic equations (including the symmetry special case of cubic equations) and is based on the mathematical foundation of symmetry analysis. Numerical calculation symbols are used **(+, -, ×, ÷, √, ∫, =, ...)** and other operations for addition, subtraction, multiplication, division, exponentiation, square root, calculus analysis and equilibrium calculation. Space definitions appear, including Hilbert space, Euclidean space, Banach space, unitary space, symplectic space , ... and other analysis methods. However, based on an incomplete compatible system , the compatibility itself cannot be proved (Gödel's second theorem). The root cause is that "asymmetry cannot be converted into a random equilibrium and exchange environment of symmetry", reflecting the instability of the mathematical foundation . Even the relationship between the two elements is not clear, that is, the symmetric distribution of the individual numbers of binary numbers has "value, color, etc." asymmetry. As for the general solution of the cubic equation , the general solution of the above equations cannot be processed with zero error.

(2) Logical analysis is based on infinite analysis defined in logical language, operation symbols (∈ , ∩, ∪ , →, …), etc., (belonging to, union, intersection, conjunction, morphism, …), etc. for mathematical analysis. Logical language does not have strict equilibrium analysis . For example, how to prove the validity of “ morphism , mapping, equilibrium” in traditional mathematics ?

random balance and exchange environment of even symmetry ", which reflects the incompleteness of the logical mathematical foundation . At present, the axiomatic basis of the discrete symmetry hypothesis is the subject task of probabilistic statistical workload using computers to replace human physical labor. Similarly, the functor of topological equations above the second degree takes care of the external morphism , but does not solve the internal balance, and cannot handle the balance with zero error.

the "four operations" of arithmetic and algebra ; there is no reciprocal balance of "intersection and union" in logical algebra. This crucial conjugate reciprocal asymmetry of "evenness" (numerical value-place value) cannot solve the random balance and exchange , resulting in the inherent defects of the mathematical system itself. Many century-old mathematical problems are stumped by this widespread, common, and indispensable reciprocal relationship of "multiplication combination and addition combination" and "balance and exchange" in mathematics itself.

In the traditional mathematical system, the universality of the asymmetric reciprocity of the "even number" is converted into a symmetric system . Although their various schools and calculation methods have their own advantages and limitations, they cannot meet the growing needs of scientific computing, and traditional mathematics itself cannot meet the analysis difficulties of correlation (called entanglement interaction in physics). In particular, it faces the difficulty of how to imitate the analysis of the human brain (analysis, combination, judgment, evaluation, ...).

In Cantor's "The Set of Real Numbers and the Set of Natural Numbers", or "The Geometric Mean and the Arithmetic Mean", he used the "Principle of Relativity" to discover a new dimensionless definition language, the third "Infinite Circular Logarithm Construction Set"; he proposed the "(Group Combination) Circular Logarithm Axiomatization Assumption that "Self divided by itself is not necessarily 1", which is different from the axiomatic assumption of set theory that "Self divided by itself is definitely 1"; the "Self" mentioned here refers to the relationship between "elements that are not completely considered symbols".

As mentioned above, the arithmetic mean is the arithmetic average of all data, also known as the " mean function " , with the symbol M (Mean). The arithmetic mean is the main measure of central tendency, and it plays an important role in statistics, making it the basis for statistical analysis and statistical inference. It is mainly applicable to numerical data when the sum of "additional combination" (union), but not to quality data, which is manifested as " probability and topology " plus characteristic module units, as well as the addition combination of different " elements -objects" .

As mentioned above, the geometric mean is the root of the product of the variable values. The method of finding the geometric mean is called the geometric mean method. If the total level and total results of the " element- object" are equal to the sum of the levels and results of all stages and links, the geometric mean method should be used to calculate the geometric mean, which is expressed as a "multiplication characteristic mode" unit, a multiplication combination (intersection) of different elements.

The connotation of mathematical analysis has two important parts: "value-place value". The current results are:

"value" solves the specific balance calculation of numbers, which cannot be exchanged, and "logic" solves the exchange relationship, which cannot be used for digital balance calculation. In other words, mathematical analysis has two inseparable parts: numerical analysis and logical analysis. It is not enough to analyze only one aspect . It is necessary to achieve an integrated and unified analysis of numerical and place values as well as completeness and compatibility .

Circular logarithms have reorganized, re-verified, reshaped, and summarized hundreds of years of traditional mathematics, integrating the "numerical analysis and logical analysis" of traditional mathematics into a circular logarithm formula defined by a simple, holistic, dimensionless language, and conducting logical, arithmetic, zero-error analysis.

The dimensionless circular logarithm cleverly, and with a bit of luck, uses a dimensionless language system to solve a large number of mathematical difficulties and problems left over from the century. It becomes a new mathematical system, the "circular logarithm space", as a third-party construction set , which can verify the mathematical systems of other systems .

the dimensionless circular logarithm mathematical system: It perfectly illustrates the philosophical principle of ancient Chinese mathematics: "Tao gives birth to one, one gives birth to two, two gives birth to three, and three gives birth to all things". It proves the "Peano axiom and set theory axiomatization ", and extracts the invariant "numerical characteristic modulus" (positive and negative mean functions) and the "position value circular logarithm" with consistent computational time isomorphism from various "symmetric and asymmetric, uniform and non-uniform, equalities and inequalities, discrete and continuous, probability and topological spaces", and realizes zero-error logical arithmetic zero-error calculation.

In other words, circular logarithms inherit the ancient and modern Chinese and foreign mathematical classics, and progress the existing incomplete "numerical-logical" analysis to a complete, holistic (group and individual) "dimensionless" circular logarithm analysis. It integrates the existing mathematical analysis fields of "arithmetic (number theory)-algebra-geometry-group combination" into a whole, and realizes the grand unification of mathematics with a simple dimensionless formula.

1.2.3 Dimensionless Circular Logarithm Mathematical Calculation and Logic

Circular logarithm mathematical system: It is a new dimensionless infinite circular logarithm construction set that exists "between nature and real numbers". It proves that any two (or more) different , or asymmetric, uneven "numbers, functions, spaces, group combinations" of the infinite set have "evenness" (i.e. conjugate mutual inverse symmetry and asymmetry), which are converted into numerical characteristic modules and position value circular logarithms and shared power functions and positive, median and negative properties . Through the symmetry of the central zero line (critical line) and central zero point (critical point) of the circular logarithm , the balance and conversion relationship of the completeness jump transition mode between the external characteristic modules and the continuous transition mode of the compatibility of the internal characteristic modules are described. Driven and controlled by the third-party dimensionless circular logarithm , the unity of " random balance and exchange" is achieved.

Perform addition, subtraction, multiplication, division, exponentiation, square root, calculus analysis and balance calculations using operations defined in dimensionless language (**+, -, ×, ÷, √, ∫, =, ...). There are two** different calculation steps for the external and internal relations of " element- object, characteristic mode" :

(1) The synchronous changes of the position value center zero point and the surrounding independent elements are used to calculate the overall dimensionless circular logarithmic center zero line.

(2) The relationship between the numerical central zero point and the surrounding independent elements is accurately analyzed using the dimensionless circular logarithmic central zero point symmetry.

In other words, circular logarithms integrate all group combinatorial-function-space analyses, unify the (numerical-place-valued) circular logarithms in dimensionless language , and perform zero-error operations of logical arithmetic in the {0,1} number field.

At present, any function with a resolution of "2" (i.e. "evenness") is decomposed (or combined) into two $\{2\}^{(2n)}$ mutually inverse asymmetric group combinations - function (space, value, subset group) "operations. Its premise is (artificially assumed axioms , no mathematically reliable proof) .

The symmetry-discrete type assumption is used to perform binary (two-dimensional) complex analysis, which is equivalent to the circular logarithm "self divided by itself equals 1". When encountering the asymmetric analysis of element- object-characteristic mode (external, internal), a large error is generated.

For the complex analysis of ternary asymmetry, the approximate calculation of the reciprocal symmetry based on $\{2\}^{(2n)}$ in the form of determinant iteration method is still not suitable for the calculation of three-dimensional asymmetry based on $\{3\}^{(2n)}$.

In three-dimensional complex analysis, circular logarithms are directly analyzed in dimensionless circular logarithmic space where "self divided by itself is not necessarily equal to 1". In other words, arbitrary group combinations-functions use dimensionless definition language and symbol decomposition (or combination) to convert the reciprocal asymmetry of " conjugate evenness" into the conjugate symmetry centered on the central zero line (critical line) and central zero point (critical point) of the circular logarithm's " conjugate evenness" symmetry , realizing the random and non-random balance and exchange of the 'infinity axiom'. Once the circular logarithm is revoked and the asymmetry of the original proposition is restored, it cannot be balanced and exchanged.

so-called "asymmetry of ternary numbers " manifests itself in the difficulty of solving the difficulty of balancing the exchange between " the addition combination of one element and one element of different numerical combinations " and "the multiplication combination of two elements and two elements" . The "asymmetry of ternary numbers " solves the problem of "two gives birth to three" and progresses from $\mathbf{\{2\}^{(2n)}}$ to $\mathbf{\{3\}^{(2n)}}$.

Any finite element-object in the infinite can extract the invariant numerical characteristic modulus and the invariant isomorphic position value circular logarithm , and through the symmetry of the central zero line (critical line) and the central zero point (critical point), handle the "asymmetry conversion to symmetry" relationship, and become the dimensionless circular logarithm to drive the " element-object " additive combination, satisfying the associative law, the commutative law, and the law of the excluded middle, and perform random balance and exchange of three-dimensional conjugate reciprocal symmetry . Once the circular logarithm is revoked, the original asymmetry and the characteristics of being unable to balance and exchange will be automatically restored.

In particular, the numerical values of any group combination-function cannot be directly exchanged in a balanced manner . The famous category theory of logical algebra is only about the synchronous exchange of the discrete external group combination, and does not solve the mathematical problem of the continuous internal exchange. The difficulty lies in: the existence of "one-to-one correspondence between the multiplication combination function (geometric mean) and the addition combination function (arithmetic mean) is less than or equal to 1" in the multivariate elements of the group combination, and " the characteristic modulus of the group combination has not only external synchronous changes, but also internal central points and surrounding elements-object analysis " has not been solved, reflecting the inherent deficiencies of the traditional mathematical foundation system.

These originally belonged to the mathematical problems of the 18th to 20th centuries . They seemed like elementary mathematical problems and were delayed until the end of the **20**th century and the beginning of the **21**st century. Because the Chinese circular logarithm team discovered the "dimensionless circular logarithm construction set ", it completely described the analysis of "no mathematical model and no specific numerical element content", which corresponds to what traditional mathematics says: distance, degree, gap, measure, error, place value, position, sequence, relativity , quantum theory, ... , as well as the "balance and exchange " relationship of the conjugate symmetry and reciprocity of the circular logarithm central zero line (critical line) and central zero point (critical point) .

In the explanation of the mathematical foundations of circular logarithms, some dimensionless circular logarithm language and concepts are often used repeatedly. These language and concepts become a toolbox for understanding, analyzing, expanding and applying circular logarithms.

1.3. Group Combination-Function and Set -Set Average

Set, or set for short, is a basic concept in mathematics and the main research object of set theory. The basic theory of set theory was established in the 19th century. The simplest statement about sets is the definition in naive set theory (the most primitive set theory), that is, a set is "a certain bunch of things", and the "things" in a set are called elements. Modern sets are generally defined as: a whole composed of one or more certain elements, which is expressed in classical mathematics as " the balance and exchange of the reciprocal asymmetry of multiplication combinations (topology , mapping) and addition combinations (probability) ".

Circular logarithms represent sets of elements -objects in set theory :

(1) Determinism: Given a set of multiple elements, the group combination is called "itself". Any element belonging to the set is represented by a mathematical model that is independent of the computational symbols. For example, the ternary multiplication combination {abc} corresponds to the "2-2 combination" of non-repeating permutations $\{ab\}^K$, $\{ba\}^K$; $\{ac\}^K$, $\{a\}^K$, $\{b\}^K$; $\{c\}^{K.}$ The 6 non-repeating permutations (K=+1,`0,-1) are deterministic.

(2) Reciprocity: In a circular logarithm set, each element of the "sub-item" appears once in the combination without repetition. Any combination of two (or more) elements is considered to be asymmetric, and there is a circular logarithm reciprocity theorem to prove it. For example, the multiplication combination of two elements can be two conjugate asymmetries, such as the multiplication combination and the addition combination are mutually different: the ternary multiplication combination {abc} corresponds to the non-repeating arrangements {ab} and {ba}; {ac} and {ca}; {bc}={cb}, and the values of the three non-repeating arrangements are all different.

Example: {3 · 4 · 8} = 96 corresponds to the "2-2 combination" without duplication

$\{\mathbf{D}_0\}^{(2)}$= {3 · 8=24}+{4 · 8=32}+{4 · 3=12}=68 /3 ;

The values of each combination sub-item are different.
Among them: characteristic modulus: "2-2 combination" 68/3=22.67 replaces $\{\mathbf{5}\}^{(2)}=25$, indicating that the concept of "combination" is not equal to the concept of "self-multiplication".

(3) Closure: The group combinatorial space of circular logarithms is composed of non-repeating polynomials, multiplied by combinatorial terms, or geometric space. Under the topological conditions of different deformations, the numerical characteristic modulus (median and anti-mean values) remains unchanged. It has strict closure. (i.e., combinatorial or topological) changes cannot change its total elements, otherwise the circular logarithmic expansion of the probability "1-1 combination" topological "2-2 combination" of circular logarithms cannot be balanced. Through "automatic supervision" in computers, it is discovered that "deep learning" that performs "automatic adjustment" has a more closed abstractness. Positional value analysis reliably eliminates the interference of internal and external specific elements and signals.

(4) Disorder and order: Each element in a set has the same status, and its "multiplication and addition combinations" are disordered. "Division and subtraction combinations" are ordered. In particular, complex analysis has a strict definition of "order relationship". After the "order relationship" is defined, the elements can be sorted according to the "order relationship". For example, the "left-hand rule" of the three-dimensional Hamilton-Wang Yiping quaternion in complex analysis stipulates the arrangement rules of the imaginary number { **JIK** }.

(5) Uniqueness: Based on the analytical equation, as long as any two of the three elements of "boundary function **D** , characteristic modulus $\mathbf{D}_0$, dimensionless circular logarithm $(1-\eta^2)^K$ " are known, dimensionless circular logarithm analysis can be performed. For example, according to the boundary function and characteristic modulus corresponding to "multiplication combination, addition combination", the unique circular logarithm and the unique solution obtained through the central zero point are obtained. In other words, in the calculation, according to the known two variable functions, the central zero point of the circular logarithm of each term sequence (internal and external) is determined "one-to-one corresponding" to obtain a unique solution.

✷**Definition** 1.1 Group combinatorial-function set, a set is a collection of elements, a set containing infinite elements is called a group combinatorial-function set. Or any finite group combinatorial-function-space in infinity. The elements can be natural numbers, integers, fractions, rational numbers, real numbers, irrational numbers, complex numbers, and all digitizable objects.

Define the set of infinite numbers (group combinations):
$\{\ldots(a_1\, a_2\, a_3 \ldots a_S)\ldots\}^{K(Z)}=A^{K(Z\pm S)}$;
Among them: the elements of the set of selected numbers $\{\ldots(a_1\, a_2\, a_3 \ldots a_S)\ldots\}^{K(Z\pm S)}=A^{K(Z\pm S)}$, that is, {A} is the set of A values.

The dynamic expansion of the calculus of any finite (group combination) set in the infinite number in three-dimensional space:
$\{a_1\, a_2\, a_3 \ldots a_S\}^{K(Z\pm S)}=\{A_{[jik]}\}^{K(Z\pm S\pm(Q=3\pm(N=0,1,2)\pm(q=0,1,2,3,\ldots\text{整数})/t}$;
Among them: power function: n=K(Z±S±(Q=3)±(N=0,1,2)±(q=0,1,2,3, …)/t represents in sequence: property attributes (K=+1,-1, ± 1, ± 0); (Z±S) any finite (group combination) set in infinite numbers; (Q=3) and $\{A_{[jik]}\}$ represent the expansion of three-dimensional space; (N=±0,1,2) zero-order, first-order, and second-order calculus; (q=0,1,2,3, …infinite natural integer) element combination form, /t is one-dimensional time.

✷**Definition** 1.2 A subset of a group combinatorial-function is a set of non-repeating combinations of elements, which are called sub-items and are called group combinatorial-functions.

For example, if every element in set {B} is also an element of set {A} , then set {A} is a subset of set {B} , and {B} is a superset of set {A} . For example: the set of numbers $\{A\}^{K(Z\pm S)}=\{1,2,3 \ldots S\}^{K(Z\pm S)}$, the number 1 belongs to {A}={1,2,3,4 … }, which means 1 is an element of {A}.

✷**Define** 1.3 group combinations - function combinations (including the set of multiplication combinations and addition combinations),

✷**Define** any finite number (group combination) S number multiplication combination in infinite numbers:
$\cap\{a_1, a_2, a_3, \ldots, a_S\}=\prod_{j=S}\{a_1\, a_2\, a_3 \ldots a_S\}=\{A^{(Z\pm S)}\}$;
For example : any finite number S in the infinite number multiplication combination:
$\cap\{1,2,3,4 \ldots\}=\prod_{j=S}\{1\cdot 2\cdot 3\cdot 4 \ldots S\}=\{\mathbf{D}^{(Z\pm S)}\}$;

✷**Define** (group combination - function) probability set: represents "1-1 combination" plus combination form:
$\cup\{a_1, a_2, a_3, \ldots, a_S\}=\sum_{j=S}\{a_1+a_2+a_3+\ldots+a_S\}$;
For example : probability set: represents "1-1 combination" plus combination form:
$\cup\{1,2,3 \ldots S\}=\sum_{j=S}\{1+2+3+\ldots+S\}$;

✷**Define** (group combination - function) topological set: represents the "2-2 combination" plus the combination form:

$\cup$ { $\cap$($a_1 a_2$), $\cap$($a_2 a_3$), … , $\cap$($a_S a_1$)}= $\sum_{j=S} \prod_{i=2}$ {$a_1a_2 + a_2a_3 + … + a_Sa_1$};

For example : Topological set: represents "2-2 combination" plus combination form:

$\cup$ { $\cap$ (1,2), $\cap$ (2,3), … , $\cap$ (S,1)}= $\sum_{j=S} \prod_{i=2}$ {1·2+2·3+…+S·1};

Definition (group combination - function) supertopological set: represents "PP combination" plus combination form:

$\cup$ {$\cap$($a_1a_2…a_p$),$\cap$($a_2a_3…a_p$),…}=$\sum_{j=S}\prod_{i=P}${1·2·…P+2·3·…P+…+P…S·1};

✷Definition 1.4 Characteristic Mode: (Group Combination -Function) Unit Body $\{X_0^{(S)}\}^{K}$: Establish a relationship between the non-repeating combination form and the combination coefficient, becoming the positive, median and negative average values. The combination coefficients are:

(A=1), (B=1/S), (C=2/(S-0)(S-1),…, (P=(P-1)!/(S-0)!,

Among them: The definition includes logical algebraic language and classical algebraic language: (the same below)

1. Logical language: The set formed by merging A and B has no average value. Union: A $\cup$ B, read as A and B. Intersection: A$\cap$B, read as "the intersection of A and B". Logical language $\cap$ (union) and (intersection) emphasizes "exchange". "Exchange" lacks interpretability, the denominator cannot be zero, and it is difficult to accurately calculate the value.

2. Classical algebraic language: "addition, subtraction, multiplication, division", exponentiation, square root, average". Emphasis on (multiplication combination) and (addition combination). The denominator can be zero. Convergence is controlled by properties, but the values cannot be exchanged.

Their corresponding characteristic modes are:

For example: "1-1" (group combination) combination average $\{X_0^{(1)}\}^K$: $\cap$ (union) corresponds to :

$\{a_1 ,a_2 , … ,a_S\}^K= \sum_{j=S} (1/S)^K(a_1^K +a_2^K+…+a_S^K)^K=\{X_0^{(1)}\}^K$;

For example: (group combination) all multiply the combination unit $\{X_0\}^{K(S)}$:

$\{^{(S)}\sqrt{(a_1 a_2 … a_S)}\}^{K(Z\pm S\pm(q=S)} =\{^{(S)}\sqrt{X}\}^{K(Z\pm S\pm(q=S)}$; (A=1)

For example, the "2-2" combination: (B= 2 /S(S-1) $\cap$ (intersection) corresponds to

$\{a_1a_2,…,a_Sa_1\}^K=\sum_{j=S}[(2!/(s-0)(s-1)]^K\prod_{i=p}\{a_1a_2^K+a_2a_3^K+…+a_Sa_1^K\}=\{X_0^{(2)}\}^K$;

For example, the combination of "3-3": (C = 3! /(S-0)(S-1)(S- 2) $\cup$ (intersection) corresponds to

$\{a_1a_2a_3,…,a_Sa_1a_2\}^K=\sum_{j=S}[(3!/(s-0)(s-1)(s-2)]^K\prod_{i=p}\{a_1a_2a_3^K+…+a_Sa_1a_2^K\}=\{X_0^{(3)}\}^K$;

For example: "PP" combination: (P=(P-1)!/(S-0)!, $\cup$ (intersection) corresponds to

$\{a_1a_2a_3a_P,…,a_Sa_1a_2a_P\}^K=\sum_{j=S}[(P-1)!/(s-0)!]^K\prod_{i=p}\{a_1a_2a_2a_P^K+…+a_Sa_1a_P^K\}=\{X_0^{(P)}\}^K$;

For example: the elements of the set of all elements whose characteristic modulus is $\{^{(S)}\sqrt{(1,2,3 … 10)}\}^{K(Z\pm S\pm q=S)}$,

"1-1" combination average:

$\sum_{j=S} [1/9]^K \prod_{[i=1]}\{1+2+…+9\}^{K(Z\pm S\pm(q=S)} =\{\mathbf{5}\}^{K(Z\pm S\pm(q=1)}$;

For example: the elements of the set of all ternions $\{^{(3)}\sqrt{(3 \cdot 4 \cdot 8)}\}^{K(Z\pm S\pm q=S)} = {}^{(3)}\sqrt{96}$,

"0-0" combination average:

$\sum_{j=S} (1/1)^K \prod_{[i=3]}\{(3 \cdot 4 \cdot 8)\}^{K(Z\pm S\pm(q=0)} =\{(^{(3)}\sqrt{96})\}^{K(Z\pm S\pm(q=0)}$;

"1-1" combination average:

$\sum_{j=S} (1/3)^K\{(3+4+8)\}^{K(Z\pm S\pm(q=S)} =\{5\}^{K(Z\pm S\pm(q=1)}$;

The average value of the "2-2" combination is:

$\sum_{j=S} (1/3)^K(3 \cdot 4+4 \cdot 8+8 \cdot 3)\}^{K(Z\pm S\pm(q=S)} =\{22.67\}^{K(Z\pm S\pm(q=2)} \approx \{\mathbf{5}\}^{K(Z\pm S\pm(q=2)}$;

Among them: the combination coefficient of the first term (P=1) of the polynomial is A=1, … , the combination coefficient of the "PP combination" of the (P-1) term is $[(P-1)!/(S-0)!]^K$, and the property attribute K is introduced to control the convergence of the function.

Numerical analysis and logical analysis are two mathematical systems with different mathematical language forms, but the basic principles of addition, subtraction, multiplication and division are the same. Due to their different advantages and disadvantages, it is difficult to unify them, and the development and application of mathematics are limited. Mathematicians speculate whether there is a third set of mathematical constructions that can unify them and give full play to the functions of mathematics. This is the subject of this article.

✷Define 1.5 properties of group combination-function, K represents the properties of number-group combination-function, and controls the convergence, diffusion, equilibrium, and transformation of number-group combination-function. They are called positive-power group combination-function respectively.

Property attributes: K=[K=(+1,-1, ± 1, ± 0)]·[Kw=(+1,-1, ± 1, ± 0)]=(+1,-1, ± 1, ± 0),

Control group combination - forward, reverse, balance, conversion of functions; such as:

External K=(+1) positive power function: (adaptive group combination-function external relationship)

$(a^{(S)})^{(K=+1)} \cdot (a^{(Q)})^{(K=+1)} \cdot … =\{a\}^{(K=+1)(Z\pm S\pm Q\pm…)}$;

External K=(-1) inverse (negative) power function: (adaptive group combination-function external relationship) $(a^{(S)})^{(K=-1)}\cdot(a^{(M)})^{(K=-1)}\cdot=\{a\}^{(K=-1)(Z\pm S\pm M\pm\ldots)}$;

Internal Kw=(+1) positive power function: (adapts to the relationship between internal elements of the function) $(a^{(S)})^{(KW=+1)}\cdot(a^{(Q)})^{(KW=+1)}\cdot\ \ldots=\{a\}^{(KW=+1)(Z\pm S\pm Q\pm\ldots)}$;

Internal Kw=(-1) negative function: (adapts to the relationship between sub-items within the function) $(a^{(S)})^{(KW=-1)}\cdot(a^{(Q)})^{(KW=-1)}\cdot\ \ldots=\{a\}^{(KW=-1)(Z\pm S\pm Q\pm\ldots)}$;

Group combination - balance between external/internal functions:
$(a^{(S)})^{(K=\pm1)}\cdot(a^{(M)})^{(K=\pm1)}\cdot\ \ldots=\{a\}^{(K=\pm1)(Z\pm S\pm M\pm\ldots)}$;

Adaptive group combination - conversion, exchange, morphism, mapping between external/internal functions:
$(a^{(S)})^{(K=\pm0)}\cdot(a^{(M)})^{(K=\pm0)}\cdot\ \ldots=\{a\}^{K=\pm0)(Z\pm(S\pm M))}$;

Written in the form of group combination-function set: K=K·Kw=(-1,±0,±1,+1)
$\{(a)^{K(S)},(a)^{K(Q)},(a)^{K(M)},\ldots\}^{K}\in\{a\}^{K(Z\pm(S\pm Q\pm M))}$;

Among them: the property attribute (K=+1) is generally not marked. If a comparison is made, it is marked separately (K=+1) (forward power function); (K=±0) (neutral, conversion, balanced power function); (K=-1) (reverse power function); (K=±1) (balanced power function).

✷Definition 1.6 Dimensionless circular logarithm $(1-\eta^2)^K$: Circular logarithm is a group combination "self-divided by itself is not necessarily 1" "Natural number N discrete addition combination (arithmetic mean) and real number R continuous multiplication combination (geometric mean)" one-to-one comparison, as well as the comparison relationship, distance, gap, etc. between various inequalities to generate dimensionless circular logarithm. The dimensionless circular logarithm is constructed as a unique and complete "even symmetry and asymmetry, random and non-random control equilibrium exchange mechanism" called "even mechanism". Dimensionless is not interfered by element content, and becomes a dimensionless circular logarithm axiomatization that can prove its truth or falsity.

$(1-\eta^2)^K=[{}^{(S)}\sqrt{\{a_1,a_2,\ldots,a_S\}}/\{\mathbf{D}_0\}]$

$=[{}^{(S)}\sqrt{\{a_1,a_2,\ldots,a_S\}}/\{\mathbf{D}_0\}]^{(q=1)}$

$=[{}^{(S)}\sqrt{\{a_1,a_2,\ldots,a_S\}}/\{\mathbf{D}_0\}]^{(q=2)}$

$=[{}^{(S)}\sqrt{\{a_1,a_2,\ldots,a_S\}}/\{\mathbf{D}_0\}]^{(q=p\ldots)}$;

✷Define 1.7 dimensionless circular logarithmic center zero line (critical line), center zero point (critical point) equilibrium symmetry:
$(1-\eta_{[C]}{}^2)^K=\sum(1-\eta^2)^{(K=-1)}+\sum(1-\eta^2)^{(K=+1)}=\{0,1\}$;

✷Define 1.8 dimensionless equilibrium exchange rule: the proposition remains unchanged, the characteristic module remains unchanged, the logarithm of the isomorphic circle remains unchanged, the logarithm of the isomorphic circle and the property of the power function change positively, negatively and negatively to achieve equilibrium exchange. The premise is: dimensionless Only with "balance" can there be dimensionless "exchange".

In particular, traditional mathematics does not have an "even number mechanism" and cannot be directly exchanged (including the application of Peano's axioms, such as addition, subtraction, multiplication, division, square root, exponentiation, projection, etc. in classical mathematics; modern mathematics: union, intersection, mapping, etc. , morphisms, etc.), can only be exchanged in a balanced manner under the drive of the circular logarithm.

The properties of the power function change to adapt to the " multiplication combination ":
$\sum(1-\eta^2)^{(K=-1)}+\sum(1-\eta_{[C]}{}^2)^{(K=\pm0)}+\sum(1-\eta^2)^{(K=+1)}=0$;

The properties of circular logarithmic factors change to adapt to the " additive combination ":
$\sum(1+\eta^2)^K+\sum(1\pm\eta_{[C]}{}^2)^K+\sum(1-\eta^2)^K=0$;

Among them: the changes in the properties of the power function are synchronized with the changes in the properties of the circular logarithm factor, and can be used interchangeably. In other words, all the calculation symbols in traditional mathematics currently correspond to the dimensionless circular logarithm in the same way, and all concepts are the changes in the properties in the forward and reverse directions.

✷Definition 1.9 Balanced exchange process: The values themselves cannot be exchanged directly, but must be exchanged through the dimensionless circular logarithm center zero evenness balanced exchange mechanism. First of all, it requires balance, and the total circular logarithm with the same symmetry can be exchanged.

Under the condition that the proposition remains unchanged and the characteristic module remains unchanged, the balance exchange is carried out through the dimensionless circular logarithmic properties.

(1) The properties of the circular logarithmic factor remain unchanged, but the properties of the circular logarithmic power function are changed:
$\sum(1-\eta^2)^{(K=-1)}\leftrightarrow\sum(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow\sum(1-\eta^2)^{(K=+1)}$;

Combination or decomposition of power functions:
$\sum(1-\eta^2)^{(K=-1)}+\sum(1-\eta^2)^{(K=\pm1)}+\sum(1-\eta^2)^{(K=+1)}=\{0,2\}$;

$\sum(1-\eta^2)^{(K=-1)} + \sum(1-\eta_{[C]}^2)^{(K=\pm 0)} + \sum(1-\eta^2)^{(K=+1)} = \{0,1\}$;

(2) The properties of the power function factor remain unchanged , but the properties of the circular logarithm factor are changed:

$\sum(-\eta^2)^K \leftrightarrow \sum(\pm\eta_{[C]}^2)^K \leftrightarrow \sum(+\eta^2)^K$;

Circular logarithmic factorization or decomposition:

$\sum(-\eta^2)^K+\sum(\pm\eta^2)^{(K=\pm1)}+\sum(+\eta^2)^K=\{0,2\}$;

$\sum(-\eta^2)^K+\sum(\pm\eta_{[C]}^2)^{(K=\pm0)}+\sum(+\eta^2)^K=\{0,1\}$;

✷Definition 1.10 Dimensionless circular logarithm balance exchange result: " True proposition " becomes " inverse proposition" through the positive and negative transformation of the central zero point symmetry. It includes all the operation symbols of classical mathematical balance symbols and logical algebra, category theory, etc. In other words, all the operation symbols of traditional mathematics (including classical mathematics and modern mathematics) are converted into the positive and negative changes of dimensionless properties and attributes. The operation symbols of the most primitive arithmetic value range "addition, subtraction, multiplication, division, exponentiation, square root" are also converted into the operation of dimensionless construction set "addition, subtraction, multiplication, division, exponentiation, square root, and {±0, ±1}". They have the same arithmetic symbol form, but the connotation of the "dimensional and dimensionless" system of application range is different.

Such as binary numbers : $\Delta= (\eta^2)^K =\sum_{j=1}[^{(2)}\sqrt{\{a_1 ,a_2\}}/ (1/2) \{a_1+a_2\}]^{(q=0,1,2)}$;

(Generally refers to the symmetry of element distribution and numerical asymmetry).

^{2}-4Ac" of the quadratic equation is written as

$[\sqrt{\{a_1 ,a_2\}}/(1/2)B]^{K(2)}$, $c=\{a_1 ,a_2 \}$, $A=1$。

Such as ternary numbers : $\Delta= (\eta^2)^K=[^{(3)}\sqrt{\{a_1 ,a_2 ,a_3\}}/ \sum_{j=1} (1/3)^K\{a_1^K+a_2^K+a_3^K\}]^{K(q=0,1,2,3)}$

(Generally refers to the asymmetry of element distribution and numerical asymmetry).

✷Definition 1.10 Dimensionless circular logarithmic discriminant determines the properties of numerical properties :

Dimensionless circular logarithm discriminant :

$\Delta^K =(\eta^2)^K \leq 1$, property attribute: (K=+1), function convergence :

$\Delta^K =(\eta^2)^K =1$, property attributes: (K=±1), function balance :

$\Delta^K =(\eta^2)^K \geq 1$, property attribute: (K= -1), function expansion :

$\Delta^K =(\eta^2)^K =0$, property attributes: (K=±0), function conversion :

Among them: the discriminant and the circular logarithm Δ^K and $(1-\eta^2)^K$ are equivalent, which only represents the movement of the coordinate center point and does not affect the specific place value of the dimensionless circular logarithm.

[Numerical Example 1] :

Known: Ternary equation: Multiplication combination is the boundary function **D=180** ,

Characteristic mode : $\mathbf{D}_0^{K(1)}=(1/3)(5+4+9)=18/3=6$; $\mathbf{D}_0^{K(2)}=(1/3)(5\cdot4^K+4\cdot9^K+9\cdot5^K)=101/3^K=6^{K(2)}$,

Request for 3D complex analysis:

$\Delta=(\eta^2)^K= {}^{(3)}\sqrt{\{a_1 ,a_2 ,a_3\}}^{K(q=1)}/ \sum_{j=S} (1/3)^K\{a_1^K+a_2^K+a_3^K\}= {}^{(3)}\sqrt{180}^{(q=1)}/ 6=180/6^3=180/216=0.8$;

Dimensionless numerical factor symmetry: $\sum(\eta_\Delta^2)^K = 0$,

The circular logarithmic center zero point corresponds to the circular logarithmic numerical factor $\sum_{j=1} \eta_{\Delta1} =0$, which satisfies the symmetry.

The numerical factor of the dimensionless circular logarithm center zero point: $(\eta_\Delta) \approx \pm3/D_0$; (the numerical center point and the place value circular logarithm center zero point are both between one element and two multiplication elements, and do not necessarily coincide).

Dimensionless numerical factor symmetry: It means that the two sides of the circular logarithm numerical center point " D_0 " are expanded by the circular logarithm controlled symmetry to achieve exchange:

$[(1-\eta_{\Delta[12]})+(1-\eta_{\Delta[2]})]+(1+\eta_{\Delta[3]})=0$;

The dimensionless numerical factors satisfy the symmetry:

$(6-1)/\mathbf{D}_0+(6-2)/D_0+(6-3)/\mathbf{D}_0=0$;

Obtain; $a_1=(1-\eta_{\Delta[1]})\cdot\mathbf{D}_0=(6-1)=5$; $a_2=(1-\eta_{\Delta[2]})\cdot\mathbf{D}_0=(6-2)=4$; $a_3= (1+ \eta_{\Delta[3]})\cdot\mathbf{D}_0=(6+3)=9$,

Complex analysis of ternary numbers:

balance exchange is achieved through the symmetrical balance of the three-dimensional circular logarithm and the center zero point .

Probability (projection axis) distribution **: j** 5 **+i** 4 **+k** 9 **,**

Topological (projection plane) distribution:

j 5 corresponds to **(ik** 4 · 9=36 **); i** 4 corresponds to **(kj** 9 · 5=45 **) ; k** 9 corresponds to **(ji** 5 · 4=20 **);**

Verification: $(5\cdot 4\cdot 9)=180$, combined with the left-hand rule, the corresponding three-dimensional eight-quadrant space meets the requirements of the question.

Balanced exchange conditions: The values themselves cannot be exchanged directly, they must be exchanged through the same circular logarithm.

$(1-\eta_{\Delta[1]})+(1-\eta_{[\Delta[2]]})=(1+\eta_{[\Delta 3]})$; corresponding to $(1-\eta_{[12]}{}^2)=(1-\eta_{[3]}{}^2)$; or: $(1-\eta_{[xy]}{}^2)=(1-\eta_{[z]}{}^2)$;
$(1-\eta_{\Delta[3]})-(1-\eta_{\Delta[2]})=(1-\eta_{\Delta[1]})$; corresponding$(1-\eta_{[32]}{}^2)=(1-\eta_{[1]}{}^2)$; or$(1-\eta_{[zy]}{}^2)=(1-\eta_{[x]}{}^2)$;
$(1-\eta_{\Delta[3]})-(1-\eta_{\Delta[1]})=(1-\eta_{\Delta[2]})$; corresponding$1-\eta_{[31]}{}^2)=(1-\eta_{[2]}{}^2)$; or$(1-\eta_{[zx]}{}^2)=(1-\eta_{[y]}{}^2)$;

Three-dimensional rectangular coordinate system representation: the plane topological projection and the probability axis projection have conjugate and inverse symmetry.
the balance of the associative law and the commutative law of circular logarithms satisfies the Hamilton-Wang Yiping three-dimensional quaternion (eight quadrants) commutative law:
(**jik** =-1) , **ik** =-1(**j**); **kj** =-1(**i**); **ji** =-1(**k**).

Conversion between circular logarithms and three-dimensional circular logarithmic complex analysis:
That is: the normal line of the plane topological projection (morphism) is likely to be parallel to the axis projection (morphism).

That is to say, the numerical value of the ternary number is asymmetric, but it has conjugate and inverse symmetry with respect to circular logarithms and can be exchanged. (The analytical method has been proved, the same is omitted below)

[Numerical Example 2] :

Given: ternary number multiplication combination : **D=160** ,

Characteristic mode : $D_0^{(1)}=(1/3)(4+5+8)=5.66$, $D_0^{(2)}=(1/3)(4\cdot 5+5\cdot 8+8\cdot 4)=30.66\approx 5.66^{(2)}$,

Requirements: Conduct three-dimensional complex analysis:

$\Delta=(\eta^2)^K={}^{(3)}\sqrt{}\{a_1,a_2,a_3\}^{(q=1)}/\sum_{j=S}(1/S)\{a_1+a_2+a_3\}={}^{(3)}\sqrt{160}^{(q=1)}/5.66=160/181.32=0.8$;
$(1-\eta_{[C]}{}^2)^K=0$; the central zero point is said to correspond to the characteristic modulus 5.66.

Numerical factor symmetry: $\sum(\eta_\Delta{}^2)^K=0$, which is controlled by the circular logarithm to achieve symmetry expansion and exchange:

$(-\eta_{\Delta[1]}/D_0)+(\eta_{\Delta[2]}/D_0)+(+\eta_{\Delta[3]}/D_0)$
$=[(-1.66/D_0)+(-0.67/D_0)+(+2.33/D_0)]\cdot D_0=0$;

The Balanced Symmetry of the Numerical Factor of the Central Zero Point of the Circular Logarithm
$\sum(\eta^2)^K=0$, $(\eta_\Delta)\approx\pm 2.33/D_0$,

The three root values of the ternary number and the central zero point satisfy the symmetry.

have; $a_1=(1-\eta_{\Delta[1]})\cdot D_0{}^{(1)}=(5.66-1.66)\cdot 5.66=4$,
$a_2=(1-\eta_{\Delta[2]})\cdot D_0{}^{(1)}=(5.66-0.67)\cdot 5.66=5$,
$a_3=(1+\eta_{\Delta[3]})\cdot D_0{}^{(1)}=(5.66+2.33)\cdot 5.66=8$,

Complex analysis of ternary numbers: corresponding exchanges are achieved through symmetric balance of circular logarithms and central zero points.

Probability (axis) distribution: **j** 4+ **i** 5+ **k** 8,
Topological (planar) distribution: **j** 4 corresponds to (**ik** 5 · 8=40);
i 5 corresponds to (**kj** 8 · 4 = 32);
k 8 corresponds to (**ji** 4 · 5=20);

Verification: $(4\cdot 5\cdot 8)=160$, which meets the requirements of the question.

[Number Example 3]

Known: ternary number multiplication combination D = 120 ,

Characteristic mode: $D_0{}^{(1)}=(1/3)(3+5+8)=5.33^{(1)}$; $D_0{}^{(2)}=(1/3)(3\cdot 5+5\cdot 8+8\cdot 3)=26.33\approx 5.33^{(2)}$,

Requirements: Conduct three-dimensional complex analysis:

$\Delta=(\eta^2)^K={}^{(3)}\sqrt{}\{a_1,a_2,a_3\}^{(q=1)}/\sum_{j=S}(1/S)\{a_1+a_2+a_3\}$
$={}^{(3)}\sqrt{120}^{(q=1)}/5.33=120/151.4=0.78$;

The Balanced Symmetry of the Numerical Factor of the Central Zero Point of the Circular Logarithm
$\sum(\eta_\Delta{}^2)^K=0$, $(\eta_\Delta)\approx\pm 2.67/D_0$

Numerical factor symmetry: It means that the two sides of the characteristic modulus centered on "5.33" are expanded by circular logarithm control symmetry to achieve exchange:

$(1-\eta_{\Delta[1]}/D_0)+(1-\eta_{\Delta[2]}/D_0)+(1+\eta_{\Delta[3]}/D_0)$
$=[(1-2.33/D_0)+(1-0.33/D_0)+(1+2.67/D_0)]/D_0=0$;

Yes; $a_1=(1-\eta_{\Delta[1]})\cdot D_0=(5.33-2.33)\cdot 5.33=3$,
$a_2=(1-\eta_{\Delta[2]})\cdot D_0=(5.33-0.33)\cdot 5.33=5$,
$a_3=(1+\eta_{\Delta[3]})\cdot D_0=(5.33+2.67)\cdot 5.33=8$,

Complex analysis of ternary numbers: corresponding exchanges are achieved through symmetric balance of circular logarithms and central zero points.

Probability (axis) distribution: **j** 3+ **i** 5+ **k** 8,

Topological (planar) distribution:

j 3 corresponds to (**ik** 5 · 8=40); **i** 5 corresponds to (**kj** 3 · 8=24); **k** 8 corresponds to (**ji** 3 · 5=15);

Verification: (3 · 5 · 8)=120, which meets the requirements of the question.

In particular, according to the symmetric distribution characteristics of the zero point of the circular logarithm center, the "999 multiplication formula and circular logarithm relationship table" of ancient Chinese mathematics was compiled, or the "999 table" was consulted. A new chip architecture arrangement can be established to solve the symmetry and asymmetry analysis of ternary numbers and high-power equations with the place value calculation method , and perform infinite analysis in the range of $\{3\}^{2n}$.

✷Definition 1.11 Probability circle logarithmic set: a unit body representing the combination of one element and one element in the form of a "1-1 combination": the geometric space is represented by the position and value of the corresponding probability deformation body of the "external boundary or internal center point of the set".

$(1-\eta_H{}^2)^K = \cap$ (intersection) $^{(S)}\sqrt{\{a_1, a_2, a_3, \dots, a_S\}} / \cup$ (union) $\{a^{(1)}\}$

$= \sum_{j=S} \{a_1+a_2+a_3+\dots+a_S\}/\{a^{(1)}\}=1$;

Among them : ∩ (intersection), ∪ (union) borrow logical language symbols to represent "multiplication combination" and "addition combination" connected with it. (The same below)

✷Definition 1.12 Topological circular logarithmic set: a unit body representing the combination of two elements and two elements in the form of a "2-2 combination": the geometric space is represented by the position and value of the corresponding topological deformable body of the "external boundary or internal center point of the set".

$(1-\eta_T{}^2)^K = \cap$ (intersection) $^{(S)}\sqrt{\{a_1, a_2, a_3, \dots, a_S\}} / \cup$ (union) $\{a^{(2)}\}$

$= \sum_{j=S} \{a_1a_2+a_2a_3+\dots+a_Sa_1\}/\{a^{(2)}\}=\{0,\pm1\}$,

✷Definition 1.13 Hypertopological circular logarithmic set: a unit body representing a combination of P elements and P elements in the form of a "P-P combination": the geometric space is represented by the position and value of the corresponding topological deformable body of the "external boundary or internal center point of the set".

$(1-\eta_T{}^2)^K = \cap$ (intersection) $^{(S)}\sqrt{\{a_1, a_2, a_3, \dots, a_S\}} / \cup$ (union) $\{a^{(P)}\}$

$= \sum_{j=S} \{a_1\dots a_p+a_2\dots a_p+\dots+a_S\dots a_p\}\{a^{(P}\}=\{0,\pm1\}$,

✷Definition 1.14 The logarithmic central zero line (critical line) of the probability circle: $(1-\eta^2)^K=\{1,0\}$ corresponds to the position outside the critical line $\{a_0{}^{(1}\}$ of the "1-1 combination" characteristic mode , indicating the symmetry of the central zero line between the "1-1 combination" unit cells (outside): the symmetry position is the central zero line value {2 or 0} corresponding to the two-side characteristic modes $\{a_0{}^{(1}\}=\{\pm1\}$ corresponding to the characteristic modes {+1,(2,0),-1} symmetry expansion.

$(1-\eta_{[C]})^K=[\cap$ (intersection)$^{(S)}\sqrt{\{a_1, a_2, a_3, \dots, a_S\}} / \cup$ (union) $\{a\}]^{(1)}$

$= \sum_{[j=S]}\{a+a_2+a_3+\dots+a_S\}/\{a_0\}]^{(1)}=\{0,\pm1\}$,

✷Definition 1.15 The logarithmic central zero line (critical line) of the topological circle: $(1-\eta^2)^K=\{1,0\}$ corresponds to the position outside the "2-2 combination" characteristic mode critical line $\{a_0\}^{(2)}$, which indicates the symmetry of the central zero line between the "2-2 combination" unit cells (outside): the symmetry position is the central zero line value {2 or 0} corresponding to the two-side characteristic modes $\{a_0{}^{(2)}\}=\{\pm1\}$ corresponding to the characteristic modes {+1,(2,0),-1} symmetry expansion.

$(1-\eta_{[C]}{}^2)^K=[\cap$ (intersection) $^{(S)}\sqrt{\{a_1, a_2, a_3, \dots, a_S\}} / \cup$ (union) $\{a\}]^{(2)}$

$= \sum_{[j=S]}\{\{a_1a_2+a_2a_3+\dots+a_Sa_1\}/\{a\}]^{(2)}=\{0,\pm1\}$,

✷Definition 1.16 The logarithmic central zero line (critical line) of the hypertopological circle: $(1-\eta^2)^K=\{1,0\}$ corresponds to the position outside the critical line of the "P-P combination" characteristic mode $\{a_0{}^{(P)}\}$, which represents the symmetry of the central zero line between the "PP combination" unit cells (outside): the symmetry position is the central zero line value {2 or 0} corresponding to the two-side characteristic modes $\{a_0\}^{(P)}=\{\pm1\}$ corresponding to the characteristic mode {+1,(2,0),-1} symmetry expansion.

$(1-\eta_{[C]}{}^2)^K=[\cap$ (intersection) $^{(S)}\sqrt{\{a_1, a_2, a_p, \dots, a_S\}} / \cup$ (union) $\{a\}]^{(p)}$

$= \sum_{[j=S]}[\{(a_1a_2\dots a_P)+\dots\}/\{a_0\}]^{(P)}=\{0,\pm1\}$;

✷Definition 1.17 The central zero point (critical point) of the logarithmic probability circle is on the central zero line of the logarithmic circle: $(1-\eta_{[C]}{}^2)^K=\{0\}$ corresponds to the two-side characteristic mode $\{a_0{}^{(1)}\}$ {0, ± 1} , which represents the (±1/2) symmetry of the central zero point {0,(±1/2),±1} between the "1-1 combination" unit body (interior) {0,±1}: The symmetry position is expressed as the symmetry expansion of the two-side characteristic mode $\{a_0{}^{(1)}\}=\{0,(\pm1/2),\pm1\}$ with the central zero point value {2,0} as the center.

✷**Definition** 1.18 The point of the topological circular logarithm central zero point (critical point) on the circular logarithm central zero line: $(1-\eta_{[C]}^2)^K=\{0\}$ corresponds to the two-side characteristic mode $\{a_0^{(2)}\}$ {0, ± 1} , which represents the (±1/2) symmetry of the central zero point {0,(±1/2),±1} between the "2-2 combination" unit body (interior) {0,±1}: the symmetry position is expressed as the symmetry expansion of the two-side characteristic mode $\{a_0^{(2)}\}$={0,(±1/2),±1} with the central zero point value {2,0} as the center.

✷**Definition** 1.19 The point of the supertopological circular logarithm central zero point (critical point) on the circular logarithm central zero line: $(1-\eta_{[C]}^2)^K=\{0\}$ corresponds to the two-side characteristic mode $\{a_0^{(P)}\}$ {0, ± 1} , which represents the (±1/2) symmetry of the central zero point {0,(±1/2),±1} between the "PP combination" unit body (interior) {0,±1}: the symmetry position is expressed as the symmetry expansion of the two-side characteristic mode $\{a_0^{(P)}\}$={0,(±1/2),±1} with the central zero point value {2,0} as the center .

[Number Example 4]:

Given: the ternary value **D = 168** , a vector point $\{X\}^{(3)}$ in three-dimensional space , where: {X}contains angle, direction, weight, etc.

Multiply the characteristic modulus: $\{D\}^{(1)}={}^{(3)}\sqrt{168}$

Add characteristic modulus: $\{D_0\}^{(1)}$=(1/3)(a+b+c)= 18/3= 6, $\{D_0\}^{(2)}$=(1/3)(ab+bc+ca)=37,

Analytically or combinatorially it is most convenient to use the probability combination of the second term of the polynomial:

Symmetry of the circle about the zero line of logarithmic center :

[(±1)+(±2)+(-3)] $\{\mathbf{D_0}\}^{(1)}$={0,2} · $\{\mathbf{D_0}\}^{(1)}$

Get three roots:

a=(6-3)=3, b=(6+1)=7, c=(6+2)=8:

Complex analysis of ternary numbers:

The combination of three-dimensional space vectors "3-3 combination": $\{X\}^{(3)}$= **jik** (3 · 7 · 8) = 168,

The value of the spatial position: $\{D_0^{(3)}\}$=168.

characteristic modulus values corresponding to the critical line positions of the circular logarithmic center zero line (critical line) are: $\{D_0\}^{(1)}$=6 ; $\{D_0\}^{(2)}$=37.

Topological "2-2 combination" projected on the plane:

$\{X\}^{(2)}$= **ji** (3 · 7=21)+ **ik** (7 · 9=63)+ **kJ** (9 · 3=27)) =37,

point (critical point) of the circular logarithm center on the (critical line) is: $\{\mathbf{D}_0\}^{(1)}$= 6 .

The probability of projecting on the axis "1-1 combination": $\{X\}^{(1)}$= (**j**3+ **i**7+ **k**8),

In particular, in the three-dimensional space projection, the values of the normal lines of the plane topology and the values of the probability axis constitute the conjugate reciprocal asymmetry of "evenness", which cannot be directly balanced and exchanged. Only when they are converted into the symmetry of the circular logarithm of evenness can the balance and exchange driven by the circular logarithm of "evenness'infinity axiom'" be realized.

(1) The "evenness" of the center zero line corresponds to the characteristic mode, and the symmetry is equivalent to (±1)+(±2)+(+ 3)={0,2} · $\{\mathbf{D}_0\}^{(1)}$,

Among them: {0} represents the center zero line zero balance, minus balance, and rotational balance; {2} represents the center zero line even balance, plus balance, and precession balance; the positions correspond to the values on both sides of the {+1, 2, -1} circular logarithmic center zero line position.

(2) The "evenness" of the central zero point corresponds to the characteristic mode, and the symmetry on the central zero line is equivalent to (±1)+(±2)+(+ 3)={0, 2 } · $\{\mathbf{D}_0^{(1)}\}$;

Among them: {0} represents the zero balance, minus balance, and rotational balance of the center zero point, and {1} represents the even balance, plus balance, and precession balance of the center zero point; corresponding to the values of the center zero line position of the circle logarithm {+1, 0 , -1} in the "three directions" {0, (±1/2) , 1}. (Figure 1.1)

Among them: even number ≠ even number, the asymmetric distribution of the ternary number and the position (direction) constitute the "asymmetric distribution" of "even number" , which is converted to the "conjugate symmetric distribution" of the zero point of the circular logarithm.

For example : [(+1)+(+2)+(-3)]={0} · $\{\mathbf{D}_0\}^{(1)}$ (zero symmetry) ;

[(+1)+(+2)+(+3)={2} · $\{\mathbf{D}_0\}^{(1)}$ (even symmetry) ;

Among them: each equation () considers the calculation of properties and attributes and most of them have two calculation results, indicating that the numerical values cannot be combined directly, and must be balanced through the symmetry of the zero point of the circular logarithm center to drive the combination of "element-object".

1.4. Dimensionless circular logarithm and central zero line (critical line) central zero point (critical point, limit)

Circular logarithms are the "one-to-one correspondence" between "real numbers and natural numbers", and are defined in dimensionless language as an "infinite set of constructions". So, "are there the same number of real numbers as natural numbers?" From the perspective of integers in number theory, "if we limit ourselves to real numbers that are special cases of integers: there are the same number of real numbers as natural numbers".

From the perspective of mathematical analysis and logic: "The real number**R**(continuous transition method, compatibility) has more "points" than the natural number N (jump transition method, completeness). The dimensionless circular logarithm is expressed here as: the boundary function (±1) is the same as the central zero point (±0): "the real number set R corresponds to a solid circle" and "the natural number set**N**corresponds to a hollow circle". The dimensionless construction that satisfies the same unit cell of the natural number set and the event number set ensures the integerness and zero error expansion of the circular logarithm, and becomes the infinite axiom of isomorphism, homology, homomorphism, homotopy, and random equilibrium exchange.

However, "natural integers are the smallest constructed set, and the gaps between natural integers include: rational numbers, irrational numbers, transcendental numbers, complex numbers,..., and any objects that can be digitized" together with real numbers form the largest number set, and through the control of shared power function properties (K=+1,-1,±0,±1), they form a more extensive, reciprocal dimensionless circular logarithm with the real number set.

Circular logarithms use the reciprocal sets of "multiplication combinations and addition combinations" and "union and intersection" as basic units. They are the objects of any numerical analysis and logical analysis. They have the conjugate reciprocal asymmetry of "evenness" and cannot be balanced and exchanged. They are converted into the conjugate reciprocal symmetry of the central zero point of circular logarithms to control the "evenness", becoming an infinite construction set that is "irrelevant to mathematical models and has no specific (quality) content". They are analyzed in the number field of {0, 1} in a place value-position manner, have the internal compatibility and external completeness of natural numbers, and contain the "balance and exchange" of the infinite construction set of the "axiom of infinity".

Based on any group combination-function, the numerical characteristic modulus and place value circular logarithm can be extracted respectively, where the characteristic modulus is a combination with unchanged total elements, and the place value circular logarithm reflects the dimensionless distance, measure, position, and place value of the order of each combination term, and the dimensionless analysis of the variable function that is independent of the specific elements. In this way, mathematical analysis will enter the historical stage of "numerical-place value integration" analysis.

Unless otherwise noted, the following analysis is conducted using the circular logarithm $(1-\eta^2)^K$ as the variable unit. Representing any group combination-function set {X}, through the analysis of the numerical characteristic modulus $\{X_0\}$ and the place-value circular logarithm

"$(1-\eta^2)^K$, $(\eta^2)^K$, $(\eta)^K$, $((d\eta)^2)^K$, $((d^2\eta)^2)^K$, $(\int(\eta^2)dx)^K$, $(\iint(\eta^2)dx^2)^K$",

the group combination-circular logarithm set reflecting the mathematical integrity

$\{X\}^{(K=\pm1)(Z\pm S)}=(1-\eta^2)^K\cdot\{\mathbf{D}_0\}^{(K=\pm1)(Z\pm S)}$

All the analyses, including those on calculus states, are based on the equilibrium and exchange (morphisms, mappings) driven by circular logarithmic control.

There are some facts about numbers that will come in handy.

Fact **1** : Any group combination-function m/n can be simplified to a sequence of different pairs of m and n (K=+1,0,-1) by transformation in positive, negative and negative forms.

Fact **2** : Any group combination-function in resolution $\{\mathbf{2}\}^{\mathbf{2(n)}}$ can be decomposed into 2(n) (even) conjugated, mutually inverse, asymmetric two-term combinations with base {**2**}, or into 2(n) ,{**3**}2(n) (odd) conjugated , mutually inverse, asymmetric three-term combinations with base $\{\mathbf{3}\}^{\mathbf{2(n)}}$.

The circular logarithm is proved by the identity of the third-party constructed set: all the numerical values cannot be directly exchanged, and can only be exchanged by converting them into circular logarithms to control the symmetric balance conjugation and reciprocal symmetry sub-terms of the "evenness" of the circular logarithm.

in:

are balanced and exchanged through the evenness of the isomorphic circular logarithmic factor

$(\eta^2)^K=(1-\eta^2)^K=(1+\eta^2)^K$.

(2) The objects of ternary asymmetry, the odd functions with the same circular logarithmic factors $(1-\eta^2)^K=(1+\eta_{[A]}^2)^{(K=+1)}=[(1-\eta_{[B]}^2)+(1-\eta_{[C]}^2)]^{(K=-1)}$, are randomly balanced and exchanged under the dimensionless ' axiom of infinity' .

(3) The asymmetry of natural numbers (including any digitizable object) produces combinations of odd and even numbers, which have an asymmetric distribution of "evenness" both inside and outside, and are uniformly converted into the "evenness" of the symmetry of the circular logarithmic factor.

$(1-\eta^2)^K=\sum(1+\eta^2)^K+\sum(1-\eta^2)^K=\{0,1\}$;

$(1-\eta^2)^K=\sum(1+\eta^2)^{(K=+1)}+\sum(1-\eta^2)^{(K=+1)}=\{0,1\}$;

$(1-\eta^2)^K=\prod(1+\eta^2)^{(K=+1)}+\prod(1-\eta^2)^{(K=+1)}=\{0,1\}$;

The control and drive of "objects" realizes the 'infinite axiom' of random and non-random balance and exchange.

✷**Define** 1.20 Group Combination - Symmetry of the center zero line (called limit line, critical line) of the circular logarithm of the function. Under the condition of circular logarithm $(1-\eta^2)^K=\{0,1\}$: $(1-\eta_{[C\}}^2)^K=\{1\}$ (critical line). Symmetry of the center zero line (called limit line, critical line) of the circular logarithm. Under the condition of circular logarithm $(1-\eta_{[C\}}^2)^K=\{0,1\}$: $(1-\eta_{[C\}}^2)^K=\{1/2\}$ (critical point) corresponds to the analysis of the maximum ideal and characteristic modes (median and inverse mean functions) of the exterior and interior.

certificate

According to the limit theory familiar from traditional mathematics, there is no distinction between the limits of group combinations - the limits of the exterior and interior of the function, defined as: limf(x)=q, or if and only if for any $\varepsilon \geq 0$, there exists:

$\delta \geq 0$, $\lim f(x)=\lim (1-\eta^2)=q$,

So that: $|xq| \leq \delta \Rightarrow |f(x)-q| \leq \varepsilon$;

This group combination - a computational environment that does not distinguish between the external and internal functions, has no definite or unstable central zero point, and is prone to mode collapse and mode confusion, making it impossible to obtain zero-error analysis results.

is demonstrated using the circular logarithm of dualism .

For example: Given: $\mathbf{D}=ab$, $\mathbf{D_0}=(1/2)(a+b)$;

Discriminant: $\Delta=(\eta^2)^{(K=\pm1)}=\sqrt{AB}/\mathbf{D_0}=\{0,1\}$;

Establish a quadratic equation,

$X^2+BX+\mathbf{D}=(1-\eta^2)^{(K=\pm1)}[(0,2)\cdot\mathbf{D}_0]^2$

Get root:

$A=(1-\eta^2)^{(K=-1)}\mathbf{D}_0$, $B=(1-\eta^2)^{(K=+1)}\mathbf{D}_0$;

At this time, the circular logarithm corresponds to the symmetry of $\mathbf{D_0}$:

(1), $(1-\eta_{[C\}}^2)^{(K=\pm0)}=1$; $\|(1-\eta^2)^{(K=-1)}\|$ and $\|(1-\eta^2)^{(K=+1)}\|$ are the two boundary lines of $\mathbf{D}_0=\{\pm1\}$, called the central zero line (critical line).

(2), $(1-\eta_{[C\}}^2)^{(K=\pm0)}=0$, the numerical center zero point on the center zero line of the critical line $(1-\eta^2)^{(K=\pm0)}=1$:

(3), $|(1-\eta^2)^K|$ and $|(1+\eta^2)^K|$ are $(1-\eta^2)^K=\{0,\pm1\}$ corresponding to the central zero line to the two boundary characteristic mode series critical lines.

(4), $|(1-\eta_\Delta^2)^K|$ and $|(1+\eta_\Delta^2)^K|$ are $(1-\eta_\Delta^2)^K=\{\pm1/2\}$, corresponding to the critical points from the central zero point to the two boundary characteristic modes .

(5), Logarithmic symmetry of the entire circle :

$\sum(1-\eta^2)^K=\sum(1+\eta^2)^{(K=+1)}+\sum(1-\eta^2)^{(K=\pm1)}+\sum(1+\eta^2)^{(K=-1)}=\{0, \pm2\}$;

$\sum(1-\eta^2)^{(K=\pm1)}=\sum(1+\eta^2)^{(K=+1)}+\sum(1-\eta_{[C\}}^2)^{(K=\pm0)}+\sum(1+\eta^2)^{(K=-1)}=\{0, \pm1\}$;

The zero line (critical line) at the center of the whole circle logarithmic value corresponds to the characteristic modulus $\mathbf{D_0}$:

$\sum(1-\eta^2)^{(K=\pm0)}=\sum(1-\eta^2)^{(K=+1)}+\sum(1-\eta^2)^{(K=-1)}=\{0, 1\}$,

(critical point) of the logarithmic value of the entire circle corresponds to the characteristic mode point $\mathbf{D_0}$:

$\sum(1-\eta_{\Delta[C\}}^2)^{(K=\pm0)}=\sum(1+\eta_\Delta^2)^{(K=+1)}+\sum(1+\eta_\Delta^2)^{(K=-1)}=\{\pm1/2\}$

Establish the circular logarithmic simultaneous equations at the central zero point (critical point) :

$\sum(1-\eta_\Delta^2)^{(K=+1)}+\sum(1+\eta_\Delta^2)^{(K=-1)}=\{0,\pm1\}$;

$\sum(1-\eta_\Delta^2)^{(K=+1)}-\sum(1-\eta_\Delta^2)^{(K=-1)}=\{0,\pm1\}$;

Get the zero point of the circular logarithm:

$(1-\eta_{[C\}}^2)^{(K=\pm0)(Z\pm S)}=\{\pm1/2\}$ **.**

Comparison: Proof of the central zero point (limit) of calculus: In calculus, the function y=f(x) is continuous at a certain point x0 , which actually means dividing the image from x0 into two segments, the left segment x approaches x0 , and the right segment x also approaches x0 . Both the left and right segments of the image will have limits at x0 (left limit and right limit) and the limit value is the function value $f(x_0)$.

Therefore, when the right limit [lim+f(x)]=[left limit lim-f(x)]=[$f(x_0)$], it means that the function f(x) is continuous at x_0 .

This "limit, mapping, morphism, arrow, → " is applied in both numerical analysis and logical analysis. Based on the asymmetry of the two-sided values and distribution , it is "not directly exchangeable". The formal random balance and exchange should be " randomly driving the balance and exchange of "element objects" through the "evenness" of the central zero line (critical line) and the central zero point (critical point) of the circular logarithm :

The circle logarithmic center zero line (critical line) corresponds to the characteristic modulus {0, 2},

$[x\rightarrow(1-\eta^2)x_0]^{(K=+1)}$ Map $\rightarrow [\lim+(1-\eta_{[C]}^2)f(x)]^{(Kw=+1)}=(1-\eta^2)^{(Kw=+1)}=(+1)$;

$[x\rightarrow (1-\eta^2)\, x_0]^{(K=-1)}$ mapping , morphism $\rightarrow$ lim - $(1-\eta_{[C]}{}^2)\, f(x)]^{(Kw=-1)}$
$= (1-\eta^2)^{(Kw=-1)}$ mapping , morphism $\rightarrow[x\rightarrow (1-\eta^2)x_0]^{(K=-1)} = (-1)$;

The zero point (critical point) {0} of the circular logarithm value corresponds to the characteristic mode { D_0 }:
$(1-\eta_{[C]}{}^2)^{Kw=\pm0)} = \sum(1-\eta_\Delta{}^2)^{(Kw=+1)} + \sum(1-\eta_\Delta{}^2)^{(Kw=+1)} = \{0,1\}$;
$(1-\eta_{[C]}{}^2)^K = \sum(1-\eta_\Delta{}^2)^K + \sum(1+\eta_\Delta{}^2)^K = \{0\}$;

The central zero line (critical line) of the circular logarithm is at $(1-\eta_{[C]}{}^2)^{(K=\pm0)} = 1$, and the central zero point (critical line) of $(1-\eta_\Delta{}^2)^{(K=\pm0)} = C = \delta = 0$ point) (or may be discontinuous).
Among them: Property attributes: (K=±1) represents the external completeness of the characteristic mode; (Kw=±1) represents the internal compatibility of the characteristic mode.

In particular, the numerical asymmetry A≠B obtained from the equation calculation cannot directly balance the exchange (mapping, morphism). (The artificial assumption of discreteness and symmetry of logical algebra makes morphisms lack of interpretability).

When the asymmetry is discrete, it is also impossible to directly balance the exchange (mapping, morphism). Under the same circular logarithm factor of the 'infinity axiom' , any combination of asymmetric values, functions, and groups is called a "proposition", and random balance exchange is achieved through the circular logarithm center zero point $(1-\eta_{[C]}{}^2)^{(K=\pm0)}$.

Balanced exchange (mapping, morphism) rules: The combination of the original proposition group remains unchanged **D** , the characteristic module remains unchanged $\mathbf{D_0}$**,** the circular logarithm $(1-\eta^2)$ form remains unchanged, only the central zero point of the circular logarithm $(1-\eta_{[C]]}{}^2)^{(K=\pm0)}$ changes the (positive, negative) properties of the corresponding power function , and A ↔ B is realized. That is, assume that A is true, and then deduce that B is true through logical steps.

A ↔ B exchange process is described by the dimensionless circular logarithm:
$(1-\eta^2)^{(K=-1)} \leftrightarrow (1-\eta_{[C]}{}^2)^{(K=\pm0)} \leftrightarrow (1-\eta^2)^{(K=+1)}$;
$(1-\eta^2)^{(Kw=-1)} \leftrightarrow (1-\eta_{[C]}{}^2)^{(Kw=\pm0)} \leftrightarrow (1-\eta^2)^{(Kw=+1)}$;
In other words, the dimensionally asymmetric "Proposition A is true" cannot directly balance the exchange value, and the random balanced exchange of the evenness of the same circular logarithm itself, the "Axiom of Infinity " , drives the exchange of "Proposition B is true" . Specifically, it is the " exchange (morphism, mapping, projection , operation, etc.)" based on "balance" that is mutually inverse. Once the circular logarithm is canceled, the asymmetric value of the "proposition" is restored (such as A≠B).

above process also provides additional proof:

(1) $(1-\eta^2)^{(K=\pm0)}$ is the symmetry of the circular logarithm center zero line (critical line) $\sum (1-\eta_i{}^2)^{(K=\pm0)} = 1$ corresponding to the maximum ideal, numerical characteristic modulus $\mathbf{D_0}$. It describes the synchronous change of the characteristic modulus as the center point and the surrounding elements.

(2), $\sum (1-\eta_{[C\}}{}^2)^{(K=\pm1)} = 0$ or $\sum (\eta_{[C\}}{}^2)^{(K=\pm1)} = 0$ or $\sum (\pm\eta_{[C\}})^{(K=\pm0)} = 0$, indicating the symmetry of the circular logarithmic center zero point (critical point) , describing the distance relationship between the characteristic mode center point $\mathbf{D_0}$ and the surrounding independent elements , and analyzing the root elements.

(3) $\sum (1-\eta_{[C\}}{}^2)^{(K=\pm1)} \neq 0$ or $\sum(\eta_{[C\}})^{(K=\pm1)} \neq 0$, indicating the asymmetry of the new hierarchical circular logarithmic center zero point. By establishing a new hierarchical circular logarithmic center zero point and hierarchical characteristic mode, continue the above (1) and (2) for analysis. Including the analysis of the new hierarchical characteristic mode center point $\mathbf{D_{0\,(hierarchy)}}$ and the surrounding individual elements and dynamic relationship.

The above two problems (1) - (2) have an indispensable analytical environment (including calculus of dynamic expression), reflecting the single variable of traditional calculus, or the multivariate of functional analysis, as well as the category theory of logical algebra, which emphasizes the continuity and completeness of the external group combination-function, but does not solve the balance and exchange relationship between the internal central point and the surrounding elements , which creates a dilemma .

The random equilibrium exchange combination (decomposition) of the central zero point of the 'infinite axiom' unique to this dimensionless construction reforms and expands traditional calculus and pattern recognition, both of which require the random equilibrium exchange combination of the 'infinite axiom' connected by dimensionless circular logarithms .

In particular, the above proof process also reveals the root cause of why the " central zero conjecture" is difficult to crack: the current traditional mathematical construction system's discrete symmetry axiomatic assumption , that is, "numerical analysis or logical objects have "even incompleteness", numerical analysis cannot be directly exchanged; logical analysis cannot be directly balanced". Only by adopting the new mathematical dimensionless construction of the 'infinite axiom' mechanism , the circular logarithmic central zero point symmetry drives the "symmetry and asymmetry balance and exchange" of the " element- object", can we obtain a stable and reliable central point of exchange (transformation , morphism, mapping, balance, etc.) , called the central zero point of the Riemann function (critical line, critical point, traditional calculus called " limit ").

2. Dimensionless circular logarithms and continuum and application examples

2.1、Connection between the infinite set of dimensionless circular logarithmic constructions and the continuum problem

In 1874, Georg Cantor conjectured that there is no cardinality between the cardinality of countable sets and the cardinality of real numbers. This is the famous continuum hypothesis. It is also known as Hilbert's first problem. At the Second International Congress of Mathematicians in 1900, David Hilbert listed Cantor's continuum hypothesis as the first of the 23 important mathematical problems to be solved in the 20th century.

of logical analysis - category theory and traditional numerical analysis cannot leave the continuum problem: the continuum is the smallest infinite set of natural numbers , and the cardinality of the natural number set is recorded as " Aleph Zero " . Cantor proved that the cardinality of the continuum is equal to the cardinality of the power set of the natural number set . Is there another infinite set whose cardinality is greater than that of the natural number set but smaller than that of the continuum ?

Cantor believed that there were no other infinite sets between N and R, but he could not give a proof.
In 1938, K. Gödel proved that **CH** is consistent with the **ZFC** axiom system (see axiomatic set theory). In 1963, PJ Cohen proved that **CH** is independent of the **ZFC** axiom system and it is impossible to judge. whether it is true or false. Gödel and Cohen proved that there may be other infinite sets between $(1-\eta_{[C]}{}^2)^{K w=\pm 0)}=\sum(1-\eta_{\Delta}{}^2)^{(K w=+1)}+\sum(1-\eta_{\Delta}{}^2)^{(K w=+1)}=0$;
$(1-\eta_{[C]}{}^2)^{K w=\pm 0)}=\sum(1-\eta_{\Delta}{}^2)^{(K w=+1)}+\sum(1-\eta_{\Delta}{}^2)^{(K w=+1)}=0$;
and **R**, but they could not give a proof. Set theories where **CH** does not hold are called non-Cantor set theories.

2.1.1. Continuum Problem

The so-called continuum: The continuum is a mathematical concept. When people say in general terms that "real numbers can change continuously in the real number set", they can also say that the real number set is a continuum; a more rigorous description requires the use of mathematical tools such as order theory and topology. Here, continuous is relative to the concept of discrete.

The so-called continuum hypothesis, the core of the continuum hypothesis is whether "continuity and discreteness" can be transformed into a unity?

Limited by historical conditions, the Cantor-Gödel-Cohen dispute "is there a new construction set between the real number set and the natural number set? That is: the fact that there is no dimensionless language to define the construction set."

The most important mathematical problems proposed by Hilbert at the International Congress of Mathematicians in Paris in August 1900. Hilbert's 23 problems are divided into four major groups: problems 1 to 6 are basic mathematical problems; problems 7 to 12 are number theory problems; problems 13 to 18 are algebraic and geometric problems; and problems 19 to 23 are mathematical analysis problems.

The two agreed on how to solve the **CH** problem, that is, they must re-examine the foundation of set theory , and later someone proposed "axiomatization of set theory" . Gödel believed that "the complete solution of these problems can only be obtained through a deeper analysis (than usual) of the terms that appear in them (such as 'set', 'one-to-one correspondence', etc.) and the axioms that govern the use of these terms". Cohen also believed that if we want to "develop which axioms we should accept", then "we must abandon the scientific plan as a whole and return to an almost instinctive level, that is, a state that is more or less similar to the mental state when people first began to think about mathematical problems", and both of them speculated that **CH** is very likely not true, so in the **ZFC** axiom system, **CH** is impossible to judge true or false. This was one of the biggest advances in set theory in the 1960s.

However, in the 21st century, the conclusions of the predecessors began to be shaken again. It is impossible to judge the truth of **CH**. It speculates "Is there a third infinite set between the natural number set **N** and the real number set **R** ?" If such a constructed set exists, it can be used to determine whether set theory is valid, and whether classical mathematical combinations are valid. Klein said in "Mathematical Thoughts from Ancient to Modern Times" that (new axiomatization) "must break through the scope of Hilbert's metamathematics to be possible."

In 1871, German mathematician Cantor first proposed a strict definition of real numbers. Any non-empty (i.e. continuous) upper-bounded set (contained in **R**) must have a supremum. Definition of the real number set The real number set includes all rational and irrational numbers and transcendental numbers , usually denoted by the capital letter **R.** Dimensionless circular logarithms define them as: any finite 'element-object' in infinity.

The most important problem in the foundations of mathematics is how to deal with the relationship between natural numbers **N** and real numbers **R** , that is, how to construct a continuum using discrete methods.

Since the ancient Greeks discovered this problem, it has not been completely solved. Like Dedekind cut, this algorithm still does not provide us with any way to determine whether a rational number A is to the left or right of C or is exactly equal to C. Therefore, we will not be able to guarantee that the Euler constant C is a real number.

Nonstandard analysis also gives us the impression that the points on the line are actually infinitely divisible .

This shows that we still know very little about the continuum. Mathematical induction is a basic method of mathematics, which is based on the natural number **N.** The negative proof of the continuum hypothesis just shows that people can use this method to infinitely approach the continuum, but can never reach its end.

Current traditional mathematics (i.e. numerical analysis system and logical analysis system) are all based on "axiomatic" assumptions and do not have a strictly proven mathematical foundation, such as "discrete type-symmetry assumption", "Peano axiom 1+1=2?", "axiom of choice", "recursion method", "one-to-one correspondence", etc. They have encountered "asymmetry", "continuity" problems, and "the system itself cannot prove its own authenticity". There is a lot of "uncertainty", and there is no satisfactory analysis method so far.

However, humans always want to pursue a certain certainty but can never grasp it. If we are not careful, our entire foundation will fall apart, and below is the bottomless abyss, which deeply reflects the current instability of the foundation of traditional mathematics.

✷Definition 2.1 Dimensionless language is an infinite set of constructions that are "independent of mathematical models" and "have no specific (mass) element content". This third type of dimensionless construction set only represents the position value-position of the " element- object" location, and does not represent the specific numerical value.

The dimensionless structure also has a timeless, unique, and complete "symmetric and asymmetric balance exchange mechanism of evenness'infinite axiom' ", which automatically determines the "authenticity" of each program in the system itself, and is not disturbed by any specific elements outside the system during analysis. It verifies the "element-object" (exponential value analysis system, logical analysis system), and has fairness, objectivity, sequentiality, and central zero-point symmetry. As for any " element- object", under the " infinite axiom " condition of the third-party circular logarithm construction , the circular logarithm drives the "aggregation and decomposition" of the " element- object", which is unified as the "balance and exchange" mechanism of complete evenness and becomes the axiomatic hypothesis of the circular logarithm.

What does this mean? Specifically, the infinite set of elements-objects are combined in a non-repeating form, and the set becomes infinite sub-items, each of which can be converted into a dimensionless circular logarithm and the mutual balance and exchange between the positive, middle and negative of the existence of properties. Balance and exchange are both indispensable.

✷Definition 2.2 Definition of real numbers: rational numbers and irrational numbers or algebraic and transcendental numbers, which are numbers corresponding to real numbers and points on the number axis, and together with imaginary numbers, they constitute complex numbers. And they are controlled by the properties of positive, middle and negative, usually represented by the capital letter R.

✷Definition 2.3 The real number set R is the number corresponding to the continuous real numbers and points on the number axis (note: it should be the corresponding circle). It is the core research object of real number theory. It and imaginary numbers together constitute complex numbers. The real number set is usually represented by the "geometric mean function set" to represent the set of rational numbers, irrational numbers and transcendental numbers , called infinite "multiplication combinations" (including real number set R , multiplication combinations, intersections, perfect circle patterns, geometric mean values, rational numbers, irrational numbers, codes, information, text, natural language, video, audio, physics, chemistry, biology, thinking, all arbitrary objects that can be digitized, ...)"

✷Definition 2.4 Define the unit cell of the real number set {X} :The combination of real numbers that form polynomials is given a square root, called the characteristic modulus of the combination , the geometric mean (combination of products, intersection)

✷Definition 2.5 Natural number set N : The set of positive integers, the set of integers, which can have negative numbers and objects that can be digitized by integers, and are controlled by positive, neutral, and reverse properties , usually represented by the **capital letter N.**

✷Definition **2.6** Define natural numbers . The natural number set N is the set of all non-negative integers. The natural number set has an infinite number of numbers. Non-negative integers include positive integers and zero, and are a countable set. The natural number set is usually represented by the " arithmetic mean function set" to represent the set of rational numbers, irrational numbers , and transcendental numbers , called "additive combinations" (including the natural number set N , additive combinations, unions, characteristic modulos (positive, median, and inverse mean functions), and arithmetic mean).

✷Definition 2.7 Function-polynomial: An infinite set of combinations of "multiplication combinations" with non-repeating elements, and an infinite program combination of sub-items "multiplication combinations" that form a function-polynomial. In function polynomials, they are often listed in

The first combination coefficient A=1, the second B=(1/S), the third B=(2!/(S-0)(S-1), ... , the P th P=(P-1)!/(S-

0)!. " ! " is the factorial.

Among them: the combination coefficients of the function-polynomial composed of any finite elements have a regularized distribution form.

✷**Definition 2. 8** Unit cell of natural number set:

$\{X_0\}^{K(S=p)}=\sum[(p-1)!/(s-0)!]\{a\ldots p^K+b\ldots p^K+\ldots+s\ldots p^K\}^K$,

Or: $\cup\{X_0\}^{K(S=p)}=\{a\ldots p\cup b\ldots p\cup\ldots\cup s\ldots p\}$ (add combination, union)

The combination form that represents the combination coefficients of a natural number polynomial divided by the multiplication of elements is called the "arithmetic mean (additional combination, union)" in its simplest form.

The above definition of a set is broader than the traditional definition because it has place values defined in dimensionless language and is not disturbed by specific elements in the analysis. Place values only indicate the location and position of elements and have no specific numerical meaning.

✷**Definition 2.9** Characteristic modulus: A sub- construction set of different combinations of elements of an infinite construction set. When the regularized combination coefficient and the element combination form establish an average value relationship , it is called a characteristic modulus.

✷**Definition 2. 10** dimensionless circular logarithm: According to the principle of relativity,

The real number set **R** and the natural number set **N** , in the form of circular logarithm $(1-\eta^2)^K=$ **R/N** (including one-to-one comparison between various combination units), obtain a new dimensionless circular logarithm construction set. In turn, through the symmetry of the central zero line (critical line) and the central zero point (critical point) of the dimensionless circular logarithm, the random mutual reversibility of the real number set **R** and the natural number set **N** is self-consistently driven by the self-proven balance exchange , called the 'infinity axiom' . Once the circular logarithm is revoked, their original asymmetric appearance is restored.

2.1.2. Dimensionless circular logarithm proof of the continuum problem

Purpose of proof: To solve the continuum problem: "Discrete points (including natural number set **N** , addition combination, union, characteristic modulus, arithmetic mean) and continuous lines (including real number set **R** , product combination, intersection, perfect circle pattern, geometric mean)", use the dimensionless circular logarithm to construct the unique "even number" symmetry and asymmetric conjugate reciprocity and random and non-random equilibrium exchange mechanism of the set, and connect them self-consistently through the conjugate reciprocity symmetry of the central zero line (critical line) and the central zero point (critical point) of the dimensionless circular logarithm.

From the perspective of mathematical analysis and logic, "real number **R** (continuous transition mode, compatibility) has more "points" than natural number **N** (jump transition mode, completeness). Traditional mathematics cannot obtain integer expansion on this issue, and almost all of them have "remainders", which are difficult to handle.

forces traditional mathematics to adopt " approximate calculation " . This is also the fundamental reason for the incompleteness of all functions composed of axiomatization in traditional mathematics (it is said that the dimensional system cannot be self-consistent, and the system itself cannot prove its "true or false"). It reflects the unreliability of traditional mathematics.

The dimensionless circular logarithm is expressed as: the boundary function (±1) is the same as the central zero point (±0): "the real number set R corresponds to a solid circle" and "the natural number set N corresponds to a hollow circle". The dimensionless construction that satisfies the same unit cell of the natural number set and the event number set ensures the integerness and zero error expansion of the circular logarithm, and becomes the infinite axiom of isomorphism, homology, homomorphism, homotopy, and random equilibrium exchange.

However, "natural integers are the smallest constructed set, and the gaps between natural integers include: rational numbers, irrational numbers, transcendental numbers, complex numbers,..., and any objects that can be digitized" together with real numbers form the largest number set, and through the control of the shared power function properties (K=+1,-1,±0,±1) of dimensionless circular logarithms, they form a more extensive, reciprocal dimensionless circular logarithm with the real number set.

In particular, the N and R systems themselves are transformed into the "infinite sets and combinations" of dimensionless systems, and into dimensionless construction sets. Dimensionless systems "have no specific number of elements", and have a unique "balanced exchange mechanism of even symmetry and asymmetry". Relying on the symmetry of the central zero line (critical line) and central zero point (critical point) of the circular logarithm, under the condition of unchanged propositions, the "balanced exchange" of the central zero point symmetry of the circular logarithm drives the "objects - natural number set N (discrete type), real number set R (continuous type)" to integrate the completeness and compatibility of integrity. Through the central zero point symmetry of the circular logarithm, the system itself performs random and non-random reliable dimensionless "balanced exchange", driving the reliable "collection, combination, analysis, and decomposition" of dimensions. Once the circular logarithm is revoked, all " element- objects" restore their original asymmetry and unbalanced exchangeability.

✷**Definition** 2.1 1 Dimensional system refers to all the corresponding tangible and intangible concrete objects and various functions of various calculation symbol combinations, which are all composed according to axiomatization (without mathematical proof) (addition, subtraction, multiplication, division, square root, exponentiation, union and intersection, various high and low power equations, calculus dynamic equations, path integrals of any geometric space to a perfect circle pattern, etc.), and are collectively called "dimensional system". Due to the incompleteness of dimensional system, the system itself cannot " prove its own truth " (referring to Gödel's incompleteness theorem) . The "**axiom of infinity**" will show that the foundation of traditional mathematics is not solid.

✷**Definition** 2.1 2 Dimensionless system refers to all kinds of "elements-objects" (referring to algebra, geometry, number theory, group theory, all arbitrary digitizable objects, information, code, language, audio, video, natural text, physics, chemistry, biology, thinking, ...) that can form various reasonable mathematical models according to the axiomatization of the "balanced exchange mechanism of even symmetry and asymmetry " unique to dimensionless, that is, the axiomatization hypothesis of circular logarithm (with balanced exchange mathematical proof) has (addition, subtraction, multiplication, division, union and intersection) and other components. They can all be uniformly converted into a "dimensionless system" for zero-error arithmetic analysis.

The integrity of the dimensionless system is manifested as the "integration of completeness and compatibility" and the "compactness of isomorphism, homomorphism, homology, and homotopy" to ensure the stability and reliability of the zero point of the circular logarithm center.

The dimensionless circular logarithm is "independent of mathematical models, without interference from specific element content" and has the unique "even number" mechanism of the dimensionless system. Under the same circular logarithm factor, the concept of the dimensionless circular logarithm is closed and the randomness and non-randomness are automatically balanced. It is reliable, stable and authoritative. It can be used as a third-party system to fairly verify the rationality of the dimensional system.

As a result, all current traditional mathematics is included in the "dimensional system" (referring to the system of Gödel's incompleteness theorem) , which means that the mathematical foundation is not solid.

Similarly, the dimensionless circular logarithm structure is called a "dimensionless system". All "dimensional systems" (referring to algebra, geometry, number theory, group combinatorial theory systems) can be converted into "dimensionless system" operations.

The "dimensional system" is driven by the "balance exchange mechanism of even symmetry and asymmetry , randomness and non-randomness'infinite axiom' " and the central zero-point symmetry of the "dimensionless system", which indirectly drives the "balance exchange of the dimensional system". This balance exchange is temporary. Once the circular logarithm is revoked, the "balance exchange of the dimensional system" cannot be restored.

According to the principle of relativity, the real number set R and the natural number set N are compared in the circular logarithm $(1-\eta^{2})^{K}= R/N$ (the one-to-one correspondence between the units)
), the third-party dimensionless circular logarithm construction set is obtained. In turn, the third-party dimensionless $(1-\eta^2)^K$ has a unique "even number" symmetry and asymmetry conjugate reciprocity and a random and non-random balance exchange mechanism, and through the symmetry of the center zero line (critical line) and the center zero point (critical point) of the dimensionless circular logarithm, it self-consistently drives the balance exchange of the real number set R and the natural number set N. Once the circular logarithm is canceled, their original asymmetric appearance is restored.

✷**Definition** 2.1 3 The dimensionless circular logarithm is the real number set unit cell divided by the natural number unit cell (or the geometric mean function set/arithmetic mean function set) to obtain the infinite circular logarithm construction set defined in dimensionless language:

certificate:

$$(1-\eta^2)^K=[{}^{K(S)}\sqrt{\{a,b,\ldots s\}}/\{D_0\}]^{K(1)}+\{{}^{K(S)}\sqrt{\{a,b,\ldots s\}}/\{D_0\}^{K(2)}+\ldots+\{{}^{K(S)}\sqrt{\{a,b,\ldots s\}}/\{D_0\}^{K(p)}]^{K(Z\pm S)}$$
$$=(1-\eta_1{}^2)^{KP(N)}+(1-\eta_2{}^2)^{KP(N)}+\ldots+(1-\eta_S{}^2)^{K(S)}=\{0,2\};$$ (S=0, 1,2,3,…infinite integers)

The circular logarithm multiplication (division) form: (K=+1,-1,±0,±1)(S) represents exponentiation, square root, conversion, balance, (corresponding to the circular logarithm power function calculation) , also That is to say, the operation symbols of traditional mathematics have "no substantial difference" here and are uniformly converted into dimensionless operations.

$$\prod(1-\eta_S{}^2)^{KP(N)}=\prod(1-\eta_S{}^2)^{(K=+1)P(N)}+\prod(1-\eta_S{}^2)^{(K=\pm0)P(N)}+\ldots+\prod(1-\eta_S{}^2)^{(K=-1)P(N)}$$
$$=\sum_{(Z\pm S)}\prod_{(Z\pm S\pm q)}(1-\eta_S{}^2)^K=\{0,1\};$$

Circular logarithmic addition (subtraction) form: (Kw=+1,-1,±0,±1)(S) represents multiplication, division,

conversion, and balance respectively (corresponding to the calculation of circular logarithmic factors)
$\sum(1-\eta_S{}^2)^{(K=\pm1)P(N)}=\sum(1-\eta_S{}^2)^{(K=+1)P(N)}+\sum(1-\eta_S{}^2)^{(K=\pm0)P(N)}+\ldots+\sum(1-\eta_S{}^2)^{(K=-1)P(N)}$
$=\sum_{(Z\pm S)}\prod_{(Z\pm S\pm q)}(1-\eta_S{}^2)^K=\{0,1\}$;

Infinite symmetry expansion of circular logarithmic factors :
$(\eta_S{}^2)^K=(\eta_1{}^2)^K+(\eta_2{}^2)^K+\ldots+(\eta_S{}^2)^K=\{0,1\}$;
or: $(\eta_S)^K=(\eta_1)^K+(\eta_2)^K+\ldots+(\eta_S)^K=\{0,1\}$;

In this way, it is proved that the dimensionless 'infinity axiom' has the symmetry of the infinite circular logarithm construction, and each sub-item corresponding to the infinity axiom has a random equilibrium exchange condition.

✷Definition 2.1 4- dimensional circular logarithm center zero line (critical line): $(1-\eta^2)^{(K=\pm1)}=\{0,\pm1\}$, corresponding to the balance outside the characteristic mode $\{D_0\}^{K(Z\pm S)}$, describing the symmetry of the center zero line (critical line). The circular logarithm is called "evenness".

$$\prod(1-\eta_S{}^2)^{(K=\pm0)P(N)}=\prod(1-\eta_S{}^2)^{(K=+1)P(N)}+\prod(1-\eta_S{}^2)^{(K=-1)P(N)}=(1-\eta_S{}^2)^{(K=\pm1)(Z\pm S)}=\{0,\ \pm1\}^{K(Z\pm S)};$$
$$\sum(1-\eta_S{}^2)^{(Kw=\pm0)P(N)}=\sum(1-\eta_S{}^2)^{(Kw=+1)P(N)}+\sum(1-\eta_S{}^2)^{(Kw=-1)P(N)}=(1-\eta_S{}^2)^{(K=\pm1)(Z\pm S)}=\{0,\ \pm1\}^{K(Z\pm S)};$$

✷Definition 2.15 Dimensionless circular logarithm central zero point (critical point): $(1-\eta_{C}{}^{2})^{(K=\pm1)}=0$, corresponding to the equilibrium inside the characteristic mode $\{D_0\}^{K(Z\pm S)}$, the central zero point (critical point) is located at the central zero point (critical point), describing the symmetry of the central zero point (critical point).

$$(1-\eta_{[C]}{}^2)^K=\prod(1-\eta_{1[C]}{}^2)^{KP(N)}+\prod(1-\eta_{2[C]}{}^2)^{KP(N)}+\ldots+\prod(1-\eta_{S[C]}{}^2)^{KPP(N)}=(1-\eta_{S[C]}{}^2)^{(K=\pm0)(Z\pm S)}=\{0\}^{K(Z\pm S)};$$
$$(1-\eta_{[C]}{}^2)^K=\sum(1-\eta_{1[C]}{}^2)^{KP(N)}+\sum(1-\eta_{2[C]}{}^2)^{KP(N)}+\ldots+\sum(1-\eta_{S[C]}{}^2)^{KPP(N)}=(1-\eta_{S[C]}{}^2)^{(K=\pm0)(Z\pm S)}=\{0\}^{K(Z\pm S)};$$

Among them: there is no substantial difference between the multiplication combination and the addition combination in the conversion to dimensionless circular logarithms, as long as the total number of elements (geometrically called boundary functions) remains unchanged and the form of the characteristic module combination (called "itself") remains unchanged.

If we say that the “ difference ” is only that “additive combinations must be circular logarithmic factor changes, and multiplicative combinations must be power function factor changes”, then “circular logarithmic factor changes and power function factor changes” are synchronous.

Therefore, we say that they perform operations (addition, subtraction, multiplication, division, exponentiation, square root, calculus, union, intersection). "There is no substantial difference", that is, numerical analysis and logical analysis can be converted into dimensionless circular logarithms, which unify them and are called "irrelevant mathematical models".

certificate:

Assume 1: N is a set of natural numbers, the unit cell (with attribute control in the middle and reverse) is the arithmetic mean, called (addition and union) characteristic module, the characteristic modules are in order:

Probability (equivalent to first-order calculus): $\{\mathbf{D}_0\}^{K(1)}=\sum_{[S\pm(q=1)]}(1/S)^K(a^K+b^K+\ldots+s^K)^K$;

Topology (equivalent to second-order calculus): $\{\mathbf{D}_0\}^{K(2)}=\sum_{[S\pm(q=2)]}[(2!/(S-0)(S-1)]^K\prod_{[q=2]}(ab^K+cd^K+\ldots+sa^K)^K$;

Hypertopology (equivalent to P-order calculus): $\{\mathbf{D}_0\}^{K(p)}=\sum_{[S\pm(q=p)]}[(P-1)!/(S-0)!]^K\prod_{[q=p]}[(ac\ldots p)^K+\ldots+(bc\ldots ps)^K]$;

Among them: $\sum_{[S\pm(q=1)]}$, $\sum_{[S\pm(q=1)]}$ subscripts represent the additive combination "1-1 combination" and "2-2 combination" of any finite elements, and $\prod_{[q=2]}$, $\prod_{[q=p]}$ subscripts represent the multiplicative combination "1-1 combination" and "2-2 combination" of any finite elements.

The feature module of adding combination and union is written as:
$\{\mathbf{D}_0\}^{K(1)}$, $\{\mathbf{D}_0\}^{K(2)}$,…, $\{\mathbf{D}_0\}^{K(S)}$; (S=0,1,2,3, … infinite integer) .

Let 2: R is the set of real numbers, the unit cell (with attributes to control the positive and negative directions) is the geometric mean, called the (multiplication and intersection) characteristic module, the element is $\prod_{[q=S]}\{a,b,\ldots s\}$ (addition, subtraction, multiplication, division, union, intersection). The simplest is called the unit cell, in sequence:

The characteristic module of the product combination and union is written as:

Probability (equivalent to first-order calculus): $\{\mathbf{D}\}^{K(1)}=\{{}^{K(S)}\sqrt{(a,b,\ldots s)}\}^{K(1)}$,

Topology (equivalent to second-order calculus): $\{\mathbf{D}\}^{K(2)}=\{{}^{K(S)}\sqrt{(a,b,\ldots s)}\}^{K(2)}$,…,

Hypertopology (equivalent to P-order calculus): $\{\mathbf{D}\}^{K(p)}=\{{}^{K(S)}\sqrt{(a,b,\ldots s)}\}^{K(S)}$; (S=0,1,2,3, …infinite integers)

Assumption 3 : The "evenness" of circular logarithms is random balance and exchange:
$(1-\eta^2)^K=\{\mathbf{R}/\mathbf{N}^{(S)}\}^{K(Z\pm S)}\leq1$;
$(1-\eta^2)^K=[(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=`1)}+(1-\eta^2)^{(K=-1)}]=\{0,2\}^{K(Z\pm S)}$;
$(1-\eta^2))^{(K=`1)}=[(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=`0)}+(1-\eta^2)^{(K=-1)}]=\{0,1\}^{K(Z\pm S)}$;

The dimensionless has a unique " balanced exchange mechanism of even symmetry and asymmetry , randomness and non-randomness'infinite axioms' " , which drives the balanced exchange balance of " **R** and **N** " and becomes the axiomatization of circular logarithms , called "infinite axiomatization", becoming a new foundation of mathematical axiomatization, with the advantages of reliability, feasibility, security, precision and fairness .

At present, traditional mathematical operations that use "fixed value division by multi-element multiplication" cannot be expanded into integers, or leave "remainders" that are difficult to handle, and can only be "approximately calculated."

In particular, the characteristic module expansion is equivalent to the Taylor series, Euler series, Fourier series, Legendre series, etc., which can be divided by the unit body composed of their own "element-object" to obtain the dimensionless integer property of each sub-term of the function. And the function (polynomial) has a regularized characteristic expansion. This is the so-called "integer theorem (Hodge conjecture)", which is solved here in dimensionless form.

Evidence [1]:

The evenness of binary numbers: " R≠N ", but the elements on both sides of the central zero point are distributed in a "symmetrical" manner (A, (central zero point 0), B).

For example, " R and N " are decomposed into two conjugate symmetric distribution subsets A and B at resolution 2 , and the mean function of A and B is selected as "characteristic mode $^{)}$ $\{D_0\}^{K(2n)}=(1/2)(A+B)$", which is converted into the dimensionless circular logarithm construction set $(1-\eta^2)^K$ corresponding to the characteristic mode. (n=1,2,3... integer, indicating that the "R and N" series is decomposed into two subsets and still maintains the corresponding series.

$A \cdot B=(1-\eta^2)^{(K=\pm1)} \cdot \{\mathbf{D}_0\}^{K(2n)}$;

$A^{(K=+1)}=(1-\eta^2)^{(K=+1)} \cdot \{\mathbf{D}_0\}^{K(1)}$; $B^{(K=-1)}=(1-\eta^2)^{(K=-1)} \cdot \{\mathbf{D}_0\}^{K(1)}$;

or: $(1-\eta^2)^{(K=+1)}=\{\mathbf{D}_0\}/A^{(K=+1)(1n)}$; $(1-\eta^2)^{(K=-1)}\ \{\mathbf{D}_0\}/B^{(K=-1)(1n)}$;

Among them: $|(1-\eta^2)^{(K=+1)}| \leftrightarrow |(1-\eta^2)^{(K=-1)}|$;

random and non-random exchange process of the central zero-point symmetry of the binary circular logarithm "evenness" :

Exchange rule: The two "element-object" propositions remain unchanged, the characteristic module remains unchanged, and the isomorphic circular logarithm remains unchanged. Only by changing the properties of the circular logarithm in the opposite direction, the true proposition is exchanged (changed, mapped, morphism) to become the inverse proposition.

Exchange process:

Dimensionless circular logarithmic center zero line (critical line) series: (adapt to the outside of the characteristic mode)

$A=(1-\eta^2)^{(K=+1)}\{D_0\}\leftrightarrow\{(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=-1)}\}\leftrightarrow(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}=B$,

$A\leftrightarrow(AB)^{(K=\pm0)}\leftrightarrow B$;

Dimensionless circular logarithm center zero point (critical point): (adapted to the characteristic mode interior) $\{ab\} \in \{AB\}$

$a=(1-\eta_\Delta^2)^{(Kw=+1)}\{D_0\} = \{(1-\eta_\Delta^2)^{(Kw=+1)} \leftrightarrow (1-\eta_\Delta^2)^{(Kw=\pm0)} \leftrightarrow (1-\eta_\Delta^2)^{(Kw=-1)}\{\mathbf{D}_0\} = (1-\eta^2)^{(Kw=-1)}\{\mathbf{D}_0\}=b$,

$a \leftrightarrow (ab)^{(Kw=\pm0)} \leftrightarrow b$;

It satisfies the balance of dimensionless circular logarithm with the same factor, and randomly exchanges characteristics. The characteristic mode $\{D_0\}$ emphasizes the role of the intermediate medium.

Among them: $\{D_0\}^{(2)}$ only obtains the transitional effect of the intermediate medium, reflecting the common properties of binary numbers (asymmetric values).

This proves that A and B (or a and b) cannot be "combined" directly. Only circular logarithmic equilibrium can drive the exchange of A and B. This is the characteristic of the random equilibrium exchange of the "axiom of infinity".

Evidence [2]:

The evenness of ternary numbers: " R≠N ", but the elements on both sides of the central zero point are distributed asymmetrically ("(A ↔ (central zero point 0) ↔ BC)").

under the condition of resolution 2, the center point of " R" and "N " is decomposed into two conjugate asymmetric subsets, A and (B, C), and there are median and inverse mean functions of A and (B , C) , called "characteristic mode

$\{\mathbf{D}_0\}^{(1)}=(1/3)(A+B+C)$;

$\{\mathbf{D}_0\}^{(2)}=(1/3)(AB+BC+CA)$",

Convert to dimensionless circular logarithm to construct set $(1-\eta^2)^K$ corresponding to characteristic modulus. (n=1,2,3… integer, indicating that the series of " R and N " is decomposed into three subsets corresponding to circular logarithm , and still maintains the corresponding asymmetric series. The difficulty lies in " how to balance the exchange of a "combination of one arity and two multiplications " arity ? This involves "analytic problem of asymmetry", and many mathematical problems in traditional mathematics are stuck here.

Now, converting the ternary number into a dimensionless circular logarithm, we obtain
$A{\cdot}B{\cdot}C=(1-\eta_{[ABC]}^2)^{(K=\pm1)}\{\mathbf{D}_0\}^{K(3)}$;
$A=(1-\eta_{[A]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{K(1)}$; $BC=(1-\eta_{[BC]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(2)}$;
$|(1-\eta_{[A]}^2)^{(K=+1)}| = |(1-\eta_{[BC]}^2)^{(K=+1)}|$; $|(-\eta_{[A]}^2)^{(K=+1)}| = |(+\eta_{[BC]}^2)^{(K=+1)}|$;
Among them: $BC=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(2n)}$ can be decomposed into:
$BC=(1-\eta_{[BC]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(2)}$
$=(1-\eta_{[B]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1)}+(1-\eta_{[C]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1)}$
$B=(1-\eta_{[B]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1n)}$, $C=(1-\eta_{[C]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1n)}$
Technical arrangement:
$A=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}^{K(1n)}$;
$B=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1n)}$;
$C=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1n)}$;

the ternary numbers produce random and non-random balanced exchange combinations (decompositions).

Exchange rule: The three "element-object" propositions remain unchanged, the characteristic module remains unchanged, and the isomorphic circular logarithm remains unchanged. Only by changing the properties of the circular logarithm in the middle and reverse directions, the true propositions are exchanged (changed, mapped, and state). Shooting) becomes the inverse proposition

Exchange rule: The two "element-object" propositions remain unchanged, the characteristic module remains unchanged, the isomorphic circular logarithm remains unchanged, and the true propositions are exchanged (changed, mapped, and shaped) only by changing the properties of the circular logarithm in the opposite direction. Shooting) becomes the inverse proposition.

Circle logarithmic center zero point exchange process:

Dimensionless circular logarithmic center zero line (critical line) series: (adapt to the outside of the characteristic mode)
$A=\{^{(3)}\sqrt{X}\}^{(1)}=(1-\eta_{[A]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{(1)}$
$\leftrightarrow [(1-\eta_{[ABC]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{(3)} \leftrightarrow (1-\eta_{[ABC]}^2)^{(K=\pm0)}\{D_0\}^{(3)} \leftrightarrow (1-\eta_{[ABC]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{(3)}]$
$\leftrightarrow (1-\eta_{[BC]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{(2)}=\{^{(3)}\sqrt{\mathbf{D}}\}^{(2)}=BC$;
$A \leftrightarrow (ABC)^{(K=\pm0)} \leftrightarrow (B+C)$;

Dimensionless circular logarithm center zero point (critical point): (adapting to the interior of the characteristic mode) $\{abc\}^{(Kw=\pm0)} \in \{ABC\}^{(Kw=\pm0)}$
$a=(1-\eta_{\Delta}^2)^{(Kw=+1)}\{\mathbf{D}_0\}=\{(1-\eta_{\Delta}^2)^{(Kw=+1)} \leftrightarrow (1-\eta_{\Delta}^2)^{(Kw=\pm0)} \leftrightarrow (1-\eta_{\Delta}^2)^{(Kw=-1)}\}\{\mathbf{D}_0\} = (1-\eta^2)^{(Kw=-1)}\{\mathbf{D}_0\}=b$,
$a \leftrightarrow (abc)^{(Kw=\pm0)} \leftrightarrow (b+c)$;
It satisfies the balance of dimensionless circular logarithm with the same factor, and randomly exchanges characteristics. The characteristic mode $\{D_0\}$ emphasizes the role of the intermediate medium.
Among them: $\{D_0\}^{(3)}$ only obtains the transition effect of the intermediate medium, reflecting the common properties of ternary numbers (asymmetric values).

Here it is proved that A and B C (or a and bc) cannot be directly "combined". Only circular logarithmic equilibrium can drive the exchange of A and B. This is the characteristic of random equilibrium exchange of the "axiom of infinity".

Global exchange process:
$X=\{^{(3)}\sqrt{X}\}^{(3)}=(1-\eta_{[ABC]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{(3)} \leftrightarrow (1-\eta_{[ABC]}^2)^{(K=\pm0)}\{\mathbf{D}_0\}^{(3)}$
$\leftrightarrow (1-\eta_{[ABC]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{(3)}=\{^{(3)}\sqrt{D}\}^{(3)}=\mathbf{D}$;
$\mathbf{X}=\mathbf{ABC}^{(K=-1)} \leftrightarrow (ABC)^{(K=\pm0)} \leftrightarrow \mathbf{CBA}^{(K=-1)}=\mathbf{D}$;
Among them: when the ternary number has no combination and decomposition, $(1-\eta_{[ABC]}^2)$ is only a change in the property attribute, and when the ternary number has a combination and decomposition , it is carried out in the property attribute change of $(1-\eta_{[ABC]}^2)$. $\{D_0\}^{(3)}$ only obtains the transition effect of the intermediate medium, reflecting the common property of the ternary number (asymmetry).

The three circles have the same logarithmic powers, forming the associative law and the commutative law, which overcomes the problem that traditional mathematics cannot directly balance exchanges, or supplements the mathematical basis for solving the problem that logical analysis category theory cannot directly morphism and map, and classical analysis cannot directly balance.
Among them : the exchange method of ternary numbers (asymmetric distribution) must pass through the symmetry of the central zero point of the circular logarithm. Under the same dimensionless circular logarithm factor, the original proposition, characteristic modulus, and isomorphic circular logarithm remain unchanged. Through the positive and negative properties of the circular logarithm properties, the balanced exchange of random and non-random values

drives the balanced exchange of values.

The dimensionless circular logarithm addition associative law: It is established under the influence of the critical point of the central zero point symmetry of the circular logarithm to adapt to the asymmetric ternary series . Among them: the multiplication combination of ternary numbers is converted into three circular logarithm addition methods associative law and commutative law through the circular logarithm:

$(1-\eta_{[A]}^2)^{(K=+1)} + (1-\eta_{[B]}^2)^{(K=-1)} + (1-\eta_{[C]}^2)^{(K=-1)} = \{0,1\}$;

or: $(\eta_{[A]}^2)^{(K=+1)} + (\eta_{[B]}^2)^{(K=-1)} + (\eta_{[C]}^2)^{(K=-1)} = \{\pm 0\}$;

Circular logarithms plus the combinatorial commutative law:

$(1-\eta_{[A]}^2)^{(K=+1)} = (1-\eta_{[B]}^2)^{(K=-1)} + (1-\eta_{[C]}^2)^{(K=-1)}$;

$(1-\eta_{[B]}^2)^{(K=-1)} = (1-\eta_{[A]}^2)^{(K=+1)} + (1-\eta_{[C]}^2)^{(K=-1)}$;

$(1-\eta_{[C]}^2)^{(K=-1)} = (1-\eta_{[A]}^2)^{(K=+1)} + (1-\eta_{[B]}^2)^{(K=-1)}$;

The circular logarithmic factor plus the combinatorial commutative law still satisfies the central zero-point symmetry of "evenness":

$(\eta_{[a]}^2)^{(K=+1)} = (\eta_{[b]}^2)^{(K=-1)} + (\eta_{[c]}^2)^{(K=-1)}$;

$(\eta_{[b]}^2)^{(K=-1)} = (\eta_{[a]}^2)^{(K=+1)} + (\eta_{[c]}^2)^{(K=-1)}$;

$(\eta_{[c]}^2)^{(K=-1)} = (\eta_{[a]}^2)^{(K=+1)} + (\eta_{[b]}^2)^{(K=-1)}$;

Symmetry of the circle logarithmically about the center zero line (critical line) ;

$(+ \eta_{[a]})^K + (-\eta_{[b]})^K + (- \eta_{[c]})^K = \{\pm 0\}$;

the zero point (critical point) of the circular logarithm ; $\{abc\} \in \{ABC\}$

$(+\eta_{[a]})^K + (-\eta_{[b]})^K + (+\eta_{[c]})^K = \{\pm 0\}$;

Where: {±0} here is a dimensionless place value and has no specific numerical content);

$(\eta_{[a]})^K = (\eta_{[b]})^K + (\eta_{[c]})^K$; $(\eta_{[b]})^K = (\eta_{[a]}^2)^K - (\eta_{[c]})^K$; $(\eta_{[c]})^K = (\eta_{[a]})^K - (\eta_{[b]})^K$;

The above formula expresses the random equilibrium exchange of the central zero line (critical line) between the characteristic modes (external) of the " element- object" and the random equilibrium exchange of the central zero point (critical point) between the characteristic modes of the " element- object " (internal) elements under the same condition of dimensionless circular logarithmic factor .

Among them: the "coincidence (superposition) " of the central zero point. Or it can be expressed as "multiplication combination and addition combination", "geometric mean and arithmetic mean", and its "coincidence" cannot be "superimposed into one point". Only when the dimensionless circular logarithm is controlled {0,1}, " superposition can have a common point" and become "concentric circles" .

In summary: multiplication combinations and intersections are suitable for the description of power function factors; addition combinations and unions are suitable for the description of circular logarithm factors, and the changes of power function factors and circular logarithm factors are synchronized, so there is no substantial difference in "addition, subtraction, multiplication, division, square root, multiplication, inversion, intersection, union and other operation symbols" in dimensionless circular logarithms. The {±0, ±1} corresponding to the dimensionless circular logarithm is a place value-position relationship, and the operation results are at the center zero point or the boundary respectively. They are different from the {0, 1} of dimensioned natural numbers. On the surface, they seem to be the same, but the concepts, definitions, and application fields are different.

Binary numbers ($A \neq B$) refer to the symmetric distribution of the system , and ternary numbers ($A \neq BC$) refer to the asymmetric distribution of the system , corresponding to the same circular logarithm factor (η) or $(\eta^2)^K$, with the circular logarithm factor $(\eta \text{ or } \eta^2)^K$, randomly and non-randomly exchanged in equilibrium. Once the circular logarithm is canceled, the value-object returns to its original asymmetry and cannot be exchanged in equilibrium any more.

To use a Chinese proverb to describe it, it is like a blind cat catching a dead mouse. When it encounters a continuous and asymmetric computing environment, it is stuck . Traditional mathematical research has reached this point, with no new development prospects, including the pace of computers moving towards supercomputers and imitating human brain thinking, which has been unduly affected. This means that the mathematics established in Western countries over the past 400 years has taken a detour.

Here, it is strictly proved that the "discrete-symmetric" assumption in traditional mathematics is incomplete . As for why the current analysis can be established and the operation can still be performed? That is historical " luck and coincidence orDidn find any good ideas". It can only be applied within a "limited" range. For example, ternary numbers cannot be solved.

Therefore , the reason why Peano's axiomatization and set theory axiomatization still need mathematical proof is that the dimensional system cannot prove its own "true or false", so it is called "incompleteness" and the mathematical foundation is not solid. When it encounters the "continuity and asymmetry" of reality, it cannot balance the exchange and cannot pass this level, causing the traditional mathematical analysis and calculation to become more and more complicated and "approximate calculation", losing the original mathematical precision calculation.

In the transformation of the "real number set **R** and natural number set **N** " and all the "numerical analysis logic objects" of traditional mathematics into the dimensionless 'infinite axiom' of the circular logarithm's central zero line (critical line), central zero point (critical point) and conjugated "even number asymmetry" , its "element-object" is driven by the dimensionless circular logarithm's 'infinite axiom' to balance and exchange. This reflects that the numerical analysis and logical analysis foundation of traditional mathematics have innate and difficult-to-overcome defects . It seems that only the adoption of a new construction set can solve this problem.

This is what this article is talking about: it opens up the possibility of replacing the incomplete "axiomatization" of the existing mathematical system with the dimensionless "infinite axiomatization" of circular logarithms .

（1）In number theory, natural integers are used as units, and circular logarithms are used as units.
The "solid circle (continuity) and hollow circle (discreteness) " precisely control the zero error of synchronization between the real number set R and the natural number set N , and the conversion of any function into circular logarithm satisfies the " integer and precision " expansion, and the characteristic modulus shares the properties of circular logarithm . With the " even random balance exchange mechanism" unique to the dimensionless construction set , the control drives the "multiplication combination and addition combination" of the "dimensional" system to expand in the forward and reverse balance exchange.

(2) In mathematics, the set of real numbers is larger than the integers of the natural number set. In the gaps between the integers of natural numbers, rational numbers, irrational numbers, transcendental numbers,
Complex numbers, ... , and the "multiplication and addition combinations" with properties and attributes controlling the reverse direction, all digitizable objects constitute the generalized real number set, and the "one-to-one correspondence" of the selection axiom is used to obtain the infinite construction set of circular logarithms (generalized real number set) of the "infinite axiom" defined in dimensionless language.

of the dimensionless circular logarithm center zero line (critical line) adaptation system series and the center zero point (critical point) of the non-trivial point are all corresponding to the center point of the characteristic mode (positive and negative mean function) or the center point of the perfect circular mode (uniformly distributed geometric space), corresponding to the " super cardinality alf-(2ω) " in the continuum to become the maximum value and ideal. The center zero point of the dimensionless circular logarithm can maintain the stability of the "element-object" series and prevent mode confusion and mode collapse.

As we all know, the contradictions of the existing mathematical system, such as "completeness and compatibility", cannot be overcome. Set theory uses infinite axiom recursion to deal with logical operations defined by logical language, but logical operations cannot solve balanced calculations. Topology is the most obvious. How to solve the "balance" from A to B? How to solve the balance of addition, subtraction, multiplication and division in numerical analysis, and the exchange from A to B. The reason for this is the incompleteness of the axioms. In other words, "axioms" are not a panacea for solving mathematical operation problems.

As a third-party dimensionless element, it is not interfered by the content of specific elements. The third-party dimensionless construction set has an "even number mechanism", with strictness, closure, compactness, isomorphism, homology, and infinite axiom constructions such as conjugation and mutual inversion symmetry of the central zero line (critical line) and the central zero point (critical point), so that "dimensionless" cannot interfere with "dimensionless", and has the concept of balanced exchange of symmetry and asymmetry, randomness and non-randomness, ensuring the accuracy of dimensionless analysis and verification by the third party itself. At the same time, the "irrelevant mathematical model" is used to ensure the fairness and authority of the verification of other arbitrary mathematical construction sets (dimensional systems). This is the most abstract, profound and basic construction set compared to the existing analysis methods of any various mathematical structures, and has become a third-party dimensionless circular logarithmic infinite construction set system, and has obtained widely used theoretical and analytical tools.

At this point, the continuum and dimensionless circular logarithms have been connected, integrating discrete number sets and continuous number sets into a whole, satisfying the integration of the external completeness transition and internal compatibility transition conversion of dimensionless circular logarithms, and unifying the analysis and operation of zero error in the dimensionless $\{0, \pm 1\}$ definition range . The proof of solving Cantor's "continuum problem" in the form of dimensionless construction . A novel dimensionless circular logarithm mathematical system was born, or "opened a new mathematical era of dimensionless circular logarithm construction."

2.2. Analysis of dimensionless circular logarithms and connection with three-dimensional calculus equations

The ultimate goal of mathematics is to solve application problems for practical engineering and dynamic calculus equations . The analysis of dimensionless circular logarithms is connected with numerical analysis and logical analysis methods to solve a series of single-variable high-order equations and specific engineering application problems with perfection and zero error accuracy. For easy understanding, specific numerical examples are introduced.

2.2.1 . Ternary numbers and dimensionless circular logarithmic calculus rules

Ternary numbers refer to any high-power element of the three- direction series of the rectangular coordinate system. After the three-dimensional calculus (dynamic) passes through the dimensionless circular logarithm'infinity axiom' mechanism, ternary numbers are applied to the physical three-dimensional space $\{3\}^{2n}$ and the three-dimensional space $\{3\}^{2n}$ program, chip architecture and operation of the computer . Currently, there is still a blank.

For example: given a ternary number : boundary function **D**, characteristic modulus: $\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm N\pm(q=0,1,2,3\ldots integer)}$,

Among them: In the power function (**N**): (-N=0,1,2) is the differential, and (+N=0,1,2) is the integral.

the three elements are known , analysis can be performed . The three roots of the asymmetric distribution of the circular logarithmic center zero point analysis become a reliable mathematical foundation for three-dimensional complex analysis.

Discriminant of circular logarithm : $\Delta = (1-\eta^2)^K=\{^{(3)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}^{K(Z\pm S\pm (Q=0,1,2,3)\pm N\pm(q=0,1,2,3\ldots integer)}$,

Equation variables and circular logarithms:

$\{\mathbf{X}\}= (1-\eta^2)^K\cdot \{\mathbf{D}_0\}^{K(Z\pm S\pm (Q=0,1,2,3)\pm N\pm(q=0,1,2,3\ldots integer)}$

from the above complex analysis of ternary numbers that the dimensionless circular logarithm can smoothly solve the asymmetric balance calculation and symmetry exchange problems of ternary numbers :

Here we derive the general formula of ternary numbers and the calculus dynamic equation:

✷Definition 2.1 3 In the complex analysis of ternary numbers, the multiplication unit cell of the "PP combination (supertopology, network)" elements with arbitrary high power in each axis and plane direction is $\{^{(S)}\sqrt{X}\}^{(P)}$:

Derivation 1:

Assume: P combinatorial calculus of complex analysis of ternary series :

$\{X_{[jik]}\}^{(P)}\in\{ X_{[J]}^{(P)}=\boldsymbol{j}\, x_1 x_2 x_P x_S\ ;\quad X_{[i]}^{(P)}=\boldsymbol{i}\, x_1 x_2 x_P x_S\ ;\quad X_{[k]}^{(P)}=\boldsymbol{k}\, x_1 x_2 x_P x_S\ \}$;

(1)、The calculus equation whose combination form is the product of all elements, adding (differential: -N=0,1,2)/t)(integral: + N=0,1,2)/t) " /t " represents one-dimensional time dynamics.

$\{^{(S)}\sqrt{X}\}^{(P)}=(^{(S)}\sqrt{(x_1 x_2 \ldots x_S)}^{K(Z\pm S\pm (Q=0,1,2,3)\pm N\pm(q=0,1,2,3\ldots P)/t}$;

$\{X_{[jik]}\}^{(P)}\in\{\mathbf{X}\}^{K(Z\pm S\pm (Q=0,1,2,3)\pm N\pm(q=0,1,2,3\ldots P)/t}$;

(2)、A calculus equation with three elements in combined form .

$\{^{(S)}\sqrt{X}\}^{(1)}=\sum(1/S)^K(x_1+x_2+\ldots+x_S)^{K(Z\pm S\pm(Q=0,1,2,3)\pm N\pm(q=0\text{ 或 }S)/t}$;

$\{X_{[j]}^{(1)},\ Y_{[i]}^{(1)},\ Z_{[k]}^{(1)}\}\in\{\mathbf{X}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm N\pm(q=0\text{ 或 }S)/t}$;

(3)、The combination form is a calculus equation consisting of one element and one element .

$\{^{(S)}\sqrt{\mathbf{X}}\}^{(1)}=\sum(1/S)^K (x_1^K+x_2^K+\ldots+x_S^K)^{K(Z\pm S\pm (Q=0,1,2,3)\pm N\pm(q=1,2,3\ldots P)/t}$;

$\{\mathbf{X}_{[j]}^{(1)},\ \mathbf{Y}_{[i]}^{(1)},\ \mathbf{Z}_{[k]}^{(1)}\}\in\{\mathbf{X}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm N\pm(q=1,2,3\ldots P)/t}$;

Among them: $\mathbf{X}_{[J]}^{(1)}$ corresponds to the **X** -axis , $\mathbf{Y}_{[i]}^{(1)}$ corresponds to the **Y**-axis , and $\mathbf{Z}_{[K]}^{(1)}$ corresponds to the projection on the **Z**- axis.

(4)、 Calculus equations whose combined form is two elements and two elements .

$\{^{(S)}\sqrt{X_s}\}^{K(P=2)}=\sum[(2!/S(S-1)]^K\prod_{ji=2}(x_1x_2^K+\ldots+x_Sx_1^K)^{K(Z\pm S\pm N\pm(q=2)/t}$;

$\{\mathbf{X}_{[ik]}^{K(2)},\ \mathbf{Y}_{[Kj]}^{K(2)},\ \mathbf{Z}_{[ji]}^{K(2)}\}\in\{\mathbf{X}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm N\pm q=2)/t}$;

(5)、Calculus equations whose combined form is three elements and three elements .

$\{^{(S)}\sqrt{X}\}^{K(P=3)}=\sum[(3!/S(S-1)(S-2)]^K\cdot\prod_{jik=3}(x_1x_2x_3^K+\ldots+x_Sx_1x_2^K)^{K(Z\pm S\pm N\pm(q=3)/t}$;

$\{\mathbf{X}_{[ik]}^{(3)},\ \mathbf{Y}_{[kj]}^{(3)},\ \mathbf{Z}_{[ji]}^{(3)}\}^K\in\{\mathbf{X}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm N\pm q=3)/t}$;

(6)、A calculus equation with P elements and P elements in combination .

$\{^{(S)}\sqrt{X}\}^{(P=3)}=\sum[(P-1)!/(S-0)!]^K\cdot\prod_{jik=P}(x_1x_2x_P+\ldots+x_Px_1x_2)^{K(Z\pm S\pm N\pm(q=P)/t}$;

$\{\mathbf{X}_{[ik]}^{(P)},\ \mathbf{Y}_{[KJ]}^{(P)},\ \mathbf{Z}_{[Ji]}^{(P)}\}^K\in\{\mathbf{X}\}^{K(Z\pm S\pm (Q=0,1,2,3)\pm N\pm(q=P)/t}$;

Among them: $X_{[jik]}^{(p)\text{ complex analysis, high}}$ P power projection on X, Y, and Z.

Derivation 2:

The geometric space calculus order changes :

{ $\mathbf{k}C_{[Z\ axis]}^{(1)}$ corresponds to **ji** $AB_{[XOY]}^{(2)}$,

$\mathbf{i}\ B_{[Y\ axis]}^{(1)}$ corresponds to **kj** $CA_{[ZOX]}^{(2)}$,

$\mathbf{j}\ A_{[X\ axis]}^{(1)}$ corresponds to **ik** $BC_{[YOZ]}^{(2)}$ } $\in\{X\}^{K(Z\pm S\pm N\pm(q=2)/t}$;

Among them: $k\,C_{[Z\ axis]}^{(1)}$ corresponds to ji $AB_{[XOY]}^{(2)}$ which means that the normal line of the projection on the **XOY** plane is conjugate and inverse to the **Z** axis line (the rest are the same) .

(7)、The first-order differential of the three -dimensional complex analysis "P combination" :

$\partial(1-\eta_{[jik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=(1-\partial\eta_{[jik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=(1-\eta_{[jik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(N=-1)\pm(q=0,1,2,3\ldots P)/t}$;

Second order differential of "P combination" in three-dimensional complex analysis :

$\partial^2(1-\eta^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=[1-\partial^2\eta_{[jik]]}{}^2]^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=[1-\eta_{[jik]}{}^2]^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(N=-2)\pm(q=0,1,2,3\ldots P)/t}$;

(8)、First-order integral of three-dimensional complex analysis “P combination” :

$\int[(1-\eta_{[jik]}{}^2)^K\cdot\{\mathbf{D}_0\}]\,dx^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=[1-(\int\eta_{[jik]}dx)^2]^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=[1-\eta_{[jik]}{}^2]^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(N=+1)\pm(q=0,1,2,3\ldots P)/t}$;

Second-order integral of "P combination" in three-dimensional complex analysis :

$\int^2(1-\eta_{[jik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=[1-(\int^2\eta_{[jik]}dx^2)^2]^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}$
$=(1-\eta_{[jik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(N=+2)\pm(q=0,1,2,3\ldots P)/t}$;

The sign of the logarithm of the isomorphic circle remains unchanged when the order of calculus changes:

$d(1-\eta_{[jik]}{}^2)=(1-d\eta_{[jik]}{}^2)=(1-\eta_{[jik]}{}^2]^{(n=-1)}$;
$\int(1-\eta_{[jik]}{}^2)=(1-(\int\eta_{[jik]}dx)^2]=(1-\eta_{[jik]}{}^2]^{(n=+1)}$;

(9)、Change of the order of calculus in three-dimensional space :

$\{\mathbf{k}\,C_{[Z]}{}^{(1)}=(1-\eta_{[k]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{ji}AB_{[XOY]}{}^{(2)}=(1-\eta_{[ji]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=2)}$,
$\{\mathbf{i}\,B_{[Y]}{}^{(1)}=(1-\eta_{[i]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{kj}\,CA_{[ZOX]}{}^{(2)}=(1-\eta_{[kj]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)(q=2)}$,
$\{\mathbf{j}\,A_{[X]}{}^{(1)}=(1-\eta_{[j]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{ik}\,BC_{[YOZ]}{}^{(2)}=(1-\eta_{[ik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=2)}$,
$d\{\mathbf{k}\,C_{[Z]}{}^{(1)}=(1-\eta_{[k]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{ji}\,AB_{[XOY]}{}^{(2)}=(1-\eta_{[ji]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=-1)\pm(q=2)}$,
$d\{\mathbf{i}\,B_{[Y]}{}^{(1)}=(1-\eta_{[i]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{kj}\,CA_{[ZOX]}{}^{(2)}=(1-\eta_{[kj]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=-1)\pm(q=2)}$,
$d\{\mathbf{j}\,A_{[X]}{}^{(1)}=(1-\eta_{[j]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{ik}\,BC_{[YOZ]}{}^{(2)}=(1-\eta_{[ik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=-1)\pm(q=2)}$,
$d^2\{\mathbf{k}C_{[Z]}{}^{(1)}=(1-\eta_{[k]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{ji}\,AB_{[XOY]}{}^{(2)}=(1-\eta_{[ji]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=-2)\pm(q=2)}$,
$d^2\{\mathbf{i}B_{[Y]}{}^{(1)}=(1-\eta_{[i]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{kj}\,CA_{[ZOX]}{}^{(2)}=(1-\eta_{[kj]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=-2)\pm(q=2)}$,
$d^2\{\mathbf{j}A_{[X]}{}^{(1)}=(1-\eta_{[j]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm(N=0)\pm(q=1)}$ If $\mathbf{ik}\,BC_{[YOZ]}{}^{(2)}=(1-\eta_{[ik]}{}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S(Q)\pm(N=-2)\pm(q=2)}$,
……;

In the group combinatorial calculus of dimensionless circular logarithms, the combination coefficients are automatically incorporated in the calculus process. Therefore, the random equilibrium exchange combination decomposition of the "infinite axiom" that the boundary function, characteristic modulus, and isomorphic circular logarithms remain unchanged when the calculus order changes, satisfies the mathematical nature and the accuracy of zero deductive error, and avoids the dilemma of "approximate calculation" in traditional calculus.

The root analysis of calculus is divided into two steps:

(a) In calculus, the logarithmic center zero of the characteristic modulus circle is synchronized with the surroundings and only reflects the order change.

(b) Analyze the relationship between the characteristic mode of the central zero point of the circular logarithm and the surrounding elements, and analyze the probabilistic unit root and topological binary root respectively.

(10)、Dimensionless circular logarithmic equilibrium exchange combination decomposition rules :

Invariant propositions $\{^{(S)}\sqrt{X}\}$, invariant characteristic moduli $\{X_0\}$, invariant isomorphic circular logarithms $(1-\eta^2)$, only through the conversion of properties $(K=+1\leftrightarrow\pm0\leftrightarrow-1)$ in the positive and negative directions

So that (true proposition) $A\leftrightarrow B$ (converse proposition) , we have:

(True proposition) $A=(1-\eta_{[A]}{}^2)^{(K=-1)}\cdot\{X_{0\,[ABC]}\}^{(1)}\in\{^{(S)}\sqrt{X}_{[ABC]}\}^{(1)}\in\{^{(S)}\sqrt{X}^{(S)}\}^{(3)}$
$=[(1-\eta_{[A]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[ABC]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[BC]}{}^2)^{(K=+1)})\cdot\{X_{0\,[ABC]}\}^{(3)}$
$\leftrightarrow(1-\eta_{[BC]}{}^2)^{(K=+1)}\cdot\{X_{0\,[ABC]}\}^{(2)}=BC\in\{^{(S)}\sqrt{X}\}^{(2)}\in\{^{(S)}\sqrt{X}\}^{(3)}$ (converse);

(11)、The central zero line (critical line) and central zero point (critical point) of each level sequence in the three-dimensional complex analysis circular logarithm $(1-\eta_{C[jik]}{}^2)^{K\text{ remain consistent and unchanged}}$:

$(1-\eta_{C[\text{vertical}]}{}^2)^{(K=\pm0)}=\{^{(S)}\sqrt{X}/X_{0[\text{vertical}]}\}^{(K=\pm0)(Z\pm S\pm(Q)\pm N\pm(q=0,1,2,\ldots P)/t}$
$=(1-\eta_{C[\text{slope}]1}{}^2)^{(K=\pm0)}+(1-\eta_{C[\text{slope}]2}{}^2)^{(K=\pm0)}+\ldots+(1-\eta_{C[\text{slope}]P}{}^2)^{(K=\pm0)}\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q)\pm N\pm(q=0,1,2,\ldots P)/t}=\{0\text{ 或}\pm1\}$;

Among them: the power function is written as: $K(Z\pm S\pm(Q=0,1,2,3)\pm(N=0,1,2)\pm(q=0,1,2,3,\ldots\text{integer})$, **K** is the property attribute; $(Z\pm S)$ is any finite element in the infinite; $(\pm Q=0,1,2,3)$ is a three-dimensional eight-quadrant space, $(\pm N=0,1,2)/t$ calculus dynamic order; $(q=0,1,2,3,\ldots\text{integer})$ is the " various combinations" of elements.

✷Definition 2. 2.1 Compactness -isomorphism In first-order /second-order model theory, this means that if any finite subset of a set of propositions (formal theory) T in a first -order /second-order dimensionless language has a model, then T itself has a model. In model theory in non-first-order /second-order dimensionless languages, the compactness -isomorphism theorem also holds, indicating that each sub-term has a formally consistent compactness and an isomorphic consistent computational time,

✷Definition 2. 2.2 Circular logarithmic discriminant determines the area :

$\Delta=(\eta^2)^K=\{^{(S)}\sqrt{X/X_0}\}^{K(Z\pm S\pm(N=0,1,2)\pm(q=0,1,2,\dots P)/t}\leq 1$;

$\{^{(S)}\sqrt{X}\}\leq\{X_0\}$, $\{^{(S)}\sqrt{X}\}=(1-\eta^2)^K\cdot\{X_0\}$, k=+1 is convergent , or the parabolic function or positive region of the geometric Riemann function ;

$\{^{(S)}\sqrt{X}\}\geq\{X_0\}$, $\{^{(S)}\sqrt{X}\}=(1-\eta^2)^K\cdot\{X_0\}$, k=-1 for diffusion , or the hyperbolic function or inverse region of the geometric Riemann function ;

$\{^{(S)}\sqrt{X}\}=\{X_0\}$, $\{^{(S)}\sqrt{X}\}=(1-\eta^2)^K\cdot\{X_0\}$, k=± 1 is the equilibrium , or elliptic linear function or equilibrium region of the geometric Riemann function ;

$\{^{(S)}\sqrt{X}\}=\{X_0\}$, $\{^{(S)}\sqrt{X}\}=(1-\eta^2)^K\cdot\{X_0\}$, k=±0 is commutative , or the central zero function or zero region of the geometric Riemann function ;

Among them: n=(q =0,1,2,3…infinite integer) , replacing the traditional mathematics n, calculus order ± (N=0,1,2), more mathematical content can be included in the power function according to the analysis object .

At present , all numerical analysis and logical analysis methods are not competent for the balance and exchange with shared mutual inverse asymmetry. In other words, balance calculation cannot be exchanged, and logical exchange cannot balance calculation . The introduction of the third-party dimensionless "infinite axiom" mechanism of the place value circular logarithm drives the integrated analysis of the balance exchange combination decomposition and random self-evidence of "element-object" .

【Number Example 5】

(1) 、Numeric object: (+ is an addition combination, · is a multiplication combination)

Given: ternary number **D** = abc = 96 : characteristic modulus: average value $\mathbf{D}_0=\{\mathbf{5}\}$, two variable functions can be analyzed. However, the circular logarithm and characteristic modulus of even symmetry and the zero-point symmetry of the circular logarithm must be balanced to obtain the solution :

Circular logarithm: $(1-\eta_{[abc]}{}^2)^K=96/125=0.768$,

First-order differential equation- probability combination:

$$\partial\{^{(3)}\sqrt{96}\}^{(1)}=\sum(1-\eta_{[abc]}{}^2)^K\cdot\{\mathbf{5}\}^{(N=-1)}$$
$$=[(1-(d\eta_{[a]})^2)^{(Kw=+1)}+(1-(d\eta_{[b]})^2)^{(Kw=-1)}+(1+(d\eta_{[c]})^2)^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=-1)}$$
$$=[(1-(2/5)^{(1)})^{(Kw=+1)}+(1-(1/5)^{(2)})^{(Kw=-1)}+(1+(3/5)^{(2)})^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=-1)}$$
$$=\{\mathbf{j}3+\mathbf{i}4+\mathbf{k}8\}^{K(N=-1)},$$

Second-order differential equation-topological combination:

$$\partial^2\{^{(3)}\sqrt{96}\}^{(2)}=\sum(1-\eta_{[abc]}{}^2)^K\cdot\{\mathbf{5}\}^{(N=2)}$$
$$=[(1-(d^2\eta_{[ab]})^2)^{(Kw=+1)}+(1-(d^2\eta_{[bc]})^2)^{(Kw=-1)}+(1+(d^2\eta_{[ca]})^2)^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=-2)}$$
$$=[(1-(2/5)^{(2)})^{(Kw=+1)}+(1-(1/5)^{(2)})^{(Kw=-1)}+(1+(3/5)^{(2)})^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=-2)}$$
$$=\{\mathbf{ik}(4\cdot8)+\mathbf{kj}(8\cdot3)+\mathbf{ji}(3\cdot4)\}^{(N=-2)},$$

First-order integral equation- probability combination:

$$\int\{^{(3)}\sqrt{96}\}^{(1)}=\sum(1-\eta_{[abc]}{}^2)^K\cdot\{\mathbf{5}\}^{(N=+1)}$$
$$=[(1-\int\eta_{[a]}{}^2)^{(Kw=+1)}+(1-\int\eta_{[b]}{}^2)^{(Kw=-1)}+(1+\int\eta_{[c]}{}^2)^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=+1)}$$
$$=[(1-(2/5)^{(1)})^{(Kw=+1)}+(1-(1/5)^{(2)})^{(Kw=-1)}+(1+(3/5)^{(2)})^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=+1)}$$
$$=\{\mathbf{j}\,3+\mathbf{i}\,4+\mathbf{k}\,8\}^{(N=+1)},$$

Second-order integral equation-topological combination:

$$\int^{(2)}\{^{(3)}\sqrt{96}\}^{(2)}=\sum(1-\eta_{[abc]}{}^2)^K\cdot\{\mathbf{5}\}^{(N=+2)}$$
$$=[(1-\int^{(2)}\eta_{[ab]}{}^2)^{(Kw=+1)}+(1-\int^{(2)}\eta_{[bc]}{}^2)^{(Kw=-1)}+(1+\int^{(2)}\eta_{[ca]}{}^2)^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=+2)}$$
$$=[(1-(2/5)^{(2)})^{(Kw=+1)}+(1-(1/5)^{(2)})^{(Kw=-1)}+(1+(3/5)^{(2)})^{(Kw=-1)}]\cdot\{\mathbf{5}\}^{(N=+2)}$$
$$=\{\mathbf{ik}(4\cdot8)+\mathbf{kj}(8\cdot3)+\mathbf{ji}(3\cdot4)\}^{(N=+2)},$$

Among them: the circular logarithm corresponds to the average value of the characteristic mode. Traditional calculus produces changes in the combination coefficients. There are also changes in the combination coefficients here, but they are randomly integrated into the characteristic mode. Therefore, the characteristic mode does not change in calculus. The circular logarithm Because of the isomorphism of numbers, when the total number of elements remains unchanged, the circular logarithmic form does not change, and only the characteristic modulus corresponding to the power change.

(2) 、Logical object: (∪ is the union {A∪B∪C}, ∩ is the intersection {∩ABC})

For example: the set {∩ABC}∈{R₀};

Functor $(1-\eta_{[abc]}{}^2)^K=\{\cap ABC\}/\{A\cup B\cup C\}$

$\{\cap ABC\} = [\ (1-\eta_{[a]}{}^2)^{(Kw=+1)} + (1-\eta_{[b]}{}^2)^{(Kw=-1)} + (1+\eta_{[c]}{}^2)^{(Kw=-1)}\ ]\cdot \{\ R_0\}^{(3)}$

$=[\ (1-A/\{R_0\})^{(Kw=+1)} + (1-B/\{R_0\})^{(Kw=-1)} + (1+C/\{R_0\})^{(Kw=-1)}\ ]$

$\cdot\ \{R_0\}^{(3)}\ ] \leftrightarrow \{A\cup B\cup C\} \leftrightarrow \{jA\cup iB\cup kC\}$,

Among them: geometric space average $\{R_0\}^{(q=3,2,1)}$, algebraic space average $\{D_0\}^{(q=3,2,1)}$,

of the circular logarithmic center zero line (critical line) :

$(1-\eta_{[A]}{}^2)^{(Kw=+1)} + (1-\eta_{[B]}{}^2)^{(Kw=-1)} + (1+\eta_{[C]}{}^2)^{(Kw=-1)} = 0$;

Where: $(1-\eta_{[B]}{}^2)^{(Kw=-1)} + (1+\eta_{[C]}{}^2)^{(Kw=-1)} = (1-\eta_{[BC]}{}^2)^{(Kw=-1)}$;

The zero-point symmetry of the circular logarithm drives the overall equilibrium exchange process of the proposition:

$(1-\eta_{[abc]}{}^2)^{(Kw=-1)} \leftrightarrow (1-\eta_{[C]}{}^2)^{(Kw=\pm 0)} \leftrightarrow (1-\eta_{[cba]}{}^2)^{(Kw=+1)}$;

或: $(1-\eta_{[a]}{}^2)^{(W=+1)} = [(1-\eta_{[abc]}{}^2)^{(W=+1)} \leftrightarrow (1-\eta_{[C]}{}^2)^{(W=\pm 0)} \leftrightarrow (1+\eta_{[cba]}{}^2)^{(W=-1)}] = (1-\eta_{[cb]}{}^2)^{(W=-1)}$;

Among them: $\{\mathbf{5}\}^{(3,2,1)}$, $\{\mathbf{R}_0\}^{(3,2,1)}$, $\{\mathbf{D}_0\}^{(3,2,1)}$ means that the element- object can have the combination and set of "3-3, 2-2, 1-1".

The above-mentioned third-party dimensionless circular logarithm construction set strictly proves that "numerical objects cannot be directly exchanged (added or multiplied), logical objects cannot be directly morphed (intersected or united), and must be exchanged (projected, mapped, morphed, balanced) through the symmetry of circular logarithms and the zero point of the circular logarithm center. Otherwise, pattern confusion or collapse will occur, which overcomes the core basic problems of numerical analysis and logical analysis "combination and decomposition between numerical addition and multiplication" and "union and intersection of logical object morphisms".

At present, all numerical analysis and logical analysis have not clearly pointed out that they have central zero lines and central zero points for external and internal analysis. In other words, all natural mathematics and set theory analysis have not discovered or missed an important "balance and exchange" condition or "infinity axiom" rule, so there is no solid mathematical foundation and it cannot be self -proven.

Similarly , " axiomatization of choice " also needs to drive the balance and exchange of "numerical values and logic" under the dimensionless circular logarithm to provide proof of the validity of the axiomatization of choice.

The proof also found that the new infinite circular logarithmic construction set defined by the dimensionless language between the real number set and the natural number set has become the basic principle of mathematical combination and set. It is further proved that the "discrete set" of the continuum is converted into a characteristic module with "balance and exchange" (external and internal) respectively .

The difficulty of many century-old mathematical problems (including symmetric and asymmetric distributed polynomial equations, computer algorithms, combinatorics, and analysis) is how to convert the "asymmetry" of this even number into "symmetry".

The circular logarithm integrates the mathematical problems of symmetry and asymmetry into a dimensionless circular logarithm. The central zero point of the circular logarithm drives the exchange of values and objects. It is called the mathematical basis of the random "balance and exchange" of conjugate mutual inverse equilibrium symmetry and the "axiom of infinity" .

2.3. Connection between dimensionless circular logarithms and three-dimensional vector space

Traditional calculus is a tool for real analysis. In binary analysis, "imaginary numbers" $(\sqrt{-1})=\mathbf{i}$ appear. Hamilton proposed the "quaternion exchange rule" to solve the binary number exchange problem. There is a two-dimensional vector complex analysis a + bi , and the introduction of real vectors is an "ordered number set". $^{(3)}\sqrt{-1})=\mathbf{jik}$ in ternary number analysis creates difficulties in the asymmetric combination and exchange of "one-dimensional real vectors and two-dimensional real vectors", and cannot directly realize the superposition of two elements in three-dimensional complex analysis $\{\mathbf{2}\}^{\mathbf{2n}}$. Many mathematicians have explored it, but to no avail, and "ternary numbers" are still blank.

In order to solve the difficulties of complex analysis of real vectors and overcome the problem that "numerical values cannot be directly exchanged", the "three-dimensional Hamilton-Wang Yiping quaternion exchange rule" was established through the "balanced exchange mechanism of symmetry and asymmetry of even numbers" unique to circular logarithms, that is, the eight quadrants of three-dimensional space corresponding to "circular logarithm

$(1-\eta_{[jik]}{}^2) = \{\mathbf{0}, \pm\mathbf{1}\}$; ($jik = \pm 1$, $ik = \pm j$, $kj = \pm i$, $ji = \pm k$);

Solve the ternary number exchange problem, that is, the balanced exchange combination (decomposition) problem of one-dimensional/two-dimensional/three-dimensional real vectors of three-dimensional "elements-objects" is driven by circular logarithms , filling the blank area of three-dimensional complex analysis calculations.

Among them: the normal line of the plane projection topological combination and the axis projection are conjugate and inverse. The introduction of three-dimensional real vectors is an "ordered number set". These vectors form a two-dimensional/three-dimensional Euclidean space.

✷Definition 2.12 In K dimension (i.e., the expansion in Q=0, 1, 2, 3 dimensions), a vector is an ordered set, and the "order arrangement" in complex analysis is very important . For example: $\{X\}^{K} = (x_1, x_2, \dots x_K)$, the subscript sequence symbol corresponds to the sequence in two-dimensional space and three-dimensional space.

Complex analysis is complete: $(x_1, x_2, \dots x_S)$ can be decomposed into one-dimensional/two-dimensional /three-dimensional space and expressed in an orderly manner:

a≠b, b≠c, c≠a; ab≠ba, bc≠ca, ca≠ab; abc≠bca,…,

The encoding of the numerical value is based on the left-hand rule: thumb up, four fingers together and clenched towards the palm, four fingers in a clockwise direction is "+", and vice versa is "-".

$\{X\}^{K}=(x_1, x_2, \dots x_S)$ respectively extract the unit cell: $\{^{(S)}\sqrt{\mathbf{X}}\}^{\mathbf{K}}$

Numerical characteristic modulus $\{\mathbf{D_0}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm N\pm(q=0,1,2,3\dots integer)}$

The circular logarithm of the place value $(1-\eta^2)$,

Vector : Scalar has only value but no direction. Direction is expressed as angle. Scalars can be combined to form elements of "cluster set" - objects. Establish: Convert a cubic equation into circular logarithmic root elements.

Probability circle logarithm and numerical complex analysis:

$\{X_0\}^{K(1)}=(1-\eta_{[jik]}{}^2)\mathbf{D}_0{}^{K(1)}$;

$\boldsymbol{j}a=(1-\eta_{[j]}{}^2)\mathbf{D}_0{}^{(1)}$; $\boldsymbol{i}\,b=(1-\eta_{[i]}{}^2)\mathbf{D}_0{}^{(1)}$; $\boldsymbol{k}c=(1-\eta_{[k]}{}^2)\mathbf{D}_0{}^{(1)}$;

Topological circular logarithms and numerical complex analysis:

$\{X_0\}^{K(2)}=(1-\eta_{[jik]}{}^2)\mathbf{D}_0{}^{K(2)}$;

$\boldsymbol{j}\,a=(1-\eta_{[ik]}{}^2)\mathbf{D}_0{}^{(2)}$; $\boldsymbol{i}\,b=(1-\eta_{[kj]}{}^2)\mathbf{D}_0{}^{(2)}$; $\boldsymbol{k}c=(1-\eta_{[ji]}{}^2)\,\mathbf{D_0}^{(2)}$;

The probability-topological exchange relation of circular logarithms:

$(1-\eta_{[ik]}{}^2)^{(K=-1)}=(1-\eta_{[j]}{}^2)^{(K=+1)}$; $(1-\eta_{[kj]}{}^2)^{(K=-1}=(1-\eta_{[i]}{}^2)^{(K=+1)}$; $(1-\eta_{[ji]}{}^2)^{(K=-1)}=(1-\eta_{[k]}{}^2)^{(K=+1)}$;

Among them: the plane normal line is parallel to the axis and in the opposite direction. The multiplication of binary numbers is converted into the addition of two circular logarithms, which form three circular logarithms to drive the associative law and commutative law of ternary numbers.

In particular, complex analysis can explain the corresponding projection, mapping, and morphism to the axis circular logarithm probability of three-dimensional space and the circular logarithm of plane topology for non-Euclidean space, symplectic space, unitary space, Hilbert space, arbitrary function space, and objects of logical analysis through circular logarithm, and solve the problem of balanced calculation and symmetric exchange. In particular, this exchange must be carried out under the condition of "same circular logarithm factor", which explains the root cause of "different values or objects cannot be exchanged" that is missing in numerical analysis and logical analysis.

2.3.1. Calculation rules of ternary numbers and circular logarithms

The general formula of ternary numbers was solved for the first time, and the asymmetric balance calculation and symmetry exchange problems were solved through circular logarithms:

Known: Boundary function : **D**,

Characteristic mode : $\{\mathbf{D}_0\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm(N=0,1,2)\pm(q=0,1,2,3\dots integer)}$,

Discriminant of circular logarithm : $\Delta=(1-\eta^2)^K=\{^{(3)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm(N=0,1,2)\pm(q=0,1,2,3\dots integer)}$,

the three elements are known , analysis can be performed . The three roots of the asymmetric distribution of the circular logarithmic center zero point analysis become a reliable mathematical foundation for three-dimensional complex analysis.

The so-called ternary number refers to the expansion of any high-power element of the three- direction series of the rectangular coordinate system in three-dimensional space.

✷Definition 2.1 3 The unit cell of any high-power element "PP combination (supertopology, network)" is $\{^{(S)}\sqrt{X}\}^{(P)}$:

(1) 、For calculus equations whose combination form is the product of all elements, add (differential: -N=0,1,2)/t) (integral: +N=0,1,2)/t)

$\{^{(S)}\sqrt{X}\}^{(S)} \in \{X\}^{(S)}=\{^{(S)}\sqrt{(x_1 x_2 \dots x_S)}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm(N=0,1,2)\pm(q=0,1,2,3\dots integer)}$,

(2)、 The combined form is a calculus equation consisting of one element and one element .

$\{^{(S)}\sqrt{X}\}^{K(1)}=\sum(1/S)^K(x_1{}^K+x_2{}^K+\dots+x_S{}^K)^{K(Z\pm S\pm N\pm(q=1)/t}$;

$X_{[jik=1]}{}^{K(1)}\in\{X\}^{K(Z\pm S\pm N\pm(q=1)/t}$;

Where:$X_{[jik=1]}{}^{(1)}$ (1) is the projection of $X_{[i]}$ (1) on the Y axis.

(3)、 Calculus equation consisting of two elements and two elements .

$\{^{(S)}\sqrt{X}\}^{(q=2)}=\sum[(2!/S(S-1)]^K\prod_{ji=2}(x_1 x_2{}^K+\dots+x_S x_1{}^K)^{K(Z\pm S\pm N\pm(q=2)/t}$;

$X_{[ji]}{}^{K(2)} \in\{X\}^{K(Z\pm S\pm N\pm(q=2)/t}$;

Where: $X_{[ji]}{}^{(2)}$ is the projection of **XOY** plane.

(4)、A calculus equation whose combined form is three elements and three elements .
$\{^{(S)}\sqrt{X}\}^{K(P=3)}=\sum[(3!/S(S-1)(S-2)]^{K}\cdot\prod_{jik=3}(x_1 x_2 x_3{}^{K}+\ldots+x_S x_1 x_2{}^{K})^{K(Z\pm S\pm N\pm(q=3)/t}$;
$X_{[ijk]}{}^{K(3)}\in\{X\}^{K(Z\pm S\pm N\pm(q=3)/t}$;
Where: $X_{[jik]}{}^{(3)}$ Complex analysis, projection on **X, Y**, and **Z**.
calculus equation with P elements and P elements .
$\{^{(S)}\sqrt{X}\}^{K(P)}=\sum[(P-1)!/(S-0)!]^{K}\cdot\prod_{[jik=3]}(x_1x_2\ldots x_p{}^{K}+\ldots+x_S x_1\ldots x_p{}^{K})^{K(Z\pm S\pm N\pm(q=p)/t}$;
$X_{[ijk]}{}^{K(P)}\in\{X\}^{K(Z\pm S\pm N\pm(q=p)/t}$;
Among them: $X_{[jik]}{}^{(p)}$ complex analysis, high-power projection on X, Y, and Z.
(6) Three-dimensional complex analysis of the "multiplication and addition" combination relationship of "various P combinations":
$(1-\eta_{[jik]}{}^2)^K=\{^{(S)}\sqrt{X}\}/\{X_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots P)/t}=\{0, 1\}$;
(7) The sequence in the three-dimensional complex analysis circular logarithm $(1-\eta^2)^{K}$ is:
$(1-\eta_{[jik]}{}^2)^K=\{^{(S)}\sqrt{X}{}^{S}\}^{(P)}\{X\}^{K(Z\pm S\pm N\pm(q=0,1,2,\ldots P)/t}$
$=(1-\eta_{1[jik]}{}^2)^K+(1-\eta_{2[jik]}{}^2)^K+\ldots+(1-\eta_{P[jik]}{}^2)^K\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,\ldots P)/t}$;
(8) Dimensionless circular logarithmic equilibrium exchange rule :
Invariant propositions $\{^{(S)}\sqrt{X}\}$, invariant characteristic moduli $\{X_0\}$, invariant isomorphic circular logarithms $(1-\eta^2)$, only through the conversion of properties (K = +1 ↔ ± 0 ↔ -1) in the positive and negative directions
For example: (true proposition) A↔B (converse proposition) , we have:
(True Proposition) A ↔ $\{^{(S)}\sqrt{X}\}^{(K=-1)}=(1-\eta^2)^{(K=-1)}\{X_0\}$
$=[(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=+1)}]\{X_0\}\leftrightarrow(1-\eta^2)^{(K=+1)}\{X_0\}$
$=\{^{(S)}\sqrt{X}\}$ ↔ B (converse);
Among them: the power function is written as: K(Z±S±(Q=***jik***)±(N=0,1,2)±(q=0,1,2,3,…integer), **K** is the property attribute; (Z±S) is any finite element in the infinite; (±Q=0,1,2,3) is the three-dimensional eight-quadrant space, (±N=0,1,2)/t calculus dynamic order; (q=0,1,2,3,…integer) is the " various combinations" of elements.

✷Definition 2.1 4 Compactness In first-order model theory, the meaning of this theorem is: if any finite subset of a set of propositions (formal theory) T in a first-order language has a model, then T itself has a model. In non-first-order model theory, the compactness theorem also holds, indicating that each sub-term has a consistent compactness of form and a consistent computational time of isomorphism,

Satisfies the discriminant:
$\Delta=(\eta^2)^K=\{^{(S)}\sqrt{X}/X_0\}^{K(Z\pm S\pm N\pm(q=0,1,2,\ldots P)/t}\le 1$;
$\{^{(S)}\sqrt{X}\}\le\{X_0\}$, k=+1 means convergence;
$\{^{(S)}\sqrt{X}\}\ge\{X_0\}$, k=-1 for diffusion;
$\{^{(S)}\sqrt{X}\}=\{X_0\}$, k=±0 is a balanced exchange;
Among them: S = 0, 1, 2, 3... infinite integers, replacing the n in traditional mathematics, so as to include more mathematical content in the power function.

At present , all numerical analysis and logical analysis methods are not competent for the balance and exchange with shared mutual inverse asymmetry. In other words, balance calculation cannot be exchanged, and logical exchange cannot balance calculation . For this reason, the third-party dimensionless "infinity axiom" place value circular logarithm analysis is introduced to realize the integrated analysis of balance calculation and logical exchange.

2.3.2, Quadratic first-order differential equation of two variables, differential (N=-1);

【Numerical Example 6】 :

Given: First-order differential of binary numbers (N=-1)
Multiplication combination $\mathbf{D}=ab=24=\{^{(2)}\sqrt{24}\}^{(2)}$,
Eigenmode: $\mathbf{D}_0=\{5\}$; $\mathbf{D}_0{}^2=25$,

This equation is a first-order differential equation composed of asymmetric numerical values belonging to a symmetric distribution. When the calculus symbols are incorporated into the power function, there is not much group difference from ordinary equations. The key lies in the calculus order value corresponding to the eigenmode. However, neither values nor objects can be exchanged directly.

Differential equation discriminant:
$d\Delta=(d\eta^2)=(\eta^2)^{K(S\pm(N=-1)\pm(q=0,1,2)/t}=24/25\le1$; (K=+1);
Circular logarithm:
$(1-\eta^2)=(1-(d\eta)^2)=(1\pm1/5)$; $\eta=\pm1/5$;
equation:
$d\{x^2-7x+24\}=(1-(d\eta)^2)\{x^2-2\cdot3.5x+25\}$
$=(1-\eta^2)\cdot\{\mathbf{5}\}^{K(S\pm(N=-1)\pm(q=0,1,2)/t}=0$;

Among them: $(1\text{-}d\eta^2) = (1\text{-}\eta^2)$ has isomorphism invariance. No matter how the calculus changes, the circular logarithmic form remains unchanged, (the same below) .

Binary number transformation: Under the same circular logarithmic factor **(η^2)** , a balanced exchange of random and non-random numbers is performed to form a reliable combination.

$(a/5)^{K}=(1-\eta^2)^K=(4/5)^{K(S\pm(N=-1)\pm(q=1)/t} \leftrightarrow (1+\eta^2)^K=(6/5)^{K(S\pm(N=-1)\pm(q=1)/t}=(b/5)^{K}$;

Get: The root element of the differential: **a=4, b=6;**

Conjugate reciprocal symmetry of binary numbers: **a ↔ b;**

Binary number combinations (multiplication combinations, addition combinations):

$ab = (1-\eta^2)\cdot\{5\}^{(2)}$

$a=(1-\eta^2)\cdot 5=4^{K(S\pm(N=-1)\pm(q=1)/t}$; $b=(1+\eta^2)\cdot 5=6^{K(S\pm(N=-1)\pm(q=1)/t}$;

Complex analysis of binary probability:

$\boldsymbol{ji}\{ab\}^{(K=+1)}=\boldsymbol{j}\{a\}\ \boldsymbol{i}\{b\}=\boldsymbol{j}\{4\}+\boldsymbol{i}\{6\}$;

Among them: In two-dimensional analysis, ***j*** can be left unlabeled.

In the three-dimensional rectangular coordinate system, it corresponds to: $\boldsymbol{K}(c)^{(K=-1)}=\boldsymbol{ji}\{ab\}^{(K=+1)}$,

Among them: $\mathbf{4}^{K(S\pm(N=-1)\pm(q=1)/t}$ and $\mathbf{6}^{K(S\pm(N=-1)\pm(q=1)/t}$ respectively represent the differential dynamic changes of the circular logarithm $\mathbf{(1 \pm 1/5)}^{K(S\pm(N=-1)\pm(q=1)/t}$ of the two elements.

In particular, the values a=4 and b=6 cannot be directly exchanged. Only by using the same circular logarithmic factor (η =±1/5) as the shared factor of the two root elements can they become a random conjugate reciprocal equilibrium symmetry exchange.

Exchange rule: **D**=ab=24 remains unchanged, the numerical characteristic modulus $\mathbf{D}_0=5$ remains unchanged, and the place value factor (η=±1/5) remains unchanged, only then will the exchange of the two reciprocal states of "4 and 6" occur (randomly or non-randomly) driven by the circular logarithm (η = -1/5) ↔ (η =+1/5).

Traditional mathematical dualism has never been able to explain the reason for this balanced exchange.

This is because the two root elements are driven by the balanced exchange under the circular logarithm even number 'infinity axiom' . Explanation : The morphism from a to b must pass through the circular logarithm, and the random and non-random 'infinity axiom' balanced exchange is performed under the same circular logarithm factor . Among them: For example, " the same factor of **4** and **6** is **(±1/5) ".** The logic of balanced calculation exchange and the logical value of balanced exchange calculation are given.

Extension: natural number tail

{(1 · 9)=9, (2 · 8)=16, (3 · 7)=21, (4 · 6)=24, (5 · 5)=25},

{5} of the mantissa of natural numbers remains unchanged, we can use circular logarithms to calculate :

(n=±4/5), (n=±3/5), (n=±2/5), (n=±1/5), (n=±0/5),

Perform balanced exchanges to solve the irregular distribution of prime numbers, convert them into symmetry and asymmetry analysis of four circular logarithms, and create a new basis for prime number distribution .

2.3.3, differential equation of third degree with three variables (N=-2);

【Numerical Example 7】 :

Known: Ternary "Second Order Differential" (N=-2) equation

Multiplication combination: **D** =abc=112, $\mathbf{D}_0^{(1)}=\{5\}^{K[(S=3)\pm(N=-2)\pm(q=0,1,2,3)/t]}$;

Add feature mode:

$\mathbf{D}_0^{(1)}=\{5\}^{K(S\pm(N=-2)\pm(q=1)/t}=5$;$\mathbf{D}_0^{(2)}=\{5\}^{K(S\pm(N=-2)\pm(q=2)/t}=25$; $\mathbf{D}_0^{(3)}=\{5\}^{K(S\pm(N=-2)\pm(q=3)/t}=125$,

Get the discriminant:

$(d^2\boldsymbol{\Delta}/\mathbf{dx^2})=\{(d^2\eta/dx)^2\}=(\mathbf{D/D_0})^{K(S\pm(N=-2)\pm(q=0,1,2,3)/t}=112/125=0.8\le 1$;

Sum of circular logarithms: $\sum(1-\eta^2)^K=\{0.2\}$,

Second order differential equation:

$$\partial^{(2)}\{x^3\pm 15x^2+72x\pm 112\}/dx^{(2)}$$
$$=d^{(2)}\{x^3-3\cdot 5x^2+3\cdot 24x-112\}/dx^{(2)}$$
$$=(1-(d^2\eta/dt^2)^{(2)}\cdot\{x\pm 5\}^{K[(S=3)\pm(N=-2)\pm(q=0,1,2,3)/t]}$$
$$=(1-\eta^2)\cdot[(0,2)\cdot\{5\}]^{K[(S=3)\pm(N=-2)\pm(q=0,1,2,3)/t]};$$

Second order integral equation:

$$\int^{(2)}\{x^3\pm 15x^2+72x\pm 112\}/dx^{(2)}$$
$$=\int^{(2)}\{x^3-3\cdot 5x^2+3\cdot 24x-112\}dx^{(2)}$$
$$=(1-(d^2\eta/dt^2)^{(2)}\cdot\{x\pm 5\}^{K[(S=3)\pm(N=+2)\pm(q=0,1,2,3)/t]}$$
$$=(1-\eta^2)\cdot[(0,2)\cdot\{5\}]^{K[(S=3)\pm(N=+2)\pm(q=0,1,2,3)/t]};$$

Among them: $(0,2)^{K[(S=3)\pm(N=-2)\pm(q=3)/t]}$ respectively represent the addition combination $(2)^{K[(S=3)\pm(N=-2)\pm(q=3)/t]}$ and the subtraction combination $(0)^{K[(S=3)\pm(N=-2)\pm(q)/t]}$ of the equations. Their operations are not substantially different from differential equations, except that the power function is: differential equation (N=-1); integral equation ((N=+1), Based on the selection of characteristic modulus, it contains the combination coefficients in calculus, so the characteristic modulus is invariant. $(1-\eta^2)^{K(N=-2)}$ has isomorphism invariance. It means that no matter how the calculus changes, the circular logarithm and characteristic modulus remain unchanged, (the same below) .

between the circular logarithmic place value factor $(d^2\eta)$ and the numerical factor $(d^2\eta_\Delta)$: $\eta^2 = 2\eta_\Delta$ (because the center point of the circular logarithm value and the zero point of the position value do not necessarily coincide, sometimes repeated trials are required until the symmetry balance of the center point of the circular logarithm value is satisfied) **;**

Numerical factors balance the symmetry :

$$(1-\eta_\Delta^2)^{(KW=\pm1)}=(1+\eta_{\Delta[a]}^2)^{(KW=+1)}+(1-\eta_{\Delta[bc]}^2)^{(KW=-1)}$$
$$=(1+\eta_{\Delta[a]}^2)^{(KW=+1)}+[(1-\eta_{\Delta[b]}^2)+(1-\eta_{\Delta[c]}^2)]^{(KW=-1)}$$
$$=(1+2/5)^{(KW=+1)}+(1-1/5)^{(KW=-1)}+(1-1/5)^{(KW=-1)}=(0);$$

The circular logarithm numerical factor is obtained: $\pm(d^2\eta_\Delta)^2=\pm2(d^2\eta_\Delta)\mathbf{D}_0/\mathbf{D}_0=\pm2/5$;

Ternary number transformation: Under the same circular logarithmic factor **(** η^2 **)** , a balanced exchange of random and non-random numbers is performed to form a reliable combination.

$(a/5)^{K}=(1-\eta^2)^K=(4/5)^{K(S\pm(N=-1)\pm(q=1)/t} \leftrightarrow (1+\eta^2)^K=(6/5)^{K(S\pm(N=-1)\pm(q=1)/t}=(b/5)^{K}$;

Ternary number combinations (multiplication combinations, addition combinations):

$abc=(1-\eta^2)\cdot\{\mathbf{5}\}^{(3)}$

balanced and exchanged by the circular logarithm :

$\boldsymbol{j}a=(1+\eta_{\Delta[a]}^2)\cdot\mathbf{D}_0=(1+2/5)\cdot\mathbf{5}=7^{K(S\pm(N=-2)\pm(q=1)/t}$;

$\boldsymbol{i}b=(1-\eta_{\Delta[b]}^2)\cdot\mathbf{D}_0=(1-1/5)\cdot\mathbf{5}=4^{K(S\pm(N=-2)\pm(q=1)/t}$;

$\boldsymbol{k}c=(1-\eta_{\Delta[c]}^2)\cdot\mathbf{D}_0=(1-1/5)\cdot\mathbf{5}=4^{K(S\pm(N=-2)\pm(q=1)/t}$;

Among them: the numerical factor of the circular logarithm is equivalent to (+2-(1+1)=0); it satisfies the associative law, the commutative law , and the law of the excluded middle .

Trinary probability complex analysis: (axial projection)

$\boldsymbol{jik}\ \{abc\}=\boldsymbol{j}\ a\}+\boldsymbol{i}\{b\}\ +\boldsymbol{k}\{c\}=\boldsymbol{j}\{7\}+\boldsymbol{i}\{4\}+\boldsymbol{k}\{4\}$;

The root elements of the topological "2-2 combination" are driven by the circular logarithm to balance the exchange:

$\boldsymbol{ik}\ bc=4\cdot4=16^{K(S\pm(N=-2)\pm(q=2)/t}$; corresponding to $-\boldsymbol{j}a$;

$\boldsymbol{kj}\ ac=4\cdot7=28^{K(S\pm(N=-2)\pm(q=2)/t}$; corresponding to $-\boldsymbol{i}b$;

$\boldsymbol{ji}\ ab=7\cdot4=28^{K(S\pm(N=-2)\pm(q=2)/t}$; corresponding to $-\boldsymbol{k}c$;

Ternary topological complex analysis: (plane projection)

$$\boldsymbol{jik}\{^{(3)}\sqrt{abc}\}^{(2)}=\boldsymbol{ji}\{ab\}+\boldsymbol{ik}\{bc\}+\boldsymbol{kj}\{ca\}$$
$$=\boldsymbol{ji}\ \{28\}+\boldsymbol{ik}\ \{16\}+\boldsymbol{kj}\ \{28\};$$

Ternary exchange rules :

D =abc=112 remains unchanged, the numerical characteristic modulus **{5}** remains unchanged, the place value factor (($^{d2\eta\Delta}$) =± 2 /5 **)** remains unchanged, and three states appear: the probability combination " **7, 4, 4** " and the topological combination " **16, 28, 28** ", which are supported by the circular logarithm (η=+2/5) ↔ (η =-2/5), and (η =+2/5) ↔ (η =-1/5) ↔ (η =-1/5).

Trinary Probability-Topological Complex Analysis and Balanced Exchange:

$\boldsymbol{ik}\ \{16\} \leftrightarrow \boldsymbol{j}\ \{7\}$ corresponds to $\boldsymbol{ik}\{bc\} \leftrightarrow \boldsymbol{j}\{a\}$;

$\boldsymbol{kj}\{28\} \leftrightarrow \boldsymbol{i}\ \{4\}$ corresponds to $\boldsymbol{kj}\{ca\} \leftrightarrow \boldsymbol{i}\{b\}$;

$\boldsymbol{ji}\{28\} \leftrightarrow \boldsymbol{k}\ \{4\}$ corresponds to $\boldsymbol{ji}\ \{ab\} \leftrightarrow \boldsymbol{k}\{c\}$;

Among them: the conjugate reciprocal asymmetry of the axis-plane projection drives the balanced exchange of values through the evenness of the dimensionless circular logarithm.

Verification: $\{7\cdot4\cdot4\}=112$; $\{\mathbf{D}_0\}^{(1)}=(1/3)(7+4+4)=\mathbf{5}$, $\{\mathbf{D}_0\}^{(2)}=(1/3)(16+28+28)=24$ expressed as $\{\mathbf{5}\}^{(2)}$.

In particular, the values of {a=7, b=4, c=4}, and {bc=16, ac=28, ab=28} cannot be exchanged. Only through the circular logarithmic factor **(η =± 2/5)** that one (probability, particle) root element shares the circular logarithmic factor with two (topology, wave function) roots, the symmetry and asymmetry of the randomness and non-randomness of the circular logarithmic evenness can the balanced exchange be achieved.

This is why traditional mathematical ternaries cannot be directly balanced and exchanged.

2.3.4. Second-order integral equations and complex analysis of ternary numbers

【Numerical Example 8】 :

Given: ternary number multiplication combination **D** = abc = 96 , second-order integral : (N=+2);

Characteristic mode:

$$\mathbf{D}_0^{(1)}=\{5\}^{K(S\pm(N=+2)\pm(q=1)/t}=\mathbf{5},\ \mathbf{D}_0^{(2)}=\{5\}^{K(S\pm(N=-2)\pm(q=2)/t}=25,\ \mathbf{D}_0^{(3)}=\{\mathbf{5}\}^{K(S\pm(N=+2)\pm(q=0,1,2,3)/t}=125,$$

Discriminant: $\iint\Delta^{(N=-2)}dt^2=\{^{(3)}\sqrt{abc}/\mathbf{D}_0\}^{(N=-2)/t}=[\iint(\eta^{(N=-2)}dt^2)\cdot\mathbf{D}_0]/\mathbf{D}_0\}^{(3,2,1,0)}=96/125=0.7$;

Circular logarithm: $(1-\eta^2)=(1-0.7)=0.3$,

Ternary integral equation:

$$\int^2\{x^3\pm15x^2+68x\pm96\}dx^2$$
$$=\iint^2\{x^3-3\cdot5x^2+3\cdot22.67x-112\}dx^2$$
$$=[1-(\iint\eta dt)^2]\cdot\{x\pm5\}^{K(S\pm(N=+2)\pm(q=0,1,2,3)/t}$$
$$=(1-\eta^2)\cdot[(0,2)\cdot\{\mathbf{5}\}]^{K(S\pm(N=+2)\pm(q=0,1,2,3)/t};$$

Among them: Isomorphic circular logarithms mean that no matter what state the circular logarithms are in, their form remains unchanged.

$(1-(\int^2\eta dt)^2)^{(N=+2)/t}\rightarrow(1-(\int\eta dt)^2)^{(N=+1)/t}\rightarrow(1-\eta^2)^{K(N=+2)}$;

The circular logarithm remains isomorphic regardless of how the calculus changes. $(0,2)^{K(S\pm(N=+2)\pm(q)/t}$ In the dynamics of the second-order differential equation :

Add combination $(2)^{K(S\pm(N=+2)\pm(q)/t}$, subtract combination $(0)^{K(S\pm(N=+2)\pm(q)/t}$.

The relationship between the circular logarithmic place value factor and the numerical factor is: $\eta^2=2\eta_\Delta$;

Numerical factor: $\pm\eta_\Delta=\pm2\,\eta_\Delta\mathbf{D}_0/\mathbf{D}_0=\pm2\cdot0.3\cdot5/5=\pm3/5$;

Numerical factors balance the symmetry:

$(1-\eta_\Delta^2)=(1+\eta_{\Delta[a]}^2)+(1-\eta_{\Delta[bc]}^2)$

$=(1+\eta_{\Delta[a]}^2)+(1-\eta_{\Delta[b]}^2)+(1-\eta_{\Delta[c]}^2)$

$$=(1+3/5)+(1-2/5)+(1-1/5)$$
$$=(1+3/5)+(1-3/5)=(0);$$

The numerical symmetry of circular logarithm is equivalent to : (+3-2-1=0);

Get the root element:

$a=(1+3/5)\cdot\mathbf{5}=8$; $b=(1-2/5)\cdot\mathbf{5}=3$; $c=(1-1/5)\cdot\mathbf{5}=4$;

Here , a=8 and b=3, c=4 cannot be exchanged. The only way to achieve balanced exchange is through the circular logarithmic factor (η_Δ)=± 3/5) which is a shared factor between one (probability, particle in physics) root element and two (topology, wave function in physics) root elements, thus becoming a random reciprocal symmetric balance .

That is to say, **D** = abc = 96 remains unchanged, the place value factor (±3/5) remains unchanged, and four states appear randomly: " **8** and **3** and **4** " (1-1 combination) or " **8** and (**3** · **4**)", " **3** and (**8** · **4**)", and " **4** and (**3** · **8**) (2-2 combination)" .

are exchanged through the zero point of the circular logarithm (η_Δ^2),

It is a three-dimensional complex analysis space. For example, the natural number tail {1,2,3…10} forms a ternary number multiplication combination **D, and** the characteristic modulus $\mathbf{D}_0=\{\mathbf{5}\}$;

Discriminant: $\Delta=(\eta^2)=(^{(3)}\sqrt{\mathbf{D}/\mathbf{D}_0})^{K(3,2,1,0)}$;

The relationship between the circular logarithmic place value factor and the numerical factor:

$(1-\eta^2)^K=2(\eta_\Delta)\mathbf{D}_0$; or : $\Delta=2(\eta_\Delta)\mathbf{D}_0$;

Or check : "999 Multiplication and Circular Logarithm Table":

Circular logarithmic numerical factor:

$(\eta_\Delta)=\pm(0.4/\mathbf{D}_0),\pm(0.3/\mathbf{D}_0),\pm(0.2/\mathbf{D}_0),\pm(0.1/\mathbf{D}_0,\pm(0/\mathbf{D}_0)$;

Associative law, commutative law and complex analysis of circular logarithms.

$$(1-\eta^2)^{(Kw=\pm1)}=\boldsymbol{J}(1+\eta_{\Delta[a]}^2)^{(Kw=+1)}+\mathbf{ik}(1-\eta_{\Delta[bc]}^2)^{(Kw=-1)}$$
$$=\mathbf{J}(1-\eta_{\Delta[a]}^2)^{(Kw=+1)}+\mathbf{i}(1-\eta_{\Delta[b]}^2)^{(Kw=-1)}+\mathbf{k}(1-\eta_{\Delta[c]}^2)^{(Kw=-1)};$$

Among them: the circular logarithm represents the conjugate equilibrium reciprocal symmetry of the circular logarithm numerical factors of the axis (probability) and the plane (topology), which can be balanced and exchanged to form a three-dimensional space analysis : $(1-\eta_{[jik]}^2)^{(Kw=\pm1)}=(^{(3)}\sqrt{\mathbf{D}/\mathbf{D}_0})^{K(3,2,1,0)}$

It indicates that ternary numbers drive the balanced exchange of the "element-object" series of ternary numbers through the conjugated reciprocal symmetry form of the dimensionless circular place value center zero point .

2.3.5. Fibonacci sequence (K=+1) and circular logarithms

【Number Example 9】

Given: Fibonacci sequence: **A+B=C; B+C=D; ...,** (the first two numbers are equal to the last number),

Assume: boundary function: {X}=(abc), Characteristic mode: $D_0=(1/3)(a+b+c)$

(1) 、Asymmetric distribution of cubic Fibonacci sequence:

Given: Multiplication combination: $\mathbf{D}=(abc)=(^{(3)}\sqrt{\mathbf{D}})^{(3)}=520$;

Characteristic mode: $D_0=\mathbf{(1/3)(a+b+c)}=B/3=26/3$;

Circular logarithm: $(1-\eta^2)^K=(1-^{(3)}\sqrt{\mathbf{D}}/\mathbf{D_0})=0.20119\le1$;

Satisfy circular logarithmic equilibrium conditions;

Circular logarithmic discriminant:

$$\Delta=(\eta^{2})=({}^{(3)}\sqrt{\mathbf{D}/\mathbf{D_0}})=(({}^{(3)}\sqrt{\mathbf{520}})/(520/3)^{(3)}\approx 0.79881\leq 1;$$

It belongs to convergent real number calculation;

Circular logarithmic symmetry balance factor (center zero point):

$(1-\eta^2)=(1-0.79881)=({}^{(2)}\sqrt{0.20119})\approx(0.45)^{(2)}$;

Analysis: Three numbers in the Fibonacci sequence.

(2)、 Fibonacci sequence calculation:

Fibonacci sequence of cubic equations:

$$X^{(3)}+BX^{(2)}+CX^{(1)}+D$$
$$=X^{(3)}+3\{D_0\}^{(1)}X^{(2)}+3\{D_0\}^{(2)}X^{(1)}+D$$
$$=(1-\eta^2)^{K}\cdot[X_0^{(3)}+3\{\mathbf{D}_0\}X_0^{(2)}+3\{D_0\}^{(2)}X_0+\{D_0\}^{(3)}]$$
$$=(1-\eta^2)^{K}\cdot[X_0+\{\mathbf{D}_0\}]^{(3)}$$
$$=(1-\eta^2)^{K}\cdot[(2)\cdot\{\mathbf{D}_0\}]^{(3)};$$

则： $$X^{(3)}=(1-\eta^2)^{K}\cdot\{\mathbf{D}_0\}^{(3)};$$

According to : Given **D** or Fibonacci sequence, introduce circular logarithm rule and solve characteristic modulus $\{\mathbf{D_0}\}$

$(\mathbf{D_0})=(1-\eta^2)^{(K=-1)}\cdot({}^{(3)}\sqrt{\mathbf{D}})=0.45\cdot({}^{(3)}\sqrt{\mathbf{D}})=26/3\approx 9$;

Logarithmic symmetry of the central zero point circle:

$(a+b+c)/\mathbf{D}_0=[(1-\eta_{[a]}{}^2)^{(K=+1)}+(1-\eta_{[b]}{}^2)]^{(K=-1)}+(1-\eta_{[c]}{}^2)^{(K=-1)}=0$;

$$(1-\eta_{[ab]}{}^2)^{(K=-1)}-(1-\eta_{[c]}{}^2)^{(K=+1)}=0;$$

The circular logarithmic symmetry is not limited to the Fibonacci sequence, but can also be adapted to any asymmetric distribution of ternary numbers.

(C) Fibonacci sequence analytical roots :

There are two methods to find the root solution:

First, the general calculation of the circular logarithm of ternary numbers:

Circular logarithmic center zero point: $(\eta)=({}^{(2)}\sqrt{0.20119})\approx(0.45)\approx(13/26)$;

Trial selection: The Fibonacci sequence emphasizes integers: $(\eta)=(9\pm 4)/26$;

The circular logarithmic center zero point symmetry satisfies the circular logarithmic factor balance;

$[(-\eta_{[a]})+(-\eta_{[b]})]+(+\eta_{[c]})=((1+4)/26+(5-1)/26=0$;

$\eta_{[a]}=(9-4)/26=5/26$; $a=(1-\eta_{[a]})B=(1-5/26)B=5$;

$\eta_{[b]}=(9-1)/26=8/26$; $b=(1-\eta_{[b]})B=(1-8/26)B=8$;

$\eta_{[c]}=(9+4)/26=13/26$; $c=(1+\eta_{[c]})B=(1+13/26)B=13$;

Second, the calculation of circular logarithmic symmetry of the Fibonacci sequence:

According to the classic formulas (0.618) and (0.382) of Chinese mathematician Hua Luogeng, the distribution of the Fibonacci sequence is:

Under the condition that B=2C: Given any Fibonacci number, such as (B=26), or based on **D** and $\mathbf{D}_0$, calculate the zero point of the circle logarithm center $(\eta_C)=0.50$.

Circular logarithmic symmetry: $(1-\eta_{[a]}{}^2)+(1-\eta_{[b]}{}^2)=0.5$; $(1-\eta_{[c]}{}^2)=0.5$; the center zero point is at the equality of (ab) and (c).

$$\mathbf{a}=(1-\eta_{[a]}{}^2)(\mathbf{c})=0.382(13)=5;$$
$$\mathbf{b}=(1-\eta_{[b]}{}^2)(\mathbf{c})=0.618(13)=8;$$
$$\mathbf{c}=(a+b)=(1-\eta_{[c]}{}^2)(\mathbf{c})=1.50000(13)=13;$$

2.4. Complex analysis of three-dimensional network circles

2.4.1. Connection between three-dimensional network and dimensionless circular logarithm

The circular logarithm of the ternary complex analysis [**Q=jik]** corresponds to the probability of each one-dimensional linear axis of the three-dimensional network, the numerical characteristic modulus and position value circular logarithm of the topology of the two-dimensional surface (including the three-dimensional network [**Q=jik]**) and the shared time series expansion.

Ternary number mathematical space: nodes represent numerical characteristic moduli and have asymmetric numerical values; the connections between nodes are place-value circular logarithms and have relatively symmetric information transmission.

(a), Linear mapping of a three-dimensional network: In three-dimensional space, we have:

{**±X; ±Y; ±Z**} 6 axis directions;

(b) ,Three-dimensional network one-dimensional quadratic plane mapping: In three-dimensional space, we have:

The plane **(YOZ)** corresponds to the ±**X** axis;

The plane (**ZOX**) corresponds to the ±**Y** axis;

The plane (**XOY**) corresponds to the ±**Z** axis ;
Among them: the axis and the plane form **8** quadrants of three-dimensional space;
(c),Three-dimensional network one-dimensional five-dimensional space: In five-dimensional space, there are **48** positions :
(YOZ) corresponds to the ±**X** axis;
(ZOX) corresponds to the ±**Y** axis;
(XOY) corresponds to the±**Z** axis**;**
(d),3**D** network circle logarithm:
$(1-\eta_{[jik]}{}^2)^K=(\pm1,\pm0)$;
In addition to the conjugate origin O of the three-dimensional coordinate system being "a central point";
In the quaternion eight quadrant , **jik** = ±1, **ik** = ±1, **kj** = ±1, **ji** = ±1,
Solve the reversibility of multiplication permutation, become a three-dimensional complex space, and satisfy the even symmetry of the circular logarithmic center zero point:
$(1\eta_{[jik]}{}^2)^K = (1-\eta_{[ji]}{}^2)^{(K=+1)} + [(1-\eta_{[i]}{}^2)^{(K=-1)} + (1-\eta_{[k]}{}^2)^{(K=-1)}]=0$;
Among them: Complex analysis equilibrium exchange law: Numerical analysis produces a conjugate and inverse asymmetry between the plane perpendicular normal line and the axis. Driven by the zero point of the dimensionless circular logarithm center, the numerical value is balanced and exchanged.
(e) Exchange rules:
original proposition , characteristic modulus and isomorphic circular logarithmic form remain unchanged. Only by relying on the changes in the positive, negative and properties of the circular logarithmic power function, the true proposition is converted into an inverse proposition to achieve balanced exchange.
$(1-\eta_{[ji]}{}^2)^{(K=+1)}=(1-\eta_{[i]}{}^2)^{(K=-1)}+(1-\eta_{[k]}{}^2)^{(K=-1)}$
$(1-\eta_{[i]}{}^2)^{(K=-1)}=(1-\eta_{[ji]}{}^2)^{(K=+1)}+(1-\eta_{[k]}{}^2)^{(K=-1)}$
$(1-\eta_{[k]}{}^2)^{(K=-1)}=(1-\eta_{[ji]}{}^2)^{(K=+1)}+(1-\eta_{[i]}{}^2)^{(K=-1)}$;
(f), dimensionless circular logarithmic center zero line (critical line) symmetry: corresponding characteristic mode series,
$(1-\eta_{[ji]}{}^2)^{(K=+1)} + [(1-\eta_{[i]}{}^2)^{(K=-1)} + (1-\eta_{[k]}{}^2)^{(K=-1)}]= \{0,\pm1\}$;
(g), dimensionless circular logarithmic central zero point (critical point) symmetry: corresponding to the characteristic mode series,
$(1-\eta_{[ji]}{}^2)^{(K=+1)} + [(1-\eta_{[i]}{}^2)^{(K=-1)} + (1-\eta_{[k]}{}^2)^{(K=-1)}]=\{0\}$;
(h) Complex analysis commutative symbol:
probability axis projection space of three-dimensional network :
$(1-\eta_{[jik]}{}^2)^K = (1-\eta_{[ji]}{}^2)^{(K=+1)} + (1-\eta_{[i]}{}^2)^{(K=-1)} +(1-\eta_{[k]}{}^2)^{(K=-1)}$;
3D network 2D topology projection plane, surface: (first quadrant)
$(1-\eta_{[jik]}{}^2)^K = (1-\eta_{[ik]}{}^2)^{(K=-1)} + (1-\eta_{[kj]}{}^2)^{(K=-1)} +(1-\eta_{[ji]}{}^2)^{(K=+1)}$;
The ternary series of complex numbers, with the origin **O** as the center, is divided into eight quadrants according to the left-hand rule. The thumb is pointing upwards, and the four fingers are pointing to the palm. The clockwise direction is "+", and the reverse is "-". ".
{ **JiK**=±1; **iK** =±1; **KJ** =±1; **Ji** =±1}.
(1), Linear numerical value of ternary complex analysis:
$j\ x_a=(1-\eta_{[j]})\mathbf{D}_0{}^{(Q=j)\ K}$ corresponds to the **X** axis;
$i\ x_b=(1-\eta_{[i]})\mathbf{D}_0{}^{(Q=i)\ K}$ corresponds to the **Y** axis;
$k\ x_c=(1-\eta_{[i]})\mathbf{D}_0{}^{(Q=k)}$ corresponds to the **Z** axis;
(2), Complex analysis of ternary numbers, complex plane values:
The normal line of the **ZOX** plane corresponds to the **Y** axis; $jk\ \mathbf{Y}_{[ca]}=(1-\eta_{[kj]})\mathbf{D}_0{}^{(Q=ik)\ K}$;
The normal line of the **YOZ** plane corresponds to the **X** axis; $ik\ \mathbf{X}_{[bc]}=(1-\eta_{[ki]})\mathbf{D}_0{}^{(Q=kj)\ K}$;
The normal line of the **XOY** plane corresponds to the **Z** axis; $ij\ \mathbf{Z}_{[ab]}=(1-\eta_{[ij]})\mathbf{D}_0{}^{(Q=ij)\ K}$;
(3) ,Balanced exchange rules for ternary numbers:
Invariant propositions, invariant characteristic modules, invariant isomorphic circular logarithmic forms:
$A^{(K=+1)} = (1-\eta_{[ji]}{}^2)^{(K=+1)} \cdot \mathbf{D}_0{}^{(K=+1)}$
$= [(1-\eta_{[jik]}{}^2)^{(K=+1)} \leftrightarrow (1-\eta_{[C]}{}^2)^{(K=`0)} \leftrightarrow (1-\eta_{[jik]}{}^2)^{(K=-1)}]\ \mathbf{D}_0{}^{(K=`1)}$
$= (1-\eta_{[ik]}{}^2)^{(K=-1)} \cdot \mathbf{D}_0{}^{(K=-1)} = B^{(K=-1)}$
In traditional mathematics, the original Hamiltonian multiplication cannot be balanced and exchanged, while category theory believes that it can be exchanged (morphism) without strict mathematical proof. Through the " random balanced exchange mechanism of even symmetry and asymmetric randomness 'infinity axiom' " unique to dimensionless circular logarithms, driven by circular logarithms, the multiplication of three-dimensional complex

analysis can be balanced and exchanged, thereby expanding the two-dimensional space to establish a three-dimensional eight-quadrant space of the ternary number series . It is called the three-dimensional Hamiltonian-Wang Yiping quaternion exchange rule.

Here, it is proved that the mathematical principle that category theory cannot directly morphism is based on the absence of the 'infinity axiom' mechanism.

2.4.2. Differential order (- N=0,1,2) dynamic analysis of three-dimensional networks

Based on known conditions: {X}=(a,b,c ,d,e,f,g), (- N=0,1,2) ;

a series = $(x_{a1}, x_{a2}, \ldots x_{as})$;
b series = $(x_{b1}, x_{b2}, \ldots x_{bs})$;
c series = $(x_{c1}, x_{c2}, \ldots x_{cs})$;
d series = $(x_{d1}, x_{d2}, \ldots x_{ds})$;
e series = $(x_{e1}, x_{b2}, \ldots x_{es})$;
f series = $(x_{f1}, x_{f2}, \ldots x_{fs})$;
g series = $(x_{g1}, x_{g2}, \ldots x_{gs})$;

It can generate a five-dimensional vortex space (i.e., three-dimensional precession (***jik***) + two-dimensional rotation (***uv***)) for one-dimensional linear, two-dimensional plane, and surface analysis.

of ternary numbers (7th power dynamic equation) [Q=***jik***+2· ***uv***]: Considering the joint effect of two rotations 2· [uv], it becomes a five-dimensional dual rotation space.

Among them: one-dimensional (linear, curvilinear) linear equations (j direction may or may not coincide) [Q=jik+juv corresponds to {**Jik, uv**}], two-dimensional (plane, curved) nonlinear equations plane projection {**YOZ, ZOX, XOY**} and the ternary numbers of the plane normal line in three-dimensional rectangular coordinates {**X, Y, Z**}. The rotation function 2· (uv) follows (jik), (uv) normal line direction is consistent for five-dimensional vortex space, if not consistent for six-dimensional vortex space (such as Calabi-Yau space).

Derivation: One variable seven-dimensional equation

In 1900, Hilbert proposed the problem of "given a function of two variables (author's note: the function of variables is required to satisfy the regularized distribution condition) and requiring a general solution", which has not been solved yet.

Here, it is known that the two variable functions are the boundary function (multiplication combination) **D** and the additive combination characteristic modulus $\mathbf{D}_0$, and a three-dimensional network complex analysis is performed.

The power function is " K (Z ±[Q=3=***jik+uv***] ± (S=7)±(N=0,1,2) " ; it represents three-dimensional space, and the calculus is zero-order, first-order, and second-order dynamic equations.

one-variable seven-dimensional equation is generally used for vortex dynamic space (three-dimensional precession + two-dimensional rotation) or other dynamic space: the central zero point is "between three-dimensional and two-dimensional" (a,b,c , (O),d,e,f,g)

Boundary function numerical multiplication combination : $\mathbf{D}=({}^{(7)}\sqrt{\mathbf{D}})^{K[Z \pm [Q=3=jik+uv] \pm (S=7) \pm (N=0,1,2)}$;

Combination coefficient: **1:7:21:35:35:21:7:1**, total: **128**;

Adding characteristic modulo function:

$\mathbf{D}_0^{(1)}=(1/7)(a+b+c+d+e+f+g)$;

$\mathbf{D}_0^{(2)}=(1/21)(ab+bc+\ldots+fg)$;

$\mathbf{D}_0^{(3)}=(1/35)(abc+bcd+\ldots+fga)$;

Among them: **[** Q=3=(***jik***+ 2· ***uv***)] means that the 7 root elements are decomposed into three element precession and two pairs of rotation elements, and in three-dimensional space, they perform 7-dimensional sub - space motion in five-dimensional space .

The zero points of the seven elements are at {abc, O, de, fg} (in this example). It can also be **{abcd, O, efg}**, {ab, O, cde, fg}, {a, O, bc, de, fg}, {ab, (O=c), de, fg} (a central particle surrounded by three pairs of rotating particles), {abc, (O=d), efg}, {abcd, (O=e), fg}, etc.

The three-dimensional network corresponds to the corresponding boundary values of the order of calculus (±N=0,1,2) (zero order, first order, second order); because the dimensionless circular logarithm is only reflected in the power function for the change of the calculus order, the other calculation formulas have no obvious changes, so they can be combined here. In other words, the analytical calculation method of converting the equation into the dimensionless circular logarithm is the same, the only difference is the power function and the number of analytical roots.

(1) , the three-dimensional 7-dimensional space calculus **(** N=0,±1 , ± 2 **)** dynamic equation (coincidence in the **j** direction), corresponding to the three-dimensional sequence **{(** ***J,i,k***)+ **2·** (***u,v***) } , represents a three-dimensional (three-element) precession + two two-dimensional (two-dimensional) rotations around the three-dimensional center zero point.

(2) , Calculation step 1: The characteristic modulus center point and the surrounding 7 root elements have synchronous changes. This is the first step of the analytical equation.
Among them: the three-dimensional (three-element) precession has the same speed, acceleration, energy and force as the two-dimensional (binary) precession, and under the same circular logarithmic factor conditions, it has the function of random equilibrium exchange of the "infinite axiom".

Specific numerical examples can be introduced into the formula to satisfy the calculation of the regularized distribution.

$$\{X\pm({}^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2)\pm(q=0,,\ldots 7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[X_0\pm(\mathbf{D}_0]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,,\ldots 7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[(0,2)(\mathbf{D}_0)]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,\ldots 7)/t};$$

Balance symmetry of circular logarithm central zero point： {abc, O, de, fg}

$\{abc=(1-\eta_{[jik]}^2)^{(K=+1)}$,**O,** $de,fg=(1-\eta_{[2\cdot uv]}^2)^{(K=-1)}\}$

$(1-\eta_{[C]}^2)^{(K=+1)}=(1-\eta_{[abc]}^2)^{(K=+1)}+(1-\eta_{[de,fg]}^2)^{(K=-1)}=0;$

Discriminant:

$$(1-\eta_{[jik+uv]}^2)^K=[({}^{(7)}\sqrt{\mathbf{D}})/\mathbf{D}_0]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,2,\ldots 7)/t}$$
$$=(1-\eta_{[j+uv]}^2)^K\cdot\mathbf{X}+(1-\eta_{[i+uv]}^2)^K\cdot\mathbf{Y}+(1-\eta_{[k+uv]}^2)^K\cdot\mathbf{Z}$$
$$=\{0\text{ or }[0\text{ to }(1/2)\text{ to }1]\text{ or }1\}^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,\ldots 7)/t};$$

Obtained: (Circular logarithm indicates that the center point of the characteristic mode changes synchronously with the 7 root element calculus **(** N=±0,±1 **))**

$$\{{}^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2)\pm(q=0,,\ldots 7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2\pm(q=0,\ldots 7)/t};$$
$$(1-\eta_{[jik+uv]}^2)^K=\{0,\pm 1\};$$

Where: $(1-\eta_{[jik+uv]}^2)^K=\{-1\text{ or }(0)\text{ or }+1\}$ means that the transition jumps between {0,1} with the zero point { 0 } of the three-dimensional characteristic mode (7 elements) as the center .

$(1-\eta_{[jik+uv]}^2)^K=\{-1\text{ to }(0)\text{ to }+1\}$ represents a continuous transition form between { -1 , + 1} with the central zero point { 0 } as the center .

(**3**) , Calculation step 2: Physical 3**D** basic space, carried out7**D** space calculus **(**N=0,±1 , ± 2 **)** dynamic equation (coincidence in **j** direction), corresponding to the 3**D** sequence {(**J,i,k)+ 2· (uv)** } , represents a 3**D** (three-element) precession + two 2D (two-element) rotation around the 3**D** center zero point. According to the center zero point being "between 3D and 2D" (a,b,c ,(O),d,e,f,g) , the characteristic modulus $\{\mathbf{D_0}\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2\pm(q=0,\ldots 7)/t}$; 7 root elements are analyzed through the circular logarithm center zero point. (The author has other numerical examples and analysis, omitted).

2.4.3. Example of ternary complex analysis

The cubic equation has the Cardan (symmetry distribution) formula or Hua Luogeng (Fibonacci sequence) classic formula, both of which are special cases. Without the general solution of the cubic equation, complex analysis cannot be performed. Only by solving the general solution of ternary numbers (symmetry and asymmetry) can three-dimensional complex analysis be established. The circular logarithm satisfies the balance and conversion rules of real numbers and complex numbers, and is based on the three-dimensional Hamilton-Wang Yiping quaternion and exchange rules.For numerical calculation examples, see this articleP213 8.4. Dynamic analysis of three-dimensional network high-order (high-element seven-dimensional equations) calculus (N=±0,1,2)

【Number Example 10】

(A) Cubic equation (periodic equation):

Given: (S=3); Algebraic space **D** =3646 ; Geometric space : **R** =3646

Boundary function: $\mathbf{D}=3646=3430+({}^{(3)}\sqrt{216_{[jik]}})^{(3)}$;

Characteristic mode : $\mathbf{D}_0=7$, $\mathbf{D}_{0[jik]}{}^{(3)}=343=(7)^{(3)}$; 3430 is $7^{(3)}\cdot 10$, indicating the periodicity of three-dimensional space. $({}^{(3)}\sqrt{216_{[jik]}})^{(3)}$ is the multiplication unit cell

Combination coefficient: 1:3:3:1, total coefficient: $\{2\}^3=8$;

Real number and complex number conversion rules: subscript letters follow the left-hand rule in clockwise direction as
"+", and vice versa as "-";

$(1-\eta^{2\,(K=-1)}=(1+\eta^{2\,(K=+1)}=(1-\eta_{[jik]}\ {}^{(K=+1)}$

Where: **D**=3646 represents the **n**=10 periodic characteristic mode $\mathbf{D}_{0[jik]}{}^{(3)}$, sharing a basic complex number $216_{[jik]}=({}^{(3)}\sqrt{216_{[jik]}})^{(3)}$.

Discriminant: $\Delta^2=(\eta_{[jik]}^2)=216/343=0.62973\leq 1$;

$(216/343)^{(K=+1))}\leq 1$, $\mathbf{D_f}=({}^{(3)}\sqrt{216})^{(K=+1)(3)}$;

Where: After removing the periodic values and performing three-dimensional complex number calculation, the value is $\{216_{[jik]}\}$.

Circular logarithm complex number calculation:

$$({}^{(3)}\sqrt{\mathbf{D}_{[jik]}})/\mathbf{D}_0=\{[3430+({}^{(3)}\sqrt{216/343})\}^{(K=+1)}$$
$$=\{[10+(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot \mathbf{D}_{0[jik]}{}^{(3)}\}^{(K=+1)}$$
$$=\{[10+0.62973]\cdot 343_{[jik]}\}^{(K=+1)};$$

Under circular logarithmic conditions: (K=-1),

$$\{X_{[jik]}\}^{(K=-1)(3)}=(1-\eta_{[jik]}{}^2)^{(K=-1)}\mathbf{D}_{0[jik]}{}^{(K=-1)(3)}$$
$$\mathbf{D}_{0[jik]}{}^{(K=-1)(3)}=X_{0[jik]}{}^{(K=-1)(3)}=(1/3)^{(-1)}[x_1{}^{(-1)}+x_2{}^{(-1)}+x_3{}^{(-1)}]^{(K=-1)};$$

cubic complex equation:

The three root solutions are easily obtained through $({}^{(3)}\sqrt{216})$: $\{X_1 X_2 X_3\}$.

Solving complex roots : According to the conversion rules between real numbers and complex numbers: forming an eight-quadrant space in a three-dimensional rectangular coordinate system.

(B) Complex analysis of ternary numbers:

$$\{X\pm{}^{(3)}\sqrt{\mathbf{D}}\}^{(3)}=x^{(3)}\pm Bx^{(2)}+Cx+\mathbf{D}$$
$$=x^{(3)}\pm 3(7)x^{(2)}+3(7)^{(2)}x\pm({}^{(3)}\sqrt{216})^{(3)}$$
$$=(1-\eta^2)^{(K=-1)}\cdot[x_0{}^{(3)}\pm 2(7)x_0{}^{(2)}+2(7)^{(2)}x_0\pm(7)^{(3)}]^{(K=-1)}$$
$$=[(1-\eta^2)^{(K=-1)}\cdot(X_0\pm\mathbf{D}_0)^{(K=-1)(3)}$$
$$=(1-\eta^2)^{(K=-1)}\cdot[(0,2)\cdot\{7.0\}]^{(K=-1)(3)}$$
$$=\{0\leftrightarrow 8\cdot(3430+216_{[jik]})\}^{(K=-1)}$$

Where : **3430** means ($\mathbf{D}_0$=343 characteristic module invariance **D**=216 shared complex basic root) periodically cycles 10 times.

(C) Complex analysis of ternary numbers:

(**1**) Probability linearity (axis)

$$(1-\eta_{[jik]}{}^2)^{(K=+1)}=\boldsymbol{j}[(1-\eta_{[x]}{}^2)^{(Kw=+1)}+\boldsymbol{i}(1-\eta_{[y]}{}^2)^{(Kw=+1)}+\boldsymbol{k}[(1-\eta_{[z]}{}^2)^{(Kw=+1)};$$

(**2**) Topological linearity (surface or plane projection) forms eight quadrants of three-dimensional coordinates.

$$(1-\eta_{[jik]}{}^2)^{(K=+1)}=(1-\eta_{[jk]}{}^2)^{(Kw=+1)}\cdot\mathbf{X}+[(1-\eta_{[kj]}{}^2)^{(Kw=+1)}\cdot\mathbf{Y}+(1-\eta_{[ji]}{}^2)^{(Kw=+1)}\cdot\mathbf{Z};$$

(**3**) Complex number calculation rules:

$$(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[jik]}{}^2)^{(K=+1)}$$

Corresponding to a shared basic boundary condition **D**=216 $_{[jik]}$;

(**4**) Circular logarithmic zero point extreme value:

$$(1-\eta_{[jik]}{}^2)^{(K=+1)}=\{-1 \text{ or } [-1 \text{ to } (0) \text{ to } +1] \text{ or } +1\}^{(K=+1)};$$

In the formula: (0) represents the forward and reverse conversion point of the three-dimensional periodic cycle center point O , corresponding to the starting and ending points of the boundary { ` 1} .

(D), root analysis:

(1). Central zero-point symmetric topological circle logarithm:

Calculation of the actual numerical value of the root: $(1-\eta^2)$=216/343=0.62793;

Symmetry center zero point : $(1-\eta_{[C]}{}^2)=0$ between (x_1, x_2) and (x_3) ;

$$(1-\eta_{[jik]}{}^2)\{(\mathbf{D}_0\}=0.62793\cdot 10.50=7/21;$$

the center point of the circle :

$$(1-\eta_{\Delta}{}^2)^K\{\mathbf{D}_0\}=(-4/7)+(-1/7)=(+5/7)=0;$$

(2) Complex probability value: $\mathbf{J}x_1+\mathbf{i}x_2+\mathbf{k}x_3=\mathbf{J}3+\mathbf{i}6+\mathbf{k}12$;

Corresponding to the center zero point $\{\mathbf{D_0}\}^{(1)}=\{\mathbf{7}\}^{(1)}$;

$\boldsymbol{j}x_1=(1-\eta_{[j]})\mathbf{D}_0=(1-4/7)\cdot(\mathbf{7})=\mathbf{j3}$; corresponds to the **X** axis;

$\boldsymbol{i}x_2=(1-\eta_{[i]})\mathbf{D}_0=(1-1/7)\cdot(\mathbf{7})=\mathbf{i6}$; corresponds to the **Y** axis;

$\boldsymbol{k}x_3=(1-\eta_{[k]})\mathbf{D}_0=(1+5/7)\cdot(\mathbf{7})=\mathbf{k12}$; corresponding to the **Z** axis;

[Verification 1]: $\{\boldsymbol{J}3\cdot\boldsymbol{i}6\cdot\boldsymbol{k}12\}=216_{[jik]}$. The complex roots meet the requirements.

(3) Complex topological values:

$$\boldsymbol{J}x_{[23]}{}^{(2)}+\boldsymbol{i}x_{[31]}{}^{(2)}+\boldsymbol{k}x_{[12]}{}^{(2)}=\boldsymbol{J}72+\boldsymbol{i}36+\boldsymbol{k}18;$$

The central zero point corresponds to the characteristic mode; $\{\mathbf{D_0}\}^{(2)}=\{7\}^{(2)}$;

The three roots are in complex numbers, and according to the plane mapping and the central zero point angle conversion, the combination of plane values changes accordingly;

in: The normal line of the **XOZ** plane corresponds to the **X** axis; the normal line of the **ZOX** plane corresponds to the **Y** axis; the normal line of the **XOY** plane corresponds to the **Z** axis;

$\mathbf{jK}X_{[23]}=(1-\eta_{[jk]})\mathbf{D}_0=(1-1/7)\cdot(1+5/7)\cdot(7)^{(2)}=6\cdot 12=\mathbf{j(72)}$;

$\mathbf{Ki}X_{[31]}=(1-\eta_{[i]})\mathbf{D}_0=(1-4/7)\cdot(1+5/7)\cdot(7)^{(2)}=3\cdot 12=\mathbf{i(36)}$;
$\mathbf{ij}X_{[12]}=(1-\eta_{[i]})\mathbf{D}_0=(1-4/7)\cdot(1-1/7)\cdot(7)^{(2)}=3\cdot 6=\mathbf{k(18)}$;
[Verification 2]:

(a), $X^{(3)}=(3430)+[\boldsymbol{j}72+\boldsymbol{i}367+\boldsymbol{k}18]=3430+(3\cdot 6\cdot 12)=3430+216=3646$;

(b), $X^{(3)}\pm Bx^{(2)}+Cx\pm 216=216\pm 3\cdot 216+3\cdot 216\pm 216=\{0$ 或 $10\cdot(343)+216)\}$,

Satisfies the complex 10 [343] with a shared [216] basic periodic equilibrium.

In particular, there are four calculation results for any equation.

There are four calculation results for a cubic equation

(zero balance, rotation, subtraction); $\{X-{}^{(3)}\sqrt{\mathbf{D}}\}^{K(3)}=(1-\eta^2)^K\cdot\{(0)\cdot\mathbf{D}_0\}^{K(3)}=\{0\}^{K(3)}\cdot\mathbf{D}$;

(even balance, precession, addition);. $\{X+{}^{(3)}\sqrt{\mathbf{D}}\}^{K(3)}=(1-\eta^2)^K\cdot[(2)\cdot\mathbf{D}_0]^{K(3)}=\{2\}^{K(3)}\cdot\mathbf{D}$;

(vortex spatial expansion); $\{X\pm{}^{(3)}\sqrt{\mathbf{D}}\}^{K(3)}=[(1-\eta^2)^K\cdot\{(0\leftrightarrow 2)\mathbf{D}_0\}^{K(3)}=\{0\leftrightarrow 2\}^{K(3)}\cdot\mathbf{D}$;

(balance and transformation of vortex space); $(X\pm{}^{(3)}\sqrt{\mathbf{D}})^{(K=0)(3)}=[(1-\eta^2)^K\cdot[(0\leftrightarrow 2)\cdot\mathbf{D}_0]^{K(3)}=\{(0\leftrightarrow 2)\}^{K(3)}\cdot\mathbf{D}$;

2.4.4. Commutative rules for complex analysis of cubic equations

(1) The complex value of the ternary number itself is just a conjugate asymmetry, and can only be balanced and exchanged under the drive of the circular logarithm. Similar to the conversion between values and angles under a perfect circle, through the trigonometric function formula.

(2) Ternary plural rule: Subscript letters are arranged in the order of left-hand rule "+": right-hand rule "-":

It constitutes eight quadrants of a three-dimensional rectangular coordinate system.

Quadrant 1:

$\{\boldsymbol{ji}\mathbf{k}\}=+1$; $\{\boldsymbol{kj}\}=+1$ corresponds to $\{+\boldsymbol{i}\}$; $\{\boldsymbol{ik}\}=+1$ corresponds to $\{+\boldsymbol{J}\}$; $\{\boldsymbol{ji}\}=+1$ corresponds to $\{+\boldsymbol{k}\}$;

Quadrant 7:

$\{\boldsymbol{kij}\}=-1$; $\{\boldsymbol{jk}\}=-1$ corresponds to $\{-\boldsymbol{i}\}$; $\{\boldsymbol{ki}\}=-1$ corresponds to $\{-\boldsymbol{J}\}$; $\{\boldsymbol{ij}\}=-1$ corresponds to $\{-\boldsymbol{k}\}$;

Center zero point position: The center origin O of the three-dimensional rectangular coordinate system:

For example: Three-dimensional axis complex analysis (first quadrant):

$(1-\eta_{[jik]}^2)^K=(1-\eta_{[j]}^2)^{(K=+1)}\cdot\mathbf{X}+(1-\eta_{[i]}^2)^{(K=+1)}\cdot\mathbf{Y}+(1-\eta_{[k]}^2)^{(K=+1)}\cdot\mathbf{Z}$;

Three-dimensional plane and surface complex analysis (seventh quadrant):

$(1-\eta_{[jik]}^2)^K=(1-\eta_{[ik]}^2)^{(K=-1)})\cdot\eta_{[ji]}^2)^{(K=-1)}\cdot\mathbf{Z}$;

Dimensionless circular logarithmic three-dimensional conjugate reciprocal symmetry:

$(1-\eta_{[C]}^2)^K=(1-\eta_{[j]}^2)^{(K=+1)}\cdot\mathbf{X}+(1-\eta_{[i]}^2)^{(K=+1)}\cdot\mathbf{Y}+(1-\eta_{[k]}^2)^{(K=+1)}\cdot\mathbf{Z=0}$!

$(1-\eta_{[C]}^2)^K=(1-\eta_{[ik]}^2)^{(K=-1)}\cdot\mathbf{X}+(1-\eta_{[kj]}^2)^{(K=-1)}\cdot\mathbf{Y}+(1-\eta_{[ji]}^2)^{(K=-1)}\cdot\mathbf{Z=\{0,1\}}$;

(3) Equilibrium exchange rule for three-dimensional complex analysis: The origin O of the three-dimensional rectangular coordinate system is the conjugate center:

The original proposition remains unchanged, the characteristic modulus remains unchanged, the logarithm of the isomorphic circle remains unchanged, only the properties of the power function of the logarithm of the isomorphic circle are changed in the opposite direction, and the balance is exchanged :

$(1-\eta_{[j]}^2)^{(K=+1)}\cdot X\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm 0)}\leftrightarrow(1-\eta_{[ik]}^2)^{(K=-1)}\cdot$ YOK:

$(1-\eta_{[i]}^2)^{(K=+1)}\cdot Y\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm 0)}\leftrightarrow(1-\eta_{[kj]}^2)^{(K=-1)}\cdot$ ZOX:

$(1-\eta_{[k]}^2)^{(K=+1)}\cdot Z\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm 0)}\leftrightarrow(1-\eta_{[ji]}^2)^{(K=-1)}\cdot$ XOY;

(4) Innovations of cubic equations:

At present, the three-dimensional complex analysis established by traditional mathematics is based on the Cardan symmetric solution, which is adapted to the (symmetry) geometric series $\{2\}^{2n}$ (n=0,1,2,3,… integers). Driven by the construction of dimensionless circular logarithms, the ternary complex analysis is calculated through the symmetry and asymmetry balance exchange mechanism of the evenness of dimensionless circular logarithms, and the ternary (general solution) complex analysis and three-dimensional network analysis are established, which are adapted to the (symmetry and asymmetry) geometric series $\mathbf{\{3\}^{2n}}$ (n=0,1,2,3,… integers).

The general solution method of cubic equations can be extended to the general solution of arbitrary high-power symmetric and asymmetric high-dimensional equations in three-dimensional space, with zero error accuracy reaching 10^{222} universe level.

2.5. The connection between the quartic equation of one variable, the four color theorem and the dimensionless circular logarithm

2.5.1. Quartic equation

【Calculation Example 11】

Operations on quartic equations (general example)

Given: boundary function: **D,** characteristic modulus **:** $\mathbf{D}_0^{(4)}$ The two variable function can be analyzed.

$$X^{(4)}\pm BX^{(3)}+CX^{(2)}\pm DX^{(1)}+\mathbf{D}$$

$$=X^{(4)}\pm(4\mathbf{D}_0)X^{(3)}+(6\mathbf{D}_0^{(2)})X^{(2)}\pm(4\mathbf{D}_0^{(3)})X^{(1)}+\mathbf{D}$$
$$=(1-\eta^2)^K[X_0^{(4)}\pm(4\mathbf{D}_0)X_0^{(3)}+(6\mathbf{D}_0^{(2)})X_0^{(2)}\pm(4\mathbf{D}_0^{(3)})X_0^{(1)}+\mathbf{D}_0^{(4)}]$$
$$=(1-\eta^2)^K[X_0\pm\mathbf{D}_0]^{(4)}$$
$$=(1-\eta^2)^K[(0,2)\{\mathbf{D}_0\}]^{(4)}=0;$$
$$(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^K;$$
or:
$$(1-\eta^2)^K=\{-1 \text{ or } (-1 \text{ to } (0) \text{ to } +1) \text{ or } +1\}^K;$$

Where: "or" indicates discrete jump transition, and "to" indicates continuous smooth transition. The coordinates move, and the corresponding circle logarithmic domain value is not affected.

In particular, the basic four-color theorem is about drawing on a plane or a sphere. It is not discussed here by drawing it on a donut surface as Heg5 did. However, for the proof of the dimensionless logarithm of a circle, the four-color theorem can be drawn on a plane or a sphere. on, producing infinite tiles.In this way, the proof of the four-color theorem provides a reliable mathematical foundation for the computer to establish a **quinary four-photon double spiral memory** and cooperate with the decimal calculation program.

2.5.2 Calculation results of the quartic equation

There are four calculation results for a quartic equation

Zero balance, rotation, subtraction; $\{X-^{(4)}\sqrt{\mathbf{D}}\}^{(4)}=(1-\eta^2)\cdot\{(0)\,\mathbf{D}_0\}^{(4)}=\{0\cdot\mathbf{D};\}^{(4)}$;

Even balance, precession, addition; $\{X+^{(4)}\sqrt{\mathbf{D}}\}^{(4)}=(1-\eta^2)\cdot\{(2)\,\mathbf{D}_0\}^{(4)}=\{2\cdot\mathbf{D}\}^{(4)}$;

Vortex spatial expansion; $\{X\pm^{(4)}\sqrt{\mathbf{D}}\}^{(4)}=(1-\eta^2)\{(0\leftrightarrow2)\cdot\mathbf{D}_0\}^{(4)}=\{(0\leftrightarrow2)\,\mathbf{D}_0\}^{(4)}$;

Balance and transformation of vortex space); $(X\pm^{(4)}\sqrt{\mathbf{D}})^{(K=0)(4)}=(1-\eta^2)\{(0\leftrightarrow2)\,\mathbf{D}_0\}^{(4)}=\{(0\leftrightarrow2)\cdot\mathbf{D}_0\}^{(4)}$;

2.5.3、Analysis of roots of quartic equation

Analytical roots of a quartic equation:

The above is the overall operation of the group combinatorial root.

The first step is based on the fact that "the characteristic mode changes synchronously with the surrounding elements". The second step can only be carried out after obtaining the circular logarithm.

Step 2: Establish the relationship between the center point of the characteristic module and the four surrounding elements, and perform root analysis through the zero point of the circular logarithm center.

In the four root elements of the general solution $\{x_1 x_2 x_3 x_4\}$, the central point decomposition has two forms: $\{(x_1)\neq(x_2 x_3 x_4)\}$; $\{(x_1 x_2)\neq(x_3 x_4)\}$;

Through the probability-topology circular logarithm and the central zero point, two circular logarithmic symmetry expansions can be obtained:

$\{(\eta_1)=(\eta_2\eta_3\eta_4)\}$; $\{(\eta_1\eta_2)=(\eta_3\eta_4)\}$;

Get root resolution:

(1) The first type of analysis: $\{(\eta_1)=(\eta_2\eta_3\eta_4)\}$ (the numerical center point is between one and three consecutive elements)

$x_1=(1-\eta_1^2)\mathbf{D_0}$;

$x_2=(1-\eta_2^2)\mathbf{D_0}$;

$x_3=(1-\eta_3^2)\mathbf{D_0}$;

$x_4=(1+\eta_4^2)\mathbf{D_0}$;

Circular logarithmic numerical factor balances symmetry: (three minus and one plus)

$(-\eta_1^2)+(-\eta_2^2)+(-\eta_3^2)+(+\eta_4^2)=0$;

Among them: the first type of analysis is asymmetric analysis, which is not applied and is blank.

(2) The second type of analysis: $(\eta_1\eta_2)=(\eta_3\eta_4)$; (the numerical center point is between two consecutively multiplied elements)

$x_1=(1-\eta_1^2)\,\mathbf{D_0}$;

$x_2=(1-\eta_2^2)\,\mathbf{D_0}$;

$x_3=(1+\eta_3^2)\,\mathbf{D_0}$;

$x_4=(1+\eta_4^2)\,\mathbf{D_0}$;

Circular logarithmic factor balance symmetry: (two minus and two plus)

$(-\eta_1^2)+(-\eta_2^2)+(+\eta_3^2)+(+\eta_4^2)=0$;

Among them: the second type of analysis is symmetry analysis, which is applied to Hamiltonian quaternion two-dimensional complex analysis.

2.5.4 Four Color Theorem Background

The four-color theorem, also known as the four-color conjecture or the four-color problem, is one of the three major mathematical conjectures in the world. The essence of the four-color theorem is the inherent property of a two-dimensional plane, that is, two straight lines cannot intersect without a common point in the plane. Many scholars have expressed their own views and methods. Many of them are reasonable, but they are not complete, as they do not explain the various levels of symmetry and asymmetry of different colors, why can balanced exchange and unified calculation be achieved? If "axiomatic" is used, mathematical proof is still required.

Here, we use dimensionless circular logarithms and the unique even-number symmetry and asymmetry balance exchange mechanism to adapt to the one-variable quartic equation of the four-color block N, and convert it into dimensionless circular logarithms - an infinite construction set. The even-number balance exchange mechanism is introduced to become a mathematical construction of integrity (integration of completeness and compatibility), driving the levels and number of elements at all levels (including internal colors). Although computers have obtained proofs, mathematicians need rigorous mathematical proofs. Therefore, dimensionless circular logarithm construction is used here to give a rigorous proof.

In 1976 and 1994, American mathematicians K. Appel and W. Haken announced that they had obtained a proof of the four-color theorem with the help of an electronic computer; through the computer, it took 10 billion power (power dimension) calculations to prove it. Mathematicians expect traditional ones to have rigorous mathematical proofs.

It is proposed that "any four-color non-repeating combination of tiles, plus a final closed curve" can be converted into a polynomial, which can be converted into an abstract circular logarithm equation without specific elements (colors) and perform arithmetic operations. The circular logarithm is called "irrelevant to mathematical models and calculations without specific elements". The reliable and credible mathematical proof of the four-color theorem replaces the mathematical proof of 1976 by a US computer after 10 billion calculations.

(1) Tile elements, layers, basic tiles

❋Definition 5.1 Graphics: Within an infinite region (plane, sphere) (Z), any combination of four colors that are not repeated and different from adjacent tiles are seamlessly spliced, and finally a graphic enclosed by a closed curve that contains the tiles and layers within the specified region is called the graphic $\{X\}^{K(Z \pm S \pm 4N \pm (q=4))}$.

❋Definition 5.2 Standard basic tile: A basic tile is a set of non-repeating combinations of four color elements (±N=1; ± q =4).

❋Definition 5.3 Standard basic layer: There are four groups of standard basic tiles in the basic layer with four elements (colors) that are not repeated, (±N=4; ±q=16). The number of basic layer color elements is $\{1,4,6,4,1\}=2^4=16$.

❋Define the polynomials of each block, layer, and graphic in 5.4 , and establish $\{x\pm {}^{(4)}\sqrt{D}\}^{K(Z \pm S \pm 4N \pm (q=1,2,3,4)}$, which includes a center point and a boundary layer envelope. The envelope satisfies the number of blocks, layers, and graphics. The center point ensures the stability of the basic layer.

❋Definition 5.5 Non-standard basic tiles: Standard basic tiles are tiles that are randomly in incomplete combinations (± N=1 ; q=3,2,1) of different incomplete combinations.

❋Define 5.6 non-standard basic layer; every four standard basic tiles have some different incomplete combinations of tiles (non-standard basic tiles) (±S = 4N; q = 3, 2, 1) .

❋Definition 5.7 Arbitrary graphics: composed of arbitrary tile layers: arbitrary tiles (S=4N), layers (N=1,2,3,4…infinite integers), (including non-standard basic tiles formed by "moving" (morphism, mapping) to form standard basic tiles, graphics, tiles, ignoring space terms) power function is written as $\{X\}^{K(Z \pm S \pm 4N \pm (q=4))}$. It forms a univariate quartic equation. According to the known boundary function (color color digitization multiplication and combination function) and characteristic modulus (function mean), the four root color elements (referring to the four color elements filling) can be resolved according to the polynomial regularization rule.

(2) Blocks and graphics

The four-color theorem states that in an infinite block, the four color elements can be combined infinitely and non-repeatingly to form a block hierarchy.

There are random combinations within various tiles

"N=0 : (0-1, 0-2, 0-3), 1-1, 2-2, 3-1 combinations"

(1) Standard tile type, zero color element has four color combinations (3-1, 2-2, 1-3, 0-4),

(2) Non-quasi-tile type, one color element:

(0-3) three color combinations,

(3) Non-quasi-tile type, two color elements:

(0-2) Two color combinations,

(4) Non-quasi-tile type, three color elements:

(0-1) A color combination,

In particular, in the four layers , " the four color elements have seven combinations", one quasi-block type and three non-quasi-block types, with uncertain random combinations. If the uncertainty of the random combination is unstable, there are three ways to deal with it:

(**1**) Complete direct statistics of any finite number of blocks. This requirement cannot be met under infinite conditions.

(**2**) Mathematical proof: Under ideal conditions, a standard block is set that is completely filled with four color elements, with a boundary function (the four color elements are replaced by "digitalization", the "multiplication combination" and "addition combination" feature modulus average are introduced, and the polynomial regularized distribution is used as the standard block calculation. According to the univariate quartic equation, the four color element roots are analyzed.

(**3**) Mathematical proof: Under non-ideal conditions, there is a mixture of uniform distribution of standard tile types and uneven distribution of non-quasi-tile types. It is required to "move" to fill the color elements of non-quasi-tile types and adjust standard type tiles to form uniform distribution of standard type graphics, layers, and tiles. This is very easy to calculate. Even large data can be solved by computers. In fact, computers have solved this problem between 1976 and 1994. The difficulty lies in how to "move" (convert, morphism, map) "uneven distribution of non-quasi-tile types" to "uniform distribution of quasi-tile types". This is exactly the difficulty of the "four color theorem" and has become one of the three major mathematical problems in the world in modern times .

2.5.5. The Four Color Theorem actually solves three core problems

(1) How can the combination of tiles become a unit problem that satisfies the integer expansion of tiles, layers, and graphics?

(2) How can the boundaries of the tiles ensure continuity and close connection between the tiles?

(3) The tile layers and internal elements of the graphics are unevenly distributed. How can we “move” them to a symmetrical distribution?

Most mathematicians believe that the problem cannot be solved by "moving" the existing traditional mathematical system (composed of axiomatization), or at least it is very difficult.

what to do?

The Chinese circular logarithm team discovered that the dimensionless circular logarithm construction set and the dimensionless construction have a unique " balanced exchange mechanism of even symmetry and asymmetry, randomness and non-randomness 'infinite axioms' ". Non-standard types of graphics, layers, and blocks have uneven distribution of color elements. The dimensionless circular logarithm uses the balanced exchange mechanism of the central symmetry of the "evenness" of the circular logarithm to move the uneven distribution (morphism, mapping) to fill or supplement the non-standard basic graphics, layers, and blocks, and solves it using the aforementioned univariate quartic equation.

The dimensionless circular logarithm "evenness mechanism" converts "uneven distribution into uniform distribution" and is called the balanced exchange rule:

non-standard types of graphics, layers, and blocks of the original proposition remain unchanged, the characteristic modulus remains unchanged, and the isomorphic circle logarithm remains unchanged. Only by changing the properties of the isomorphic circle logarithmic power function in the opposite direction can the true proposition "color elements" be moved to the "empty position", and vice versa.

In other words, the color elements established by axiomatization cannot be moved (morphism, mapping), and can only be moved under the drive of dimensionless circular logarithms.

✷**Definition** 2.8 : Digitization of four color elements within a block

$$(D_a , D_b , D_c , D_d) \in \{ {}^{(4)}\sqrt{D} \}^{K(Z\pm S\pm 4N\pm(q=1,2,3,4)}$$

The combination coefficient is divided by the corresponding combination form to become the characteristic modulus (average value) of the block.

$$(1/C_{K(Z\pm S\pm 4N)}) \cdot (D_a , D_b , D_c , D_d) \in \{ D_0 \}^{K(Z\pm S\pm 4N\pm(q=1,2,3,4)} .$$

The polynomial uses (after shifting) its averaged patch (function, geometric space, value) as the basis for calculation. Among them: K (property attribute); (Z±S) (any finite figure in infinity); (±4N) layer unit body; ±(q=1,2,3,4) four color element combinations . When: The blocks are filled with four different color elements, a quartic equation is established.

✷**Definition** 2.9 : After the composite block power function K(Z±S±N±q) (the four colors are combined without repetition) forms a layer (or composite layer), it is then combined with other adjacent different colors to form a new composite layer. And so on.

✷**Definition** 2.10 : A basic block (a combination of four colors without repetition) is composed of four elements and a central zero point (critical line, critical point) that becomes a block isolation line. This is called a block hierarchy (N=1,2,3,4…infinity).

✷**Definition** 2.11 : Number of incomplete combined tiles :
$\{\{\{2^4\text{-}q\}\text{-}q\ldots\}\text{-}q\ldots\}=\{N\cdot 2^4\text{-}q\}=\{N\cdot 4^2\text{-}q\}=\{N\cdot 16\text{-}q\}$;
The number of patch colors that the graph satisfies. There is regularization;

✷**Definition** 2.12 Basic tiles have four color combinations: a level N tiles are filled with four color elements (A B C D),

✷**Definition** 2.13 There are five types of combinations of color elements:

All combinations of four elements: { (A,B,C,D) -0}; Z = K(Z ± S ± N ±(q = 4);

Coefficient $C_{(S \pm N - 4)}$ =1; "Center point of block"

Three elements surround one element: {(A,B,C) -1}; Z=K(Z±S±N±(q= 3);

Coefficient $C_{(S \pm N \pm 1)}$ = 4; "3-1 combination"

Two elements and two elements: {(A,B)-(C,D)}; Z=K(Z±S±N±(q= 2);

Coefficient $C_{(S \pm N \pm 2)}$ = 6; "2-2 combination"

An element surrounds three elements: {(A)-(B,C,D)}; Z=K(Z±S±N±(q= 1);

Coefficient $C_{(S \pm N \pm 3)}$ = 4; "1-3 combination"

The sum of layer combination coefficients: the number of individual color elements of a layer of unchanged color elements $C_{(S \pm N + 4)}$ = 16 (layer: envelope) is a layer; it means that the four colors inside the block are completely and incompletely non-repeating combinations, surrounded by a closed continuous curve, forming a polynomial quartic equation.

Total coefficient of standard layers (synchronized with the number):

$C=\{1+4+6+4+1\}^{K(Z\pm S\pm N\pm P)}=\{2^4\}^{K(Z \pm S \pm 4 N \pm P)}$;

Among them: (N=1), q=0,1,2,3,4; in the basic tiles (called standard tiles), the four color elements (A, B, C, D) are filled, which respectively represent the combination of the four colors and the probability of occurrence, which has a regularized distribution form.

If non-standard blocks appear, they are converted into non-standard blocks through dimensionless circular logarithms. In this way, each circular logarithm corresponds to the level and number of color elements. In this way, by calculating the level and number of dimensionless circular logarithms, we can know the level and number of colors of the blocks, and even the number of each {A,B,C,D} color.

2.5.6 Proof of the Necessity of the Four Color Theorem

The invention of high-speed digital computers has prompted more mathematicians to study the "four-color problem". In June 1976, two different electronic computers at the University of Illinois in the United States spent 1,200 hours and made 10 billion judgments to finally prove the four-color theorem, which shocked the world. However, the computer proof has not been widely recognized by the mathematical community. Many mathematicians are not satisfied with the achievements of computers and require a traditional, simple and fast written proof method to prove the four-color problem.

Given: the characteristic modulus $\{D_0\}^{K(Z\pm S\pm 4N\pm(q=4)}$ of the four color elements (digitized) ; the boundary function $\{^{(4)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm 4N\pm(q=4)}$ can be calculated.

Where: {X} is set to represent the center point or boundary envelope of each level sequence of blocks, layers, and graphics. It does not affect the calculation of the four color elements of $\{^{(4)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm 4N\pm(q=4))}$.

(1) Tile combinations and levels

According to Brouwer's central fixed point theorem, the boundary function $\{\mathbf{D}\}^{Z}$ of closed blocks, layers, and graphics is the same as the center point function $\{X\}^{Z}$. It is proposed that the combination blocks (functions, polynomials, geometric spaces) between polynomials (representing boundary curves, center points, lines and block elements in blocks) are equivalent. According to the Taylor series formula, the series and characteristic module expansion of the quaternion theorem are established:

$$\begin{aligned}
&\{\mathbf{D}_0\}^{K(Z\pm S\pm 4N\pm(q=1,2,3,4)}\\
&= [\textstyle\sum(1/C_{(S\pm N)})\{\mathbf{D}\}+\ldots]^{K(Z\pm S\pm 4N\pm(q=1,2,3,4)}\\
&=\{\mathbf{D}\}^{K(Z\pm S\pm 4N\pm(q=0)}+(1/4)\{\mathbf{D}\}^{K(Z\pm S\pm 4N\pm(q=1)}+(1/6)\{\mathbf{D}\}^{K(Z\pm S\pm 4N\pm(q=2)}\\
&+ (1/4)\{\mathbf{D}\}^{K(Z\pm S\pm 4N\pm(q=3)}+\{\mathbf{D}\}^{K(Z\pm S\pm 4N\pm(q=4)}\}\\
&=\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm 0)}+\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm 1)}+\ldots+\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm P)}+\ldots+\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm q)};
\end{aligned}$$

(2) Layer (4N) combination and dimensionless circular logarithm connection:

When: $\{X\}^Z \neq \{\mathbf{D}\}^Z$, the principle of relativity [6] is applied to the one-to-one correspondence between the unknown and known functions to achieve relative symmetric balance. The resulting dimensionless function without specific element content is called dimensionless circular logarithm construction.

$$(1-\eta^2)^K = \{^{(4)}\sqrt{\mathbf{D}}/\mathbf{D}_0\}\}^{K(0)} + \{^{(4)}\sqrt{\mathbf{D}}\}/\mathbf{D}_0\}\}^{K(1)}$$
$$+\{^{(4)}\sqrt{\mathbf{D}}\}/\{\mathbf{D}_0\}\}^{K(2)}+\{^{(4)}\sqrt{\mathbf{D}}\}/\{\mathbf{D}_0\}\}^{K(3)}+\{^{(4)}\sqrt{\mathbf{D}}\}/\{\mathbf{D}_0\}\}^{K(4)}$$
$$=\{1+(1-\eta_1^2)^{K(S\pm4N\pm(q=1)}+(1-\eta_2^2)^{K(S\pm4N\pm(q=2)}+(1-\eta_3^2)^{K(S\pm4N\pm(q=3)}$$
$$+(1-\eta_4^2)^{K(S\pm4N\pm(q=4)}+1\}\leq\{1\};\ (N=0,1,2,3,\ldots\text{infinite integer})$$

Where: The sum of coefficients: $C_{(Z\pm S\pm P)}=\{1+4+6+4+1\}=\{2\}^{(4)}\{16\}$, $\{16\}$ is synchronized with the number of four color elements and dimensionless circular pairs of the block.

(3) Layer composition polynomial and dimensionless circular logarithm connection

Why do we need to carry out the "one variable quartic equation"?

Here are the reasons:

(1) The "univariate quartic equation" can be expanded infinitely. The four color elements are in the form of "multiplication combination". In addition to obtaining the number of four root elements according to the regularization rule, it can also ensure the continuity of the block boundary line and the surrounding boundary lines, as well as the stability of the block center and the surrounding four color elements.

(2) Setting $\{x\}$ to reflect the continuous and gapless connection between the center point and the boundary envelope of the layer does not affect the statistics of $\{\mathbf{D}_0\}\}^{K(4)=16}$.

It is known that the total number of elements **D** in the layer S that surrounds four tiles (4N) times is $\mathbf{D}=\{^{(4)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm4N\pm(q=4)}$, which means that the interior of the tile layer is completely composed of four color elements of the standard type).

Here, the four colors are digitized to obtain the characteristic modes of “multiplication combination” and “addition combination”, ensuring the root resolution of the four color elements.

The unit cell of the standard layer (external) composed of all elements of the hierarchy: $\{^{(4)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm4N\pm(q=4)}$,

Standard layer (internal) characteristic mode: $\{\mathbf{D}_0\}^{K(Z\pm S\pm4N\pm(q=0,1,2,3,4)}$;

Among them: (q=0 , 1,2,3,4) represents different combinations of four colors

Dimensionless circular logarithm discriminant:

$(1-\eta^2)^K=[\{^{(4)}\sqrt{\mathbf{D}}\}/\{\mathbf{D}_0\}]^{K(Z\pm S\pm4N\pm(q=1,2,3,4)}\leq1$;

Calculation of quartic equation:

$$\{X\pm^{(4)}\sqrt{\mathbf{D}})^{K(Z\pm S\pm4N)}=\{1+\{^{(4)}\sqrt{X}\}/\{\mathbf{D}_0\}]^{K(Z\pm S\pm4N\pm(q=1))}\cdot\mathbf{D}^{K(Z\pm S\pm4N\pm(q=3)}$$
$$+\{^{(4)}\sqrt{X}\}/\{\mathbf{D}_0\}]^{K(Z\pm S\pm4N\pm(q=2))}\cdot\mathbf{D}^{K(Z\pm S\pm4N\pm(q=2)}$$
$$+\{^{(4)}\sqrt{X}\}/\{\mathbf{D}_0\}]^{K(Z\pm S\pm4N\pm(q=3))}\cdot\mathbf{D}^{K(Z\pm S\pm4N\pm(q=1)}+1\}$$
$$=\{2\cdot(1-\eta^2)^{K(Z\pm S\pm4N\pm(q=0)}+(1-\eta^2)^{K(Z\pm S\pm4N\pm(q=2)}$$
$$+(1-\eta^2)^{K(Z\pm S\pm4N\pm(q=3)}+(1-\eta^2)^{K(Z\pm S\pm4N\pm(q=4)}\}\cdot\{X_0\pm\mathbf{D}_0)^{K(Z\pm S\pm4N)}$$
$$=(1-\eta^2)^{K(Z\pm S\pm4N)}[(0,2)\cdot\{\mathbf{D}_0\}]^{K(Z\pm S\pm4N)};$$

Calculation results of the equation: Under equilibrium conditions: $\{X_0\}^Z=\{\mathbf{D}_0\}^Z$;

(a) indicates the center point of a block, layer, or graphic;

$\{X-^{(4)}\sqrt{\mathbf{D}})^{K(Z\pm S\pm4N)}=(1-\eta^2)^{K(Z\pm S\pm4N)}[\{0\}\{\mathbf{D}_0\}]^{K(Z\pm S\pm4N)}$;

(b), represents the block, layer, and graphic envelope;

$\{X+^{(4)}\sqrt{\mathbf{D}})^{K(Z\pm S\pm4N)}=(1-\eta^2)^{K(Z\pm S\pm4N)}[\{2\}\{\mathbf{D}_0\}]^{K(Z\pm S\pm4N)}$;

Total number of color elements in the four-color theorem tile:

(1) Statistics of the number of standard type layers (layers $\{\mathbf{D}_0\}=4N=16$) Number expansion:

$$\{X\}^{K(Z\pm S\pm4N\pm(q=4))}=(1-\eta^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm S\pm4N\pm(q=4))};$$

(2) Calculation of standard type dimensionless circular logarithmic color elements:

(a) "1-1 combination" 'ABCD' is the statistics of one color element respectively.

$$\{X_{[abcd]}\}^{K(Z\pm S\pm4N\pm(q=1.4))}=(1-\eta^2)^K[(1)\cdot\{\mathbf{D}_0\}\}^{K(Z\pm S\pm4N\pm(q=1,,4))};$$

(b) Statistics of the two color elements of the “2-2 combination” ‘A,B,C,D’.

$$\{X_{[ab\text{-}cd]}\}^{K(Z\pm S\pm4N\pm(q=2))}=(1-\eta^2)^K[(6)\cdot\{\mathbf{D}_0\}\}^{K(Z\pm S\pm4N\pm(q=2))};$$

(c) "1-3 combination" 'ABCD' is a statistic that encompasses three color elements.

$$\{X_{[a\text{-}bcd]}\}^{K(Z\pm S\pm4N\pm(q=3))}=(1-\eta^2)^K[(4)\cdot\{\mathbf{D}_0\}\}^{K(Z\pm S\pm4N\pm(q=3))};$$

(d) "3-1 combination" Statistics of three types of elements surrounding one color, 'A,B,C,D'.

$$\{X_{[abc\text{-}d]}\}^{K(Z\pm S\pm4N\pm(q=3))}=(1-\eta^2)^K[(4)\cdot\{\mathbf{D}_0\}\}^{K(Z\pm S\pm4N\pm(q=3))};$$

Here, the number of elements (inside) of any finite standard graphic is calculated: the root analysis belongs to the four color elements. Since all non-standard tiles have been converted (moved, morphed, mapped) into standard graphics, layers, and tiles through the dimensionless circular logarithm "evenness mechanism", the number of all color elements can be calculated.

2.5.7. Proof of the Sufficiency of the Four Color Theorem

The proof of necessity is based on the assumption that all tiles are filled with four colors without duplication or adjoining each other. The actual operation is not so ideal. There are gaps in tiles, layers, and graphics, and how to adjust the color duplication when there is an adjacent tile? These problems are not solved in the proof of necessity.

Some people may think that this is as simple as "moving" them. This is not the case. Filling or moving non - standard tile color elements is simple, intuitive, and axiomatic (self-evident).

The Four Color Theorem is by no means a simple "move". For example, modern mathematics based on set theory and category theory says that "morphisms and mappings" can be used to write computer programs. If so, the result would have been proved by computer as early as 1976. However, many mathematicians do not agree.

Mathematicians require a mathematical proof of the four color theorem: if you perform "movement, mapping, morphism", you need a proof.

The Four Color Theorem is known as one of the three most difficult mathematical problems in modern times. Its difficulty requires answering two questions from mathematicians.

(1) Prove the reasons for the possible emergence of new “mobility”,

(2) Prove that new methods of “movement” may emerge.

As required by mathematicians, the problem of adjusting the colors of adjacent areas and filling in the blanks means that colors cannot be directly "moved".

How to solve it?

Now, we have found the "even symmetry and asymmetry, randomness and non-randomness reciprocal balanced exchange mechanism" unique to dimensionless circular logarithm construction sets and dimensionless constructions, which is called "evenness mechanism". The circular logarithm " evenness mechanism" is used to fill non-standard blocks, as well as the "movement" of adjacent blocks of the same color. Under the zero-point symmetry of the circular logarithm center, the circular logarithm drives the "movement" of color prime numbers for balanced exchange to fill blanks or adjust the colors of adjacent areas.

(1 **)** When a standard basic block encounters an adjacent area: the "movement" of color and the "movement" filling of non-standard basic blocks are the same and can be applied uniformly. This shows the principle of "movement" filling of non-standard basic blocks. (Omitted).

(2 **)** Non-standard basic tiles: with level N=1; q=3,2,1≤4, there are incomplete or unevenly distributed combination problems.

The color distribution of non-standard basic tile colors has incompleteness, including:

The combination of three elements is missing an element: {A,B,C -(0)}; Z=K(Z±S±N±(q=- 1);

The combination of two elements is missing two elements: {A,B,-(0,0)}; Z=K(Z±S±N±(q=- 2);

An element combination is missing three elements: {A- (0,0,0)}; Z=K(Z±S±N±(q= -3);

There are four missing elements in the layer and graphics: {A, B, C -(0)}; Z=K(Z ± S ± N ±(q=- 4);

Non-standard graphics, layers, and blocks have random and uneven distributions, which are often difficult to handle in statistics. They become unevenly distributed numbers and are filled by "moving" or replacing color elements to ensure the stability of the center zero point and the accuracy of the equation calculation itself.

Two dimensionless circular logarithmic values are generated for graphics, layers, and blocks respectively:

(1) The ratio of the number of filled graphics, layers, and tiles to the number of original tiles is the dimensionless circular logarithm: $(1-\eta_{[(f)-\alpha]}{}^2)^K$

(2) The ratio of the number of missing graphics, layers, and tiles to the number of original tiles is the dimensionless circular logarithm: $(1-\eta_{[(f)-\beta]}{}^2)^K$

(3) The filling and vacancy of graphics, layers, and blocks produce two dimensionless coefficients:
$(1-\eta_{[(f)-\alpha]}{}^2)^K + (1-\eta_{[(f)-\beta]}{}^2)^K = 1$;

(4) Balanced exchange rules: Balanced exchange rules solve:

(a) "Move" adjustment of the position of standard tiles of different colors of the same or different tiles, layers, or graphics.

(b) The problem of calculating the position of non-standard tiles of different colors by “moving” them to uniformly distributed standard tiles.

The color element propositions within the tile level remain unchanged, the characteristic modulus (average value) remains unchanged, and the isomorphic circular logarithm remains unchanged. Only by relying on the changes in the properties of the circular logarithm, the unique dimensionless "even number mechanism" drives the movement of color elements for balanced exchange, forming standard types of graphics, layers, and tiles.

The balanced exchange rules of symmetric binary numbers and asymmetric ternary numbers, that is, the unique "even exchange mechanism" of dimensionless circular logarithms, are converted into the balanced exchange of single color elements (called movement, morphism, and mapping in the four color theorem) through dimensionless circular logarithms, giving reasons for mathematical proof.

(1) The evenness of binary numbers (referring to the evenness of the blocks with two color elements (K=+1) and the color element (K=-1) that is adjusted or moved to fill the vacant space) is an inverse balance exchange process:

$A\cdot B\cdot C\cdot D^{(K=+1)(3n)}=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}^{(4n)}$

$=[(1-\eta_{[AB]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[CD]}^2)^{(K=-1)}]\{\mathbf{D}_0\}^{(4n)}$

$=(1-\eta_{[AB]}^2)^{(K=-1)}+(1-\eta_{[CD]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{(3n)}=BC^{(K=-1)(2n)}$;

$AB=(1-\eta_{[AB]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{K(1n)}$; $CD=(1-\eta_{[CD]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(2n)}$;

or: $(1-\eta_{[AB]}^2)^{(K=+1)}=\{\mathbf{D}_0\}/AB^{(K=+1)(2n)}$; $(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}/CD^{(K=-1)(2n)}$;

$|(1-\eta_{[AB]}^2)^{(K=+1)}|\leftrightarrow|(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[B]}^2)^{(K=+1)}|$;

$|(1-\eta_{[CD]}^2)^{(K=-1)}|\leftrightarrow|(1-\eta_{[C]}^2)^{(K=+1)}+(1-\eta_{[D]}^2)^{(K=-1)}|$;

$|(+\eta_{[A]}^2)^{(K=+1)}|\leftrightarrow|(+\eta_{[B]}^2)^{(K=+1)}|$;

$|(-\eta_{[C]}^2)^{(K=-1)}|\leftrightarrow|(+\eta_{[D]}^2)^{(K=-1)}|$;

$|(+\eta_{[A]}^2)^{(K=+1)}|\leftrightarrow|(+\eta_{[D]}^2)^{(K=-1)}|$;

$|(-\eta_{[B]}^2)^{(K=+1)}|\leftrightarrow|(+\eta_{[C]}^2)^{(K=-1)}|$;

binary numbers and circular numbers, random and non-random balanced exchange combinations (decompositions) are produced.

Binary number exchange principle: Under the same dimensionless circular logarithm factor, the original proposition, characteristic modulus and isomorphic circular logarithm remain unchanged. Through the positive and negative properties of the circular logarithm properties, the balanced exchange of random and non-random numbers drives the balanced exchange of values.

$A\cdot B=(1-\eta^2)^{(K=\pm1)}\{\mathbf{D}_0\}^{K(2n)}$;

$A^{(K=+1)(n)}=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}$

$=[(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=-1)}]\{\mathbf{D}_0\}$

$=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}=B^{(K=-1)(n)}$;

$A^{(K=+1)(1n)}=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}^{(1n)}$

$=[(1-\eta_{[A]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[B]}^2)^{(K=-1)}]\{\mathbf{D}_0\}^{(4n)}$

$=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}=B^{(K=-1)(4n)}$;

$A^{(K=+1)}=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}^{K(1n)}$; $B^{(K=-1)}=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1n)}$;

$C\cdot D=(1-\eta^2)^{(K=\pm1)}\{\mathbf{D}_0\}^{K(2n)}$;

$C^{(K=+1)(n)}=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}$

$=[(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=-1)}]\{\mathbf{D}_0\}$

$=(1-\eta^2)^{(K=+1)}\{D_0\}=B^{(K=-1)(n)}$;

$C^{(K=+1)(1n)}=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}^{(1n)}$

$=[(1-\eta_{[C]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[D]}^2)^{(K=-1)}]\{\mathbf{D}_0\}^{(4n)}$

$=(1-\eta_{[D]}^2)^{(K=+1)}\{\mathbf{D}_0\}=B^{(K=-1)(4n)}$;

$C^{(K=+1)}=(1-\eta_{[C]}^2)^{(K=+1)}\{D_0\}^{K(1n)}$; $D^{(K=-1)}=(1-\eta_{[D]}^2)^{(K=-1)}\{D_0\}^{K(1n)}$;

Among them: $(1-\eta_{[C]}^2)^{(K=\pm0)}$ is the central zero point, $A^{(K=+1)(1n)}\neq B^{(K=+1)(1n)}$, $C^{(K=-1)(1n)}\neq D^{(K=-1)(1n)}$,cannot be directly exchanged, must be in the infinite The symmetry of the circle logarithm is driven by the balance of the 'infinite axiom mechanism' .

(2) The evenness of ternary numbers (meaning that there are three color elements in a block, one of which is (K=+1). The color element that is adjusted or moved to fill the vacant space is connected to the other two color elements (K= -1) even number mutually inverse equilibrium exchange process:

$A\cdot B\cdot C^{(K=+1)(3n)}=(1-\eta_{[ABC]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{(3n)}$

$=[(1-\eta_{[ABC]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[ABC]}^2)^{(K=-1)}]\{\mathbf{D}_0\}^{(4n)}$

$=[(1-\eta_{[AB]}^2)^{(K=+1)}+(1-\eta_{[C]}^2)^{(K=-1)}]\{\mathbf{D}_0\}^{(3n)}$;

$AB=(1-\eta_{[AB]}^2)^{(K=+1)}\{D_0\}^{K(1n)}$; $C=(1-\eta_{[C]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(2n)}$;

Where: $BC=(1-\eta_{[BC]}^2)^{(K=-1}\{\mathbf{D}_0\}^{K(2n)}$;

$B=(1-\eta_{[B]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{K(1n)}$, $C=(1-\eta_{[C]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1n)}$;

decompositionTechnical arrangement:

$A=(1-\eta_{[A]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{K(1n)}$; $B=(1-\eta_{[B]}^2)^{(K=+1)}\{\mathbf{D}_0\}^{K(1n)}$; $C=(1-\eta_{[C]}^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(1n)}$;

or: $(1-\eta_{[A]}^2)^{(K=+1)}=\{\mathbf{D}_0\}/A^{K(1n)}$; $(1-\eta_{[B]}^2)^{(K=-1)}=\{\mathbf{D}_0\}/B^{K(1n)}$; $(1-\eta_{[C]}^2)^{(K=-1)}=\{\mathbf{D}_0\}/C^{K(1n)}$;

The ternary number (asymmetric distribution) exchange method uses the zero-point symmetry of the circular logarithm center to keep the original proposition, characteristic modulus, and isomorphic circular logarithm unchanged under the same dimensionless circular logarithm factor. It drives the balanced exchange of numerical values through the positive and negative properties of the circular logarithm properties, through the balanced exchange of random and non-random properties.

$$A^{K(1n)}=[\ (1-\eta_{[A]}{}^2)^{(K=+1)} \leftrightarrow (1-\eta_{[C]}{}^2)^{(K=\pm 0)} \leftrightarrow (1-\eta_{[B]}{}^2)^{(K=-1)}+(1-\eta_{[C]}{}^2)^{(K=-1)}\ ]\{\mathbf{D}_0\}=BC^{K(2n)};$$

Among them: $BC^{K(2n)}$ is decomposed into two circular logarithmic addition associative laws and satisfies the addition commutative law.

In particular : $A^{(K=+1)(1n)} \neq BC^{(K=-1)(2n)}$, cannot be exchanged directly, and must be exchanged in a balanced manner under the control of the additive associative law of circular logarithms.

In other words, the balanced exchange of color elements in the Four Color Theorem (including set theory, category theory, movement, morphism, and mapping) requires the mathematical proof of the "even-numbered balanced exchange mechanism" unique to dimensionless construction. The combination of the traditional Peano axiomatic "movement" principle is a "dimensional system" that cannot prove its own "truth" (Gödel's incompleteness theorem).

When: non-standard types of graphics, layers, and blocks that form standard types are all converted to standard blocks, layers, and graphics, and the statistics of dimensionless circular logarithmic factors are all used in the calculation:

$(\eta)^{K(Z\pm S\pm 4N\pm(q=4))}=(\eta_a)^{K(Z\pm S\pm 4N\pm(q=4))}+(\eta_b)^{K(Z\pm S\pm 4N\pm(q=4))}+(\eta_c)^{K(Z\pm S\pm 4N\pm(q=4))}+(\eta_d)^{K(Z\pm S\pm 4N\pm(q=4))}$;

In the formula: $(\eta)^{K(Z\pm S\pm N\pm P)}$ and $(\eta^2)^{K(Z\pm S\pm N\pm P)}$ are complete and compatible, and can be fully expanded on the plane and sphere. They can also obtain the number of color elements calculated for any finite figure in the infinite. Finally, in theory, don't forget to load: the " transformation (movement, morphism, mapping) " in each block is deducted $(1-\eta^2)^K=(1-\eta_{[f-\alpha]}{}^2)^K+(1-\eta_{[f-\beta]}{}^2)^K=1$, which restores the original position of the color element to the restored color element, but does not affect the total number of color elements calculated.

Therefore, in the expansion of the binomial (center point and boundary envelope coefficient) of the four-color theorem with arbitrary high power (S=4N=16(q=1), we get the mathematical combination of arbitrary power (Z ± S ±4 N ±(q=4) power polynomials , which can accurately calculate the infinite tiles filled with four colors and ensure the close connection between the boundary envelope and graphics, layers, and tiles . The above sufficiency proves that after selecting the average value between graphics, layers, and tiles , they have invariant characteristic moduli and isomorphic circular logarithms and shared power functions, which eliminates the difficulty of calculating incomplete combinations within the hierarchy.

In particular, {X} and $\{\sqrt[(4)]{D}\}$ are not necessarily balanced. The dimensionless circular logarithm is introduced to drive the balanced exchange of the block values through the even symmetry and asymmetry of the dimensionless circular logarithm and the random balanced exchange mechanism.

Finally, intuitively, on the plane, sphere, and any space, the dimensionless circular logarithm of the layer (S=4N) can be mapped to a combination of a network of S (characteristic mode) points. On the plane, sphere, and the smallest tetrahedron space, there are four plane tiles. The plane and spherical surface are unfolded into layers. Each layer has three (external) adjacent boundary curves of the layer, and each layer has three (internal) adjacent boundary curves of the tile (such as the Sierpinski carpet). The spatial graphics-tiles of the triangular pyramid (tetrahedron) in the space, or the grid graphics of the vertices (graphic layers, tiles) of the triangular (cone) body are projected (projected) as adjacent edges. Proof: Three colors are not enough on the plane and curved surface of the triangular (cone) body, five colors are too much, and four colors are enough. The above dimensionless circular logarithm construction with sufficiency and necessity, as a third party, without the interference of specific color elements, is a fair, complete, and most basic mathematical proof of the four-color theorem.

In summary, the set of tiles in the four-color theorem can be a multi-level composite tile of standard and non-standard types. There are combinations of serial groups and parallel groups to form arbitrary composite levels K (Z ± S ± 4 N ± (q = 1, 2, 3, 4) graphics, layers, and tiles that satisfy the four-color composition of arbitrary high-power polynomial equations, as well as sufficiently large plane and spherical areas. Because the four color elements are not repeated in infinite tiles, the calculation of the combination of different adjacent colors of the four colors in the infinite area of the graphic can be realized, which proves the sufficiency , necessity, and uniqueness of the four-color theorem.

2.5.8. The positive significance and discussion of the proof of the four-color theorem

（1）, it is believed that: under the condition of random uncertainty and uneven distribution of color elements in the four-color theorem model, it took 1200 hours on the computer, and a sufficiently large $\mathbf{S}=\{\mathbf{D}_0\}^{K(Z\pm S\pm N\pm(q=1,2,3,4)}$ ≥10 billion powers (dimensions) . The calculation result of this " set axiomatization program " is successful.

(2) In the programming language for proving the Four Color Theorem on traditional computers , it is not known whether "the calculation of 'non-standard tiles' has been considered. What is the reason for the 'movement' of non-standard tile types to form standard type tiles by moving color elements?" If it has not been considered or has not been considered in part, then as a requirement for rigorous mathematical proof, there is still insufficient reason for such a computer to successfully calculate.

(3) Dimensionless construction proves the four color theorem through dimensionless method , which verifies that

the self-evident reason of "axiomatization" (of dimensional system) adopted by "movement, transformation, intersection, union, morphism and mapping" in set theory and category theory is "insufficient", that is, Gödel's incompleteness theorem reflects that the functions and relations established by Peano's "axiomatization" in any system are "insufficient". The dimensionless "infinity axiom" proves that it can ensure the "reliability and solidity" of the foundation of mathematical system.

(4) The dimensionless construction of a computer to prove the four-color theorem can establish a "pentenic memory chip architecture" and a corresponding decimal calculation program.

(5) The dimensionless construction "dimensionless even-number balance exchange mechanism" can not only solve asymmetric and continuous calculations, but also reveal the mechanism of human brain thinking and provide a new mathematical foundation for new artificial intelligence.

3. The connection between Goldbach's (zero point) conjecture and dimensionless circular logarithm

3.1. The "Goldbach Conjecture" Problem

In 1742, German mathematician Goldbach discovered that "every large even number can be expressed as the sum of two prime numbers, called 1+1=2". Later, a mathematician proposed that "every large odd number can be expressed as the sum of three prime numbers, called 1+2=3", which is called the (strong/weak) Goldbach conjecture. It has not been cracked for three centuries. The best result was Chen Jingrun's "1+2" in 1973 in China, "a large even number is a combination of a prime number and two prime numbers multiplied together". It is still one step away from "1+1" and "1+2". It reflects that the calculation method of traditional mathematics has reached the "ceiling", which means that without new methods, it is difficult to make satisfactory progress.

3.1.1. What is the mathematical core of the "Goldbach Conjecture"?

The core of the "Goldbach Conjecture" is two,

First: Is it reliable to prove that Peano's axioms are "self-evident"?

Second: What reliable "axiomatic" method can be used to crack it?

The current status is:

(1) Two or three asymmetric prime numbers cannot be directly "combined". For example, "axiomaticization" cannot be established without mathematical proof.

(2) The "combinations" of this system (referring to the dimensional system) (such as addition combinations, multiplication combinations, unions and intersections) cannot prove their own "truth".

The Goldbach conjecture involves the fundamentals of "mathematical foundations", and many mathematicians have proposed that it may require new construction sets or other methods to prove it. Therefore, it has become one of the three major difficult problems in the history of modern mathematics.

If someone proposes a new system to prove the "Goldbach Conjecture", which is known as "an unattainable 'pearl' in the crown of mathematics", it will inevitably lead to the "reorganization, reshaping and reconstruction" of traditional mathematics in Western countries over the past 400 years, or it will open a new era of mathematics, with practical engineering applications and far-reaching historical significance.

In 1900, Hilbert combined the "Riemann function zero conjecture, Goldbach conjecture, and twin prime conjecture" into one zero conjecture at the World Mathematical Congress. Circular logarithms later discovered that the "Landau-Siegel zero conjecture" is also part of the Riemann function zero conjecture. Goldbach's "the sum of two sufficiently large prime numbers is an even number." "The sum of three sufficiently large prime numbers is an odd number." Similarly, there is also a "zero point" conjecture between "twin primes." Through the proof of the zero conjecture, the generation of prime numbers and even numbers requires that they have a balance and exchange of randomness and non-randomness under certain conditions. In other words: the zero conjecture is not only a solution to the "Goldbach conjecture", but also a mathematical proof of the "Peano axiom", which becomes a basic problem such as the balance and exchange of the "even center point" of the foundation of mathematics.

Maybe some people will say: "Goldbach's conjecture" means that the "sum" is an "even/odd number", so why is "zero point" involved?

This involves the aforementioned "numerical analysis or logical analysis objects cannot directly achieve balanced exchange combinations ". It is necessary to use the "circular logarithm defined by the third dimensionless language" and the zero point (line) at the center of the circular logarithm to have the conjugate mutual inverse balanced symmetry defined by "evenness" and to perform the balance and exchange of "arithmetic addition, subtraction, multiplication and division, and logical set, union and intersection" operations.

Among them: the "center point of the value" that produces the "evenness" of the (object-element) value at resolution 2 is different from the "evenness" produced by the "circular logarithm center zero point". The former "evenness" produces the "two asymmetric" subsets of the (object-element) value that cannot be balanced and exchanged; the latter dimensionless "evenness" produces the "two symmetric" subsets that can be balanced and exchanged. Therefore, under the condition of (object-element) numerical symmetry, they may overlap (limited to symmetry distribution), and the two sides of the center point produced are both {0,±1}, but the meanings are different.

As we all know, the sum of two prime numbers, in a broad sense, "sum" should be a "combination, set", which has two forms: "addition (subtraction)-union combination, multiplication (division)-intersection combination". Logical analysis has no "balance mechanism", which brings inconvenience or incompleteness to the analysis, and cannot achieve topological balance (internal and external of the object). Of course, it is impossible to achieve "balance and exchange".

Among them: the two forms of "subtraction and division combination" are mutually invertible, and the circular logarithm transforms the asymmetric "object-element" into a dimensionless analysis of the conjugate mutual inversion symmetry rule through the dimensionless circular logarithm "addition (subtraction) combination" and "multiplication (division) combination". Therefore, for the "combination" itself, there is no essential difference between "combination of the same elements" and "addition, subtraction, multiplication and division, set operations", which is called the "self" of the object (group combination)-element.

There are two kinds of "evenness". The standard of evenness is: there is a conjugate and inverse "center point",

(1) Object-element, refers to "a combination of two/three/more prime numbers, resolution 2 decomposition into two asymmetric subsets, which cannot be balanced and exchanged.

(2) The dimensionless circular logarithm refers to the transformation of the "object-element" into a subset with dimensionless conjugate balanced reciprocal symmetry, which can be balanced and exchanged.

Among them: the left and right circular logarithms correspond to the synchronous change of "object and element", and the "balance and exchange" equilibrium line with the linearity of the characteristic mode outside is called "zero line (critical line)". The left and right circular logarithms correspond to the positional relationship between the center point of the characteristic mode and the surrounding elements, and the symmetrical equilibrium point of the relationship between the balance exchange point of the internal elements of the characteristic mode line, the equilibrium point, is called "center zero point zero point (critical point)".

The balance and exchange of the circular logarithm factors of symmetry lead to the direct exchange of objects and values. Once the circular logarithm is cancelled, the asymmetry between the original value and the object is restored, and the balance and exchange cannot be achieved.

In other words, the "combination and analysis of numerical balance analysis" or the "set and decomposition of logical morphism analysis" first solves how to find the central zero line of the external "evenness" of the characteristic module and the central zero point of the internal "evenness". Only by balancing and exchanging under the control (driven) of the dimensionless circular logarithm can we obtain "even or odd numbers". This may be Goldbach's "zero point" conjecture of integrity based on the Riemann function. It is also the verification of the Peano axioms (1+1=2) and (1+2=3) using a third-party construction set.

3.1.2. "Goldbach's Conjecture" Problem

On June 7, 1742, Goldbach asked Euler two questions:

(A) Every even number not less than 6 is the sum of two odd numbers; that is, "even number -1 +1".

6=3+3 ; 8=3+5 ; 48=19+29 ; 100=3+97 ; …… ;

(B) Every odd number not less than 9 is the sum of three odd numbers; that is, "odd number - $p_1+p_2+p_3$."

9=3+3+3 ; 29=5+11+13 ; 103=23+37+43 ; ……;

He asked in the letter: Is my assertion correct? If it is correct, I hope you can prove it for me. If it is not correct, I hope you can give me an example. Euler replied: "If all even numbers greater than 6 are the sum of two odd numbers, although I cannot prove it yet, I firmly believe that this is a completely correct theorem." This is the Goldbach conjecture.

Generally, proposition (A) is called the even number Goldbach conjecture, and (B) is called the odd number Goldbach conjecture. The two conjectures constitute the natural numbers "odd numbers and even numbers" and form the mathematical foundation, which naturally includes the mathematical proof required for the Peano axiom 1+1=2?

So far, mathematicians have not completed the "zero point" conjecture of the completeness of the Riemann function zero point conjecture and the Goldbach (zero point) conjecture. If this problem is solved, it will also explain the "axiomatic mathematical foundation", which has always been a sensitive issue in the international exploration of the foundations of mathematics.

(A) Strong Goldbach conjecture: "The sum of sufficiently large binary numbers {Q=2} is an even number."

The best result may be the "1+2 problem" by Chinese mathematician Chen Jingrun, who used the "weighted sieve method of Chen's theorem" to prove that "a sufficiently large even number is the sum of a prime number and a natural number, the latter of which is just the product of two prime numbers", that is, "$\{X_1\}$ and $\{X_2 X_3\}$.

Discussion: Verification of dimensionless construction : The choice of "a natural number" has two results:

Chen Jingrun's "1+2": the "2" is a natural number.

The choice of "a natural number" has two consequences:

(1) When the number of natural numbers is (N=2), if the "natural number is the product of two prime numbers", it can be "divided" through the dimensionless circular logarithm , and the sum of the "three prime numbers" is an " odd number " . (This is the same as the result of the ternary complex analysis in the "ternary complex analysis" of this article: a prime number multiplied by two prime numbers (1+2=3)).

(2) When the number of natural numbers is (N=2), if "the natural number is the product of a prime number and an even number", it can be "divided" through the dimensionless circular logarithm , then "two prime numbers (1+1 = 2) " plus "an even number" is still an " even number " .

In other words, " the sum of a prime number and a natural number : an even number (1+1=2?), an odd number (1+ 2 = 3 ?)" was just one step away . It was the best result at the time.

(B) Weak Goldbach conjecture: "The sum of sufficiently large triplets {Q=3} is an odd number."

The best result may be that mathematician Terence Tao used "logical analysis method to prove that 1+1=2" and reached the "sum of six prime numbers."

In May 2013, Harold Helfgott, a researcher at the Ecole Normale Supérieure in Paris , published two papers announcing that he had completely proved the weak Goldbach conjecture. The result was 2^{40} times the power of the computer calculation. The computer proof has not yet been recognized by the academic community, and mathematicians expect a mathematical proof.

The dimensionless circular logarithm is proved by the identity of the third-party construction set: any number of prime numbers (including prime numbers in numerical analysis or logical analysis) cannot be directly balanced in exchange combinations . It seems that the Goldbach conjecture (strong or weak) cannot really find the direct "sum" of prime numbers .

3.1.3. What new construction set is used to prove the Goldbach conjecture?

Many mathematicians believe that the existing traditional mathematical methods may not work and that new methods must be found or discovered.

Now, the core question of the Goldbach conjecture is: is there any new set of constructions that prove the existence of two or three prime numbers : numerical asymmetry and symmetry and asymmetry of numerical distribution , and how to uniformly convert them into random symmetry-balanced exchange combinations of "evenness".

In layman's terms, why can "3+4=7, 3·4=12" and "intersection A∩B, union A∪B " be true? If true, it needs to be proved. Similarly, why can't "numerical equality =" be balanced and exchanged? Why can't "logical morphism → " be balanced?

It also needs to be proved.

Through the proof, we can understand that the connotation of mathematical integrity is: "the evenness of the object" (that is, the three properties of positive, middle and negative of conjugation, mutual inversion and asymmetry), but "evenness" ≠ "even number", "the evenness of the object" has asymmetry and cannot be directly exchanged, or the "balance

and exchange" of even numbers are conditionally restricted.

The dimensionless circular logarithm, as a third-party infinite construction set, converts the conjugate reciprocal asymmetry of the "object evenness" into the circular logarithm, and the "evenness" controlled by the conjugate reciprocal symmetry of the central zero point (critical line, critical point) of the circular logarithm can be "balanced and exchanged". Looking back, it allows us to have a deeper understanding of the incompleteness of the current mathematical system.

At present, it is impossible to prove the "truth" of all mathematical conjectures if they rely on their own systems. The most basic Peano axioms, Goldbach conjectures (including the Riemann function zero conjecture, the twin prime conjecture, and the Landau-Siegel zero conjecture), as well as numerical analysis systems and logical analysis systems, must find another new infinite construction set identity proof, and can drive the balance and exchange of conjugated, mutually inverse, asymmetric "objects" to prove their "truth" of "combination and analysis, balance and exchange".

From a mathematical point of view: For hundreds of years, many mathematicians at home and abroad may have lacked the last step of proof in their derivation or proof of the "conjecture": the existence of an "even number" rule in nature - the method of converting "arbitrary asymmetric numerical values (logical objects) into the "even number" of dimensionless circular logarithms into conjugate and reciprocal symmetry, which drives the prime numbers to balance and exchange",

forming the "odd and even numbers" of natural numbers.

If this cannot be done, then all the proofs of the currently popular mathematical systems will not be valid or will be incomplete. This includes "theories such as calculus" of numerical analysis and "theories such as category theory" of logical analysis. There are also "Wiles's Fermat's Last Theorem" and "Perelman's Poincare Topological Conjecture" that have been recognized by mathematicians, as well as proofs related to relativity and quantum computing that are not complete. The root cause lies in the limitations of historical conditions at the time - the development of mathematical history has not yet reached the stage of "discovering new infinite construction sets", and the incompleteness phenomenon or conclusion has nothing to do with the proofs of mathematicians themselves. We should recognize their positive contributions to the development of mathematics, and even because of their efforts, the development of mathematics has led to the discovery of new, more abstract, deeper, and more basic mathematical construction sets. However, whether their mathematical achievements can be identified and expanded by new "infinite construction sets" is another matter.

3.1.4 Goldbach's conjecture and dimensionless circular logarithms

If the Goldbach conjecture departs from the most basic Peano axioms (1+1=2? 1+ 2 = 3 ?), what kind of construction set can be used to prove or explain this axiom? This is a basic mathematical problem that the current mathematical community is very concerned about.

According to the proof of Cantor-Gödel: "A system cannot prove its own truth or falsity". The axioms contained in the current mathematical system all include some and lose others, making it an "incomplete" mathematical system. If completeness is required, a construction set containing "infinite axioms" must be included. Here, the newly discovered "infinite axioms" are an infinite set of circular logarithmic constructions defined in a dimensionless language . They have the "random balanced exchange combination" and "random self-authentication" functions unique to dimensionless constructions. The numerical values of natural numbers (prime numbers) cannot be directly balanced and exchanged. The zero point at the center of the circular logarithm drives the natural numbers (prime numbers) to undergo balanced exchange combinations (decomposition). This proof completely avoids the Peano axioms (1+1=2? 1+ 2 = 3 ?) . As the nature of mathematics, the number (characteristic modulus) remains unchanged. It is the fact of "balanced exchange combination (decomposition)" of the symmetry of the zero point at the center of the dimensionless circular logarithm, which drives the proof of natural numbers (prime numbers) (1+1=2, 1+2=3) . From this, the mathematical and logical principles of even and odd numbers composed of non-natural numbers and prime numbers themselves (simplified) .

The principle of the infinite construction set of circular logarithms defined by dimensionless language: any "object-element" (referring to numerical analysis and logical analysis and elements that can be primed as the subject) has an asymmetry between the external and internal "evenness", that is, the combination or decomposition of "object-element" has three kinds of conjugated reciprocal asymmetries, positive, middle and anti, and cannot be directly "balanced and exchanged", which is manifested as the balance of numerical analysis cannot be exchanged; the morphism of logical analysis cannot be balanced, reflecting the incompleteness of the current mathematical system. It is also the reason why no new infinite construction sets have been discovered and no substantial progress has been made since Gödel's incompleteness theorem in 1931.

If the infinite construction set of circular logarithms defined by a third-party dimensionless language is used, various combinations of two/three/more (series) prime number "object-elements" with arbitrary asymmetry can be converted into shared numerical characteristic modulus (average value) and dimensionless place value circular logarithm, as well as shared power function properties and the central zero line and zero point (critical line, critical point) of the circular logarithm. Through the circular logarithm, the asymmetry is converted into the "evenness" of conjugate reciprocal symmetry, and the "object-elements" are balanced and exchanged under the control and drive of the circular logarithm, and combined and decomposed, or unified as the "balance and exchange" problem.

According to Peano's axiom, the introduction of dimensionless circular logarithms and the central zero point of circular logarithms controls the "objects and elements" of natural numbers and real numbers, and the conversion to dimensionless circular logarithms drives the "objects and elements". Under the "even number" conditions of the central zero line (critical line) and the central zero point (critical point) of the circular logarithm, it drives the balance and exchange of "objects and elements" to form the natural numbers "even and odd" of (1+1) and (1+2).

So, can the dimensionless circular logarithm itself prove its authenticity?

Fact: Dimensionless circular logarithms are a newly discovered "infinite construction set" of circular logarithms in dimensionless language "between the real number set and the natural number set". Its compactness, symmetry, and isomorphism include the "axiom of infinity".

Among them: There are "infinity axioms":

(1) The circular logarithmic center zero line (critical line) satisfies the "even number" completeness of the discrete jump transition outside the characteristic mode object.

(2) The circular logarithmic center zero point (critical point) satisfies the “even number” compatibility of the continuous
jump transition of the internal elements of the characteristic mode.

In computers, its closedness can detect or automatically exclude interference from foreign elements and signals), and achieve high accuracy and high computing power as much as possible. In particular, the dimensionless circular logarithm is "independent of mathematical models and has no interference from specific (mass) elements."

It is not interfered by specific "object elements", and dimensionless itself cannot interfere with dimensionless itself, ensuring
"logical arithmetic zero error calculation". It is fair, reasonable and authoritative.

[Lemma] : The Peano axiom "1+1=2?" is connected with the dimensionless circular logarithm

Here, Peano axiom "1+1" uses a third dimensionless language outside the natural number system to define the proof of the infinite construction set of circular logarithms.

Definition of natural numbers: All infinite structures with "1" as the unit are natural numbers. Natural numbers are balanced through "mathematical models", or

The author cannot prove its "authenticity" with his own system and cannot exchange it by himself, which corresponds to number theory analysis. If it is proved to be established through the third construction set, then the subsequent analysis, combination, operation, model, etc. can be established under the control of the third construction set.

✷Definition 3.1 "Objects and Elements", an infinite series of "objects" with the digitized "1" as the unit (including: natural numbers, rational numbers,

Irrational numbers, real numbers, complex numbers, transcendental numbers, and units that can be primed are called "objects" and are represented by the center point. The components inside the unit are called "elements".

the combination of "addition, subtraction, multiplication, division, exponentiation, square root, equal sign =, $\sum$, $\prod$, $\int$, ∂ " methods and forms of numerical analysis; the combination of "union $A \cup B$, intersection $A \cap B$, belonging to, morphism" of logical analysis. If the "object-element" system itself cannot prove its "true or false", it cannot be directly balanced and exchanged. If it is proved to be established through the third construction set, then the subsequent analysis, combination, operation, model, etc. are all established under the control of the third construction set. Corresponding to numerical analysis and logical analysis as well as analysis of various other algorithms.

✷Definition 3.2 "Characteristic mode": The composition of objects and elements with various positive, negative and reverse connections, contrasts, symmetries and relationships, and the average value of the positive, negative and reverse values is called the characteristic mode. The characteristic mode has two forms of balance: Explanation :

(1) The “external center zero line (critical line)” indicates that the center point of the object’s characteristic modulus changes synchronously with the surrounding elements.

(2) “Internal center zero point (critical point)” represents the position and relationship between the center point of the object’s characteristic model and the surrounding elements.

✷Definition 3.3 Dimensionless circular logarithm: The comparison between two "object sets (including real number sets and natural number sets)" generates the circular logarithm $(1-\eta^2)^K$ infinite construction set defined by dimensionless language , which represents the location and relationship between the external and internal locations of the "object". The circular logarithm itself has no definition of "logic, numerical value, element, number", and is not affected by specific elements, ensuring the reliability, stability and fairness of third-party identity operations.

✷Definition 3.4 Balance and exchange of dimensionless circular logarithms: When the circular logarithm factor has an "even property" (i.e., conjugate mutual inverse balance symmetry), it drives the "balance and exchange" of the "object" in the form of its own balance and exchange. Then the "object" is converted into the original proposition and the inverse proposition to achieve balance and exchange .

✷Definition 3.5 "Evenness" of equilibrium symmetry: The characteristic mode corresponding to the circular logarithm has the same circular logarithmic factor on the left and right sides centered at the zero point of the circular logarithm, which is called "evenness", that is, the dimensionless circular logarithm and circular logarithmic factor have conjugate reciprocal symmetry and are randomly and non-randomly balanced and exchanged.

Among them: even numbers are not necessarily symmetric (such as the decomposition into one element and two elements in ternary numbers). Through the circular logarithm conversion into symmetry, the symmetry of the central zero line (critical line) and the central zero point (critical point) is satisfied to achieve balance and exchange.

$\sum (1-\eta^2)^{(K=+1)} = \sum (1-\eta^2)^{(K=-1)}$, $\prod (1-\eta^2)^{(K=+1)} = \prod (1-\eta^2)^{(K=-1)}$,

Among them: the central zero line (critical line) $(1-\eta_{[C]}{}^2)^{(K=\pm1)}=1$, corresponding to the left-right (or positive and negative
power function) symmetry of the object (characteristic mode);

The central zero point (critical point) $(1-\eta_{[C]}^2)^{(Kw=\pm0)}=0$, corresponding to the left-right (or forward and reverse power
function) symmetry inside the object (characteristic mode);

In particular, there is no direct "evenness" between any "objects", and the system itself cannot judge the "truth" of the
"evenness", so they cannot be directly exchanged.

In the balance calculation based on the natural number semantics of numerical analysis, the "balance and exchange" based on the assumption of "discrete symmetry" in logic analysis or computer algorithms, such as: the morphism of logic analysis cannot be balanced, and the balance of numerical analysis cannot be "exchanged". All of them have not been verified by the third-party construction set for "authenticity". The reason why they can be calculated is "luck and coincidence". However, they encountered "continuous topology cannot be balanced", which reflects the incompleteness of the current
mathematical foundation and the lack of a reliable mathematical foundation.The result of balance and exchange:

It has been proved before that: $\sum(1-\eta^2)^{(K=+1)}=\prod(1-\eta^2)^K$ corresponds to the "object" and the characteristic mode, which is converted from the circle logarithm defined in dimensionless language to the boundary of the {0,1} range and the center {-1,0,+1} or {0,1/2,1}.

Among them : the coordinate movement does not affect the numerical value or logical object corresponding to the circle's digit value.

Add combination:

$$\sum(1-\eta^2)^{(K=+1)}\quad\sum(1-\eta^2)^{(K=\pm1)}\quad\sum(1-\eta^2)^{(K=-1)}=\{0,2\},$$

$$\sum(1-\eta^2)^{(K=\pm1)}=\sum(1-\eta^2)^{(K=+1)}\quad\sum(1-\eta^2)^{(K=-1)}=\{1\},$$

Among them: Additive combination drives the balance and exchange of the "object" itself with circular logarithmic factors (addition, subtraction, multiplication, division, union, belonging)

Circular logarithmic multiplication combination:

$$\prod(1-\eta^2)^{(K=+1)}+\prod(1-\eta^2)^{(K=\pm1)}+\prod(1-\eta^2)^{(K=-1)}=(1-\eta^2)^{(K=\pm1)\{0,2\}},$$

$$\prod(1-\eta^2)^{(K=\pm1)}=\prod(1-\eta^2)^{(K=+1)}+\prod(1-\eta^2)^{(K=-1)}=(1-\eta^2)^{(K=\pm1)\{1\}},$$

The characteristic mode (external) corresponding to the zero line (critical line) of the circular logarithm is:
$(1-\eta^2)^K=\{0,2\}\{D_0\}$ **:**

Balance and exchange of positive and negative objects corresponding to the characteristic mode center line :
$(1-\eta^2)^{(K=\pm1)}=\{1\}\{D_0\}$:

The zero point (critical point) at the center of the circle logarithm corresponds to the characteristic mode (interior)
$(1-\eta_{[C]}^2)^{(K=\pm0)}=(1/2)$, adapts to { 0,1} .
$(1-\eta_{[C]}^2)^{(K=\pm0)}=(0)$, adapts to {0, `1} .

The corresponding balance and exchange of positive and negative elements around the center point of the characteristic module.

Among them: the multiplication combination uses the circular logarithmic factor to drive the balance and exchange of the " element- object" power function itself (exponentiation, square root, intersection, belonging).

Balance and exchange of objects and elements:

The original proposition remains unchanged, the characteristic module remains unchanged, the isomorphic circular logarithm remains unchanged, and through the balance and exchange between the positive, middle and reverse directions of
the shared circular logarithmic properties,

The balance and exchange between true propositions and inverse propositions are achieved.

The "unchanged objects and elements" are converted into circular logarithms, and the balanced exchange combination (decomposition) of "objects and elements" is driven by the "evenness" (i.e. conjugate equilibrium reciprocal symmetry) of the
central zero line (critical line) and central zero point (critical point) of the circular logarithm .

$$\{X\}(\text{true proposition})=(1-\eta^2)^{(K=+1)}\cdot D_0]^{(K=\pm1)(Z\pm S)}$$

$$=[(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=-1)}]\cdot D_0]^{(K=\pm1)(Z\pm S)}$$

$$=(1-\eta^2)^{(K=-1)}\cdot[(0,2)\cdot D_0]^{(K=-1)(Z\pm S)}=\{D\}(\text{converse});$$

Among them: the characteristic mode satisfies "even number" ≠ "even number", and "even number" contains two states: symmetry and asymmetry .

When: "object" is converted into natural number N, real number R, other rational numbers, irrational numbers, logical objects, and any digitized object, symbol, information, password..., "object" is balanced, exchanged, combined and analyzed under the control of dimensionless circular logarithm.

If the added combination is a natural number **N,** then it is an infinite combination of "1"

(K**N**=0,1,2,3, ... infinite integer);
If it is a multiplication combination, it must be an infinite power function combination of "1"
(**N** = $NK^{(0)}$, $\mathbf{NK}^{(1)}$, $\mathbf{NK}^{(2)}$, $\mathbf{NK}^{(3,}$ … infinite integer) ;
Among them: property attribute K ;
K **= K · Kw = (K=+1,±1,±0,-1) · (Kw=+1,±1,±0,-1)=(+1,±1,±0,-1);**
When: the "center zero line / center zero point" corresponding to the invariant characteristic modulus $\{ \mathbf{D}_0 \}^{(K=\pm1)}$ drives the natural number to be an "odd number" .
$(1-\eta_{[C]}^2)^{(K=\pm1)} = [(0,1) \cdot \mathbf{D}_0]^{(K=\pm1)(Z\pm S)}$,
Among them: "Central zero line = (0,1) corresponds to the symmetry of the left and right areas of the characteristic mode line. Central zero point = (1/2) corresponds to the symmetry of the center point at any point on the characteristic mode line."
When: the "center zero line / center zero point" corresponding to the invariant characteristic modulus $\{ \mathbf{D}_0 \}_{(K=+1)}$ drives the natural number to be an "even number",
$(1-\eta_{[C]}^2)^{(K=\pm1)} = [(0,2) \cdot \mathbf{D}_0]^{(K=\pm1)(Z\pm S)}$,
Among them: "The center zero line = (0,2) corresponds to the symmetry of the left and right areas of the characteristic mode line. The center zero point = (1/2) corresponds to the symmetry of any center point on the characteristic mode line (that is, the center zero point is between {0, ±1})"

Here, circular logarithms drive the objects and elements **1+1=2,** which is not the direct addition or multiplication of natural numbers. Natural numbers are balanced and exchanged under the drive of circular logarithms to satisfy natural numbers.

In particular, dimensionless circular logarithms belong to the third type of construction set, which takes into account both completeness and compatibility and can determine the "truth" of "object" combinations (addition, subtraction, multiplication, and division or logical combinations (union A ∪ B, intersection A ∩ B, belonging to, morphisms), and has reliability. In other words, natural numbers, logical objects, etc., are based on circular logarithms defined in dimensionless language, under the conditions of balance and exchange of "evenness". "Objects" drive the balance and exchange of objects through the balance and exchange of dimensionless circular logarithms. Similarly, "objects" also regress (analyze) the original numerical or logical objects through the central zero point of dimensionless circular logarithms. Once the dimensionless circular logarithm is revoked, the "objects (including numerical and logical objects)" restore their original asymmetry and cannot be balanced and exchanged.

Therefore, the mathematical proof of the Peano axiom "1+1=2" is based on the "balance and exchange" of the combination of dimensionless circular logarithms (positive, middle and negative property conversion). It is not interfered by the elements of natural numbers themselves.

3.1.5. The unique evenness mechanism of dimensionless circular logarithms can automatically prove its authenticity

Because the dimensionless circular logarithm is a third-party infinite construction set, it can prove the "authenticity" outside the system, and it is fair, reasonable, and authoritative. However, the circular logarithm system itself is a closed "mathematical model-independent, no specific (mass) elements" logical arithmetic zero-error sequential analysis, which only represents the dimensionless circular logarithm factors of place value and position, without the interference of specific elements, and the characteristic mode of the combination of the dimensionless system is complete externally and compatible internally, with a set of "infinite axioms", and the dimensionless cannot interfere with the dimensionless.

✷**Definition** 3.1.1 Two "element- object " series product combinations $\{X\}=\{x_1 x_2\}$, the characteristic modulus is the object series mean $\mathbf{D}_0^{(n)}=[\{x_1 x_2\}/2]^{(n)}$, where the element
Elements - "objects" are not necessarily numerical values, they can be other digitizable things. Element- objects cannot be directly combined, that is, they cannot be directly combined in the usual form of addition, subtraction, multiplication, division, exponentiation, and square root. Under the condition of resolution 2, it is decomposed into two subsets with different numerical values and symmetric distribution, and converted into dimensionless circular logarithms to adapt to the calculation range of $\{2\}^{K(2n)}$. Asymmetry analysis.

$$(1-\eta^2)^K = [\{x_1 x_2\}/\mathbf{D}_0]^{K(0)} = [\{x_1 x_2\}/\mathbf{D}_0]^{K(1n)} = \dots = [\{x_1 x_2\}/\mathbf{D}_0]^{K(2n)} = [0 \text{ to } 1],$$

Dimensionless evenness 'axiom of infinity' balance:
$(1-\eta^2)^K = (1-\eta_{[1]}^2)^{(K=+1)} + (1-\eta_{[2]}^2)^{(K=-1)} = (1-\eta_{[1,2]}^2)^{(K=`0)}$;
Dimensionless even number 'infinity axiom' balanced exchange combination (decomposition):
$\{X\}=(1-\eta^2)^K \cdot \mathbf{D}_0^{(2)}=(1-\eta_{[1]}^2)^{(K=+1)} \cdot \mathbf{D}_0^{(1)} + (1-\eta_{[2]}^2)^{(K=-1)} \cdot \mathbf{D}_0^{(1)}$
$=(1-\eta_{[1]}^2)^{(K=+1)}\cdot\mathbf{D}_0^{(1)}+(1-\eta_{[2]}^2)^{(K=-1)}\cdot\mathbf{D}_0^{(1)}$;

✷Define 3.1.2 three "element- object " series product combinations $\{X\}=\{x_1 x_2 x_3\}$, with the characteristic modulus being the object series mean $\mathbf{D}_0^{(n)}=[\{x_1+x_2+x_3\}/3]^{(n)}$, where " Element- objects" are not necessarily all numerical values, but can be other digital things. Objects cannot be directly combined, that is, they cannot be directly combined in the usual form of addition, subtraction, multiplication, division, exponentiation, and square root. Under the condition of resolution 2, it is decomposed into three subsets with different numerical values and asymmetric distribution, and converted into dimensionless circular logarithms to adapt to the calculation range of $\{3\}^{K(2n)}$. It is called asymmetry analysis.

$$(1-\eta^2)^K=[\{x_1 x_2 x_3\}/\mathbf{D}_0]^{K(0)}=[\{x_1 x_2 x_3\}/\mathbf{D}_0]^{K(1)}=\ldots=[\{x_1 x_2 x_3\}/\mathbf{D}_0]^{K(Pn)}=[0 \text{ to } 1],$$

Dimensionless evenness 'axiom of infinity' balance:

$$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{K\ (K=-1)}=(1-\eta^2)^{K\ (K=`0)};$$

Dimensionless even number 'infinity axiom' balanced exchange combination (decomposition):

$$\{X\}=(1-\eta^2)^K\cdot\mathbf{D}_0^{(3)}=(1-\eta_{[1]}^2)^{(K=+1)}\cdot\mathbf{D}_0^{(1)}+(1-\eta_{[23]}^2)^{K(K=-1)}\cdot\mathbf{D}_0^{(2)}$$
$$=(1-\eta_{[1]}^2)^{(K=+1)}\cdot\mathbf{D}_0^{(1)}+(1-\eta_{[2]}^2)^{(K=-1)}\cdot\mathbf{D}_0^{(1)}+(1-\eta_{[3]}^2)^{(K=-1)}\cdot\mathbf{D}_0^{(1)};$$

✷Define 3.1.3 (S) "element- object " series product combinations $\{X\}=\{x_1 x_2 \ldots x_S\}$, with the characteristic modulus being the object series mean $\mathbf{D}_0^{(S)}=[\{x_1 x_2\ldots x_S\}/S]^{(S)}$,

elements- objects" here are not necessarily all numerical values, but can be other digitizable things. Objects cannot be directly combined, that is, they cannot be directly combined in the usual form of addition, subtraction, multiplication, division, exponentiation, and square root. Under the condition of resolution 2, it is decomposed into three subsets with different numerical values and asymmetric distribution, and converted into dimensionless circular logarithms to adapt to the calculation range of $\{S\}^{K(2n)}$. It is called symmetry and asymmetry analysis.

$$(1-\eta^2)^K=[\{x_1x_2\ldots x_S\}/\mathbf{D}_0]^{K(0)}=[\{x_1x_2\ldots x_S\}/\mathbf{D}_0]^{K(1)}=\ldots=[\{x_1x_2\ldots x_S\}/\mathbf{D}_0]^{K(2n)}=[0 \text{ 到 } 1],$$

Dimensionless evenness 'axiom of infinity' balance:

$$(1-\eta^2)^K=\sum(1-\eta_{[1,3,5,\ldots\text{odd number}]}^2)^{(K=+1)}+\sum(1-\eta_{[2,4,6,\ldots\text{even number}]}^2)^{(K=-1)}=(1-\eta_{[S]}^2)^{(K=`0)};$$

Dimensionless even number 'infinity axiom' balanced exchange combination (decomposition):

$$\{X\}=(1-\eta^2)^K\cdot\mathbf{D}_0^{(3)}=(1-\eta_{[1,3,5,\ldots\text{odd number}]}^2)^{(K=+1)}\cdot\mathbf{D}_0^{(S)}+(1-\eta_{[2,4,6,\ldots\text{even}]}^2)^{(K=-1)}\cdot\mathbf{D}_0^{(S)}$$
$$=(1-\eta_{[1]}^2)^{(K=+1)}\cdot\mathbf{D}_0^{(1)}+(1-\eta_{[2]}^2)^{(K=-1)}\cdot\mathbf{D}_0^{(1)}+(1-\eta_{[3]}^2)^{(K=+1)}\cdot\mathbf{D}_0^{(1)}+(1-\eta_{[42]}^2)^{(K=-1)}\cdot\mathbf{D}_0^{(1)}\ldots;$$

Among them: indicates that all object combinations are analyzed in the dimensionless circular logarithm controlled in the closed [0,1] interval, the power function (0,1,2,3,...n infinity) indicates that K represents the property attribute and controls the convergence of the object

When: $^{(S)}\sqrt{\{x_1 x_2\ldots x_S\}}\geq\mathbf{D}_0$, the circular logarithm $(1-\eta^2)^{(K=-1)}$ (K=-1) indicates that the object is extended,

When: $^{(S)}\sqrt{\{x_1 x_2\ldots x_S\}}\leq\mathbf{D}_0$, the circular logarithm $(1-\eta^2)^{(K=+1)}$ (K=+1) indicates that the object converges,

When: $^{(S)}\sqrt{\{x_1 x_2\ldots x_S\}}=\mathbf{D}_0$, circular logarithm $(1-\eta^2)^{(K=\pm1)}$ (K=±1), it indicates the balance of objects, the balance combination (decomposition) of addition (multiplication) ,

When: $^{(S)}\sqrt{\{x_1 x_2\ldots x_S\}}=\mathbf{D}_0$, circular logarithm $(1-\eta^2)^{(K=\pm0)}$ (K=±0), it means object exchange, conversion, rotation, subtraction (division) combination (decomposition) ,

Among them: all circular logarithmic corresponding characteristic modes, property attribute extension objects (K=+1, ±1, ±0, -1), three (positive, negative, balanced exchange) property attribute circular logarithmic factors convergence, central zero point stability.

✷Definition 3.1.4 Infinite Axiom: The "infinite axiom" of "evenness" unique to dimensionless constructions has a balanced exchange and combination mechanism of symmetry and asymmetry, randomness and non-randomness, exists in each infinite sub-item of the infinite construction set, and has randomness and non-randomness, which are mutually inverse and self-proving "truth and falsity", and is called the "infinite axiom".

certificate :

The infinite set is expanded into an infinite program with non-repeating combination sub-items, which can be converted into a dimensionless circular logarithm infinite construction set. Select any finite "element-object" K (Z ± S) from it and convert it into a dimensionless circular logarithm construction set. The property attributes are introduced, with positive and negative directions, and the "evenness" of the central zero point of the circular logarithm. Random equilibrium exchange combination (decomposition). Based on the invariant characteristic module and the invariant isomorphic circular logarithm, the analytical extension is carried out in the dimensionless circular logarithm.

combined in a balanced exchange under the same circular logarithm factor conditions .

$$(1-\eta^2)^{(K=\pm1)}=\sum_{(Z\pm S)}(1-\eta^2)^{(K=+1)}+\sum_{(Z\pm S)}(1-\eta^2)^{(K=\pm0)}+\sum_{(Z\pm S)}(1-\eta^2)^{(K=-1)})=\{0,2\};$$

The equilibrium symmetry of the dimensionless circular logarithm about the central zero line (belonging to the exterior of the characteristic mode):

$$(1-\eta^2)^{(K=\pm0)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}=\{1\};$$

The zero line (critical line) of the circle logarithm corresponding to the characteristic mode

The equilibrium symmetry of the dimensionless circular logarithmic center zero point (belonging to the interior of the characteristic mode):

$(1-\eta^2)^{(K=\pm0)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}=\{0\}$;

Become the zero point (critical point) of the circular logarithm of the corresponding characteristic mode

The balance and exchange of dimensionless circular logarithms: the original proposition (called true proposition), characteristic modulus, and isomorphic circular logarithm form remain unchanged. Only the properties corresponding to the isomorphic circular logarithms are transformed in the opposite direction to become an "inverse proposition" consistent with the original proposition. This balance and exchange is similar to the "equal sign" that cannot be exchanged in mathematical analysis and the "functor" that cannot be balanced in logical analysis.

Dimensionless circular logarithm exchange rule:

Invariant propositions, invariant characteristic moduli, invariant isomorphic circular logarithmic forms, through the positive and negative conversion of the properties of power functions, drive the balanced exchange of values. For example, the deduction of the positive and negative balanced exchange combination of the Riemann function (K=-1):

$[(1-\eta^2)^{(K=-1)(K=+1)}$ (forward)] $\leftrightarrow$ $[(1-\eta^2)^{(K=-1)(K=\pm0)}$ (transition point)] $\leftrightarrow$ $[(1-\eta^2)^{(K=-1)(K=-1)}$ (reverse] ={0 to 1} ;

The addition (subtraction) of dimensionless circular logarithms becomes the zero balance and even balance of even numbers, which leads to the exchange of objects (numerical values and logic):

$[(1-\eta^2)^{(K=-1)(K=+1)}\pm(1-\eta^2)^{(K=-1)(K=-1)}]\cdot\{\mathbf{D}_0\}^{(Z\pm S)}=(1\pm\eta^2)^K\{(0,\ 2)\cdot\mathbf{D}_0\}^{K=\pm1)(K=-1)(Z\pm S)}$;

$[(1-\eta^2)^{K=-1)(K=+1)}\cdot\{\mathbf{D}_0{}^{(n)}]\pm[(1-\eta^2)^{(K=-1)(K=-1)}\cdot\{\mathbf{D}_0\}^{(Z\pm S)}]=(1\pm\eta^2)^K\{(0)\cdot\mathbf{D}_0\}^{(K=-1)(K=-1)(n)}$,

which is called zero equilibrium;

$[(1-\eta^2)^{(K=-1)(K=+1)}\cdot\{\mathbf{D}_0{}^{(n)}]\pm[(1-\eta^2)^{(K=-1)(K=-1)}\cdot\{\mathbf{D}_0\}^{(Z\pm S))}]=(1\pm\eta^2)^K\{(2)\cdot\mathbf{D}_0\}^{(K=-1)(K=+1)(n)}$,

which is called additive balance;

$[(1-\eta^2)^{(K=-1)(K=+1)}\cdot\{\mathbf{D}_0{}^{(n)}]\pm[(1-\eta^2)^{(K=-1)(K=-1)}\cdot\{\mathbf{D}_0\}^{(Z\pm S)}]=(1\pm\eta^2)^K\{(0\leftrightarrow2)\cdot\mathbf{D}_0\}^{(K=\pm0)(K=-1)(n)}$,

called balanced exchange;

Among them: the object of property attribute control is K=(K·KW)=(+1, ±1, ±0, -1), which has the convergence, expansion and central zero point stability of external and internal (positive, negative, balanced) property attribute circular logarithmic factors. Because the 'infinite axiom' unique to dimensionless construction has the function of random mutual inversion and self-authentication, it has

In particular, the dimensional system, for "asymmetric" prime numbers (including addition, subtraction, multiplication, division, union, intersection, belonging, morphism, etc.), in the form of "axioms", strictly speaking, "does not have a balanced exchange mechanism" and cannot adapt to exchange. Only through the dimensionless unique "even number" mechanism and the "symmetry" of the zero-point symmetry of the circular logarithm center can the balance and exchange of all prime numbers be driven. Without the interference of specific elements, the dimensionless circular logarithm itself automatically verifies the "authenticity" through the symmetry of the "even number" of integrity and the balanced exchange of asymmetry, and has the advantages of authority, fairness, and zero error of a third-party identity, truly becoming an axiomatic system.

3.1.6 Relationship between prime numbers and dimensionless circular logarithms

For example, if you choose the "1-1 combination" for any prime number tail {1,3,(5=0),7,9}, it is a prime zero point exchange problem. If you choose the "2-2 combination", there is a twin

The exchange problem of prime zero points. For details, please refer to the "prime number distribution theorem" described in the dimensionless circular logarithm below. Its content is "prime numbers are unevenly distributed, and through the mechanism of 'infinity axiom', prime numbers are driven to move and become a uniform prime number arrangement", with the invariant characteristic modulus "natural number tail {5}" as the balance and exchange principle of the central zero line (critical line) and the central zero point (critical point) of the circular logarithm.

(1) Proof of **the center zero line (critical line)** :

The independent asymmetric surrounding prime numbers and the group combination-circular logarithm center point (characteristic module) have a synchronous change relationship. Among them, two/three/more independent asymmetric prime number "combinations" are numerical characteristic modules (positive, median and anti-mean functions), including the place value circular logarithm center zero line of "multiplication combination and addition combination".

have:

the characteristic mode external ζ (S) ^{K} controls the "convergence, transformation, balance, and expansion" of the external Riemann function, ensuring the stability and reliability of the central zero line.

The characteristic modulus corresponding to the central zero point of the Riemann function (K=-1) = the natural number mantissa {5} is expressed as:

$(1-\eta_{[C]}{}^2)^K\cdot\{5\}^{(K=-1)(Kw=-1)(Z\pm S)}=\{-1,0,+1\}\cdot\{\mathbf{5}\}^{(K=-1)(Kw=-1)(Z\pm S)}$;

Or : $(1-\eta_{[C]}{}^2)^K\cdot\{5\}^{(K=-1)(Kw=-1)(Z\pm S)}=\{0,1/2,1\}\cdot\{\mathbf{5}\}^{(K=-1)(Kw=+1)(Z\pm S)}$;

All of them correspond to the invariant characteristic modulus {**D**$_0$} = natural number tail {**5**} which is the reciprocal equilibrium exchange line of the circular logarithmic center zero point line.
Among them, the change of coordinate position does not affect the value and position of the zero point of the circular logarithm center.

(2) **Proof of the central zero point (critical point):**

The relationship between the surrounding prime numbers of independent asymmetry and the group combination-circular logarithmic center point (characteristic mode). This circular logarithmic point is called the "critical point" of the balanced reciprocal symmetry, which is manifested by the existence of the central zero point symmetry point $(1\text{-}\eta_C{}^2)^K=\{0\}^{(Kw=\pm1)(Z\pm S)\text{ everywhere on the circular logarithmic center zero line (critical line)}}$.

the characteristic module $\zeta(S)^{Kw}$ controls the "convergence, transformation, balance, and expansion" between the prime numbers inside the Riemann function, ensuring the stability and reliability of the central zero point.

That is to say, the circular logarithmic center zero point has two forms: external and internal:
The zero line (critical line) at the center of the circular logarithm corresponds to the characteristic mode (external);
$(1\text{-}\eta_{[C]}{}^2)^{(K=\pm1)}=(1\text{-}\eta^2)^{(K=+1)}+(1\text{-}\eta^2)^{(K=-1)}=\{1\}$;

The zero point (critical point) at the center of the circular logarithm corresponds to the characteristic mode (interior);
$(1\text{-}\eta_{[C]}{}^2)^{(K=\pm0)}=(1\text{-}\eta^2)^{(Kw=+1)}+(1\text{-}\eta^2)^{(Kw=-1)}=\{0\}$;

（3）, **Exchange rules** :

The unchanged original proposition, unchanged characteristic module, unchanged isomorphic circular logarithmic form, the positive and negative conversion of the properties corresponding to the central zero point of the circular logarithm, and the balanced and exchange combination lead to the balanced exchange combination of two/three/(n) prime conjugated, mutually inverse asymmetric primes .
$(1\text{-}\eta^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0\}=(1\text{-}\eta^2)^{(K=+1)}\leftrightarrow(1\text{-}\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1\text{-}\eta^2)^{(K=-1)}=\{0\text{ to }2\}\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S)}$;

(4) Based on the zero line (critical line) of the circular logarithm
$(1\text{-}\eta_{[C]}{}^2)^K=\{0\text{ to }2\}^{(K=-1)(Kw=+1)(Z\pm S)}$
to the zero point at the center of the circular logarithm drives the balanced exchange combination of prime numbers to become natural numbers.
Among them: the center of the circle is zero
$(1\text{-}\eta_{[C]}{}^2)^K=\{0, 2\}\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S)}$ corresponds to an even number ,
$(1\text{-}\eta_{[C]}{}^2)^K=\{0, 1\}\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S)}$ corresponds to odd numbers.

That is to say, the combination of natural numbers is not achieved through the combination of natural numbers themselves (addition, subtraction, multiplication and division).

Similarly , the Peano axiom "1+1=2" is a balanced exchange combination of dimensionless circular logarithms with the same factors , which drives the exchange of prime numbers, not a direct combination of natural numbers "one by one sequence" . Therefore, the mathematical proof of the "incompleteness" of Peano's axioms .

3.1. 7. Shifting of prime number distribution and dimensionless 'infinity axiom':

The uneven distribution of prime numbers can be symmetrical or asymmetrical (including twin prime distribution) within a 10-digit number.

Define that the longitudinal direction $(1\text{-}\eta_{[C]}{}^2)=1$ corresponds to the characteristic mode {5} (center zero line , critical line); the longitudinal direction $(1\text{-}\eta_{[C]}{}^2)=0$ corresponds to the characteristic mode {5} (center zero point, critical point);

Define the transverse characteristic modulus $(1\text{-}\eta_{[C]}{}^2)\cdot\{5\}$ (characteristic modulus point), which is the four prime number tails (including twin primes) on both sides of the transverse center point.

of prime number tail numbers {1, 3, (5=0), 7, 9}, the natural number tail number {5} is the unchanging center zero line and center zero point .

The circular logarithm is distributed vertically. Each vertical level with 10 as the basic unit has a circular logarithm center zero line and center zero point : corresponding to the prime number tail characteristic modulus {5}

$$\mathbf{D}_0=\{5\};\quad(1\text{-}\eta_{[C]}{}^2)^{(K=-1)(Kw=\pm0)}=1\ ;\ (1\text{-}\eta_{[C]}{}^2)^{(K=-1)(Kw=\pm0)}=0;$$

Among them: (center zero point, critical point) on (center zero line , critical line) are all corresponding to the characteristic mode {5}

The relationship between prime numbers and circular logarithms:
$(1\text{-}\eta_4)\cdot5=(5\text{-}4)=1$; $(1\text{-}\eta_2)\cdot5=(5\text{-}2)=3$; $(1+\eta_2)\cdot5=(5+2)=7$; $(1+\eta_4)\cdot5=(5+4)=9$;
Or: $(1\text{-}\eta_4{}^2)\cdot5=(5\text{-}4)=1$; $(1\text{-}\eta_2{}^2)\cdot5=(5\text{-}2)=3$; $(1+\eta_2{}^2)\cdot5=(5+2)=7$; $(1+\eta_4{}^2)\cdot5=(5+4)=9$;
Where: The number of circular logarithmic factors is equal to the number of prime numbers. Here $(1\text{-}\eta_4)$ is equivalent to
$(1\text{-}\eta_4{}^2)$, representing the position on the axis-plane or in space, respectively.

The zero point of the circular logarithm center : $(1-\eta_{[C]}^2)^{(K=-1)(Kw=\pm0)}=0$ corresponds to the characteristic mode {5};

The prime numbers ending in {1, 3, (5=0), 7, 9} have two forms of distribution: symmetric and asymmetric:

(1) Symmetric method: the distribution space of values or objects with {5=0} as the center point is symmetrical {1, 3, (5=0), 7, 9}, {0, 0, (5=0), 0, 0},
{0, 3, (5=0), 7, 0}, {1, 0, (5=0), 0, 9},

Convert to the zero point description of the logarithmic center of the symmetry circle:

{$(1-\eta_4)$, $(1-\eta_2)$, [$(1-\eta_{[C]})=0$ corresponding{5}] , $(1+\eta_2)$, $(1+\eta_4)$},
{$(1-\eta_0)$, $(1-\eta_0)$, [$(1-\eta_{[C]})=0$ corresponding{5}] , $(1+\eta_0)$, $(1+\eta_0)$},
{$(1-\eta_0)$, $(1-\eta_2)$, [$(1-\eta_{[C]})=0$ corresponds to {5}] , $(1+\eta_2)$, $(1+\eta_0)$},
{$(1-\eta_4)$, $(1-\eta_0)$, [$(1-\eta_{[C]})=0$ corresponds to {5}] , $(1+\eta_0)$, $(1+\eta_4)$},

Convert to the center zero line description of the symmetry circle logarithm:

{$(1-\eta_4)$, $(1-\eta_2)$, [$(1-\eta_{[C]})=1$ corresponds to {5}] , $(1+\eta_2)$, $(1+\eta_4)$},

(2) Asymmetric mode: the spatial distribution of values or objects is asymmetric .

{1, 0, (5=0), 7, 9}, {0, 3, (5=0), 7, 9},
{1, 3, (5=0), 7, 0}, {1, 3, (5=0), 0, 9},
{1, 0, (5=0), 7, 0}, {0, 3, (5=0), 0, 9},

Convert to asymmetric circular logarithmic center zero point description:

{$(1-\eta_4)$, $(1-\eta_0)$, [$(1-\eta_{[C]})=0$ corresponding to {5}] , $(1+\eta_2)$, $(1+\eta_4)$},
{$(1-\eta_0)$, $(1-\eta_2)$, [$(1-\eta_{[C]})=0$ corresponding{5}] , $(1+\eta_2)$, $(1+\eta_4)$},
{$(1-\eta_4)$, $(1-\eta_2)$, [$(1-\eta_{[C]})=0$ corresponding to {5}] , $(1+\eta_2)$, $(1+\eta_0)$},
{$(1-\eta_4)$, $(1-\eta_2)$, [$(1-\eta_{[C]})=0$ corresponding to {5}] , $(1+\eta_0)$, $(1+\eta_4)$},
{$(1-\eta_4)$, $(1-\eta_0)$, [$(1-\eta_{[C]})=0$ corresponds to {5}] , $(1+\eta_2)$, $(1+\eta_0)$},
{$(1-\eta_0)$, $(1-\eta_2)$, [$(1-\eta_{[C]})=0$ corresponds to {5}] , $(1+\eta_0)$, $(1+\eta_4)$},

Convert to the center zero line description of the symmetry circle logarithm:

{$(1-\eta_4)=1$, $(1-\eta_0)$, [$(1-\eta_{[C]})=1$ corresponding{5}] , $(1+\eta_2)=7$, $(1+\eta_0)=5$} ,
{$(1-\eta_0)$, $(1-\eta_2)=3$, [$(1-\eta_{[C]})=1$ corresponding{5}] , $(1+\eta_0)=5$, $(1+\eta_4)=9$} ,

(3) Asymmetry is achieved by filling up spaces or adjusting prime numbers through random and non-random exchanges (movements) of the "infinity axiom" mechanism, transforming the asymmetric distribution of prime numbers into a symmetric distribution.

$(1-\eta_2)=3 \leftrightarrow (1-\eta_0)$; $(1+\eta_2)=7 \leftrightarrow (1-\eta_0)$; $(1-\eta_2)=3 \leftrightarrow (1+\eta_4)=9$; ……;

Here, the real prime numbers are obtained by screening the prime tail digits , and the prime numbers that are left after moving and adjusting through the "infinite axiom" mechanism to fill the "blank" or "inappropriate" prime numbers (referring to the phenomenon of prime number duplication) are called false prime numbers, which form a uniform distribution of prime numbers (filling the blanks) to ensure the stability of the characteristic module position corresponding to the central zero point . The connotation of this (movement) is similar to the "mapping and morphism" of category theory logic analysis. The difference is that the dimensionless movement is based on "balance and can be mutually reciprocally exchanged (moved), that is, "random self-authentication". It shows the integrity, sufficiency and rationality of the "infinite axiom".

The circular logarithm represents the location (prime number, logical object that can be primed), not the specific value, and the position of the central zero point {5} remains unchanged. In this way, the prime circular logarithm is compared with the number of complete prime numbers (referring to the number of all true false prime numbers) to become the prime circular logarithm density: $(1-\eta_{[x]})+(1-\eta_{[y]})=(1-\eta_{[x\ y]}) = (1-\eta_q)$, which describes the uniform distribution of prime numbers vertically and horizontally, and can easily calculate the number of prime numbers and the prime value of the specific location.

Based on $(1-\eta_q^2)^K$, the horizontal level of prime density $(1-\eta_x^2)^K$ and the determined range of vertical primes $(1-\eta_y^2)^K$ are considered to form the prime density distribution, which is called the prime circular logarithm theorem. If you need to know the "specific position and value of prime numbers" , you need to obtain their position and number through the multiplication and combination equations corresponding to the circular logarithm .

✷**Definition** 3.4 "Evenness": "The characteristic modulus corresponding to the central zero point of the circular logarithm" refers to the combination of two/three/more different prime numbers to form a shared characteristic modulus. The symmetrical distribution takes {5} as the central zero point and central zero line of the circular logarithm. The asymmetrical distribution of prime circular logarithms is adjusted to symmetry through the circular logarithm density. Symmetric and conjugate reciprocal symmetry produce random and non-random balance and exchange

At present, the "discrete type-symmetry" of logical analysis is an artificial assumption, and there is no mathematical rigor to prove that its dimensionless language describes the "evenness" of symmetry . The "evenness" that does not have the same circular logarithmic factor cannot be balanced and exchanged. In other words, this system cannot prove its "authenticity" due to the interference of specific elements. Its "authenticity" can only be proved through a third-party dimensionless infinite construction set. So can the circular logarithm itself prove its "authenticity"? Because the circular logarithm itself is "dimensionless", it contains all the (infinite) theorems of "completeness and compatibility integration", and the orderliness of the dimensionless itself under the control of the closed, unchanging central zero line, central zero point and property attributes, the "dimensionless itself" cannot interfere with the "dimensionless itself". In other words

Special emphasis is placed on: balance and exchange are the integral part of mathematical analysis, and none of them can be missing. The objects of numerical analysis are balanced but cannot be exchanged (morphisms), while the objects of logical analysis can be exchanged (morphisms) but cannot be balanced. Only in the circular logarithm described by dimensionless language, under the same factor conditions, the dimensionless "infinite axiom" mechanism, the circular logarithm drives the elements- objects to perform random and non-random balance and exchange. Once the circular logarithm is canceled, the original numerical value and the asymmetry of the object are restored, and balance and exchange cannot be performed.

In layman's terms, "asymmetric primes are driven by circular logarithms to balance and exchange, forming a uniform prime distribution, which is converted into a combination of dimensionless language, corresponding to the circular logarithm center zero line (limit line) of conjugate equilibrium reciprocal symmetry and the zero point (limit point) of equilibrium symmetry, becoming the "even number" feature of symmetry and exchangeability .

Now , the key question in proving the Goldbach conjecture is: How do circular logarithms correspond to the balanced exchange of prime numbers?

3.2. Dimensionless circular logarithm proof of the Strong Goldbach conjecture

Goldbach's conjecture: If there are multiple sufficiently large combinations of two/three prime numbers [Q=2 , 3] prime numbers multiplied (or added):

$\{X_A^{KS}, X_B^{KS}\}^{(K=+1)}$ or $\{X_A^{KS}, X_B^{KS}, X_C^{KS}\}^{(K=+1)} \in \{X\}^{K(Z\pm S\pm(q=0,1,2,3...\text{Number of prime numbers}))}$;

Non-repeating combinations and sets, consisting of: positive power (K=+1) prime functions and decomposition or combination of (K=+1) (external) , (Kw=±1) (internal).

Goldbach's conjecture uses positive power prime functions.

certificate

Assume that the sum of different prime numbers has "multiplication combination and addition combination" respectively, and there exists a rule:

The Goldbach conjecture corresponds to the Riemann function being a positive power function $\{X_{[AB]}{}^{S}\}^{K(S)}$, called a positive power prime combination function, with the property property: (K=+1).

Prime number multiplication combination of the strong Goldbach conjecture :

$\{X\} = [\{X_A\} \cdot \{X_B\}]^{K(Z\pm S\pm[Q=2]\pm(q=0,1,2,\dots\text{prime integer})}$;

Strong Goldbach conjecture prime number addition combination:

$\{X\} = [\{X_A\} + \{X_B\}]^{K(Z\pm S\pm[Q=2]\pm(q=0,1,2,\dots\text{prime integer})}$;

Prime number multiplication combination of weak Goldbach conjecture :

$\{X\} = [\{X_A\} \cdot \{X_B\} \cdot \{Xc\}]^{K(Z\pm S\pm[Q=3]\pm(q=0,1,2,3\dots\text{prime integer})}$;

Prime number addition combination of weak Goldbach conjecture :

$\{X\} = [\{X_A\} + \{X_B\} + \{Xc\}]^{K(Z\pm S\pm[Q=3]\pm(q=0,1,2,3\dots\text{prime integer})}$;

Among them: (q=0,1,2,3... prime number) combination form , represents the elements of a sufficiently large prime number series. The minimum number of prime numbers [Q=2] is called "1+1=2" (even number) and [Q= 3] "1+2=3" (odd number).

If the value of the multiplication combination (two/three prime number tails multiplied together) and the characteristic modulus {5} are known, the analysis can be performed. In other words: "sufficiently large combination of two prime numbers [Q=2]" and "sufficiently large combination of three prime numbers [Q=3]" can be balanced, exchanged (moved), and combined (decomposed) through dimensionless construction.

At the resolution 2 of the center point of the prime number , it is decomposed into two asymmetric sub-prime groups, and vice versa, it is a combination, which is written as [Q=2,3],

[Rule 1] : Any [Q=2,3] "sufficiently large prime number combination" ∈ "arithmetic mean".

Binary number characteristic module (additive combination) unit cell:

$\{\mathbf{D}_0\}^{K(1S)} = (1/2)^K (X_A^{KS} + X_B^{KS})^K$;

Trinary characteristic modulus (additional combination) probability unit cell:

$\{\mathbf{D}_0\}^{K(1S)} = (1/3)^K (X_A^{KS} + X_B^{KS} + X_C^{KS})^K$;

Ternary number characteristic module (additive combination) topological unit cell:
$\{\mathbf{D}_0\}^{K(2S)}=(1/3)^K[(X_A X_B)^{KS}+(X_B X_C)^{KS}+(X_C X_A)^{KS}]^K$;

[Rule 2] : Any [Q=2,3] “sufficiently large multiplicative prime numbers” ∈ “geometric mean”.

Binary number characteristic module (multiplication combination) unit cell:
$\{^{(2)}\sqrt{\mathbf{D}}\}^{(2S)}=\{^{(S)}\sqrt{(X_A\cdot X_B)}\}^{(K=+1)(2S)}$;

Ternary number characteristic module (multiplication combination) unit cell:
$\{^{(3)}\sqrt{\mathbf{D}}\}^{(3S)}=\{^{(S)}\sqrt{(X_A\cdot X_B\cdot X_C)}\}^{(K=+1)(3S)}$;

[Rule 3] : For any [Q=2,3] sufficiently large prime number, "(multiplication combination / addition combination or intersection / union)" ∈ "(geometric mean / arithmetic mean) is equal to "0 to 1".

[Rule 4]: Dimensionless circular logarithm discriminant:
$\Delta=(\eta^2)^K=(1-\eta^2)^K=\{^{K(S)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}^{K(Z\pm S\pm[Q=2,3]\pm(q=0,1,2,3\ldots integer))}\leq 1$;

[Rule 5]: The properties of circular logarithms change:
$(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[jik]}^2)^{(K=+1)(Z\pm S\pm[Q=2,3]\pm(q=0,1,2,3\ldots integer))}\leq 1$;;
(three-dimensional complex analysis)

In particular, the Goldbach conjecture establishes quadratic/cubic equations respectively: their boundary functions { **D** } **can** be converted into circular logarithms in the form of "multiplication combination (intersection) or addition combination (union)" , and through the balanced exchange combination of the symmetry of the central zero point {0,1} of the circular logarithm, the combination of prime numbers is driven .

Therefore, the "multiplication combination or addition combination or intersection/union" processed by dimensionless circular logarithm does not make much difference in the form of its combination (i.e. mathematical model). If there is a difference, the "multiplication combination (intersection)" is expressed by the "arithmetic calculation" of the " power function factor " corresponding to the circular logarithm ; the "addition combination (union)" is expressed by the "arithmetic calculation" of the " circular logarithm factor " corresponding to the circular logarithm. However, the "circular logarithm factor" and the "circular logarithm power function factor" have synchronous changes.

3.2.1. Proof of the Strong Goldbach Conjecture for Even Numbers [S=2]

Proof purpose: Strong Goldbach conjecture : two arbitrary prime numbers (combinations) become even numbers . Prove that through dimensionless construction (multiplication and addition combinations) the power function is a binary number $\{2\}^{K(S=2)}$ to prove its even number.

the Strong Goldbach Conjecture is not the combination of prime numbers themselves, but the "random balanced exchange combination of circular logarithms of the 'infinite axioms' in a dimensionless construction system (completeness, sufficiency, rationality), and the combination of prime numbers driven by the central zero point symmetry". It has been proved before that any sufficiently large prime number cannot be directly balanced and exchanged, which excludes the (incomplete, insufficient, unreasonable) "combination" form of "Peano axiomatization and set theory axiomatization".

Proof method: The product of two prime numbers is a "quadratic equation converted into a dimensionless circular logarithm construction set", and the random balanced exchange combination (decomposition) of the dimensionless 'infinity axiom' drives the balanced exchange combination of prime numbers through the zero point at the center of the circular logarithm.

Among them: circular logarithms are isomorphic and can adapt to the exchange (transformation, mapping, morphism) of different characteristic modules (powers).

Given: The product of two arbitrary sufficiently large prime numbers:
$\{\mathbf{D}\}=\{X_A\cdot X_B\}^{(K=+1)(S=2)}=\{^{K(S)}\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(q=0,1,2))}$,

Characteristic modulus (mean function) : $\{\mathbf{D}_0\}^{(K=+1)(S=1)}=(1/2)(X_A+X_B)^{(K=+1)}$. (Note: The characteristic modulus is invariant in balanced exchange combinations)

Based on these two known variable functions {**D**} and {$\mathbf{D}_0$}, the dimensionless circular logarithm $(1-\eta^2)^K$ can be introduced for analysis or proof;

Power function: K(Z±S±[Q=2,3]±(q=0,1,2)) represents " conjugate variable complex analysis of an infinite set of constructed sets (mutually inverse asymmetric values)".

certificate:

Given: The unknown substitution variable $\{^{K(S)}\sqrt{X}\}^{(2S)}=\{(X_A^S)\cdot(X_B^S)\}^{(K=+1)}$ represents the overall change, which can be written as: The combination of two arbitrarily large prime numbers $\{^{K(2)}\sqrt{X}\}^{K(Z\pm(S=2)\pm(q=0,1,2)}$ forms a "quadratic equation", which is converted into circular logarithms and decomposed into two asymmetric prime sub-terms.

Characteristic module (multiplication combination): $\{\mathbf{D}_0\}^{K(1)}=\{^{K(2)}\sqrt{X}\}^{K(Z\pm(S=2)\pm(q=0,1,2)}$;

Characteristic module (additive combination): $\{\mathbf{D}_0^{(S)}\}^{K(1)}=(1/2)^K(X_A^{KS}+X_B^{KS})^{K(Z\pm(S=2)\pm(q=0,1,2)}$;

Circular logarithmic discriminant: $\Delta=(\eta^2)^K=\{^{K(2S)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}^{K(Z\pm(S=2)\pm(q=0,1,2)}\leq 1$;

Any two sufficiently large prime numbers X_A and X_B, driven by the circular logarithm center zero point of the dimensionless ' infinity axiom' mechanism , remain unchanged in their original prime numbers (proposition), characteristic modulus, circular logarithm center zero point $(1-\eta_{[C]}{}^2)^{(K=\pm0)}$, and circular logarithm form, regardless of their mathematical model (exponential value analysis and logical analysis), and achieve balanced exchange combination (decomposition).

Among them, two sufficiently large prime numbers realize "multiplication combination (intersection), addition combination (union)" through circular logarithms , and are replaced by the invariant numerical characteristic modulus $\{^{K(2)}\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(q=0,1,2)}$, leaving the corresponding relationship between the central zero line of the circular logarithm and the "surrounding independent prime numbers". Through the "infinite axiom" of the " evenness " of the dimensionless circular logarithm central zero point symmetry , the conjugate reciprocal symmetry is randomly performed. Under the condition of the same factors of the circular logarithms , the balanced exchange combination of the circular logarithms drives the exchange of the values of two arbitrary sufficiently large prime numbers .

The quadratic equation is obtained: $X_A\cdot X_B=(1-\eta^2)^{(K=\pm1)}\{\mathbf{D}_0{}^{(S)}\}^{[S=2]}$;

Balanced exchange combinations of dimensionless circular logarithms;

$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=+1)}=\{0,2\}$;

(1) Multiplication combination form: It is expressed as the sum of dimensionless circular logarithmic power functions being an even number .

$X_A\cdot X_B=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{[S=1]}+(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0\}^{(S=1)}=(1-\eta^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0\}^{K[S=(1+1)=2]}$;

(2) Additive combination form: It is expressed as the sum of dimensionless circular logarithmic factors being an even number .

$$X_A+X_B=(1-\eta^2)^K\{\mathbf{D}_0\}\cdot(1+\eta^2)^K\{\mathbf{D}_0\}$$

$=(1-\eta^2)^K\{\mathbf{D}_0\}^K+(1+\eta^2)^K\{\mathbf{D}_0\}^K=(0,2)^K\cdot\{\mathbf{D}_0\}^K$;

(3) Balance and exchange of balance :

$X_A\leftrightarrow(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{(S=1)}\leftrightarrow X_{AB}=(1-\eta_{[C]}{}^2)^{(K=\pm0)}\mathbf{D}_0{}^{(S=2)}\leftrightarrow(1-\eta_B{}^2)^{(K=+1)}\{\mathbf{D}_0{}^{(S=1)}\leftrightarrow X_B$;

(4) Balanced exchange can combine :

$X_A+X_B=[(1-\eta_A{}^2)^{(K=-1)}+(1-\eta_B{}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{(S=1)}\}=[(1+1=2)\cdot\{\mathbf{D}_0\}^{(S=1)}]^K$;

$X_A\cdot X_B=[(1-\eta_A{}^2)^{(K=-1)}+(1-\eta_B{}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{(S=1+1=2)}\}$;

That is, the balanced exchange combination is achieved through the dimensionless circular logarithm:

$X_A\leftrightarrow X_B$; is a product combination: $X_A\cdot X_B=(1-\eta^2)^{(K=-1)(S=1+1=2)}\{\mathbf{D}_0{}^{(S=2)}\}$; (even power)

$X_A\leftrightarrow X_B$; is a product combination: $X_A/X_B=(1-\eta^2)^{(K=-1)(S=1-1=0)}\{\mathbf{D}_0{}^{(S=0)}\}$; (zero even power)

$X_A\leftrightarrow X_B$; is an additive combination: $X_A+X_B=(1+1=2)\cdot\eta^2)^{(K=-1)(S=1)}\{2\cdot\mathbf{D}_0{}^{(S=1)}\}$; (adding an even numbe)

$X_A\leftrightarrow X_B$; is an additive combination: $X_A-X_B=(1-1=0)\cdot\eta^2)^{(K=-1)(S=1)}\{0\cdot\mathbf{D}_0{}^{(S=1)}\}$; (zero even number)

Among them: the addition combination is the arithmetic addition method of circular logarithmic factors (1+1=2) corresponding to the circular logarithmic factors of even numbers, and the prime number combination is called " **even number** ",

The multiplication combination is the arithmetic addition of the circular logarithmic power function factors (1+1=2), which corresponds to an even number of circular logarithmic power function factors. The prime power function combination is called an " **even power number** ".

In particular, it has been proved that prime numbers cannot be directly combined. Through the dimensionless circular logarithm balanced exchange combination, the original two prime numbers are not changed, the characteristic modulus $\{\mathbf{D}_0\}$ is not changed, and the dimensionless circular logarithm $(1-\eta^2)^K$ is not changed . The balanced exchange combination is achieved only by changing the properties. The dimensionless circular logarithm combination $(0, 2)^K$ (including the power function factor addition combination of the circular logarithm and the addition combination of the circular logarithm factor) respectively drives two prime number combinations:

$\{(0)^K\cdot\mathbf{D}_0\}^K$ corresponds to the characteristic modulus representation : zero even number or zero even power , minus balance;

$\{(2)^K\cdot\mathbf{D}_0\}^K$ corresponds to the characteristic modulus representation : adding an even number or adding an even power , adding balance;

The addition combination is a balanced exchange combination of circular logarithmic factors, which drives the balanced combination of prime numbers themselves, and the circular logarithmic combination {2} drives the prime number $\{2\cdot\mathbf{D}_0\}^{(S=1)}$ (the characteristic modulus does not change, which means that the two prime numbers have not changed, maintaining the nature and correctness of mathematics). It is manifested in the continuous addition of two arbitrarily large prime numbers. Under the dimensionless "infinity axiom" random balanced exchange combination of circular logarithmic factors, the prime number is driven to be an even number. In other words, the direct addition of prime numbers is only "in name only", not the direct addition of prime numbers is "even".

This proof does not apply "Peano axiomatization and set theory axiomatization", but the "infinite axiom" mechanism of the third-party infinite construction set, the random and non-random balance combination and exchange, combination of the central zero point of the circular logarithm, objectively drives the balance combination of prime power functions and prime numbers. This principle can be expanded into a balanced exchange combination process of dimensionless circular logarithms, driving the "element-object" (characteristic modulus invariant) combination (additive combination of power and factor).

(a) The central zero line (critical line) of the circular logarithmic place value: it represents the invariant characteristic modulus . The central point of the prime power function combination changes synchronously with the two surrounding prime numbers.

$(1-\eta_{[C]}^2)^{(K=\pm 1)}=0$ corresponds to $\{\mathbf{D}_0\}^{[S=1+1=2]}$,

(b) The zero point (critical point) of the circular logarithm: represents the invariant characteristic modulus , the analysis of the center point of the characteristic modulus combination and the two surrounding prime numbers .

$(1-\eta_{[C]}^2)^{(K=\pm 1)=0 \text{ corresponds to the}}$ invariant characteristic mode of $\{(1+1=2)\cdot \mathbf{D}_0\}^{[S=1]}$,

The "evenness" of the center zero line and center zero point of the dimensionless circular logarithm

The relationship between the synchronous change of the circle logarithmic center zero line (critical line) and the corresponding characteristic modulus (external) center line and the two prime numbers;

$(1-\eta_{[C]}^2)^K=\{0,\pm 1\}^{K(Z\pm S\pm[Q=2]\pm(q=0,1,2,3\ldots integer)}$;

The corresponding (external) characteristic modulus center point changes synchronously with the two prime numbers; The relationship between the center point of the characteristic modulus (interior) corresponding to the zero point (critical point) of the circular logarithm and the two prime numbers;

$(1-\eta_{[C]}^2)^K=\{0\}$,

Here, the $\{D_0\}^{[Q=2]}$ characteristic modulus is the relationship between the center point inside the prime number combination and the independent prime number, and the zero point of the circular logarithm center corresponds to the center point of the characteristic modulus.

Define the symmetry between the numerical circular logarithmic center point $(\eta_\Delta^2)^K$ and the circular logarithmic center zero point $(\eta_C^2)^K$,

$(\eta_{[C]}^2)^K=\sum(+\eta_\Delta^2)^K+\sum(-\eta_\Delta^2)^K=0$,

Get the same circular logarithmic factors corresponding to two prime numbers,

$(X_A)=\sum(1-\eta_\Delta^2)^{K(Kw=+1)}\cdot\{D_0\}^{K(Z\pm S\pm[S=2]}$;

$(X_B)=\sum(1-\eta_\Delta^2)^{K(Kw=-1)}\cdot\{D_0\}^{K(Z\pm S\pm[S=2]}$;

3.2.4. Conclusion of the proof of the Strong Goldbach conjecture

Strictly speaking, the sum of two sufficiently large prime numbers cannot directly become an even number. Using the unique "infinity axiom" mechanism of the third dimensionless system, the invariant characteristic modulus (average value of prime number combination) and the conjugate balance reciprocal symmetry of the zero point of the circular logarithm center, the "evenness" of the dimensionless circular logarithm objectively drives the balanced exchange combination of the two prime numbers , and the "addition combination" of the two prime numbers becomes an "even number" , and the "multiplication combination" becomes the analysis and operation of "even power $\{2\}^{2n}$". Once the circular logarithm is

cancelled, the original asymmetric characteristics of the two prime numbers are restored.

In other words, the strong Goldbach conjecture (1+1=2) is an objective factor that drives the balanced exchange combination of prime numbers through the balanced exchange combination of the third party's "infinity axiom" mechanism, while the two prime numbers and the characteristic module themselves remain unchanged.

3.3. Proof of the odd number (S=3) of the weak Goldbach conjecture

Proof purpose: Weak Goldbach conjecture : two arbitrary prime numbers (combinations) become even numbers . Prove that the power function is a binary number $\{2\}^{K(S=2)}$ through dimensionless construction (multiplication and addition combinations) to prove its evenness.

the Strong Goldbach Conjecture is not the combination of prime numbers themselves, but the "random balanced exchange combination of circular logarithms of the 'infinite axioms' in a dimensionless construction system (completeness, sufficiency, rationality), and the combination of prime numbers driven by the central zero point symmetry". It has been proved before that any sufficiently large prime number cannot be directly balanced and exchanged, which excludes the (incomplete, insufficient, unreasonable) "combination" form of "Peano axiomatization and set theory axiomatization".

Proof method: The product of two prime numbers is a "quadratic equation converted into a dimensionless circular logarithm construction set", and the random balanced exchange combination (decomposition) of the dimensionless

'infinity axiom' drives the balanced exchange combination of prime numbers through the zero point at the center of the circular
logarithm.

Among them: circular logarithms are isomorphic and adapt to the exchange (conversion, mapping, morphism) of different characteristic modules (powers). Proof purpose: The weak Goldbach conjecture that three prime numbers (additive combination) become odd numbers; (multiplicative combination) the dimensionless circular logarithm of the ternary number
$\{2\}^{K(Q=3)(S)}$ whose power function is an odd number is proved to be valid.

3.3.1. Proof of three prime numbers using dimensionless circular logarithms certificate:

Given: Three sufficiently large prime numbers "multiplication combination " :
$\{X\}=\{X_{[ABC]}\}^{(K=+1)}=\{(X_A)\cdot(X_B)\cdot(X_C)\}^{(K=+1)}$;

Prime number multiplication combination unit (multiplication characteristic module) : $\{^{K(S)}\sqrt{\mathbf{D}}\}^{K(Z \pm S \pm [Q=3] \pm (q=0,1,2,3\ldots integer))}$.

Given: Three sufficiently large prime numbers "addition combination " :
$\{X\}=\{X_{[ABC]}\}^{(K=+1)}=\{(X_A)+(X_B)+(X_C)\}^{(K=+1)}$;

Prime number plus combination unit (plus characteristic modulus) :

$$\{\mathbf{D_0}\}^{K(Z\pm S\pm[Q=1]\pm(q=0,1,2,3))}=(1/3)^K\{(X_A)^K+(X_B)^K+(X_C)^K\}^K$$
$$\{\mathbf{D_0}\}^{K(Z\pm S\pm[Q=2]\pm(q=0,1,2,3))}=(1/3)^K\{(X_A^S X_B^S)^K+(X_B^S X^S_C)^K+(X_C^S X_A^S)^K\}^K$$

Proof required: If any of the prime numbers $\{X_A^S+X_B^S+X_C^S\}$ is an odd number, $\{\mathbf{X}\}$ replaces $\{\mathbf{X}^S\}$

The function variable introduced by the series of three prime numbers [Q=3] is proved in the same way as the combination of two prime numbers.

Discriminant: $\Delta=(\eta^2)^K=\{^{(3)}\sqrt{\mathbf{D}/\mathbf{D_0}}\}^{K(Z \pm S \pm [Q=0,1,2\ 3] \pm (q=0,1,2,3\ldots integer))}\leq 1$;

Based on : a cubic equation of a combination of three sufficiently large prime numbers XA, XB, XC, driven by the central zero point of the circular logarithm of the dimensionless ' axiom of infinity' mechanism , the original prime number (proposition) $\{^{(3)}\sqrt{\mathbf{D}}\}$, the characteristic modulus $\{\mathbf{D_0}\}$, and the position of the central zero point of the circular logarithm $(1-\eta_{[C]}^2)^{(K=\pm 0)}$ remain unchanged. Through the independent mathematical model of the circular logarithm (exponential value analysis and logical analysis), the three prime numbers are driven to achieve a balanced exchange combination.

At this point , three sufficiently large prime numbers realize "multiplication combination (intersection), addition combination (union)" through circular logarithms. In other words : the conversion of Peano's axiom "1+ 2 = 3 " (three prime number combinations) into dimensionless circular logarithms proves the "evenness" of circular logarithms, the conjugate balance , mutual inverse asymmetry , and the balance exchange combination mechanism of the random and non-random 'infinity axiom', and its combination (multiplication combination, addition combination) "has nothing to do with the mathematical model.
$X_A\cdot X_B\cdot X_C=(1-\eta^2)^K\{\mathbf{D_0}\}^{[S=3]}$;

of the multiplication and combination circle logarithm combination coefficient change :
$(1-\eta_{[C]}^2)^{(K=`0)}=(1-\eta_A^2)^{(K=-1)}+(1-\eta_{BC}^2)^{(K=+1)}$;

Add the combination circle logarithm combination coefficient change factor symmetry balance:
$(\eta^2)^{(K=`0)}=(-\eta_A^2)^{(K=-1)}+(+\eta_{BC}^2)^{(K=+1)}$
$=(+\eta_A^2)^{(K=+1)}+(+\eta_B^2)^{(K=+1)}+(+\eta_C^2)^{(K=+1)}$;
Where: $(-\eta_A^2)^{(K=-1)}=(+\eta_A^2)^{(K=+1)}$;

In the balanced exchange combination of circular logarithms, the constant characteristic modulus$\{\mathbf{D_0}\}$and the constant dimensionless circular logarithm $(1-\eta^2)^K$ are combined only by changing the properties.$(2)^K$ (including the power function combination of circular logarithms and the "even number" combination of circular logarithmic factors are :

$\{(0)^K\}$ corresponds to the characteristic modulus$\{\mathbf{D_0}\}^{[S=3]}$ indicating “zero even, minus balance”;

$\{(2)^K\}$ corresponds to the characteristic modulus$\{\mathbf{D_0}\}^{[S=3],}$ which means “ add even number, add balance”;

Among them: the original proposition of the three prime numbers remains unchanged, the characteristic modulus remains unchanged, and the dimensionless circular logarithm of the random equilibrium exchange combination of the 'infinite axiom' mechanism of "evenness" drives the three power functions of prime numbers to be odd powers.

Commutative and combinatorial balance of circular logarithms :

$$(1-\eta_{[ABC]}^2)^K=(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[C]}^2)^{(K=\pm 0)}+(1-\eta_{[BC]}^2)^{(K=-1)}=\{0,(1+2=3)\};$$
$$(1-\eta_{[C]}^2)^{(K=\pm 0)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0,(1+2=3)\};$$

Three power function factors added to an odd power :

Multiplication combination :

$\{ X_A \cdot X_B \cdot X_C \} = \{ X_A{}^{(K=+1)} \leftrightarrow [(1-\eta_A{}^2)^{(K=+1)} \{\mathbf{D_0}\}^{[S=1]}]$

$\leftrightarrow [X_A=(1-\eta_{[A]}{}^2)^{(K=\pm0)}\{\mathbf{D_0}\}^{[S=1]}\}] \leftrightarrow [X_{[ABC]}= (1-\eta_{[C]}{}^2)^{(K=\pm0)}\{\mathbf{D_0}\}^{[S=3]}\}]$

$\leftrightarrow [X_{BC}{}^{(K=-1)}=(1-\eta_{[BC]}{}^2)^{(K=+1)} \{\mathbf{D_0}\}^{[S=-2]}\}] \leftrightarrow X_{BC}{}^{(K=-1)}\}$

$=(1-\eta_{[ABC]}{}^2)^K\{X_{0[ABC]}\}^{[S=1+2=3]}\}$

$(1-\eta_{[A]}{}^2)^{(K=+1)}\{\mathbf{D_0}\}^{[S=+1]}\}+(1-\eta_{[BC]}{}^2)^{(K=+1)} \{\mathbf{D_0}\}^{[S=+2]}\}$

$=(1-\eta_{[A]}{}^2)^{(K=+1)[S=1]}+(1-\eta_{[B]}{}^2)^{(K=+1)[S=1]}+(1-\eta_{[C]}{}^2)^{(K=+1)[S=1]}$

$=(1- \eta_{[ABC]}{}^2)^K\{\mathbf{D_0}\}^{[S=(1+2)=3]}$;

Among them: Due to the balanced exchange combination of the 'Axiom of Infinity', all of these are combinations of the same properties of power function factors.

Additive combination : The sum of three circular logarithmic factors is an odd number :

$\{X_A+X_B+X_C\}^K = \{ X_{[A]}{}^K \leftrightarrow [(+ \eta_{[A]}{}^2)^{(K=+1)} \{\mathbf{D_0}\}^{[S=1]}]$

$\leftrightarrow [X_A=(+ \eta_{[A]}{}^2)^K\{(S = 1)\cdot \mathbf{D_0}\}^{[S=1]} \}]$

$\leftrightarrow [X_{[ABC]}=(1-\eta_{[C]}{}^2)^{(K=\pm0)}\{\mathbf{D_0}\}^{[S=3]}\}] \leftrightarrow [X_{BC}=(1-\eta_{[BC]}{}^2)^K\{(S=2)\cdot\mathbf{D_0}\}^{K[S=1]}\}]$

$\leftrightarrow [X_{BC}=(1-\eta_{[BC]}{}^2)^K[(S=2)\cdot\mathbf{D_0}\}^{[S=1]}\}] \leftrightarrow \{X_B+X_C\}^{K[S=1]}$

$=(1-\eta_{[BC]}{}^2)^K\{(S=2)\cdot X_0\}^{[S=1]}\}=\{(S=1+2=3)\cdot X_{0[ABC]}\}^{K[S=1]}\}$

$(1-\eta_{[A]}{}^2)^K\{(S=1)\cdot\mathbf{D_0}\}^{[S=+1]}\}+(1-\eta_{[BC]}{}^2)^K\{(S=2)\cdot\mathbf{D_0}\}^{[S=2]}\}$

$=(1-\eta_{[A]}{}^2)^{K[S=+1]}+(1-\eta_{[B]}{}^2)^{K[S=+1]}+(1-\eta_{[C]}{}^2)^{K[S=+1]}$

$=(1- \eta_{[ABC]}{}^2)^K\{ (S=1+2=3)\cdot \mathbf{D_0}\}^{[S=1]}$;

Among them: Due to the balanced exchange combination of the 'Axiom of Infinity', all of these are combinations of the same properties of power function factors.

In the balanced exchange combination: the original proposition of the three prime numbers remains unchanged, the characteristic modulus remains unchanged, the dimensionless circular logarithm in the "infinite axiom" mechanism of "evenness" is the dimensionless circular logarithm odd power of the random balanced exchange combination, driving three

Prime numbers are odd powers.

In particular, the balanced combination of circular logarithmic factors drives the balanced combination of prime numbers themselves, that is, one prime number combination corresponding to the prime number $(\eta_{[A]}{}^2)^K\{\mathbf{D_0}\}^{(S=1)}$ and the combination of two prime numbers corresponding to the prime number $(\eta_{[BC]}{}^2)^K\{\mathbf{D_0}\}^{(S=2)}$ is $(\eta_{[ABC]}{}^2)^K\{\mathbf{D_0}\}^{(S=3)}$, and the power function factor is "odd power". Or the corresponding prime number $(\eta_{[BC]}{}^2)^K \{(S=2)\cdot\mathbf{D_0}\}^{(S=1)}$ of the combination of $(\eta_{[A]}{}^2)^K \{(S=1)\cdot\mathbf{D_0}\}^{(S=1)}$ is $(\eta_{[ABC]}{}^2)^K\{(S=1+2=3)\cdot\mathbf{D_0}\}^{(S=3)}$, the circular logarithm factor is "odd number", and the circular logarithm center zero point drives the circular logarithm factor of the prime numbers to be odd (odd power function) or drives

the prime numbers to be odd (odd power function).

Through the "multiplication and addition" of dimensionless circular logarithms, it is proved that due to the balance and combination of dimensionless circular logarithms, the prime numbers themselves remain unchanged, and the corresponding power function combination becomes an even odd power, which keeps the prime numbers themselves unchanged and the circular logarithm factors corresponding to the odd power become an odd number, making the three prime numbers odd

numbers.

This proof does not apply the "Peano axiom", but instead uses the 'infinity axiom' mechanism unique to the third-party infinite construction set, which is a balanced combination and exchange of random and non-random circular logarithmic central zero points, objectively driving the prime power function and the balanced combination of prime numbers.

In other words, the three prime numbers themselves remain unchanged, and through the random balanced combination (or exchange) of the dimensionless circular logarithm's 'infinity axiom', they objectively become a combination that drives the three prime numbers. Expanding into "element-object" (characteristic modulus unchanged) becomes a balanced exchange

combination process of dimensionless circular logarithms.

the "evenness" of the central zero point of the dimensionless circular logarithm $(1- \eta^2)^K$ is manifested as the symmetry on both sides of the "evenness" central zero point. The corresponding asymmetry of the circular logarithmic power function or circular logarithmic factor distribution changes in the same way as the asymmetry of the "object-element" distribution .

Three prime numbers (X_A , X_B , X_C) produce "evenness" under resolution 2 conditions , with two distribution forms:

First: "Even number" symmetry distribution: the numerical center point coincides with a prime number such as (X_B); then (X_A and X_C) have the symmetry of circular logarithms that cannot directly balance the exchange combination . This is the traditional "Cardan formula" of cubic analysis, which is suitable for the range of $\{2\}^{2n}$ and is applied to computers to become
a geometric series of quantum bits of $\{2\}^{2n}$.

The multiplication of two prime numbers produces an odd composite number. That is, the "1+2" problem of Chen Jingrun in China is a sufficiently large even number, but it is not the required "odd number" problem. It is still far from "1+1=2". The previous strong Goldbach conjecture has been proven to be solved through the random equilibrium exchange
combination mechanism of the dimensionless circular logarithm'infinity axiom'.

Second: the "even number" asymmetric distribution, the numerical center point has the asymmetry of three prime numbers between a prime (X_A) and (X_B and X_C) , and the circular logarithm of the exchange combination cannot be directly balanced . This is the " asymmetric formula" that traditional cubic analysis does not have . It solves the balanced exchange combination between them, adapts to the range of $\mathbf{\{3\}^{2n}}$, and is applied to computers to become quantum bits with a
geometric series of $\mathbf{\{3\}^{2n}}$.

However, the three prime numbers are processed by circular logarithm, making " (X) and (X_B , X_C)" become the central zero point (critical line) of the circular logarithm , and " (X_a) and (X_b , X_c)" become the central zero point (critical point) of the circular logarithm, with the same symmetric circular logarithmic factors of even number , realizing the 'axiom of
infinity' of random and non-random balanced exchange combination .

here,

(1) The logarithmic center zero line corresponds to the characteristic mode (external)$\{\mathbf{D_0}\}^{K[S=3]}$. The logarithmic center zero point corresponds to the characteristic mode (internal)$\{\mathbf{D_0}\}^{KW[S=3]}$.

Symmetry of (external) evenness :

$(1-\eta_{[C]}^2)^K=\{0 \text{ (zero symmetry)} , \pm 2 \text{ (additive symmetry)}\}^K$;

Corresponding to the (external) characteristic module center line center zero line (critical line) and the (internal) characteristic module $\{\mathbf{D}_0\}^{Kw[Q=3]}$ represents the synchronous change relationship between the three prime numbers and the
characteristic module center point .

（2）, the zero point of the circle logarithm corresponds to the center point of the characteristic mode (interior) (Critical point) is the symmetric relationship between the three prime numbers of "evenness" ;

Symmetry of (internal) evenness :

$(1-\eta_{[C]}^2)^K=\{0 \text{ (zero symmetry)} , \pm 2 \text{ (additive symmetry)} \}^K$;

The "even" symmetry of multiplication:

$(1-\eta_{[C]}^2)\{\mathbf{D}_0\}^{K[S=3]}=(1-\eta_{[A]}^2)\{\mathbf{D}_0\}^{(K=-1)[S=1]}+(1-\eta_{[BC]}^2)\{\mathbf{D}_0\}^{(K=-1)[S=2]}$
$=(1-\eta_{[A]}^2)\{\mathbf{D}_0\}^{(K=+1)[S=1]}+(1-\eta_{[B]}^2)\{\mathbf{D}_0\}^{(K=-1)[S=1]}+(1-\eta_{[C]}^2)\{\mathbf{D}_0\}^{(K=-1)[S=1]}$
$= (1-\eta_{[ABC]}^2) \{\mathbf{D}_0\}^{(K=\pm1)[S=1+2=3]}$,

Add the symmetry of the "evenness" of the combination:

$(\eta_{[C]}^2)\{\mathbf{D}_0\}^{K[S=3]}=(+\eta_{[A]}^2)\{\mathbf{D}_0\}^{(K=+1)[S=1]}+(+\eta_{[BC]}^2)\{\mathbf{D}_0\}^{(K=+1)[S=2]}$
$=(+\eta_{[A]}^2)\{\mathbf{D}_0\}^{(K=+1)[S=1]}+(+\eta_{[B]}^2)\{\mathbf{D}_0\}^{(K=+1)[S=1]}+(+\eta_{[C]}^2)\{\mathbf{D}_0\}^{(K=-1)[S=1]}$
$=\{ (1+2=3)\cdot \{\mathbf{D}_0\}^{(K=\pm1)[S=1]}$,

The symmetric relationship between the (critical point) on the characteristic modulus (critical line) and the (interior) center point of the characteristic modulus and the "evenness" of the three prime numbers is reflected. The product of two of the prime numbers can be described as the number of twin prime numbers. The center zero point {**5**} remains unchanged.
between the circular logarithm numerical center point ($\eta_\Delta^2)^K$ and the circular logarithm position center zero point ($\eta_{[C]}^2)^K$ is manifested as the symmetry of "the sum of a prime number and the product of two prime numbers (1+2)" having
an "even number", which can be converted into a circular logarithm description:

get :

(1) Balance of circular logarithmic factors of three prime numbers :

$(+\eta_{[ABC]}^2)^{(K=\pm1)}\{\mathbf{D}_0\}^{(K=+1)[S=1]}=[(+\eta_{[A]}^2)^{(K=+1)}+(+\eta_{[BC]}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{(K=\pm1)[S=1]}$
$=\{ (3) \cdot \eta_{[ABC]}^2 \}^{(K=+1)} \{\mathbf{D}_0\}^{(K=+1)[S=1]}$

(2) The number of circular logarithmic factors of twin primes is statistically divided into two types of twin primes:

$(1-\eta_{[42]}^2)^{(K=\pm1)} \{\mathbf{D}_0\}^{(K=+1)[S=2]}+[(1-\eta_{[2]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)[S=1]}+(1-\eta_{[4]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)[S=1]}]$;

$(1+\eta_{[24]}{}^{2})^{(K=\pm1)}\{\mathbf{D}_0\}^{(K=+1)[S=2]}+[(1+\eta_{[2]}{}^{2})^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=`1)[S=1]}+(1+\eta_{[4]}{}^{2})^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)[S=1]}]$;

The dimensionless 'axiom of infinity' satisfies the balanced interchange combination between the three circular logarithms , which leads to the balanced interchange combination of three prime numbers or odd numbers or odd power functions .

Obtained: Analysis of the number of twin primes

$(X_{[-42]})=(1-\eta_{[24]}{}^{2})^{(Kw=+1)}\cdot\{\mathbf{D}_0\}^{Kw[S=2]}$,correspond (1,3)

$(X_{[+42]})=(1+\eta_{[24]}{}^{2})^{(Kw=+1)}\cdot\{\mathbf{D}_0\}^{Kw[S=2]}$ correspond (7,9),

Among them: the average value of prime numbers {5} remains unchanged, the circular logarithm form remains unchanged, and the "evenness" of the "infinity axiom" mechanism is (1+2) of the three circular logarithms (the number of twin primes is (2)) balance and combination lead to the "odd number" or "odd power function" where the sum of three prime numbers is (1+2=3) .

[Numerical Example 1] : The sum of three prime numbers is proved to be an odd number, and the analysis of a prime number and twin prime numbers:

three prime numbers are represented by { a b , c }

Given: $\mathbf{D}=7429$; $\{\mathbf{D}_0\}=(a+b+c)/3=19.66$,

Discriminant: $\Delta=(\eta^2)^{K(Kw=\pm1)}=\{abc/\mathbf{D}_0\}^{(1,2,3)}=\{7429/7606\}^{(1,2,3)}=0.97$,

Circular logarithm: $(1-\eta_{[C]}{}^{2})^{K(Kw=\pm0)}=0\ (1-0.97)=0.03$;

"even-term" symmetry balance of the dimensionless circular logarithm center zero numerical factor :

$(1-\eta_{[C]}{}^{2})^{K(Kw=\pm0)}=[(-\eta_{\Delta a}{}^{2})+(-\eta_{\Delta b}{}^{2})+(+\eta_{\Delta c}{}^{2})]=[(-2.67)+(-0.67)+(+3.34)]/\{\mathbf{D}_0\}=0$;

logarithms for three prime numbers: the multiplication combination proposition of three prime numbers remains unchanged, the characteristic modulus remains unchanged, the place value circular logarithm remains unchanged, and it only relies on the properties of the power function to satisfy the decomposition of a prime number and two prime numbers (multiplication combination) into two prime numbers (addition combination).

$(X_{[abc]})=[(1-\eta_{[a]}{}^{2})^{K(Kw=+1)}\cdot\{\mathbf{D}_0\}$

$\leftrightarrow[(1-\eta_{[C]}{}^{2})^{K(Kw=\pm0)}\cdot\{X_{0[abc]}\}^{K(Z\pm[S=3])}]$

$\leftrightarrow[(1-\eta_{[bc]}{}^{2})^{K(Kw=-1)}]\cdot\{X_{0[abc]}\}^{K(Z\pm[S=2]}$

$=(X_{[bc]})^{K(Z\pm S\pm[S=2]}=(X_{[b]})^{K(Z\pm S\pm[S=1]}+(X_{[c]})^{K(Z\pm S\pm[S=1]}$;

The balanced exchange combination is written as: $(X_{[a]})\leftrightarrow(X_{[bc]})\leftrightarrow[(X_{[b]})\leftrightarrow(X_{[c]})]$;

three prime numbers driven by circular logarithms :

$a=(1-\eta_{\Delta[a]}{}^{2})^{K(Kw=-1)}\cdot\{\mathbf{D}_0\}=(19.66-2.67)/19.66=17$

$b=(1-\eta_{\Delta[b]}{}^{2})^{K(Kw=-1)}\cdot\{\mathbf{D}_0\}=(19.66-0.67)/19.66=19$;

$c=(1-\eta_{\Delta[c]}{}^{2})^{K(Kw=+1)}\cdot\{\mathbf{D}_0\}=(19.66+3.34)/19.66=23$;

$(1-\eta_{[C]}{}^{2})^{K(Kw=\pm0)}\cdot\{\mathbf{D}_0\}^{(3)}=0.97\cdot19.66^{(3)}=(17\cdot19\cdot23)=7429$;

The dimensionless circular logarithmic balance exchange combination leads to the exchange combination of the values (17, 19) and (23) , and the three prime numbers " addition combination" (17+19+23 = 59)" becomes an odd number .

The proof of the Goldbach conjecture through the dimensionless construction set shows that numerical values cannot be directly combined and must be transformed through the 'axiom of infinity' mechanism, making the " dimensionless circular logarithm construction" a new mathematical foundation of number theory.

3.3.3 Three-dimensional complex analysis of circular logarithms of three prime numbers:

Three-dimensional complex analysis is a blank area, because "element-object" cannot be directly combined by multiplication and addition. Here, three-dimensional complex analysis still relies on the dimensionless construction's unique 'infinite axiom' even number balance exchange combination mechanism, randomness and non-randomness drive three prime number complex analysis.

Introduce three-dimensional complex analysis symbols: three-dimensional space rectangular coordinates **jik** ={0, ± 1}; (coordinate center point: 0, coordinate boundary: ± 1), forming a three-dimensional eight-quadrant space:

Axis projection: ***j*** ={0, ± 1}, ***i*** ={0, ± 1}, ***k*** ={0, ± 1};

Plane projection: ***ik*** ={0, ± 1} **j** , **kj** ={0, ± 1} **i** , ***Ji***={0, ± 1}***k***, which is called the three-dimensional Hamiltonian-Wang Yiping quaternion conversion rule. In the same way, this conversion rule also relies on the dimensionless construction of the 'infinite axiom', a random and non-random balanced exchange and combination mechanism.

The letters are arranged according to the left-hand rule, with the thumb pointing upward and the four fingers curled. The clockwise direction is "+", and the opposite direction is "-".

(1), distribution of three prime number series

Now that the three root elements have been parsed, the arrangement of complex analysis is directly parsed.

$\boldsymbol{j}(X_A)+\boldsymbol{i}(X_B)+\boldsymbol{k}(X_C)$;

$\boldsymbol{ik}[(X_B)\cdot(X_C)]+\boldsymbol{kj}(X_B)\cdot(X_A)]+\boldsymbol{Ji}(X_C)$;

balanced exchange combination of circular logarithms that forms conjugate mutual inverse symmetry drives the complex analysis of the three prime numbers .

Among them: the direction of the plane projection normal is opposite to the direction parallel to the axis. The commutativity of the "even" characteristics of the circular logarithm that forms the conjugate reciprocal symmetry.

(2) Satisfy the mutual inverse equilibrium combination rule:

Three prime numbers becoming odd numbers : the original proposition remains unchanged, the characteristic modulus (the average value of the multiplication or addition of three prime numbers) remains unchanged, the isomorphic circular logarithmic form remains unchanged, and only the shared properties are changed to perform positive, negative and reverse conversion of odd numbers:

Circle logarithmic center zero point balance combination rules:

$(X_{[ABC]})=[(1-\eta_{[A]}^2)^{K(Kw=+1)}\cdot\{\mathbf{D}_{0[ABC]}\}^{K(Z\pm[S=1]}\leftrightarrow[(1-\eta_{[A]}^2)^{K(Kw=\pm0)}\cdot\{\mathbf{D}_{0[ABC]}\}^{K(Z\pm[S=3]]}$

$\leftrightarrow[(1-\eta_{[BC]}^2)^{K(Kw=-1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[S=2]}=(\mathbf{D}_{[ABC]})^{K(Z\pm S\pm[S=3]}$;

The balanced exchange combination is written as: $(X_{[ABC]})\leftrightarrow(\mathbf{D}_{[ABC]})$

Here, the balanced exchange combination mechanism of the dimensionless circular logarithm 'infinity axiom' is adopted : the Peano axiom is not applied, and the balanced exchange combination is satisfied .

The dimensional circular logarithmic rule became the new mathematical foundation.

[Numerical Example 2] :

(Fibonacci sequence), represented by a, b, and c respectively

Given: $\mathbf{D}=120$; $\{\mathbf{D}_0\}=(3+5+8)/3=5.33$,

Discriminant: $\Delta=(\eta^2)^{K(Kw=\pm0)}=abc/[(1/3)(a+b+c)]^{(3)}=abc/\{\mathbf{D}_0\}^{(3)}=(3+5+8)/16=1$,

$(1-\eta^2)^{K(Kw=\pm0)}=120/151.42=0.792$;

The dimensionless circular logarithm numerical factor verifies the symmetry of the Fibonacci sequence :

$(1-\eta_{[C]}^2)^{K(Kw=\pm0)}=[(-2.33)+(-0.33)+(+2.67)]/\{\mathbf{D}_0\}=0$;

Analysis and combination of the values of ternary numbers driven by circular logarithms:

$a=(1-\eta_{\Delta[a]}^2)^{K(Kw=-1)}=(5.33-2.33)/\{\mathbf{D}_0\}=3$

$b=(1-\eta_{\Delta[b]}^2)^{K(Kw=-1)}=(5.33-0.34)/\{\mathbf{D}_0\}=5$;

$c=(1-\eta_{\Delta[c]}^2)^{K(Kw=+1)}=(5.33+2.67)/\{\mathbf{D}_0\}=8$;

$(1-\eta^2)^{K(Kw=\pm0)}\cdot\{\mathbf{D}_0\}^{(3)}=0.7920\cdot5.33^{(3)}=120$;

Among them: the dimensionless circular logarithmic equilibrium exchange combination drives the exchange combination of values (8) and (3, 5) , and the " addition combination" (8=3+5) is established ;

In particular, the Fibonacci sequence: "The sum of the first two numbers (a, b) is equal to the number behind (c)", and the numbers behind appear "odd numbers and even numbers" respectively

“evenness” is manifested as: the power function is “0”;

Characteristic modulus $\{\mathbf{D}_0\}$ is used as the calculation rule:

(1) If $\{\mathbf{D}_0\}$ is an integer, the symmetry of the circular logarithm around the zero point can be used to directly drive the Fibonacci sequence for integer analysis through the 'axiom of infinity'.

(2) If $\{\mathbf{D}_0\}$ is a non-integer, the calculation rules of $\mathbf{D}$ for integer analysis symmetry are :

$[\{\mathbf{D}_0\}+0.33]$ corresponds to $[(-2.33)+(-0.33)+(+2.67)]=0$,

$[\{\mathbf{D}_0\}+0.66]$ corresponds to $[(+3.33)+(-0.66)+(-2.66)]=0$;

[Number Example 3]:

Given: $\mathbf{D}=(11\cdot7\cdot5=385)$, $\{\mathbf{D}_0\}=(1/3)(11+7+5)=7.66$, $\{D_0\}^{(3)}=7^{(3)}=449$

Discriminant: $\Delta=(\eta^2)^{K(Kw=\pm1)}=385/449=0.8575$;

Dimensionless circular logarithmic numerical factor symmetry:

$[(+3.33)+(-0.66)+(-2.66)]/\{D_0\}=0$;

$(1-\eta_{\Delta[a]}^2)^{K(Kw=+1)}=(7.66+3.33)/\{D_0\}=11$;

$(1-\eta_{\Delta[bc]}^2)^{K(Kw=-1)}=(1-\eta_{\Delta[b]}^2)^{K(Kw=-1)}+(1-\eta_{\Delta[c]}^2)^{K(Kw=-1)}$

$=(7.66-0.66)/\{\mathbf{D}_0\}+(7.66-2.66)/\{\mathbf{D}_0\}=(7\cdot5)/\{\mathbf{D}_0\}^{(2)}$;

Verify circular logarithmic balance :

$[(1-\eta_{\Delta[A]}^2)^{(K=+1)}]\leftrightarrow[(1-\eta_{[C]}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{\Delta[BC]}^2)^{(K=-1)}]$;

$[(1-\eta_{\Delta[abc]}^2)^{(Kw=+1)}]\leftrightarrow[(1-\eta_{[C]}^2)^{(Kw=\pm0)}]\leftrightarrow[(1-\eta_{\Delta[bc]}^2)^{(Kw=-1)}]$;

The evenness of the dimensionless circular logarithm (conjugate equilibrium reciprocal symmetry) leads to the exchange of (11) and (7, 5) to form the product combination (11 ·7 ·5)= 385.

verify : $385=(1-\eta_{\Delta[abc]}^2)^K \cdot 7.66^{(3)}=0.8575 \cdot (449)$;

In the above-mentioned proof of numerical analysis, the dimensionless circular logarithm balance exchange and combination : the original proposition remains unchanged, the characteristic modulus remains unchanged, the circular logarithm symmetry remains unchanged, and the dimensionless 'infinity axiom' mechanism's positive, negative and positive conversion of the circular logarithm properties attributes leads to the odd balance and exchange combination of three prime numbers, and the composed "multiplication combination or addition combination" is established, becoming a new mathematical calculation rule.

3.4. (Strong/Weak) Proof of Goldbach's Conjecture

Strong Goldbach conjecture of a sufficiently large series of two prime numbers "X_A , X_B , two prime numbers "X_A , There is an asymmetry between X and $_{B.\ The}$ weak Goldbach conjecture states that a sufficiently large series of three prime numbers "X_A , X_B , X_C contains two prime numbers (X_A) , There is asymmetry between (X_B) and (X_C) , and they cannot be exchanged directly. Through the dimensionless circular logarithm of the third-party construction set 'infinity axiom' mechanism , the "even number" balanced exchange combination of the circular logarithm is formed under the condition of " not changing the prime number proposition, not changing the characteristic modulus, the same circular logarithm factor, and the same central zero point", which drives the multiplication and addition combination of two /three prime numbers to become "odd power and odd number" respectively . The dimensionless construction proof supplements the mathematical foundation of the "incompleteness" of the Peano axiom and the set axiom "1+1=2" and "1+2=3" .

Strictly speaking, the sum of two/three sufficiently large prime numbers cannot directly become an even number or an odd number, which involves the application of (self-evident) Peano axiomatization and set theory axiomatization , and whether there is a solid mathematical foundation. The dimensionless system outside the above two axiomatizations is called the third-party construction set. The "infinite axiom" mechanism proves the conjugate equilibrium reciprocal symmetry between the characteristic modulus (average value of prime number combination) and the central zero point of the dimensionless circular logarithm. The "evenness" of the dimensionless circular logarithm drives the symmetric and asymmetric random and non-random (reciprocity self-proves the truth) equilibrium exchange combination between prime numbers . Under the conditions of the entire "combination" or two-dimensional/three-dimensional complex analysis, it becomes the conjugate equilibrium reciprocal symmetry of "even number combination and odd number combination" respectively, and there are " even powers " to form $\{2\}^{2n}$ (binary numbers) and $\{3\}^{2n}$ (ternary numbers) analysis and operations. Once the circular logarithm is cancelled, the prime asymmetry of the original even and odd number combinations
is restored.

It reflects that the nature of mathematical "element-object" remains unchanged, and the proof of the dimensionless construction set "infinite axiom" mechanism has fairness, reliability, feasibility and zero error of mathematical deduction. It can be said that the nature of numbers is unchanged and cannot be directly "balanced exchange and combination".

In this way, the two/three prime numbers of Goldbach's conjecture are expanded through the conjugate and reciprocal symmetry circular logarithm, satisfying the "associative law, associative law, and commutative law of addition (subtraction) and multiplication (division)" of circular logarithms, and realizing the balanced exchange combination of symmetry and asymmetry of the even number 'axiom of infinity' of dimensionless circular logarithms .

In particular, the symmetry distribution of two even prime numbers (numerical asymmetry) $\{(x_1) \neq (x_2)\}$, the asymmetry of odd numbers $\{(x_1 x_2) \neq (x_3)\}$ and the symmetry of completeness "evenness" produce the balanced exchange combination of the circular logarithmic central zero-point symmetry of $(\eta_1 = \eta_2)$, $(\eta_1 + \eta_2)=\eta_3$, which respectively produce two even prime numbers and three odd prime numbers "multiplication combinations and addition combinations".

Based on the dimensionless 'infinity axiom', circular logarithms drive the two/three to be extended to any natural number, real number, rational number, irrational number, any digitizable number and prime number under the conditions of balance and exchange, and then "combination" can be carried out. It reflects the "Tao Te Ching" of ancient Chinese mathematics and the "Tai Xuan Jing" of Han mathematician Yang Xiong, "Tao begets one, one begets two, two begets three, and three begets all things" , and three is more basic than two.

Here, the dimensionless circular logarithm construction solves the Goldbach conjecture "1+1=2 and 1+2=3". More importantly, it clarifies the balanced exchange mechanism of symmetry and asymmetry of the "evenness" of integrity, solving the current difficulties in the conversion and combination of arbitrary functions. "The balanced conversion mechanism of symmetry and asymmetry of the "evenness" of dimensionless circular logarithms " fills the gap in the complex analysis of ternary asymmetry and opens up a new historical era of dimensionless circular logarithm analysis.

In particular, it is emphasized that the premise of the dimensionless "addition and multiplication combination" is "balance". Without "balance", there will be no subsequent exchange combination. Various "multiplication and division, intersection and union, etc." operation symbols in traditional mathematics are unified here as two "addition and subtraction" operation symbols of circular logarithmic power function or circular logarithmic factor. This dimensionless structure has a unique "balance". So far, no other form of operation (balanced exchange combination) based on balance has been seen.

Symmetry and asymmetry exist universally in the real world, and mathematical-philosophical analysis will progress from the "$\{2\}^{2n}$" analysis system to the "$\{3\}^{2n}$" analysis system. This means that the dimensionless circular logarithm structure becomes the most abstract, profound, and basic "circular logarithm space".

Driven by the symmetric and asymmetric balance exchange mechanism of the dimensionless circular logarithm's "evenness", the universe achieves a balance and exchange between randomness and non-randomness. In other words, the dimensionless circular logarithm drives the balance exchange of the universe.

4. Riemann zeta function (zero point) conjecture and circular logarithm proof

4.1 Background of the Riemann Zeta Function (Zero Point) Conjecture

Riemann function is a special function, which was discovered and proposed by German mathematician Riemann. Riemann function is defined on [0,1], and its basic definition is: R(x)=1/q, when x=p/q (p, q are both positive integers, p/q is a reduced proper fraction); R(x)=0, when x=0, 1 and irrational numbers in (0,1). Riemann function is widely used in higher mathematics, and in many cases it can be used as a counterexample to verify certain propositions to be proved about functions. The Lebesgue criterion for function integrability states that a bounded function is Riemann integrable if and only if the set measure of all its discontinuous points is 0. The set of discontinuous points of the Riemann function is the set of rational numbers, which is countable.

An important development in number theory in the 19th century was the introduction of analytical methods and analytical results pioneered by Dirichlet, while Riemann set a precedent by using complex analytical functions to study number theory problems, achieving cross-century results.

In 1859, Riemann published a paper entitled "On the Number of Primes of a Given Size". This is a paper with less than ten pages and extremely profound content. He reduced the problem of the distribution of prime numbers to the problem of functions, called Riemann functions.

According to John Debussy's "Love of Prime Numbers" [P134], the traditional Riemann zeta function is called the "Golden Key":

$\sum (1/x^S) = \prod [1/(1-(1/p^S))]$;

Riemann proved some important properties of the function and briefly asserted other properties without proving them. The graph of the Riemann function should be a series of loose points rather than a continuous curve, because on the one hand, its limit is 0 everywhere; on the other hand, in any small interval, it contains countless points with values other than 0. Generally speaking, the graph of the Riemann function is approximated by a scatter plot of its values at a finite number of rational points where the function value is maximum.

In the more than 100 years after Riemann's death, many of the world's best mathematicians have tried their best to prove his assertions, and in the process of making these efforts, they have created new and rich new branches of analysis. Now, except for one of his assertions, the rest have been solved as Riemann expected.

That unsolved problem is now called the "Riemann hypothesis", which is: all zero points in the strip area are located on this line (the 8th of Hilbert's 23 problems). No one has proved this problem so far.

For some other fields, members of the Bourbaki school have proved the corresponding Riemann hypothesis. The solution of many problems in number theory depends on the solution of this conjecture. Riemann's work is not only a contribution to the theory of analytic number theory, but also greatly enriched the content of complex function theory.

In particular, the original property attributed to the Riemann zeta function $\sum(1/x^S)$ should be the expression $\sum(1/x^S)^{(K=+1)}$. If so, there will be a convergence contradiction caused by " inconsistency between function and property attributes " , which is prone to the defect of central zero point instability.

If written as: $\sum(X^S)^{(K=-1)}$, (K=+1,0,-1), the Riemann zeta function has " consistency between function and property attributes " , "property attribute (K=+1)" convergent Riemann function (parabola circle), "property attribute (K=-1)" divergent Riemann function (hyperbolic circle), "property attribute (K=±1)" forward and reverse function conversion (ellipse). It is called the improved "Riemann zeta function" including property attribute control. The Riemann **zeta** function is converted into dimensionless circular logarithm analysis, which can easily overcome the above defects and obtain the central zero point of stability. This circular logarithm idea can also successfully solve other zero point conjectures related to the Riemann **zeta** function (such as Goldbach conjecture (Kw=+1) , twin prime zero point conjecture, Landau-Siegel zero point conjecture (Kw=-1)) and other zero point conjectures.

4.2. Conversion between Riemann zeta function and dimensionless circular logarithm

✷Definition 4.2.1 The generalized Riemann **zeta** function is an improved Riemann function. In this case, the Riemann function adds properties to the power function, which controls the convergence and central zero stability of the Riemann function. The previous "Goldbach Conjecture" has been proved by the combination of two/three prime series and individual prime numbers. However, the emphasis is on the "combination of positive power functions" (K=+1), while the Riemann zero conjecture emphasizes the "combination of negative power functions" (K=-1). Although both methods use dimensionless circular logarithm analysis and proof, there are still some differences. The final proof is "Riemann function and positive power function have conjugate reciprocal asymmetry". The dimensionless circular logarithm unifies their analysis methods.

traditional Riemann zeta function $(a_1^{(-S)}+a_2^{(-S)}+\dots+a_S^{(-S)})^{(K=+1)}$ is called the sum of reciprocals. Introducing properties: the original power function (K=+1) is written as (K=-1) negative power function: $(a_1^{(-S)}+a_2^{(-S)}+\dots+a_S^{(-S)})^{(K=-1)}$ is called the " sum of reciprocals reciprocals " . The generalized Riemann **zeta** function is called the negative power function (K=-1) without loss of generality and without affecting the generality of the traditional Riemann **zeta** function.

The generalized Riemann zeta function is synchronized with the traditional Riemann zeta function. In other words, the zero-point conjecture of the generalized Riemann zeta function is consistent with the zero-point conjecture of the traditional Riemann function.

Similarly: According to the "Golden Key" proposed by John Derbyshire in "The Love of Prime Numbers ":
$\prod[(1-(1/p^S))]^{(K=-1)}=\sum(1/n^S)^{(K=-1)}$;
For the convenience of proof, the generalized Riemann **zeta** function and the Riemann **zeta** function are collectively called "Riemann **zeta** function". This Riemann function is not the traditional Riemann function.

4.2.1. Conversion of Riemann function to dimensionless circular logarithm

Generalized Riemann function-Riemann function expression:
$\zeta(x)^{(K=\pm S)}=\{X\}^{(K=\pm1)[Z\pm S\pm(q=1))}+\{X\}^{(K=\pm1)[Z\pm S\pm(q=2))}+\dots+\{X\}^{(K=\pm1)[Z\pm S\pm(q=S))}$;
Among them: the power functions of $\{X\}^{(K=\pm1)(Z\pm S\pm q)}$ represent the property attribute (K= ± 1), the set of any finite elements in infinity (Z±S), and the element combination form (±q). The power function can increase or decrease elements according to the object of analysis, and can also be abbreviated (a complete object description must be given before abbreviation).

Here, the Riemann function is the negative power function of the generalized Riemann function (K=-1) without losing the generality of the Riemann function. The same applies below, (omitted).

✷Definition 4.2.2 Riemann function and characteristic modulus (mean function): The characteristic modulus is obtained by dividing the element combination form by the combination (number) coefficient
$\{X_0\}^{K(Z\pm S\pm(q)/t}=\sum_{(Z\pm S)}[\prod_{\{q=S-p\}}[((P-1)!/(S-0)!]^K[(a_1a_2\dots a_S)^K+\dots]^{K(Z\pm S\pm(q=p)/t}$
$=\{X_0\}^{K(Z\pm S\pm(q=0)/t}+\{X_0\}^{K(Z\pm S\pm(q=1)/t}+\dots+\{X_0\}^{K(Z\pm S\pm(q=p\leq S))/t}$;
$\{X_0^{(P)}\}^K=\sum_{[q=S-(P\}}[((P-1)!/(S-0)!]^K\prod_{[q=S=P-1]}(a_1a_2\dots a_S)^K+\dots]^{K(Z\pm S\pm(q=P))/t}$;
Among them: The first term of the combination coefficient (A=1) polynomial "0-0 multiplied by combination" multiplies all elements of the combination unit, the combination coefficient A=1,
$\{X\}^{K(S)}=\prod_{\{q=S\}}[{}^{K(S)}\sqrt{(a_1a_2\dots a_S)}]^{K(Z\pm S\pm q=0)/t}$;

The second term of the combination coefficient (1/S) polynomial "1-1 combination" all elements plus the combination unit body are called probability combination.
$\{X_0^{(1)}\}^K=\sum_{[q=S-1]}[(1/S)^K\sum_{\{q=S-1\}}(a_1^K+a_2^K+\dots+a_S^K)^K]^{K(Z\pm S\pm q=1)/t}$;

The third term of the polynomial of the combination coefficient (1/S(S-1)) is the "2-2 combination" of two elements, which is the addition combination unit body, called the topological combination.
$\{X_0^{(2)}\}^K=\sum_{\{q=S-2\}}[(2/(S-1)(S-1)]^K\prod_{\{q=Sq=2\}}(a_1a_2)^K+\dots]^{K(Z\pm S\pm q=2)/t}+\dots$;

The combination coefficient ((P-1)!/(S-0)!)K represents the additive combination unit of the P-th term "PP combination" of the polynomial, which is called P topological combination.
$\zeta(x_0)^{(K=\pm S)}=\{X_0\}^{(K=\pm1)[Z\pm S\pm(q=1))}+\{X_0\}^{(K=\pm1)[Z\pm S\pm(q=2))}+\dots+\{X_0\}^{(K=\pm1)[Z\pm S\pm(q=S))}$;

The relationship between the Riemann function and the dimensionless circular logarithm,
$(1-\eta^2)^K=[\zeta\{X\}/\{X_0\}]^{K(Z\pm S\pm q=0,1,2,3,\dots integer)/t}=\{0,1\}$;

4.2.2 [Pre-proof 1] Conversion of generalized Riemann function to dimensionless circular logarithm

generalized Riemann function into dimensionless circular logarithm
$\zeta\{X\}=\zeta(X)^{(K=\pm S)}=\{X\}^{(K=\pm1)[Z\pm S\pm(q=0))}+\{X\}^{(K=\pm1)[Z\pm S\pm(q=12))}+\dots+\{X\}^{(K=\pm1)[Z\pm S\pm(q=S))}$
$=\zeta\{X\}/\{X_0\}\cdot\{X_0\}^{(K=\pm1)[Z\pm S\pm(q=0))}+\zeta\{X\}/\{X_0\}\cdot\{X_0\}^{(K=\pm1)[Z\pm S\pm(q=1))}+\dots+\zeta\{X\}/\{X_0\}\cdot\{X_0\}^{(K=\pm1)[Z\pm S\pm(q=S))}$
$=(1-\eta^2)^K\{X_0\}]^{K(Z\pm S\pm(q=0))}+(1-\eta^2)^K\{X_0\}]^{K(Z\pm S\pm(q=1))}+\dots+(1-\eta^2)^K\{X_0\}]^{K(Z\pm S\pm(q=S))}$
$(1-\eta^2)^K=[\zeta\{X\}/\{X_0\}]^{K(Z\pm S\pm q=0,1,2,3,\dots integer)/t}=(1-\eta_1^2)^K+(1-\eta_2^2)^K+\dots+(1-\eta_S^2)^K=\{0,1\}$;

Generalized Riemann function and dimensionless circular logarithm:

$\zeta\{X\}=(1-\eta^2)^K\cdot\{X_0\}]^{K(Z\pm S\pm q=0,1,2,3,\ldots S\ integer)}$;

The characteristic mode corresponding to the zero point $(1-\eta_{[C]}{}^2)^{K\ of\ the\ logarithmic\ center\ of\ the}$ generalized Riemann function circle is:

$\zeta\{X_0\}=(1-\eta_{[C]}{}^2)^{(K=\pm0)}\cdot\{X_0\}]^{K(Z\pm S\pm q=0,1,2,3,\ldots S\ integer)}$;

Among them: The calculation time of circular logarithms has been proved to be consistent with that of isomorphism.

Riemann **zeta** function: According to the reciprocity theorem, the reciprocity of Riemann **zeta function is obtained:** (The author has already proved the reciprocity)

$\zeta\{X\}^K=\zeta\{X\}^{(K=+1)(Z\pm S\pm q)/t}\cdot\zeta\{X\}^{(K=-1)(Z\pm S\pm q)/t}=1$;

$\zeta\{X\}^{Kw}=\zeta\{X\}^{(Kw=+1)(Z\pm S\pm q)/t}\cdot\zeta\{X\}^{(Kw=-1)(Z\pm S\pm q)/t}=0$;

The dimensionless circular logarithmic reciprocity corresponding to the Riemann **zeta function:**

$\zeta\{X\}^K=(1-\eta^2)^K\zeta\{X_0\}^{(K=+1)(Z\pm S\pm q)/t}+(1-\eta^2)^K\zeta\{X_0\}]^{(K=-1)(Z\pm S\pm q)/t}$;

Dimensionless circular logarithmic combination:

$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=\pm1)}+(1-\eta^2)^{(K=-1)}=\{0,2\}$;

$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm0)}+(1-\eta^2)^{(K=-1)}=\{0,1\}$;

The dimensionless circular logarithm center zero point (external) symmetry characteristics: The center zero line (critical line) (external) symmetry represents the equilibrium and exchange relationship between the center point of the characteristic mode and the surrounding elements that change synchronously:

$(1-\eta_{[C]}{}^2)^{(K=\pm1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0\}$;

Among them: the dimensionless circular logarithmic center zero line (critical line outside the characteristic mode) symmetry (K= ± 0) represents the jump transition mode of the external completeness of the Riemann function.

Symmetry characteristics of dimensionless circular logarithm center zero point (critical point inside characteristic mode): The (internal) symmetry of the center zero point (critical point) represents the balance and exchange relationship between the characteristic mode center point and the surrounding element measure (position):

Dimensionless circular logarithm (interior) combination:

$(1-\eta^2)^{Kw}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=\pm1)}+(1-\eta^2)^{(Kw=-1)}=\{0,2\}$;

$(1-\eta_{[C]}{}^2)^{(Kw=\pm1)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}=\{0\}$;

In :

(1) The symmetry of the dimensionless circular logarithm about the central zero line (critical line of the characteristic mode (external)) (K=±0) represents the jump transition mode of the external completeness of the Riemann function.

(2) The symmetry of the dimensionless circular logarithm center zero point (critical point of the characteristic mode

(interior)) (K=±0) represents the internal continuity jump transition mode of the Riemann function.

When: (K=+1), the Riemann **zeta** function and the circular logarithm are convergent series: the positive power mean function corresponding to the Riemann function is called the mean function , and the geometric space corresponds to a

parabola :

(K=-1), the Riemann **zeta** function and the circular logarithm are divergent series: the geometric space of the negative power mean function corresponding to the Riemann function is called the hyperbola :

(K=±1), the Riemann **zeta** function and the circular logarithm are neutral (periodic) series: the geometric space of neutral powers corresponding to the Riemann function is called the ellipse :

(K=±0), the Riemann **zeta** function and the circular logarithm are neutral transformation series: the geometric space corresponding to the neutral power of the Riemann function is called the corresponding transformation point (critical point) :

In particular, under the condition of resolution 2, for the Riemann function (K=+1) positive power function; (K=-1) negative power function (Riemann function), neutral Riemann function (K=±1), and transformed Riemann function (K=±0), the numerical center point (limit) asymmetric distribution is obtained. The object of its numerical analysis cannot be exchanged, the object of logical analysis cannot be calculated, and the "balanced exchange combination " cannot be performed based on the numerical value. Only by introducing the dimensionless "infinity axiom" to obtain the same circular logarithmic factor and the "even number" central zero point symmetry can the "balanced exchange combination " be performed.

solving the traditional Riemann function $\zeta\{X^{-S}\}=\zeta\{X\}^{(K=-1)(Z\pm S)}$ zero-point conjecture is stuck in the inconsistency of this "property attribute", and the "symmetry and asymmetry" conversion point of "evenness" cannot be found . This central zero-point problem was discovered through the dimensionless identification of the third construction set . It is called the "Riemann zero-point conjecture". Only when the properties of the Riemann ζ function are consistent with the Riemann function, and the "uniform distribution of moving primes" of the "infinity axiom" mechanism, can the central zero line (critical line) and the central zero point (critical point) be stable and reliable. The "prime number movement" can be seen in the prime number distribution theorem later.

4.3. Proof of the Riemann zeta function and the central zero of the circular logarithm

Purpose of proof: (By moving the prime numbers dimensionlessly to make them uniformly distributed), ensure the existence of the circular logarithmic center zero point line and circular logarithmic center zero point of the Riemann function .

Of the actual prime number produces an asymmetric value, which cannot be exchanged. Only by converting to the even symmetry of the central zero line (critical line) of the dimensionless circular logarithm (outside the characteristic mode) and the central zero point (critical point) of the circular logarithm (inside the characteristic mode) can the prime number become a balanced exchange combination condition. At the same time, this dimensionless third construction set is not disturbed by
specific elements, making the central zero point reliable and stable.

Generalized Riemann **zeta** function and zero point conjecture of Riemann **zeta** function: unified as Riemann **zeta** function. Extract "numerical characteristic modulus ($X_0{}^S$)" and position value circular logarithm $(1-\eta^2)^K$ and shared power function and property attribute K respectively , through dimensionless circular logarithm dimensionless "evenness" and "infinity axiom" balanced exchange combination mechanism, then there is circular logarithm central zero point symmetry , which controls the existence , stability and reliability of the conjecture of Riemann function zero point , and obtains convergent balanced exchange combination . Through the property attribute (K=±0)(Kw=±0), the circular logarithm central zero point symmetry of Riemann function conversion to characteristic modulus (external, internal) is controlled, and random and non-random positive, middle and negative balanced conversion combinations are performed .

4.3.1. [Pre-proof 2]: Prove the existence of the central zero of the circular logarithm

Formula (4.1.4) describes the close relationship between the Riemann function and the circular logarithm, or in other words, the circular logarithm drives the expansion of the Riemann function.

Exchange rules: the original function proposition remains unchanged, the characteristic modulus remains unchanged, and the isomorphic circular logarithmic form remains unchanged. Under the condition of even symmetry factors, the positive function proposition is converted into the inverse function proposition through the positive/neutral/reverse conversion of property attributes to achieve balance and exchange.

The circular logarithmic symmetry (critical line) outside the characteristic mode indicates that the characteristic mode changes synchronously with the surrounding elements.

$\zeta\{X\}=[(1-\eta^2)^{(K=+1)} \leftrightarrow (1-\eta_{[C]}{}^2)^{(K=\pm 0)} \leftrightarrow (1-\eta^2)^{(K=-1)}] \cdot \zeta\{X_0\}^{(K=\pm 1)(Z\pm S \pm q=0,1,2,3,...integer)}$;

the circular logarithm inside the characteristic mode (critical point) indicates the resolution of the characteristic mode with the surrounding elements .

$\zeta\{X\}=[(1-\eta_\Delta{}^2)^{(Kw=+1)} \leftrightarrow [(1-\eta_{[C]}{}^2)^{(Kw=\pm 0)} \leftrightarrow [(1-\eta_\Delta{}^2)^{(Kw=+1)}] \cdot \zeta\{X_0\}^{(K=+1)(Z\pm S\pm q=0,1,2,3,\dots integer)}$;

Among them: the power function K(Z ± S ±(q=0,1,2,3 ,…integer) (q=0,1,2,3 ,…integer) represents the set of each sub-item.

The circular logarithm center zero line (critical line) $(1-\eta_{[C]}{}^2)^{(K=\pm 0)}$ coincides with the circular logarithm center zero point (critical point) $(1-\eta_{[C]}{}^2)^{(Kw=\pm 0)}$, both of which correspond to invariant characteristic modes. However, the prime number center point is not equal to the circular logarithm center zero point.

That is to say, through the compactness of the power function, there must be a circular logarithmic central zero line (critical) line everywhere. The power function represents the sub-terms, elements, levels, and combinations of the Riemann function, and has a compact balanced exchange combination .

The exchange rule proves the existence and reliability of the Riemann function zero-point conjecture, which makes it possible to make a meaningful proof of the Riemann function zero-point conjecture.

Imagine that if the center point of the Riemann function does not exist or is unstable, the center point of the Riemann function proved is also unstable, and the entire proof is meaningless or incomplete. This article applies to all analyses and proofs of Riemann functions by mathematicians at home and abroad.

Riemann functions exist via central zeros :

$\{X\}^{K(Z\pm S \pm [Q] \pm (q))/t} = (1-\eta^2)^K \{X_0\}^{K(Z\pm S \pm [Q] \pm (q))/t}$

It shows that circular logarithm drives the balance and exchange of all levels, elements and numerical objects of Riemann function. It has the existence of Riemann function.

Now prove how the zero point is produced?

certificate:

Assume that the Riemann **zeta** function is the product of several sufficiently large prime numbers, each with side

The bound function $\{X^S$ and the numerical characteristic modulus $\{X_0{}^S\}$; according to these two variable functions

The place value circular logarithm $(1-\eta^2)^K$ can be extracted for analysis.

Boundary conditions: $\{X^S\}^K=\{X_1^{KS}, X_2^{KS}, \dots, X_p^{KS}\}$;

Characteristic mode : $\{X_0^S\}^K=\{X_{01}^{KS}, X_{02}^{KS}, \dots, X_{0p}^{KS}\}$;

According to the definition of John Debussy's Love of Prime Numbers P134, the traditional Riemann zeta function, "the result of the golden key,

$\prod[(1-(1/p^S)]^{(K=-1)}=\sum(1/n^S)^{(K=-1)}$

This can be easily converted to circular logarithm:

$\prod(1-\eta^2)^{K(Z\pm S\pm(q=P))}=\sum(1-\eta^2)^{K(Z\pm S\pm(q=P))}$.

Based on the isomorphism of circular logarithms, the above can be written as:

$\prod(1-\eta^2)^K=\sum(1-\eta^2)^K$.

Based on the century-old mathematical contradiction that the multiplication combination and the addition combination are out of tune and inharmonious, the improved Riemann zeta function circular logarithm can be well established .

The circular logarithmic simultaneous equations are established as the equation of the circular logarithmic central zero point line (critical line) of the Riemann function:

$\prod(1-\eta^2)^{(K=`1)}=(1-\eta^2)^{(K=+1)}\cdot(1-\eta^2)^{(K=-1)}=\{0,1\}$;

$\sum(1-\eta^2)^{(K=`1)}=(1-\eta^2)^{(K=`1)}+(1+\eta^2)^{(K=`1)}=\{0,1\}$;

Obtained: The zero point conjecture of the Riemann **zeta function through** the existence of the central zero point of the circular logarithm .

$(1-\eta^2)^{(K=`1)}=(1-\eta^2)^{(K=-1)(Kw=+1)}+(1-\eta^2)^{(K=-1)(Kw=-1)}=\{0,\pm 1\}$;

Or: $(1\pm\eta^2)^{(K=-1)(Kw=-1)}=(1-\eta^2)^{(K=-1)(Kw=+1)}+(1-\eta^2)^{(K=-1)(Kw=-1)}=\{0,\pm 1\}$;

Or: $(1-\eta^2)^{(K=-1)(Kw=`1)}=(1-\eta^2)^{(K=-1)(Kw=+1)}+(1-\eta^2)^{(K=-1)(Kw=-1)}=\{0,(1/2),1\}$;

Among them: (K=-1)(Kw=+1) is the positive convergence inside the Riemann function; (K=-1)(Kw=-1) is the reverse convergence inside the Riemann function; {0 , ±1} and {0,(1/2),1} are equivalent, the only difference is the coordinate shift, which does not affect the specific position value of the circular logarithm.

However, the functions of each prime number level of the Riemann **zeta** function can be decomposed into two mutually inverse asymmetric functions under the condition of resolution 2: they are expanded according to the prime number theorem with the characteristic modulus (natural number tail {**5**}) as the central zero point stability of the circular logarithm, based on the formal compactness of each sub-term of the Riemann function and the consistency of the calculation time of the isomorphic circular logarithm, to ensure the stability and existence of the central zero point corresponding to each level of the Riemann function .

4.3.2. [Pre-proof 3] Isomorphism Consistency Computation Time of the Zero Point of the Circular Logarithm Center

Riemann **zeta** function is decomposed into two mutually inverse asymmetric numerical functions under the condition of resolution 2, which cannot reflect the symmetric and asymmetric conversion relationship of "even number" , so digital values or logical objects cannot be exchanged.

In category theory, there is a hypothesis of "discrete-symmetry" morphism, which is strictly speaking not valid . The probability that it can be extended to first-order properties is a matter of "luck and coincidence". However, when it comes to "topology", the algorithm is even less rigorous and cannot be balanced, nor can it balance the exchange combination .

Riemann function analysis, at resolution 2, each sub-term decomposes into two mutually inverse asymmetric sub-functions, and the "element-object" cannot be directly balanced and exchanged .

$\zeta(S)^{(K=\pm 1)}=(X_A^S)^{(K=-1)}+(X_B^S)^{(K=+1))}$; $(X_A^S)^{(K=-1)}\neq(X_B^S)^{(K=+1)}$;

or: $\zeta(S)^{(Kw=\pm 1)}=(X_A^S)^{(Kw=-1)}+(X_B^S)^{(Kw=+1))}$; $(X_A^S)^{(Kw=-1)}\neq(X_B^S)^{(Kw=+1)}$;

Similarly, every prime function of the Riemann **zeta** function can be decomposed into three mutually inverse asymmetric numerical functions under the condition of resolution 3, and the "elements-objects" cannot be directly exchanged.

$\zeta(S)^{(K=\pm 1)}=(X_A^S)^{(K=+1)}+(X_B^S)^{(K=-1)}+(X_C^S)^{(K=-1)}$;

$(X_A^S)^{(K=-1)}\neq(X_B^S\cdot X_C^S)^{(K=+1)}$;

or: $\zeta(S)^{(Kw=\pm 1)}=(X_A^S)^{(Kw=-1)}+(X_B^S)^{(Kw=+1)}+(X_C^S)^{(Kw=-1)}$;

$(X_A^S)^{(Kw=-1)}\neq(X_B^S)\cdot(X_C^S)^{(Kw=+1)}$;

Among them: Dualistic characteristic module:

$(X_0^S)^K=(1/2)^K[(X_A^S)^K+(X_B^S)^K]^K$;

The ternary characteristic module :

$(X_0^S)^{K(1)}=(1/3)^K[(X_A^S)^K+(X_B^S)^K+(Xc^S)^K]^K$;
$(X_0^S)^{K(2)}=(1/3)^K[(X_A^S\cdot X_B^S)^K+(X_B^S\cdot Xc^S)^K+(Xc^S\cdot X_A^S)^K]^K$;

The circular logarithm can convert the dualism/ternary asymmetry value of the Riemann **zeta** function into the position value circular logarithm and the central zero point symmetry of the circular logarithm. Then the even number property of the mutual inverse symmetry of the same circular logarithm factor has a balanced exchange combination.

Isomorphic circle logarithms :
$\zeta(S)^K=(1-\eta^2)^K(X_0^S)^{(K=\pm1)(Z\pm S\pm q)/t}$;

" Zero combination and even combination" reciprocity,
$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm1)}+(1-\eta^2)^{(K=-1)}=\{0,2\}$;

The inverse property of "addition combination and multiplication combination" is
$(1-\eta_{[C]}{}^2)^{(K=\pm0)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0,1\}$;
Among them: $\zeta(S)^K$ in the property attribute K= (+1, ±0, ±1, -1) controls the "convergence, transformation, balance, and expansion" of the Riemann function, ensuring the stability and reliability of the central zero point.

The circular logarithmic center zero point has two forms: external and internal:

The symmetry of the circular logarithmic center zero line (critical line) corresponds to the characteristic mode (external);
$(1-\eta_{[C]}{}^2)^{(Kw=\pm1)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}=\{1\}$;

The symmetry of the zero point (critical point) of the circular logarithm corresponds to the characteristic mode (interior);
$(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}=\{0\}$;

Balanced Exchange Combination Mechanism of "Even Numbers "

The dimensionless unique "even number " symmetry and asymmetry , randomness and non-randomness "infinite axiom" balance exchange combination mechanism" drives the balance exchange combination of "element-object" through the dimensionless circular logarithmic center zero line (critical line) and center zero point (critical point). Without the center zero point, there will be no completeness and compatibility integration characteristics .

Expressed via dimensionless circular logarithm.

(1) Elements with even symmetry of binary numbers, such as the numerical asymmetry of elements in the binary number {a, b} series (multiplication combination, addition combination), are:

Characteristic mode: $\{D_0{}^{(1)}\}=(1/2)(a+b)$;

zero line (critical line) of the circular logarithm :
$A+B=(1-\eta^2)^K\{\mathbf{D}_0{}^{(1)}\}$
$=[(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm1)}+(1-\eta^2)^{(K=-1)}]\{\mathbf{D}_0{}^{(1)}\}=(0,2)\cdot\{\mathbf{D}_0{}^{(1)}\}$;
$A\cdot B=(1-\eta^2)^K\{\mathbf{D}_0{}^{(2)}\}$
$=[(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm1)}+(1-\eta^2)^{(K=-1)}]\{\mathbf{D}_0{}^{(2)}\}=(0,1)\cdot\{\mathbf{D}_0{}^{(2)}\}$;

the zero point (critical point) at the center of the circular logarithm :
$a+b=(1-\eta_{[C]}{}^2)^K\{\mathbf{D}_0{}^{(1)}\}$
$=[(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm0)}+(1-\eta^2)^{(K=-1)}]\{D_0{}^{(1)}\}=(0,1)\cdot\{\mathbf{D}_0{}^{(1)}\}$;
$a\cdot b=(1-\eta^2)^K\{\mathbf{D}_0{}^{(2)}\}$
$=[(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm0)}+(1-\eta^2)^{(K=-1)}]\{\mathbf{D}_0{}^{(2)}\}=(0,1)\cdot\{\mathbf{D}_0{}^{(2)}\}$;
Among them: (0,2) represents evenness, (0) evenness zero balance, (2) evenness addition (multiplication) balance, (0.1) circular logarithmic evenness balance exchange combination conditions ,

Symmetry of the circular logarithmic center zero point :
$(1-\eta_{[C]}{}^2)^{(K=\pm1,\pm0)}=(1-\eta^2)^{(K=-1)}+(1-\eta^2)^{(K=+1)}$;
$(1-\eta_{[C]}{}^2)^{(Kw=\pm1,\pm0)}=(1-\eta^2)^{(Kw=-1)}+(1-\eta^2)^{(Kw=+1)}$;

balanced exchange combination condition must have the same number of circular pairs of "evenness" :
$A=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0{}^{(1)}\}$;
$B=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0{}^{(1)}\}$;
$a=(1-\eta^2)^{(Kw=+1)}\{\mathbf{D}_0{}^{(1)}\}$;
$b=(1-\eta^2)^{(Kw=-1)}\{\mathbf{D}_0{}^{(1)}\}$;

Dimensionless " even " asymmetric element equilibrium exchange mechanism:
$A=[(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0{}^{(1)}\}\leftrightarrow(1-\eta^2)^{(K=\pm1,\pm0)}\{\mathbf{D}_0{}^{(1)}\}\leftrightarrow(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0{}^{(1)}\}]=B$;
$a=[(1-\eta^2)^{(Kw=+1)}\{\mathbf{D}_0{}^{(1)}\}\leftrightarrow(1-\eta^2)^{(Kw=\pm1,\pm0)}\{\mathbf{D}_0{}^{(1)}\}\leftrightarrow(1-\eta^2)^{(Kw=-1)}\{\mathbf{D}_0{}^{(1)}\}]=b$;

In this way: two asymmetric prime numbers are driven into a balanced exchange combination through the transformation of the positive, middle and negative dimensions of the circular logarithm .

(2) The even-number asymmetric distribution of ternary numbers, such as the combinations of the ternary number

{a, b, c} series are:

Characteristic modes (external): $\{\mathbf{D}_0{}^{(1)}\}=(1/3)(A+B+C$; $\{\mathbf{D}_0{}^{(2)}\}=(1/3)(AB+BC+CA)$

Characteristic modes (interior): $\{\mathbf{D}_0{}^{(1)}\}=(1/3)(a+b+c)$; $\{\mathbf{D}_0{}^{(2)}\}=(1/3)(ab+bc+ca)$

of the circle's logarithmic center zero line (critical line) :

$(1-\eta_A{}^2)^{(K=+1)}=(1-\eta_B{}^2)^{(K=-1)}+(1-\eta_C{}^2)^{(K=-1)}$;

$A=(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0{}^{(1)}\}$; $B=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0{}^{(1)}\}$; $C=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0{}^{(1)}\}$;

The "even" symmetry of the circular logarithmic center zero point (critical point) :

$(1-\eta_a{}^2)^{(Kw=+1)}=(1-\eta_b{}^2)^{(Kw=-1)}+(1-\eta_c{}^2)^{(Kw=-1)}$;

$a=(1-\eta^2)^{(Kw=+1)}\{\mathbf{D}_0{}^{(1)}\}$; $b=(1-\eta^2)^{(Kw=-1)}\{\mathbf{D}_0{}^{(1)}\}$; $c=(1-\eta^2)^{(Kw=-1)}\{\mathbf{D}_0{}^{(1)}\}$;

Dimensionless " even " asymmetric element equilibrium exchange mechanism:

Balanced exchange combination rules:

Only with the same circular logarithm can the exchange combination be balanced to achieve the unchanged positive proposition, unchanged characteristic module, and unchanged isomorphic circular logarithm. Only the properties of the isomorphic circular logarithm change in the positive and negative directions, and the true proposition exchange (transformation, projection, morphism) becomes the inverse proposition.

The overall exchange process of "evenness" asymmetry:

$\{X\}=ABC=[(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0{}^{(3)}\}\leftrightarrow(1-\eta^2)^{(K=\pm1,\pm0)}\{\mathbf{D}_0{}^{(3)}\}\leftrightarrow(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0{}^{(2)}\}]=ABC=\{\mathbf{D}\}$;

The asymmetric exchange combination (decomposition) process of "evenness"

$A=[(1-\eta^2)^{(K=+1)}\{D_0{}^{(1)}\}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm1,\pm0)}\{D_0{}^{(3)}\}\leftrightarrow(1-\eta^2)^{(K=-1)}\{D_0{}^{(2)}\}]=BC$;

Among them, outside: $B=[(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0{}^{(1)}\}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm1,\pm0)}\{\mathbf{D}_0{}^{(2)}\}\leftrightarrow(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0{}^{(1)}\}]=C$

$a=[(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0{}^{(1)}\}\leftrightarrow(1-\eta_{[C]}{}^2)^{(Kw=\pm1,\pm0)}\{\mathbf{D}_0{}^{(3)}\}\leftrightarrow(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0{}^{(2)}\}]=bc$;

Inside: $b=[(1-\eta^2)^{(K=+1)}\{\mathbf{D}_0{}^{(1)}\}\leftrightarrow(1-\eta_{[C]}{}^2)^{(Kw=\pm1,\pm0)}\{\mathbf{D}_0{}^{(2)}\}\leftrightarrow(1-\eta^2)^{(K=-1)}\mathbf{D}_0{}^{(1)}\}]=c$

In this way: the three asymmetric prime numbers are driven into a balanced exchange combination through the transformation of the dimensionless circular logarithm .

Central zero point addition associative law: (characteristic: circular logarithmic place value factors addition)

$$A+B+C=[(1-\eta_A{}^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm1,\pm0)}+(1-\eta_{BC}{}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0{}^{(1)}\}=(0,1+2=3)\{D_0{}^{(1)}\};$$

$$a+b+c=[(1-\eta_a{}^2)^{(Kw=+1)}+(1-\eta_{[C]}{}^2)^{(Kw=\pm1,\pm0)}+(1-\eta_{bc}{}^2)^{(Kw=-1)}]\cdot\{\mathbf{D}_0{}^{(1)}\}=(0,1+2=3)\{\mathbf{D}_0{}^{(1)}\};$$

Center zero line multiplication law: (Characteristic: circular logarithmic power function factor addition)

$$A\cdot B\cdot C=(1-\eta_A{}^2)^{(K=+1)}\cdot\{\mathbf{D}_0{}^{(1)}\}+(1-\eta_{BC}{}^2)^{(K=-1)}\cdot\{\mathbf{D}_0{}^{(2)}\}=(1-\eta_{ABC}{}^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0{}^{(1+2=3)}\};$$

$$a\cdot b\cdot c=(1-\eta_a{}^2)^{(Kw=+1)}\cdot\{\mathbf{D}_0{}^{(1)}\}+(1-\eta_{bc}{}^2)^{(Kw=-1)}\cdot\mathbf{D}_0{}^{(2)}\}=(1-\eta_{abc}{}^2)^{(Kw=\pm1)}\cdot\{\mathbf{D}_0{}^{(1+2=3)}\};$$

Among them: $(0,3)\{\mathbf{D}_0{}^{(1)}\}$: represents the addition of the factors of the additive combination on the circle, and the addition of the power function factors of the multiplicative combination on the circle, $\{\mathbf{D}_0{}^{(3)}\}=\{\mathbf{D}_0{}^{(1+2=3)}\}$; represents the addition of the power function factors of the multiplicative combination on the circle,

When: Riemann function has three properties (internal and external) , reflected as $\{abc\}\in\{ABC\}$

$A\cdot B\cdot C=(1-\eta^2)^{(K=+1,0,-1)(Kw=+1,0,-1)}\{\mathbf{D}_0{}^{(3)}\}$;

$a\cdot b\cdot c=(1-\eta^2)^{(K=+1,0,-1)(Kw=+1,0,-1)}\{\mathbf{D}_0{}^{(3)}\}$;

It reflects the consistency of the central zero point of the circular logarithm (external) and the central zero line (internal), as well as the isomorphism, homomorphism, homology, and homotopy, ensuring the stability, reliability, and feasibility of the central zero point and conducting zero-error analysis.

Thus, the three asymmetric elements

{ A + B + C } and { A · B · C } , {a+b+c} and {a·b·c} or the objects {aUbUc} and {a∩b∩c} ;

Through the dimensionless 'axiom of infinity' even number mechanism, through the transformation of the positive, middle and negative of the center zero point of the circular logarithm , it drives the balanced exchange combination of three prime numbers .

Extension : The concept of "evenness" for arbitrary high powers includes the dualism (symmetric distribution) series or the ternary (asymmetric distribution) series , as well as arbitrary high power series. The corresponding infinite circular logarithm construction set has compactness and computational time isomorphism consistency (circular logarithms have been proven by "isomorphism theorem") with the unique "infinite axiom" mechanism . Driven by the same factor of the zero-point symmetry of the circular logarithm center , the elements complete the balanced exchange combination . Once the circular logarithm is cancelled, the elements return to their original asymmetry and cannot be balanced and exchanged .

Here, dimensionlessness not only proves Hilbert's number theory axiom system (balance, combination), but also proves the axiom system of logical set theory (morphism, exchange , mapping, set), which can only be established under the impetus of the "even symmetry and asymmetry balance exchange mechanism" of dimensionless circular logarithms.

At the same time, it also provides additional proof of the reasons behind traditional mathematics (referring to the "elements-objects" of Gödel's incompleteness theorem).

In this way, the zero point of the circular logarithm center drives the "element-object" to be superimposed into an infinitely long "candied haws string" (critical line) or an infinitely wide "candied haws cake" (critical point) .

Conclusion : Any inclusive philosophy that can become a real number set or a natural number set, with the unique condition of "balanced exchange of even symmetry and asymmetry" of dimensionless construction, drives the combination of values, numbers, functions, and groups at the center zero line and point (critical line and critical point) of dimensionless circular logarithm. It shows that axioms must be proved by third-party construction. Dimensionless construction proves the existence, correctness and reliability of axioms, and becomes the foundation of new mathematical construction.

4.3.4. Prove the central zeros and functions of the Riemann function

The external properties of the Riemann zeta function: K=(K=+1, ±0, ±1, -1), represents positive power, zero (conversion) power, balanced power, and negative power. The corresponding characteristic modulus represents the overall characteristics, beliefs, values, and technologies shared by members of a particular community. The synchronous changes between the center point of the Riemann function and the surrounding independent prime numbers are called the "circular logarithm center zero line (critical line).

The internal properties of the Riemann zeta function: Kw=(Kw=+1, ±0, ±1, -1), indicating positive, zero (conversion), equilibrium, and negative directions. The corresponding characteristic module refers to an element of a whole, that is, the solution to a specific puzzle. It represents the (position) relationship between the internal center point of the Riemann function and the surrounding independent prime numbers, which is called the "circular logarithmic center zero point (critical point). If the surrounding independent prime numbers still have a dynamic change relationship, it belongs to the next level of change, and the method is the same as before to achieve multi-level unified analysis.

base Since the property of the Riemann function is (K=-1), the Riemann function has inverse symmetry both inside and outside (K=-1) (Kw=±1, ±0), which can be written as:

(K=-1)(Kw=+1), (K=-1)(Kw=-1), (K=-1)(Kw=±1), (K=-1)(Kw=±1), (K=-1)(Kw=± 0) ;

Among them : (Kw=±0) form represents the (critical line) central zero line of the Riemann function (external) and the (critical point) central zero point of the Riemann function. The "symmetry of the (circular logarithmic central zero line) critical line" and " symmetric point on the (circular logarithmic central zero point) critical point" that satisfy the Riemann zero point conjecture.

(1) The evenness of the circular logarithmic center zero line : (the equilibrium symmetry line outside the Riemann function)

$\mathbf{(1-\eta_{[C]}{}^2)}^{(K=\pm 0)} =\sum(1-\eta_A{}^2)^{(K=-1)} +\sum(1-\eta_B{}^2)^{(K=+1)} +\sum(1-\eta_C{}^2)^{(K=+1)} =\{0,1\}$;

(2) The even number of circular logarithmic center zeros : (The equilibrium symmetry line inside the Riemann function is called a non-trivial zero, which exists everywhere on the circular logarithmic center zero line) :

$\mathbf{(1-\eta_{[C]}{}^2)}^{(Kw=\pm 0)} = \sum (+\eta_A{}^2)^{(Kw=+1)} + \sum (-\eta_B{}^2)^{(Kw=-1)} +\mathbf{(1-\eta_C{}^2)}^{(Kw=-1)}= \{0\}$;

in: $\mathbf{(1-\eta^2)}$ represents the circular logarithmic place value factor (adaptive arithmetic mean, additive combination) corresponding to the additive characteristic modulus (positive median inverse mean function) $\{\mathbf{D}_{00}\}$.

$\mathbf{(\pm\eta_\Delta{}^2)}$ represents the numerical factor of the circular logarithm (adaptive geometric mean, multiplication combination) corresponding to the multiplication characteristic modulus (positive and negative mean function) $\{\mathbf{D}_0\}^{K(Z \pm S \pm Q\pm N \pm q)/t}$.

The relationship between $\{\mathbf{D}_{00}\}$ and $\{\mathbf{D}_0\}$ is $(\pm\eta^2)\mathbf{\approx 2(\pm\eta_\Delta)}$: which means that the dimensionless place value factor and the dimensionless numerical factor do not necessarily coincide.

Among them: property attribute K; arbitrary finite in infinity (Z±S); dimension (Q=0,1,2,3); calculus order (±N=0,1,2) ; element combination form (q=0,1,2,3,...integer); one-dimensional time series (/t).

4.3.5. Prove the stability of the zero point of the Riemann function and the zero point of the circular logarithm

(1) Define the zero line (critical line) of the logarithmic center of the outer circle of the Riemann zeta function , corresponding to the invariant characteristic mode:

$(1-\eta_{[C]}{}^2)^{(K=\pm1)}=\{ 0, 1\}$;

The corresponding characteristic modulus (external) function changes synchronously with the surrounding independent prime numbers.

(2) Define the zero point (critical point) of the logarithmic center of the inner circle of the Riemann zeta function , corresponding to the invariant characteristic mode:

$(1-\eta_{[C]}{}^2)^{(Kw=\pm1)} =\{0\}$;

The measure balance relationship between the corresponding characteristic module (interior) center point and the surrounding independent prime number positions.

Among them: the circular logarithmic center zero line (critical line) includes all circular logarithmic center zero points (critical points , non-trivial zero points), realizing the balance and exchange of conjugate equilibrium reciprocal symmetry.

【certificate】

In addition to the "comparison between the real number set and the natural number set", another explanation for the dimensionless circular logarithm is that it is a unit cell comparison of the Riemann function "geometric mean and arithmetic mean", which becomes the dimensionless circular logarithm expansion:

Assume: The average value of the Riemann function of the prime number (multiplication combination) combination is expanded:

$$\{X\}^K=\{^{(n)}\sqrt{X}\}^{K(n)}$$
$$=\{^n\sqrt{X}\}^{K(0)}+(1/n)^K\{^n\sqrt{X}\}^{K(1)}+(2!/(n-0)(n-1))^K\{^n\sqrt{X}\}^{K(2)}$$
$$+(3!/(n-0)(n-1)(n-2))^K\{^n\sqrt{X}\}^{K(3)}+\ldots+(P-1)!/(n-0)!)^K X^{K(P)}+(R_n)(\text{remainder})$$
$$=X_0^{K(0)}+X_0^{K(1)}+X_0^{K(2)}+X_0 X^{K(3)}+\ldots+(R_n)(\text{remainder});$$

The mean expansion of the Riemann function of prime number (additive combination) combinations:

$$\{\mathbf{D}\}^K=\mathbf{D}^{K(n)}$$
$$+(1/n)^K\mathbf{D}^{K(1)}+(2!/(n-0)(n-1))^K\mathbf{D}^{K(2)}+(3!/(n-0)(n-1)(n-2))^K\mathbf{D}^{K(3)}+\ldots$$
$$+(P-1)!/(n-0)!)^K\mathbf{D}^{K(P)}+\ldots+(\mathbf{D}_n)(\text{remainder})$$
$$=\mathbf{D}_0^{K(0)}+\mathbf{D}_0^{K(1)}+\mathbf{D}_0^{K(2)}+\mathbf{D}_0^{K(3)}+\ldots+(\mathbf{D}_n)(\text{remainder});$$

Among them : Combination coefficient (1) The first term of the polynomial "all elements multiplied by combinations" combination coefficient (A=1), power is zero, value = 1. In order : the second term
$(B=(1/n)^K)$, $(C=(2!/(n-0)(n-1))^K)$, … ,$(P-1)!/(n-0)!)^K$
Meeting the symmetric distribution requirement of the regularization coefficient is called "evenness".
"Even number" means that there is symmetrical and asymmetrical distribution on the left and right sides of the center line and center point.

The Riemann function (multiplication combination)/(addition combination) is converted into dimensionless circular logarithm, resulting in two states :

(1) The completeness of the jump transition of the characteristic modulus (external) of the Riemann function to the "critical line" of the circular logarithmic center zero line.

$$(1-\eta^2)^K=1+[\{^n\sqrt{X}\}/\mathbf{D}_0]^{K(1)}+[\{^n\sqrt{X}\}/\mathbf{D}_0]^{K(2)}+\ldots+[\{^n\sqrt{X}\}/\mathbf{D}_0]^{K(P)}+\ldots+[(\mathbf{R}_n)/(\mathbf{D}_{0n})]^{K(n)}$$
$$=(1-\eta^2)^K+(1-\eta^2)^{K(1)}+(1-\eta^2)^{K(2)}+\ldots+(1-\eta^2)^{K(P)}+\ldots+(1-\eta^2)^{K(n)}(\text{remainder});$$

Here, (remainder) is uniformly converted to circular logarithm to ensure the integer expansion of Riemann function. At the same time, the stability of the zero-point symmetry of the circular logarithm is ensured.

$$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=\pm1)}+(1-\eta^2)^{(K=-1)}=\{0,\ 2\};$$
$$(1-\eta^2)^K=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=\pm0)}+(1-\eta^2)^{(K=-1)}=\{0,\ 1\};$$

Among them: $(\mathbf{R}_n)$(remainder)/$(\mathbf{D}_n)$(remainder) still becomes the part of the infinite set "one-to-one correspondence" deterministic circular logarithmic infinite construction set expansion. And it satisfies the dimensionless 'infinity axiom' balanced exchange combination mechanism.

(2) The compatibility of the continuity transition of the characteristic modulus (interior) of the Riemann function with the "critical point" at the center of the circular logarithm.

$$(1-\eta^2)^{Kw}=1+[^n\sqrt{X}\}/\mathbf{D}_0]^{Kw(1)}+[^n\sqrt{X}\}/\mathbf{D}_0]^{Kw(2)}+\ldots+[^n\sqrt{X}\}/\mathbf{D}_0]^{Kw(P)}+\ldots+[(\mathbf{R}_n)/(\mathbf{D}_{0n})]^{Kw(n)}$$
$$=(1-\eta^2)^{K(0)}+(1-\eta^2)^{Kw(1)}+(1-\eta^2)^{Kw(2)}+\ldots+(1-\eta^2)^{K(P)}+\ldots+(1-\eta^2)^{Kw(n)}(\text{remainder});$$

Here, (remainder) is uniformly converted to circular logarithm to ensure the integer expansion of Riemann function. At the same time, the stability of the zero-point symmetry of the circular logarithm is ensured.

$$(1-\eta^2)^{Kw}=(1-\eta^2)^{(Kw=+1)}+(1-\eta_{[C]}{}^2)^{(Kw=\pm1)}+(1-\eta^2)^{(Kw=-1)}=\{0,\ 2\};$$
$$(1-\eta^2)^{Kw}=(1-\eta^2)^{(Kw=+1)}+(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}+(1-\eta^2)^{(Kw=-1)}=\{0,\ 1\};$$

Among them: (R_n)(remainder)/(D_n)(remainder) still becomes the part of the expansion of the infinite set of "one-to-one correspondence" deterministic circular logarithmic infinite construction sets. It satisfies the dimensionless 'infinity axiom' balanced exchange combination mechanism. Among them: (R_n)(remainder)/(D_n)(remainder) still becomes the part of the expansion of the infinite set of "one-to-one correspondence" deterministic circular logarithmic infinite construction sets.

Riemann zeta function is converted into an infinite expansion of numerical characteristic moduli and dimensionless circular logarithms, satisfying the construction set of "integer property" (infinite circular logarithm construction set , eliminating remainders, and having integer and zero-error unit cell subsets) ; "even property" (each subset has a balanced exchange combination mechanism of symmetry and asymmetry , randomness and non-randomness) ; "isomorphism" (each subset has a calculation time of circular logarithm form consistency). The symmetry, stability and compactness on both sides of the central zero point (zero line) of the infinite circular logarithm construction set are ensured.

In particular, the Riemann function uses the four prime numbers {1,3,7,9} with prime tails corresponding to the natural number tail {5} to move the prime numbers through the 'infinity axiom' mechanism (it is difficult to form a stable central zero line by making the asymmetric distribution of prime numbers) , and converts them into the central zero line (critical line) and the dimensionless central zero point (critical point) of the dimensionless circular logarithm with { 5=0 } as the center, and the left and right are "(5±1), (5±2)" corresponding to the stable central zero line and central zero point , corresponding to the unchanged maximum value (characteristic modulus) , ensuring the stability and zero error of the circular logarithm central zero point .

4.3.6. Exchange rule of central zero point of Riemann function:

Balanced exchange rule: the proposition remains unchanged, the characteristic module remains unchanged, the logarithm of the isomorphic circle remains unchanged, and the invariance of the central zero line and central zero point of the logarithm of the isomorphic circle indicates the stability of the central zero line and central zero point in the range of {+1,0,-1} (without the interference of specific elements, it plays an important role in preventing mode collapse and mode confusion). By the positive, neutral, and reverse balanced exchange of property attributes, the true proposition is converted into the inverse proposition. Category theory is called: morphism, mapping, projection, transformation, etc. However, the morphism of category theory cannot be balanced, the balance of numerical analysis cannot be exchanged, and the system itself cannot prove its "true or false", reflecting that the "axiomaticization" they rely on has serious defects.

Through the unique "even symmetry and asymmetry balance exchange" feature of dimensionless circular logarithms, random and non-random conversions between positive, neutral and reverse are performed. This exchange adapts to the reciprocal balance exchange of positive, neutral and reverse on the outside and inside of the group combination-circular logarithms.

The numerical value of the Riemann function itself cannot be exchanged directly. Through the balanced exchange of the dimensionless circular logarithm and the central zero line (critical line) of the circular logarithm corresponding to the median reverse line, the overall balanced exchange of the characteristic mode (external) is driven:

(True proposition) $\{X\}^{(K=+1)(Z\pm S)}=(1-\eta^2)^{(K=+1)}\cdot(X_0)^{(K=+1)(Z\pm S)}$

$=[(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=-1)}]\cdot(X_0{}^S)^{(K=\pm1)(Z\pm S)}$

$=(X)^{(K=-1)(Z\pm S)}=(1-\eta^2)^{(K=-1)}\cdot(X_0)^{(K=-1)(Z\pm S)}$ （converse proposition）;

The numerical value of the Riemann function itself cannot be exchanged directly. The balanced exchange of the dimensionless circular logarithm and the central zero point (critical point) of the circular logarithm corresponding to the positive and negative points drives the balanced exchange of the numerical elements of the characteristic modulus (interior):

The balanced exchange of the center zero line (critical line) of the circle logarithm corresponding to the positive and

negative lines leads to the balanced exchange of the overall characteristic mode (external):

(True proposition) $(X)^{(Kw=+1)(Z\pm S)}=(1-\eta^2)^{(Kw=+1)}\cdot(X_0)^{(Kw=+1)(Z\pm S)}$

$=[(1-\eta^2)^{(Kw=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}\leftrightarrow(1-\eta^2)^{(Kw=-1)}]\cdot(X_0)^{(K=\pm1)(Z\pm S)}$

$=(X)^{(K=-1)(Z\pm S)}=(1-\eta^2)^{(K=-1)}\cdot(X_0)^{(K=-1)(Z\pm S)}$ （converse proposition）;

In other words, the prime number values analyzed by the Riemann function, through the dimensionless 'axiom of infinity' of circular logarithms , drive the balanced exchange combination of prime number values , (symmetric binary numbers) , (asymmetric ternary numbers), and (arbitrary multivariate number series) , while still maintaining the characteristics of random and non-random balanced exchange when only the "evenness" of the same factors of the dimensionless circular logarithms is the same.

In particular, the " element-object " of any power of the Riemann function (any numerical function) cannot be exchanged, and can only be exchanged by the "evenness" of the dimensionless circular logarithm and the symmetry of the zero point of the circular logarithm center , which can drive the prime numerical balance exchange combination. Once the circular logarithm is canceled, the original numerical asymmetry and non-commutativity are restored.

Thus, the dimensionless circular logarithm is expressed as the identity of the third-party dimensionless circular logarithm construction set, as well as the "even number" characteristic unique to the dimensionless construction, becoming a complete construction set, without interference from specific elements , randomly self-proving its "truth" , and relying on the symmetry of the circular logarithm center zero line (critical line) - center zero point (critical point) to perform reliable and controllable balance and exchange, becoming a new axiomatization and a new mathematical foundation.

Among them : the unevenness of prime number distribution is converted into the uniformity and symmetry distribution of prime dimensionless circular logarithm and center zero, see section 3.1.6, Relationship between prime numbers and dimensionless circular logarithm.

Thus, it is proved that the Riemann zeta function can only realize the Riemann zero conjecture under the "infinite axiom" mechanism unique to infinite construction sets.

5. Landau-Siegel (zero point) conjecture and proof of the zero point of the circular logarithm center

5.1. Background of the Landau-Siegel Zero-Point Conjecture

The Landau-Siegel Zeros Conjecture is a difficult mathematical problem. It is related to the famous unsolved mathematical problem "Riemann Hypothesis". It is "a special and possibly much weaker form" of the generalized Riemann Hypothesis. The Landau-Siegel Zeros Conjecture asserts that the Landau-Siegel Zeros "do not exist", and the Landau-Siegel Zeros are defined as the counterexample to the Riemann Hypothesis.

Some people think that this means that if there are Landau-Siegel zeros, then the Riemann hypothesis is wrong .

In fact, the properties of the Landau-Siegel zero belonging to the Riemann zeta function are expressed as (K=-1)(kw=-1)(multiply connected, ring) , and the properties of the Riemann zeta function are expressed as (K=-1)(kw=+1)(simply connected, sphere). It can be seen that the Riemann zero itself does not conflict with the Landau-Siegel zero conjecture .

In November 2022, Chinese-American mathematician and professor at the University of California, Santa Barbara, Yitang Zhang, gave a public speech on his latest research results on the Landau-Siegel zero conjecture. Zhang Yitang said: In essence, he has proved the Landau-Siegel zero conjecture , saying "I only solved it partially within a certain range, and the Riemann hypothesis should be correct." However, during the review by the famous mathematician Terence Tao, it was found that Zhang Yitang's proof had certain shortcomings. Zhang Yitang is still actively adjusting.

Dimensionless circular logarithm proves that the Riemann zeta function has the reverse transformation of (internal and external) properties . The Riemann function zero point conjecture and the Landau-Siegel zero point conjecture have the same Riemann function corresponding dimensionless circular logarithm, which shows that their shared properties have the characteristics of "opposite and complementary".

Among them : the Riemann function is converted into dimensionless circular logarithm, which satisfies the unique "even-number 'infinity axiom' symmetry and asymmetry balance exchange mechanism" of dimensionless circular logarithm, and drives the balance exchange combination of power elements at each level of Riemann function . This is the "treasure trove" discovered for the first time by the Chinese circular logarithm team.

The combination of Riemann functions at all levels (additive combination - multiplicative combination) is expressed in dimensionless circular logarithms: "additive combination" is the arithmetic addition of circular logarithmic factors, and "multiplicative combination" is the arithmetic addition of circular logarithmic power function factors.

$\prod[(1-(1/p^S)]^{(K=-1)}=\sum(1/n^S)^{(K=-1)}=(1-\eta^2)^K\{X_0{}^S\}^{(K=-1)(Z\pm S)}=\{X^S\}^{(K=-1)(KW=\pm1)(Z\pm S)}$;

Sum of circular logarithms:

$(1-\eta^2)^K=\prod(1-\eta^2)^{(K=-1)(KW=\pm1)(Z\pm S)}=\sum(1-\eta^2)^{(K=-1)(KW=\pm1)}=\{0,2\}^{K(Z\pm S)}$;

The center zero point of the even circle logarithm :

$(1-\eta_{[C]}{}^2)^K=\prod(1-\eta^2)^K=\sum(1-\eta^2)^K=\{0,1\}^K$;

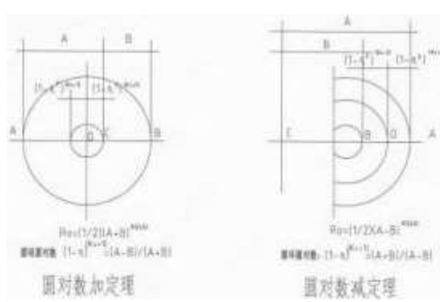
The circular logarithm corresponding to the zero-point conjecture of the Riemann function :

$(1-\eta_{[1]}{}^2)^{(K=-1)(Kw=+1)}=[(a-b)/(a+b)]^{(K=-1)(Kw=+1)}$

The circular logarithm corresponding to the Landau-Siegel zero conjecture is:

$(1-\eta_{[2]}{}^2)^{(K=-1)(Kw=-1)}=[(a+b)/(a-b)]^{(K=-1)(Kw=-1)}$

The Riemann function zero conjecture $(1-\eta_{[C]}{}^2)^{(K=-1)(Kw=+1)}$ (simply connected, sphere) and the Landau-Siegel zero conjecture $(1-\eta_{[C]}{}^2)^{(K=-1)(Kw=-1)}$ (multiply connected, ring) have the inverse and complementary properties of even-numbered symmetries and asymmetries.

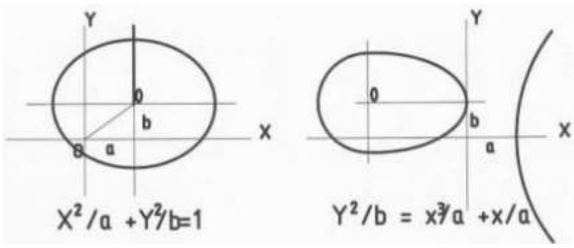


(Figure 5.1) Simply connected forward and reverse ellipses (Figure 5.2) Landau-Siegel correspondence between (sphere) and (ring)

The former is called the dimensionless circular logarithm "addition combination", and the latter is called the dimensionless circular logarithm "subtraction combination" (Figure 5.2) .

5.2. Proof of circular logarithm of Landau-Siegel zero and Riemann function zero

Proof of circular logarithm: Landau-Siegel zeros are "simply connected-sphere zeros (called an interior zero) and



doubly connected-ring zeros (called two interior and exterior zeros)" of the Riemann function. (Figure 5.1) (Figure 5.2)

5.2.1. Proof [1] Dimensionless circular logarithmic geometry proof

On a two-dimensional plane, select an arbitrary point as the center O, and draw two concentric circles with (a≥b) :

The radius of the circle is (Oa≥Ob), and the circle between (a≥b) is (ab).

The radius of the ring is $R_{[1]}$ =(1/2)(a+b),

Corresponding circle logarithm : $(1-\eta_{[2]}{}^2)^{(K=-1)(Kw=-1)}=[(a+b)/(a-b)]^{(K=-1)(Kw=-1)}$,

The diameter of the circular surface inside the ring is: 2 · (Ob) = (2a-2b) / (2a+2b)

Corresponding circular logarithm $(1-\eta_{[1]}{}^2)^{(K=-1)(Kw=-1)}=[(a-b)/(a+b)]^{(K=-1)(Kw=+1)}$,

The radius of the sphere is $R_{[2]}$=(1/2)(a-b),

(1) Riemann zeta function (K=-1)(kw=+1)(simply connected, sphere) corresponds to (K=-1)(kw=-1)(multiply connected, ring)

(2) The Landau-Siegel zero has two central points :

First: By $(1-\eta_{[2]}{}^2)^{(K=-1)(Kw=-1)}=[(a+b)/(a-b)]^{(K=-1)(Kw=-1)}$ corresponds to the ring radius $R_{[2]}$=(1/2)(a-b), which is " the ring center zero line is called the ring center axis, and the center zero point on the ring axis", the ring (ab) corresponds to the circular surface radius $R_{[1]}$=(1/2)(a+b) called the outer center zero point $O_{[1]}$,

Second: By $(1-\eta_{[1]}{}^2)^{(K=-1)(Kw=+1)}=2 \cdot [(a-b)/(a+b)]^{(K=-1)(Kw=+1)}$ The outer radius $R_{[1]}$of the ring corresponds to "the center zero line of the circle 2 · (Oab) center zero line, and the center zero point $O_{[1]}$ of the circle on the center axis of the circle ". The center zero point O $_{[1]}$ coincides with the outer center zero point $O_{[2]}$ of the ring . It is called "double connectivity".

Third: The center zero point O of the "simply connected" circular surface space of the Riemann function corresponds to the "center zero point O of the central axis (critical point) $(1-\eta_{[C]}{}^2)$ " of the Riemann function and the "center zero point O $_1$ of the circular surface on the central axis of the circular surface (outside the ring, "simply connected") " and the "center zero point O $_2$ of the curvature of the central axis outside the ring ".

$(1-\eta_{[C]}{}^2)^{(K=-1)(Kw=+1)}=[(b+b)/(a+a)]^{(K=-1)(Kw=+1)}=[(a-b)/(a+b)]^{(K=-1)(Kw=+1)}$

It shows that the Landau-Siegel zeros are consistent with the zeros of the Riemann function without contradiction, except that

the region described by the Riemann **zeta** function $\zeta(S_0{}^{-1})^{(K=-1)}$ is reciprocal .are different.

However, the geometric figures corresponding to the dimensionless circle logarithm have "axiomatic" or "geometry-algebraic axiomatization", which is intuitive and understandable . However , the "geometry-algebraic axiomatization" still needs to prove their reliability .

This still requires a rigorous proof of the 'infinity axiom' mechanism of the dimensionless circular logarithmic construction of the "evenness" of the third-party infinite construction set .

5.2.2. Proof [2] Dimensionless circular logarithm algebraic formula proof

using the Riemann **zeta** function: the dimensionless circular logarithm proves that any "algebra-geometry" system itself cannot prove its own "truth or falsity". The difficulty lies in the fact that "conjugated asymmetry of evenness" exists everywhere in the infinite construction (below resolution 2), and no balanced exchange mechanism has been found to prove the "symmetry and asymmetry of conjugated evenness" using the identity of a third-party construction.

Since the traditional Riemann **zeta** function " $\zeta(S_0{}^{-1}) = \zeta(S_0{}^{-1})^{(K=+1)}$ " has an unclear description of the properties, it is improved to a new one (the generalized Riemann function defines the Riemann **zeta** function as $\zeta(S_0{}^{-1})^{(K=-1)}$ to represent all functions composed of prime numbers, called negative power Riemann functions. That is, the properties of the Riemann function are consistent with the function elements, where the property K controls the "conjugate reciprocal asymmetry of evenness" of the Riemann function. It ensures that the Riemann **zeta** function can be converted into dimensionless circular logarithms to ensure the convergence and stability of the Riemann **zeta** function, which is consistent with the aforementioned proof of the circular logarithm of the Riemann function.

It is proved that the "Landau-Siegel zero conjecture (interior of the "biconnected" torus space) $\zeta(S_0^{-1})^{(K=-1)(Kw=-1)}$ " (outside of the "biconnected" torus space) $\zeta(S_0^{-1})^{(K=-1)(Kw=+1)}$ " corresponding to the Riemann function $\zeta(S_0^{-1})^{(K=-1)}$ can coincide with the Riemann function zero conjecture $\zeta(S_0^{-1})^{(K=-1)(Kw=+1)}$ in the same region (called the outside of the torus) without any contradiction.

Riemann **zeta** function $\{X_0\}^{(K=-1)(KW=\pm1)(Z\pm S)}$ is defined by any number of sufficiently large prime numbers and their associated properties in number theory.

The characteristic modulus of the Riemann **zeta** function (multiplication) is $\{^{KS}\sqrt{X}\}^{(K=-1)(KW=\pm1)(Z\pm S)}$: multiple sufficiently large prime numbers are connected in " multiplication combinations" to form the prime function positive, median and negative units.

$\{^{KS}\sqrt{X}\}^{(K=-1)(KW=\pm1)(Z\pm S))}=\prod\{X_1X_2\ldots X_S\}^{(K=-1)(KW=\pm1)(Z\pm S))}$

$=[^{KS}\sqrt{\{X_1X_2\ldots X_S\}}]^{(K=-1)(KW=\pm1)(Z\pm S)}$,

Riemann **zeta** function (additive) characteristic modulus $\{X_0\}^{(K=-1)(KW=\pm1)(Z\pm S))}$ is a unit cell of prime function (positive median antimean function) composed of multiple sufficiently large prime-connected " additive combinations" .

$\{X_0\}^{(K=-1)(KW=\pm1)(Z\pm S))}=\sum[((P-1)!/(S-0)!)]^K\prod_{[Z\pm(S=p)]}\{X_1X_2\ldots{}_P+\ldots\}^{(K=-1)(KW=\pm1)(Z\pm S))}$,

Riemann **zeta** function properties K: K=(±1,±0), Kw=(±1,±0)K·Kw=(+1,±0,±1,-1):

Riemann **zeta** function is converted into dimensionless circular logarithms and properties by combining multiplication and addition:

$(1-\eta^2)^K=[\{^{KS}\sqrt{X}/X_0\}]^{(K=-1)(Kw=\pm1)(Z\pm S)}$;

Where: Riemann **zeta** function $\{X\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$ are the Riemann function and the corresponding Landau-Siegel zero .

The Landau-Siegel zero has two contents:

(1), $\{X\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$ corresponds to $\{X\}^{(K=-1)(Kw=-1)(Z\pm S)}$ (doubly connected, circular ring),

(2), $\{X\}^{(K=-1)(Kw=+1)(Z\pm S)}$ corresponds to $\{X\}^{(K=-1)(Kw=+1)(Z\pm S)}$ (simply connected, sphere);

aforementioned zero-point conjecture of the Riemann **zeta** function proves that the inductive state is completely consistent with the form, the difference lies in the "properties of the power function".

When: $[\{^{KS}\sqrt{X}\}$ and $\{X_0\}]^{(K=-1)(Kw=\pm1)(Z\pm S)}$ two variable functions are known, they can be converted into a unified dimensionless circular logarithmic relationship for analysis:

$\{X^S\}^{\mathbf{(K=-1)}(KW=\pm1)(Z\pm S)}=(1-\eta^2)^K\{X_0{}^S\}^{(K=-1)(KW=\pm1)(Z\pm S)}$;

Among them: $\{X^S\}^{(K=\pm1)}$ is called the generalized Riemann function, $\{X^S\}^{(K=-1)}$ is called the Riemann **zeta** function, and the structures of each sub-function of the Riemann function are controlled by their properties.

(K=±1) represents the jump transition form of the external completeness of the generalized Riemann **zeta** function, with the following characteristics: the synchronous change of the function center point and the surrounding independent prime numbers, the function asymmetry that satisfies the external even number of the circular logarithm center zero line (critical line) and the function is converted into dimensionless symmetry.

(KW=±1) represents the continuous transition form of the internal compatibility of the generalized Riemann **zeta** function, characterized by the relationship between the value and position of the center point of the function and the surrounding independent prime numbers, the function asymmetry of the circular logarithm center zero line (critical line) that satisfies the internal even number, and the function is converted into dimensionless symmetry.

The properties of the Riemann function (K=±1) · (KW=±1) are calculated by equations (including the five-dimensional complex analysis of three-dimensional space [Q=***jik+uv***] , and the five-dimensional complex analysis includes the three-dimensional correspondence (simply connected, sphere , precession) and the two-dimensional correspondence (biconnected, ring , rotation) in the three-dimensional physical space .

In this way, it is proved that the Riemann function central zero conjecture and the Landau-Siegel zero conjecture have the existence of conjugate reciprocity.

The existence of a mutual inverse isomorphism consistency between the Riemann function and the Landau-Siegel zero conjecture

Proof purpose: When the total number of prime elements of the Riemann function remains unchanged, does the (simply connected, sphere) and (doubly connected, ring) balanced exchange mechanism hold? If so, the existence of the mutual inverse consistency of the Riemann function central zero conjecture and the Landau-Siegel zero conjecture does not contradict each other.

Assume: Given the known boundary function $\{^{KS}\sqrt{\mathbf{D}}\}$ and characteristic modulus $\{\mathbf{D}_0\}$, we can analyze the two variable functions :

Riemann **zeta** function {X} is decomposed into two conjugate inverse asymmetric subfunctions $\{X_A\}$ and $\{X_B\}$ under the condition of resolution 2. Select the "five-dimensional number" {A, B, C, D, E}, and the asymmetric center zero of the "evenness" of its dimensionless 'infinity axiom is between (three-dimensional precession [**jik**]) {ABC} (O) (two-dimensional rotation [**uv**]) {DE}. The power function is written as: [Q= ***jik+uv***] .

[Pre-proof] : Prove the principle of achieving balanced exchange combination (decomposition):

The relationship between the quinary equation and circular logarithm:

$$\{X\pm{}^{K(S)}\sqrt{\mathbf{D}}\}^{(5)}=A\{X\}^{(5)}\pm B\{X\}^{(4)}+C\{X\}^{(3)}+D\{X\}^{(2)}+E\{X\}^{(1)}+\{{}^{K(S)}\sqrt{\mathbf{D}}\}$$
$$=\{X\}^{(5)}\pm\{\mathbf{D}_0\}^{(1)}\{X\}^{(4)}+\{\mathbf{D}_0\}^{(2)}\{X\}^{(3)}+\{\mathbf{D}_0\}^{(3)}\{X\}^{(2)}+\{\mathbf{D}_0\}^{(4)}\{X\}^{(1)}+\{{}^{K(S)}\sqrt{\mathbf{D}}\}$$
$$=(1-\eta^2)^K[\{X_0\}^{(5)}\pm\{X_0\}^{(4)}+\{X_0\}^{(3)}\pm\{X_0\}^{(2)}+\{X_0\}^{(1)}\pm\{\mathbf{D}_0\}]$$
$$=(1-\eta^2)^K[\{X_0\}^{(5)}\pm\{\mathbf{D}_0\}]$$
$$=(1-\eta^2)^K[(0,2)\cdot\{D_0\}]^{(5)};$$

$(1-\eta^2)^{(K=-1)(Kw=\pm1)}=\{0,1\}$,

Where: The power function in Eq.(K=-1)(Kw=±1)(Z±S±[Q=*jik+uv*]±(q=0,1,2,3,4,5); the equation (0,2) represents the combination of two Riemann functions (addition (subtraction) combination, multiplication (division) combination), (0) is zero balance, (2) is even balance,

If: choose a quinary number, its conjugate two mutually inverse asymmetric subfunctions (three-dimensional precession) $\{X_{ABC}\}$ and (three-dimensional rotation) (two-dimensional precession) $\{X_{DE}\}$ cannot achieve balanced exchange, and can be solved by dimensionless circular logarithm:

$\{X_{[A]}\}=(1-\eta^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S\pm[Q=jik+uv]\pm(q))/t}$;

$\{X_{[BC]}\}=(1-\eta^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=-1)(Z\pm S\pm[Q=jik+uv]\pm(q))/t}$;

Balanced exchange mechanism:

$\{X_{[ABCDE]}\}=(1-\eta^2)^K\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm[Q=\mathbf{jik+uv}]\pm(q=5))/t}$

$=\{X_{[ABC]}\}=(1-\eta^2)^K\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm[Q=\mathbf{jik+uv}]\pm(q=3))/t}$

$+\{X_{[DE]}\}=(1-\eta^2)^K\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm[Q=\mathbf{jik+uv}]\pm(q=2))/t}$;

Among them: the quinary resolution center point is decomposed into two asymmetric subsets, which are converted into two circular logarithmic symmetries of "evenness" through the dimensionless circular logarithm:

The "Landau-Siegel Zero Conjecture" has (simply connected, sphere) and (doubly connected, ring) equilibrium mechanisms (with the same evenness of circular logarithms):

$\{X_{[ABC]}\}=(1-\eta^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S\pm[Q=jik]\pm(q=3))}$

$\{X_{[DE]}\}=(1-\eta^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=-1)(Z\pm S\pm[Q=uv]\pm(q=2))}$;

$|\{X_{[ABC]}\}=(1-\eta_{[ABC]}^2)^{(Kw=+1)}|=|\{X_{[DE]}\}=(1-\eta_{[DE]}^2)^{(Kw=-1)}|$;

Among them: $(1-\eta_{[ABC]}^2)^{(Kw=+1)}$ and $(1-\eta_{[DE]}^2)^{(Kw=-1)}$ have balanced symmetry on both sides of the central zero-point symmetry, and can realize exchange combination.

"Evenness" asymmetric balance exchange rules (including all levels and combinations of Riemann functions):

$\{X_{[ABC]}\}=(1-\eta_{[ABC]}^2)^K\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S\pm(q)=1)}$

$\leftrightarrow[(1-\eta_{[ABCDE]}^2)^{(Kw=+1)}\leftrightarrow(1-\eta_{[ABCDE]}^2)^{(Kw=\pm0)}\leftrightarrow(1-\eta_{[ABCDE]}^2)^{(Kw=-1)}]\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=-1)(Z\pm S\pm(q=3))}$

$\leftrightarrow(1-\eta_{[DE]}^2)^K\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=-1)(Z\pm S\pm[(q=2))/t}=\{X_{DE}\}$;

$\{X_{[ABC]}\}^{(Kw=+1)}\leftrightarrow\{X_{[ABCDE]}\}^{(Kw=\pm0)}\leftrightarrow\{X_{[DE]}\}^{(Kw=-1)}$;

$(1-\eta_{[ABC]}^2)^K\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S\pm[(q=3))}$

$=[(1-\eta_{[A]}^2)^{(Kw=+1)}+(1-\eta_{[B]}^2)^{(Kw=+1)}(1-\eta_{[C]}^2)^{(Kw=+1)}]\cdot\{\mathbf{D}_0\}^{(K=-1)(Z\pm S\pm[(q=3))}$

Among them: the dimensionless$(1-\eta_{[ABC]}^2)^{(K=-1)}$circular logarithm of the single connected 'sphere' of the Riemann function is consistent with the external precession direction of the double connected 'ring', but inconsistent with the internal precession direction of the double connected .

(2) ,Decomposition of "two-dimensional rotation" (adapting to the three-dimensional center zero-point precession of the simply connected "sphere", the position value is at the center axis of the ring (the critical line of the ring))

$(1-\eta_{[DE]}^2)^K\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=-1)(Z\pm S\pm[(q=2))/t}$

$=[(1-\eta_{[D]}^2)^{K(Kw=-1)}+(1-\eta_{[E]}^2)^{K(Kw=-1)}]\cdot\{\mathbf{D}_0\}^{(K=-1)(Z\pm S\pm[(q=2))}$

Among them:

(1), Decomposition of "three-dimensional precession" (adapting to the three-dimensional center zero-point precession of a simply connected "sphere", the position value is at the center point outside the ring)

That is to say: the above proof: the symmetry between $\{X_{[ABC]}\}\leftrightarrow\{X_{[DE]}\}$ becomes a balanced exchange combination mechanism of the " evenness " of dimensionless circular logarithms , which is reliable , feasible, and zero-error .

【certificate】

(1) The "Landau-Siegel zero conjecture" becomes the "addition theorem" of circular logarithms.

Characteristic modulus: $\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)}=(1/5)[\{X_{ABC}\}+\{X_{DE}\}]$;

$\{X+{}^{K(S)}\sqrt{\mathbf{D}}\}^{(K=-1)(Kw=+1)(5)}=[\{X_A\}-\{X_B\}]/[\{X_A\}+\{X_B\}]^{(K=-1)(Kw=+1)}$
$=(1-\eta_{[ABCDE]}{}^2)^K[(2)\cdot\{\mathbf{D}_0\}]^{(K=-1)(Kw=+1)(Z\pm S\pm[Q=jik+uv]\pm(q=5))}$;

Central zero point symmetry:

$(1-\eta_{[C]}{}^2)^K=(1-\eta_{[ABC]}{}^2)^{(K=-1)(Kw=+1)}+(1-\eta_{[DE]}{}^2)^{(K=-1)(Kw=-1)}=0$; Corresponding feature model $\{\mathbf{D}_0\}^{(K=-1)(Kw=\pm1)(1)}$

Among them: Landau-Siegel zero conjecture: there are simply connected, sphere, addition theorem: there is a shared characteristic module called **ζ $(X_0)^{(K=-1(Kw=-1)}$,** which converges to a sphere (i.e., the outside of the ring) center **{0}:**

(2) The "Landau-Siegel zero conjecture" becomes the "reduction theorem" of circular logarithms.

Characteristic modulus: $\{\mathbf{D}_0\}^{(K=-1)(Kw=-1)}=(1/5)[\{X_{ABC}\}-\{X_{DE}\}]$;

$\{X-{}^{K(S)}\sqrt{D}\}^{(K=-1)(Kw=-1)(5)}=[\{\{X_{ABC}\}+\{X_{DE}\}]/[\{X_{ABC}\}-\{X_{DE}\}]^{(K=-1)(Kw=-1)}$
$=(1-\eta_{[ABCDE]}{}^2)^K[(0)\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm[Q=jik+uv]\pm(q=5))}$;

Among them: Landau-Siegel zero conjecture: There exists a shared characteristic module called **ζ $(X_0)^{(K=-1(Kw=-1)}$**, which converges to the center of an outer point of the ring **{0}** and the center line of the inner axis of the ring **{1}:**

（3）exchange combination " mechanism of circular logarithms. :

$\{X\pm{}^{K(S)}\sqrt{\mathbf{D}}\}^{(K=-1)(Kw=\pm1)(5)}$
$=(1-\eta_{[ABC]}{}^2)^K[(2)\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=+1)(Z\pm S\pm[Q=jik+uv]\pm(q=3))}$
$+(1-\eta_{[DE]}{}^2)^K[(0)\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=-1)(Z\pm S\pm[Q=jik+uv]\pm(q=2))}$
$=(1-\eta_{[ABC,DE]}{}^2)^K[(0\leftrightarrow2)\cdot\{\mathbf{D}_0\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm[Q=jik+uv]\pm(q=5))}$;

The first central zero line is the Landau-Siegler zero point of the central axis of the ring , which is adapted to the interior of the ring $(1-\eta_{[DE]}{}^2)^K=\{-1,0,+1\}$

$(1-\eta_{[C]}{}^2)^{(K=-1)(Kw=\pm1)}\rightarrow$ {0(center zero point), ± (1)(center axis of the ring), ± 1(boundary line of the ring)};

The second center zero point of the ring is the Landau-Siegel zero point of the center axis of the ring , which is suitable for the outside of the ring $(1-\eta_{[ABC]=[DE]}{}^2)^K=\{-1,0,+1\}$

$(1-\eta_{[C]}{}^2)^{(K=-1)(Kw=\pm1)}\rightarrow$ {0 (center zero point), ± 1 (center axis of the ring is the boundary line)};

That is to say, the Riemann function (external, negative power function) (K=-1) and the Goldbach conjecture (external, positive power function, harmonic function) (K=+1) are inverse to each other; the internal (positive) (K=-1)(Kw=+1) of the Riemann function shows that the Riemann function "addition theorem" and (negative) (K=-1)(Kw=+1) show that the Riemann function "subtraction theorem" and the Landau-Siegel zero conjecture are inverse to each other.

The generalized Riemann function in the equation corresponds to the boundary function D^K, which can be decomposed into a shared numerical eigenmode (positive and negative mean function) $\{\mathbf{D}_0\}^{K(Z\pm S)}$ and a dimensionless position value circular logarithm $(1-\eta^2)^K$, which qualitatively and quantitatively describes the relationship between the center point of the eigenmode and the central zero point of the circular logarithm and the surrounding or multiple prime numbers. The circular logarithm is controlled within the range of {0,1/2,1}, with $(1/2)^{K(Z\pm S)}$ as the central zero point of the circular logarithm, and approaches the positive and negative (even number) expansion of the conjugate central zero point symmetry. The circular logarithm uniformly solves the Riemann zero conjecture, the Goldbach conjecture, and the Landau-Siegel zero conjecture, and solves the problem of mutual inversion of simply connected (sphere) and doubly connected (ring) spaces.

The circular logarithm calculation rules can be easily derived from the isomorphism reciprocity circular logarithm :

$$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=-1)(Kw=+1)}\cdot(1-\eta^2)^{(K=-1)(Kw=-1)};$$
$$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2))^{(K=-1)(Kw=+1)}+(1-\eta^2)^{(K=-1)(Kw=-1)};$$
$$(1-\eta^2)^{(Kw=\pm1)}=(1-\eta)^{(Kw=+1)}\cdot(1+\eta)^{(Kw=-1)};$$
$$(1-\eta^2)^{(Kw=\pm1)}=(1-\eta^2)^{(K=+1)}+(1+\eta^2)^{(K=-1)};$$
$$(1-\eta^2)^{(K=\pm1)(Kw=\pm1)}\rightarrow\{0.1/2.1\}\text{or}\{-1,0,+1\};$$

The circular logarithm has an infinite set of constructions that are both complete and consistent:

(1) Expand symmetrically to both sides in a circular logarithmic center zero point jump transition mode to ensure the stability of the center zero point.

$(1-\eta^2)^{K(Z\pm S\pm Q\pm(N)+(q))/t}=\{0\text{ or }(1/2)\text{ or }1\}^{K(Z\pm[S=2,3]\pm(q))/t}$;

(2) The center zero point is continuously transitioned to the two sides in a circular logarithmic manner to ensure the stability of the center zero point.

$(1-\eta^2)^{K(Z\pm S\pm Q\pm(N)+(q))/t}=\{0\text{ to }(1/2)\text{ to }1\}^{K(Z\pm[S=2,3]\pm(q))/t}$;

Circular logarithmic two-dimensional complex analysis:
$\boldsymbol{k}(1-\eta^2)^{(Kw=+1)}=\boldsymbol{j}(1-\eta^2)^{(K=-1)}+\boldsymbol{i}(1-\eta^2)^{(K=-1)}$;
$\boldsymbol{i}(1-\eta^2)^{(Kw=\pm1)}=\boldsymbol{k}(1-\eta^2)^{(K=-1)}+\boldsymbol{j}(1-\eta^2)^{(K=-1)}$;
$\boldsymbol{j}(1-\eta^2)^{(Kw=+1)}=\boldsymbol{i}(1-\eta^2)^{(K=-1)}+\boldsymbol{k}(1-\eta^2)^{(K=-1)}$;
Corresponding to the two-dimensional $\{2\}^{2n}$ quaternion (+1η, -1η, + ***i*** η, - ***i*** η), four-quadrant space, the central zero point of the two-dimensional plane rectangular coordinate system is established as the circular logarithmic conjugate symmetry variable.

Circular logarithmic three-dimensional complex analysis:
$(1-\eta_{[jik]}^2)^{(K=\pm1)}=\boldsymbol{j}(1-\eta^2)^{(K=+1)}+\boldsymbol{i}(1-\eta^2)^{(K=-1)}+\boldsymbol{k}(1-\eta^2)^{(K=-1)}$,
$(1-\eta_{[jik]}^2)^{(Kw=\pm1)}=\boldsymbol{ik}(1-\eta^2)^{(K=+1)}+\boldsymbol{ki}(1-\eta^2)^{(K=-1)}+\boldsymbol{ij}(1-\eta^2)^{(K=-1)}$;

Exchange rules:

It satisfies the three-dimensional quaternion eight-quadrant space, see the three-dimensional complex analysis derivation.

$\boldsymbol{jik}=(\pm1, \pm0)$, $\boldsymbol{ik}=(\pm1,\pm0)(\boldsymbol{j})$, $\boldsymbol{kj}=(\pm1,\pm0)(\boldsymbol{i})$, $\boldsymbol{ji}=(\pm1,\pm0)(\boldsymbol{k})$,
Among them: (0) represents the conjugate center origin of the three-dimensional rectangular coordinate system, (± 1) represents the boundary of the three-dimensional rectangular coordinate system, and the plane normal line is inverse to the axis line.

5.3. Relationship between zeros of generalized Riemann function

If any two of the three elements of the Riemann function $\{^{K(S)}\sqrt{\mathbf{D}}\}$, $\{\mathbf{D}_0\}$, $(1-\eta^2)^K$ are known, we can perform a dynamic complex analysis of the Riemann function in three-dimensional network space.

The so-called generalized Riemann function refers to the control of the "property attributes" given to the traditional Riemann function, which becomes the generalized Riemann function. The numerical characteristic modulus and the position value circular logarithm are extracted respectively, and converted into the dimensionless structure's unique "even number" symmetry and asymmetry, randomness and non-randomness The balanced exchange combination mechanism of the "infinite axiom" is used to analyze the "irrelevant mathematical model and no specific (mass) elements" of the circular logarithm.
$\{X^S\}^{(K=-1)(Kw=\pm1)(Z\pm S)}=(1-\eta^2)^K\cdot\{X_0^S\}^{(K=-1)(Kw=-1)(Z\pm S)}$;

The critical line corresponds to the characteristic mode $\{\mathbf{D}_0\}^{K(S)}$; $(1-\eta_{[C]}^2)^K=\{0,1\}^{(K=\pm1)(Kw=\pm1)(Z\pm S)}$;

The critical point corresponds to the characteristic mode $\{\mathbf{D}_0\}^{K(1)}$;$(1-\eta_{[C]}^2)^K=\{0\}^{(K=\pm1)(Kw=\pm1)(Z\pm S\pm(q=1)}$;

The zero points of the circular logarithm centers are interconnected and correspond to: the generalized Riemann function zero-point transformation, the Riemann zero-point conjecture, the Landau-Siegel first zero-point conjecture: the Landau-Siegel second zero-point conjecture , the Goldbach conjecture , the twin prime zero -point conjecture , etc.

The zero point has an important factor of "balance" function, which is the core mechanism of "infinity axiom". Without balance, there will be no "exchange, combination (addition (subtraction) combination, multiplication (division) combination)" of symmetry and asymmetry, randomness and non-randomness. So far, traditional mathematics has not solved the "central zero point" problem well, and the use of "approximate calculation" has lost the nature of the attribute and the correctness of deduction.

(1) When: (K=±1) is the generalized Riemann function (positive, median and inverse power function), solve the zero point transformation problem of the generalized Riemann function (positive, median and inverse power function) .

$$\{X\}^{(K=\pm1)(Kw=\pm1)(Z\pm S)}$$
$$=\sum\{X_1^{(K=-1)}+X_2^{(K=-1)}+\ldots+X_S^{(K=-1)}\}^{(K=\pm1)(KW=\pm1)(Z\pm S)}$$
$$=\prod[{}^{S}\sqrt{\{X_1,X_2\ldots X_S\}}]^{(K=\pm1)(KW=\pm1)(Z\pm S)}$$
$$=(1-\eta^2)^K\{X_0\}=\{X\}^{(K=\pm1)(KW=\pm1)(Z\pm S)};$$

The generalized Riemann function (K=±1) is converted to the sum of circular logarithms:
$(1-\eta^2)^K=\{0,2\}^{(K=\pm1)(KW=\pm1)(Z\pm S)}$;
The central zero line (critical line) of the generalized Riemann function corresponds to the characteristic module series:
$(1-\eta_{[C]}^2)^K=\{0,\pm1\}^{(K=\pm1)(Kw=\pm1)(Z\pm S)}$;
The central zero point (critical point) of the generalized Riemann function corresponds to the central point of the characteristic module:
$(1-\eta_{[C]}^2)^K=\{0\}^{(K=\pm1)(Kw=\pm0)(Z\pm S)}$;
Corresponding to the characteristic modulus of the generalized Riemann function $\{X_0^S\}^{(K=\pm1)(Kw=\pm1)}$;

(2) When: (K=-1) is the Riemann function (negative power function) Riemann function (zero point) conjecture ,

It is easy to obtain from the following simultaneous equations :

$$\{X\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$$
$$=\sum\{X_1^{(K=-1)}+X_2^{(K=-1)}+\ldots+X_S^{(K=-1)}\}^{(K=-1)}$$

$=\prod[{}^{S}\sqrt{\{X_1,X_2\ldots X_S\}}]^{(K=-1)(KW=\pm1)(Z\pm S)}$

$=(1-\eta^2)^K\{X_0\}=1$;

The zero point of the circular logarithm of the Riemann function (K=-1) is:

$(1-\eta_{[C]}{}^2)^K=\{1/2\}$; adapt to $\{0,1\}$;

$(1-\eta_{[C]}{}^2)^K=\{0\}$; adapt to $\{-1,+1\}$;

The Riemann function (K=-1) is converted to the sum of circular logarithms:

$(1-\eta_{[C]}{}^2)^K=\{0, 2\}^{(K=-1)\,(KW=\pm1)\,(Z\pm S)}$;

$(1-\eta_{[C]}{}^2)^K=\{0, 1\}^{(K=-1)\,(KW=\pm0)\,(Z\pm S)}$;

The central zero line (critical line) of the generalized Riemann function corresponds to the characteristic module series:

$(1-\eta_{[C]}{}^2)^K=\{0, \pm1\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$;

The central zero point (critical point) of the generalized Riemann function corresponds to the central point of the characteristic module:

$(1-\eta_{[C]}{}^2)^K=\{0\}^{(K=-1)(Kw=\pm0)(Z\pm S)}$;

Among them: the characteristic modulus of the generalized Riemann function $\{X_0{}^S\}^{(K=\pm1)(Kw=\pm1)}$;

(3) When: (K = -1)(Kw = +1), it is a Riemann function (simply connected, spherical), solving the Landau-Siegel first zero conjecture:

$\{X\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$

$=\sum\{X_1{}^-+X_2{}^-+\ldots+X_S\}^{(K=-1)(Kw=+1)(Z\pm S)}$

$=\prod[{}^{S}\sqrt{\{X_1,X_2\ldots X_S\}}]^{(K=-1)(Kw=-1)(Z\pm S)}$

$=(1-\eta^2)^K\{X_0\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$,

$(1-\eta_{[C]}{}^2)^K=\{0,\pm1\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$;

$(1-\eta_{[C]}{}^2)^K=\{0\}^{(K=-1)(Kw=\pm1)(Z\pm S)}$

They correspond to the characteristic modulus of the generalized Riemann function $\{X_0{}^S\}^{(K=-1)(Kw=+1)}$ and the central zero line (critical line) and central zero point (critical point) of the even symmetry of the circular logarithm. "Circular Logarithmic Addition Theorem".

(4) When: (K=-1)(Kw= -1), it is a Riemann function (biconnected, circular) solving the Landau-Siegel second zero conjecture:

$\{X\}^{(K=-1)(Kw=-1)(Z\pm S)}$

$=\sum\{X_1+X_2+\ldots+X_S\}^{(K=-1)(Kw=-1)(Z\pm S)}$

$=\prod[{}^{S}\sqrt{\{X_1,X_2\ldots X_S\}}]^{(K=-1)(Kw=-1)(Z\pm S)}$

$=(1-\eta^2)^K\{X_0{}^S\}=\{X\}^{(K=-1)(Kw=-1)(Z\pm S)}$,

$(1-\eta_{[C]}{}^2)^K=\{0,\pm1\}^{(K=-1)(Kw=-1)(Z\pm S)}$,

$(1-\eta_{[C]}{}^2)^K=\{0\}^{(K=-1)(Kw=-1)(Z\pm S)}$,

They correspond to the characteristic modulus of the generalized Riemann function $\{X_0{}^S\}^{(Z\pm S)}$, and the central zero line (critical line, central zero line of the ring) and the central zero point (critical point). It is called the "circular logarithmic reduction theorem".

(5) When: (K=+1)(Kw=±1), it is a generalized Riemann function (positive power function), solving the Goldbach conjecture:

$\{X\}^{(K=+1)(Kw=\pm1)(Z\pm S)}$

$=\sum\{X_1+X_2+\ldots+X_S\}^{(K=+1)(Kw=\pm1)(Z\pm S)}$

$=\prod[{}^{S}\sqrt{\{X_1,X_2\ldots X_S\}}]^{(K=+1)(KW=\pm1)(Z\pm S)}$

$=(1-\eta^2)^K\{X_0{}^S\}=\{X\}^{(K=+1)(KW=\pm1)(Z\pm S)}$,

$(1-\eta_{[C]}{}^2)^K=\{0, \pm1\}^{(K=+1)(Kw=\pm1)(Z\pm S)}$;

$(1-\eta_{[C]}{}^2)^K=\{0\}^{(K=+1)(Kw=\pm1)(Z\pm S)}$;

They correspond to the characteristic modulus of the generalized Riemann function $\{X_0\}^{(K=+1)(Kw=\pm1)(Z\pm S)}$ and the central zero line (critical line, central zero line of the ring) and the central zero point (Critical point). It is called " (called zero equilibrium, even equilibrium power function) ".

(6) When: (K = ± 1), it is an even-balanced Riemann function. They are respectively called " zero balance (minus balance) and even balance (plus balance) ".

$\{X\}^{(K=\pm1)(Kw=\pm1)(Z\pm S)}$

$=\sum\{X_1+X_2+\ldots+X_S\}^{(K=\pm1)(Kw=\pm1)(Z\pm S)}$

$=\prod[{}^{S}\sqrt{\{X_1,X_2\ldots X_S\}}]^{(K=\pm1)(KW=\pm1)(Z\pm S)}$

$=(1-\eta^2)^K\{X_0{}^S\}=\{X^S\}^{(K=\pm1)(KW=\pm1)(Z\pm S)}$,

$(1-\eta_{[C]}{}^2)^K=\{0, \pm1\}^{(K=\pm1)(KW=\pm1)(Z\pm S)}$;

$$(1-\eta_{[C]}{}^{2})^{K}=\{0\}^{(K=\pm1)(KW=\pm1)(Z\pm S)};$$

They correspond to the characteristic modulus of the generalized Riemann function $\{X_0{}^S\}^{(K=\pm1)(Kw=\pm1)}$ and the central zero line of the even symmetry of the circular logarithm (the central zero line of the equilibrium symmetry of the critical line).

(7) When: (K = ± 0), it is the reciprocal transformation Riemann function (function, line, point symmetry transformation point)

$$\{X\}^{(K=\pm0)(Kw=\pm0)(Z\pm S)}$$
$$=\sum\{X_1+X_2+\ldots+X_S\}^{(K=\pm0)(Kw=\pm0)(Z\pm S)}$$
$$=\prod[{}^{S}\sqrt{\{X_1,X_2\ldots X_S\}}]^{(K=\pm0)(KW=\pm0)(Z\pm S)}$$
$$=(1-\eta^2)^K\{X_0{}^S\}=\{X^S\}^{(K=\pm0)(KW=\pm1)(Z\pm S)},$$
$$(1-\eta_{[C]}{}^{2})^{K}=\{0,\pm 1\}^{(K=\pm0)(KW=\pm0)(Z\pm S)},$$
$$(1-\eta_{[C]}{}^{2})^{K}=\{0\}^{(K=\pm0)(KW=\pm0)(Z\pm S)},$$

They correspond to the characteristic modulus of the generalized Riemann function (positive and negative power function) $\{X_0{}^S\}^{(K=\pm0)(Kw=\pm0)}$ and the central zero line of the even symmetry of the circular logarithm (balance transformation symmetry of the critical line) Center zero line), center zero point (balance transformation symmetry point of critical point).

5.4. "Zero-point Conjecture" and Proof of Dimensionless Circular Logarithm

The content of the Riemann function "zero point" conjecture: the (external and internal) existence of dimensionless even conjugation reciprocal symmetry and asymmetry balance conversion mechanism of generalized Riemann function, Riemann function, Goldbach conjecture, twin prime conjecture and Landau-Siegel zero point conjecture are all controlled by the circular logarithm and property attributes of the dimensionless construction, and have the advantages of high stability, zero error and high decidability.

In particular, the Riemann function has a wide range of application prospects: almost all arbitrary (reasonable, friendly, regularized) functions can be connected to the generalized Riemann function. The four "zero point conjectures" all use the dimensionless circular logarithm construction set of third-party impartiality to prove:

(1) The Riemann function zero point conjecture and the Goldbach conjecture (including the twin prime conjecture) are proved to have the mutual inversion of [K=-1 and K=+1]. They become the mutual inversion equilibrium exchange relationship of the dimensionless circular logarithm construction (multiplication (division) theorem and addition (subtraction) theorem).

(2) The Riemann function zero conjecture and the Landau-Siegel zero conjecture) prove that (K=-1)·[(Kw=-1 and Kw=+1)] is reciprocal. They become the (simply connected, sphere) and (multiply connected, ring) reciprocal equilibrium exchange relations of dimensionless circular logarithms.

The dimensionless circular logarithm construction proves that any asymmetric object (value, number, function, event) and even the symmetry and asymmetry between physical objects cannot be directly balanced and transformed (including the combination and decomposition of numerical descriptions). It can only be transformed randomly or non-randomly under the conditions of the factors of circular logarithm symmetry through the most abstract and basic "evenness" of the dimensionless circular logarithm. Once the circular logarithm is cancelled, their original asymmetric characteristics are restored.

The dimensionless circular logarithm analyzes impartially, objectively and reliably as a third-party infinite construction set: "subtraction and addition", "multiplication and addition", "central zero line (critical line), central zero point (critical point) evenness two-side mutual inversion balance exchange mechanism". It drives the calculation time of integers, complex polynomials and simple polynomials, spatial mathematical structures, and systems of isomorphism consistency, and becomes a balance exchange mechanism for evenness. Specifically, it can adapt to the conjugate mutual inversion symmetry between "sphere and ring ", "ellipse and perfect circle", "arbitrary function and mean function", "arbitrary geometric space and perfect circle pattern space", high-dimensional and low-dimensional space, probability-topology, and balance exchange in the $\{3\}^{2n}$ category. It also involves the "Poincare topology conjecture" (simply connected/biconnected), "Fermat's Last Theorem (including inequalities) and various central zero points of conjugate mutual inversion balance symmetry transformation, as well as the integrity analysis of dimensionless combination and decomposition corresponding to the "symmetric logic" of mathematics and philosophy.

According to the dimensionless circular logarithmic space and its principles, we can also explain the speed, acceleration, kinetic energy, energy, force , randomness and non-randomness, wave-particle duality, the conversion of positive and negative phenomena, and even many natural phenomena, as well as the "dark matter (mathematically called probability), dark energy (mathematically called topology), black hole (mathematically called central zero line (critical line) central zero point (critical point)", "cosmic evolution", "super-distance entanglement (ghost particles)", "microscopic atomic structure and function", "information code", "classical (gravitational, electromagnetic, thermal) calculation", "quantum computing", "human thinking and cognition", etc., which can all be converted into the "circular logarithmic space" defined by dimensionless language for unified dimensionless structural analysis. It has opened up "zero-error logical arithmetic calculation without mathematical models and specific (mass) element content", becoming a new basic mathematical theory and calculation tool.

This dimensionless mathematical construction has greatly shocked, transformed, reorganized and reshaped the mathematical structure established by Western countries over the past 400 years, and has opened up a new mathematical history period of the most abstract, profound and basic "dimensionless construction".

6. The connection between dimensionless circular logarithms and number theory

6.1 Background of Number Theory

6.1.1 History of the Development of Number Theory

At present, number theory is one of the branches of pure mathematics, mainly studying the properties of positive integers and their related laws. It mainly studies the properties of integers. Integers can be solutions to equations (Diophantine equations). Some analytic functions (such as the Riemann **zeta** function) include the properties of some integers and prime numbers. The dimensionless circular logarithm later added "property attributes" and can include objects such as "fractions, rational numbers, irrational numbers, three-dimensional complex numbers, super cardinal numbers", etc. Through these objects, we can understand some number theory problems. Establishing the dimensionless structural connection between real numbers and rational numbers and objects, abandoning the traditional rational numbers to approximate real numbers (Diophantine approximation), and realizing zero-error calculation and analysis. Its high-precision zero error can reach the 10^{222} universe level, which represents the true destination of the universe - Highly homogeneous and chaotic soup making.

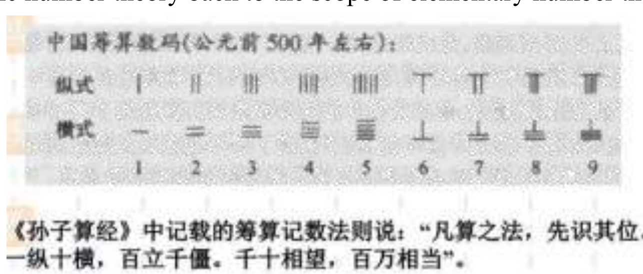
According to the research methods, number theory can be roughly divided into elementary number theory and advanced number theory. Elementary number theory is the number theory studied with elementary methods. Its research method is essentially to use the divisibility properties of integer rings, mainly including divisibility theory, congruence theory, and continued fraction theory. Advanced number theory includes more profound mathematical research tools. It roughly includes mathematical structures such as algebraic number theory, analytic number theory, and computational number theory.

In 500 BC, the counting method of Sun Zi Suan Jing in the ancient Chinese mathematics Shang period had a "decimal system", pointing out that numbers have two connotations: "numerical value and positional value", and clearly pointed out that "all calculation methods must first know their position." (Figure 6.1)

In 300 BC, the ancient Greek mathematician Euclid proved that there are infinite prime numbers, and in 250 BC, the ancient Greek mathematician Eratosthenes invented the sieve of Eratosthenes to find prime numbers. Finding a general formula for prime numbers that represents all prime numbers, or the universal formula for prime numbers, is one of the most important problems in classical number theory.

Number theory spanned 1000-2000 years from the early to the middle period, and except for the Chinese "congruence", it was almost blank. The middle period mainly refers to the 15th-16th century to the 19th century, which was developed by Fermat, Mersenne, Euler, Gauss, Legendre, Riemann, Hilbert and others.

The content is the idea of finding the general formula of prime numbers as the main line, starting from elementary number theory to analytic number theory and algebraic number theory, producing the "Peano axiom", leaving more and more mathematical conjectures that cannot be solved. Many difficulties still rely on the general formula of prime numbers, such as the Riemann hypothesis. If a general formula of prime numbers is found, some difficult problems can be transferred from analytic number theory back to the scope of elementary number theory.



(Figure 6.1) The numbers in the Sunzi Suanjing 2,500 years ago (Image from the Internet)

At the end of the 18th century, the scattered knowledge about the properties of integers accumulated by successive generations of mathematicians had become very rich, but the pattern of prime number generation had not yet been found. The German mathematician Gauss concentrated on the achievements of his predecessors and wrote a book called "Arithmetic Research", which he sent to the French Academy of Sciences in 1800. However, the French Academy of Sciences rejected Gauss's masterpiece, so Gauss had to publish this book himself in 1801. This book started a new era of modern number theory. In "Arithmetic Research", Gauss standardized the symbols used in the past to study the properties of integers, systematized and generalized the existing theorems at that time, classified the problems to be studied and the known methods, and introduced new methods. In this work, Gauss mainly proposed the congruence theory and discovered the famous quadratic reciprocity law, which he praised as the "yeast of number theory". Because "numerical analysis" and later "logical analysis" ignored the "position value effect" at the beginning, it means that the mathematical system of Western countries has been unstable for 400 years.

6.1.2 Contents of Number Theory

The current traditional mathematical system number theory content includes:

Elementary number theory : It mainly studies the divisibility theory and congruence theory of integer rings. In addition, it also includes the theory of continued fractions and a few problems of indeterminate equations. In essence, the research methods of elementary number theory are limited to divisibility properties.

Analytical number theory : It uses calculus and complex analysis (i.e. complex variable functions) to study problems about integers. It can be mainly divided into two categories: multiplicative number theory and additive number theory. Multiplicative number theory explores the distribution of prime numbers by studying the properties of multiplicative generating functions. The prime number theorem and Dirichlet's theorem are the most famous classical results in this field. Additive number theory studies the possibility and representation of integer addition decomposition. The Waring problem is the most famous topic in this field.

When Riemann studied the zeta function, he discovered the profound connection between the analytical properties of complex functions and the distribution of prime numbers, thus bringing number theory into the field of analysis. The main representatives in this field include the famous British number theorists Hardy, Littlewood, Ramanujan, etc. In China, there are Hua Luogeng, Chen Jingrun, Wang Yuan, etc.

Algebraic number theory : The study of the number-theoretic properties of integer rings is extended to more general integer rings, especially algebraic number fields. One of the main topics is the study of algebraic integers, with the goal of solving the problem of indeterminate equations in a more general way. One of the main historical impetus came from the search for a proof of Fermat's Last Theorem. So the research topic of algebraic number theory was developed. For example, Kummer proposed the concept of ideal numbers - unfortunately he ignored the fact that the unique decomposition theorem of algebraic expansion rings might not hold.

Gauss studied the theory of complex integer rings, namely Gaussian integers. He also used the algebraic number theory properties of the extended ring in the third-order Fermat conjecture. A milestone in the development of algebraic number theory was Hilbert's "Report on the Theory of Numbers".

Geometric number theory : mainly studies the distribution of integers (lattice points, also called whole points) from a geometric point of view. The most famous theorem is Minkowski's theorem. This theory was also created by Minkowski. It plays an important role in the study of quadratic form theory.

Computational number theory : Using computer algorithms to study number theory problems, such as primality testing and factorization, which are closely related to cryptography.

Transcendental number theory: The study of the transcendental properties of numbers, with particular interest in the Euler constant and certain values of the Riemann zeta function. It also explores the Diophantine approximation theory of numbers.

Combinatorial number theory: Using the techniques of combination and probability to non-constructively prove some complex conclusions that cannot be handled by elementary methods. This idea was pioneered by Paul Eddish. For example, the simplified proof of Lambert's conjecture.

Arithmetic Algebraic Geometry

This is the most profound and cutting-edge field in the development of number theory so far, and it can be said to be a culmination. Starting from the perspective of algebraic geometry, it uses profound mathematical tools to study the properties of number theory. For example, Wiles's proof of the Fermat conjecture is a classic example in this regard. The entire proof used almost all the most profound theoretical tools at the time. An important research guideline for contemporary number theory is the famous Langlands Program.

In addition to the traditional methods mentioned above, there are other methods for studying number theory, but they are not fully recognized by mathematicians. For example, some physicists claim to have proved the Riemann hypothesis through quantum mechanics.

Dimensionless circular logarithm

The mathematics and philosophy systems established by Western countries in the past 400 years have not directly carried out numerical analysis or logical analysis according to the research method of "knowing its position first". However, numerical and logical objects cannot be directly exchanged, the axiomatization used has no mathematical proof, and the foundation is not solid.

Fact: The dimensionless circular logarithm construction solves a series of complex problems in traditional mathematics with a simple formula, which means that mathematics in Western countries has indeed taken a "tortuous road". We have to re-understand the ancient Chinese mathematics of "first know its position" and "two gives birth to three, and three gives birth to all things". It means that mathematicians at home and abroad have to start again from the same starting line of "dimensionless circular logarithm $(1-\eta^2)^K$ ", opening a new era in the history of dimensionless construction mathematics.

6.1.3 Exploration of Number Theory

At present, the Peano axiom "1+1=2" is adopted in number theory. The sum of two even prime numbers is an even number , which belongs to the "symmetry of even numbers" and "1+2=3" (the sum of three even prime numbers is an odd number, which belongs to the "asymmetry of even numbers"), and the three prime numbers include twin primes. The best result is "1+2" by Chen Jingrun of China, and the Goldbach conjecture of "1+ 1 = 2 " and "1+2=3" is just a little bit away .

Another best achievement is to prove the "weak twin prime conjecture". After years of hard work, mathematician Yitang Zhang from the University of New Hampshire in the United States was the first to prove a "weak twin prime conjecture" without relying on unproven inferences, that is, "there are infinitely many pairs of prime numbers whose difference is less than 70 million".

On April 17, 2019, he submitted the paper to the world's top journal "Annals of Mathematics". American mathematician and one of the reviewers, Henrik Irwinic, commented: "This is first-class mathematical work." He believes that many people will soon "reduce" the number "70 million". After that, Tao organized an online project to use Zhang Yitang's results to continue to reduce the value of the interval. So far, the case of a difference of 246 has been proved (that is, there are infinitely many prime number pairs whose difference is no greater than 246).

British mathematicians Godfrey Hardy and John Littlewood once proposed a "strong twin prime conjecture". This conjecture not only proposes that there are infinite pairs of twin primes, but also gives their asymptotic distribution form, solving the "weak Goldbach conjecture". On May 13, Peruvian mathematician Harald Helfgott announced at the École Normale Supérieure in Paris that he had proved a "weak Goldbach conjecture", that is, "any odd number greater than 7 can be expressed as the sum of 3 odd prime numbers". He submitted the paper to the world's largest preprint website (arXiv); some experts believe that this is a major achievement in the study of the Goldbach conjecture. However, whether the proof is valid remains to be further verified.

Helfgott's main technical argument is the Hardy-Littlewood-Vinogradov circle method, in which mathematicians create a periodic function whose range includes all prime numbers.

In 1923, Hardy and Littlewood proved that, assuming the generalized Riemann hypothesis holds, the ternary Goldbach conjecture is correct for sufficiently large odd numbers;

In 1937, Soviet mathematician Ivan Vinogradov went a step further and directly proved that a sufficiently large odd number can be expressed as the sum of three prime numbers without the need for the generalized Riemann hypothesis.

British mathematician Andrew Granville said that unfortunately, due to technical reasons, Helfgott's method is difficult to prove the "strong Goldbach conjecture", that is, the "Goldbach conjecture about even numbers". Today, the mainstream opinion in the mathematical community is that to prove the strong Goldbach conjecture, new ideas and tools are needed, or major improvements are made to existing methods.

In modern China, number theory is also one of the earliest branches of mathematics. Since the 1930s, there have been important contributions in analytic number theory, Diophantine equations, uniform distribution, etc., and first-class number theory experts such as Hua Luogeng, Min Sihe, Ke Zhao, Chen Jingrun, and Pan Chengdong have emerged. Among them, Professor Hua Luogeng is famous for his research on trigonometric and valuation and stacking prime number theory. After 1949, the research on number theory has been further developed. Chen Jingrun, Wang Yuan and others have achieved world-leading excellent results in their research on "sieve method" and "Goldbach conjecture"; Zhou Haizhong has achieved world-leading outstanding results in the research on the famous number theory problem-Mersenne prime distribution.

With the continuous deepening of mathematical tools, number theory began to be deeply connected with the combinatorial theory of algebraic geometry groups , including the Langlands program, which eventually developed into the most profound mathematical theories today, such as arithmetic algebraic geometry. They ultimately unified many previous research methods and research viewpoints, and conducted research and discussion from a higher perspective.

Due to the development of modern computer science and applied mathematics, number theory has been widely used. For example, many research results in elementary number theory have been widely used in calculation methods, algebraic coding, combinatorics, etc.; and literature reports that some countries use "Sun Tzu's Theorem" to measure distances, use primitive roots and exponentials to calculate discrete Fourier transforms, etc. In addition, many relatively profound research results in number theory have also been applied in approximate analysis, difference sets, fast transformations, etc. In particular, due to the development of computers, it has become possible to use discrete quantity calculations to approximate continuous quantities and achieve the required accuracy.

In the 20th century, Gödel's incompleteness theorem explained the unreliability of "self-evident axioms". Mathematics cannot be built on "axioms", otherwise the foundation of the mathematical edifice is not solid, which is specifically manifested in the fact that "a large number of century-old mathematical problems" cannot be solved or are only solved incompletely. In particular, "since 1931, mathematics has not made substantial progress" (quoted from American mathematician Klein's "Ancient and Modern Mathematical Thought"). Where is the obstacle to progress? Klein did not say it clearly.

At the end of the 20th century and the beginning of the 21st century, the Chinese circular logarithm team, based on the ancient Chinese mathematical principle of "knowing the position before calculating", took "place value-value" as a unified concept and believed that Lorentz-Einstein's special theory of relativity was the earliest embryo of dimensionless. It was the first time that the third infinite construction set with "one-to-one correspondence" between real numbers and natural numbers was discovered, the place value defined by dimensionless language is "the dimensionless circular logarithm of the infinite construction set", and the "even symmetry and asymmetry , randomness and non - 'infinite axiom' balanced exchange combination mechanism" unique to dimensionless constructions was discovered. With a simple dimensionless circular logarithm formula, it integrates the traditional mathematics "number theory-algebra-geometry-group combinatorial theory" as well as logical algebra and philosophical models, and analyzes dimensionless $\{0,\pm1\}$.

Among them is the definition of " dimensional system" : it refers to the "element-object" mentioned in Gödel's incompleteness theorem, which can be quantified one-to-one with specific units.

There is a definition of " dimensionless system" : there is no specific quantitative indicator that is not or cannot be quantified using specific units.

Through the proof of the third-party infinite construction set, it is obtained that the dimensional " element- object" such as numerical analysis and logical analysis and the "object" of philosophical logic (numbers, group combinations, algebra, geometry, functions, space) cannot be directly exchanged, mapped, and morphed "one-to-one correspondence". It must be identified, verified, balanced, exchanged, assembled, combined, and analyzed through the "symmetry and asymmetry of even numbers , randomness and non-randomness of the 'infinite axiom' balance exchange combination mechanism" of the dimensionless circular logarithm and the central zero point (critical line and critical point) of the 'infinite axiom' mechanism . For example, the central zero point of the circular logarithm drives all the "numerical and logical analysis", "completeness and compatibility", and "macro and micro" of current traditional mathematics to conduct an integrated dimensionless analysis .

6.2 Number Theorem

There are four major theorems in number theory: Fermat's little theorem, Wilson's theorem, Euler's theorem and Chinese remainder theorem (Sun Tzu's theorem).

(1) Fermat's Little Theorem: Fermat's Little Theorem is an important theorem in number theory, which states: If p is a prime number and (a, p) = 1, then $a^{(p-1)}\equiv 1(\mathrm{mod}p)$. In other words, if p is a prime number and a and p are relatively prime, then the remainder of a to the power of (p-1) divided by p is always a prime number.

(2) Wilson's Theorem: Wilson's Theorem is an important theorem in number theory. It provides the necessary and sufficient conditions for determining whether a natural number is prime. Specifically, if and only if p is a prime number, $(p-1)!\equiv -1(\mathrm{mod}p)$. This means that if p is a prime number, then (p-1)! plus 1 is divisible by p by 4.

(3) Euler's theorem: also known as the Fermat-Euler theorem or the Euler function theorem, is an important theorem in number theory. Euler's theorem states that if n and a are positive integers and n and a are relatively prime, that is, gcd(a,n)=1, then $a^{\varphi(n)}\equiv 1(\mathrm{mod}n)$, where φ(n) is the Euler function, which represents the number of positive integers less than or equal to n that are relatively prime to n. Euler's theorem is actually Fermat's little theorem.

(4) Sun Tzu's theorem, also known as the Chinese remainder theorem. Assume that the integers m_1 , m_2 , ... , m_n are mutually prime. For any integers a_1 , a_2 , ... , a_n , the system of equations S has a solution and can be constructed. For the construction, see the entry "Chinese remainder theorem".

6.2.1. Introduction to Prime Numbers

At present, the object of number theory is to adapt to the assumption that the integers m_1 ,m_2 , … ,m_n are mutually prime, "1-1, 2-2, 3-3, pp various combinations" . Existing numerical analysis does not consider fractions and transformations, and morphisms do not consider balance. Now we introduce the median and anti-mean functions of the group combination of "property attributes" , which are called (multiplication and addition respectively) characteristic modules.

In number theory: the four circular logarithms corresponding to any prime number have the natural number (1± η2)=5 as the center zero point { [1], 3, (5=0), 7, 9} as mutually inverse symmetric equilibrium transformation points, forming the circular logarithm distribution theorem PNT of prime numbers.

The traditional definition of a prime number (also known as a prime number) is a positive integer that has no factors other than itself and **1 that can divide it.**

(1) Among all integers greater than 1, there are no other divisors except 1 and itself. Such integers are called prime numbers.

It can also be said that a prime number has only two divisors: 1 and itself.

(2) Prime numbers are integers such as "the sum of three squares of natural numbers" such as 59=12+32+72, Mersenne prime 2P-1 (there are 29 of them), and Fermat prime $22^{\wedge n+1}$ (there are 5 of them). There are many numbers related to prime numbers, such as perfect numbers and Fibonacci numbers. The integer average of the characteristic modulus, that is, the addition combination (arithmetic mean), can also produce prime numbers.

(3) Gauss 's famous "unique factorization theorem " states that any "integer" can be written as the "combination of products" or "geometric mean" of a series of prime numbers multiplied together.

The connection between number theory and circular logarithms refers to the calculation of circular logarithms defined in dimensionless language without specific prime elements. Circular logarithm proof: Prime functions and prime numbers cannot be directly exchanged, only dimensionless place value circular logarithms can be converted. The place value indicates the location of the location, without specific prime content, and the balance and exchange description of the symmetry of the central zero line (critical line) and central zero point (critical point) of the circular logarithm.

The reason and basis for why two numerical elements or logical objects cannot be directly combined. This is because the entire mathematical community has not paid attention to the strict logic of mathematics, and the true core of mathematical foundations has been covered up by "axiomatization of choice". Here, we will restore it with dimensionless facts.

That is to say, any integer can be written not only as a series of prime numbers "multiplication combination" unit body called geometric mean. At the same time, it can also form an "addition combination" average value (arithmetic mean) unit body. If all are prime numbers, it is called a prime function. The average value is uniformly called "characteristic modulus" (positive and negative mean function) .

For example A prime number tail { referring to the last natural number of prime number xx ... x (1,3 , (5), 7,9)} is a necessary condition for prime number, but not all prime number tails {(1,3, (5), 7,9)} are prime numbers. You can use methods such as Eratosthenes' "Sieve", China's "Chen's Theorem", "Xue's Sieve", and other methods to screen out prime numbers with prime tails. Those that do not exist are empty items. All other integer tails are not prime numbers, which are called composite numbers or composite numbers.

$(1-\eta_2^2)^{(K=\pm1)}=(1\pm\eta_2^2)^K=[(1-2/5)\text{and }(1+2/5)]\cdot\{5\}$; corresponds to (3,7);

$(1-\eta_4^2)^{(K=\pm1)}=(1\pm\eta_2^2)^K=[(1-4/5)\text{and }(1+4/5)]\cdot\{5\}$; corresponds to (1,9);

$(1-\eta_{[C]}^2)^{(K=\pm1)}=(1\pm\eta_5^2)^K==[(1-5/5)\text{and }(1+5/5)]\cdot\{5\}$; corresponds to (5,10);

Not a prime number. From this point of view, integers can be divided into two types, one is called a prime number, and the other is called a composite number. The object of number theory is prime numbers.

6.2.2 Definition of prime numbers

✷Definition 6.2.1 Characteristic modulus of number theory: The set of all prime numbers of any finite "K(Z±S)" in infinity, the set of mean functions obtained by dividing the combination of elements by the number of combinations (dividing the combination coefficient) is called "characteristic modulus". The characteristic modulus has two forms: "multiplication combination" characteristic modulus (geometric mean, real number) and addition combination (arithmetic mean, natural number).

✷Definition 6.2.2 Prime elements: Any finite prime numbers (elements) in infinity and any combination of digitizable elements (referring to multiplication (division) combinations and addition (subtraction) combinations), $\{q\}\in\{q_1 q_2 \ldots q_S\}=\{X\}^{K(Z\pm S)}$. The "combination" based on the dimensionless circular logarithm only represents the position and sequence of prime elements, an infinite construction set without the content of specific (mass) elements.

✷Define 6.2.3 The horizontal level with {5} as the center zero point is converted into a univariate quartic equation into circular logarithmic (probability) analysis and twin primes (topological analysis.

✷Definition 6.2.4 The vertical segment with {10} as the center zero is converted into a single-variable high-order equation into a circular logarithm to form a segment analysis.

✷Define the unit cell of "6.2.5 prime numbers (probabilistic prime numbers - topological twin prime numbers)": the unit cell is counted in the horizontal and vertical circular logarithmic way:

$(1-\eta_{[x]}^2)^{K(Z\pm S\pm(q=4)}=[(\alpha_x)-(\beta_x)]/[(\alpha_x)+(\beta_x)]=\{0,1\}$;

$(1-\eta_{[y]}^2)^{K(Z\pm S\pm(q=n)}=[(\alpha_y)-(\beta_y)]/[(\alpha_y)+(\beta_y)]=\{0,1\}$;

✷Define 6.2.6 The discriminant of prime number equations:

$\boldsymbol{\Delta}=(\eta^2)^K=\{^{(n)}\sqrt{\mathbf{D/D_0}}\}^{(0)}=\{^{(n)}\sqrt{\mathbf{D/D_0}}\}^{(1)}=\{^{(n)}\sqrt{\mathbf{D/D_0}}\}^{(2)}=\ldots=\{^{(n)}\sqrt{\mathbf{D/D_0}}\}^{(n)}$;

Among them: the circular logarithm is (multiplication combination (geometric mean) / addition combination

(arithmetic mean)) .
Where: $\{^{(4)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}$ represents the equation consisting of four prime numbers in the horizontal direction; $\{^{(n)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}$ represents the equation consisting of (N) prime numbers in the vertical direction:

The mantissas of natural prime numbers are converted into place-value circular logarithms, which only indicate the relevant levels and positions of the prime numbers without the specific numerical content of the prime numbers.

However, the number of place value circle logarithms can correspond to the number of prime numbers and exist at the same time, that is, the prime tail digits corresponding to a prime number have a level and location.

✷Definition 6.2.7 Power function: It is a power function with prime number level as base: $\{X\}^{K(Z\pm(S=g+s+b+q+w)\pm\ldots)}$, (representing the levels of tens, hundreds, thousands, etc. respectively).

The single element numbers $\{1,3,(5=0),7,9\}^{(Z\pm S)}$ correspond to $(1-\eta_4^2)^K$ and $(1-\eta_2^2)^K$, respectively;

(1,9): $(1\pm\eta_{[x]4}^2)^{K(Z\pm S)}=(1\pm4/5)\cdot\{5\}^{(1)}$;

(3,7); $(1\pm\eta_{[x]2}^2)^{K(Z\pm S)}=(1\pm2/5)\cdot\{5\}^{(1)}$;

Twin primes $\{\underline{1,3}\}$, $\{\underline{7,9}\}$ correspond to $(1\pm\eta_{\underline{(4,2)}}^2)^{K(Z\pm S)}$ respectively .
$\{\underline{1,3}\}(1-\eta_{[x]\underline{4,2}}^2)^{K(Z\pm S)}=(1-(4,2)/5)\cdot\{5\}^{(2)}$;
$\{\underline{7,9}\}$; $(1+\eta_{[x]\underline{(2,4)}}^2)^{K(Z\pm S)}=(1+(2,4)/5)\cdot\{5\}^{(2)}$;

The characteristic modulus of the blank prime {0, 0, (5=0), 0, 0} corresponds to $(1-\eta_{[x]0}^2)^{K(Z\pm S)}=(1\pm0/5)\cdot\{5\}$;

(1) Horizontal (row) level
$(1-\eta_{[x]}^2)^{K(Z\pm S)}=\{^{(4)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}^{K(Z\pm S)}$;
The numerical level is written in the power function, which is the "multiplication combination **D**" of the four circular logarithmic elements, and the "characteristic modulus {**5**}" is the four prime number groups with the central zero points {1,3,7,9}, and the "four-color Theorem or "analysis of a univariate quartic equation". Corresponding to the transverse prime circular logarithm group $(1-\eta_{[x]}^2)^{K(Z\pm S)}$.
Among them: "1-1 combination (prime probability)", "2-2 combination (twin primes)", "3-3 combination (prime and twin primes)", "0-0 combination (empty term) (boundary function) "Four combination states.

(2) Vertical (column)
$(1-\eta_y^2)^{K(Z\pm S)}=\{^{(S)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}^{K(Z\pm S)}$
Each "characteristic modulus {10}" segment within a fixed range takes "two adjacent circular logarithmic elements" as units, and performs "circular logarithmic statistics" of uneven distribution in the "vertical (column)", forming The segmented "N-order equation" is analyzed, and then the "quadratic equation" on the left and right sides of the total segment. Select "1-1 combination (prime probability)", "2-2 combination (twin primes)", " 3-3 combination (combination of prime numbers and twin prime numbers)", "0-0 combination (empty term)", circular logarithms of four combination states.
$(1-\eta_{(q)}^2)^{K(Z)}=(1-\eta_x^2)^{K(Z\pm S)}=(1-\eta_y^2)^{K(Z\pm S)}$:
Among them: Prime numbers or twin prime numbers are exchanged through the horizontal (row) level circular logarithm center zero point $(1-\eta_{[x]0}^2)^{K(Z\pm S)}=(1\pm0/5)\cdot\{\mathbf{5}\}$ asymmetric distribution conversion (reduction) into horizontal numerical factors. Vertical (column) circular logarithm center zero point $(1-\eta_{[y]0}^2)^{K(Z\pm S)}=(1\pm0/10)\cdot\{10\}$ asymmetric distribution conversion (reduction) into vertical numerical factors (α_{qy})-(β_{qy}) symmetry to achieve balance and exchange.

In this way, all combinations of prime numbers can be prime number tails $(1\pm\eta_4^2)^{(K=+1)}=\{1,9\}$; $(1\pm\eta_2^2)^K=\{3,7\}$; the uniformity of statistical distribution and the number of positions in the relevant range. The horizontal center zero point of the circular logarithm {5} firmly controls the stability of prime number analysis or statistics.

6.2.3 Rules about prime numbers

Riemann zeta function combined properties (adjusted) : $\sum^{(S)}\sqrt{X})^{(K=-1)(Kw=\pm1)(Z\pm S)}$;

Multiply the combined characteristic module unit: $\{X^{(S)}\}^K=\prod\{^{(S)}\sqrt{X}\}^{(K=-1)(Kw=-1)(Z\pm S)}$;

Add combined characteristic module: $\{X_0\}^{(Z\pm S\pm q)}=\{\sum[(P-1)!/(S-0)!]^K\prod_{[S\pm q]}(X_q)\}^{(K=-1)(Kw=+1)(Z\pm S\pm q)}$;

Any function with known boundary function $\{X\}^{K(Z\pm S)}$ and characteristic modulus $\{X_0\}^{K(Z\pm S)}$ can be converted into dimensionless circular logarithmic analysis:

Number of isomorphic circles: $(1-\eta^2)^K=\sum\{^{(S)}\sqrt{X}\}^K/(X_0)^{(K=-1)K(Z\pm S\pm(q=0,1,2,3,\ldots\text{integer})}\leq1$;

Or: $\{^{(S)}\sqrt{X}\}^K=(1-\eta^2)^K\{X_0\}^{(K=-1)K(Z\pm S\pm(q=0,1,2,3,\ldots\text{integer})}$;

The characteristic mode series corresponding to the circular logarithmic center zero line (critical line) is:

$(1-\eta^2)^K=\{^{(S)}\sqrt{X/X_0}\}^{(K=-1)(Kw=\pm1)(Z\pm S\pm(q=0,1,2,3,\ldots\text{integer})}\leq1$;

The collective sum of the zero lines (critical lines) at the center of the circular logarithm:

$(1-\eta^2)^K=(1-\eta^2)^{(K=-1)}+(1-\eta^2)^{(K=\pm1)}+(1-\eta^2)^{(K=-1)}=\{0,2\}^{K(Z\pm S\pm(q=0,1,2,3,\ldots\text{integer})}$;

Symmetry of the circle's logarithmic center zero line (critical line):

$(1-\eta_{[C]}^2)^{(K=\pm1)}=\{(1-\eta^2)^{(K=-1)}+(1-\eta^2)^{(K=-1)}\}=\{\pm1\}^{K(Z\pm S\pm(q=0,1,2,3,\ldots\text{integer})}$;

The zero point (critical point) at the center of the circular logarithm corresponds to the point of the characteristic mode series:

$(1-\eta_{[C]}{}^2)^{(Kw=\pm1)}=(1-\eta^2)^{(Kw=-1)}+(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}+(1-\eta^2)^{(Kw=-1)}\}^K=\{0,1\}^{K(Z\pm S\pm(q=0,1,2,3,\ldots integer)}$;

Correspondence of the zero point (critical point) of the circular logarithm:

$(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}=\{(1-\eta^2)^{(Kw=-1)}+(1-\eta^2)^{(Kw=-1)}\}^K=\{0\}^{K(Z\pm S\pm(q=0,1,2,3,\ldots integer)}$;

Dimensionless circular logarithm exchange rule:

Unchanged true propositions, unchanged characteristic modules, unchanged isomorphic circular logarithms, only the positive, negative conversion of the properties of isomorphic circular logarithms, true propositions become inverse propositions with the balanced exchange and combination mechanism of evenness of the 'axiom of infinity' .

Overall exchange process:

$\{X\}^{(K=-1)K(Z\pm S\pm(q=3)}=(ABC)^{(K=-1)}=(1-\eta^2)^{(K=-1)}(X_0)^{K(Z\pm S\pm(q=3)}$

$=[(1-\eta_{[ABC]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[ABC]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[ABC]}{}^2)^{(K=+1)}]\cdot(X_0)^{K(Z\pm S\pm(q=3)}$

$=(1-\eta_{[ABC]}{}^2)^{(K=+1)}(X_0{}^{(S)})=(ABC)^{(K=+1)}=\{\mathbf{D}\}^{K(Z\pm S\pm(q=3)}$;

$\{X_{[ABC]}\}^{(K=-1)(Z\pm S\pm(q=3)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow\{D_{[ABC]}\}^{(K=+1)(Z\pm S\pm(q=3)}$;

If the exchange process of the combinatorial decomposition belongs to the exchange (mapping, state) across powers,:

$\{X_{[A]}\}^{K(Z\pm S\pm(q=1)}\in(ABC)^{(K=-1)}=(1-\eta_{[ABC]}{}^2)^{(K=-1)}(X_0{}^{(S)})$

$=[(1-\eta_{[ABC]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[ABC]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[ABC]}{}^2)^{(K=+1)}]\cdot\{\mathbf{D}_{0[ABC]}\}^{K(Z\pm S\pm(q=1,2,3,\ldots S))}$

$=(1-\eta_{[BC]}{}^2)^{(K=+1)}(X_0{}^{(S)})\in(ABC)^{(K=+1)}=\{\mathbf{D}_{[BC]}\}^{K(Z\pm S\pm(q=2)}$;

$\{X_{[A]}\}^{)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow\{\mathbf{D}_{[BC]}\}$;

Among them: K(Z±S±(q=0,1,2,3,…integer) represents any finite (Z±S) prime number combination (q=0,1,2,3,…integer) in the infinite under the control of the property attribute K of the Riemann function. In the exchange, the properties of the two sides of the central zero point change, and the properties of the same side do not change.

In particular , cross-boundary exchanges must be based on $\{\mathbf{D}_{0[ABC]}\}^{K(Z\pm S\pm(q=1,2,3,\ldots S))}$ (the average value of all "element-object" set combinations) to perform "arbitrary cross-boundary balanced exchange combinations". The balanced exchange rules of dimensionless constructions clearly tell us that "balances in numerical analysis cannot be exchanged" and "mappings (morphisms) in logical analysis cannot be balanced" as traditional mathematics says .

combination mechanism of the evenness of the "infinite axiom" unique to dimensionless construction , which is called the dimensionless construction of integrity. That is:

combination (decomposition) between "true proposition ↔ inverse proposition" can only be proved and realized through a third-party dimensionless construction . And there is no interference from other elements-object contents, ensuring the "zero error" accuracy of operations and proofs in infinite sequences or programs. The whole process is called the "self-proof" of the random mutual inversion of the "evenness" of the dimensionless construction. The "infinite axiomatization" rule unique to the dimensionless construction is called "truthful".

6.2.4 Two important analysis steps of prime numbers corresponding to dimensionless circular logarithms

At present, the mathematical structure of the West for 400 years has relied on "Hilbert's number theory axiomatization system" and "set theory axiomatization" . At the beginning of the 20th century, mathematics went deep into the discussion of the foundation of mathematics, which involves "the nature of mathematics" and "the correctness of deduction". If the mathematical foundation is not solid or cannot be proved, the entire Western mathematical system will collapse and need to be re-verified, reorganized and reshaped.

The analysis content includes two steps of "group combination" (external and internal) analysis:

(**1**) Dimensionless place-valued circular logarithm: It solves the problem that the combination of the prime number "element-object" group in number theory is in the form of characteristic modules , which changes synchronously with the surrounding individual prime numbers , or jumps and transitions , and is complete.

(**2**) Dimensionless place-valued circular logarithm: The numerical values or continuous transitions between the groups of prime number "elements-objects" in analytical number theory and the surrounding individual prime number "elements-objects" are compatible .

(**3**) If this root element still has a "group combination relationship", continue to use this "group combination" to enter the next level of dimensionless circular logarithm construction analysis.

Among them: the positive mean function is a combination of positive integers (positive powers) (K=+1), the inverse mean function is a combination of fractions (negative powers) (K=-1), and the neutral mean function (zero power) combination (K=±0) is the critical point (critical line) of balanced exchange between positive and reverse directions , which drives the balanced exchange combination of prime number "element-object" .

In **1931 ,** Gödel's incompleteness theorem pointed out that all the above-mentioned mathematical and philosophical (dimensional structure system) structures "systems themselves " cannot " prove their own truth or falsity", and the mathematical foundation is not solid. Klein pointed out: "Not relying on the current axiomatic system " or "beyond the scope of Hilbert's metamathematics" and mathematically proven axiomatization, this mathematics has a reliable mathematical foundation.

the symmetry and asymmetry of the " evenness " unique to the dimensionless circular logarithmic construction set , the "infinite axiom" balanced exchange combination mechanism and "randomness" of randomness and non-randomness solves the difficulty of self-proof of dimensionless randomness and non-randomness , breaks through the scope of "Hilbert metamathematics", and becomes a complete " infinite axiom" mechanism . It proves the "axiomatization" of traditional mathematics impartially and authoritatively in a third-party dimensionless form , and believes that the incomplete mutual inversion of any "element-object" or "value-logic" "self-proof" has "truth".

In this way, any "object-function" (algebra-geometry-number theory-group combination-space) can convert numerical characteristic moduli and position-valued circular logarithms. Under the condition of unchanged characteristic moduli, the remaining dimensionless circular logarithms' "symmetry and asymmetry of even numbers , and the balanced exchange and combination mechanism of random and non-random 'infinite axioms' " can be reliably analyzed. The dimensionless circular logarithm is "independent of mathematical models and has no specific elements" , returning to the nature of mathematics, realizing an analysis environment with zero error accuracy , and self-consistently replacing the existing mathematical model operations.

This is what is meant by: the beginning of a new mathematical history of “dimensionless constructions”.

6.3.1. Overview of Traditional Prime Number Theorem and Circular Logarithms

The prime number theorem is the central theorem of prime number distribution theory, and is a proposition about the number of prime numbers . Only by first solving the uneven distribution of prime numbers, and by "moving" the dimensionless "infinity axiom" mechanism to fill the blanks with prime numbers, and adjusting the prime number distribution sequence to obtain a uniform distribution of prime numbers, can the stability and reliability of the zero point at the center of the circular logarithm be achieved.

Let $x\geq1$, and let $\pi(x)$ represent the number of prime numbers not exceeding x. When $x\to\infty$, $\pi(x)\sim Li(x)$ or $\pi(x)\sim x/\ln(x)$. (Li(x) is the logarithmic integral). Around **1792** , Gauss (Johann Carl Friedrich Gauss) made a conjecture about the distribution of prime numbers after in-depth analysis and examples:

The prime number theorem gives an asymptotic estimate of the nth prime number p(n): $P(n)\approx n/\ln(n)$. It also gives the probability of drawing a prime number from an integer. The probability that a random number not greater than n is prime is approximately $1/\ln(n)$.

1949 , Selberg gave a completely "elementary" proof, which shocked the entire mathematical community. [Later, someone used ($n\leq x$) instead, giving an elementary proof that did not even require exponential or logarithmic functions. Selberg won the Fields Medal for this achievement and other work, while Erdős and Chern won the Wolf Prize in Mathematics.

the 20th century and the beginning of **the 21st** century, the Chinese circular logarithm team first discovered the dimensionless structure and the unique "infinite axiom" mechanism, and proposed to convert the prime numbers into place-valued circular logarithm factors (i.e., the content without specific prime numbers) by converting the prime numbers' tails {1,3,(5=0),7,9} to represent the position and sequence of the prime numbers , and to fill the entire prime number with a uniform distribution (excluding the spaces after moving the prime numbers, which does not affect the prime number distribution density) . Convert { 1,3 ,(5=0), 7,9 } into circular logarithm double factors to represent the position and sequence of twin primes.

The natural number tail series $\{5\}^{K(Z\pm S)}=0$ is taken as the central zero line (critical line), and the natural number tail point $\{5\}^{K(Kw)(Z\pm S\pm(q=2))}=0$ on the series is taken as the central zero line (critical line) and the central zero point (critical point), respectively, forming the "Riemann function-prime function" . Next, the multiplication combination of multiple prime number elements (four prime number tails and the four color theorem) is used to establish a univariate quartic equation (multiple prime number-element addition combination) corresponding to the conversion into the place value circular logarithm :

$(1-\eta^2)^{K(Z\pm S)}=\sum\{^{(S)}X/X_0)^{K(Z\pm S\pm(q=0,1,2,3,\dots integer)}$

✷Definition 6.3.1 Horizontal: A level corresponding to the prime number tail with natural numbers "0-10" as the boundary, the characteristic modulus center point $\{5=0\}^{K(Z\pm S\pm(q=1,2,3,4)}$ is Critical point.

Prime numbers are distributed as "{1,3,(5=0),7,9}" and twin prime numbers are distributed as "{ 1,3 ,(5=0), 7,9 }". A prime number and a twin prime number constitute the "ternary number asymmetry" and the relationship between them is handled by the "cubic equation".

tails and circular logarithms : $\{1,3,(5=0),7,9\}^K$

$(1-\eta_4^2)=(5-4)/5=1$； $(1+\eta_4^2)=(5+4)/5=9$；

$(1-\eta_2^2)=(5-2)/5=3$； $(1+\eta_2^2)=(5+2)/5=7$；

Twin prime tail series: { 1,3 ,(5=0), 7,9 } $^{K(Z\pm S)}$
$(1-\eta_{[4,2]}{}^2)$= (1/5),(3 /5)]$^{K(Z\pm S)}$ corresponds to (1,3);
$(1+\eta_{[2,4]}{}^2)$= (7 /5), (9 /5)]$^{K(Z\pm S)}$ corresponds to (7,9);
Circular logarithm of the horizontal prime map:
$(1-\eta_{[x]}{}^2)^K=(1-\eta_4{}^2)^K+(1-\eta_2{}^2)^K+(1+\eta_2{}^2)^K+(1+\eta_4{}^2)^K=(1-\eta_{4,2}{}^2)^K+(1+\eta_{2,4}{}^2)^K$
Circular logarithm of the series of transverse prime mappings:
$(1-\eta_{[x]}{}^2)^{K(Z\pm S)}=(1-\eta_4{}^2)^{(K=+1)(Z\pm S)}+(1-\eta_2{}^2)^{(K=+1)(Z\pm S)}+(1+\eta_2{}^2)^{(K=-1)(Z\pm S)}+(1+\eta_4{}^2)^{(K=-1)(Z\pm S)}$
$=(1-\eta_{4,2}{}^2)^{(K=+1)(Z\pm S)}+(1-\eta_{2,4}{}^2)^{(K=-1)(Z\pm S)}$
Transverse twin primes and circular logarithms:
$(1-\eta_{[x]}{}^2)=(1-\eta_{4,2}{}^2)^K+(1+\eta_{2,4}{}^2)^K$;
Transverse twin prime series and circular logarithms:
$(1-\eta_{[x]}{}^2)=(1-\eta_{4,2}{}^2)^{(K=+1)(Z\pm S)}+\sum_{[y]}\{5\}^{K(Z\pm S\pm(q=0,1,2,3,\dots integer)}+(1+\eta_{2,4}{}^2)^{(K=+1)(Z\pm S)}$;

✷Definition 6.3.2 Vertical Series: The prime number tail is divided into multiple levels with natural numbers "0-10" as the boundary, and the characteristic modulus $\{\mathbf{5}\}^{K(Z\pm S\pm(q=0,1,2,3,\dots integer)}$ is Critical line.
Longitudinal prime circular logarithm:
$(1-\eta_{[y]}{}^2)^K=\sum_{[y]}(1-\eta_4{}^2)^K+\sum_{[y]}(1-\eta_3{}^2)^K+\sum_{[y]}\{5\}^{K(Z\pm S\pm(q=0,1,2,3,\dots 整数)}+\sum_{[y]}(1+\eta_2{}^2)^K+\sum_{[y]}(1+\eta_4{}^2)^K$
$=\sum_{[y]}(1-\eta_{4,2}{}^2)^K+\sum_{[y]}\{\mathbf{5}\}^{K(Z\pm S\pm(q=0,1,2,3,\dots integer)}+\sum_{[y]}(1+\eta_{2,4}{}^2)^K$
Vertical twin prime series and circular logarithms:
$(1-\eta_{[y]}{}^2)=\sum_{[y]}(1-\eta_{[4,2]}{}^2)^{(K=+1)(Z\pm S)}+\sum_{[y]}\{\mathbf{5}\}^{K(Z\pm S\pm(q=0,1,2,3,\dots integer)}+\sum_{[y]}(1+\eta_{[2,4]}{}^2)^{(K=-1)(Z\pm S)}$;

✷Definition 6.3.3 Density circular logarithm: the ratio of the number of prime numbers to the number of natural numbers in a specified prime number range $(1-\eta_{[ym]}{}^2)$,
$(1-\eta_{[ym]}{}^2)=S/N=\sum_{[ym]}(1-\eta_{1,3}{}^2)^{(K=+1)(Z\pm S)}+\sum_{[ym]}\{\mathbf{5}\}^{K(Z\pm S\pm(q=0,1,2,3,\dots integer)}+\sum_{[ym]}(1+\eta_{7,9}{}^2)^{(K=-1)(Z\pm S)}$;
Among them: for the convenience of calculation,
$(1-\eta_{[ym]}{}^2)=(1-\eta_{[y]}{}^2)=\{0,1\}^{K(Z\pm S\pm(q=0,1,2,3,\dots integer)}$;

6.3.2. Asymmetric distribution and mapping of circular logarithms and prime numbers

The vertical circle logarithm $(1-\eta_{[y]}{}^2)^K$ is a comparison of the number of prime numbers corresponding to the specified level and the number of natural numbers, forming a prime number density (distance space) with the horizontal center zero point {5} as the vertical critical line Circular logarithmic distribution: respectively:

For example, the horizontal logarithm of the circle $(1-\eta_{(xm)}{}^2)^{K(Z)}$= (1-0.93587)=0.006413, as N increases, the longitudinal distribution measurement circle logarithm $(1-\eta_{(ym)}{}^2)^{K(Z/t)}\to 0$;
$(1-\eta_{(xm)}{}^2)^{K(Z)}=(\alpha_1-\beta_1)/(\alpha_1+\beta_1)^{K(Z)}$;
Among them: (α_1) and (β_1) represent the left and right levels of calculation respectively;
For example, the logarithm of the vertical circle
$(1-\eta_{(ym)}{}^2)^{K(Z)}$= (1-0.93587)=0.006413,
As N increases, the circular logarithm of the longitudinal distribution measurement : $(1-\eta_{(ym)}{}^2)^{K(Z/t)}\to 0$; reflecting that the density law of their longitudinal distribution approaches uniformity.
$(1-\eta_{(ym)}{}^2)^{K(Z)}=(\alpha_2-\beta_2)/(\alpha_2+\beta_2)^{K(Z)}$;
Among them: (α_2) and (β_2) represent the upper and lower levels of calculation respectively; reflecting that their vertical distribution density law tends to be uniform. In other words, under the control of the dimensionless circular logarithm $(1-\eta_{(ym)}{}^2)^{K(Z)}$, the distribution of twin primes also becomes uniform:
For example: Statistics of prime numbers:
Determination: There is no prime level space in the uniformly distributed prime dimensionless circular logarithm , the center zero point {5} of the prime circular logarithm is the symmetry center, and the probability of prime number is 1;
$(1-\eta_{[x]}{}^2)^{K(Z\pm S)}=\sum(1-\eta_{[1]}{}^2)^{(Z\pm S)}+\sum(1-\eta_{[3]}{}^2)^{(Z\pm S)}+\sum(1-\eta_{[7]}{}^2)^{(Z\pm S)}+\sum(1-\eta_{[9]}{}^2)^{(Z\pm S)}=1$;
Symmetry of the prime circle about the central zero line:
$\sum(1-\eta_{[1,3]}{}^2)^{(K=+1)(Z\pm S)}+\sum(1-\eta_{[7,9]}{}^2)^{(K=-1)(Z\pm S)}=0$;
the dimensionless circular logarithm of twin primes is zero point {5}, which is the center of symmetry. The probability of twin primes is 1.
$(1-\eta_{[x]}{}^2)^{K(Z\pm S)}=\sum(1-\eta_{[1,3]}{}^2)^{K(Z\pm S)}+\sum(1-\eta_{[7,9]}{}^2)^{K(Z\pm S)}=1$,
Corresponding characteristic mode center {**5**} ;
dimensionless circular logarithmic center zero line symmetry of twin primes :
$\sum(1-\eta_{[1,3]}{}^2)^{(K=+1)(Z\pm S)}+\sum(1-\eta_{[7,9]}{}^2)^{(K=-1)(Z\pm S)}=0$;
The above-mentioned uneven distribution of prime numbers and twin prime numbers is converted into an asymmetric distribution of the central zero line (critical line). Through the symmetric and asymmetric balance

exchange mechanism of even numbers centered on the central zero point (critical point) of the circular logarithm, the prime numbers are driven balance and exchange.

The above prime number distribution shows strong asymmetry. Converting to circular logarithmic symmetry facilitates prime number analysis.

Among them: the dimensionless circular logarithmic analysis of prime number distribution has:

Circular logarithm "determinant":

$(1-\eta_{[x]}^2)^{K(Z\pm S\pm(q=1,3,7,9)}$ and $(1-\eta_{[y]}^2)^{K(Z\pm S\pm(q=0,1,2,3,\ldots integer)}$

They correspond to the invariant characteristic modulus {5}, and the number distribution of circular logarithms is synchronized with the number of prime numbers that determine their number and location.

$(1-\eta_{[q]}^2)^K=(1/2)((1-\eta_{[x]}^2)+(1-\eta_{[y]}^2))=\{0 \text{ to } 1\}$;

The dimensionless circular logarithm prime distribution theorem involves the traditional prime number theorem (PNT), and the circular logarithm $(1-\eta_{[q]}^2)^K$ of prime numbers ending in {1,3,7,9} corresponding to {1,3,(5=0),7,9}, statistics centered on the natural number ending in {5}, including the twin prime statistics of two prime numbers multiplied together.

$\{q\}=(1-\eta_{[q]}^2)^K(1/2)(\alpha+\beta)$

$=(1/2)[(1-\eta_{[x]}^2)+(1-\eta_{[y]}^2)]\cdot\{\mathbf{5}\}^{K(Z\pm S\pm(q=0,1,2,3,\ldots integer)}$;

The vertical-horizontal density of prime numbers is calculated using circular logarithm statistics to solve the problem of "the number of prime numbers less than a given value".

Based on Derbyshire's work and the research results of prime number theorem by previous mathematicians, circular logarithms are introduced and expanded to (Table 1)-(Table 2). It is believed that this is the best statistical form of prime number distribution.

Refer to von Koch's results in 1901. Process the structure of $\pi(x)=Li(x)-\mathbf{O}(\sqrt{x}\ lin)$ so that $\mathbf{O}(\sqrt{x}\ lin)$ equals "0", and use the circular logarithm to convert the unstable prime number distribution into the stable symmetric distribution of the "central zero line (critical line), central zero point (critical point)" vertical and horizontal determinant distribution.

The dimensionless prime number $(1-\eta_{(q)}^2)^{K(Z/t)}$ has a density probability in the interval $(0\text{-}10^{18})$:

in the specified prime number segment vertically $\sum(1-\eta_{(y)}^2)^{K(Z/t)}$ and horizontally $\sum(1-\eta_{(xq)}^2)^{K(Z/t)}$ is expressed as the circular logarithmic density probability, that is, the number of prime numbers is the same as the number of circular logarithms. The difference lies in the asymmetry of the prime number distribution, which is converted into circular logarithms with reduced density. The vertical $\sum(1-\eta_{(y)}^2)^{K(Z/t)}$ and horizontal $\sum(1-\eta_{(xq)}^2)^{K(Z/t)}$ are evenly symmetrically distributed around the central zero point {5}.

6.3.3 Balanced exchange mechanism of prime number distribution and circular logarithmic evenness

The principle of moving (i.e., balanced exchange) dimensionless circular prime numbers :

Take $(1-\eta_{[x]}^2)^K$ corresponding to the level {**10**} = (q = 1, 2, 3, ... integer), horizontal distribution, take $(1-\eta_{[x]}^2)^{K(Z\pm S)}$ corresponding to {**5**} as the symmetry center zero point left and right sides P = (1, 3, (**5** = 0), 7, 9) apply their balance exchange rules, fill in the blanks, and satisfy the uniformity of the circular logarithm:

Dimensionless circular logarithm balanced exchange rules: unchanged prime numbers, unchanged characteristic moduli, unchanged isomorphic circular logarithms achieve balanced exchange, and the direct proposition is converted into the inverse proposition simply through the direct, inverse conversion of the properties of the circular logarithm. Direct proposition $^{(K=+1)}$ ↔ circular logarithm center zero point $^{(K=\pm0)}$ ↔ inverse proposition $^{(K=-1)}$, fill the blanks by mapping prime numbers (including twin primes) to ensure that there are no blanks in the prime circular logarithm and satisfy the uniform distribution of dimensionless circular logarithm.

Representation: For example, the blank position (x) and the extra prime number [x] are mapped to each other through the properties of circular logarithms, represented by the " ↔ " symbol.

"(1) ↔ [3], (1) ↔ [7], (1) ↔ [9],

(3) ↔ [7], (3) ↔ [9], (7)↔ [9], (1,3) ↔ [7,9] ",

Four forms of balanced exchange of even prime numbers:

$(1-\eta_{(x=1)}^2)^{(K=+1)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=5=0)}^2)^{(K=\pm0)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=9)}^2)^{(K=-1)K(Z\pm S)}$;

$(1-\eta_{(x=3)}^2)^{(K=+1)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=5=0)}^2)^{(K=\pm0)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=7)}^2)^{(K=-1)K(Z\pm S)}$;

$(1-\eta_{(x=1)}^2)^{(K=+1)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=5=0)}^2)^{(K=\pm0)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=3)}^2)^{(K=-1)K(Z\pm S)}$;

$(1-\eta_{(x=3)}^2)^{(K=+1)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=5=0)}^2)^{(K=\pm0)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=9)}^2)^{(K=-1)K(Z\pm S)}$;

Among them: the prime number tail $\{1.3.7.9\}^{K(Z\pm S)}$ corresponding to the "place value (one, ten, hundred, thousand, ten thousand, ...)" power function number (S=1,2,3,4,5...) ;

The balanced exchange form of the evenness of twin primes:

$(1-\eta_{(x=4,2)}^2)^{(K=+1)K(Z\pm S)}\leftrightarrow(1-\eta_{(x=5=0)}^2)^{(K=\pm0)K(Z\pm S)}\leftrightarrow(1+\eta_{(x=42)}^2)^{(K=-1)K(Z\pm S)}$;

the twin prime tail { 1.3.7.9 } $K(Z\pm^{S)}$ corresponds to the "place value (one, ten, hundred, thousand, ten thousand, ...)"

power function number (S=1,2,3,4,5...);

Prime number mantissa means:

465 **1** = **{1}** $^{K(S=4650)}$; 247 **3** = **{3}** $^{K(S=2470)}$; 415 **7** = **{7}** $^{K(S=4150)}$; 496 **9** = **{9}** $^{K(S=4960)}$;…;

Algorithm superiority: the prime number value and the central zero point remain unchanged, and the prime mantissa does not affect the "odd-even number of the combination number". In this way, the calculation content of the prime number is compressed into the dimensionless circular logarithm corresponding to the "four prime mantissas" and "two twin primes", and the power function (Z±S) corresponds to infinite prime numbers.

6.3.4 Circular Logarithm Prime Theorem

The dimensionless circular logarithm does not represent the specific value of prime numbers, but only their position and sequence. The value corresponding to the prime number in the uniform circular logarithm

The distribution of twin primes is "4" elements, and the corresponding value of twin primes in the uniform circular logarithm is "2" elements, ensuring the balanced exchange of the evenness of the dimensionless circular logarithm. The circular logarithm of the "prime compression in a certain area" mapped by prime adjustment has no empty terms, maintaining the uneven distribution of primes and the symmetry of the circular logarithm.

The prime number theorem can give an asymptotic estimate of the nth prime number p(n): it also gives the probability of drawing a prime number from an integer according to the circular logarithm distribution of the density. Randomly select a natural number not greater than n, which is the number of prime numbers in each segment (uniformly distributed) expressed in circular logarithms. The four prime mantissas are restored to their original prime values by circular logarithms, and the central zero line (critical line) and the central zero point (critical point) correspond to the characteristic modulus $\{5\}^{K(Z\pm S)}$ stability remains unchanged.

When the total number of elements remains unchanged, all prime numbers $\{1,3,7,9\}^{K(Z\pm S)}$ conform to the circular logarithm $(1-\eta_{(q)}{}^{2})^{K(Z\pm S)}$. Due to the "mapping" adjustment for symmetry, except for individual prime points distributed near the circular logarithm curve , it does not affect the description of the entire circular logarithm. This is called the circular logarithm prime number theorem.

Circular logarithm prime theorem

$(1-\eta_{(q)}{}^{2})^{K(Z\pm S)}=[\,Li(x)-\pi(N)]/Li(x)+\pi(N)$

$=(\alpha-\beta)/(\alpha+\beta)^{K(Z\pm S)}\rightarrow 0$; q=1,2,3,…(sequence);

（表格 6.1）素数纵向分布测度与圆对数

圆对数	序列(q)	N	N/π(N)	个数	密度圆对数 $(1-\eta_{(q)}{}^{2})^{K(Z)}=(\alpha-\beta)/(\alpha+\beta)$	$(1-\eta_{(q)}{}^{2})^{K(Z)}$值
	1	$(1-\eta_{(1)}{}^{2})$	10^{3}	5.9524	1	
	2	$(1-\eta_{(2)}{}^{2})$	10^{6}	12.7392	(12.7392 - 5.9524)/(12.7392 +5.9524)	0.36369
	3	$(1-\eta_{(3)}{}^{2})$	10^{9}	19.6665	(19.6665- 12.7392)/ (19.6665+12.7392)	0.21367
	4	$(1-\eta_{(4)}{}^{2})$	10^{12}	26.5901	(26.5901- 19.6665)/ (26.5901+ 19.6665)	0.14967
	5	$(1-\eta_{(5)}{}^{2})$	10^{15}	33.6247	(33.6247- 26.5901)/ (33.6247+ 26.5901)	0.11689
	6	$(1-\eta_{(6)}{}^{2})$	10^{18}	40.4204	(40.4204- 33.6247)/ (40.4204+33.6247)	0.09177

分布概率：$\sum(1-\eta_{(q)}{}^{2})^{K(Z)}=1+0.36369+0.21367+0.14967+0.11689+0.09177=0.93587\rightarrow 2$；

分布规律：$\sum(1-\eta_{(q)}{}^{2})^{K(Z)}=1-0.36369-0.21367-0.14967-0.11689-0.09177\rightarrow 0$；

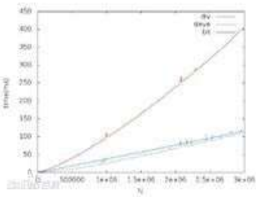
N/π(N)表示：103/168=5.9524（第一项序）；106/78498=12.7392（第二项序）；——；

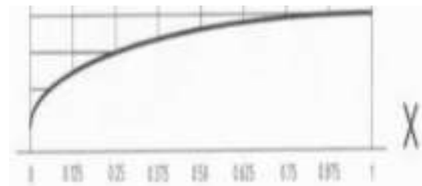
(Table 6.1) Prime number vertical distribution measure and circular logarithm

Among them: (α - β)/(α + β) is the number of prime numbers in the two adjacent vertical sequences (α) and (β), which becomes the dimensionless circular logarithm infinite construction set. This distribution rule is consistent with the existing The distribution rules of prime numbers are consistent and are expressed in dimensionless circular logarithmic form.

$(1-\eta_{(q)}{}^{2})^{K(Z)}=(\alpha-\beta)/(\alpha+\beta)$; $(1-\eta_{(y)}{}^{2})^{K(Z)}$ position value circular logarithm

The figure below compares π(x), x/ln(x) and Li(x)-π(N) **(Figure 6.2) and** the asymptote of the circular logarithm (including twin primes) $(1-\eta_{[y]}{}^{2})^{K(Z)}$. The density change approaches zero: this means that the prime number distribution (measure, distance, space) corresponding to the prime numbers ending in {1,3,7,9} approaches stability **(Figure 6.3)** .





(Figure 6.2) Overview of the Traditional Prime Number Theorem (Figure 6.3) Circular logarithmic curve distribution of prime numbers (x=0 , 10^{3} , 10^{6} , 10^{9} , 10^{12} , 10^{15} , 10^{18})

6.4. Dimensionless circular logarithms solve the Riemann zero conjecture

In August 1859, Bernhard Riemann proposed a paper titled "How many prime numbers are there less than a given value?" In it, Riemann explored a seemingly simple problem in ordinary arithmetic and created a very powerful and ingenious mathematical object and a conjecture about it. It is called the "Riemann Zero Conjecture", also known as the " Riemann Hypothesis ".

In 1900, Hilbert combined the special zero conjecture of the Riemann function with the Goldbach conjecture, the twin prime conjecture, and the Landau-Siegel zero conjecture as one conjecture, because they all involve the prime number distribution theorem. Once solved, the four zero conjectures can be solved. However, solving the zero conjecture is only one aspect. More importantly, it is to find a new mathematical method or mathematical structure to solve the current mathematical dilemma.

It has become increasingly clear that the Riemann hypothesis holds the key to opening the door to various scientific and mathematical research, and the Riemann function has become a mathematical model that constantly connects various current disciplines. Over the past 165 years, many national research departments have invested a lot of financial, human and material resources to explore the Riemann zero conjecture, but to no avail, and it has remained a mystery to this day.

In this era, dimensionless circular logarithms came into being, which verified that "the axiom of natural numbers or the axiomatization of any dimensional system" is inherently incomplete. For example, "numerical analysis equilibrium cannot be exchanged, and logical analysis mapping cannot be balanced." As Gödel's incompleteness theorem says: "The system itself cannot prove the authenticity of the system." This is the fundamental reason why a series of century-old mathematical problems have no solution. What should we do? Many mathematicians believe that "new mathematical constructions must be found."

Based on the achievements of mathematicians from ancient and modern times, both at home and abroad, the circular logarithm team creatively discovered a new infinite set of dimensionless circular logarithms. Any set of numerical functions - logical objects can be converted into a dimensionless circular logarithm set. Each subset of the infinite set of dimensionless circular logarithms has a unique "balance exchange mechanism of even symmetry and asymmetry". Each step of the analysis and operation procedure is self-balancing and exchanging, ensuring the high accuracy, authority and fairness of zero-error operations - this is an infinite set of constructions that the current (dimensional) mathematical system does not have.

Among them, the dimensionless circular logarithm itself has a complete circular logarithm axiomatization and a balanced exchange mechanism of symmetry and asymmetry of evenness, has an irrelevant mathematical model, and has no interference from specific elements, ensuring zero error analysis and proof of each program. In other words, this is a unique third-party construction set identity. The mathematical problems related to the zero-point conjecture of the Riemann function can be applied to prove, analyze, and calculate.

The Riemann hypothesis can be summarized into two problems. By solving this infinite construction set, the Riemann zero conjecture (including the Goldbach conjecture, the twin prime conjecture, and the Landau-Siegel zero conjecture) is completely solved. It plays an important and irreplaceable axiomatic role in arbitrary mathematical analysis.

The first question: First, solve the prime number distribution theorem, how to convert the "unevenness" of prime numbers into symmetric distribution. Use the balanced exchange mechanism of circular logarithms to solve the symmetric distribution. The circular logarithm drives the adjustment of the mapping of prime numbers to obtain the central zero point of the prime number circular logarithm stability. This is called the circular logarithm prime number theorem.

The second question is: "The real part of all non-trivial zeros of the Riemann hypothesis is (1/2)". The Riemann **zeta** function is written as: "The sum of all prime number series $\sum \zeta(x^{(-S)}=\sum\zeta(x)^{(K=-1)(Z\pm S)}$ ", called "the sum of reciprocals". Due to the contradiction between the properties of prime numbers and the properties of exponential functions, the circular logarithm is adjusted to "the sum of reciprocals and reciprocals $\sum \zeta(x)^{(K=-1)(Z\pm S)}$ ".

The properties (K=+1,-1,±0,±1) control the stability and convergence of the Riemann **zeta** function without losing the generality of the Riemann function. According to the circular logarithm prime theorem of the first problem, the symmetry of the stability of the prime circular logarithm is obtained:

（1）, the central zero line (critical line) corresponds to the prime characteristic modulus series (positive, median and inverse mean function),

(2) The central zero point (critical point) corresponds to the prime characteristic modulus point (of the positive, median and inverse mean function). That is, the real part of all non-trivial zeros of the Riemann hypothesis is (1/2) or (1).

Among them: the real parts of all non-trivial zeros are (1/2) which refers to the {0,1} region. Coordinate movement does not affect the specific value. They can also be (0) which refers to the {0,±1} region. The central zero point (critical point) is on the central zero line (critical line). This "real parts of all non-trivial zeros are (0)" is on the characteristic mode corresponding to the central zero line (critical line).

Applying dimensionless circular logarithms to solve the symmetry of prime number distribution is the primary difficulty in solving the zero-point conjecture of the Riemann zeta function.

The core is to use what methods or means to solve the strong asymmetric distribution of prime numbers. When encountering "the real part of non-trivial zeros is (1/2), that is, the coordinate movement does not affect the characteristics of the central zero point. In order to express the symmetry, the circular logarithm is written as (0, ±1), and the central zero point of symmetry is 0".

So why can't we use "prime numbers" to directly perform balanced exchange processing?

Reason: The "self-evident" balance calculation of the Peano axioms cannot solve the problem that the asymmetry between two prime numbers cannot be directly "mapped /morphic/moved/projected " ; logical "set theory axiomatization", such as: prime numbers 3≠7 cannot be exchanged, and 3→7 cannot be balanced.

Only through circular logarithmic mapping (i.e. the dimensionless construction of the unique even symmetry and asymmetry 'infinite axiom' balance exchange combination mechanism), through circular logarithmic adjustment (mapping , morphism, movement) for symmetry, can the prime numbers be driven to become the prime circular logarithmic density description, with (reduced) circular logarithmic values, and the symmetry can be balanced and exchanged through the central zero point.

In other words, the stability and symmetry of " the prime numbers of the Riemann **zeta function** , through the 'axiom of infinity' circular logarithm to adjust the prime numbers to be uniform, then all the ' real parts of non-trivial zeros ' (critical points) are the central zeros (0)" are true.

This article has already had a detailed analysis and a special topic, so I will not repeat it here. Here is a brief introduction to the process of cracking the Riemann zero conjecture (Riemann hypothesis) for your reference or understanding.

Step 1 : Solve the horizontal (multi-line) hierarchy within the section :

$(1-\eta_{[x]}^2)^{K(Z\pm S)} = \{\sqrt[(4)]{\mathbf{D/D_0}}\}$

The analytic root prime number determines the prime root or the number of prime numbers in the form of the circular logarithm center zero point $(1-\eta_{[x]}^2)^{K(Z\pm S)}\cdot\{5\}$, {5=(0,±1)} The vertical division is divided into the center zero line (critical line) as "0" and the boundary line as "±1", corresponding to the (reduced) numerical factor,

Step 2 : Solve the vertical distribution within the section:

$(1-\eta_{[y]}^2)^{K(Z\pm S)}=[(\alpha_{qx})-(\beta_{qx})]/[(\alpha_{qx})+(\beta_{qx})]$,

The zero point of the circular logarithm is **N** times **10**.

$(1-\eta_{[y]}^2)^{K(Z\pm S)}=(1\pm 0/10)\cdot\{\mathbf{10}\}$"

The prime numbers (multiple rows and levels) of the statistics are divided into left-right symmetry to achieve balance

and exchange. The superiority of the calculation is that the central zero point of the circular logarithm

$(1-\eta_{0[x]}^2)^{K(Z\pm S)}=(1\pm 0/5)\cdot\{\mathbf{5}\}$ remains unchanged.

Step 3: Solve the asymmetric distribution of prime numbers (including twin primes) in the vertical and horizontal directions within the segment, and use the " balanced exchange mechanism of even symmetry and asymmetry " to map the characteristic modulus {5} to the central zero line (critical line). (Strictly speaking, the mapping cannot be moved directly, and the prime numbers must be driven by the balanced exchange of circular logarithms.) Cancel the incomplete item sequence, and move the prime numbers to fill the blanks. In this way, the asymmetric distribution of prime numbers (including twin primes) in the vertical and horizontal directions within this segment is converted into a dimensionless prime circular logarithm symmetric distribution .

Step 4: Inverse mapping of the prime circular logarithmic symmetry distribution to obtain $(1-\eta_{[x]}^2)^{K(Z\pm S)}$ and $(1-\eta_{[y]}^2)^{K(Z\pm S)}$ in the segment.

And it keeps the stability of the central zero line (critical line) and the central zero point (critical point) unchanged, laying the foundation for cracking the central zero point conjecture.

$(1-\eta_{(q)}^2)^{(K=-1)(Z\pm S)}=(\alpha-\beta)/(\alpha+\beta)^{(K=-1)(Z\pm S)}\rightarrow 0$, (subtracted combination)

Central zero point (critical line, critical point) adapted to Riemann function zero point analysis

$(1-\eta_{(q)}^2)^{(K=-1)(Z\pm S)}=(\alpha-\beta)/(\alpha+\beta)^{(K=+1)(Z\pm S)}\rightarrow 2$, (add combination)

The central zero point (critical line, critical point) is adapted to the zero point analysis of the Goldbach conjecture .

$(1-\eta_{(q)}^2)^{(K=-1)})^{(Kw=-1)(Z\pm S)}=(\alpha+\beta)/(\alpha-\beta)^{(K=-1)(Z\pm S)}\rightarrow 1$,

Central zeros (critical axes, critical points) adapt to the Landau-Siegel zero conjecture, the first zero (the torus (interior) point and the central axis, reduced combinatorial analysis.

$(1-\eta_{(q)}^2)^{(K=-1)(Kw=+1)(Z\pm S)}=(\alpha+\beta)/(\alpha-\beta)^{(K=-1)(Z\pm S)}\rightarrow 0$,

The central zero point (critical line, critical point) adapts the Landau-Siegel zero point conjecture to the second zero point (outside the ring) and the central axis, plus combinatorial analysis.

Now we need a specific mathematical proof: the asymmetric distribution of prime numbers (including twin primes) in the prime number segment in the vertical and horizontal directions, and the reason for the uniform distribution of the number of prime numbers (or root prime numbers) converted into dimensionless circular logarithms (reduced) corresponding to the circular logarithms of the level or segment with an unchanged central zero point {5} .

The proof method uses the third party to construct the dimensionless circular logarithm's 'infinity axiom' mechanism for balance movement, exchange, combination, and decomposition:

certificate:

Assume: the prime number tail number in the segment (horizontally-vertically)

$\{X\}^{K(Z\pm S\pm(q=1,2,3,4)}\in\{x_a x_b x_c x_d\}=\{^{K(4)}\sqrt{\{x_a x_b x_c x_d\}}^{K(Z\pm S\pm(q=1,2,3,4)}$,

two forms of characteristic modulus (positive, median and inverse mean functions): {**5**=0} and {**10**=0} .

(1) The total vertical segment of any prime number in the segment corresponds to the characteristic modulus center zero line (critical line) $\{\mathbf{10}^{K(1N)}=0\}$ (prime number), $\{\mathbf{5}^{K(2N)}=0\}$ (twin prime number).

(2) Each small horizontal segment of any prime number in the segment corresponds to the central zero point (critical point) of the characteristic modulus (prime number) $\{\mathbf{5}^{K(1N)}=0\}$, (twin prime number) $\{\mathbf{5}^{K(2N)}=0\}$, that is, the central zero points (critical points) of the central zero line (critical line), including all critical points on the critical line.

(3) Finally, the circular logarithmic center zero point {**5**} is decomposed into two asymmetric functions in the longitudinal direction of the segment, which are converted into two symmetrical distributions of circular logarithmic factors in the segment to achieve balance and exchange.

$(1-\eta_{(q)})^{(K=-1)(Kw=+1)(Z\pm S\pm(q=1,2,3,4)}=(\alpha-\beta)/(\alpha+\beta)^{(K=-1)(Z\pm S\pm(q=1,2,3,4)}\leq 1$,

(Comparison with the asymmetric distribution becomes the reduced circular logarithm) corresponding to the characteristic mode {**10**=0} between segments and the characteristic mode {**5**=0} within the segment respectively; Among them: $\{\mathbf{5}^{K(1)}=0\}$ also represents the "1-1 combination " suitable for prime number statistical analysis, and $\{\mathbf{5}^{K(2)}=0\}$ represents the "2-2 combination" suitable for twin prime statistical analysis.

Boundary value: Infinite prime numbers Any four prime numbers with the last digits {1,3,7,9} can be determined by multiplying four prime numbers (vertically and horizontally). The missing prime numbers (which cannot form a complete four prime terms) cannot be determined.

Given: Four prime number product combinations: $\{\mathbf{D}\}^{K(S)}=\{^{K(S)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm(q=1,2,3,4)}$;

The center point {**5**} of the four prime number characteristic moduli (average values) decomposes the prime number distribution into two asymmetric distributions, which are balanced and exchanged by converting the circular logarithm into a symmetric distribution.

If prime number statistics encounter "vacancies or empty items", the "vacancies" should be analyzed and counted in the following way: the multiplication combination is "1" and the addition combination is "0".

The incomplete distribution of prime numbers is: a quadratic equation (of two prime numbers) (which contains two twin primes): a cubic equation (of three prime numbers) (which contains one twin prime): Examples have been explained before.

Take the distribution of complete prime numbers as an example: the distribution of prime numbers is a quartic equation:

Calculation features: The characteristic mode of the horizontal point {5=0}, the characteristic mode of the vertical line {10=0} is divided into segments $\{5\}^{K(Z\pm S\pm(q=1,2,3,4)}$;

$\{\mathbf{D_a}+\mathbf{D_b}+\mathbf{D_c}+\mathbf{D_d}\}$ respectively correspond to the prime numbers {1,3,(5=0),7,9} and are converted into dimensionless circular logarithms $(1-\eta_a^2)^K+(1-\eta_b^2)^K+(1-\eta_c^2)^K+(1-\eta_d^2)^K$

The characteristic modulus (mean value function) of the "1-1 combination" of prime number individual statistics:

$\{\mathbf{D}_0\}^{K(1)}=(1/4)\{\mathbf{D_a}+\mathbf{D_b}+\mathbf{D_c}+\mathbf{D_d}\}/\{X^{(1)}\}^{K(Z\pm S\pm(q=1,2,3,4)}$

$=(1/4)[(1-\eta_a^2)^K+(1-\eta_b^2)^K+(1-\eta_c^2)^K+(1-\eta_d^2)^K]^K\cdot\{\mathbf{5}^{(1)}\}^{K(Z\pm S\pm(q=1,2,3,4)}$;

Twin prime statistics "2-2 combination" characteristic modulus (mean value function);

$\{\mathbf{D}_0\}^{K(2)}=(1/6)\{x_ax_b+x_ax_c+x_ax_d+x_bx_c+x_bx_d+x_cx_d\}/\{X^{(2)}\}^K$
$=(1/6)[(1-\eta_{ab}^2)^K+(1-\eta_{ac}^2)^K+(1-\eta_{ad}^2)^K+(1-\eta_{bc}^2)^K+(1-\eta_{bd}^2)^K+(1-\eta_{cd}^2)^K]\cdot\{\mathbf{5}^{(2)}\}^{K(Z\pm S\pm(q=1,2,3,4)}$;

1.1，The circular logarithm of "prime probability statistics" within the segment:
$(1-\eta_{[x]}^2)^{K(1)}=(1-\eta_a^2)^K+(1-\eta_b^2)^K+(1-\eta_c^2)^K+(1-\eta_d^2)^K]/\{X\}^{K(1)}$
$=(1-\eta_a^2)^K+(1-\eta_b^2)^K+(1-\eta_c^2)^K+(1-\eta_d^2)^K]^K=1$;

1.2，The center zero line (critical line) of the logarithm of the "prime number probability statistics" circle within the segment:
$(1-\eta_{[x-c]}^2)^{K(1)}=(1-\eta_a^2)^K+(1-\eta_b^2)^K+(1-\eta_c^2)^K+(1-\eta_d^2)^K]^K/\{X_0\}^{K(1)}$;
$=(1-\eta_a^2)^K+(1-\eta_b^2)^K+(1-\eta_c^2)^K+(1-\eta_d^2)^K]^K=\{1\}$;

1.3，The center zero point (critical point) of the "prime number probability statistics" circle logarithm within the segment:
$(1-\eta_{[x-c]}^2)^{K(1)}=\{x_a+x_b+x_c+x_d\}/\{X_0\}^{K(1)}$
$=(1-\eta_a^2)^K+(1-\eta_b^2)^K+(1-\eta_c^2)^K+(1-\eta_d^2)^K]^K=\{0\}$;

2.1，The number of circular logarithms of "prime topological statistics" within the segment:
$(1-\eta_{[x]}^2)^{K(1)}=\{x_ax_b+x_ax_c+x_ax_d+x_bx_c+x_bx_d+x_cx_d\}/\{X\}^{K(2)}$
$=[(1-\eta_{ab}^2)^K+(1-\eta_{ac}^2)^K+(1-\eta_{ad}^2)^K+(1-\eta_{bc}^2)^K+(1-\eta_{bd}^2)^K+(1-\eta_{cd}^2)^K=1$;

2.2，The central zero line (critical line) of the circle logarithm of "prime topological statistics" within the segment:
$(1-\eta_{[x-c]}^2)^{K(2)}=\{x_ax_b+x_ax_c+x_ax_d+x_bx_c+x_bx_d+x_cx_d\}/\{X_0^{(2)}\}^K$
$=[(1-\eta_{ab}^2)^K+(1-\eta_{ac}^2)^K+(1-\eta_{ad}^2)^K+(1-\eta_{bc}^2)^K+(1-\eta_{bd}^2)^K+(1-\eta_{cd}^2)^K]=\{1\}$;

2.3，Symmetry of the zero point (critical point) of the circular logarithm of "prime topological statistics" within the segment:
$(1-\eta_{[x-c]}^2)^{K(2)}=\{x_ax_b+x_ax_c+x_ax_d+x_bx_c+x_bx_d+x_cx_d\}/\{X_0^{(2)}\}^K$
$=[(1-\eta_{ab}^2)^K+(1-\eta_{ac}^2)^K+(1-\eta_{ad}^2)^K+(1-\eta_{bc}^2)^K+(1-\eta_{bd}^2)^K+(1-\eta_{cd}^2)^K]=\{0\}$;

In the segment, the "transverse twin prime topological circular logarithm", the circular logarithm center zero point {5} remains unchanged, and there are $[(\alpha_{qx})$ and $(\beta_{qx})]^{K(2)}$ respectively :
$(\alpha_{qx})=(x_a+x_b)^{K(2)}$; $(\beta_{qx})=(x_c+x_d\}^{K(2)}$
$(1-\eta_{[x]}^2)^K=\{[(\alpha_{qx})-(\beta_{qx})]/[(\alpha_{qx})-(\beta_{qx})]\}^{K(2)}=(0,1)$;

Satisfying the probability-topology critical line symmetry, the corresponding series:
$(1-\eta_{[x-c]}^2)^{K(1)}=[\sum(1-\eta_a^2)^K+\sum(1-\eta_b^2)^K]^{K(1)}=\{0,\ \pm1\}^{K(Z\pm S\pm 4)}$;
$(1-\eta_{[x-c]}^2)^{K(2)}=[\sum(1-\eta_{ab}^2)^K+\sum(1-\eta_{bd}^2)^K]^{K(2)}=\{0,\pm1\}^{K(Z\pm S\pm 2\cdot 2)}$;

Satisfies the probability-topological critical point symmetry:
$(1-\eta_{[x-c]}^2)^{K(1)}=[\sum(1-\eta_a^2)^K+\sum(1-\eta_b^2)^K]+[\sum(1-\eta_c^2)^K+\sum(1-\eta_d^2)^K]^{K(Z\pm S\pm 4)}=0$;
$(1-\eta_{[x-c]}^2)^{K(2)}=[\sum(1-\eta_{ab}^2)^K+\sum(1-\eta_{bd}^2)^K]^{K(Z\pm S\pm 2\cdot 2)}=0$;

Individual statistics of "prime" circular logarithms within a specified range:
$(1-\eta_q^2)^K=(\alpha_q-\beta_q)/(\alpha_q+\beta_q)^{K(Z)}=(1-\eta_x^2)^K+(1-\eta_y^2)^{K(Z)}$
$=\{1\rightarrow 0\}^{K(Z)}$; (q=1,2,3,...the number of circle logarithms);
Among them: $(1-\eta_x^2)^K$ and $(1-\eta_y^2)^{K(Z)}$ consist of: including the density circular logarithm corresponding to the composition of "number of prime numbers/number of natural numbers" .

6.4.1. Mapping between prime numbers and dimensionless circular logarithms

There are four consecutive prime numbers { 1 , 3, 7 , 9 } occupying four or more terms, through the balanced exchange combination mechanism of the even number of circular logarithms, the 'infinity axiom' ,

(1) The prime numbers { 1 , 3, 7 , 9 } are mapped to solve the movement of prime numbers in the same area, and the central zero point (5=0) remains unchanged :
$\{1\}^{K(s=a\text{-term sequence})}\rightarrow(1-\eta_a^2)^K\{1\}^{K(s=M\text{-term sequence})}$,
$\{3\}^{K(s=b\text{-term sequence})}\rightarrow(1-\eta_b^2)^K\{3\}^{K(s=M\text{-term sequence})}$,
$\{7\}^{K(s=c\text{-term sequence})}\rightarrow(1-\eta_c^2)^K\{7\}^{K(s=M\text{-term sequence})}$,
$\{9\}^{K(s=d\text{-term sequence})}\rightarrow(1-\eta_d^2)^K\{9\}^{K(s=M\text{-term sequence})}$,

(2) The prime numbers { 1 , 3, 7 , 9 } are mapped to solve the movement of prime numbers in the same region. To solve the movement of prime numbers across the same region, the prime numbers moved are added to the corresponding vacant positions. Other spaces are cancelled to form a sequence with a complete item order distribution . For example , the center zero point (5=0) of the cross-region movement of the prime number {3} that fills the vacancy remains unchanged :
$\{7,9\}^{K(s=a\text{-term sequence})}\leftarrow(1-\eta_a^2)^K\{1\}^{K(s=M\text{-term sequence})}$,
$\{7,9\}^{K(s=b\text{-term sequence})}\leftarrow(1-\eta_b^2)^K\{3\}^{K(s=M\text{-term sequence})}$,

$\{1, 3\}^{K(s=c\text{-term sequence})} \leftarrow (1-\eta_c^2)^K \{7\}^{K(s=M\text{-term sequence})}$,
$\{1, 3\}^{K(s=d\text{-term sequence})} \leftarrow (1-\eta_d^2)^K \{9\}^{K(s=M\text{-term sequence})}$,

Through dimensionless symmetry circular logarithm analysis, it is ensured that the central zero line (critical line) and the central zero point (critical point) on the critical line meet the stability and symmetry of the central zero point at {+1,0,-1}. In turn, it is verified that prime numbers drive the mapping of prime numbers through the balanced exchange mechanism of circular logarithms. After the circular logarithm is cancelled, the original prime number is restored.

Among them: K is the property; (Z) infinity; (±S) the total number of prime numbers; (±Q) the number of horizontal prime numbers; (±M) the number of vertical prime numbers; (±q) the combination form of prime numbers.

Unless otherwise specified, it generally refers to the four prime codes (prime mantissas) {1,3,(5=0),7,9}, which are infinitely expanded. Here, the circular logarithm only indicates the location of the prime number, without the specific prime number essence. After the prime number position is determined by the zero point {**5**} at the center of the prime circular logarithm in {1,0}, the specific prime number value is determined.

6.4.2 Twin Prime Zero Conjecture

Four prime tails of twin primes are connected by two primes horizontally in the natural number system of **10**. The symmetry between the central zero line and the central zero point of the circle is still the characteristic modulus {5}. In the asymmetry of ternary numbers, a prime number is multiplied by two prime numbers, and the twin prime tails after screening are $(1-\eta_{[42]}^2)$ and $(1+\eta_{[24]}^2)$,

According to the Riemann zeta function, the prime number tails are defined as {1, 3, (5=0), 7, 9} for prime number distribution, and the natural number tail {5} is the constant central zero point line (critical line) . At each horizontal level, there is a characteristic modulus corresponding to the central zero point of the circular logarithm : $\mathbf{D}_0$ =**5** : It means that the characteristic modulus {5} corresponds to the central zero point (critical point) of the vertical circular logarithm

$(1-\eta_{[C]}^2)^{(K=-1)(Kw=\pm0)}=0$;

The Goldbach conjecture involves the stability of the central zero point. The four prime tails of the twin primes are connected in the natural number decimal system. The symmetry between the central zero line of the circular logarithm and the central zero point is still the characteristic modulus {5} . In the three- prime asymmetry, a prime number is multiplied by two prime numbers. The twin prime tails $(1-\eta_{[4\text{-}2]}^2)$ and $(1+\eta_{[2\text{-}4]}^2)$ after screening correspond to {1,3, (5=0) ,7,9} . The natural number tail {5} is the constant central zero point line (critical line) . The circular logarithm central zero point (critical point) of each decimal level is expressed on the (critical line). The circular logarithm central zero point (critical point) $(1-\eta_C^2)^{(K=-1)(Kw=\pm0)}=0$ corresponds to the characteristic modulus {5}.

$(1-\eta^2)^{(K=-1)(Kw=\pm0)}=0$ corresponds to the four prime numbers around {5} , with $\{2\}^4=16$ combinations ; there are 8 distributions of twin primes . Two twin primes of four primes account for 25%. One twin prime of three primes accounts for 25%.

{ 0 , 0 , (5=0), 0 , 0 }, { 0 , 0 , (5=0), 7, 9 },
{0，0，(5=0)，7，0}，{0，0，(5=0)，0，9}，
{0，3，(5=0)，0，0}，{0，3，(5=0)，7，9}，
{0，3，(5=0)，7，0}，{0，3，(5=0)，0，9}，
{1，0，(5=0)，0，0}，{1，0，(5=0)，7，9}，
{1，0，(5=0)，7，0}， {1，0，(5=0)，0，9}，
{1，3，(5=0)，0，0}，{1，3，(5=0)，7，9}，
{ 1 , 3 , (5=0), 7 , 0 }, { 1 , 3 , (5=0), 0 , 9},

Real entries of prime number distribution: { 4 , 4 , (5=0), 4 , 0 }, { 4 , 4 , (5=0), 4 , 8 },
Number of twin prime distributions: 2 , (5=0), 0 , 2 , (5=0), 4
Number of single prime numbers: 2, 2 , (5=0), 4, 0, 2, 2 , (5=0), 0, 4

Among them: two adjacent prime numbers are called "twin primes". Among the 16 different combinations of four prime numbers, 4 are twin primes.

dimensionless circular logarithm twin primes with uneven distribution are moved to uniform distribution by using the "infinity axiom" . It becomes a space without level under uniform conditions, "the distance between two twin primes is only 2 positions apart".

Twin primes can be converted into circular logarithms through cubic equations to obtain the relationship between "one prime and two primes", where the two primes become the number and position of twin primes. The twin prime zero point conjecture is solved through the dimensionless 'infinity axiom' adjustment and the asymmetry of "evenness" and the random central zero point of circular logarithms .

(1) ,Transverse circular logarithmic density: The center zero point {**5**} of the horizontal prime circle logarithm is the asymmetric prime number distribution on the left and right sides: $\{X_{ax}\}$ and $\{X_{bx}\}$; Transverse circular logarithmic density: $(1-\eta_{[xm]}^2)=\{X_{ax}-X_{bx}\}/\{X_{ax}+X_{bx}\}\le 1$;

(The reduced circular logarithm is called horizontal uniform distribution) All prime numbers (P)/all natural numbers (**N**) at level n in this section:

$(1-\eta_{(xm)}^2)^{K(Z)}=\{(P)/(N)\}^{K(Z)}$;

(2), Longitudinal circular logarithmic density: The vertical direction belongs to the analysis and statistics of the fourth degree equation. It assumes the statistical density number in a certain level area, that is, the asymmetric prime number distribution {Pay} and the upper and lower levels of the vertical distribution. {Pby} Circular logarithm statistics of longitudinal asymmetry:

$(1-\eta_{(Py)}^2)^{K(Z)}=[\{P_{ay}-P_{by}\}/\{P_{ay}+P_{by}\}^{K(Z)}$;

Indicates the asymmetry of prime numbers above and below the n-level center. All prime numbers (P)/all natural numbers (**N**) at level n in this section:

$(1-\eta_{(Py)}^2)^{K(Z)}=\{(P)/(N)\}^{K(Z)}$;

Prime number density represents the ratio of prime numbers at this level to all natural numbers, and twin prime number density represents the ratio of prime numbers at this level to all natural numbers; Twin prime number longitudinal density:

$(1-\eta_{(y)}^2)^{K(Z)}=(Y_n)/(Y_0)$; (Y_0) represents the n-level prime number/all natural numbers; For example, the circular logarithm asymmetry of the inner number density asymmetry of 400 prime numbers in the section n level is 0.005988 within the range of 0.4175; for example, the circular logarithm asymmetry of the inner number density asymmetry of the 1018 prime numbers in the section n level is within the range of 0.09177 The asymmetry is 0.000008; From this, the first problem of solving the zero-point conjecture of the Riemann function is compared: the segment n-level longitudinal dimensionless circular logarithm density has clearer and more accurate deterministic statistics than traditional prime numerical statistics, because it is mapped to circular logarithms The symmetr

$(1-\eta_{[y]}^2)=[N/\pi(N)-Li(x)]/[N/\pi(N)+Li(x)]\to 0$;

Multilevel longitudinal circular logarithmic density statistics:

$(1-\eta_{[y]}^2)= (1-\eta_{[y1]}^2)+ (1-\eta_{[y2]}^2)+\ldots+ (1-\eta_{[y]}^2)=\{0, 1\}$;

The circular logarithm $(1-\eta_{[y]}^2)=\{1\to 0\}$ represents a certain constant approaching uniformity in a dimensionless form, which can be connected and expanded with the traditional prime number theorem. Better realize the vertical-horizontal number and density for convenient statistics. In the same way: the asymmetry of the horizontal-vertical distribution of twin primes is also converted into the circular logarithm statistics of twin primes, and the asymmetric twin primes are distributed into a state of dimensionless circular logarithm symmetry. The conversion (mapping) of the number of prime mantissas is adjusted to the symmetric vertical/lateral density of circular logarithms, which is called the "circular logarithm prime number theorem".

6.4.3 Explanation of " Central Zero Point "

According to the Riemann function and its properties, the monotonic convergence of the function is solved, and the transformation (mapping) is adjusted to the uniform and symmetric distribution of the circular logarithm. It is easy to maintain the symmetry of the central zero line (critical line) of the series and the central zero point (critical point) of the prime individual point.

(1) Traditional mathematics treats X as the convergence point of two series in a limit (extreme) manner.

When n tends to infinity, $\lim(X_{an})=\lim(X_{bn})=X$ belongs to $[X_a ,X_b]$

The following proves that this convergence point is a zero point (simply connected): Since the function is continuous, and lim(an)(n--> infinity)=X

Therefore: $f(x)=\lim(f(X_{an}))$(n--> infinity) =<0 (This is because $f(X_{an})<0$ when there is forward and reverse working)

Similarly: $f(x)=\lim(f(X_{bn}))$(n--> infinity) >=0 , so f(x)=0 ;

Where: (n-->=) represents the symbol of balance and exchange.

Therefore: X is a zero point and X belongs to the [a,b] (center) limit point.

(2) Using the circular logarithm method to deal with X, it is the extreme point of the two series: (see the proof in the following section).

Get the center zero point:

$(1- \eta^2)^K=\{0,(1/2),1\}$, or $(1- \eta^2)^K=\{-1,(0),+1\}$;

(Coordinate movement does not affect the equation value).

The central zero line (critical line) $(1- \eta_{[C]}^2)^K=\{1\}$ represents the synchronous change relationship between the central line (point) of the characteristic mode series and the surrounding elements;

The central zero point (critical point) $(1-\eta_{[C]}^2)^K=\{0\}$ represents the positional relationship between the central points and surrounding elements corresponding to the center line of the characteristic mode series; and the relationship between the central zero point and the characteristic mode (median and inverse mean function) of the probability-topological circular logarithm is applied to analyze the roots of the group combination.

(3) The characteristic mode corresponding to the circular logarithmic center zero line (critical line) satisfies the overall symmetry:

$(1-\eta^2)^{(K=\pm1)}=[\sum(1-\eta_{[A]}^2)^{(K=+1)}+\sum(1-\eta_{[C]}^2)^{(K=\pm1)}+\sum(1-\eta_{[B]}^2)^{(K=+1)}]=\{0,2\}$,

$\sum(1-\eta_{[C]}^2)^{(K=\pm1)}=[\sum(1-\eta_{[A]}^2)^{(K=+1)}+\sum(1-\eta_{[B]}^2)^{(K=+1)}]=\{0,1\}$,

(4) The symmetry between the central zero point (critical point) of the circular logarithm and the surrounding elements corresponding to the central zero point inside the characteristic mode:

$(1-\eta_{[C]}^2)^{K(Kw=\pm1)}=[\sum(1-\eta_{[a]}^2)^{(Kw=+1)}+\sum(1-\eta_{[C]}^2)^{(Kw=\pm0)}=\sum(1-\eta_{[b]}^2)^{(Kw=-1)}]^{(K=\pm1)}=\{0,1\}$,

$\sum(1-\eta_{[C]}^2)^{(Kw=\pm0)}=[\sum(1-\eta_{[a]}^2)^{(Kw=+1)}+\sum(1-\eta_{[b]}^2)^{(Kw=+1)}]=\{0\}$,

(5) Rules for exchanging numerical values:

The original proposition remains unchanged, the characteristic module remains unchanged, and the form of the isomorphic circular logarithm (including circular logarithm place value and numerical factor) remains unchanged. Only the properties of the circular logarithm power function are used to perform random and non-random conversions in the middle and reverse directions. Only then can various combinations of prime numbers be balanced and exchanged.

$[X_a]=(1-\eta_{[a]}^2)^{K(Kw=\pm1)}[X_0]$

$=[\sum(1-\eta_{[a]}^2)^{K(Kw=+1)}\leftrightarrow\sum((1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow\sum(1-\eta_{[b]}^2)^{K(Kw=-1)}]\cdot[X_0]$

$=\sum(1-\eta_{[b]}^2)^{K(Kw=-1)}\cdot[X_0]=[X_b]$,

(6) After exchanging the values, we can get the root solutions:

Yes: We can obtain the roots of each prime number and perform statistical analysis of prime numbers based on the number of roots.

$x_a=(1-\eta_{[a]}^2)X_0$; $x_b=(1-\eta_{[b]}^2)X_0$; … ;

Yes: we can obtain twin prime roots and perform statistical analysis of twin primes based on the number of roots.

$x_{[ab]}=(1-\eta_{[ab]}^2)X_0^{(2)}$; $x_{cd}=(1-\eta_{[cd]}^2)X_0^{(2)}$;…; (Proof completed)

6.4.4. Conclusion of prime number distribution through dimensionless circular logarithm mapping

The balance of any two (or more) prime numbers or any two (or more) numerical-logical objects cannot be directly combined and exchanged. They must rely on the symmetry of the dimensionless circular logarithm center zero point. When the circular logarithm factors on the left and right sides of the center zero point are the same, the (circular logarithm center zero point fixed position-place value) balance combination and conversion can be performed, which further confirms the basic nature of traditional mathematics (the balance of reciprocity in numerical analysis cannot be exchanged, and the mapping of reciprocity in logical analysis cannot be balanced), that is, "there is no even number balance exchange mechanism" and cannot be directly converted. Here, as Gödel said: Traditional mathematics is "system incomplete", so the system cannot prove the truth or falsity within the system.

7. The connection between dimensionless circular logarithm and Euclidean space, unitary space and symplectic space

There are two major mathematical systems in current mathematics: "classical algebra" and "modern algebra". They each have their strengths and weaknesses. They are as follows:

(1) Numerical analysis: Classical mathematics can only calculate equilibrium problems (such as many asymmetric calculations that are not solved), but cannot handle exchange relationship problems;

(2) Logical analysis: logical mathematics can only be used for relations (such as many asymmetric topologies that have not been solved), and morphisms cannot reliably explain logical

The problem of balance calculation of editing objects (internal and external).

Scientists and mathematicians in many countries are exploring the shortcomings of numerical analysis and logical analysis.

The Chinese circular logarithm team used the "even symmetry and asymmetry balance exchange mechanism" unique to the dimensionless circular logarithm construction set to create a complete system, creatively solving their shortcomings and giving a unified analysis that is converted into an integrated form of the dimensionless circular logarithm construction set.

7.1. Overview of Classical Algebra

The origins of classical algebra can be traced back to the ancient Babylonian period. People at that time developed a more advanced arithmetic system than before, which allowed them to perform calculations algebraically. By using this system, they were able to formulate equations with unknown variables and solve them, problems that are generally solved today using linear equations, quadratic equations, and indeterminate linear equations. In contrast, most Egyptians of this period and most Indian, Greek, and Chinese mathematicians in the 1st century BC solved such problems using geometric methods, as described in books such as the Lander Papyrus, the Rope Method, the Elements, and the Nine Chapters on the Mathematical Art. Greek work in geometry, culminating in the Elements, provided a framework for generalizing formulas for solving specific problems into a more general system for describing and solving algebraic equations.

In ancient times, when a large number of solutions to various quantitative problems were accumulated in arithmetic, in order to seek a systematic and more general method to solve various quantitative relationship problems, algebra was created, which is an elementary algebra centered on the principles of solving algebraic equations.

For example, if you think of "algebra" as the technique of solving symbolic algebraic equations like bx+k=0, this kind of "algebra" was not developed until the 16th century. Later, the principle of calculating roots from equations developed into "classical algebra". It is called "numerical analysis".

Numerical analysis: Classical algebraic expressions are expressions obtained by performing a finite number of addition, subtraction, multiplication, division, exponentiation and square root operations on numbers and letters representing numbers, or mathematical expressions containing letters are called algebraic expressions.

For example: ax+2b, -2/3, b^2/26, √a+√2, etc.

Classical algebraic number theory studies the algebraic and arithmetic properties of algebraic number fields and their algebraic integer rings, while high-dimensional algebraic varieties are solutions to a system of algebraic equations over the basic field K. For example, a one-dimensional algebraic variety is an algebraic curve on K. Considering the integer points on the algebraic variety becomes a number theory problem.

According to the Erlangen Program of German F. Klein, geometry is the theory that studies the invariants of certain mathematical objects under a certain group.

These can all be summarized as the mathematical system of "numerical analysis". The most outstanding contribution is Euler, whose contributions to mathematics are:

1. Number theory: Euler's series of achievements laid the foundation for number theory as an independent branch of mathematics. A large part of Euler's works are related to the theory of divisibility of numbers. Euler's most important discovery in number theory is the quadratic antilaw.

2. Algebra: Euler's book "Introduction to Algebra" is a systematic summary of algebra that began to develop in the mid-16th century.

3. Infinite series: Euler's "Introductio calculi differentialis" (1755) is the first treatise on finite difference calculus, and he was the first to introduce the difference operator. He introduced the Fourier coefficient formula, introduced the function expansion into infinite products and found the sum of elementary fractions. These achievements played an important role in the later general theory of analytic functions.

4. Function concept: Among the trilogy of analysis composed of the famous mathematical works "Introduction to Infinite Analysis", "Principles of Differential Calculus" and "Principles of Integral Calculus" written by Euler. These three books are four milestones in the development of analysis. .

5. Elementary functions: The first volume of "Introduction to Infinite Analysis" has 18 chapters, mainly studying the theory of elementary functions. Among them, Chapter 8 studies circular functions, expounding the analytic theory of trigonometric functions for the first time, and giving Demoivre (de Moivre) formula. Euler studied exponential functions and logarithmic functions in "Introduction to Infinite Analysis", and he gave the famous expression - Euler's identity (used in the expression

represents a number that tends to infinity; after 1777, Euler used to represent the imaginary unit, but only considered the logarithmic function of positive independent variables. In 1751, Euler published a complete theory of complex numbers.

6. Single complex variable function: Through the study of elementary functions, D'Alembert and Euler successively obtained the conclusion (expressed in modern algebraic language) that the field of complex numbers is closed with respect to algebraic operations and transcendental operations between 1747 and 1751.

7. Calculus: Euler's "Principles of Differential Calculus" and "Principles of Integral Calculus" gave the most detailed and systematic explanation of the calculus methods at that time. He enriched these two branches of infinitesimal analysis with his numerous discoveries.

8. Differential Equations: The Principle of Integral Integration also shows Euler's many discoveries in the theory of ordinary differential equations and partial equations. He and other mathematicians founded the discipline of differential equations in the process of solving mechanics and physics problems.

In ordinary differential equations: In a paper published in 1743, Euler used substitution to give a classical solution to linear homogeneous equations of arbitrary order with constant coefficients, and was the first to introduce the terms "general solution" and "special solution". In 1753, he published a solution to non-homogeneous linear equations with constant coefficients, which was to reduce the order of the equations one by one. Euler began his research on partial differentials in the 1730s. The most important work in this area is about second-order linear equations.

9. Calculus of variations: In 1734, he generalized the problem of the brachistocentre. Then, he set out to find a more general method for this problem. In 1744, Euler's book "A Method for Finding Curves with Certain Maximum or Minimum Properties" was published. This is a milestone in the history of calculus of variations, marking the birth of calculus of variations as a new mathematical analysis.

10. Geometry: In 1735, Euler used a simplified (or idealized) representation to solve the famous Königsberg Bridges problem, and obtained the topologically significant river-bridge graph judgment rule, which is now the Euler theorem in network theory. Euler solved the Königsberg Bridges problem and pioneered graph theory.

In coordinate geometry: Euler's main contribution was the first application of Euler angles in corresponding transformations, and a thorough study of the general equations of quadratic surfaces.

In differential geometry: In 1736, Euler first introduced the concept of intrinsic coordinates of plane curves, that is, using the arc length of a curve as the coordinates of points on the curve, thus starting the study of the intrinsic geometry of curves. In 1760, Euler established the theory of surfaces in his book On Curves on Surfaces. This book is Euler's most important contribution to differential geometry and a milestone in the history of differential geometry.

At the end of the first half of the 19th century, the study of non-commutative algebra had begun with the theory of Hamiltonian quaternions. In the second half of the 19th century, non-associative algebra emerged with the work of MS Lee. By the beginning of the 20th century, algebra had been significantly expanded by abandoning the restriction of the real number field or the complex number field as the field of operators. Together with exterior algebra, symmetric algebra, tensor algebra, Clifford algebra, etc., algebraic structures were also established in multilinear algebra.

For example: the compatibility, general solution and structural representation of various constrained solutions of complex high-dimensional (multi-variable, multi-equation) matrix equation groups on non-commutative algebra and their related applications in system control and quantum information.

Induction: The analysis of classical algebra comes from:

In 1664-1665, Isaac Newton proposed the binomial theorem, which was extended to any real power, namely the generalized binomial theorem. It can also be extended to infinite arbitrary real numbers, natural numbers, and irrational numbers, called infinite binomials.

Newton binomials are infinite elements (the numerical values of elements of any object that can be digitized), which can be combined and aggregated without repetition under the condition that the total elements remain unchanged, thus becoming combinations and aggregates of infinite sub-terms.

The formula for the binomial expansion is:

$(a+b)^n = Aa^n + B(n,1)a^{(n-1)}b^{(n+1)} + C(n,2)a^{(n-2)}b^{(n+2)} + \ldots + C(n,n)b^n$

$= a^n + Ba^{(n-1)} b + Ca^{(n-2)}b^{(n+1)} + \ldots + b^n$;

Among them:：(A=C(n,0) =1);(B=C(n,1) =1/n);(C=C(n,2) =2/n(n-1));(P=C(n,P-1) =(P-1)!/(n-0)!);

The binomial expansion introduces the dimensionless circular logarithm:

$(a+b)^{K(n)} = \{(a+b)/(R_0)\}^{K(n)} \cdot (R_0)^{K(n)} = (1-\eta^2)^K (R_0)^{(n)}$;

In the formula, $(R_0)^{\wedge n} = [(1/2)(a+b)(R_0)]^{\wedge n}$ C(n,i) represents the number of combinations of i elements randomly selected from n elements = n!/(ni)!i!, which becomes integer coefficients of A, B, C... The power function is written as: n=K(Z±S±Q±N±(q=0,1,2,3, ... infinite integer), which makes it easier to accommodate more mathematical objects and analysis contents in the power function.

At present, there are many methods of numerical analysis, most of which are limited to "dualism" and complex analysis. The inability to solve the exchange relationship between numerical values means that there is still room for expansion in numerical analysis. The method must be closely linked to the "even symmetry and asymmetry balance exchange" mechanism unique to the dimensionless circular logarithm, and numerical mapping must be carried out under the drive of the circular logarithm.

7.2 Overview of Determinants-Euclidean Space-Unitary Space-Symphotic Space

The representative "numerical analysis" of traditional mathematics includes: Euclidean space, Hilbert space, Banach space, or numerical topological space, all of which belong to function space. Hilbert space and inner product space are extremely important special linear normed spaces, in which the concepts of orthogonality and projection can be introduced, thereby extending the geometry of 1-dimensional Euclidean space to infinite-dimensional space.

比较	欧式空间	酉空间	辛空间
考虑的范围	$\mathbf{V}(\mathbb{R})$	$\mathbf{V}(\mathbb{C})$	$\mathbf{V}(\mathbb{R})$或$\mathbf{V}(\mathbb{C})$
与之有关的结构	$(\cdot\mid\cdot)$	$\langle\cdot\mid\cdot\rangle$	$[\cdot\mid\cdot]$
这个结构名叫	对称双线性型	Hermit型	斜对称双线性型
我们还要求它	正定	正定	非退化（自然要求是偶数维）
在某组基下结构的矩阵	$\begin{pmatrix} x_1 & 0 & \cdots & 0 \\ 0 & x_2 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & x_n \end{pmatrix}$ x为正实数	$\begin{pmatrix} x_1 & 0 & \cdots & 0 \\ 0 & x_2 & \cdots & 0 \\ \vdots & \vdots & \ddots & \vdots \\ 0 & 0 & \cdots & x_n \end{pmatrix}$ x为正实数	$\mathbf{J}_0 = \begin{pmatrix} 0 & \mathbf{I}_m \\ -\mathbf{I}_m & 0 \end{pmatrix}$
这组基叫	标准正交基	标准正交基	辛基
这些基之间的转换矩阵叫（它们成群）	正交矩阵	酉矩阵	辛矩阵
也就是说它们满足	$(Au\mid Av) = (u\mid v)$	$\langle Au\mid Av\rangle=\langle u\mid v\rangle$	$[Au\mid Av]=[u\mid v]$

(Figure 7.1 Euclidean space-Unitary space-Symphonic space)

Unitary linear space is a special complex linear space. It refers to a complex linear space with a class of Hermitian functions as inner products.

Let V be a linear space over the complex number field C, and J be a (conjugate) automorphism of C: (a+bi)=a-bi. If a Hermitian function with respect to J is defined on V, and for any α∈V, the inner product (α, α) ≥ 0 and (α, α) = 0 if and only if α = 0, then the vector space ω over the field K of eigenvalues ≠ 2 is called an antisymmetric 2-form on V. If ker ω = {0}, then ω is called a symplectic form on V. In this case, (V, ω) is called a symplectic space. V is of even dimension.

Here, the transformation of "determinant - Euclidean space - unitary space - symplectic space" into dimensionless circular logarithmic space will be explained.

V is a unitary space. There is always a standard orthogonal basis in the n-dimensional unitary space U. For any linear transformation σ of U, there exists its conjugate transformation σ*. If A,
B represents the matrices of σ and σ* with respect to a given basis, then A=G′-1, B-′G′, where G is the Gram matrix with respect to a given basis, and B-′ is the transposed conjugate matrix of B. For any normal (Hermitian) transformation σ of U,
There exists a standard orthogonal basis such that the matrix of σ with respect to this basis is a diagonal (real diagonal) matrix.

Symplectic linear space is a mathematical term. In mathematics, symplectic space is a type of vector space with a special structure.

7.3. Determinant-Euclidean Space-Unitary Space-Symplenic Space and Circular Logarithm

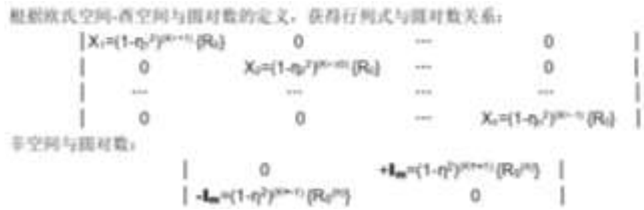
Around 300 BC, the ancient Greek mathematician Euclid established the laws relating angles to distances in space, now known as Euclidean geometry. Euclid first developed "plane geometry ", dealing with two-dimensional objects on a flat surface, and then he went on to analyze "solid geometry", analyzing three-dimensional objects. All of Euclid's axioms have been organized into an abstract mathematical space called two-dimensional or three-dimensional Euclidean space.

These mathematical spaces can be extended to apply to any finite dimension, and this space is called n-dimensional Euclidean space (or even just n-dimensional space).

Or finite-dimensional real inner product space. Representative classical algebras are "Euclidean space-unitary space-symplectic space" and "Hilbert space"

The determinant of "Euclidean space-unitary space-symplectic space" is equal to the polynomial in order and is widely used in mathematical vector analysis. In other words, the Euclidean space-unitary space of the plane multi-vector is currently described by the two-dimensional "symplectic space" ($A=+I_m$ and $B=-I_m$), which is widely used in $\mathbf{\{2\}^{2n}}$. If the determinant/polynomial extracts the characteristic modulus and circular logarithm respectively, the asymmetry described by the resolution 2 "symplectic space" ($A=+I_{ma}$ and $B=-I_{mb}$ plus $B=-I_{mc}$) (a composition of one element and two elements) of three-dimensional complex analysis can be converted into circular logarithm, and the exchange is carried out through the mutual inverse balance symmetry of the central zero point of the circular logarithm, which is widely used in $\mathbf{\{3\}^{2n}}$.

Unitary linear space is a special complex linear space. It refers to a complex linear space with a class of Hermitian functions as inner products. Let V be a linear space over the complex number field C, and J be the (conjugate) automorphism of C: (a+bi)}=a-bi. If a Hermitian function with respect to I is defined on V, and for `da EV, the inner product (a,a)>0 and (a,a)=. If and only if a=0, then V is called a unitary space. There is always an orthogonal basis in the n-dimensional unitary space U. For any linear transformation 6 of U, there is its conjugate transformation 6}. If A and B represent the matrices of Q and Q' with respect to a given basis, then A - GI-1BIGI, where G is the Gram matrix with respect to a given basis, and B} is the transposed conjugate matrix of B. For any normal (Hermitian) transformation Q of U, there is an orthogonal basis such that the matrix of a with respect to this basis is a diagonal (real diagonal) matrix.



(Figure 7.2 Euclidean space-unitary space-symplectic space and circular logarithm)

These mathematical spaces can also be extended to arbitrary dimensions, called real inner product spaces (not necessarily complete), and Hilbert spaces are also called Euclidean spaces in advanced algebra textbooks. In order to develop higher-dimensional Euclidean spaces, the properties of space must be rigorously expressed and extended to arbitrary dimensions. Although the result of this is very abstract mathematics, it captures the fundamental essence of the Euclidean space we are familiar with, namely, planarity. There are other types of space, such as the sphere, which is not Euclidean space, and the four-dimensional space-time described by relativity is not Euclidean space when gravity appears. (Figure 7.1)

Here, the traditional Euclidean space-unitary space-symplectic space is converted to circular logarithm. Under the conditions that the original function proposition, space remains unchanged, the characteristic modulus (eigenvector) $\{R_0{}^{(n)}\}$ remains unchanged, and the isomorphic circular logarithm form remains unchanged, the conjugate reciprocal symmetry of the central zero point of the circular logarithm is:

$\{X\}=(1-\eta^2)^K\{R_0\}=[(1-\eta^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm 0)}+(1-\eta^2)^{(K=-1)}]\cdot\{R_0{}^{(n)}\}$;

The transformation process of space:

invariant characteristic modulus $\{R_0{}^{(n)}\}$, the invariant isomorphic circular logarithm $(1-\eta^2)$, the properties shared by the variable characteristic modulus and the circular logarithm satisfy the exchange property:

(1) External discrete jump transition form: $(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm 0)}\leftrightarrow(1-\eta^2)^{(K=-1)}$;

(2) Internal discrete continuous transition form: $(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm 0)}\leftrightarrow(1-\eta^2)^{(K=-1)}$;

We have shown that any function $\{X\}$ and the characteristic module $\{R_0\}$ (the median inverse mean function) can be converted to dimensionless circular logarithm $(1-\eta^2)^K$ analysis:

$\{X\}=(1-\eta^2)^K\cdot\{R_0{}^{(n)}\}$; $(1-\eta^2)^K=\{0,1\}$;

There exists a specific function space where functions are driven by circular logarithms, obtaining conjugate mutual inverse equilibrium symmetry, satisfying the equilibrium exchange mechanism of even symmetry and asymmetry, and circular logarithms drive the mapping of numerical values.

Among them, the "determinant of Euclidean space-unitary space" is equivalent to the "polynomial of Newton's binomial expansion", and the conversion to symplectic space is equivalent to the characteristic module $\{R_0{}^{(n)}\}$ through the exchange between the circular logarithm$(1-\eta_{[C]}{}^2)^{(K=\pm 0)}$ and the circular logarithm positive and negative $(1-\eta^2)^{(K=\pm 1)}$ This exchange can not only satisfy two-dimensional complex analysis, but also solve three-dimensional complex analysis problems, as explained in Chapter 4.

In 1900, Hilbert proposed a mathematical problem. "Given a function of two variables, find the general solution" This is simply said: the function of two variables is

First: the boundary function $\{R\}=\sqrt[S]{(x_1 x_2 \ldots x_s)}\}$, called the "productive combination", the unit cell is the geometric mean;

Second: the characteristic norm function (eigenvector) or the median inverse mean $\{R_0{}^S\}^K$, called the (regularized) "additive combination", the unit cell is the (probabilistic-topological) arithmetic mean.

This is the focus of current mathematical analysis: solving general roots based on “known two-variable functions”. To solve this problem, the traditional method is generally to establish a mathematical model. There are many analytical methods for “determinants/polynomials”, most of which are “approximate calculations” to obtain approximate roots.

Circular logarithm method: arbitrary group combination - function boundary function $\{X\}^{K(n)}$, extract the invariant numerical characteristic modulus (positive and negative mean function) $\{R_0{}^S\}^{K(n)}$ and dimensionless position value circular logarithm

$(1-\eta^2)^K=\{\sqrt[S]{(x_1 x_2 \ldots x_s)}/\{R_0{}^S\}^{K(n)}$.

The circular logarithmic central zero line (critical line) $(1-\eta_{[C]}{}^2)^{(K=\pm 0)}=\{1\}^{K(n)}$ corresponds to the characteristic mode $\{R_0{}^S\}^{K(n)}$, which corresponds to the circular logarithmic relationship between the external and internal characteristic modes of the group combination. The circular logarithmic central zero point (critical point)$(1-\eta_{[C]}{}^2)^{(K=\pm 0)}$

$=\{0\}^{K(n)}$ is the balance inside the characteristic mode, and the root analysis is performed through the central zero point reciprocal balance symmetry.

The arbitrary group combination-function can be: any numerical function, logical object, as well as natural numbers, real numbers, irrational numbers, and any digitizable object, converted into place-value circular logarithms, and perform dimensionless analysis of determinants-polynomials-functions, group combinations, and spaces "without specific (mass) elements and mathematical models".

The analysis must be divided into two steps:

(1) The characteristic modulus of the “element-to-object” transformation changes synchronously with the center point and the independent surrounding elements in the circular logarithmic form $(1-\eta_{[C]}^2)^{(K=\pm 0)}=1$.

(2) Analysis of the positions and values between the characteristic mode center point and the independent surrounding elements in the circular logarithmic form$(1-\eta_{[C]}^2)^{(K=\pm 0)\,K}=0$.

Mathematics and mathematical physics have two steps: First, it is to construct a theoretical model and write down the equations that the system satisfies. For example, Newton's mechanical equations, Einstein's gravitational equations, Maxwell's equations, and Schrödinger's equations. The construction of the model has fundamentally promoted the development of physics, and each equation is a milestone in the history of physics. Second, the circular logarithm defined by dimensionless language can be analyzed as long as there are boundary functions and characteristic modulus functions. It does not necessarily require mathematical or physical mathematical models. In practical applications, it is often "how to determine the numerical characteristic modulus (median and inverse arithmetic mean function) of the observed object (continuous multiplication)".

7.4. Euclidean space - unitary space - determinant and dimensionless circular logarithm

In traditional numerical analysis, the associative law is satisfied, but the commutative law is not satisfied. Strictly speaking, the numerical elements of any group combination do not satisfy the commutative law. The current application is complex analysis with binary numbers as the theme, which is forced to exchange in a discrete-symmetric form. This is the so-called probability analysis for exchange. The application is limited, including computer discrete iterative method programs, which can only approximate the calculation. As for the asymmetric "probability-topology" distribution with ternary numbers and above, no exchange (morphism, mapping, projection) environment is formed.

However, can these numerical analysis operation symbols (such as addition, subtraction, multiplication, division, exponentiation, square root, calculus, etc.) prove themselves?

7.4.1. Euclidean space-unitary space-determinant and the “evenness” of dimensionless circular logarithms: balanced exchange combination decomposition mechanism

According to Gödel's incompleteness theorem, the above classical algebra cannot "proven itself". Euclidean space-unitary space-determinant uses a third-party dimensionless circular logarithm to verify their system, proving that due to the lack of "balanced exchange mechanism of even symmetry and asymmetry", it becomes "incomplete", and thus any "element-object" of mathematics " cannot be directly exchanged". Based on the important position of Euclidean space-unitary space- determinant in traditional mathematics, the proof is as follows:

✷**Definition** 7.1.1 Dimensionless structured random equilibrium exchange combination decomposition. Under the condition that the total "element-object" series (or geometric space boundary function) remains unchanged, the "element-object" has non-repeating combination (decomposition) sub-items and characteristic modes. The sub-items (characteristic modes) can be converted into the "evenness" 'infinity axiom' mechanism of dimensionless construction. The sub-items of the "element-object" are respectively randomly and non-randomly exchanged in the positive and negative directions of the circular logarithmic power function properties on the basis of the characteristic modes (external and internal) at the dimensionless "circular logarithmic central zero point" symmetry balance (that is, the two sides of the central zero point have the same circular logarithmic factor), so that the two sides of the circular logarithmic central zero point have different properties, and then combined or decomposed under the drive of the circular logarithm.

dimensionless circular logarithm: Under the numerical resolution 2 of any group combination-function, the decomposition of two sub-numerical functions with symmetric and asymmetric distribution cannot be directly exchanged. Similarly, the morphisms and functors of the category theory of logical analysis cannot be directly exchanged without quantitative calculations. They must be converted into dimensionless circular logarithms. Under the condition of the zero-point symmetry of the circular logarithm center, the random exchange of the circular logarithm factors of " even symmetry" is established.

Exchange process: "Invariant group combination - function original proposition $\{X\}=\{^{(S)}\sqrt{X}\}^{K(Z\pm S\pm(q=P)}$, invariant characteristic module $\{\mathbf{D}_0\}$ or perfect circle mode $\{R_0\}$, invariant circular logarithm $(1-\eta^2)$, exchange is achieved through the conversion of shared power function (K=+1, ± 0,-1) properties".

The choice of the total "element-object" (boundary function) of the Riemann function remains unchanged, that is, the perfect circle has the same boundary elements, and the difference between uniform and uneven, symmetric and

asymmetric lies in the spatial difference between multiplication and addition combinations:
$\{R_0\}^{(K=\pm1)K(Z\pm S\pm(q=P)} = \{R_{00}\}^{(K=\pm1)K(Z\pm S\pm(q=P)}$;

When the boundary function remains unchanged, the state of area and volume change can be described by the path integral with the logarithm of the geometric circle as the base:
$\{R_0\}^{(K=\pm1)K(Z\pm S\pm(q=P)} = (1-\eta^2)^K \{R_{00}\}^{(K=\pm1)K(Z\pm S\pm(q=P)}$;

(1) Overall balanced exchange combination (including this region and this dimension power):
$\{X\}$(positive proposition)$\in$[ABC …]
$=[(1-\eta^2)^{K(K=+1)}] \leftrightarrow [(1-\eta_{[C]}{}^2)^K\}^{(K=\pm0)} \leftrightarrow [(1-\eta^2)^{K(K=-1)}]\{R_0\}$
=R(converse) $\in$[ABC …];

(2) Non-holistic equilibrium exchange combination (including cross-region, cross-dimensional power, cross-time and space):
$\{X_{[A\ldots]}\}^{(K=+1)(Z\pm S\pm(q=A\ldots)}$(positive proposition)[ABC …] $=[(1-\eta_{[A\ldots]}{}^2)\{R_{00}\}^{(K=+1)(q=A\ldots)}]$
$\leftrightarrow [(1-\eta_{[A\ldots]}{}^2)^{(K=+1)(q=A\ldots)} \leftrightarrow [(1-\eta_{[C]}{}^2)^{(K=\pm0)(q=ABC\ldots)} \leftrightarrow (1-\eta_{[BC\ldots]}{}^2)]^{(K=-1)(q=BC\ldots)}]\{R_{00}\}$;
$=[(1-\eta_{[BC\ldots]}{}^2)^{(K=-1)}\{R_{00}\}^{(K=+1)(q=BC\ldots)}] = \{R_{[BC\ldots]}\}^{(K=-1)(Z\pm S\pm(q=BC\ldots)}$(converse proposition);
Among them: all dimensionless structural exchanges are realized in the opposite direction of the symmetry balance properties of the zero point at the center of the circular logarithm .

In particular, the characteristic modulus passes through the zero point of the circular logarithm center, solves the associative law, the commutative law , and the law of the excluded middle , and when it shares properties with the circular logarithm, the change in properties drives the exchange of values. Among them: $\{\mathbf{D}_0\}$ represents "high-power algebraic space" and $\{R_0\}$ represents "geometric high-order space"
For example: [ABC…] , $\{X_{[A]}\}\in$[ABC…], $\{X_{[BC]}\}\in$[ABC…] ; their properties are respectively Riemann function space (K=+1) (parabola, surface, solid); (K=`1) (ellipse, surface, body); (K=-1) (hyperbola, surface, body); (K=`0) zero-point transition point at the center of the Riemann function space;

(A) Uniform perfect circle mode (probability "1-1 combination"): (perfect circle boundary is evenly distributed)
$\{R_{00}\}^{(K=`1)K(Z\pm S\pm(q=1)} = (1/S)^{(K=`1)}[A+B+C+\ldots]^{(K=`1)}$; (adaptive plus combination)

Non-uniform circle pattern (probability "1-1 combination"): (perfect circle boundaries are unevenly distributed)
$\{\mathbf{D}_0\}^{(K=`1)K(Z\pm S\pm(q=1)} = (1/S)^{(K=`1)}[A+B+C+\ldots]^{(K=`1)}$; (adaptive multiplication combination)

(B) Uniform perfect circle mode (topology "2-2 combination"): (perfect circle uneven distribution)
$\{\mathbf{R}_{00}\}^{(K=`1)K(Z\pm S\pm(q=2)} = (2/S(S-1)^{(K=`1)}[AB+CD+\ldots]$; (adaptive plus combination)

Non-uniform circle pattern (topology "2-2 combination"): (uneven distribution of perfect circle boundaries)
$\{\mathbf{D}_0\}^{(K=`1)K(Z\pm S\pm(q=2)} = (2/S(S-1)^{(K=`1)}[AB+CD+\ldots]$; (Adaptive multiplication combination)

(C) Uniform perfect circle mode (topology "PP combination"): (perfect circle uneven distribution)
$\{\mathbf{R}_{00}\}^{(K=`1)K(Z\pm S\pm(q=P)} = [(p-1)!/(S-0)!]^{(K=`1)}[A\ldots+B\ldots+\ldots]$; (Adaptive plus combination)

Non-uniform circular pattern (topology "PP combination"): (uneven distribution of perfect circle boundaries)
$\{\mathbf{D}_0\}^{(K=`1)K(Z\pm S\pm(q=P)} = [(p-1)!/(S-0)!]^{(K=`1)}[A\ldots+B\ldots+\ldots]$; (Adaptive multiplication combination)

The group combination formula includes individual elements, which are converted into circular logarithmic relationships by processing the reciprocity of "multiplication and addition, addition and subtraction":
$\{X\} = \{^{(S)}\sqrt{X}\}^{K(Z\pm S\pm(q=P)} = (1-\eta^2)^K\{\mathbf{R}_{00}\}^{K(Z\pm S\pm(q=P)}$;
$\{X\} = \{^{(S)}\sqrt{X}\}^{K(Z\pm S\pm(q=P)} = (1-\eta^2)^K\{\mathbf{D}_0\}^{K(Z\pm S\pm(q=P)}$;

Infinite expansion of different combinations of place value circles:
$(1-\eta^2)^K = (1-\eta^2)^{K(Z\pm S\pm(q=1)} + (1-\eta^2)^{K(Z\pm S\pm(q=2)} + \ldots + (1-\eta^2)^{K(Z\pm S\pm(q=P)}$;

Isomorphic expansion of place-value circular logarithms:
$(1-\eta^2)^K = (1-\eta^2)^{K(Z\pm S\pm(q=1)} = (1-\eta^2)^{K(Z\pm S\pm(q=2)} = \ldots = (1-\eta^2)^{K(Z\pm S\pm(q=P)} = \{0,1\}$;

The reciprocal symmetry of the zero point of the position value circle logarithm:
$(1-\eta_{[C]}{}^2)^{(K=`0)} = \left|\sum(1-\eta^2)^{K(K=+1)(Z\pm S\pm(q=0,1,2,3\ldots\text{integer})}\right| = \left|\sum(1-\eta^2)^{K(K=-1)(Z\pm S\pm(q=0,1,2,3\ldots\text{integer})}\right| = \{0\}$;

Numerical circular logarithmic factor center point reciprocal symmetry:
$(\eta_{[C]}{}^2)^{(K=`0)} = \left|\sum(+\eta_\Delta)^{(Kw=+1)(Z\pm S\pm(q=0,1,2,3\ldots\text{integer})}\right| = \left|\sum(-\eta_\Delta)^{(Kw=-1)(Z\pm S\pm(q=0,1,2,3\ldots\text{integer})}\right| = \{0\}$;

Among them: the center zero point of the logarithm of the circle$(1-\eta_{[C]}{}^2)^K=0$ corresponds to $\{\mathbf{R}_0\}$, and$\{\mathbf{R}_0\}\}$ is called the numerical characteristic module (non-uniform distribution of geometric perfect circle boundaries), which is used in "multiplication combination".

The center zero point of the logarithm of the circle $(1-\eta_{[C]}{}^2)^K=00$ corresponds to $\{\mathbf{R}_{00}\}$, and $\{\mathbf{R}_{00}\}$ is called the perfect circle mode (geometrically perfect circle boundary is uniformly distributed) and should be used in "additive combination". According to the difference and exchange between characteristic modules and perfect circle modes, it is ensured that any function - geometric space - algebraic space, etc., uses the logarithm of the circle as the base of basic comparison, and describes their transformation process through power functions and path integrals, which is unified. It is solved that the circular logarithm cannot be renamed as any other logarithm, such as arbitrary logarithm, square logarithm, natural logari

7.4.1. The balanced exchange combination mechanism of the "infinite axiom" of symmetry and asymmetry in arbitrary space

In order to illustrate that the symmetric and asymmetric selection of binary numbers/ternary numbers/multiple elements (high-power dimensions) can realize the unified analysis of circular logarithms of the dimensionless "infinity axiom" mechanism , the relevant circular logarithm calculation rules and balanced exchange combination rules are briefly introduced. At the same time, the dimensionless construction mathematics is used to prove or supplement the mathematical foundation of "balance, mapping, morphism, combination, decomposition" in existing mathematics , and to explain the balanced exchange combination decomposition of physical "neutrinos" (including cross-region and time-space travel).

For example, a set F of the traditional domain is equipped with two binary (a, b) operations that produce addition and multiplication. Binary means that you input two elements, and through addition (or multiplication) a certain element will be produced. Form a domain that contains all objects.

(union) (+) and multiplication (intersection) (·) of the probabilistic " **1-1** combination" form are defined in the usual way for numerical operations. There are already mature analytical methods for this, which are described in the language of logical algebra and apply to the range $\{2\}^{2n}$.

At present, computer programming algorithms based on the assumption of discrete-symmetry are widely used in artificial intelligence. However, there is still no good algorithm when encountering the premise of discrete-asymmetry. In fact, the so-called balance exchange is not a direct balance exchange between values, but through the "balance exchange mechanism of even symmetry and asymmetry" unique to dimensionless circular logarithms, under other conditions unchanged, the properties of circular logarithms are transformed in the opposite direction, which drives the balance exchange of values;

For example: binary numbers: Features: The binary numbers {a, b} are distributed symmetrically, but numerically asymmetric . A set F of traditional domains is equipped with ternary (a, b) operations.And the unevenly distributed a is correspondingly converted into a uniformly distributed b. $\{ab\} \in \{AB\}=\{A_0B_0\}=\{a_0b_0\};\{R_0\}=\{R_{00}\}$;

$a \cdot b= (1-\eta^2)^{(K=\pm1)(Kw=\pm1)}\{R_0\}^{(2)}$,

$a= (1-\eta^2)^{(K=-1)(Kw=-1)}\{R_0\}$; $b=(1-\eta^2)^{(K=+1)(Kw=+1)}\{R_0\}$;

$[(1-\eta^2)^{(K=-1)(Kw=-1)}=a/\{R_{0]}\} \leftrightarrow [(1-\eta_{[C]}{}^2)^{(K=\pm1)(Kw=\pm0)} = \leftrightarrow [(1-\eta^2)^{(K=+1)(Kw=+1)}=b/\{R_0\}]$

$\leftrightarrow [(1-\eta^2)^{(K=+1)(Kw=+1)}=b/\{R_0\}] \leftrightarrow [(1-\eta^2)^{(K=+1)(Kw=+1)}=b/\{R_{00}\}]$;

dimensionless ' axiom of infinity' mechanism is written as:

$a^{(K=-1)(Kw=-1)}[(1-\eta^2)^{(K=+1)(Kw=+1)}=a/\{R_0\}] \leftrightarrow ab^{(K=\pm0)(Kw=\pm0)}[(1-\eta^2)^{(K=+1)(Kw=+1)}=ab/\{R_{00}\}]$

$\leftrightarrow [(1-\eta^2)^{(K=+1)(Kw=+1)}=b/\{R_{00}\}] \leftrightarrow b_{00}{}^{(K=+1)(Kw=+1)}$;

Among them: the condition for exchange is to have the same circular logarithmic factor "(±η)" symmetry balance as a prerequisite, so that there is randomness and non-randomness (computers call it "automatic supervision"), and under [a↔b], there is a " combination " of addition and multiplication ,

"a + b"$=(1-\eta^2)\{R_{00}\}^{(K=\pm1)(Kw=\pm1)}+(1-\eta^2)\{R_{00}\}^{(K=\pm1)(Kw=\pm1)}=(1+1=2)\{R_{00}\}^{(K=\pm1)(Kw=\pm1)}$;

"a · b"$=(1-{}^2)\{R_{00}\}^{(1)(K=\pm1)(Kw=\pm1)}+(1-\eta^2)\{R_{00}\}^{(1)(K=\pm1)(Kw=\pm1)}=(1-\eta^2)\{R_{00}\}^{(1+1=2)(K=\pm1)(Kw=\pm1)}$;

7.4.2. Example of commutation of circular logarithms of ternary numbers with arbitrary spatial numerical and positional values

For example: ternary numbers: Features: The distribution and value of the numbers are asymmetric. A set F of the traditional domain is equipped with ternary number (a, b, c) operations.

Generate addition and multiplication. Ternary means that if you input three elements, a certain element will be generated through addition (or multiplication), forming a domain that contains all objects, which is called "combination". Conversely, if you input one element, three certain elements will be generated through subtraction (or division), forming a domain that contains all objects.

A ternary number can be decomposed into the probability-topology " **1-1** combination and " **2-2** combination" form of addition (+) and binary number multiplication (·), which is called "asymmetric distribution". This kind of numerical analysis of "Tao gives birth to one, one gives birth to two, two gives birth to three" is very useful.

the 18th century, there has been no mature and complete equilibrium exchange analysis method. In fact, the equilibrium exchange mentioned is not a direct equilibrium exchange between values, but through the "even symmetry and asymmetry equilibrium exchange mechanism" unique to dimensionless circular logarithms, under other conditions unchanged, the properties of circular logarithms are transformed in the opposite direction, which drives the equilibrium exchange of values;

There are : ternary series: {abc} ∈ {ABC}

$a \cdot b \cdot c = (1-\eta_{[abc]}^2)^{(K=\pm1)} R_0\}^{(3)}$,

$a=(1-\eta_{[a]}^2)^{(K=+1)}\{R_0\}^{(1)}$; $bc=(1-\eta_{[bc]}^2)^{(K=-1)}\{R_0\}^{(2)}$;

Balanced exchange combination:.

$bc \leftrightarrow (1-\eta_{[bc]}^2)^{(K=-1)}\{R_0\}^{(2)}$

$\leftrightarrow[(1-\eta_{[bc]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[abc]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[a]}^2)^{(K=+1)}]\{R_0\}^{(3)}$

$\leftrightarrow(1-\eta_{[a]}^2)^{(K=+1)}\{R_0\}^{(1)}=a$,

$bc^{(K=-1)} \leftrightarrow abc^{(K=\pm0)} \leftrightarrow a^{(K=+1)}$,

$(1-\eta_{[abc]}^2)^{(K=\pm1)} = (1-\eta_{[a]}^2)^{(K=+1)}+(1-\eta_{[b]}^2)^{(K=-1)}+(1-\eta_{[c]}^2)^{(K=-1)}=\{0,1\}$,

Balanced portfolio decomposition:

$(1-\eta_{[bc]}^2)^{(K=-1)}\{R_0\}^{(2)}=(1-\eta_{[b]}^2)^{(K=-1)}\{R_0\}^{(1)}+(1-\eta_{[c]}^2)^{(K=-1)}\{R_0\}^{(1)}$,

$(1-\eta_{[abc]}^2)^{(K=\pm1)}=(1-\eta_{[a]}^2)^{(K=+1)}+(1-\eta_{[b]}^2)^{(K=-1)}+(1_{[c]}^2)^{(K=-1)}=\{0\}$,

Among them: the condition for exchange is to have the same circular logarithmic factor "(± η)" symmetry balance as a prerequisite, so that there is randomness and non-randomness (computers call it "automatic supervision"), and under [a , b , c], there is a " combination " of addition and multiplication ,And the unevenly distributed bc corresponds to a uniformly distributed a.

Balanced exchange combination.

$bc \leftrightarrow (1-\eta_{[bc]}^2)^{(K=-1)}\{R_0\}^{(2)}$

$\leftrightarrow[(1-\eta_{0[bc]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{0[abc]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{0[a]}^2)^{(K=+1)}]\{R_{00}\}^{(3)}$

$\leftrightarrow(1-\eta_{0[a]}^2)^{(K=+1)}\{R_{00}\}^{(1)}=a$,

$bc^{(K=-1)} \leftrightarrow abc^{(K=\pm0)} \leftrightarrow a^{(K=+1)}$,

$(1-\eta_{0[abc]}^2)^{(K=\pm1)} = (1-\eta_{0[a]}^2)^{(K=+1)}+(1-\eta_{0[b]}^2)^{(K=-1)}+(1-\eta_{0[c]}^2)^{(K=-1)}=\{0,1\}$,

There are : ternary series: $\{abc\} \in \{ABC\}=\{A_0B_0C_0\}=\{a_0b_0c_0\}$; $\{R_0\}=\{R_{00}\}$;

"a + b +c "$=(-\eta_{[a]}^2)^{(K=+1)} R_0\}^{(1)}+(-\eta_{[bc]}^2)^{(K=-1)}\{R_0\}^{(2)}=(1-\eta_{[abc]}^2)^{(K=\pm1)}[(1+2=3)\cdot\{R_{00}\}]^{(1)(K=\pm1)}$

"a · b ·c "$=(1-\eta_{[a]})^{(K=+1)}\{R_0\}^{(1)}+(1-\eta_{[bc]})^{(K=-1)}R_0\}^{(2)}=(1-\eta_{[abc]}^2)^{(K=\pm1)}\cdot\{R_{00}\}^{(1+2=3)}$;

Among them: $(1-\eta_{[bc]}^2)^{(K=-1)}\{R_0\}^{(2)}$ belongs to the second level of mutually inverse symmetric balanced exchange; it can also be realized at the first level; there is

$a=(1-\eta_{[a]}^2)^{(K=+1)}\{R_0\}^{(1)}$; $b=(1-\eta_{[b]}^2)^{(K=-1)}\{R_0\}^{(1)}$; $c=(1-\eta_{[c]}^2)^{(K=-1)}\{R_0\}^{(1)}$;

The condition for the exchange is that the circular logarithmic center zeros have the same circular logarithmic factors : $(\pm\eta^2) = (+\eta_{[a]}^2) + (-\eta_{[bc]}^2) =\{0\}$;

Symmetry balance is the premise, there is randomness and non-randomness (computers call it "automatic supervision"),

[a↔b↔c] under the circular logarithmic center zero point symmetry $(\pm\eta^2)=0$, circular logarithm Factors satisfy the associative law, commutative law , and law of excluded middle :

$\sum(+\eta_{[abc]}^2)= \sum(+\eta_{[a]}^2)+ \sum(-\eta_{[bc]}^2)=\{0\}$,

$\sum(+\eta_{[a]}^2)^{(K=\pm1)} = \sum(-\eta_{[b]}^2)^{(K=\pm1)} + \sum(-\eta_{[c]}^2)^{(K=\pm1)}=\{0\}$,

If a three-dimensional complex analysis is performed, the circular logarithm method is used, and the dimensionless circular logarithm can be reasonably applied to the $\{3\}^{2n}$ range. The object described by it can be discrete-continuous integrated, and real analysis and complex analysis can be performed. In addition, all digital (numerical) objects can be integrated into a simple whole with a three-dimensional eight-quadrant space:

{jik}=±1 , + {***ji***}= -1{***k***} , +{***ik***}= -1{***j***} , +{***kj***} = -1{***i***} ,

the plane normal line and the axis form a mutually inverse asymmetry, and the numerical value cannot be balanced and exchanged. The numerical value is converted into a dimensionless circular logarithm, and the numerical value is balanced and exchanged under the drive of the conjugate symmetry of the center zero point of the circular logarithm .

$a \cdot b \cdot c = (1-\eta_{[abc]}^2)^{(K=\pm1)}\{R_0\}^{(3)}$;

Probability calculation:

j $a=$ ***j*** $(1-\eta_{[a]}^2)^{(K=+1)}\{R_0\}^{(1)}$;

i $b=$ ***i*** $(1-\eta_{[b]}^2)^{(K=-1)}\{R_0\}^{(1)}$;

k $c=$ ***k*** $(1-\eta_{[c]}^2)^{(K=-1)}\{R_0\}^{(1)}$;

Topological calculation:

ji $ab=$ ***ji*** $(1-\eta_{[ab]}^2)^{(K=+1)}\{R_0\}^{(2)}$;

ik $bc=$ ***ik*** $(1-\eta_{[bc]}^2)^{(K=-1)}\{R_0\}^{(2)}$;

kj $ca=$ ***kj*** $(1-\eta_{[ca]}^2)^{(K=-1)}\{R_0\}^{(2)}$;

combination of one ternary number and two multiplication ternary numbers):

$\boldsymbol{ji}$ ab $\leftrightarrow$ $\boldsymbol{k}$c; $\boldsymbol{j}$ $(1-\eta_{[ab]}{}^2)^{(K=+1)}\{R_0\}^{(2)} \leftrightarrow \boldsymbol{k}\,(1-\eta_{[c]}{}^2)^{(K=-1)}\{R_0\}^{(1)}$

$\boldsymbol{ik}$bc $\leftrightarrow$ **j** a; $\boldsymbol{i}\,(1-\eta_{[bc]}{}^2)^{(K=-1)}\{R_0\}^{(2)} \leftrightarrow \boldsymbol{j}\,(1-\eta_{[a]}{}^2)^{(K=+1)}\{R_0\}^{(1)}$

$\boldsymbol{kj}$ ca $\leftrightarrow$ **i** b; $\boldsymbol{k}\,(1-\eta_{[ca]}{}^2)^{(K=-1)}\{R_0\}^{(2)} \leftrightarrow \boldsymbol{i}\,(1-\eta_{[b]}{}^2)^{(K=-1)}\{R_0\}^{(1)}$;

The 'Axiom of Infinity' mechanism is written as:

$[ABC]\leftrightarrow(1-\eta_{[c]}{}^2)\{R_0\}^{(K=\pm0)(3)}\leftrightarrow[abc]$;

The ternary number balance exchange combination rule: invariant proposition, invariant characteristic module, invariant isomorphic circular logarithm, the power function of the circular logarithm is used to convert the true proposition to the inverse proposition, which is called morphism and mapping in category theory. However, there is no strict mathematical proof of morphisms based on the axiomatization of set theory in category theory. The foundation is not solid or complete. The dimensionless circular logarithm has a complete system with the third-party integrity of the "even symmetric and asymmetric balance exchange mechanism", and each step can be completely automatic (random or non-random) balance exchange axiomatization. It has authoritative, fair, zero-error analysis, verification of numerical analysis system or logic analysis system. Among them: the ternary number balance exchange rule follows the ternary Hamilton-Wang Yiping quaternion balance exchange rule.

For example **,** a set **F** of a traditional domain is equipped with S S-ary (a, b, c, ..., S) operations to generate addition combinations and multiplication combinations . S -ary means that if you input S elements, one or more certain elements will be generated through addition (or multiplication) . A domain containing all objects is formed.

+) and multiplication ( ) of polynomials in the form of probabilistic-topological " **1-1** combination", " **2-2** combination", " **PP** combination" are defined in the usual way for numerical values .

At present , there is no mature analysis method. Similarly, their exchange is not an exchange between values, but through the "even symmetry and asymmetry balance exchange mechanism" unique to dimensionless circular logarithms, under other conditions unchanged, the properties of circular logarithms are transformed in the opposite direction, which drives the value balance exchange;

if: $(a,b,c,\ldots,s)=(1-\eta_{[ab\ldots S]}{}^2)^K\{R_0\}^{(1)}$, $(ab, bc, \ldots, sa)=(1-\eta[_{ab\ldots S]}{}^2)^K\{R_0\}^{(2)}$; $(abc,\ldots, sab)=(1-\eta_{[ab\ldots S]}{}^2)\{R_0\}^{(3)}$;

Under the condition of resolution 2, the circular logarithm center zero point is generated and decomposed into two series of sub-items,

,

It belongs to the second, third, fourth, etc. level of mutually inverse symmetrical balanced exchange; it can also be achieved at the first level;

$$a=(1-\eta_{[a]}{}^2)\{R_0\}^{(1)};$$
$$b=(1-\eta_{[b]}{}^2)\{R_0\}^{(1)};$$
$$c=(1-\eta_{[c]}{}^2)\{R_0\}^{(1)};\ \ldots;$$
$$s=(1-\eta_{[s]}{}^2)\{R_0\}^{(1)};$$

balanced exchange combination is to have the same "$(\pm\eta_i{}^2)$" at the same level;

The reciprocal symmetry of the central zero point of the place-value circular logarithm factor:

$(\eta_{[C]}{}^2)^{(K=\pm0)} = \left|\ (+\eta_\Delta{}^2)^{(K=+1)(Z\pm S\pm(q=0,1,2,3\ldots integer)}\ \right| + \left|\ \sum(-\eta_\Delta{}^2)^{(K=-1)(Z\pm S\pm(q=0,1,2,3\ldots integer)}\ \right| = 0$;

Traditional computers use discrete and symmetric assumptions. There is no such thing as a "circular logarithmic center zero point", but there is a word "limit". There is no proof that it actually becomes a condition for mutually inverse symmetric equilibrium exchange, which causes the instability of computer calculation results. Approximate calculation.

The central zero point of the circular logarithm ensures the stability of numerical analysis and the conjugated, reciprocal, symmetric and commutative properties. The central zero points are superimposed to form an infinitely long "sugar-coated haws string" or an infinitely wide "sugar-coated round cake" with a unified boundary domain $\{-1, \pm0, +1\}^{(Z\pm S\pm(q=0,1,2,3\ldots integer)}$. The existence of the central zero point of the circular logarithm ensures the stability, accuracy, zero error and high robustness of the computer, and effectively prevents mode confusion and description collapse.

7.5. Application of the dimensionless construction set ' Axiom of Infinity ' :

The infinite construction set has a unique "axiom", which is manifested as the symmetry and asymmetry of the "even terms", the "infinite axiom", the symmetry on both sides of the zero point of the circular logarithm center, and the random and non-random balanced exchange combination decomposition, which still drives the "element-object" conversion of number theory. It is called the "infinite axiom" mechanism.

7.5.1. Dimensionless Construction Set Proof that Number Theory Axiomatization Has No Commutative Mechanism

The Foundations of Geometry, published by Hilbert in 1899, became a representative work of the modern axiomatic method, and promoted the formation of the "axiomatization school of mathematics". It can be said that Hilbert is a pioneer of the modern formal axiomatic school.

However, in the establishment of axiomatization of natural numbers, such as calculus, which belongs to pure digital calculation, it is impossible to achieve cross-dimensional correspondence, although the use of differential simulation can achieve complex simulation within the dimension. There is no specific mathematical proof of "achieving cross-dimensional calculation".

The dimensionless circular logarithm first solves the long-standing contradiction of "multiplication and addition" between the macroscopic and microscopic worlds in traditional mathematics, and proposes a random equilibrium exchange and combination mechanism that uses the "infinite axiom" to randomly perform integrity. It explains that these "balances" cannot be performed directly, but must be constructed dimensionlessly using the unique "infinite axiom". At the zero point at the center of the circular logarithm, without changing the original "element-object", the circular logarithm properties and attributes are used to perform forward and reverse conversions to achieve "one-to-one correspondence" and "cross-dimensional" mapping.

7.5.2. Dimensionless Construction Set Proves that Set Theory Axiomatization Has No Balanced Exchange Mechanism

In 1908, Hilbert's student Zemelo introduced the axiomatization of set theory. In 1914, Hausdorff completed the axiomatization of point set topology. In 1933, Gödel proved the compactness theorem. In 1956, Tarski's model theory was established. In 1961, Robinson founded nonstandard analysis based on the compactness theorem. An important content of the axiomatization of set theory is "mapping".

"Mapping" or "projection" is a mathematical term that refers to a relationship in which elements of two sets correspond to each other. It is often equivalent to a function in mathematics and related fields. Based on this, partial mapping is equivalent to partial function, and full mapping is equivalent to full function. Application requires pre-defined functions of the projection rule part before calculation. Therefore, "mapping" calculation can achieve cross-dimensional correspondence.

The conditions for the establishment of the mapping can be simply stated as follows:

(1) Traversability of the domain: Every element x in X has a corresponding object in the range of the mapping.

(2) Uniqueness of correspondence: An element in the domain can only correspond to an element in the mapping range. Mapping can perform corresponding approximate operations on multiple unrelated sets, while calculus can only perform exact operations within a large, continuously related set.

However, there is no mathematical proof in the axiomatization of set theory that "an element can only correspond to an element in the mapping range" and "mapping calculation can achieve cross-dimensional" balanced exchange mechanisms, that is, there is no proof of why they can be exchanged but their applications are limited. The dimensionless circular logarithm proposes a random balanced exchange combination mechanism that randomly performs integrity with the "infinity axiom", explaining that these "exchanges" cannot be performed directly, and must be constructed in a dimensionless manner with a unique "infinity axiom". At the zero point at the center of the circular logarithm, the original "element-object" is not changed, and the "one-to-one correspondence" and "cross-dimensional" mapping are achieved through the forward and reverse conversion of the circular logarithm properties.

7.5.3. Dimensionless Construction Set Proof that Category Theory Axiomatization Has No Balancing Mechanism

Category is an attempt to capture the common characteristics of various related "mathematical structures" by "axiomatic" methods, and to relate these structures by "structure-preserving functions" between structures. Therefore, the systematic study of category theory will allow the universal conclusions of any such mathematical structure to be proved from the axioms of the category. A key point of category theory: morphism is an abstraction of the process of preserving structure between two mathematical structures. It is a further extension of the axiomatization of set theory. The most common example of such a process is a function or mapping that preserves structure in some sense.

In set theory, for example, morphisms are functions, in group theory they are group homomorphisms, and in topology they are continuous functions. In the context of universal algebra, morphisms are often homomorphisms. The abstract study of morphisms and the structures (or objects) in which they are defined forms part of category theory.

In category theory, morphisms are not necessarily functions, but are usually viewed as arrows between two objects (not necessarily sets). Rather than mapping the elements of one set to another, they simply represent some kind of relationship between a domain and a codomain.

Morphisms are abstract in nature, and most people's intuition about them (and indeed much of their terminology) comes from concrete examples, where objects are sets with structure attached to them and morphisms are functions that preserve that structure.

For example , the class Grp composed of groups contains all objects with "group structure". To prove theorems about groups, we can use this set of axioms to make logical deductions. For example, it can be immediately proved from the axioms
that the unit element of a group is unique.

Rather than focusing on individual objects with particular structures (such as groups), category theory focuses on morphisms (structure-preserving mappings) of these objects; by studying these morphisms, we can learn more about the structure of these objects. In the case of groups, for example, morphisms are group homomorphisms. Group homomorphisms between two groups strictly "preserve the structure of the groups", a way of transferring information about the structure of one group to another, so that the group can be viewed as a "process" of the other group. Thus, the study of group
homomorphisms provides a tool for studying universal properties of groups and the consequences of group axioms.

Similar research also appears in many other mathematical theories, such as the study of continuous mappings of topological spaces in topology (the relevant category is called Top), and the study of smooth functions of manifolds.

However, the axiomatization of category theory emphasizes the exchange of "group combination", "the relationship of "morphism" from one group combination to another group combination", and "morphism can also realize cross-dimensionality". However, it does not prove under what conditions they realize "morphism". It only pays attention to the morphism between the "outside" of the group combination, and does not clearly propose the morphism between the "inside", so its application is limited. The dimensionless circular logarithm proposes a random equilibrium exchange combination mechanism that randomly performs integrity with the "infinity axiom", explaining that these "exchanges" cannot be performed directly, but must be carried out in the dimensionless construction of the unique "infinity axiom". At the zero point at the center of the circular logarithm, the original "element-object" is not changed through the forward and reverse conversion of the circular logarithm properties to achieve "one-to-one correspondence" and "cross-dimensional" mapping.

8. Connection between dimensionless circular logarithms and category theory

The representative "logical analysis" of traditional mathematics includes: set theory, category theory, or object topological mapping, morphism, etc., all of which belong to function space. In the GB system, there are a series of axioms to ensure the rationality of a series of operations such as equality, subclass, intersection, complement, difference, and product in the class (and then the relationship and function on the class can be considered). The prescribed space is an extremely important special binary normed space, in which the concepts of morphism and mapping can be introduced, thereby extending the geometry of the category theory space to the infinite-dimensional space.

Category theory is a mathematical theory that uses logical language definitions and logical symbols to abstractly deal with mathematical structures and the connections between structures. Category theory appears in many branches of mathematics, as well as in some areas of theoretical computer science and mathematical physics.

The above formula was first published by Italian mathematician G. Cardano in his book "Archaematica" published in 1545. This formula came from Italian mathematician N. Tartaglia, but Cardano gave a geometric proof of the formula.

After the special case solution of the Cardan formula for cubic equations in the 18th century, there has been no new development in the theory of algebraic numbers until logical algebra, leaving many century-old mathematical problems, such as the zero-point conjecture of the Riemann function, unsolved.

At present, Galois theory is one of the most satisfying branches of mathematics. From here, the symbols defined by modern mathematics and logical languages such as set theory and category theory were developed, compiled into advanced computer programming languages, widely used in the whole society, and played an unparalleled and huge role.

However, Gödel's incompleteness theorem and the proof of the four-color theorem exposed the "inadequacy" of modern mathematics. This means that modern mathematics has reached its "ceiling" as a computer programming language and algorithm. It is very difficult for computers to develop further.

Here, we introduce the unique "even symmetry and asymmetry, randomness and non-randomness balance exchange mechanism" of dimensionless circular logarithm construction, propose the connection between category theory and dimensionless circular logarithm, solve the statistical dilemma that modern mathematics can only be discrete-symmetric, and provide a good environment for the expansion of advanced artificial intelligence computers. Among them: maintain natural language, text, audio, video, ... digital judgment, decision-making, evaluation, and better imitate the digital reasoning of human brain thinking, high-power calculus equations, three-dimensional cyberspace... mathematical analysis, so that computers can better serve human peace, health, life, society, country, technology, and science.

8.1 Background of Modern Mathematics

Logical algebra is a mathematical method used to describe the logical relationships between objective things. It was proposed by British scientist George Boole in the mid-19th century, so it is also called Boolean algebra.

Logic algebra has a complete set of operation rules, including axioms, theorems and laws. It is widely used in the transformation, analysis, simplification and design of switching circuits and digital logic circuits, so it is also called switching algebra. With the development of digital technology, logic algebra has become a basic tool and theoretical basis for analyzing and designing logic circuits.

Logical analysis is represented by algebraic structures in category theory: a category is a set of objects with associated morphisms. Every algebraic structure has its own notion of homomorphism, i.e. any function that is compatible with the operation that defines the structure. Therefore, every algebraic structure generates a category.

For example, the category of groups is to have all groups as objects, and all group homomorphisms as morphisms. This specific category can be seen as the category of sets with additional category-theoretic structure. Likewise, the category of topological groups (whose morphisms are continuous group homomorphisms) defines one or more finite operations on them that satisfy the axioms.

In the description of mathematical language, these morphisms need to have the following properties:

1. There must be an identity morphism that maps an object to itself, such as the mapping 1A: A→A in the category shown in Figure 1.

2. Morphisms can be combined. If there are two morphisms f and g, f can map A to B, and g can map B to C, then there must be a mapping fg that can map A to C.

3. The combination of identity morphisms and general morphisms must satisfy the unit law axiom, that is, if there is f:a→B, then f1A=f=1Bf. 4. Morphisms need to satisfy the associative law , that is, (hg)f=h(gf).

Logical analysis is an algebraic structure represented by category theory, which refers to a unified form given in the language of sets and relations for many mathematical objects, such as groups, rings, fields, vector spaces, ordered sets, etc. First, due to the diversity of mathematical objects, there are different types of sets, such as the set represented by a group is G×G. In fact, the group involves binary operations; and the set represented by a vector space is F×F→F, F×V→V, V×V→V, and the vector space involves operations in the field F, operations on elements in the field F on elements in V, and operations on elements in V. The basic concept of "synthesis" is introduced (for example, the synthesis of a group is multiplication; the "synthesis" of a vector space includes multiplication of elements in F on elements in V, and addition of elements in V), and the "synthesis" is required to fit the given axiom system, and what is obtained is a mathematical structure.

In the multiplication principle of logical analysis, the independent variable is a necessary condition for the dependent variable to be valid, and the definition of logic is exactly consistent with the description of the multiplication principle, so it corresponds to logic and multiplication.

In the logical analysis of the addition principle, the independent variable is a sufficient condition for the dependent variable to be valid. The definition of OR logic is exactly consistent with the description of the addition principle, so OR logic and addition correspond.

In short, any equation containing variable X will still hold if all occurrences of X are replaced by a logic function F. Logical analysis The multiplication principle and the addition principle can be regarded as quantitative expressions of AND logic and OR logic; and AND logic and OR logic can be regarded as qualitative expressions of the multiplication principle and the addition principle.

Specific commonly used logic languages:

The concept of natural transforms provides a way to transform a functor into another functor while maintaining the objects involved. In 1963, mathematician William Lawvere's "Functor Semantics of Algebraic Theory" proved that many familiar algebraic structures can be completely described by categories and functors. Functors have become an important tool for mapping in category theory. Just like a "container" is transported from A to B, the objects inside the "container" have not changed.

Identity element: There exists an element e in M such that for any a in M, a*e=e*a=a.

Closure: For any a and b in M, a*b is also in M.

A monoid is a set M with a binary operation *:M×M→M that satisfies the following axioms: Associative Law: For any

a, b, c, (a*b)*c=a*(b*c).

The elements in the generator group can be generated by the product of the minimum number of group elements. This group of group elements is called the generator of the group, and the number is the rank of the finite group.

Submonoid: A monoid is an algebraic structure with associative binary operations and the identity element. In geometry, a monoid draws on the function

The concept of number composition. A unitary groupomorphism is called a monoid. For example, the set N of natural numbers endowed with addition (or multiplication) is a monoid.

For example, topology is the set of open sets and closed sets respectively. This operation is to combine two elements into a third element, such as (ab → c), (ab ≠ c). At the same time, it satisfies "closure and associativity".

8.2. Defects and Reforms of Logical Mathematics, Set Theory, and Category Theory

Logical mathematics began with Galois's discrete solution of the "quintic equation of one variable" of polynomials, and then developed into group theory, set theory, and category theory. This series of mathematical systems, known as modern mathematics, is a discipline that studies concepts such as quantity, structure, change, space, and information. In the 17th century, the development of mathematics was rapid, and it achieved a transition from constant mathematics to variable mathematics. Modern mathematics is known as the three major mathematical problems, "the four-color conjecture", "Fermat's Last Theorem", and "Goldbach's conjecture". So far, there has been no satisfactory solution.

The study of modern mathematics in China only really began after the May Fourth Movement in 1919.

In the field of analysis, Chen Jiangong's theory of trigonometric series and Xiong Qinglai's research on subrobot functions and entire functions are representative works. There are also achievements in functional analysis, calculus of variations, differential equations and integral equations.

In the field of number theory and algebra, Hua Luogeng and others achieved remarkable results in analytic number theory, geometric number theory, algebraic number theory and modern algebra research.

In geometry and topology, Su Buqing's differential geometry, Jiang Zehan's algebraic topology, and Chen Xingshen's fiber bundle theory and characteristic class theory have done pioneering work;

In probability theory and mathematical statistics, Xu Baoqi obtained many basic theorems and rigorous proofs in univariate and multivariate analysis.

In addition, Li Yan and Qian Baocong pioneered the study of the history of Chinese mathematics. They did a lot of foundational work in the annotation, compilation, and textual research and analysis of ancient mathematical historical materials, which restored the glory of our country's national cultural heritage.

In late March 1996, when Chen Jingrun was about to take off the jewel in the crown of mathematics, "when he was only inches away from the glorious peak of the Goldbach conjecture (1+1), he collapsed due to exhaustion..." Behind him, there will be more people climbing this peak.

8.2.1 . Problems of defects in logic, mathematics, set theory, and category theory

Pointing out the operational defects that do exist in logic, mathematics, set theory, and category theory does not mean completely denying them. It has two purposes:

(1) The unique “random and non-random balanced exchange mechanism with even-numbered asymmetry” of the third-party dimensionless construction set verifies the “incompleteness and insufficiency” of logical mathematics, set theory, and category theory, indicating that they can be connected with dimensionless construction.

(2) The operation symbols and methods of logical mathematics, set theory, and category theory are unified and transformed into symbols and methods for the construction of dimensionless circular logarithms, in an attempt to unify them with the symbols and methods of classical mathematics that have been similarly transformed into symbols and methods for the construction of dimensionless circular logarithms.

Currently, category theory, which is known as the highest level of mathematics, reveals the deep connections between some seemingly opposing disciplines. The main sources of category theory are group theory and topology, which constitute the structure in mathematics and the connection with others. Some mathematicians rely on category theory to solve some mathematical problems.

The so-called group theory is a formal discipline that began in the 19th century. Initially, group theory was developed for the solution of polynomial equations (Galois theory), which promoted the abstraction of mathematical thinking.

$a_n x^n + a_{n-1} x^{n-1} + \ldots + a_0 x^0 = 0$;

Topology is the study of certain properties of geometric figures or spaces that remain unchanged after continuous changes in shape. In polynomials, it is expressed as ($a_{(n-1)} x^{n-1}$), called topological terms, and becomes the basis of category theory. The polynomial ($a_n x^n$) is called a probability term. Logical symbols are used for operations, including union, intersection, morphism , etc.

Imagine a set of keys of different shapes. Group theory is the study of how to analyze the relationship between these keys through specific operations. For example, which keys can open which locks. Just like defining the complement of an open set, a subset ***E*** of a metric space X is an open set if and only if the complement of ***E is a closed set.***

Among them: (Figure 8.1) indicates that ***E*** is an open set (shaded part, key), and ^{EC}***is*** a closed set (shaded part, lock).

If ***E*** (shaded part) includes the open set of the dotted boundary, it is said to have a boundary, forming a simply connected, sphere, such as a key alone becoming an independent unit body, etc.; ***EC*** is a closed set including the dotted boundary is a closed set, and the boundary forms a multiply connected, circular ring . Then the two parts " ***E*** + ***EC "***

are defined as discrete.
On the contrary: ***E*** does not include the open set of the dotted boundary, that is, the key does not become an independent unit, the dotted line is called the shared boundary, ***EC*** is a closed set with a great circle containing " ***E*** + ***EC*** ", Then define these two parts as continuous.

(Figure 8.1 Open and closed sets)

Traditional category theory follows the principle that ***E*** is an open set (key) and ***EC*** is a closed set (lock). These two concepts are discrete and unconnected, and do not address the coordination relationship between ***E*** is an open set (key) ***and EC is*** a closed set (lock). “Operation” is the process of trying to open a lock with an independent key.

R_0 for comparison is the shared boundary D_0 of " $E + E^C$ " . A key can open a lock, which means it conforms to some undetermined rules or structure. This is what group theory explores. In real life, not every key can open every lock. But what group theory wants to understand is the structural relationship and operation of which keys are suitable for which locks.

The so-called "operation" is the process of trying to open a lock with a key. If a key can open a lock, it means that it conforms to a certain specific plan or structure, which is what group theory explores.

8.2.2 Reform and development direction of logical mathematics, set theory, and category theory

At present, logical mathematics, group theory, set theory, and category theory are closely related and developed in sequence to the core computer algorithms and programming languages. With the progress of science and the development of computers, the mathematical defects that were previously ignored and the insufficient potential of computer applications have been exposed. In particular, the problems of "asymmetry and continuity" cannot be solved. Approximate calculations and complex formulas are used, which cannot achieve the zero-error accuracy that mathematics should have, hindering mankind's development towards higher macroscopic aerospace, deeper deep sea, finer microscopic quantum, biology, and more lively thinking fields...

In particular, the sharp contradiction between the micro and the macro has not been resolved. How to achieve the precision requirements of integrated mathematical calculations and computer hardware and software, miniaturization, and zero error has become a hot topic in the development of artificial intelligence. Feedback to the serious defects of modern mathematics represented by category theory has been exposed.

(1) Logic algebra has a complete set of operation rules, including axioms (self-evident, without mathematical proof), theorems and laws, which are widely used in the transformation, analysis, simplification and design of switching circuits and digital logic circuits. Therefore, it is also called switching algebra. With the development of digital technology, logic algebra has become a basic tool and theoretical basis for analyzing and designing logic circuits. Can these logic symbols be self-proven when using set theory "axiomatic" in operations? How to ensure their sufficiency and reliability?

(2) Gödel's incompleteness theorem has proved that logical algebra cannot "proven itself". Specific manifestations: including the logical objects of interdisciplinary sciences
The morphisms and mappings used for analysis cannot be balanced, and cannot handle the balanced exchange relationship between the internal and external parts of logical objects well, which means that the application centered on logical mathematics, set theory, and category theory (like classical mathematics) is limited.

(3) Can the symbols defined by logical language (such as intersection, union, morphism, and mapping) and classical mathematics (such as addition, subtraction, multiplication, division, square root, and exponentiation) be unified in a new and acceptable operation symbol to facilitate computer understanding and application?

People imagine: abandoning the idea of opening a lock with a set of keys of different shapes , can we find a master key that can open any different locks? This involves studying the structure of those locks and the common rules of different lock structures to meet the possible existence of a master key?

In other words, the study of category theory cannot be limited to the structure of the lock, but also the structure of the key, and the coordination between the "key and the lock". That is, the relationship and rules between the external (lock structure) and internal (key structure) of category theory. It shows that there is a correlation and shared rules between the key and the lock.

Many scholars have wondered whether it is possible to introduce third-party system identities and mechanisms, and to solve, verify, adjust, and expand logical mathematics, set theory, and category theory (including the integration of internal and external computing of objects) as the center, which has become a top priority.

The Chinese circular logarithm team found that according to the incompleteness theorem of senior mathematician Gödel, the "logical analysis system and numerical analysis system" are not complete and sufficient; the objects of logical analysis and numerical analysis are "incapable of direct equilibrium exchange", and their common defect is the lack of "even-asymmetric random and non-random equilibrium exchange mechanism". If the "even equilibrium exchange mechanism" of dimensionless circular logarithms is uniformly introduced, the "logical analysis system and numerical analysis system" of mathematics will achieve a grand unification with dimensionless circular logarithm construction as the core.

8.3 Category Theory and Topology

In 1969, Kuhn proposed the paradigm in Structure , which is a mathematical theory that deals with mathematical structures and the connections between structures in an abstract way. The center of the category is "irreducible". In layman's terms, it proposes a relationship that can be crossed between "different levels". A vivid metaphor is that if different mathematical structures are imagined as buildings, green spaces, rivers, lakes, and hills in a city, then category theory is like a drone. As the height increases, the details on the ground gradually become blurred, but the drone can outline the entire city more and more clearly, representing different objects, and performing morphisms and mappings in an irreducible form. The operation symbols are such as " → " $A^n \rightarrow B^m$. The representative of professional terms is "morphism". However, there is no "reason or reliable basis for morphism". Axiomatization cannot ensure the reliability of calculations and further extensibility.

8.3.1 Limitations and extensions of category-theoretic topology

Category theory defines topology as "geometric deformation". The relationship between topological deformations is called "morphism". There is no mathematical proof, nor how to describe the relationship between "topology" and "morphism" qualitatively and quantitatively in mathematical form. Mathematics does not have "qualitative and quantitative" and "zero error" calculations that are reversible in both forward and reverse directions. Strictly speaking, it cannot be authoritative mathematics.

Kuhn pointed out that the scope of use of paradigms is limited. For example, "metascience" is not suitable for "interdisciplinary science". In fact, most of the problems faced are technological and scientific problems in interdisciplinary fields.

The so-called metascience is a metascience that does not regard itself as a knowledge system about the objective world, but as a metascience that studies the nature of science and scientific research methods. The concept of metascience was first proposed by the logical positivist school. It is believed that the philosophy of science does not regard itself as a knowledge system about the objective world, but as a metascience that studies the nature of science and scientific research methods. It points out that there is a strict difference between scientific concepts and metascience concepts. For example, nouns such as "force", "mass", "gene" and so on that appear "inside science" are scientific nouns and belong to the object language. Nouns such as "law", "theory", "explanation", "confirmation" and so on that are used to "talk about science" and express the characteristics of scientific statements or activities are metascience nouns and belong to the metalanguage. The scientific content does not affect the meaning of metascience nouns. The meaning of metascience nouns is not a function of scientific content and does not change with the changes in special concepts, propositions and arguments used or accepted in science.

Interdisciplinary science is a comprehensive scientific category that is closely related to the knowledge systems of two or more different fields and developed with the help of their achievements, such as biophysics, ecological economics, etc. Currently, mathematicians attach great importance to the exploration of "interdisciplinary science".

There are generally two situations in which "interdisciplinary science" is generated:

One is that some major scientific research topics involve two or more disciplines, and in the research process, new disciplines are generated at the junction of these related fields, such as physical mathematics, physical chemistry, biochemical mechanics, technical economics, etc.

Another situation is to use the theories and methods of a certain discipline to study problems in another discipline, which will also form some interdisciplinary sciences, such as radio astronomy and astrophysics.

If we can choose a closed ring in the category theory (note: the donut (ring) is a transformation of the Riemann function (K=-1) in the dimensionless circular logarithm), and it can be stretched and slid into another ring without cutting the total circumference, they are considered to be essentially the same in terms of spatial structure. Then we can understand mathematical objects by defining a mapping between them that preserves the structure. The complexity of types and models makes analysis difficult.

In the early 20th century, Emmy Noether developed entities such as rings, fields, and algebras, focusing on their structure and relationships to develop theories, using abstract symbols to represent the original addition, subtraction, multiplication and division of basic algebra, and the relationship between them to receive broader attention in abstract algebra.

However, logical algebra encounters the continuity and asymmetry of logical objects, and it may be more convenient and easier to handle with the original basic algebraic arithmetic symbols of "addition, subtraction, multiplication, division, square root and exponentiation". Therefore, mathematicians proposed the idea of "arithmetization of logic and logicization of arithmetic" in an attempt to solve the connection between current logical calculation and classical calculation and achieve the grand unification of mathematics as much as possible.

The most obvious example is the "Langlands Program" proposed by American mathematicians in 1969. **It** was proposed by Robert Langlands in the **1960s . It is** a broad generalization of Fourier analysis, a far-reaching framework for representing complex waves as multiple smoothly oscillating sine waves. The Langlands Program has an important place in three different mathematical fields: number theory, geometry and the so-called function field. These three fields are connected by a network of analogies, which is also called the "Rosetta Stone" of mathematics.

In layman's terms, Langlands used a series of conjectures to try to unify "algebra, geometry, number theory (arithmetic), and group combinatorial theory" into a simple formula for description.

In the 1940s, Sounder Mac Lane and Sanmual Eilenberg studied the transformations and symmetries inherent in mathematical structures. "Functor-morphism" became a key tool for converting algebraic problems into topological problems, translated topological terms into abstract algebraic terms, and established that a group is a set of elements with a single operation, which became the basis of category theory. It converts one world object and operation into another world object. Topology introduced a way to understand the structure of space with a tool like "basic group", and it was completed through abstract operations, which inspired the formal development of abstract algebra.

The dimensionless circular logarithm construction set is used as a third party to verify the category theory, and it is believed that the mathematics of the category theory is superior and can handle the "morphism" relationship between "objects" very well. However, there are many defects, which even affect the solidity of the mathematical foundation of the category theory.

Topological defects are mainly manifested in:

(1) Categories use “basic groups” to reflect the discrete transformation relationship of the world’s “objects”. In fact, in addition to the external discrete type, the world’s “objects” also have continuous relationships within the world’s “objects” (interactions between various elements). No mathematical proof of the coordination relationship between external changes and internal changes has been proposed. In other words, category theory has associative laws and commutative laws, but lacks the precise qualitative and quantitative description of “interpretability and balanced commutativity” like classical mathematics.

(2) As an "object" in one world and an operation transforming it into another "object" in another world, the category should describe the transformation relationship between the external and internal parts of the "object" and the path record of the change. There is no flexible, accurate and reliable description of the balanced exchange between "objects" like classical algebra.

(3) Categories are a set of objects and the "morphisms" (morphisms, arrows) between these objects. For example, ($ab \rightarrow c$), the fact ($ab \neq c$) is asymmetric, and the "objects" (external, internal) cannot be exchanged in a balanced manner. Category theory does not have a mathematical proof to give a reason for the application of "morphisms and functors". Therefore, category theory cannot explain some mathematical problems related to "morphisms, functors, homology groups, natural transformations , etc.", which means that the mathematical foundation is not solid.

Facts show that logical algebra, category theory, etc., when exploring polynomial equations, use abstract language definitions, symbols, and analytical rules, and encounter difficulties in mathematically dealing with "topology (deformation)" in the process of "multiplication combination-intersection and addition combination-union". The essence of this is that it hides the external and external, internal and external relationships of category theory, as well as the deformation process between internal and internal, which means that the topology of category theory is inherently insufficient.

Is there a higher-dimensional category theory, such as three-dimensional and above, called high-dimensional category theory (Higer Category), which has become more in-depth and layered than the two-dimensional category? At least the current progress is not or is not satisfactory.

If we introduce the dimensionless circular logarithm of a third party and the unique "balanced exchange mechanism of even symmetry and asymmetry" to verify the category theory, we can verify that it has two levels of different meanings and contents: this construction system has:

(1) It represents the whole of the characteristics (characteristic mode), beliefs, values, and technologies shared by members of a particular community. The dimensionless circular logarithm represents the exterior of the object, with the (characteristic mode) center point changing synchronously with the surrounding elements.

(2) Refers to an element of a whole, that is, the answer to the specific "inside the object" puzzle. The dimensionless circular logarithm represents the inside of the object, and the individual elements are analyzed based on the positional relationship between the (characteristic modulus) center point and the surrounding elements.

Prove their "asymmetry of logical analysis object morphism; non-morphism of numerical analysis object balance". Solution: These "objects" are uniformly converted into circular logarithms, and the "evenness mechanism" of the zero point at the center of the circular logarithm drives the "objects" to exchange in a balanced manner.

supplemented with dimensionless circular logarithms , is transformed into dimensionless circular logarithms of integrity systems, which have broad application prospects.

8.3.2 Category-theoretic topological space domains and dimensionless circular logarithmic space

Define the domain of space, a type of mathematical space, both real and complex numbers form the domain. Although this is very basic, it is indeed an interesting spatial structure, and many complex spaces such as vector spaces are based on domains.

Physical explanation of space: The inertial reference frame and space are stationary. No matter how the reference frame moves, including speed changes, the stationary state of the inertial reference frame and space will not be changed. In other words, the inertial reference frame and space move together.

The mathematical explanation is: the relationship between the mathematical origin and the three axes of X, Y and Z, coordinates, and coordinate transmission.

Explanation of relative physics: The part of the universe where the movement of material entities occurs is called space.Mathematical term: Space refers to a collection with special properties and some additional structure. Define a space field, a mathematical space in which both real and complex numbers constitute the field. Although this is very basic, it is indeed an interesting space structure. Many complex spaces, such as vector spaces, are based on domains.

Common space types in mathematics: affine space; topological space; consistent space; Hausdorff space; Banach space; vector space (or linear space);

Normed vector space (or linear normed space); inner product space; metric space; complete metric space; Euclidean space; Hilbert space; projective space; function space; sample space; probability space; topological space ;Twisted space, wormhole,..., all the way to dimensionless circular logarithmic space.

The so-called continuous mapping and homeomorphism: Let f be the mapping from space x to space Y, that is, for every point x in x, there is a unique point y in Y corresponding to it. This y is called the image of x under f, denoted as f(x); calling f a continuous mapping means that for each open set G of Y, its inverse image $f[G]=\{x\in x|f(x) \in G\}$ is an open set of x. If any two different points in x have different images, f is said to be injective. If every point in Y must be the image of a point in x, it is said that f is a surjection. Every simple and complete mapping f from space x to Y must have an inverse mapping g, which is a simple and complete mapping from Y to x, where g(y)=x if and only if f(x)=y .

The so-called topological space is a generalization of Euclidean space. Given any set, assigning a certain adjacent structure to each point becomes a topological space. There are many ways to construct adjacent structures, the most commonly used method is to specify open sets. If f and g are both continuous, f is called a homeomorphic map. Two topological spaces are called homeomorphic, which means that there is a homeomorphic mapping between them. Any kickoff of an n-dimensional Euclidean space R is homeomorphic to R as a subspace. On the other hand, in 1913 the Dutch mathematician LEJ Brouwer proved that when m is not equal to n, R and R are not embryonic. First and Second Countable Spaces A topological space is called second countable because its topology has a countable basis. R is the second countable space, because all open spheres whose radius and center coordinate are rational numbers form the countable base of the topology on R.

The calculation and proof of solid geometry often involve two major issues: the first is the positional relationship, which mainly includes vertical lines, vertical lines, parallel lines, and parallel lines; the second is the measurement problem, which mainly includes point to line, point to line, and point to line. The distance to the surface, the angle formed by the line, the line and the surface, the angle formed by the surface, etc. Most of the topics here mainly use vectors to prove lines, line-plane perpendicularity and calculate line-line angles. However, there are not many examples of how to use vectors to prove line-plane parallelism, calculate the distance from a point to a plane, line-plane angles and surface-plane angles. The field in modern mathematics, that is, a set F, is equipped with two binary operations. Currently, this binary operation is based on the balanced exchange of symmetry. The introduction of dimensionless circular logarithms can be expanded to adapt to the "balanced exchan

The so-called normed spaces; in common applications, such as in function spaces, they have an algebraic structure, that is, they form a linear space, and are also associated with some kind of convergence. The most commonly used general method to deal with this structure is It introduces a norm, which leads to the concept of normed space and is further improved into a dimensionless construction set.

The so-called dual space construction is an abstraction of the relationship between row vectors (1×n) and column vectors (n×1). This structure can be performed in infinite dimensional spaces and provides important insights into measures, distributions and Hilbert spaces. The application of dual spaces is a feature of functional analysis theory. Fourier transform also contains the concept of dual space. The definition of dual space in dimensionless circular logarithms is reformed as “the space of symmetry and asymmetry of even-numbered terms, which is the most abstract, broad and basic space.

The so-called Sobolev space: a type of Banach space composed of multi-variable integrable functions with weak derivatives. It is named after the Soviet mathematician С.Л. Sobolev because he made important contributions to the development of this type of function space. Since the 1930s, with the development of the calculus of variations and the need to study the existence and regularity of solutions to definite solutions to partial differential equations, many people have studied this type of function space. Sobolev space and its various generalizations, embedding theorem, trace theorem and various interpolation formulas have become indispensable tools in the theory of partial differential equations.

The concept of so-called symmetry breaking (broken-symmetry) was introduced into elementary particle physics in the 1960s and 1970s. In the simplest terms, this concept allows mathematical forms to remain symmetrical, while making physical results Keep it asymmetrical.

The "Standard Model" is based on a gauge theory with symmetry breaking. The dimensionless circular logarithm uses the "perfect circle model" as a metaphor for the "standard model&quot.

The "perfect circle mode" takes the uniformity-symmetry of geometric space and the asymmetry-unevenness of physical space, and takes the "perfect circle mode" of symmetry as the basic carrier of comparison.

The &quot perfect circle mode" uses the uniformity-symmetry of geometric space and the asymmetry-unevenness of physical space. It uses the "perfect circle mode" of symmetry as the basic carrier of comparison, and expresses geometric space and physical space through the path integral of circular logarithms. The changing relationship between them enables geometry-algebra to achieve random "balance" in a dimensionless form relying on theinfinity axiom.

In this way, the contradiction between "symmetry and asymmetry" is resolved.The wormhole, also known as the Einstein-Rosen Bridge, is a narrow tunnel that may exist in the universe connecting two different times and spaces. Wormholes were hypothesized by Einstein and Nathan Rosen in the 1930s when they were studying the gravitational field equations. They believed that instantaneous space transfer or time travel could be achieved through wormholes. This theory was proposed by Albert Einstein. Simply put, "wormholes" are thin tubes of space and time that connect distant regions of the universe. Dark matter keeps the wormhole exit open. Wormholes can connect parallel universes to infant universes and provide the possibility of time travel. Wormholes may also be space-time tunnels connecting black holes and white holes, so they are also called "grey lanes."

The so-called Schwazschild space, in 1916, Schwazschild considered the gravitational metric tensor field in the vacuum space around a spherical symmetric object with mass M, and introduced the description of the space mass field by **Einsteins theory of relativity**. Ten-dimensional space is a modern word, a proper noun, referring to a mathematical concept. People intuitively observe that space has three dimensions (or three dimensions) and one dimension of time. The theory of relativity calls it f**our-dimensional space-time** (or four-dimensional space). People have always been in support and opposition to the super four-dimensional space. It is indisputable that the macroscopic world space is three-dimensional; the microscopic world space is a three-dimensional hollow sphere. It can also be said that the microscopic world space is three-dimensional, time is four-dimensional, and the total space is eleven dimensions.

With the development of science and technology, new research has found that the super-strong field of the "wormhole" can be neutralized by **negative mass** to stabilize the energy field of the **wormhole**. Scientists believe that compared to the **positive matter** that generates energy, **antimatte**r also has negative mass" and can absorb all the energy around it. Like **wormholes negative mas**s was once thought to exist only in theory. However, many laboratories around the world have successfully proved that**negative mass** can exist in the real world, and have captured trace amounts of **negative mass** in space through spacecraft.

The so-called dimensionless circular logarithmic space; the above-mentioned space often connects finite mass and space. Use the three-dimensional basic space of physics as the carrier: deal with any high-dimensional space problems and integrate all mathematical and physical mass-space-characteristic modular circular logarithms in a dimensionless form to become an irrelevant mathematical model without specific (quality) elements. The abstract calculation of interference in the range of {0,1} has become a novel infinite construction set, which has considerable advantages and is more flexible than the original method of dealing with space problems.

Space: In mathematics, there is often a hierarchical object-oriented design. In physics, space is related to mass. At the top of this hierarchical structure, there is the most abstract space, such as the hierarchical structure of probability → topology → hypertopology → network space → dimensionless circular logarithmic space.

In this space, the concept of three-dimensional network space composed of discrete and continuous integration will be demonstrated. These spaces often have a unified structure and properties, and can also have more specific applications.

The (∪ union, ∩ intersection AB, a+b, ab) operations of addition and multiplication are defined in the usual way for real numbers. But if the domain is defined by axiomatic means of set theory, it only needs to satisfy the following axioms. Logical algebra artificially assumes **discrete-symmetry** for the space composed of all {a, b, c}∈{F and lacks interpretability.

The field in modern mathematics is a set F, equipped with two binary operations. At present, this binary operation is based on the balanced exchange of symmetry. The introduction of dimensionless circular logarithms can be expanded to adapt to the "balanced exchange of symmetry and asymmetry", which is called the "evenness" of integrity. The circular logarithm unifies the two operations called addition and multiplication, overcoming the "century-old contradiction between addition combination and multiplication combination".

The traditional binary symmetric distribution means that if two elements are input, a certain element will be generated through addition (or multiplication), which is called "combination". Conversely, if a certain element is input, two elements will be generated through addition (or multiplication). In fact, there are more ternary asymmetries. The asymmetric distribution of ternary elements means that if three elements are input, a certain element will be generated through addition (or multiplication), which is fine, and is called "combination". If a certain element is input, three elements will be generated through asymmetric addition (or multiplication). It is called "analysis and decomposition", and difficulties arise. This is the important content of analysis that category theory needs to expand.

Space in mathematics often presents a hierarchical object-oriented design. At the top of this hierarchy is the most abstract space, such as the probability of the hierarchy → topology → hypertopology → cyberspace → dimensionless circular logarithmic space. In this space, the concept of three-dimensional cyberspace composed of discrete-continuous integration will be demonstrated. These spaces often have unified structures and properties, and can also have more special applications.

of addition and multiplication (∪union , ∩intersection AB, a+b, ab) are defined in the usual way for real numbers. However, if the domain is defined by means of set theory axiomatization, it only needs to satisfy the following axioms. For the space composed of all{a, b, c}∈F in logical algebra , the artificial assumption of "discrete type-symmetry" lacks interpretability.

In particular, the category theory lacks the complete "balanced exchange mechanism of even symmetry and asymmetry". Its union, intersection and morphism all lack clear connotations of balance and cannot perform morphism and exchange.

The circular logarithm team compares the real number set **R** with the natural number set **N** one by one to generate dimensionless circular logarithms, forming a domain that includes all real numbers and natural numbers. It can also include the deformation of the space of category theory, and describe their static and calculus dynamic changes qualitatively and quantitatively in mathematical form. **(Figure 8.2)**

(Figure 8.2) Space domain and circular logarithmic space (picture from the Internet)

For example, the combination of multiplication and addition (including set theory similarities) can satisfy the inverse symmetric associative law, but cannot be directly balanced and exchanged:

$a+b=c$; $a=cb$; $b=ca$; $a \neq b$;

$a \neq (b \cdot c)$; $b \neq (a \cdot c)$; $(c) \neq (a \cdot b)$;

It is worth mentioning that there is no sequential relationship between multiplication combinations and addition combinations.

When we perform complex analysis, we define order relations on fields, and we obtain ordered fields. Common examples are the field of rational numbers (**Q**) and the field of real numbers (**R**). We can also use irrational numbers, arbitrary digitizable objects, and other fields. In the sequence of complex analysis, ordered fields of dimensionless form can be formed.

How to achieve exchange in ordered fields, such as algebraic equations, has not solved the problem of balanced exchange of "one-dimensional number and two-dimensional number", which makes it impossible for classical algebra and logical algebra to develop completely and fully. Classical algebra lacks the interpretability of the qualitative and quantitative forms of equilibrium exchange.

The introduction of dimensionless circular logarithms and the application of the "dimensionless evenness mechanism" make it possible to connect the category theory space transformation with the dimensionless circular logarithm space and carry out balanced exchange, filling the gap in the numerical asymmetric balanced exchange of category theory (internal and external) ternary and binary numbers.

Take the asymmetric ternary number (asymmetric exponent value and asymmetric number distribution) as an example:

Ternary number: {A,B,C}, multiplication and combination of units: $^{(3)}\sqrt{ABC}$;

(1) Characteristic module addition combination unit: $\{\mathbf{D_0}\}^{(1)}=(1/3)(A+B+C)$; $\{\mathbf{D_0}\}^{(2)}=(1/3)(AB+BC+CA)$;

(2) , ternary circular logarithm: $(1-\eta^2)^{(K=\pm1)}=\{^{(3)}\sqrt{ABC}/(1/3)(A+B+C)\}^{K(1)(2)(3)}=\{^{(3)}\sqrt{\mathbf{D}}/\mathbf{D_0}\}^{K(1)(2)(3)}$;

(3) , the distributive law of ternary circular logarithms: $(A\cdot B)\cdot C=A\cdot(B\cdot C)=(1-\eta_{[ABC]}{}^2)^{(K=\pm1)}\cdot\{\mathbf{D_0}\}^{(3)}$;

(4) The disorder of ternary numbers is manifested as order in dimensionless circular logarithms ;

$(1-\eta_{[ABC]}{}^2)^{(K=\pm1)}=(1-\eta_{[A]}{}^2)^{(K=+1)}+(1-\eta_{[B]}{}^2)^{(K=-1)}+(1-\eta_{[C]}{}^2)^{(K=-1)}\cdot\mathbf{D_0}\}^{(3)}$;

(5) Circular logarithmic symmetry of ternary numbers:

$(A\cdot B)^{(K=+1)}\leftrightarrow C^{(K=-1)}$;

(6) The commutative law of the overall equilibrium of the ternary circular logarithm:

$$(A\cdot B\cdot C)^{(K=\pm1)}\leftrightarrow(AB^{(K=\pm1)}\leftrightarrow C^{(K=\pm1)})^{(K=\pm1)}:$$

$(A\cdot B)\cdot C=(1-\eta_{[ABC]}{}^2)^{(K=\pm1)}\cdot\{\mathbf{D_0}\}^{(3)}$

$AB=[(1-\eta_{[AB]}{}^2)^{(K=+1)}\cdot\{\mathbf{D_0}\}^{(2)}+(1-\eta_C{}^2)^{(K=-1)}\cdot\{\mathbf{D_0}\}^{(1)}]$

$=[(1-\eta_{[A]]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[B]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=-1)}]\cdot\{\mathbf{D_0}\}^{(3)}$

$=(1-\eta_{[AB]}{}^2)^{(K=+1)}\cdot\mathbf{D_0}\}^{(2)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=-1)}\cdot\mathbf{D_0}\}^{(1)}=C$;

(7) The commutative law of asymmetric equilibrium of ternary circular logarithms :

$$(A\cdot B\cdot C)^{(K=\pm1)}\leftrightarrow A^{(K=+1)}\leftrightarrow(B\cdot C)^{(K=-1)};$$

$A^{(K=+1)}=(1-\eta_{[A]}{}^2)^{(K=+1)}\cdot\mathbf{D_0}\}\}^{(1)}$

$\leftrightarrow[(1-\eta_{[A]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[BC]}{}^2)^{(K=\pm0)}]\cdot\mathbf{D_0}\}^{(3)}$

$(1-\eta_{[BC]}{}^2)^{(K=-1)}\cdot\mathbf{D_0}\}^{(2)}=BC^{(K=-1)}$;

(8) Symmetry of the evenness of the central zero point of the dimensionless circular logarithm of the ternary number:

$(1-\eta_{[C]}{}^2)^{(K=\pm1)}=\sum(1-\eta_{[jik]}{}^2)^{(K=+1)}+\sum(1-\eta_{[jik]}{}^2)^{(K=-1)}=0$;

Among them: " $\leftrightarrow$ " indicates that the numerical analysis and logical analysis are converted into the symmetry balance exchange of the corresponding central zero point of the symmetry and asymmetry of the circular logarithm and evenness. Driven by the forward and reverse conversion of the properties of the circular logarithm, a simplified balance exchange (mapping, morphism) is carried out.

Space itself is abstract. It starts from a set - a set of objects usually called points or elements, and there are abstract realizations of "no interpretability" exchanges (mappings, morphisms) described by logical language. The circle logarithm performs the most abstract (numerical analysis and logical analysis) "four arithmetic operations (addition, subtraction, multiplication, division, exponentiation, and square root) defined by dimensionless language" in a third form. Like the symbols of natural number facts, the scope of application and concept are different.

In particular, the dimensionless 'infinity axiom' mechanism describes: without changing the original "element-object" symmetry and asymmetry characteristics, without changing the characteristic modulus, and without changing the isomorphic circular logarithm, random and non-random balanced exchange combinations are performed through the central zero point of the circular logarithm . This circular logarithm central zero point can not only describe the balanced exchange combination of "space",

The dimensionless circular logarithm "has no mathematical model and no specific element content" is called "circular logarithm space". It has the most abstract analysis, describing the differences in distance, space, combination, function, topological deformation, etc., and gives the equilibrium calculation and exchange relationship of the whole and group combination meaning.

Similarly, it also describes that "neutrinos" in the physical-chemical-biological world do not change the original "element-object" symmetry and asymmetry characteristics, characteristic modulus, and isomorphic circular logarithms, and perform random and non-random balanced exchange and combination through the central zero point of the circular logarithm . In other words, the "circular logarithm" description of the dimensionless "infinite axiom" mechanism in the mathematical world and the "neutrino" description in the physical mass world, as well as the "central zero point" description of any abstract space, have the same status, role, and function in their respective fields, and become the mathematical basis for the grand unification of the universe.

In particular, each (internal and external) space has its own unique property theory and practical application range. For example, when a distance function (circular logarithm) is added to the space, convergence, compactness and continuity can be studied to ensure the uniqueness of the solution and the reliability of zero error. What is more interesting is that the 'infinity axiom' mechanism uses the mathematical " circular logarithm ", the physical "neutrino" and the spatial "center point". Its vivid metaphor is similar to the "Book of Changes" in ancient Chinese philosophy-mathematics: "There are two mutually inverse even tadpole shapes in the perfect circle, with an "S" shaped separation line in the middle. The distance from the perfect circle center point to each part on the shaped separation line is the same, and the direction is opposite."

These concepts are collectively referred to as "elements-objects" of group combinations, with the same consistent components and analysis steps:

It consists of two parts:

(1) Comparison between the dimensionless circular logarithm and the center point of the corresponding numerical characteristic module (external) (called morphism in category theory),

(2) Comparison between the center point of the numerical characteristic mode (interior) and the surrounding individuals or small group elements.

Two analysis steps :

(1) The synchronous change of the zero point of the characteristic modulus center of the group combination and the surrounding elements is reflected in the circular logarithm $(1-\eta^2)^K$,

(2) The probability-topological concept of the characteristic module of the group combination is analyzed through the relationship between the central zero point of the circular logarithm $(1- \eta_{[C]}{}^2)^{(K=`0)}$ and the surrounding elements.

The so-called "dimensionless circular logarithm" is the expansion of the group combination " element -object" with " unit body " as the base , and the comparison of all "element-objects" obtains integer zero error , which is called "position value circular logarithm". The center point of the perfect circle is exactly the decomposition point of the reciprocal equilibrium exchange combination of "circular logarithm center zero point, neutrino" and property attributes. The property attributes control the convergence, compactness, continuity and associativity of the " probability-topology -hypertopology" of the "element-object" space .

The dimensionless construction, as a third-party construction, verifies that any "element-object" cannot be directly exchanged , and must be driven by the "infinite axiom" mechanism of the third-party construction . The even-numbered central zero-point symmetry drives the "element-object" to perform balanced exchange, combination and decomposition. Once the circular logarithm is canceled, the asymmetry of the original value is restored. These explainable things are not explained in the numerical analysis and logical analysis of traditional mathematics , as well as the "neutrino" phenomenon in physics. The dimensionless circular logarithm makes up for this defect and can explain many random and non-random natural phenomena.

For example, scientists have discovered that whether light is a wave or a particle is related to the observer. When there is no observer in the double-slit interference experiment, the particle is in a superposition state. When this superposition state passes through the double slits, half will pass through slit A and the other half will pass through slit B. When there is no observer, the quantum is in a superposition state, so what we see is the particle form. When we observe it, we can see whether it passes through slit A or slit B. Since the path of the particle is locked, the interference fringes disappear, and it becomes a wave. In physics, scientists define light as having the dual nature of wave and particle.

For example, Chinese scientists recently discovered neutrinos at a depth of 700 meters underground. Neutrinos have three particles (electrons, muons, and tau particles) that conform to the (ternary) asymmetry of the dimensionless circular logarithm evenness, and the zero point of the circular logarithm center is converted into symmetry. Neutrinos are the product of the combination of electric quantum (two (1/2) positive)-(one negative)=0 (neutrinos are neutral) and the number of particles (1+2=3), which becomes the "even asymmetry" form. The "infinity axiom" of the dimensionless circular logarithm describes that neutrinos have the characteristics of random equilibrium exchange combination of "even asymmetry", which is manifested as the positive and negative electron theory of neutrino evenness, and it is deduced that neutrinos should have three basic types, which is completely consistent with the three types of neutrinos we have actually detected (electron neutrinos, muon neutrinos and tau neutrinos). According to this idea, the mass of neutrinos should be at least $\{3\}^{2n}$, that is, the power function is twice the mass of the electron 2me, 4me, 6me, ... Neutrinos drive the balance, exchange and combination decomposition of physical "elements-objects" in the form of the "infinite axiom" mechanism, satisfying the dimensionless exchange rule: "Unchanged mass, unchanged characteristic mode (mass average), unchanged neutrinos", and the reverse conversion of the properties of the neutrino connotation drives the balance, exchange and combination decomposition of the universe. Once there are no (cancelled) neutrinos, the universe will restore the "asymmetry of even numbers".

It can be deduced that if this kind of thing permeates the universe and is relatively consistent, then our universe is an equilibrium state, which contains "symmetry and asymmetry". Under the mechanism of the 'infinity axiom', the universe is exchanged, combined and decomposed randomly and non-randomly. Light also has three properties of "positive, neutral and negative". The transmission may require the action of neutrinos, but we cannot perceive it. The study of neutrino magnetism may be the most critical issue to reveal whether the transmission of light needs to rely on a medium. However, the nature of neutrinos determines the complexity and difficulty of studying it. Now the Chinese circular logarithm team has discovered a dimensionless structure, which well describes the role, status and function of the neutrino's even number 'infinity axiom' mechanism, and solves the characteristics of neutrinos.

Dimensionless circular logarithms and neutrinos describe the "even symmetry and asymmetry" of the universe in different fields, as well as the "convergence-exchange-expansion with properties" cycle and the "infinite axiom" mechanism of random and non-random equilibrium exchange combination and decomposition. Specifically, the symmetry of a person includes the asymmetry of the heart on the left, and the "symmetry and asymmetry" of even numbers constitutes a world with different expressions. In this way, dimensionless circular logarithms supplement the proof of set theory, category theory, calculus equations and various calculation methods of logical analysis , as well as the characteristics of physical neutrinos, and convert them into dimensionless circular logarithms, creating a space between spaces and levels in various fields, and between levels , through the dimensionless circular logarithm "infinite axioms" to randomly carry out equilibrium exchange (projection, morphism, mapping, combination, decomposition, etc.) , as well as "random self-authentication". This means that dimensionless circular logarithms occupy the top of the universe and the space of neural networks, data networks, and information networks , reflecting that dimensionless circular logarithms have the most profound, abstract, and basic spatial structure. It embodies the ancient Chinese philosophical mathematics that “two gives birth to three, three gives birth to all things”. “Three” is the most basic, abstract, profound and truthful way to describe the world.

The universe is described by the 'infinite axiom' mechanism of "(particle - probability $(1+\eta_{[A]}{}^{2})$" and "(wave - topology $(1-\eta_{[BC]}{}^{2})$" . At the circular logarithmic center zero point $(1-\eta_{[C]}{}^{2})^{(K=`0)}=0$, the even symmetry and asymmetry of the average values at each level drive the circular logarithmic factors at each level of the universe , and the random and non-random cyclic decomposition, combination, and conversion (exchange).

Taking the asymmetry of the "ghost particles" of the universe 's most basic example particle ternary "neutrino" as an example, the balanced exchange combination decomposition of the "infinity axiom" is described by the circular logarithm:

There are: variables of the universe's fundamental particles, ternary numbers (including binary numbers "neutrinos" and ternary numbers "quarks"):

$A^{(S)}, B^{(S)}, C^{(S)}$ series: $\Omega=\{abc\}\in\{ABC\}\in\{A^{(S)},B^{(S)},C^{(S)}\}=\{R_0{}^{(S)}\}^{(K=`1)(3)}$;

Multiplication combination: $\{R_0{}^{(S)}\}^{(K=`1)(3)}=\sum(1/3S)(A^{(S)}\cdot B^{(S)}\cdot C^{(S)})={}^{K(S)}\sqrt{(A^{(S)}\cdot B^{(S)}\cdot C^{(S)})}$

Characteristic mode: (the ternary numbers of elementary particles in the universe constitute the mean functions of each level):

$\{R_0\}^{(K=`1)(1S)}=\sum(1/3)^K(A^K+B^K+C^K)^{(K=`1)(1S)}=\sum(1/3)^K(A^{KS}+B^{KS}+C^{KS})^{(K=`1)(1)}$,

$\{R_0\}^{(K=`1)(2S)}=\sum(1/3)(AB^K+BC^K+CA^K)^{(K=`1)(2S)}\sum(1/3)^K(AB^{KS}+BC^{KS}+CA^{KS})^{(K=`1)(2)}$

Known: By multiplying the combination and the characteristic modulus (adding the combination mean function), we can use the "infinite axiom mechanism" to analyze the universe and the balanced exchange combination decomposition of each level of the universe. We can obtain the "cosmic formula" corresponding to the dimensionless circular logarithm.

$\Omega=(1-\eta_{[\Omega]}{}^{2})^{(K=`1)}\cdot\{R_{0\Omega}{}^{(S)}\}^{(3)}$

Cosmic-neutrino (ghost particle) exchange rules:

Without changing the various levels of the universe to neutrinos, without changing the mean function (characteristic mode) of each level, without changing the isomorphic circular logarithm, the even symmetry and asymmetry, randomness and non-randomness of the 'infinite axiom mechanism' are used to drive the balanced exchange combination decomposition of the cycles of various levels of the universe through the central zero point of the circular logarithm or neutrinos (ghost particles):

The equilibrium exchange combination decomposition of the cosmic-neutrino (ghost particle) holistic nature: $\Omega^{(K=+1)}\leftrightarrow\Omega^{(K=+1)}$;

$\Omega^{(K=+1)}=(1-\eta_{[\Omega]}{}^{2})^{(K=+1)}\cdot\{R_{0\Omega}{}^{(S)}\}^{(3)}$

$ABC^{(K=+1)}=(1-\eta_{[ABC]}{}^{2})^{(K=+1)}\cdot\{R_0{}^{(S)}\}^{(3)}$

$=[(1-\eta_{[\Omega]}{}^{2})^{(K=+1)(1)}\leftrightarrow(1-\eta_{[C\Omega]}{}^{2})^{(K=`0)(3)}\leftrightarrow(1-\eta_{[\Omega]}{}^{2})^{(K=-1)(2)}]\cdot\{R_{0\Omega}{}^{(S)}\}^{(3)}$

$=(1-\eta_{[\Omega}{}^{2})^{(K=+1)}\cdot\{R_{0\Omega}{}^{(S)}\}^{(3)}=ABC^{(K=-1)}$;

Cosmic-neutrino (ghost particle) non-global (or local) equilibrium exchange combination decomposition: $A_{[\Omega]}\leftrightarrow(B_{[\Omega]}C_{[\Omega]})$

$A^{(K=+1)}=(1+\eta_{[A]}{}^{2})^{(K=+1)}\cdot\{R_{0\Omega}{}^{(S)}\}^{(1)}$

$=[(1-\eta_{[\Omega]}{}^2)^{(K=+1)(1)}\leftrightarrow(1-\eta_{[C]\Omega}{}^2)^{(K=`0)(3)}\leftrightarrow(1-\eta_{[\Omega]}{}^2)^{(K=-1)(2)}]\cdot\{R_{0\Omega}{}^{(S)}\}^{(3)}$
$=(1-\eta_{[BC]}{}^2)^{(Kw=-1)}\cdot\{R_{0\Omega}{}^{(2)}\}^{(2)}=BC^{(K=-1)}$;

Among them: the even symmetry of the circular logarithmic central zero point: $|A^{(Kw=+1)(1)}|=|BC^{(Kw=-1)(2)}|$, the exchange 'infinity axiom' mechanism within the kw overall structure.

The "2-2 topological combination" is decomposed into the two-element addition of circular logarithms:
$BC^{(K=-1)(2)}=[(1-\eta_{[\Omega]}{}^2)^{(K=-1)}\{R_{0\Omega}{}^{(S)}\}^{(2)}]$
$\leftrightarrow(1-\eta_{[\Omega]}{}^2)^{(K=-1)(2)}\leftrightarrow[(1-\eta_{[C]\Omega}{}^2)^{(K=`0)(3)}]\leftrightarrow[(1-\eta_{[B]}{}^2)^{(K=-1)}+(1-\eta_{[C]}{}^2)^{(K=-1)}]\cdot\{R_{0\Omega}{}^{(S)}\}^{(2)}$
$=[(1-\eta_{[B]}{}^2)^{(K=-1)}+(1-\eta_{[C]}{}^2)^{(K=-1)}]\cdot\{R_{0\Omega}{}^{(S)}\}^{(2)}$;

Similarly; universe-neutrino (ghost particle) cross-level exchange
$[\Omega_{[M]}{}^{(K=+1)(S\leftrightarrow M)}\leftrightarrow\Omega_{[Q]}{}^{(K=-1)(S\leftrightarrow Q)}]\in\{ABC\}$;

The total "element-object" $\{^{k(3S)}\sqrt{(ABC)}\}=\{R_0{}^{(S)}\}^{(3)}$ remains unchanged, and the "infinity axiom" mechanism composed of each sub-item level remains unchanged.
$(1-\eta_{[S\leftrightarrow M]}{}^2)\cdot\{^{k(3)}\sqrt{(ABC)}\}^{(K=+1)(S\leftrightarrow M)}$
$\leftrightarrow[(1-\eta_{[S\leftrightarrow M]}{}^2)^{(K=+1)}]\leftrightarrow(1-\eta_{[C][S\leftrightarrow MQ]}{}^2)^{(K=`0)}\leftrightarrow(1-\eta_{[S\leftrightarrow Q]}{}^2)^{(K=-1)}]\cdot\{R_{0[S\leftrightarrow MQ]}{}^{(S)}\}^{(3)}$
$\leftrightarrow[(1-\eta_{[S\leftrightarrow Q]}{}^2)^{(K=-1)(S\leftrightarrow Q)}]\cdot\{R_{0[S\leftrightarrow MQ]}{}^{(S)}\}^{(K=+1)(S\leftrightarrow Q)}$
$=(1-\eta_{[S\leftrightarrow Q]}{}^2)\cdot\{^{k(3)}\sqrt{(ABC)}\}^{(K=-1)(S\leftrightarrow M)}$;

Among them: the "elements-objects" at each level of the universe are expressed as ternary numbers (or three-dimensional space) &quo"$A_{[\Omega]},B_{[\Omega]},C_{[\Omega]}$"" as "1-1 probability combination"$AB_{[\Omega]},BC_{[\Omega]},CA_{[\Omega]}$ are "2-2 topological combinations";. The "even numbers" passing through the central zero point (critical point, line) of the dimensionless circle logarithm $(1-\eta_{[C]\Omega}{}^2)^{(K=`0)}$The random and non-random$(\pm\eta_A{}^2)$balanced exchange combination of symmetry and asymmetry can interpretably describe the duality phenomenon of the physical universe - neutrino (ghost particle) (probability) particle↔(topology) wave).

8.4. Linking category theory symbols (including calculus symbols) with circular logarithm symbols

The important feature of category theory is the morphism between topological and geometric deformations. It only explains the relationship between them, without complete qualitative and quantitative description. It cannot describe the qualitative dynamics and reciprocal change state of the object, which brings about the incompleteness and imprecision of logical symbols. For this reason, the complete circular logarithm symbol of "addition, subtraction, multiplication, division, exponentiation, square root, and balance and exchange" is introduced.

✷Definition 8.4.1 Group Combination - Circular Logarithm of Function Mathematical symbols and calculus symbols convention:

According to the definition of calculus and circular logarithm: $\{X\}=(1-\eta^2)^K\{X_0\}$,
First order differential: $\{\partial X\}=(1-(\partial\eta)^2)^K\{X_0\}=(1-\eta^2)^K\{X_0\}^{(N=-1)}$,
Second order differential: $\{\partial^{(2)}X\}=(1-(\partial^2\eta)^2)^K\{X_0\}=(1-\eta^2)^K\{X_0\}^{(N=-2)}$,
First order integral: $\{\int X\}=(1-(\int\eta dx)^2)^K\{X_0\}=(1-\eta^2)^K\{X_0\}^{(N=+1)}$,
Second order integral: $\{\int^{(2)}X\}=(1-(\int^{(2)}\eta dx^2)^2)^K\{X_0\}=(1-\eta^2)^K\{X_0\}^{(N=+2)}$

certificate :

First-order differential variable:
$\{\partial x\}=\{(x_2-x_1)/x\}=[(1-(\partial\eta)^2)^K]\cdot\{X_0\}$
$=[(1-(\partial\eta_2)^2)-(1-(\partial\eta_1)^2)]^K=(1-\partial(\eta_2-\eta_1)^2)^K\{X_0\}=(1-(\eta_{[2-1]})^2)^K\{X_0\}$
$=(1-\eta^2)^K\{X_0\}^{K[2-1]}=(1-\eta^2)^K\{X_0\}^{K(Z`S`(N=-1))}$,

Second order differential variable:
$\{\partial^2x\}=\{\partial[(x_2-x_1)/x]\}$
$=[(1-(\partial^2\eta_2)^2)-(1-(\partial^2\eta_1)^2)]^K\{X_0\}=(1-(\partial^2\eta_2-\partial^2\eta_1)^2)^K\{X_0\}$
$=(1-\partial^2(\eta_{[2-1]})^2)^K\{X_0\}=[(1-(\partial^2\eta)^2)^K]\cdot\{X_0\}$
$=(1-\partial\eta^2)^K\{X_0\}^{K[2-1]}=(1-\eta^2)^K\{X_0\}^{K(Z`S`(N=-2))}$,

First-order integration variable:
$\{\int xdx\}=\int\{(x_2-x_1)/x\cdot dx\}=[(1-(\int\eta)^2)^K]\cdot\{X_0\}$
$=[(1-(\int\eta_2)^2)-(1-(\int\eta_1)^2)]^K=(1-\int(\eta_2-\eta_1)^2)^K\{X_0\}=(1-(\int\eta_{[2-1]})^2)^K\{X_0\}$
$=(1-\eta^2)^K\{X_0\}^{K(N=+1)}=(1-\eta^2)^K\{X_0\}^{K(Z`S`(N=+1))}$,

Second-order integration variable:
$\{\int^2x\}=\{\int^2[(x_2-x_1)/x\cdot d^2x]\}$
$=[(1-(\int^2\eta_2)^2)-(1-(\int^2\eta_1)^2)]^K\{X_0\}=(1-(\int^2\eta_2-\int^2\eta_1)^2)^K\{X_0\}$
$=(1-\int^2(\eta_{[2-1]})^2)^K\{X_0\}=[(1-(\int^2\eta)^2)^K]\cdot\{X_0\}$
$=(1--\int^2\eta^2)^K\{X_0\}^{K(N=+2)}=(1-\eta^2)^K\{X_0\}^{K(Z`S`(N=+2))}$,

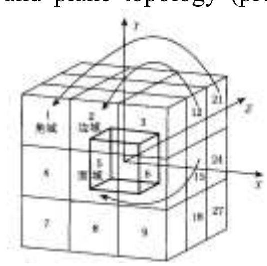
Exchange rule : $\{X\}^{(K=-1)}=(1-\eta^2)^{(K=\pm0)}\{\mathbf{D}_0\}^{(K=+1)}$, $\{X\}$, $\{\mathbf{D}_0\}$ remain unchanged,
First-order calculus: $[(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=+1)}]^{K(Z`S`(N=`1))}$,
Second-order calculus: $[(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=+1)}]^{K(Z`S`(N=`2))}$,
Conversely , the integral (N=+1) and (N=+2) can also be established.
For example : logical proof proposition: $(1-\eta^2)^K$ corresponds to the characteristic module:
"For all" $X=(1-\eta^2)^K$, "there exists some" $Y=(1-\eta_i^2)^K$, such that $(1-\eta_C{}^2)^K\geq(1-\eta_i{}^2)^K$:
"There exists some" $Y=(1-\eta_i^2)^K$, "for all" $X=(1-\eta^2)^K$, such that $(1-\eta_C{}^2)^K\geq(1-\eta_i{}^2)^K$:

✷Definition 8.4.2 Characteristic modulus corresponds to calculus:
Differentiation : (-N=(symbol d, d^2)=0,1,2), integral : (+N=(symbol ∫, ∬)=0,1,2),
""There exists a (characteristic mode)" such that : $da^n/dx=(1/n)a^{(n-1)}$,
Order differential of circular logarithm is defined as:
$d(1-\eta_x{}^2)^K/dx=(1-(d\eta_x/dx)^2)^K=(1-\eta_x{}^2)^{K(N-1))}$, "there exists a" $da^x/dx=[(1/n(-1)]a^{(n-1)}=\{X_0\}^{(n-1)}$,
The circular logarithmic second order differential is defined as:
$d^2(1-\eta_x{}^2)^K/dx^2=(1-(d^2\eta_x/dx^2)^2)^K=(1-\eta_x{}^2)^{K(N-2))}$, "there exists a" $d^2a^x/dx=[(2!/n(n-1)]a^{(n-2)}=\{X_0\}^{(n-21)}$,
Order circular logarithmic integral is defined as:
$\int(1-\eta_x{}^2)^K dx=(1-(\int\eta_x dx)^2)^K=(1-\eta_x{}^2)^{K(N+1))}$, "there exists a" $\int[(1/n]a^{(n-1)}dx=a^n=\{X_0\}^{(n+1)}$,
The circular logarithmic second-order integral is defined as:
$\iint(1-\eta_x{}^2)^K dx=(1-(\iint\eta_x dx)^2)^K=(1-\eta_x{}^2)^{K(N+2))}$, "there exists a" $\iint[(2!/n(n-1)]a^{(n-2)}dx^2=a^n=\{X_0\}^{(n+2)}$,,
Where: (n) represents a natural number, (-N=0,1,2) represents the differential order symbol; (+N=0,1,2) represents the integral order symbol .

8.4.1. Dimensionless circular logarithm and three-dimensional state space

The state space refers to the set of all possible states of the system. In simple terms, the state space can be regarded as a space with state variables as coordinate axes , so the state of the system can be represented as a vector in this space. It is a mathematical model that represents a physical system as a set of inputs, outputs and states, and the relationship between inputs, outputs and states can be described by many first-order/second-order differential equations.

✷Define 8.4.3 position- valued circular logarithm and three-dimensional state space, three-dimensional state space **K** -dimensional lattice, various corresponding set pair orders of **A, B, C** sets and circular logarithm relations, including the state space in the axis probability and plane topology (projection, mapping, morphism) balanced



exchange. **(Figure 8.3)**

(Figure 8.3 Three-dimensional state space)

There is an asymmetric distribution of ternary numbers. For example, the problem of balanced exchange between an element and two product combinations has not been solved and has become a blank area. The dimensionless circular logarithm is introduced to construct a unique and complete "balanced exchange mechanism of even symmetry and asymmetry" without dimension, which successfully solves the description of the qualitative and quantitative relationship between the asymmetric, uneven, irreducible, and different levels of state space in category theory.

The category theory of logical analysis also talks about "topology-morphism", which is to establish the exchange rule (probability, first-order differential) based on the symmetry-discrete assumption. This rule has no strict mathematical qualitative and quantitative forward and reverse proof, nor does it have "balanced exchange inside and outside the object". It is just called "morphism" with the relationship of "deformed" functors, which will be explained later.

If we encounter a lattice with a topological 2-2 symmetry, in fact, algebraic topology also changes to a "2-2 combination", and encounter a three-dimensional asymmetry (such as the asymmetry of the mass of different densities between probability-topology), how can we mathematically solve the exchange? Category theory does not provide a strict mathematical explanation.

Here, the asymmetry is converted into the zero-point symmetry of the circular logarithm center through the dimensionless circular logarithm, and expanded into the first-order/second-order differential equations, that is, the three-dimensional coordinates of probability-topology (asymmetry) have the highest level and most abstract description of the circular logarithm space, and are at the top of the space. The so-called "morphisms" between any level and segment in the space can be converted into dimensionless circular logarithms to obtain a reliable mathematical explanation. However, the result is that "dimensionless circular logarithms are the best alternative to category theory."

certificate

Here we just borrow (Figure 8.3) as an example. The three-dimensional state space refers to the concept that has been converted into dimensionless circular logarithmic space. The projection of two elements (product combinations) on the plane is deformed, which also belongs to the topological concept.

In this way, the dimensionless circular logarithm gives a directed sequence expansion.

Ternary number: (**A,B,C)** ,

That is, given $\mathbf{D} = \{A \cdot B \cdot C\}$,

Boundary function: $\mathbf{D} = \{^{(3)}\sqrt{(ABC)}\}^{(3)}$, called the "multiplication combination" unit cell.

"Additional combination" characteristic module: $\{\mathbf{D}_0\}^{(1)} = (1/3)(A+B+C)$, $\{\mathbf{D}_0\}^{(2)} = (1/3)(AB+BC+CA)$,

Characteristic modes: $\{\mathbf{D}_0\}^{(1)}$ and $\{\mathbf{D}_0\}^{(2)}$, which can be used for three-dimensional complex analysis.

For example: **K-** dimensional lattice of three-dimensional Heine-Borel theorem

Step 1: Take the 3D grid as an example. In each step, divide it into 8 3D grids, then select the sub-3**D** grid that cannot be finitely covered, and divide it into 8 3D grids again. Because this is a nested 3D grid sequence, their intersection contains at least one point unit point $^{(3)}\sqrt{(ABC)}$. The central zero point $I^3 = I_x \cdot I_y \cdot I_Z$ corresponds to the characteristic mode $\{\mathbf{D}_0\}$ at the center point of the conjugate asymmetry, which can be converted into a dimensionless circular logarithm representation:

According to the root analysis of "cubic equation", under the symmetry condition:

$(n)=(+n_a)+[+n_b)+(-n_c)]=0$,

Probability combination :

$\{^{(3)}\sqrt{(A\cdot B\cdot C)}\}^{(1)}=(1-\eta_{[ABC]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(1)}$;

Topological combination :

$(A\cdot B)\cdot C)=(1-\eta_{[AB\cdot C]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(3)}$;

$\{^{(3)}\sqrt{(A\cdot B\cdot C)}\}^{(2)}=[(1-\eta_{[AB]}^2)^{(K=-1)}+(1-\eta_{[B\cdot C]}^2)^{(K=-1)}+(1-\eta_{[A\cdot C]}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0\}^{(2)}$;

Circular logarithmic equilibrium exchange symmetry:

$(1-\eta_{[AB]}^2)^{(K=-1)}=(1-\eta_{[C]}^2)^{(K=+1)}$;

Root element:

$A=(1+\eta_{[A]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(1)}$; $B=(1+\eta_{[B]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(1)}$; $C=(1-\eta_{[C]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(1)}$;

$AB=(1+\eta_{[AB]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(2)}$; $B=(1+\eta_{[BC]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(2)}$; $C=(1-\eta_{[CA]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(2)}$;

Conjugate center zero:

$(1-\eta_{[C]}^2)^{(K=\pm1)}=(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[B]}^2)^{(K=+1)}+(1-\eta_{[C]}^2)^{(K=-1))}=\{0,1\}$;

equilibrium exchange combination conditions of $A \leftrightarrow BC$ are:

The central zero point $(1-\eta_{[C]}^2)$ corresponds to $\{\mathbf{D}_0\}$ unchanged, and the dimensionless circular logarithm drives the symmetric and asymmetric random balanced exchange of the properties of the circular logarithm "evenness" between $A^{(K=+1)}$ and $(B, C)^{(K=-1)}$.

(1) External "infinity axiom" balanced exchange combination mechanism, indicating that the characteristic mode (external) central zero point changes synchronously with the surrounding elements

$$\{ABC\}^{(K=+1)} = (1-\eta_{[ABC]}^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0\} = (1-\eta_{[ABC]}^2)^{(K=+1)}$$

$$=(1-\eta_{[ABC]}^2)^{(K=+1)} \leftrightarrow (1-\eta_{[ABC]}^2)^{(K=\pm0)} \leftrightarrow (1-\eta_{[ABC]}^2)^{(K=-1)}=\{ABC\}^{(K=-1)}$$

(2) The internal "infinity axiom" balance exchange combination mechanism, which represents the analytical relationship between the characteristic module (interior) central zero point and the surrounding elements

$$\{abc\}^{(Kw=+1)} = (1-\eta_{[abc]}^2)^{(Kw=\pm1)}\{\mathbf{D}_0\} = (1-\eta_{[abc]}^2)^{(Kw=+1)}$$

$$=(1-\eta_{[abc]}^2)^{(Kw=+1)} \leftrightarrow (1-\eta_{[abc]}^2)^{(Kw=\pm0)} \leftrightarrow (1-\eta_{[abc]}^2)^{(Kw=-1)}=\{abc\}^{(Kw=-1)}$$

K- dimensional grid of the three-dimensional Heine-Borel theorem is divided into $\mathbf{\{3\}^2}$ parts by each dimensional grid **I** and a region in each dimension. In each division, the **K-** dimensional grid that cannot be covered is further divided into $\mathbf{\{3\}^2}$ **K=n-** dimensional grids. The following is obtained for each division: $(1/3)^{\mathbf{K}}{}_1$, $(1/3)^{\mathbf{K}}{}_2$, ..., $(1/3)_n{}^K$, corresponding to the dimensionless circular logarithm and the characteristic modulus $\{\mathbf{D}_0\}^{(K=1)}$, $\{\mathbf{D}_0\}^{(K=2)}$, ..., $\{\mathbf{D}_0\}^{(K=n)}$

They use the center point of the circular logarithm as the center point of the conjugate reciprocal asymmetry and cannot be balanced and exchanged. They can only be balanced and exchanged by converting to characteristic modes and dimensionless circular logarithms and applying the unique "even number" mechanism of dimensionless construction.

$ABC=(1-\eta_{[ABC]}^2)^K\cdot\{\mathbf{D}_0^{(3)}\}=(1-\eta_{[jik]}^2)^K\cdot\{\mathbf{D}_0^{(3)}\}$

$A=(1-\eta_{[A]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0^{(3)}\}=\{(1-\eta_{[A]1}^2)+(1-\eta_{[A]2}^2)+\ldots+(1-\eta_{[A]n}^2)\}^{(K=+1)}\cdot\{\mathbf{D}_0^{(3)}\}$,

$B=(1-\eta_{[B]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0^{(3)}\}=\{(1-\eta_{[Bb2}^2)+(1-\eta_{[B]2}^2)+\ldots+(1-\eta_{[B]n}^2)\}^{(K=-1)}\cdot\{\mathbf{D}_0^{(3)}\}$,

$C=(1-\eta_{[C]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0^{(3)}\}=\{(1-\eta_{[C]3}^2)+(1-\eta_{[C]2}^2)+\ldots+(1-\eta_{[C]n}^2)\}^{(K=-1)}\cdot\{\mathbf{D}_0^{(3)}\}$,

Among them: circular logarithms have isomorphic and consistent calculation time, so in any three-dimensional high-dimensional space, the isomorphic circular logarithm form remains unchanged.

Circular logarithmic combination :

$(1-\eta_{[ABC]}^2)^{(K=\pm1)}=(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[ABC]}^2)^{(K=\pm0)}+(1-\eta_{[BC]}^2)^{(K=-1)}=\{0,3\}$;

$(1-\eta_{[C]}^2)^{(K=\pm1)}=(1-\eta_{[ABC]}^2)^{(K=\pm0)}=(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[BC]}^2)^{(K=-1)}=\{0\}$;

Symmetry of the circle's logarithmic center zero line (critical line):

$(1-\eta_{[ABC]}^2)^{(K=\pm1)}=(1-\eta_{[ABC]}^2)^{(K=+1)}+(1-\eta_{[ABC]}^2)^{(K=\pm0)}+(1-\eta_{[ABC]}^2)^{(K=-1)}=\{0,1\}$;

Symmetry of the zero point (critical point) of the circular logarithm:

$(1-\eta_{[abc]}^2)^{(Kw=\pm0)}=(1-\eta_{[abc]}^2)^{(Kw=+1)}+(1-\eta_{[abc]}^2)^{(Kw=\pm0)}+(1-\eta_{[abc]}^2)^{(Kw=-1)}=\{0\}$;

Axis probability combination:

$\{(1-\eta_{[I]1}^2)+(1-\eta_{[I]2}^2)+\ldots+(1-\eta_{[I]n}^2)\}^{(K=\pm0)}\cdot\{\mathbf{D}_0\}^{(1)}$,

Planar topological combination:

$\{(1-\eta_{[ik]1}^2)+(1-\eta_{[kj]2}^2)+\ldots+(1-\eta_{[ji]n}^2)\}^{(K=\pm0)}\cdot\{\mathbf{D}_0\}^{(2)}$,

Apply the circle logarithmic center zero point (critical point) symmetry :

Axis probability combination $\{\mathbf{D}_0\}^{(1)}\leftrightarrow(1-\eta_{[ABC]}^2)^{(K=\pm0)}\{\mathbf{D}_0\}^{(3)}\leftrightarrow$ Plane topological combination $\{\mathbf{D}_0\}^{(2)}$

Under the circular logarithm condition: axis probability projection series = plane topological series. Thus, an eight-quadrant space for three-dimensional complex analysis is established, which is suitable for $\{3\}^{2n}$. n=(1,2,3,…).

, combination, and decomposition are achieved through changes in the central zero point of the circular logarithm and the positive, negative, and property attributes .

$(1-\eta_{[jik]}^2)\cdot\{\mathbf{D}_0^{(3)}\}^{(K=+1)(n)}$

$=[(1-\eta_{[jik]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[jik]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik]}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0^{(3)}\}^{(n)}$

$=(1-\eta_{[jik]}^2)\cdot\{\mathbf{D}_0^{(3)}\}^{(K=-1)(n)}$;

Among them: $(1-\eta_{[jik]}^2)\cdot\{\mathbf{D}_0^{(3)}\}^{(K=\pm1)(n)}$ is the qualitative and quantitative three-dimensional space coordinate of the state space. The morphism describing the state space of the category theory must be through the circle pair The numbers can be interpreted with zero error.

K- dimensional lattice state space of three-dimensional state space **(Figure 8.3)** (corner region 1 and corner region 21), (edge region 2 and edge region 12), (face region 5 and face region 15),

Circular logarithm: $(1-\eta_1^2)$ (angular domain), $(1-\eta_2^2)$ (edge domain), $(1-\eta_5^2)$ (surface domain), …$(1-\eta_n^2)$ (arbitrary domain),

Mapping of circular logarithmic sets to order: (arbitrary field ABC and arbitrary field jik, corresponding to probabilities A, B, C, and topologies AB, BC, CA respectively) state, exchange and morphism that satisfy the conjugate reciprocal symmetry of even number under the condition of circular logarithmic symmetry.

$(1-\eta_{[jik]}^2)=(1-\eta_{[j]}^2)^{(K=+1)}+(1-\eta_{[ik]}^2)^{(K=-1)}$

$=(1-\eta_{[j]}^2)^{(K=+1)}+(1-\eta_{[i]}^2)^{(K=-1)}+(1-\eta_{[k]}^2)^{(K=-1)}=\{0,\pm1\}$,

$(1-\eta_{[jik]}^2)=(1-\eta_{i}^2)^{(K=+1)}+(1-\eta_{kj}^2)^{(K=-1)}$

$=(1-\eta_{i}^2)^{(K=+1)}+(1-\eta_{k}^2)^{(K=-1)}+(1-\eta_{j}^2)^{(K=-1)}=\{0,\pm1\}$,

$(1-\eta_{[jik]}^2)=(1-\eta_{k}^2)^{(K=+1)}+(1-\eta_{ji}^2)^{(K=-1)}$

$=(1-\eta_{k}^2)^{(K=+1)}+(1-\eta_{j}^2)^{(K=-1)}+(1-\eta_{i}^2)^{(K=-1)}=\{0,\pm1\}$,

Among them: the 2-2 topological combination unit can be decomposed into two units.

In particular: the values in the state space are asymmetric , and the exchange combinations, mappings , and morphisms cannot be balanced directly . Balanced exchange combinations can only be achieved through the properties of circular logarithms .

of $(1-\eta_{[jik]}^2)=\{0,\pm1\}$, the conjugate central zero point $\{0\}$, and the marginal functions $\{\pm1\}$.

According to the "cubic equation", it is known that: **D**=ABC and the characteristic modulus $\{\mathbf{D}_0\}$, the root analysis can be directly performed through the circular logarithm and the central zero point of the circular logarithm,

$A=(1-\eta^2)^{(K+1)}\{\mathbf{D}_0\}$, $B=(1-\eta^2)^{(K=-1))}\{\mathbf{D}_0\}$; $C=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}$;

(A↔B↔C) exchange condition: The circular logarithm $(1-\eta_{[ABC]}^2)$ is the same as $\{\mathbf{D}_0\}$, which drives the random exchange between A, B and C.

As shown in **(Figure 8.3)** :

Angular domain 1 and angular domain 21: $(1-\eta_{[1]}^2)^{(k=+1)} \leftrightarrow (1-\eta_{[jik]}^2)^{(K=\pm0)} \leftrightarrow (1-\eta_{[21]}^2)^{(k=-1)}$,

Boundary 2 and Boundary 12: $(1-\eta_{[2]}^2)^{(k=+1)} \leftrightarrow (1-\eta_{[jik]}^2)^{(K=\pm0)} \leftrightarrow (1-\eta_{[12]}^2)^{(k=-1)}$,

Domain 5 and Domain 15: $(1-\eta_{[5]}^2)^{(k=+1)} \leftrightarrow (1-\eta_{[jik]}^2)^{(K=\pm0)} \leftrightarrow (1-\eta_{[15]}^2)^{(k=-1)}$, …,

Among them: the "2-2 combination" composed of the elements of the angle domain, edge domain, and surface domain is converted into the addition of the elements corresponding to the two circular logarithms through the circular logarithm, which satisfies the associative law and the commutative law.

It can be seen that the reason why the above two-dimensional/three-dimensional complex analysis exchanges, transformations, mappings, projections, and morphisms are valid is: "It is explained by the exchange of the properties in the opposite direction under the same circular logarithm symmetry factor. Once the circular logarithm is revoked, the group combination-function restores the asymmetry.

8.4.2 Balanced exchange of conjugate reciprocal symmetries in circular logarithmic space

✷Definition 8.4.4 Topological space: A topological space is determined by the relationship between a set and a set of functions, expressed as $d = (\text{morphism})X\cdot(X\cdot X)\rightarrow(1-\eta_{[pqr]}^2)\{X_0\}^{(3)}$.

For any three-dimensional space: multiply and combine the topological space characteristic modules:

$(p,q,r)\in\{X\}$, $\{X\}^{(1)}=\{^{(3)}\sqrt{(p,q,r)}\}$; $\{X\}^{(2)}=\{^{(3)}\sqrt{(p,q,r)}\}^{(2)}$; $\{X\}^{(3)}=\{^{(3)}\sqrt{(p,q,r)}\}^{(3)}$;

Add combinatorial topological space characteristic module:

$\{\mathbf{D}_0\}^{(1)}=(1/3)(p+q+r);\{\mathbf{D}_0\}^{(2)}=(1/3)(pq+qr+rp)$, $\{X\}\in\{X_0\}^{(3)}$; combination coefficient(A=1);

Circular logarithm proof: Three element multiplication$(p,q,r)\in X=\{\mathbf{D}_0\}$ exists:

$(1-\eta_{[pqr]}^2)=\{^{(3)}\sqrt{(p,q,r)}/\{\mathbf{D}_0^{(3)}\}=\{0,1\}$;

The following properties all hold.

✷Property 1: "Distance," dimensionless circular logarithm representation, if $p\neq q\neq r$, then $d(p,q,r)>0$, $(1-\eta^2)=0$ (the corresponding characteristic modulus is the numerical center point $\{\mathbf{D}_0\}$ and the corresponding characteristic modulus is the maximum value, or "ideal".

According to the Cardan formula of the cubic equation $d(p,p)=0$ (the center point of the value coincides with p), it is a special case solution of symmetry, that is: the center point of the three element values coincides with a value p, and the values q and r are symmetrically distributed.

Fact: For a general solution of a cubic equation, the center point can be between "one numerical element and two numerical elements", and the numerical values p, q and r are distributed asymmetrically. $d[(p,q),r)]\geq0$, $(1-\eta^2)=0$ (the corresponding characteristic modulus is the numerical center point $\{\mathbf{D}_0\}$),

✷Property 2: "Triangular inequality", $d(p,q,r)\neq d(pq)+d(r)$. Inequalities cannot be exchanged, which is the difficulty of three-dimensional complex analysis. Triangular inequalities transform multiplication combinations into addition combinations through circular logarithm processing, which leads to numerical exchange and complex analysis.

First-order differential:

$d(p,q,r)=(1-\eta_{[pqr]}^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)(S=3)(N=-1)}=(1-\eta_{[pqr]}^2)^{((K=\pm1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)(S=3)(N=-1)}$,

Second-order differential:

$d^{(2)}(p,q,r)=(1-\eta_{[pqr]}^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)(S=2)(N=-2)}=(1+\eta_{[pqr]}^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)(S=3)(N=-2)}$,

✷Property 3: "Symmetry and closure",

The three elements exist in closure: $d(p,q,r)=(1-\eta^2)\cdot\{\mathbf{D}_0\}^{(3,2,1)(N=-1,2)}\geq0$,

Among them: $(1-\eta^2)$ and $\{\mathbf{D}_0\}$ are both valid within the closed range. $(1-\eta^2)$ is the dimensionless circular logarithm of the place value, eliminating the interference of specific elements in the operation.

✷Property 4 : Symmetry of the circular logarithmic center zero line (critical line):

$$d(p,q,r)=(1-\eta_{[pqr]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(3)(N=-1,2)}=(1-\eta_{[pq]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(2)(N=-1,2)}+(1+\eta_{[r]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(1)(N=-1,2)};$$

$$d(p,q)=(1-\eta_{[pq]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(2)(N=-1,2)}=(1-\eta_{[p]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(1)(N=-1,2)}+(1-\eta_{[q]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(1)(N=-1,2)},$$

$$d(r)=(1+\eta_{[r]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(1)(N=-1,2)}$$

✷Property 5 : Symmetry of the circular logarithmic center zero point (critical point):

$(1-\eta_{[pq]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(2)}+(1+\eta_r^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(1)}=[(1-\eta_{[p]}^2)^{(K=-1)}+(1-\eta_{[q]}^2)^{(K=-1)}+(1+\eta_{[r]}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{(1)}=0$;

The ternary numbers correspond to the first-order and second-order characteristic modules : $\{\mathbf{D}_0\}^{(3)(N=-1,2)}$,

The symmetry of the circular logarithmic center zero point (critical point) corresponds to the first and second order :

$(1-(d\eta_{[pqr]})^2)^{(K=\pm0)}\cdot\{\mathbf{D}_0\}^{(3)}=(1-\eta_{[pqr]}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(3)(N=-1)}$;

$(1-(d^2\eta_{[pqr]})^2)^{(K=\pm0)}\cdot\{\mathbf{D}_0\}^{(3)}=(1-\eta_{[pqr]}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(3)(N=-2)}$;

$(1-(\int\eta_{[pqr]})^2)^{(K=\pm0)}\cdot\{\mathbf{D}_0\}^{(3)}=(1-\eta_{[pqr]}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(3)(N=+1)}$;

$(1-(\iint\eta_{[pqr]})^2)^{(K=\pm0)}\cdot\{\mathbf{D}_0\}^{(3)}=(1-\eta_{[pqr]}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(3)(N=+2)}$;

Corresponding to the internal asymmetry distribution of the characteristic mode $\{\mathbf{D}_0\}^{(3)}$,

In particular, the value: d(p,q)≠d(r), can form a conjugated reciprocal asymmetry. The two cannot be directly exchanged. The symmetry can be controlled by the circular logarithm $(1-\eta)^{(K=\pm1)}$ and $(1-\eta_{[C]}^2)^{(K=\pm0)}$ to maintain balance and exchange.

Exchange rules: the original proposition remains unchanged, the characteristic module remains unchanged, the circular logarithms are isomorphic, the symmetry of the circular logarithm's center zero point remains unchanged, and the properties are exchanged randomly and non-randomly between "+" and "-".

$(1-\eta_{[pqr]}^2)^{(K=\pm1)}=(1-\eta_{[pq]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[r]}^2)^{(K=+1)}$;

$(1-\eta_{[pq]}^2)^{(K=-1)}=(1-\eta_{[p]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[q]}^2)^{(K=-1)}$;

Balance and exchange of circular logarithms in three-dimensional complex space

$(1-\eta_{[pqr]}^2)^{(K=\pm1)}=(1-\eta_{[p]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[q]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[r]}^2)^{(K=+1)}$;

Among them: $(1-\eta_{[pq]}^2)^{(K=-1)}$ is decomposed into $(1-\eta_{[p]}^2)^{(K=-1)}$ and $(1-\eta_{[q]}^2)^{(K=-1)}$ through the balance and symmetry of the circular logarithm. The conjugate center point of the exchange is the center zero point of the three-dimensional rectangular coordinate system.

Numerical example: The mechanism of the 'infinity axiom' for the evenness of ternary numbers is expressed in the balanced symmetry of circular logarithmic numerical factors:

For example, (1, 4, 7), the symmetry factors are "±3" and correspond to the characteristic modulus {4}, and the numerical symmetry is (4-3) = 0, (4-0) = 4, (4+3) = 7.

(3,4,8), the symmetry factors are "±3" corresponding to the characteristic modulus {5}, and the numerical symmetry is (5-2)=3, (5-1)=4, (5+3)=8,

Based on the numerical center point d(p,p)≠0, there is asymmetry, d(p,q)≠d(r), d(r,q)≠d(q,r), d(p,r)≠d(q,r), and there is a sequence in complex analysis; d(+p,q)≠d(-q,p), or $d(p,q)^{(K=+1)}\neq d(-q,p)^{(K=+1)}$.

The above explanation: the definition of "morphism, exchange" in logical algebra and the mathematical foundations of classical algebra such as "balance, calculation" are strictly speaking incomplete: numerical values (objects) cannot directly exchange morphisms, there is no central zero point, this exchange and morphism are not valid or at least unstable, which becomes a congenital defect in the development of calculus equations of numerical analysis and category theory topology of logical analysis.

In this way, it is proved that the numerical and logical objects of the asymmetric analysis cannot be directly exchanged or morphed. It is further proved that any exchange, morphism, and calculation without a central zero point cannot be established. The "infinite circular logarithm construction set" of the dimensionless definition language is proposed, which has circular logarithm topological space and probability space, and converts the asymmetric "group combination-function-space-object" into circular logarithm and central zero point symmetry, and performs isomorphism and exchangeability. It reasonably explains logical algebra, classical algebra, computer algorithms, etc., reflects the artificially assumed "binary number" symmetry, and the mathematical foundation of classical algebra, which is insufficient in logic or calculation. The final solution: through the balance and exchange of circular logarithm symmetry, it drives the exchange problem of numerical values and objects, and establishes the mathematical foundation problem of converting complex analysis of arbitrary space into dimensionless circular logarithm space analysis.

8.4.3. Conjugate and inverse symmetry exchange rules in circular logarithmic space

The group combination-function establishes a circular logarithmic relationship by "processing multiplication and addition combinations" reciprocity: the contents are:

(1) Solve the complete transition relationship between the group combination-function (external) and the synchronization of the whole and the individuals.

(2) Solve the continuity and compatibility transition relationship between the group combination-function (internally) and the individual.

(3) Solve the continuity and completeness of the integrated transition-balance-exchange relationship between group combination-function level.

These conditions are equivalent to the two conditions of category theory. In other words, circular logarithmic space and category theory can be connected.

In other words, the zero point of the circular logarithm solves the synchronous change relationship between the numerical center point (characteristic mode) and each individual element, and also solves the change relationship between the center point and the surrounding individual elements. If there is a change relationship within the individual element, it belongs to the next level of (internal, external) relationship.

$\{X\}=\{^{(S)}\sqrt{X_s}\}^{K(Z\pm S\pm N\pm(q=P)}=(1-\eta^2)^K\cdot\{R_0\}^{K(Z\pm S\pm N\pm(q=P)}$

differential: $d\{a\}^{K(Z\pm S\pm N\pm(q=1)}=(1-(d\eta)^2)^K\{a\}^{K(Z\pm S\pm N\pm(q=1)}=(1-\eta^2)^K\cdot\{R_0\}^{K(Z\pm S\pm(N=-1)\pm(q=1)}$;

$d\{ab\}^{K(Z\pm S\pm N\pm(q=2)}=(1-(d\eta)^2)^K\{ab\}^{K(Z\pm S\pm N\pm(q=2)}=(1-\eta^2)^K\cdot\{R_0\}^{K(Z\pm S\pm(N=-1)\pm(q=2)}$;

$d\{abc\ldots q\}^{(K=-1)(Z\pm S\pm N\pm(q=P)}=(1-(d\eta)^2)^K\{abc\ldots q\}^{K(Z\pm S\pm N\pm(q=P)}=(1-\eta^2)^K\cdot\{R_0\}^{K(Z\pm S\pm(N=-1)\pm(q=q)}$; ;

integral : $\int\{a\}^{K(Z\pm S\pm N\pm(q=1)}=(1-(\int\eta)^2)^K\{a\}^{K(Z\pm S\pm N\pm(q=1)}=(1-\eta^2)^K\cdot\{R_0\}^{K(Z\pm S\pm(N=+1)\pm(q=1)}$;

$\{ab\}^{K(Z\pm S\pm N\pm(q=2)}=(1-(\int\eta)^2)^K\{ab\}^{(K=+1)(Z\pm S\pm N\pm(q=2)}=(1-\eta^2)^K\cdot\{R_0\}^{K(Z\pm S\pm(N=+1)\pm\pm(q=2)}$;

$\{abc\ldots q\}^{K(Z\pm S\pm N\pm(q=P)}=(1-(\int\eta)^2)^K\{abc\ldots q\}^{K(Z\pm S\pm N\pm(q=P)}=(1-\eta^2)^K\cdot\{R_0\}^{K(Z\pm S\pm(N=+1)\pm(q=q)}$;

Similarly: the signs of second-order calculus change accordingly and are omitted.

Where: $\{R_0\}$ is the corresponding characteristic mode or geometric mean circle radius.

Expansion of place value circular logarithms:

$(1-\eta^2)^K=(1-\eta^2)^{K(Z\pm S\pm N\pm(q=1)}+(1-\eta^2)^{K(Z\pm S\pm N\pm(q=2)}+\ldots+(1-\eta^2)^{K(Z\pm S\pm N\pm(q=S)}$;

Isomorphism of place-value circular logarithms:

$(1-\eta^2)^K=(1-\eta^2)^{K(Z\pm S\pm N\pm(q=1)}\approx(1-\eta^2)^{K(Z\pm S\pm N\pm(q=2)}\approx\ldots\approx(1-\eta^2)^{K(Z\pm S\pm N\pm(q=P)}$;

Combination of the center zero line (critical line) of the position value circle logarithm :

$(1-\eta^2)^K=\sum(1-\eta^2)^{(K=+1)(Z\pm S\pm N\pm(q)}+\sum(1-\eta^2)^{(K=\pm0)(Z\pm S\pm N\pm(q)}+\sum(1-\eta^2)^{(K=-1)(Z\pm S\pm N\pm(q)}=\{0,2\}$;

The reciprocal symmetry of the central zero point of the circular logarithmic place-value factor is:

$(1-\eta_{[C]}{}^2)^K=\sum(1-\eta^2)^{(Kw=+1)(Z\pm S\pm N\pm(q=0,1,2,3\ldots integer)}+\sum(1-\eta^2)^{(Kw=-1)(Z\pm S\pm N\pm(q=0,1,2,3\ldots integer)}=\{0\}$;

Among them: the circular logarithmic center zero line (critical line)$(1-\eta_{[C]}{}^2)^K=\{0,1\}$ corresponds to the characteristic mode $\{R_0\}$, which solves the synchronous change of the characteristic mode and the surrounding elements.

The circular logarithmic center zero point (critical line) $(1-\eta_{[C]}{}^2)^K=\{0\}$ solves the analytical relationship between the center point inside the characteristic mode and the surrounding elements .

When the circular logarithm and the power function have shared properties, the balanced exchange combination decomposition is driven by the change of the properties of the central zero point of the circular logarithm .

That is to say, the exchange condition of any numerical space must have the same circular logarithmic factor under the condition of circular logarithmic center zero point symmetry. The exchange rule at this time is:

"The invariant group combination - the original function proposition $\{X\}=\{{}^{(S)}\sqrt{X}\}^{K(Z\pm S\pm N\pm(q=P)}$, the invariant characteristic module $\{R_0\}$, the invariant circular logarithm $(1-\eta^2)^K$, through the properties of their shared power function K=(+1, ± 0,-1) , performs positive, negative and reverse balance and exchange."

$\{X\}^{(K=-1)}=[(1-\eta^2)^{(K=-1)}]\leftrightarrow[(1-\eta^2)^{(K=\pm0)}\leftrightarrow[(1-\eta^2)^{(K=+1)}]\cdot\{R_0\}=\{\mathbf{D}\}^{(K=+1)}$;

Strictly speaking, the numerical elements or logical objects of any group combination, due to their own "incompleteness" as Gödel said, do not satisfy the balanced exchange mechanism of "symmetry and asymmetry". The current application is complex analysis with binary numbers as the theme, which uses discrete-symmetry to force the exchange of assumed symmetry. This is why there is no balanced exchange of the central zero point in probability analysis, and the application is limited. Including the approximate calculation of the computer discrete iterative method program, it is impossible to perform the "zero error" analysis of the mathematical original itself. As for the symmetry and asymmetry existing in the three-dimensional numbers, there is no symmetry balanced exchange environment at all. Many mathematicians and computer experts are exploring, but except for the dimensionless circular logarithm, no self-consistent and satisfactory zero error analysis results have been obtained.

For example, a set F of a traditional domain is equipped with S S-element (a, b, c, ..., S) operations to generate addition and multiplication. S -element means that you input S elements and output S elements, which is called symmetry transformation, mapping, and morphism. This is the addition (probability) to generate S deterministic dimensionless position value circular logarithm elements. Conversely, input a certain element, analyze and output S elements, forming a domain containing all objects, which is called analysis. This is the current requirement for novel computers that imitate the work of the human brain.

In fact, the exchange between the probability " **1-1** combination" and the topological " **2-2** combination" and super-topological " **PP** combination" operations of traditional numerical analysis-logic analysis cannot be the exchange between numerical values (objects), and there is no mature analysis method so far. Through the shared dimensionless circular logarithm composition symmetry and the conversion of central zero point and property attributes, the numerical values (objects) are driven to achieve balanced exchange.

Strictly speaking, the conjugate asymmetry of numerical and logical analysis (dimensional) "objects" cannot be directly balanced and exchanged, or the "axioms" they refer to need mathematical proof of their reliability. The circular logarithmic space construction set converts the "object" into dimensionless "evenness" (i.e. conjugate balance reciprocal symmetry), which has deterministic balance and exchange. This "object" conversion drives the balance and exchange of the "object" under the same factor of the third dimensionless circular logarithm.

✷ Reasoning: There is no mature and reasonable analysis method for the analysis of the operations of addition **(+) and multivariate multiplication (·) in the form of probability-topology " 1-1** combination", " **2-2** combination", " **PP combination"** in numerical or logical language. The root cause is that the asymmetric values (objects) cannot be balanced and exchanged. The values (objects) must be exchanged through the shared circular logarithm and the balanced symmetry and property conversion of the central zero point;

For example: $(a,b,c,\ldots,S)=(1-\eta_{[a]}^2)^K\{R_0\}^{(1)}$, $(a\ b,\ldots,S)=(1-\eta_{[ab]}^2)\{R_0\}^{(2)}$, $(a\ c\ldots S)=(1-\eta_{[ab\ldots s]}^2)\{R_0\}^{(S)}$;

Numerical and circular logarithmic analysis:

$a=(1-\eta_a^2)\{R_0\}^{(1)}$; $b=(1-\eta_b^2)\{R_0\}^{(1)}$; $c=(1-\eta_c^2)\{R_0\}^{(1)}$; …;

$P=(1-\eta_P^2)\{R_0\}^{(1)}$; $ab=(1-\eta_{ab}^2)\{R_0\}^{(2)}$; $bc=(1-\eta_{bc}^2)\{R_0\}^{(2)}$;

$cab=(1-\eta_{cab}^2)\{R_0\}^{(3)}$; …; $S=(1-\eta_{[ab\ldots s]}^2)\{R_0\}^{(S)}$;

The reciprocal symmetry of the central zero point of the place-value circular logarithm factor:

$(\eta_{[C]})^K=\left|\sum(+\eta_i)^{(K=+1)(Z\pm S\pm(q=0,1,2,3\ldots.integer))}\right|+\left|\sum(-\eta_i)^{(K=-1)(Z\pm S\pm(q=0,1,2,3\ldots.integer))}\right|=0$;

$(\eta_{[C]^2})^K=\left|\sum(+\eta_i^2)^{(K=+1)(Z\pm S\pm(q=0,1,2,3\ldots.integer))}\right|+\left|\sum(-\eta_i^2)^{(K=-1)(Z\pm S\pm(q=0,1,2,3\ldots.integer))}\right|=0$;

Likewise: the condition for a balanced exchange combination is to have the same level of "$(\pm\eta^2)$" and the same circular logarithmic center zero point "$(\pm\eta_C^2)$";

Similarly, three-dimensional complex analysis uses the circular logarithm method to establish "circular logarithm exchange drives numerical exchange":

$X=(1-\eta_{[j]}^2)\{R_0\}^{K(Z\pm S\pm(q=0,1)}$; $Y=(1-\eta_{[i]}^2)\{R_0\}^{K(Z\pm S\pm(q=0,1)}$; $Z=(1-\eta_{[k]}^2)\{R_0\}^{K(Z\pm S\pm(q=0,1,2,)}$,

$XY=(1-\eta_{[ji]}^2)\{R_0\}^{K(Z\pm S\pm(q=0,1,2)}$; $YZ=(1-\eta_{[ik]}^2)\{R_0\}^{K(Z\pm S\pm(q=0,1,2)}$; $ZX=(1-\eta_{[kj]}^2)\{R_0\}^{K(Z\pm S\pm(q=0,1,2)}$,

In particular, three-dimensional complex analysis corresponds to three-dimensional rectangular coordinate projection (morphism, exchange), probability axis: (**x, y, z**), topological plane: (**xoy, yoz, zox**), the topological plane normal line is parallel to the axis projection and in the opposite direction. The center point of the three-dimensional rectangular coordinate is the point of conjugate reciprocal asymmetry of the value, and is also the point of conjugate reciprocal symmetry of the circular logarithm value, and can be balanced and exchanged .

Three-dimensional complex analysis uses circular logarithms to describe the logical basis of group combination-function-space in dimensionless language, and is applied to the $\{3\}^{2n}$ range. The elements and objects described are discrete-continuous integration, which can be real analysis, complex analysis, rational numbers, irrational numbers, and digitizable objects can all be integrated into a simple and unified circular logarithm formula for overall calculation. It conducts "analysis without mathematical models and specific element (quality) content".

Traditional numerical analysis, logical analysis and computer algorithms use the discrete type-symmetry assumption of binary numbers, which cannot give full play to the superiority of the asymmetry-continuity "central zero-point symmetry" and do not have a reliable environment for the mutual inverse equilibrium exchange of individual yokes. This can easily cause computer mode confusion and mode collapse, and approximate calculations of the instability of the approximation of the measure.

The central zero point of the circular logarithm ensures the stability of numerical analysis and logical analysis and the conjugate reciprocal symmetry and commutativity. The central zero point superposition can form an infinitely long "sugar gourd string" or an infinitely wide "sugar thin round cake" with a unified boundary domain $\{-1, \pm 0, +1\}_{(Z\pm S\pm(q=0,1,2,3\ldots integer)}$.

The circular logarithmic center zero point ensures the computer's stability, accuracy, zero error, and high robustness, and effectively prevents mode confusion and collapse.

8.4.4 Cauchy sequence and dimensionless circular logarithmic space

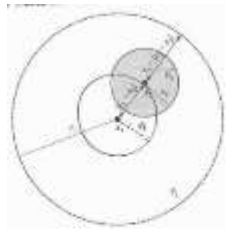
A Cauchy sequence is defined as a sequence whose elements become arbitrarily close to each other as the sequence progresses (n goes to infinity). For a sequence to qualify as a Cauchy sequence, given an arbitrarily small positive distance ϵ, there exists an index point in the sequence beyond which the distance between any two elements is always less than ϵ, the Cauchy sequence.

The mathematical expression of logical algebra is the following formula:

$$d(x_m - x_n) < \epsilon, \quad \epsilon > 0, \exists N \in \mathbb{N} \text{ and } n, m > N.$$

where: a sequence in $\mathbb{R}$: 3, 3.1, 3.14, 3.141, …. This sequence continuously adds a decimal between (0,1) to the approximation of π. Therefore, for any positive number ε, there exists an N such that for all m and n greater than N, the difference between the mth and nth elements is less than ε.

The circular logarithm of the Cauchy sequence **(Figure 8.4)** :



(Figure 8.4 Cauchy sequence)

certificate :

Assume: big circle V_1, radius r_1 (distance to center x_1), small circle V_2, radius r_2, distance from small circle to center $x_3 = (r_1 - r_2)$, $r_3 \geq r_2$,

According to the definition of circular logarithm, taking the large circle V_1 and radius r_1 as the reference circle, $(1-\eta_1^2)^K = (r_2)/(r_1) = 0$;

The so-called x_2 converges to the zero point at the center of the small circle x_1. In fact, x_2 cannot directly converge to the radius r 1 of the large circle V_1, because the center points do not coincide and there is no direct relationship.

Apply auxiliary circle r_3 $(1-\eta_{[3]}^2)^K = r_3/r_1 = 0$, circle x_3

Converges to a great circle V_1, radius r_1 with center zero

If the small circle converges to x_2 and converges to the center zero point of the large circle radius r_1, it is necessary to converge to circle x_3 according to the sequence x_2, and then converge to circle x_1 through x_3.

$(1-\eta_2^2)^K = (r_3 - r_2)/\{r_3\} \cdot \{r_3\}/\{r_1\} = (r_3 - r_2)/\{r_1\} = (1-\eta_3^2)^K - (1-\eta_1^2)^K = 0$,

A convergent sequence is always a Cauchy sequence. However, not all Cauchy sequences converge.

(1) Consider the Cauchy sequence in the rational number Q. Every term in the sequence is a rational number. However, no rational number can satisfy this condition. The sequence has no limit in Q, which means that the Cauchy sequence will not converge in rational numbers. But if we consider the space R, it is clear that our sequence has a limit.

(2) In convergence, we can see that some sequences converge in one metric space and diverge in another metric space. Therefore, just like closed and open sets, convergence depends on the space in which the sequence is located. Is there a metric space that is similar to convergence and does not depend on numerical values?

The dimensionless circular logarithm can solve the two problems of the above Cauchy sequence very well:

(1) The dimensionless circular logarithm unifies the existence of Q and R from small infinity to large infinity in the most abstract form of place value, and performs cyclic transformation through the symmetry and asymmetry of even numbers, the random and non-random balance exchange mechanism, and the symmetry of the central zero point of the circular logarithm. If every Cauchy sequence in the space converges to a limit that is also in the space, then the metric space is called complete. Now the dimensionless circular logarithm does not depend on the numerical metric space and the "limit" of the central zero point constitute an infinite cycle, with the axiom of infinity and the concept of completeness.

(2) The action of the central zero of the dimensionless circular logarithm: The Cauchy sequence converges in one metric space and diverges in another metric space.

Through the invariance of the isomorphism, homomorphism, homology, and homotopy of the dimensionless circular logarithm, the convergence ($K=-1$), divergence ($K=\pm 0$), exchange ($K=\pm 0$), and balance ($K=\pm 1$) of the Cauchy sequence and the dimensionless circular logarithm space are controlled by the property attribute ($K=+1$). And because of the existence of the "limit" of the central zero point, the compatibility of the space is maintained.

In this way, the Cauchy sequence and the dimensionless circular logarithmic space are connected, perfectly playing the definition and role of the Cauchy sequence space. However, the "space" defined based on traditional mathematics cannot be directly balanced and exchanged due to the asymmetry, and using an incomplete metric space will bring a series of challenges. For example, we can use iterative methods or numerical methods to construct a series of approximate solutions. As the sequence progresses, the approximate solutions become closer and closer, forming a Cauchy sequence in the metric space. Ideally, we hope that these approximations converge to a limit and then prove that this limit is indeed a solution. However, this method is only guaranteed to be effective when the underlying metric space is complete. Otherwise, we may need to expand the space. This new expanded space is called the dimensionless circular logarithmic space.

In other words, the incomplete Cauchy sequence metric space, through the unique evenness balance exchange mechanism of dimensionless circular logarithm, becomes an integration of "completeness (discrete) and compatibility (continuous)". On the basis of the balanced exchange of evenness of the center zero point of dimensionless circular logarithm, it drives the balanced exchange of numerical space and solves the difficulty of further description of Cauchy sequence space. Note: The concept of dimensionless space corresponding to the center zero point of circular logarithm is not equal to the numerical center point corresponding to the Cauchy sequence metric space, and the two apply to different object spaces.

8.4.5. Pattern Recognition and Perfect Circle Patterns in Category Theory Topology

The objects of category theory and morphisms are related by the name of "topology", which refers to the arbitrary deformation of rubber. For example, table-chair-bench is the "topological" concept of the support point of category theory. The so-called topology is to connect some points on a sphere with non-intersecting lines, so that the sphere is divided into many blocks by these lines. Under topological transformation, the number of points, lines, and blocks remains the same as the original number, and the geometric space is called "space boundary function invariant", which defines topological equivalence.

Poincare introduced the "fundamental group" for topological applications. Fundamental group is the most basic concept in algebraic topology. In a topological space, a closed curve starting from a point and returning to that point is called a loop of that point. If a loop can be continuously transformed into another loop (the starting and ending points remain fixed), the two paths are called homotopically equivalent. Interface/elliptical patterns are introduced as "unit bodies" in pattern recognition. The impact on category theory is the introduction of topological spaces as "objects" and the change relationship between them is called "morphism". Classical mathematical terms are called "operation, deduction, and logical analysis", all of which require rigorous mathematical proofs: "Why can they be exchanged?", "What is the basis?" Axioms still need mathematical proofs.

Pattern recognition and intelligent systems are secondary disciplines of control science and engineering. With the theoretical techniques of information processing and pattern recognition as the core and mathematical methods and computers as the main tools, they study methods for processing, classifying and understanding various media information, and on this basis construct systems with certain intelligent characteristics.

It is widely used in optical character recognition, speech recognition, face recognition, video tracking, medical image processing, etc. Artificial life system is a generalization of the concept of intelligent system, including intelligent information processing system, intelligent control system, robot, cellular automaton, etc. This direction is committed to simulating the laws of information and control in natural life systems, especially the basic characteristics of life's self-organization, self-learning, self-adaptation, self-repair, self-growth and self-replication, as well as intelligent behaviors such as perception, cognition, judgment, reasoning, and thinking; expressing intelligence in the form of "computation", realizing intelligence with artificial life system, and applying it to pattern recognition and image processing, complex dynamic system modeling, simulation and control, etc.

The so-called pattern recognition and intelligent system is a new discipline developed since the 1960s on the basis of signal processing, artificial intelligence, cybernetics, computer technology and other disciplines. This discipline uses various sensors as information sources, the theoretical technology of information processing and pattern recognition as the core, and mathematical methods and computers as the main tools to explore the methods, approaches and implementations of processing, classifying and understanding various media information and constructing systems or devices with certain intelligent characteristics on this basis to improve system performance. Pattern recognition and intelligent system is an important branch of control science and engineering that closely combines theory and practice and has wide application value. It is dedicated to the research of life computing and artificial intelligence systems. Life computing is a generalization of the concept of computational intelligence, including symbolic computing and neural computing in artificial intelligence, as well as genetic algorithms, evolutionary computing and DNA computing.

It turns out that both the numerical and logical algebraic objects of classical algebra and the geometric space objects and pattern recognition objects are asymmetric and cannot be directly exchanged in equilibrium. The difficulty lies in the connection or operation that uniformly solves the relationship between them.

At present, the best expression is category theory, which uses the vague concept of "morphism" to say that it "abstractly describes the relationship between two objects" and abruptly calls it an "irreducible" concept. This "irreducible" statement has no mathematical proof, which conceals its inability to accurately describe the qualitative and quantitative changes in the relationship between its specific objects (internal and external). From the perspective of rigorous mathematical requirements, it is unreliable and uncontrollable. It has lost the true connotation of mathematics.

As we all know, the analytic and combinatorial balance of classical algebra represents the balance of equations. The numerical "balance" of equations still has the asymmetry of numerical objects, which does not mean that they can be exchanged. Geometric topological space is a description of spatial changes under the condition that any boundary function (curve, surface, space, graph) remains unchanged. Any boundary function has an asymmetric distribution and cannot be directly exchanged. In algebra-geometry, there is no satisfactory root element solution for a cubic equation (three-dimensional space) with asymmetry.

That is to say, although any geometric topology has an invariant boundary function (line, surface, body, shape), there is still asymmetry, and there is no solution using equation analysis, and the geometric space as a whole and locally cannot be balanced and exchanged. The "morphism" theory of category theory also has no mathematically rigorous proof of balanced exchange, which means that the "object" mentioned in category theory cannot be directly "morphic" or "balanced exchanged".

Here, the defects of category theory are pointed out. Is there any way to solve or make up for the shortcomings of "topology" in category theory? This means that the imprecision of category theory still has room for expansion.

Category theory summarizes mathematics into two contents: "objects and morphisms". "Objects" can be generally understood. Category theory summarizes all the topics of mathematical analysis and calculation into abstract "objects", which is successful. "Morphisms" are about dealing with relationships. It can only be said to be a little progress in mathematics, not a breakthrough progress. This should be affirmed and understood. Due to historical reasons, "dimensionless circular logarithms have not yet officially appeared."

However, the abstract concepts of "morphism, irreducibility, topological transformation" mentioned in category theory have not been put into practice. This kind of statement, which uses "logic" as an excuse, avoids the rigor of mathematics and does not meet the requirements of mathematical rigor and zero-error calculation. If category theory gives "morphism" a clear abstract mathematical and abstract calculation concept, it can expand the scope of application of category theory and make zero-error mathematical calculation feasible.

The circular logarithm team proposed a dimensionless circular logarithm construction. The entity's "object" is the characteristic modulus average and the most abstract dimensionless construction. The "morphism" is elevated to the most abstract dimensionless construction with a unique "balance exchange mechanism of even symmetry and asymmetry".

Two basic conditions for category theory and pattern recognition:

(1) It represents the whole composed of the characteristics, beliefs, values, and technologies shared by members of a particular community. It is equivalent to the description of the characteristic modulus (mean function, arithmetic mean). In the change of the "object", the circular logarithm emphasizes the synchronous change of the characteristic modulus and the surrounding elements to ensure the complete jump transition.

(2) refers to an element of a whole, that is, the solution to a specific puzzle. It is equivalent to the positional relationship between the central zero point inside the characteristic module and the surrounding elements, and the root element is analyzed.

On the above basis, based on the asymmetry between "objects" in category theory, objects cannot be exchanged in a balanced manner. Driven by the circular logarithm, the "objects" rely on the zero point at the center of the circular logarithm to indirectly achieve balanced exchange to solve the "object-characteristic module" with "even symmetry and asymmetry, randomness and non-randomness balanced exchange mechanism (equivalent to the "axiom of infinity") inside and outside the "object-characteristic module", replacing the imprecise "morphism" of category theory, giving the "morphism" a precise mathematical connotation, and expanding the application space of category theory and the range of zero-error calculation.

Take the rubber-type topological change of topology as an example: under the premise that the total elements remain unchanged, the same standard is used as the basic comparison value, and this comparison value is called "perfect circle mode (geometric language) or characteristic mode (algebraic language)". Any geometric-algebraic space uniformly changes to the perfect circle mode or characteristic mode, and the change process defines the path integral.

8.4.6 Category Theory Topology and Perfect Circle Model

The so-called path integral replaces the single path in classical mechanics with a quantum amplitude obtained by the sum or functional integral of all paths between two points. The path integral formulation was started by Paul Dirac and developed by theoretical physicist Richard Feynman in 1948. Before that, John Wheeler had obtained some early results in his doctoral thesis.

Because the path integral formulation obviously treats time and space equally, it became one of the important tools in the subsequent development of theoretical physics.

The path integral formulation also links quantum phenomena with random phenomena. It laid the foundation for the unification of quantum field theory and statistical field theory that generalizes order parameter fluctuations near second-order phase transitions in the 1970s. The Schrödinger equation is a diffusion equation for imaginary diffusion coefficients, and the path integral formulation is an analytical continuation of the method of adding up all random movement paths. Therefore, the path integral formulation has been applied to Brownian motion and diffusion problems before it was applied to quantum mechanics.

The above path integral is based on the entity "object". The operation is often interfered by the specific entity "object" elements, and the representation of "path integral, historical record, power function" is very difficult. It has also become a century-old mathematical problem. Although category theory is described with abstract "morphisms", there is no qualitative and quantitative description, and it does not solve the mathematical requirement of "zero error" analysis.

Here, the "object" of category theory is decomposed into characteristic modulus and dimensionless circular logarithm, and the "morphism" is decomposed into the specific equilibrium calculation of dimensionless circular logarithm and the exchange of zero error under the condition of characteristic modulus invariance. This is a problem that category theory does not involve.

The dynamic path integral that defines the changes in "objects, space, and time" has properties K (referring to geometric functions and spatial properties, such as (K=+1) for ellipse, (K=-1) for hyperbola, (K=0) for parabola, etc.; infinite elements Z: refers to the infinite points of the boundary function of geometric space; (Z±S) refers to any finite point in the infinite points of the closed boundary function of geometric space, such as the circumference of a plane circle is 2π, the area is $2\pi R^2$, the volume of a three-dimensional spherical surface $2\pi R^2$ is $(4/3)\pi R^{3,}$ etc.; the path integral describes the shape change under the condition that the closed boundary function remains unchanged, which is reflected as the description of the dimensionless circular logarithm on the power function. At this time, the invariant form of the circular logarithm is expressed as the "perfect circle mode", and algebraically it is expressed as (multiplication combination and addition combination) "characteristic mode".

There are two modes in “Perfect Circle Mode”:

（1）, the "uniform distribution" of the standard perfect circle boundary element points $\{W_0\}$ is represented by $(1-\eta_{00}^2)^K$, which is adapted to the arithmetic mean unit cell and the "additive combination" geometric space.

（2）, the "uneven distribution" of non-standard perfect circle boundary element points $\{W_{00}\}$ is represented by $(1-\eta_0^2)^K$, which adapts to the geometric mean unit cell and the "multiplication combination" algebraic space.

The standard perfect circle boundary element and the non-standard perfect circle boundary element have the same value. From a geometric point of view, their center zero points do not coincide. The distance is:
$\{W_0\}=(1-\eta_{00}^2)^K\cdot\{W_{00}\}^{K(Z\pm S\pm(N=0,1,2)\pm(q=0,1,2,3...integer)/t}$;

Category Theoretic Topology and Perfect Circle Patterns:

Assume that the geometric space of the "object" is {W}, the object extracts the characteristic mode of the perfect circular mode $\{W_0\}$, and the dynamic change selects the calculus zero order (the starting point of the geometric space), the first order (speed), the second order (Acceleration) is expressed dynamically in the order of (N=-0,1,2)/t differential and (N= + 0,1,2)/t integral. The sequence of dynamic changes in geometric space (q=0,1,2, 3…integer).

The relationship between them is the abstract dimensionless circular logarithm.

$\{W\}=(1-\eta^2)^K\cdot\{W_0\}^{K(Z\pm S\pm(N=0,1,2)\pm(q=0,1,2,3...integer)/t}$;(applied to feature module "multiplication combination");

$\{W\}=(1-\eta^2)^K\cdot\{W_{00}\}^{K(Z\pm S\pm(N=0,1,2)\pm(q=0,1,2,3...integer)/t}$;(Applicable to the perfect circle pair mode "Add Combination");

Among them: the dimensionless circular logarithm and the characteristic mold have a shared power function, which synchronously describes the dynamic change process and sequence of topological geometric space qualitatively and quantitatively. Algebra-geometry can reflect the changes of any space and make qualitative and quantitative descriptions.

Among them: "Characteristic mode": $\{W_0\}$ are

(1) The arithmetic mean of algebra is called the "additive combination characteristic modulus";

(2) The algebraic geometric mean is called the "multiplication combination characteristic modulus";

The power function also expresses: properties, arbitrary finite elements in infinity, three-dimensional space, calculus order, element combination form, and time dynamic changes. Based on the existence of the "even-numbered balanced exchange mechanism" of circular logarithms, their changes must be balanced and exchanged under the drive of circular logarithms. Once the circular logarithm is canceled, each process stops immediately, restoring the original asymmetry and unbalanced exchangeability.

8.4.6 Path integrals in arbitrary spaces and dimensionless circular logarithms

Definition 8.4.5 Path integral: The path integral is the process in which the boundary of an arbitrary function remains unchanged, the characteristic modulus remains unchanged, and the corresponding numerical center point tends to coincide with the center zero point of the position circle logarithm of the uniformly distributed perfect circle, which is called the "perfect circle mode". The process of change becomes a power function process with the circular logarithm of the path integral as the base. The whole process is reflected as the "synchronous change of the boundary curvature center point and the boundary shape" of an arbitrary function. In other words, the position of the curvature center point approaches the movement of the center zero point of the perfect circle, which is reflected as the change of area and volume. This change is called the circular logarithm. The process of change is called the path integral of the circular logarithm.

As long as the geometric boundary function of any space remains unchanged, the geometry can be stretched, compressed and deformed at will. The total elements of the algebraic group combination remain unchanged, and there can be different forms of combination, which can also be the change of the space of any sub-item. However, in which direction do they change is most conducive to mathematical description? It cannot be taken for granted that the fact is:

(1) The change of geometry to a perfect circle is called the perfect circle mode $\mathbf{D}_{00}$ because the perfect circle mode indicates that the radius of the perfect circle is evenly distributed with the boundary curve and surface, the change of the radius of the center point is synchronized with the change function and the topological change, corresponding to the average value of the "sum combination", and the geometric center point coincides with the geometric center. This is a condition that does not exist in the space containing ellipses and any closed circular space.

(2) The change described algebraically to the characteristic mode is called the "characteristic mode $\mathbf{D}_0$", because the "characteristic mode $\mathbf{D}_0$" represents the arithmetic mean, and its value is the same as the radius $\mathbf{D}_{00}$ of the perfect circle mode . The numerical distribution of the boundary is uneven, corresponding to the "productive combination" average value. However, the center points of the characteristic modes cannot coincide with the geometric center, which is suitable for analyzing the root elements of the product combination.

The pattern of any function approaching a perfect circle is expressed as The path integral of the movement between the center point of any circle and the zero point O of the center of the perfect circle. It is reflected in the two steps of group combination-circular logarithmic analysis:

(1): Given the boundary function and characteristic mode function, the group variable operation of the equation is established to solve the circular logarithm, which includes the synchronous change relationship between the probability-topological characteristic mode center point and the surrounding elements.

2): Under the synchronous change relationship between the center point of the probability-topological characteristic mode and the surrounding elements, the values of each root element are analyzed through the circular logarithmic center zero point symmetry. (**Figure** 8.5)

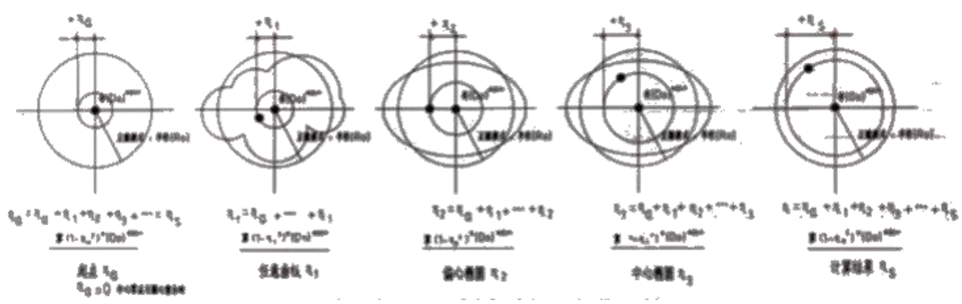
Circular logarithmic path integral: The dimensionless circular logarithmic power function describes the process of geometric topological changes:

The change process described by the dimensionless circular logarithmic form **(Figure 8.5) :**

Arbitrary surface circle $(1-\eta_1^2)^K \leftrightarrow$ eccentric ellipse $(1-\eta_2^2)^K \leftrightarrow \ldots (1-\eta_n^2)^K \leftrightarrow$ central circle $(1-\eta_0^2)^K \leftrightarrow$ central circle $(1-\eta_{00}^2)^K$;

Among them: the center circle $(1-\eta_0^2)^K$ (the circle boundary is unevenly distributed, multiplication combination, geometric mean), the center circle $(1-\eta_{00}^2)^K$ (the circle boundary is evenly distributed, addition combination, algebraic mean).

any function $\{S^n\}$ →elliptic function $\{S^n\}$ →perfect circular non-uniform distribution function →perfect circular uniform distribution function $\{S_0^n\}$ can coincide and become the numerical characteristic modulus. The center point is set in a three-dimensional rectangular coordinate system.



(Figure 8.5) Path integral of topological change from arbitrary circle to perfect circle mode

In three-dimensional coordinates, the conjugate reciprocal asymmetric function "object" centered on the center zero point O of the rectangular coordinate system (one is decomposed into three), and the reciprocal asymmetric function "object" cannot be balanced and exchanged.

(1) Circular logarithmic path integral The dimensionless circular logarithm describes the process of geometric topological change:

Arbitrary surface circle $(1-\eta_1^2)^K \rightarrow$ eccentric ellipse $(1-\eta_2^2)^K \leftrightarrow \ldots (1-\eta_n^2)^K \leftrightarrow$ geometric perfect circle pattern $(1-\eta_{00}^2)^K$;

(2) **Circular** logarithmic path integral The dimensionless circular logarithm describes the algebraic topological change process:

$$(1-\eta^2)^K=\{[(1-\eta_1^2)^K+\ldots+(1-\eta_n^2)^K] \leftrightarrow (1-\eta_0^2)^K \leftrightarrow (1-\eta_{00}^2)\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm(N=0,1,2)\pm(q=0,1,2,3\ldots\text{integer}\leq S))/t};$$

Corresponding characteristic mode $\{\mathbf{D}\}^{K(Z\pm S\pm(Q=3)\pm(N=0,1,2)\pm(q=0,1,2,3\ldots integer\leq S))/t}$

(3) The path integral (history) becomes a power function shared by the group combination and the circular logarithm: K(Z±S±(Q=0,1,2,3)±(N=0,1,2)±(q=0,1,2,3…integer≤S))/t;

Among them **:** the dimensionless circular logarithmic power function is the property attribute K, any finite element in the infinite (Z±S) three-dimensional space eight quadrants ±(Q=3); calculus (zero order, first order, second order) ±(N=0,1,2))/t; element combination form ±(q=0,1,2,3...integer ≤S).

Arbitrary curved circle/eccentric ellipse = $(1-\eta_1^2)^K = (1-\eta^2)^{K(Z\pm(S=1)/t}$

Eccentric ellipse/central ellipse=$(1-\eta_2^2)^K=(1-\eta^2)^{K(S=2)/t}$,…,

Central ellipse/characteristic mode=$(1-\eta_n^2)^K=(1-\eta^2)^{K(S=n)/t}$,

Characteristic mode/perfect circular mode=$(1-\eta_0^2)^K=(1-\eta^2)^{K(S=0)/t}$,

The center circle position values are the same:$(1-\eta_0^2)^K$ = circle mode $(1-\eta_{00}^2)^K$,

The difference between the two "central circle position values" is that the central circle is at the geometric eccentricity, while the central circle mode is at the geometric center. The two center points do not necessarily coincide.

Dimensionless circular logarithmic path integral expansion:

$(1-\eta^2)^K=[(1-\eta_1^2)+(1-\eta_2^2)+\ldots+(1-n_n^2)]^{K(Z\pm S\pm(Q=3)\pm(N=0,1,2)\pm(q)/t}$

or: $(1-\eta^2)^K=[(1-\eta^2)^{(1)}+(1-\eta^2)^{(2)}+\ldots+(1-\eta^2)^{(n)}]^{K(Z\pm S\pm(N)\pm(q=n)/t}$;

In particular, the geometric perfect circle mode corresponds to $(1-\eta_{00}^2)^K$ and $(1-\eta_0^2)^{K\cdot}$ Their boundary functions are the same, but the difference lies in the uniformity or non-uniformity or symmetry or asymmetry on the geometric perfect circle boundary.

The reason why category theory does not explain the "morphism" is verified here by the third-party construction of dimensionless circular logarithm: because the "morphism" (irreducibility, topological transformation, symmetry and asymmetry, internal and external) lacks a series of "balance" conditions, this "morphism" cannot be directly exchanged. Category theory and dimensionless circular logarithm description:

(1) The topological change or equilibrium exchange process of any geometric space can be the convergence of any reciprocal geometric space to the zero point at the center of the perfect circle mode (called limit), or it can be the diffusion from the zero point at the center of the perfect circle mode to the topological change of any geometric space. It is said that the property attributes control the change of "objects and morphisms".

(2) The unclear description of "morphisms" in category theory is caused by the lack of "even symmetry and asymmetry balance exchange mechanism" between asymmetric "objects" (classical function numerical analysis and modern algebraic logic analysis). In other words, the premise of "morphism" exchange is "balance first", and only when there is balance can exchange be achieved. Category theory does not have a mathematically rigorous proof of how to achieve balance between "objects" of "different levels, spaces, states, etc."

The symmetry of the dimensionless circular logarithmic power function has two forms:

(1) The circular logarithmic center zero line (critical line) adapts to the external balance of the " element- object" (characteristic mode) series.

Among them : the changes of each " element- object" reflect the synchronous changes of its critical line and surrounding elements.

$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=(1-\eta_C^2)^{(K=\pm0)}=\{0,1\}$,

(2) The zero point (critical point) at the center of the circular logarithm adapts to the internal balance of the " element- object" (characteristic mode) series.

Among them: on the basis of "object" synchronization, the circular logarithmic relationship analysis between each central zero point (critical point) on the central zero line (critical line) and the surrounding elements is processed .

$(\pm\eta^2)^{(K)}=(+\eta^2)^{(K)}+(-\eta^2)^{(K)}=(\pm\eta_C^2)^{(K=\pm0)}=\{0\}$,

In particular, the power function of the dimensionless circular logarithm changes synchronously with the circular logarithm factor . In other words, for the dimensionless circular logarithm, the total number of " elements- objects" itself remains unchanged, and the mathematical model composed of multiplication combination-intersection and addition combination-union is not much different, which is called "independent mathematical model" calculation.

For example: two asymmetric " element- object" multiplication combinations-intersections {A, B}, the transformation shares a characteristic modulus {

$\{R_0\}^{(K=\pm1)(Z\pm(S=2)\pm(N=0,1,2)\pm(q=0,1,2,3\ldots integer)/t}$ and circular logarithm $(1-\eta_{00}^2)^K$ and shared properties that control the transformation of the "object":

$\{A,B\}=(1-\eta^2)^{(K=\pm1)}\cdot\{R_0\}^{K(Z\pm(S=2)\pm(N=0,1,2)\pm(q=0,1,2,3\ldots integer)/t}$;

even- symmetric "object" {A,B} can be balanced and exchanged only if it has the same even-symmetric circular pair:

$(1-\eta^2)^{(K=\pm1)}=\{A\}/\{R_0\}^{(Z\pm(S=1)\pm(N=0,1,2)\pm(q=0,1,2,3\ ...integer)/t}$;
$(1-\eta^2)^{(K=\pm1)}=\{B\}/\{R_0\}^{(Z\pm(S=1)\pm(N=0,1,2)\pm(q=0,1,2,3\ ...integer)/t}$;

The balanced exchange combination form of the dimensionless 'axiom of infinity' is:

$A=[(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=+1)}]\{R_0\}=B$;
$a=[(1-\eta^2)^{(Kw=-1)}\leftrightarrow(1-\eta^2)^{(Kw=\pm0)}\leftrightarrow(1-\eta^2)^{(Kw=+1)}]\{R_0\}=b$;

Among them: any " element- object" will undergo symmetrical and asymmetrical random and non-random equilibrium exchanges under the same factor of dimensionless circular logarithm .

Dimensionless circular logarithmic balance exchange rule:

Without changing the "object" proposition, the characteristic module, or the isomorphic circular logarithm, the true proposition is transformed into an inverse proposition simply by changing the inverse properties of the circular logarithm's properties.

The dimensionless circular logarithm construction realizes balanced exchange with a unique asymmetric, random and non-random infinite axiom mechanism.

$\{A\}=\sum[(1-\eta_1^2)+\ldots+(1-\eta_n^2)]^{(K=-1)}\leftrightarrow[(1-\eta_{[C]}^2)]^{(K=\pm0)}\leftrightarrow\sum[(1-\eta_1^2)+\ldots+(1-\eta_n^2)]^{(K=+1)}\{R_0\}=\{B\}$;

Among them: the center zero point $(1-\eta_{[C]0}^2)^{(K=\pm0)}=(1-\eta_{[C]00}^2)^{(K=\pm0)}$ is the conjugate center point of the "object". The conversion point has "asymmetry" and does not necessarily coincide with the circular logarithmic center zero point. The true conversion requires the symmetry of the dimensionless circular logarithmic center zero point.

The description of two "objects" {A, B} in category theory with dimensionless circular logarithmic symmetry can be extended to the description of three "objects" { (A, B), C } with dimensionless circular logarithmic symmetry:

Similarly: in three-dimensional coordinates, the conjugate reciprocal asymmetric function with the characteristic modulus centered at the central zero point O can achieve balance and exchange only if it has even symmetry in the circular logarithm. In other words, the change (morphism) of any function is driven by the circular logarithm.

$\{AB_{[jik]}\}=(1-\eta_{[ji]}^2)^{(K=-1)}\cdot\{R_{0[jik]}\}^{(2)}$
$[(1-\eta_{[ji]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[jik][C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[k]}^2)^{(K=+1)}]\cdot\{R_{0[jik]}^{(3)}\}$
$=(1-\eta_{[k]}^2)^{(K=+1)}\cdot\{R_{0[jik]}^{(1)}=\{C_{[jik]}\}$;

The circular logarithm space can accurately describe the algebraic-geometric space through qualitative and quantitative changes . The circular logarithm is used as the unit for comparison. The dimensionless circular logarithm resolves the difficulty of "morphism" in category theory through the even symmetry of circular logarithm with the "axiom of infinity".

In this way, any " element- object" in a closed space can be converted into a perfect circle mode (geometry) or characteristic mode (algebra) with any (curve, surface) circle as the boundary function, under the condition that the total boundary curve, surface or characteristic mode (positive, median and negative mean function) remains unchanged. The root element is analyzed through the dimensionless position value circular logarithm and the corresponding circular logarithm center zero line (critical line), center zero point (critical point) and the surrounding elements. In other words, the dimensionless circular logarithm "balanced exchange" has the most abstract, profound and basic characteristic space than the abstract "object and morphism" of category theory.

8.4.5 Integration of Arbitrary Space (Logical Analysis and Numerical Analysis)

Category theory does simplify complex mathematics and achieves good results: According to category theory, mathematical calculations are "objects and morphisms". It is easy to understand what "objects" are: they refer to human descriptions of nature expressed in mathematical form. The focus of the controversy lies in the treatment of "morphisms".

The dimensionless circular logarithm has a strong vitality and amazing superiority to solve the defects and contradictions of the two major mathematical foundations:

(1) Numerical analysis: cannot handle relational exchange problems;

(2) Logical analysis: Unable to explain the problem of (internal and external) balance calculation.

Circular logarithms conform to the needs of the times and propose: based on "infinity", with a more abstract and simple circular logarithm symbol $(1-\eta^2)^K$ (Note: (η) is a Greek letter, pronounced "Eta" in Chinese), it incorporates "numerical analysis" and "logical analysis" into an integrated analysis theory.

Of course, this requires proof and verification: prove the relationship between category theory space (logical analysis) and Hilbert space (numerical analysis) and circular logarithmic space.

In 1664-1665, Isaac Newton proposed the binomial theorem, which was extended to any real power, namely the generalized binomial theorem. It can also be extended to infinite arbitrary real numbers, natural numbers, and irrational numbers, called infinite binomials.

The infinite set binomial is defined as infinite elements (the numerical value of any object that can be digitized), and the combination and collection of infinite sub-terms without repetition under the condition that the total elements

remain unchanged. The formula of the binomial expansion is:
$(a+b)^n=C(n,0)a^n+C(n,1)a^{(n-1)}b+\dots+C(n,i)a^{(n-i)}b^i+\dots+C(n,n)b^n$
$=Aa^n+Ba^{(n-1)}b+Ca\hat{}^{(n-2)}+\dots+b^n$;
In the formula, C(n,i) represents the number of combinations of any i elements from n elements = n!/(ni)!i!, which becomes the integer coefficients of A, B, C...

The power function is written as: n=K(Z±S±Q±N±(q=0,1,2,3,…infinite integer), which makes it easier to accommodate more mathematical objects and analysis contents in the power function.

The relationship between the binomial and the Pascal-Yanghui triangle is reflected in the properties of the binomial coefficient and the structure of the Pascal-Yanghui triangle. The relationship between the Pascal-Yanghui triangle was given by the Chinese mathematician Zhu Shijie in 1303 and by Pascal in 1653.

Pascal's triangle is a geometric arrangement of binomial coefficients in a triangle, with each row of numbers being the corresponding binomial coefficient.

Specifically, the numbers in the nth row of Pascal's triangle (usually the top row is counted as row 0) are the binomial coefficients C(n, 0), C(n, 1), …, C(n, n), which appear in the expansion of the binomial theorem. This is called polynomial regularization.

When: The combination coefficients are:
$C(n, 0),=1, B(n, 1)=[2!/S(S-1)]^K, C(n,2),=[3!/S(S-1)(S-1)]^K \dots P(n,(P-1))=[(p-1)!/(S-0)!]^K$
Combined with the element-object combination form, it forms the feature module $\{X_0\}$.
$A=1$; $B=1/\{X_0\}^{(S-1)}$; $C=2!/\{X_0\}^{(S-2)}$; …; $P=(P-1)!/\{X_0\}^{(S-p)}$,

✷Define 8.4.6 Generalized Riemann function (productive combination , geometric mean) characteristic modulus:
Multiple sufficiently large prime numbers are multiplied or added together to form a prime number function.

$\{X\}^{(K=-1)(KW=\pm1)(Z\pm S))}=\prod\{X_1^S X_2^S \dots X_S^S\}^K=[^{KS}\sqrt{\{X_1^S X_2^S \dots X_S^S\}}]^{(K=-1)(KW=\pm1)(Z\pm S)}$,

✷Define 8.4.7 Generalized Riemann function (additive combination , arithmetic mean) characteristic modulus :
$\mathbf{\{X_0\}^{(K=-1)(KW=\pm1)(Z\pm S\pm(q=p))}}=\sum[((P-1)!/(S-0)!)]^K\prod_{[Z\pm(S=p)]}\{X_1^S X_2^S \dots X_P^S+\dots\}^K$。

✷Define the property K: K=k(±1,±0), Kw=(±1,±0) , K · Kw=(+1,±0,±1,-1):

✷Define the circular logarithm and its properties: $(1-\eta^2)^K=[\{X\}/\{X_0^S\}]^{(K=\pm1)(Kw=\pm1)(Z\pm S)}$; ;

certificate:

Purpose of proof: Based on the fact that both logical analysis and numerical analysis are derived from Newton's binomial theorem, by proving the binomial conversion to circular logarithm, we can achieve dimensionless application of circular logarithm of infinite axiom mechanism , and use the third-party construction set to include " logical analysis and numerical analysis " to achieve integrated dimensionless analysis.

In 1715, Taylor laid the foundation for the finite difference method in "The Incremental Method and Its Inverse". He had the famous Taylor formula for the power series of a single variable, which became an extension of the calculus equation and the basis of the source of current mathematical analysis:
$f(x+h)=f(x)+hf^{(1)}(x)+h^2/2!f^{(2)}(x)+h^3/3!f^{(3)}(x)+\dots+((R_n+h_n)($ remainder);

The polynomial coefficients are the regularized distribution and the corresponding sub-terms of the variable elements to form the characteristic modulus (positive, median and inverse mean function) of any finite variable element in the infinite: e^x $e^x=1+x/1!+x^2/2!+x^3/3!+\dots+(R_n)$(remainder);
Where: f(x+h) is the polynomial expansion, and the polynomial coefficients are the regularized distribution.

Assume: any finite variable element in the infinite is known: $x^{KS}=\{x_1 x_2 \dots x_n\}^{K(Z\pm S\pm Q\pm N\pm(q=0,1,2,3,\dots integer)}$,

Each sub-item (level) characteristic mode:
$\{x_0\}^{KS}=\{x\}^{K(S-0)}+[1!/S]^K\{x\}^{(S-1)}+[2!/(S-0)(S-1)]^K\{x\}^{K(S-1)}+[(P-1)!/(S-0)!]^K\{x\}^{K(S-P)}+\dots$
$=\{x_0\}^{K(S-0)}+\{x_0\}^{K(S-1)}+\{x_0\}^{K(S-2)}+\dots+\{x_0\}^{K(S-P)}+\dots$;
Among them: power function K(Z±S±Q±N± m ±(q=0,1,2,3,…integer) , can have: properties, arbitrary finite in infinity, three-dimensional space, calculus, calculus upper and lower limits, combination form. It can be increased or decreased according to the analysis content.

Under the "one-to-one correspondence" condition of the 'infinity axiom' of dimensionless circular logarithms, the remainder can also be converted into circular logarithms, satisfying the integer expansion of circular logarithms and ensuring the stability and accuracy of the central zero point of the circular logarithm.

For example, category theory logic analysis and Hilbert numerical analysis both rely on set theory axiomatization and Hilbert numerical number theory axiom system proof and development, trying to expand to "infinite analysis" . In fact, most of them stay at the "dualism" artificial assumption of "discrete type-symmetry" balance transformation analysis. In the real world, there are a lot of "asymmetric distribution" and " continuous type- asymmetry " balance transformation combinations, and it is impossible to go further "two to three".

In other words, the axiomatization of natural numbers and set theory cannot compare with the superiority of the 'axiom of infinity', which not only has the symmetry and asymmetry of even numbers, but also can perform random balanced exchange combinations and random self-proof of truth or falsity.

The existing mathematical analysis of "binary numbers" $\{2\}^{2n}$ can be expanded and progressed to a complete analysis of ternary numbers $[\{^n\sqrt{X}\}-\{a_0\}]^{(n)}$ through the dimensionless 'axiom of infinity' mechanism . This will be a breakthrough for computers, not only improving computer speed and functionality, but also enabling AGI analysis of "continuous symmetry and asymmetry (mimicking the human brain)" and ensuring zero-error analysis with a zero-error accuracy of 10^{200} in the universe .

In this way, the advantages of traditional numerical analysis and logical analysis are expanded, and their respective shortcomings are compensated. Their relationship with circular logarithm :

Polynomial → Set theory (element-mapping) → Category theory (object-functor)

→ Dimensionless circular logarithm (characteristic module-circular logarithm) ;

Considering the role of polynomial coefficients as known (a_0^n) or unknown $\{^n\sqrt{x}\}$ in the equation, the circular logarithm itself handles the relationship between multiplication and addition. The calculation results of the addition and subtraction balance equations composed of circular logarithmic units are:

$a_nx^n \pm a_{n-1}x^{n-1}+\ldots\pm a_0x^0=[(^n\sqrt{X})\pm\{a_0\}]^{(n)}=(1-\eta_{[jik]}{}^2)^K\cdot\{(0,2)\cdot\{a_0\}\}^{(n)}$;

Among them: $[\{^n\sqrt{X}\}-\{a_0\}]^{(n)}$ calculates to $\{0\}$; $[\{^n\sqrt{X}\}+\{a_0\}]^{(n)}$ calculates to $\{2\}$;

Three-dimensional expansion of circular logarithms:

$(1-\eta^2)^{K(n)}=(^n\sqrt{x}/\{a_0\}\}^n=(1-\eta_{[jik]}{}^2)^{K(n=0))}+\ldots+(1-\eta_{[jik]}{}^2)^{K(n=1)}=\{0,1\}$;

of circular pairs :

$(1-\eta^2)^{(K=\pm1)}=\sum(^n\sqrt{x}/\{a_0\}\}^n=(1-\eta_{[jik]}{}^2)^{(K=+1)}+(1-\eta_{[jik]}{}^2)^{(K=\pm1)}+(1-\eta_{[jik]}{}^2)^{(K=-1)}=\{0,2\}$;

Circle logarithmic center zero point:

$(1-\eta_{[C]}{}^2)^{(K=\pm0)}=(1-\eta_{[jik]}{}^2)^{(Kw=+1)}+(1-\eta_{[jik]}{}^2)^{(Kw=-1)}=\{0,1\}$;

Balanced commutative combinations of circular logarithms :

$\{A\}^{(K=-1)}=\sum(^n\sqrt{X}=\sum(1-\eta^2)^{(K=-1)}\{W_0\}^n=(1-\eta_{[jik]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[jik]}{}^2)^{(K=\pm1)}\leftrightarrow(1-\eta_{[jik]}{}^2)^{(K=-1)}\{W_0\}^n$

$\sum\{^n\sqrt{X}\}^n=\sum(1-\eta^2)^{(K=-1)}\{W_0\}^n=\{B\}^{(K=+1)}$;

Among them: the power function n in traditional mathematics is not enough to use, it is written as: K(Z±S±Q±N± m ±(q=0,1,2,3,…integer) , which can be analyzed based on the “element-object” content Increase or decrease the power function factor.

In particular, the circular logarithm $(1-\eta_{[jik]}{}^2)^K=1$ belongs to the three-dimensional discrete complete mathematical structure, and $(1-\eta_{[jik]}{}^2)^K\neq1$ belongs to the three-dimensional continuous compatible mathematical structure. $(1-\eta_{[C]}{}^2)^{(K=\pm0)}= 1$ belongs to the central zero line (critical line) of the circular logarithm, and $(1-\eta_{[C]}{}^2)^{(K=\pm0)} = 0$ belongs to the central zero point (critical point) of the circular logarithm. The circular logarithm contains the advantages of category theory and solves the shortcomings of category theory, allowing the category theory dualism to expand to trinism.

For example: Functor problem: Functors have become an important tool for mapping in category theory. The circular logarithm (1-η2)K(n) is also an important tool for mapping. It contains morphisms between two objects and can be described in two-dimensional/three-dimensional form.

$(1-\eta_{[C]}{}^2)^{(K=\pm0)K(S=n)} = (1-\eta_{[C]}{}^2)^{(K=\pm0)K(S=1)}$ corresponds to the characteristic mode $\{\mathbf{D}_0\}^{K(Z\pm S\pm Q\pm N\pm m \pm(q=0,1,2,3,\ldots integer)}$ which controls the characteristic mode through the center zero point , which shows that the characteristic mode (external) center point and the surrounding subset points change synchronously . At the same time, the characteristic mode (inside) surrounding subset points are controlled independently through the center point $(1-\eta_{[C]}{}^2)^{(K=\pm0)}$ corresponding to the characteristic mode $\{\mathbf{D}_0\}^{Kw (Z\pm S\pm Q\pm N\pm m \pm(q=0,1,2,3,\ldots integer)}$.

The dimensionless circular logarithm $(1-\eta^2)^{K(S=n)}$ is an infinite construction set with unit and closure, corresponding to the average value (characteristic modulus) composed of closure. The invariance and isomorphism of the circular logarithm function are equivalent to the function of the Euler logarithm e. Based on the average value of the characteristic modulus corresponding to the circular logarithm, it represents various forms of closed combinations under the condition of unchanged total elements, which brings the closure and unit of the dimensionless circular logarithm.

The dimensionless circular logarithm $(1-\eta^2)^{K(S=n)}$ is the corresponding characteristic module. As the "monoid theory" mentioned in category theory, in fact, a monoid is a binary or even number (symmetry $M_1\times M_2\rightarrow M_0$, at this time, category theory cannot solve the asymmetry of even numbers such as ternary numbers) except that it has no inverse elements, and satisfies all other group axioms. Therefore, a monoid with an inverse element is the same as a group. It can be converted into a characteristic module (positive and negative mean function) to expand new functions . It can be a breakthrough in dualism and establish ternary complex operations:

The set M of $M_1 \times M_2 \times M_3 \rightarrow M_0$, the subset M_0 (characteristic modulus) of (if x,y,z∈N , then x*y*z*∈N*, and xy*,yz*,zx*∈ N *) .

Obviously, M_0 itself would be a monoid. Under the ternary operation derived from M, equivalently, the sub-monoid is a subset M_0, and the superscript * is the Kleene star, indicating that binary/ternary values cannot be directly exchanged, and there must be something to guide them, but the * Kleene star does not further prove what it is or what obvious function it has.

8.4.7. Connection between Category Theory and Circular Logarithms

The basic concept of "homological algebra-category theory" currently popular among mathematicians is based on the "even number" symmetry "element-object".

Category: used to describe mathematical objects and their relationships. Category theory is the theoretical basis of homological algebra and provides a framework for studying the natural connections between mathematical objects. This exchange or change cannot be satisfactorily explained by "morphisms" and the reason is not explained.

A mapping that preserves structure between categories. It can transfer objects and morphisms from one category to another category while preserving the original relationship . Functors are a key tool for constructing homology groups in homology algebra .

This functor - " morphism , mapping " can be expressed in the dimensionless circular logarithm as between the same level and power dimension, and can also be expressed across levels and power dimensions. In the "infinity axiom" mechanism, it can be decomposed by balanced exchange combination through the zero point of the circular logarithm center. It is expressed as

$A\leftrightarrow B$,或 $A\leftrightarrow B\leftrightarrow C$,以及 $A^{(P)}\leftrightarrow B^{(Q)}$,或 $A^{(L)}\leftrightarrow B^{(M)}\leftrightarrow C^{(Q)}$;

Among them: satisfying $\{A,B,A^{(P)},B^{(Q)},A^{(L)},B^{(M)},C^{(Q)}\}\in\{A^{(S)},B^{(S)},C^{(S)}\}^{K(Z`S)}$;

Natural transformation: describes the mapping between two functors , maintaining the natural connection between functors. Natural transformation is an important concept in homological algebra to deal with the relationship between functors. In the "circular logarithmic space", the "three invariants" are also used to more deeply maintain the balanced exchange (mapping, morphism) between two (or more) functors that is mutually reversible in the forward and reverse directions .

Homology group: The core concept of homology algebra, used to quantify the topological properties of mathematical objects. Homology groups are obtained by solving specific combinatorial problems, reflecting the number of holes and the complexity of the shape of the object. The dimensionless circular logarithm describes the entire process of qualitative and quantitative balance and exchange of category theory (internal and external) with a simple formula.

Currently, category theory is limited to monoids that are commutative, called commutative monoids (or less commonly, Abelian monoids). There is no law of excluded middle. In fact, balanced commutation inevitably involves the central zero point connecting the positive and negative sides. This is the law of excluded middle that actually exists, and this is also the key reason why "morphisms" cannot be explained clearly.

The order unit of the circular logarithm corresponding to the commutative monoid M is a set of elements u (defined as probability, additive combination) or uv (defined as topology, multiplicative combination) in $M_0^{(n)}$, which expands the category theory to become the theory of circular logarithms.

In particular, this exchange does not change the original proposition, characteristic modulus, or isomorphic circular logarithm, but only satisfies the **RMI** rule by randomly and non-randomly exchanging the positive, the middle, and the negative through the shared properties of the power function.

Category theory does not have "morphisms, functors" in three-dimensional space. For any element x in M, there is always a positive integer n such that x ≤ uv. This is often used in the case where M is a positive cone of a partially ordered abelian group G, in which case we call u or uv the order-unit of G. There is an algebraic construction that accepts any commutative monoid and turns it into a fully qualified abelian group, called an extension of the Grothendieck group.

However, traditional basic algebra uses addition, subtraction, multiplication and division symbols, which only solves the reciprocity of addition and subtraction, multiplication and division, but not the reciprocity of multiplication and addition. Category theory also does not solve this "reciprocity of multiplication and addition" problem. In other words, there is no mathematical proof of the relationship between the inside and outside of uv. It can satisfy the "set and exchange of u (probability, addition combination) or uv (topology, multiplication combination)".

The dimensionless circular logarithm is in algebraic form. For the first time, the unitary and closed dimensionless $(1-\eta^2)^{K(n)}=({}^n\sqrt{X/x_0}\}^{K(n)}=\{\pm0, \pm1\}$was proposed to solve the asymmetric balance exchange problem caused by the "reciprocity of multiplication and addition", filling the gap in category theory in ternary numbers.

The circular logarithm $(1-\eta^2)^K$ successfully solved the mathematical problem of integrating "discrete and continuous" that category theory could not solve. Just like a "master key" can open all kinds of locks, dimensionless circular logarithms can solve all kinds of mathematical problems. The central terminology of circular logarithms is "irrelevant mathematical structure model". Through circular logarithms, which have "no specific element content" and "circular logarithm center zero even number balance exchange mechanism", the analysis of any mathematical model is obtained with the highest degree of abstraction than category theory, becoming a powerful theoretical analysis and operation tool.

The circular logarithm is also a basic unit of operation. The function not only includes the (external) morphism function of the category theory "functor", but also has the function of processing (internal, external) (morphisms between the center point and multiple objects, and it is also an advancement from traditional abstract numerical analysis to "more abstract positional analysis". Therefore, the circular logarithm can be said to be the cornerstone for verifying the rationality and integrity of all mathematical solutions to problems.

Category theory attempts to capture the common characteristics of various related "mathematical structures" through an "axiomatic" approach, and to relate these structures through "structure-preserving functions" between them. Therefore, the systematic study of category theory will allow the universal conclusions of any such mathematical structure to be proved from the axioms of the category.

Consider the following example: the class Grp of groups contains all objects with "group structure". To prove theorems about groups, we can logically deduce from this set of axioms. For example, it can be immediately proved from the axioms that the identity element of a group is unique. Rather than focusing on individual objects with a particular structure (such as groups), category theory focuses on morphisms (structure-preserving mappings) of these objects; by studying these morphisms, we can learn more about the structure of these objects.

Taking groups as an example, morphisms are group homomorphisms. Group homomorphisms between two groups will strictly "maintain the structure of the group". This is a method of transporting information about the structure in one group to another group, so that this group can be regarded as a "process" of another group. Therefore, the study of group homomorphisms provides a tool to study the universal properties of groups and the inference of group axioms. Similar studies also appear in many other mathematical theories, such as the study of continuous mappings of topological spaces in topology (the relevant category is called Top), and the study of smooth functions of manifolds.

The concepts in category theory can be replaced by dimensionless circular logarithms, and the description of changes and positive and negative equilibrium exchange processes between objects (internal and external) can be more precise with profound mathematical principles and zero error than the description in category theory, thus connecting category theory with dimensionless circular logarithms.

Assume: " element- object" is

$\boldsymbol{M}$, $\boldsymbol{M_0}$, $\boldsymbol{M_i \in \{M_1 M_2 \ldots M_n\}}$(probability, additive combination),

$\boldsymbol{M_{ji} \in \{(M_1 M_2) \ldots (M_{n-1} M_n)\}}$(topological multiplicative combination) ,

(1) External morphism connection: represents the external morphism description between objects.

$\boldsymbol{M_i} = (1-\eta^2)^{(K=\pm1)} \cdot \boldsymbol{M_0}^{\boldsymbol{K}(Z\pm S)}$;

(2) Internal morphism connection: represents the morphism description inside the object.

$\boldsymbol{M_i} = (1-\eta^2)^{(Kw=\pm1)} \cdot \boldsymbol{M_0}^{\boldsymbol{K}(Z\pm S)}$;

(3) History records and path integrals of processes between objects (internal and external):

$(1-\eta^2)^{(K=\pm1)}=(1-\eta^2)^{(K=\pm1)(S-0)}+(1-\eta^2)^{(K=\pm1)(S-1)}+\ldots+(1-\eta^2)^{(K=\pm1)(S-n)}$;

(4) Element- object (internal and external) circular logarithmic center zero-point symmetry:

$(1-\eta_{H[]jik}^2)^{(K=\pm1)}=(1-\eta_1^2)^{(K=\pm1)(S-0)}+(1-\eta_2^2)^{(K=\pm1)(S-1)}+\ldots+(1-\eta_n^2)^{(K=\pm1)(S-n)}=\{\pm0,\pm2\}$;

(5) Element- object (internal and external) circular logarithmic center zero point isomorphism :

$(1-\eta_{[C]}^2)^{(Kw=\pm1)}=(1-\eta_{1[C]}^2)^{(Kw=\pm1)(S-0)}=(1-\eta_{2[C]}^2)^{(Kw=\pm1)(S-1)}=\ldots=(1-\eta_{n[C]}^2)^{(Kw=\pm1)(S-n)}=\{\pm0,\pm1\}$;

Among them: K=(K=±1)(Kw=±1) respectively represent the external and internal properties of the " element- object" (already converted into characteristic mode) , and the directions represent the left and right sides of the center zero point respectively .

The connection between the central zero point and morphism: This is a mathematical problem of the "central zero point conjecture" that has not been solved so far. The central point is not equal to the circular logarithmic central zero point. Only the circular logarithmic central zero point has reliable symmetry and realizes the "balanced exchange combination "

Category theory and the space corresponding to dimensionless circular logarithms:

(a) Simply connected, the limit point of the sphere is inside the interval $\boldsymbol{M_0}$. It is called the zero point of the Riemann function , with properties (K=-1) .

$(1-\eta_{[C]}^2)^{(K=-1)}=\{\boldsymbol{M_i/M_0}\}^{\boldsymbol{K}(n=S)}$; (Probability)

$(1-\eta_{[C]}^2)^{(K=-1)} = \boldsymbol{M_{ji}/M_0\}^{K(n)=S)}}$; (topology)

(b) The first limit point of a multiply connected annulus is outside the interval $\boldsymbol{M_{01}}$ and the second limit point is inside the interval $\boldsymbol{M_{02}}$. This is called the Landau-Siegel double zero conjecture (circular logarithmic reduction theorem) .

(a) The central axis of the ring ;

$(1-\eta_{[C]}^2)^{(K-1)(K=-1)} = \{\boldsymbol{M_i/M_{01}}\}^{K(n=S)} = \{\pm 0\}$;

(b) Ring boundary:

$(1-\eta_{[C]}^2)^{(K=-1)(Kw=-1)} = \{\boldsymbol{M_i/M_{02}}\}^{K(n=S)} = \{\pm 1\}$;

(c) Center point of the ring (outer center):

$(1-\eta_{[C]}^2)^{(K=-1)(Kw=+1)} = \{\boldsymbol{M_i/M_0}\}^{K(n)=S)} = \{\pm 0\}$;

It can be seen that the category theory-functor and all its characteristics can be converted into equivalent characteristic modules and circular logarithms, which have the operability characteristics of even-numbered balanced exchanges.

Circular logarithms not only contain the characteristics of external morphisms in category theory, but also expand the internal morphisms that category theory does not have, filling the characteristics of category theory from "binary numbers to ternary numbers" and stability "morphisms". In this way, dimensionless circular logarithms use the "infinite axiom" mechanism to carry out the balanced conversion mechanism and widely used theory and tool of " evenness " symmetry and asymmetry, randomness and non-randomness. The dimensionless construction also proves that there is no reliable mathematical proof for the "morphism" of category theory, lacking the "infinite axiom" mechanism of "balance" inside and outside the object, so it cannot directly balance the exchange combination decomposition, and the mathematical foundation of category theory is not solid.

9. Connection between circular logarithms and the Langlands program

9.1、Langlands program Background

We all start learning mathematics from integers, then simple geometry and polynomial equations. One of the oldest branches of mathematics, number theory, is the study of integers. There is an infinite charm, mystery and magic in integers, which always attracts the most intelligent mathematicians and amateurs. Famous problems include Goldbach's conjecture, the twin prime conjecture, Fermat's Last Theorem, etc.

Geometry is also the oldest branch of mathematics. The ancient Greeks' study of straight lines, circles, and conic sections later developed into algebraic geometry, a branch that specializes in the study of graphs corresponding to polynomial equations. Over the past 100 years, algebraic geometry has developed very rapidly, with many great people emerging, and has profound applications in other branches of mathematics and mathematical physics. About one-third of the mathematicians who have won the Fields Medal have work related to algebraic geometry.

Group theory has only been around for a hundred years, and it originated from the formula for finding the roots of polynomial equations. People were able to solve linear and quadratic equations very early on, and the formula solutions for cubic and quartic equations were found in the 16th century, but they were incomplete and were special solutions to symmetry.

An important branch of mathematics, group theory, was born in the process of exploring radical solutions to equations. Whether an equation has radical solutions is the same as whether the corresponding group is solvable. The birth of group theory has changed the face of mathematics, and its influence has spread to almost all of mathematics. It has many applications in physics, chemistry, and materials science, and is a basic tool for studying symmetry.

The Langlands Program points out that the three relatively independently developed branches of mathematics: number theory, algebraic geometry, and group representation theory, are actually closely related, and the link between these branches of mathematics is some special functions, called L-functions. L-functions can be said to be the central research object of the Langlands Program. Two of the seven famous "Millennium Prize Problems" in the mathematical community are about L-functions, namely the Riemann hypothesis and the BSD conjecture. This shows their importance.

so-called L-function is an L-function with arithmetical meaning and arithmetical background. For example, when Riemann studied the prime number theorem proposed by Gauss and Legendre, he introduced the Riemann zeta-function of complex variables related to the distribution of prime numbers.

In general, for a mathematical object X, we can define a complex sequence {\lambda_X(n)\}_{n=1}^{\infty}, , of the form

L(s, X)=\sum_{n=1}^{\infty}\frac{\lambda_X(n)}{n^s}, Res>1

And there is a Dirichlet series of Euler products, which we call L-functions about X.

Generally speaking, the sources of L-functions are composed of two categories: arithmetic L-functions and automorphic L-functions. Automorphic functions are the generalization of concepts such as circular functions, hyperbolic functions, and elliptic functions. According to PR Langlands' conjecture: Generally speaking, all meaningful L-functions come from automorphic L-functions.

Arithmetic L-functions; in simple terms, they are L-functions that have mathematical meaning. Examples include the Riemann zeta-function, the Dirichlet L-function, the Dedekind zeta-function, the Haass-Weil L-function of elliptic curves, the Artin L-function, etc.

Arithmetic L-functions are represented by "additive combinations" in dimensionless circular logarithms (character modules), and automorphic L-functions are represented by "multiplicative combinations" in dimensionless circular logarithms. Automorphic L-functions: L-functions of holomorphic modular form, Maass L-functions, standard L-functions, etc.

According to PR Langlands' report at the International Congress of Mathematicians, studying an L-function mainly involves three parts:

(1) Analytic extension, functional equation: This is the most basic part. This is relatively easy to obtain for general automorphic L-functions, but it is not easy to obtain for arithmetic L-functions. For example, for Haass-Weil L-functions, this part is the Taniyama conjecture, and part of this conjecture can lead to Fermat's Last Theorem. The Artin conjecture about the holomorphic analytic extension of Artin's L-function is also an important unknown problem in number theory.

(2) Distribution of zeros: non-zero regions, Riemann hypothesis and generalized Riemann hypothesis; under the assumption of Riemann hypothesis, the distribution of the imaginary part of zeros and its connection with random matrices, etc.

(3) Values of special points: central values, critical points, values of integer points, residues at extreme points, etc. There are also many conjectures here, such as the **BSD** conjecture, the class number problem, the Deligne conjecture, the Beilinson conjecture, and the Goldfeld conjecture. In fact, what is important is not only how big it is, but what kind of arithmetic meaning is implied in this quantity. For example, the residue of the Dedekind zeta function at s=1 contains many invariants of a number field: class number, discriminant, regular, etc.; the **BSD** conjecture is that the order of the Haass-Weil L-function at the central point is the rank of the elliptic curve! Langlands proposed how to define some L-functions for the automorphic representation of a general minimalistic group, and conjectured that some L-functions of the automorphic representation of a general linear group are the same as the L-functions of some representations of the Galois group from number theory. This conjecture was further expanded and refined by Langlands himself and other mathematicians, gradually forming a series of conjectures that reveal the profound connections between disciplines such as number theory, algebraic geometry, and representation theory.

The Langlands Program is the study of these conjectures and related problems. The Langlands Program is regarded as the largest single project in modern mathematics research. It is called the "grand unified theory of mathematics". It proposes that number theory, algebra, geometry, and group representation theory, which are independently developed branches of mathematics, are closely related .

of my thought is: to use an elementary, classical algebraic method to describe the relationship between them in a unified way. In other words, I am trying to solve what Klein said: to solve the two major unsolved problems in the history of mathematical development:

First, to prove the compatibility of unrestricted classical analysis and set theory.

Second, build mathematics on the basis of strict intuition.

Here, based on the emergence of dimensionless construction sets and the mechanism of the 'infinity axiom', arithmetic L-functions and automorphic L-functions are respectively expressed as "additive combinations (characteristic modules, modular forms)" and "multiplicative combinations" in dimensionless circular logarithms, and they are closely related. If the additive combination and multiplicative combination are known, they can be converted into dimensionless circular logarithms and the central zero line (critical line) and central zero point (critical point) of circular logarithms, relying on the 'infinity axiom' even number symmetry and asymmetry randomness and non-randomness, and limited to {0 to 1} balanced exchange combination analysis, and from two-dimensional $\{2\}^{2n}$ space, extended to three-dimensional space $\{3\}^{2n}$ analysis. In other words, a formula expressed by dimensionless circular logarithms is used to solve the " Langlands Program Conjecture".

9.2. The connection between the Langlands Program conjecture and the dimensionless circular logarithm

9.2.1 Overview of the Langlands Program Conjecture

In 1960 , Robert Langlands proposed this method. It is actually a generalization of Fourier analysis, which is a A far-reaching framework for representing complex waves as multiple smoothly oscillating sine waves. It is easy to show that sine waves and trigonometric lines are equivalent to dimensionless circular logarithms.

fields . These three areas are connected by a network of analogies that has been called the Rosetta Stone of mathematics .

In 1967, Princeton University professor Robert Langlands sent a 17-page handwritten letter to André Weil, the creator of the "Rosetta Stone of mathematics," outlining his vision.

The "Rosetta Stone" here is a metaphor, referring to an analogy between mathematical fields proposed by mathematician André Weil, which links three seemingly different mathematical fields: number theory, geometry, and function fields. Now it will be converted to "dimensionless construction sets" to link different mathematical fields together .

The geometric Langlands program conjecture, as a geometric version of the Langlands program, was proposed in the 1980s. It provides a framework for applying number theory methods and concepts to geometric problems, and vice versa. This conjecture can provide new ideas and tools for many unresolved problems in mathematics and physics, such as quantum field theory research.

For example, the complete proof of Fermat's Last Theorem benefited from the application of the Langlands Program. Andrew Wiles ' proof of the Langlands relation in number theory for a small number of functions solved a 300-year-old problem. The proof of Fermat 's Last Theorem borrowed Langlands' ideas, linking elliptic curves and modular forms, and ultimately succeeded through these connections. Among them: the geometric Langlands Program conjecture not only has a wider range of connections, but also provides powerful tools.

The fairness verification of dimensionless circular logarithms with third-party construction sets: Wiles ' proof proposed the inconsistency of " elliptic curves and modular forms (i.e., perfect circle patterns)", proving that " Fermat's Last Theorem " holds. However, " Fermat's Last Theorem " can be unified through dimensionless circular logarithms and the "infinity axiom" mechanism (no change in power dimension n, no change in X, Y, Z elements, random self-evident equilibrium exchange combination). " Fermat's Last Theorem " is still "one step away" from the proof of completeness.

9.2.2. The connection between the Langlands Program conjecture and the dimensionless circular logarithm

The Langlands Program is regarded as the largest single project in modern mathematical research and is known as the "Grand Unified Theory of Mathematics." It proposes that the three independently developed branches of mathematics, number theory, algebraic geometry, and group representation theory, are actually closely related. Mathematicians' final hope: to use a simple formula to accommodate all existing mathematical systems. Currently, the “Grand Unification of Mathematics” has two latest mathematical results:

(A): In July 2024, the "Geometric Langlands Program" was completed by a team led by Dennis Gaitsgory and Sam Raskin in the United States after more than 30 years of exploration.

(B): In October 2024, the "Dimensionless Circular Logarithmic Structure", also known as the "Algebraic Langlands Program", was completed by a team led by Wang Yiping from China after more than 40 years of exploration.

Here, there are two latest mathematical results of the "Grand Unification of Mathematics"A brief introduction based on the authors personal views,

The core content of the proof of the Langlands program conjecture is about the deep correspondence between self-similarity and symmetry on the Riemann surface. If we use the Fourier analysis model to explain it, mathematicians have long understood the "spectrum" side of the geometric Langlands program conjecture. But the understanding of the "wave" side has been a long process.

The complete axioms of Euclidean geometry were first proposed by German mathematician Hilbert (1862-1943) in 1899. They are: basic concepts (original concepts):

(1) basic objects: point; line; plane.

(2) basic relations: a point is on a line, a point is on a plane (belonging to, through, etc. are all synonyms for being on); a point is between two other points; line segments are congruent, angles are congruent.

In the 1880s, mathematician Vladimir Drinfeld realized that it was possible to create a geometric version of the Langlands correspondence by replacing the characteristic function with a characteristic layer. In 1899, Hilbert's Foundations of Geometry was published, which started the process of mathematical axiomatization.

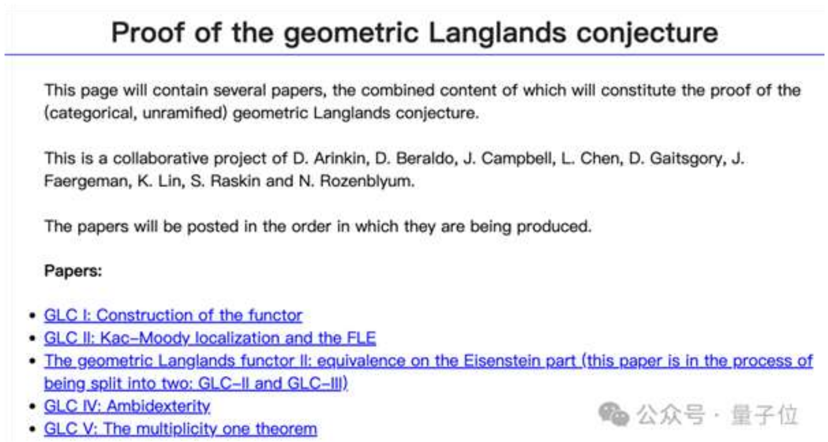
In 2012, Dennis Gatzgory and Dima Arinkin pointed out that the key idea of proving the geometric Langlands program conjecture is to find an equivalence relation that connects the D-modules (solutions of calculus equations on certain spaces) of G-bundles (fiber bundles on algebraic space G, whose fibers are copies of G) on an algebraic curve X. Category theory connects the Indcoh-cohomology objects of the local system of the dual group G^ of the Langlands program, namely:

In 2013, Dennis Gates-Gory wrote a sketch of the geometric Langlands program conjecture. The intermediate relationship that the sketch relies on has not yet been proved. It may be that he wants to prove the universal function of "circle" in a similar way.

For example, in 1960, Andrew Wiles' proof of Fermat's Last Theorem drew on Langlands's ideas and linked elliptic curves with modular forms.

The modular form is related to many important mathematical problems and plays an important role in the development of modern mathematics. For example, a complete class field theory has been established for Abel extension fields, which has solved D. Hilbert's ninth problem.

At present, a very important issue is the study of the class field theory of non-Abelian extensions, and the intrinsic connection between non-Abelian extensions and modular forms has been discovered. For example, the conclusion about Hilbert's 12th problem for imaginary quadratic fields is that any Abelian extension of an imaginary quadratic field must be a subfield of the field obtained by adding certain values of the modular function j(z) to the field. The famous Gauss conjecture, that is, the solution to the class number problem of imaginary quadratic fields, also uses



Proof of the geometric Langlands conjecture

This page will contain several papers, the combined content of which will constitute the proof of the (categorical, unramified) geometric Langlands conjecture.

This is a collaborative project of D. Arinkin, D. Beraldo, J. Campbell, L. Chen, D. Gaitsgory, J. Faergeman, K. Lin, S. Raskin and N. Rozenblyum.

The papers will be posted in the order in which they are being produced.

Papers:

- GLC I: Construction of the functor
- GLC II: Kac-Moody localization and the FLE
- The geometric Langlands functor II: equivalence on the Eisenstein part (this paper is in the process of being split into two: GLC-II and GLC-III)
- GLC IV: Ambidexterity
- GLC V: The multiplicity one theorem

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modular form theory.

The modular function is a type of meromorphic function on the upper half-complex plane, and the modular form is a generalization of the modular function. It is a special analytic function defined inside the unit circle (or upper half-plane) and with its perimeter as the natural boundary. Many classical theories of analytic functions, such as the Picard theorem in the theory of entire functions and some judgment theorems in the theory of normal families, can be proved with the help of the properties of modular functions.

The dimensionless circular logarithm defines the "imaginary quadratic field" as the relationship between two elements. Currently, the relationship between one ternary number and two elements has not been solved. The original characteristic function is called the characteristic modulus (positive and negative mean function).

Based on the "Geometric Langlands Program Conjecture" involving geometric space, to understand the dimensionless circular logarithm to solve the three-dimensional space as an example: binary wave function

There are: the ternary series {abc}, which is combined into the three axes of the ellipsoid, the three-dimensional ellipsoid unit cell $\{^{(3)}\sqrt{acb}\}$ and the modular form is defined as the "characteristic module",

The power function is expressed as : K(Z±S±(Q=0,1,2,3)±(N=0,1,2)±(q=0,1,2,3,…integer)/t

Characteristic functions that represent three-dimensional space. The properties of the sequence are K; any finite element in the infinite (Z±S); three-dimensional space: ±(Q=0,1,2,3); calculus dynamic zero order first order second order ±(N=0,1,2)/t; series element combination form ±(q=0,1,2,3,… integer);

There are two types of characteristic modules: "multiplication characteristic modules" and "additional combination characteristic modules":

The characteristic modulus "multiplication combination" of the three-dimensional elliptic unit cell is the basic value:

Three-dimensional $\{R\}^{(3)}=\{^{(3)}\sqrt{abc}\}$; two-dimensional $\{R\}^{(2)}=\{^{(3)}\sqrt{abc}\}^{(2)}$; one-dimensional $\{R\}^{(1)}=\{^{(3)}\sqrt{abc}\}^{(1)}$; the set of points one-dimensional $\{R\}^{(0)}=\{^{(3)}\sqrt{abc}\}^{(0)}$;

It can be written as: the three-dimensional elliptical unit cell is the basic value .
Among them: Probability "1-1 combination" characteristic mode: $\{R_0\}^{(1)}=\{(1/3)(a+b+c)\}$,
Topological "2-2 combination" characteristic mode: $\{R_0\}^{(2)}=\{(1/3)(ab+bc+ca)\}$,

The three-dimensional elliptical unit cell is further written as: Standard perfect sphere model: The relationship: Three-dimensional elliptical unit cell = $(1-\eta^2)^{(K=\pm1)}$ · Standard perfect sphere model

The elements of a geometrically perfect circle are uniformly distributed in the boundary function and the geometric center zero is at the geometric center of the circle.
$\{R_{00}\}^{(3)}=(1/3)(R_0^2+R_0^2+R_0^2)\leftrightarrow\{R_{00}\}^{(n)}=(1/3)(R_0^n+R_0^n+R_0^n)$。

Circle logarithm description : From the relationship between arbitrary surfaces and curves to the historical record of ellipse to perfect circle, and the path integral process, it is manifested in the arbitrary $\{P \leftrightarrow Q\}$ change record of the circle logarithm and characteristic mode loaded on the shared power function factor (path integral) :
$\{R\}^K=(1-\eta^2)^{(K=\pm1)}\cdot\{R_{00}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm(N=0,1,2)\pm(q=P\leftrightarrow Q)/t}$
Among them: (Q=0,1,2,3) represents a point in three-dimensional space, one-dimensional (straight line, curve), two-dimensional (plane, surface), three-dimensional space, their differences are described by properties. (You can see the three properties of Riemann function) and the dynamic change description of calculus across regions ($q=P \leftrightarrow Q$)/t
Circular logarithmic isomorphism consistency:
$(1-\eta^2)^{(K=\pm1)}=[(^{(3)}\sqrt{abc})/\{R_0\}^{(1)}=[^{(3)}\sqrt{abc})/\{R_0\}^{(2)}=[\ ^{(3)}\sqrt{abc})/\{R_0\}^{(3)}$;
The symmetry of dimensionless circular logarithm evenness and the asymmetry, randomness and non-randomness of the 'infinity axiom' drive the balanced exchange combination decomposition of "element-object" through circular logarithm:
$[(^{(3)}\sqrt{abc})/\{R_0\}]^{(q=n\ldots3,2,1,0)}=[(1-\eta^{2\ (K=+1)}+(1-\eta^2)^{(K=-1)}]\{R_0\}]^{K(q=n\ldots3,2,1,0)}=\{\pm0 \text{ to } \pm1\}$;
Extension to description of arbitrary space .

(characteristic modulus, three-dimensional elliptic function) of three-dimensional space becomes :
$\{R\}^{K(n)}=\leftrightarrow(^{(3)}\sqrt{abc})^{(n)}=(1-\eta^2)^{(K=\pm1)}\cdot\{R_0\}]^{(q=n\ldots3,2,1,0)}$
$\{R\}^{K(n)}=(1/3)(a^n+b^n+c^n)^K\leftrightarrow(1/3)(a^n+b^n+c^n)^K$
$\leftrightarrow(1-\eta_0^2)^{(K=\pm1)}\cdot(1/3)(R_0^n+R_0^n+R_0^n)^K\leftrightarrow(1-\eta_{00}^2)^{(K=\pm1)}\cdot\{R_{00}\}^{(q=n\ldots3,2,1,0)}$。
Among them: $(1-\eta_{00}^2)^{(K=\pm1)}\cdot\{R_{00}\}^{(n)}$ represent the perfect circular logarithm and the perfect circular mode respectively, and (q= n…3,2,1,0) represents the process from any curve type to the perfect circular mode.
Here, Fermat's Last Theorem involving ternary numbers (do not change the power index n, do not change the elements ($X^{(n)}Y^{(n)}Z^{(n)}$)) is connected with the circular logarithm. As a description of the Riemann function, the properties are parabolic, elliptical, and hyperbolic. It can also include circular and saddle-shaped lines.

9.3 Relationship between the Geometric Langlands Program and the Algebraic Langlands Program

In 2013, Dennis Gaitsgory wrote down the function of the sketch of the geometric Langlands program conjecture;

In 2020-2022, Sam Raskin and Joachim Fegerman proved that each feature layer contributes to "white noise" in some way. White noise refers to a sound whose frequency components have a uniform power over the entire audible range (0-20KHZ). Ideal white noise has infinite bandwidth, so its energy is infinite, which is impossible in the real world.

The analogy to the Poincare Sheaf was the Fourier transform of the sine wave. This result convinced Dennis Gates-Gorry of his success and later became a key part of the proof.

Therefore, when the geometric Langlands program conjecture is proved, it will undoubtedly make a sensation in the world. Fields Medal winner Pet Scholz, who mainly studies the Langlands program, commented on this achievement as " the culmination of 30 years of hard work." The research was completed by a team led by Dennis Gaitsgory and Sam Raskin.

In 2023, Dennis Gaitsgori and seven other collaborators launched a general attack on the geometric Langlands conjecture. Now, a series of papers prove the Langlands conjecture in the geometric column of this Rosetta Stone: https://people.mpim-bonn.mpg.de/gaitsgde/GLC/. Finally, it includes five papers with more than 800 pages, published in 2024. For example:

It will take some time to verify their new proof, but many mathematicians say they believe the core idea is correct. Lafforgue said: The theory has such good internal consistency that it's hard to believe it's wrong.

In the years leading up to the proof, the team created more than one path to the heart of the problem. The understanding they gained was so rich and broad that they surrounded the problem from all directions. There was no escape, he said.

Then there's the spectral side. This consists of objects from number theory; Langlands thought that these objects mark the frequency spectrum of the characteristic function. He proposed that there's a Fourier transform-like process that connects this wave side to the spectral side. "There's something magical about this," Ben-Zvi said. "It's not something we can predict in advance without any reason."

The Langlands program is seen as a “grand unified theory of mathematics,” says Edward Frenkel of the University of California, Berkeley. Yet even as mathematicians have worked to prove larger and larger parts of Langlands’s vision, they are well aware that it is incomplete. The relationship between waves and frequency labels doesn’t seem to fit in the geometric fields of this Rosetta Stone.

Here, we believe that dimensionless circular logarithms, in the most abstract form and with their unique “even-number asymmetry, random and non-random equilibrium exchange mechanism”, are constructed using third-party dimensionless circular logarithms to verify the “Geometric Langlands Program” and solve the problem of “the relationship between waves and frequency labels is expressed using dimensionless circular logarithms”.

$W=\{R\}^{K}=(1-\eta^2)^{(K=\pm1)}\cdot\{R_0\}=(1-\eta_0^2)^{(K=\pm1)}\cdot\{R_{00}\}^{K(Z\pm S\pm(Q=0,1,2,3)\pm(N=0,1,2)\pm(q=P\leftrightarrow Q)/t}$

The question is, on what grounds and basis can the "dimensionless circular logarithm" have the verification identity and qualification of a third-party construction set?

All the previous contents of this article, whether for "numerical analysis of classical mathematics or analysis of logical algebraic objects", prove that they can be well and self-consistently connected with dimensionless circular logarithms, reflecting the powerful charm of circular logarithms.

In other words, dimensionless circular logarithms are characterized by "no mathematical model, no specific element content", and unique "even symmetry and asymmetry, random and non-random zero-error equilibrium exchange mechanism", including the compactness of infinite circular logarithms, isomorphism, homology, and homotopy, as well as the direct proof of "authenticity" by random equilibrium exchange. They have the advantages of "infinite axioms" random self-proving "authenticity" , and are fair, authoritative, reliable, and feasible. With the most profound and basic dimensionless circular logarithms, the equilibrium exchange of any "object", any logical object, geometric space, number theory function, and group combination (multiplication combination and addition combination) is described qualitatively and quantitatively with zero error.

9.3.1. The first chapter: The construction of “functor” and the connection with circular logarithms

At present, the Langlands research is the best result of Dennis Gates-Gorry's team. How is the analysis proved and how is it related to the dimensionless circular logarithm?

Since Langlands’ work, mathematicians have had an idea of what the spectral side of the geometric Langlands correspondence looks like. The third column of Weil’s Rosetta Stone, geometry, concerns compact Riemann surfaces, including spheres, donuts, and porous donuts. For a given Riemann surface there is a corresponding object, called a fundamental group, which keeps track of the different forms of loops that can wrap around the surface.

The spectral side is the Arthur-Selberg trace formula applicable to general semisimple groups (or reduced groups). One side of this formula is called the spectral side, which is related to the representation of the group; the other side is called the geometric side, which is related to the orbital integral of the function.

The Selberg trace formula relates the spectrum of the Laplace operator on a compact surface of negative constant curvature to the length of periodic geodesics on the surface. For a torus, the Selberg trace formula is reduced to the Poisson summation formula. Mathematicians conjecture that the spectral side corresponding to the geometric Langlands should consist of a specific distillation form of the fundamental group, which is also called a representation of the fundamental group.

After solving other geometric Langlands problems, we are faced with the difficulty of "morphism" between two or more objects. The previous content (Chapter 8) has proved the unreliability of "morphism", which is transformed and supplemented by dimensionless circular logarithm.

Now we need to construct the geometric Langlands program conjecture functor LG from automorphic to spectral direction under the characteristic (circular logarithm is called characteristic modulus, median and antimean function) environment at the center point "0", and prove its equivalence, that is, we can establish a one-to-one correspondence between the two categories. If this equivalence can be proved, then the geometric Langlands program conjecture holds.

so-called automorphic function is the generalization of the concepts of Riemann function, circular function, hyperbolic function, elliptic function, etc. The study of automorphic functions and automorphic forms has a long history. As early as Gauss (GF), there was a preliminary concept, but he did not publish these results. It was not until the 1860s that they were rediscovered and studied.

The first person to systematically study and formulate a theory was Poincare (J.-)H. His work on the theory of automorphic functions of a single variable is considered epoch-making and has greatly promoted the development of analytic function theory.

Siegel (CL) creatively extended the study of single variables to multivariate cases, which is not a natural thing. This work has greatly promoted the development of multi-complex function theory. Gelfand (Gelfand, I.) and Selberg (Selberg, A.) studied automorphic functions and automorphic forms from the perspective of "unitary space" representation. This idea has greatly expanded, enriched and developed the theory of automorphic functions and automorphic forms.

In recent years, Langlands (R.) has further developed this idea. His results and ideas in this regard involve almost every branch of mathematics, especially number theory, algebraic geometry, non-commutative harmonic analysis, and the theory of automorphic functions and automorphic forms. To this day, the study of automorphic functions and automorphic forms has become one of the central topics of modern mathematics.

As mentioned, holomorphic functions are the central object of study in complex analysis; they are functions defined on open subsets of the complex plane C, with values in C, and are complex differentiable at every point. This is a much stronger condition than real differentiability, and it means that the function is infinitely differentiable and can be described by its Taylor series. The term analytic function is often used interchangeably with "holomorphic function", although the former has several other meanings. A function that is holomorphic over the entire complex plane is called an entire function. "Holomorphic at a point a" means not only that it is differentiable at a, but also that it is differentiable in some open neighborhood of the complex plane centered at a. Biholomorphic means a holomorphic function that has a holomorphic inverse .

In the previous chapters, the Goldbach conjecture (3), the Riemann zeta function (zero point) conjecture (4), and the Landau-Siegel zero point conjecture (5) were all solved using dimensionless circular logarithm analysis. The dimensionless circular logarithm controls the object of study through the property K=(+1,-1,±0). The three zero point conjectures of the Riemann function have been explained above, such as the Riemann function: the sphere (simply connected, additive combination) is controlled by (K=-1) and (Kw=+1), and the ring (multiply connected, subtractive combination) is controlled by (K=-1) and (Kw=+1). Riemann function: sphere (simply connected, additive combination) and, (K=-1) and (Kw=-1) are rings (multiply connected, subtractive combination) with conjugate reciprocal asymmetry, they can be "morphic" in category theory through the center point (K=±0), however, the two asymmetric category theory "objects" cannot be directly exchanged, how to make them "balanced exchange?". The typical asymmetric analysis calculation is "ternary complex analysis", to avoid repetition, (omitted).

For example, logical algebra based on circular logarithms deals with the form of " category theory, functors, etc. " .

(1) The circular logarithm unifies the “elliptic curve and modular form $\{R_0\}$” and links them with the perfect circle mode $\{R_{00}\}$. Their changes are represented by the path integral of the dimensionless circular logarithm power function, which accurately describes their change process with zero error qualitatively and quantitatively:

$(1-\eta^2)^{(K=\pm1)}=[(^{(3)}\sqrt{acb})/\{R_0\}\cdot\{R_0\}/\{R_{00}\}]^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots\text{整数})}$

$=(^{(S)}\sqrt{(abc\ldots S)}/\{R_{00}\}]^{K(Z\pm S\pm N\pm(q=0,1,2,3\ldots\text{整数})}=\{\pm0,\pm1\}$；

(2) Dimensionless circular logarithmic center zero point symmetry:

Perfect circle mode characteristics: Under the perfect circle condition, there exists an absolute average value $\{R_{00}\}$, which satisfies the synchronization between the change of the center point angle and the boundary curve (surface) function.

(3) The geometric Langlands program conjecture in circular logarithms is manifested as "isomorphism, homology, reciprocity, and equivalence. When the central zero point of the circular logarithm $(1-\eta_{[C]}^2)^{(K=\pm0)}=\{0,\pm1\}$ is called the "zero environment, transition point", and $(1-\eta^2)^{(K=\pm1)}\neq1$, it is called the "general environment, non-zero space", and can establish a one-to-one correspondence between two (or more) categories (inside, outside), satisfying the compactness (the construction of the same order of each term) requirements.

(4) Self-similarity and symmetry on Riemann surfaces: The various sequence terms of the Riemann function are uniformly written as the isomorphic circular logarithm $(1-\eta^2)^K$.

Among them: $(1-\eta^2)^{(K=+1)}$ is an elliptic function, $(1-\eta^2)^{(K=-1)}$ is a hyperbolic circular function, $(1-\eta^2)^{(K=\pm1)}$ is a Riemann circular function, and$(1-\eta^2)^{(K=\pm0)}$ is a transformation of the Riemann function space. In particular, the Riemann function value itself has self-similarity, but there is asymmetry and it cannot be directly exchanged.

(5) There is no mathematical proof that “functors” can morph, map, and exchange across regions. Circular logarithms prove that “element-object” is asymmetric and cannot be exchanged directly. It must be decomposed through balanced exchange combinations through the symmetry of the zero point at the center of the circular logarithm.

The so-called "self-similarity" refers to the similarity of the fine structure or properties between the whole and parts of a complex system , or the local part (local area) taken out of the whole can reflect the basic characteristics of the whole, that is, the invariance under geometric or nonlinear transformation: the properties are similar at different magnifications. It includes generalized fractals with self-similarity in geometric structure and form, process, information, function, property, energy, matter (component), time, space and other characteristics.

The mathematical expression of self-similarity is: f(λr)=λαf(r), or f(r)~rα. Among them, λ is called the scale factor , and α is called the scale index (fractal dimension), which describes the spatial properties of the structure. The function f(r) is a measure of the number, quantity and other properties of area, volume, mass, etc. They can all be converted into dimensionless circular logarithms to accurately describe the process of changes in their "objects" (external, internal).

In circular logarithms: the isomorphism and homology of $(1-\eta^2)^K$ indicate their self-similarity, and circular logarithms convert any asymmetric space of "objects" into asymmetric space. Under the condition of dimensionless circular logarithm central zero-point symmetry, it drives the balanced exchange of all numerical values of "objects", making up for the deficiency of converting fine structure asymmetry of category theory into symmetric exchange.

Sam Raskin and Joachim Fegerman proved that each characteristic layer replaces the characteristic function, and the fiber is a copy of G, and the circular logarithm is called the "characteristic module $\{\mathbf{D}_0\}$" (i.e., the positive and negative mean function). The introduction of the characteristic module solves the problem of not being disturbed by specific elements during the operation or proof process, ensuring zero-complete analysis and calculation.

As mentioned above, the entire function can always be expanded into a Taylor series at the origin , it converges in the entire plane (or in the entire three dimensions) , the entire function has the only isolated singular point at ∞ **, and its Laurent expansion at** ∞ has the same form as its Taylor expansion at the origin. When ∞ is a removable singular point of the entire function, the entire function can only be a constant, which is the famous Liouville theorem, usually expressed as " a bounded entire function must be a constant."

Liouville's theorem: If f(z) is holomorphic and bounded on the entire plane C, then f is a constant.

Proof: If $|f(z)|\le M$, when $z\in C$. Fix $a\in C$, make D(a,R), and from the Cauchy inequality we get $|f'(a)|\le M/R$. Let $R\to\infty$, and we get $f'(a)=0$. Since a is any point in C, $f'(z)=0$ holds for any $z\in C$, so f(z) is a constant on C. The key point here is: "constant is not equal to integer property". If we use a constant as the proof of integer property, it will not be convincing enough.

In mathematics, we often encounter multi-element multiplication M=(a,b,c,…), where (a,b,c,…) is a combination of different forms of non-repeating elements. If: R is a fixed value (combination of multiplication), if e=2.71828… is the denominator, $|f'(a)|\le M/R$ cannot be expanded into an entire function, and is expressed as a Taylor series "remainder". Whether the "remainder" is eliminated or not determines the stability of the functor.

The first article studies the proof of "equivalence", that is, the one-to-one correspondence between two categories. If this "equivalence" can be proved, then the geometric Langlands program conjecture holds. It is assumed that without integer expansion and central zero point instability, this "one-to-one correspondence" is difficult to expand.

The automorphic functions and automorphic forms can be studied from the perspective of "unitary space". "Unitary space" can also be converted into a unified description of circular logarithms, as can be seen in Chapter 7: Determinant-Euclidean space-Unitary space-Symphonic space and dimensionless circular logarithm connection.

The Poincare Sheaf conjecture is similar to the Fourier transform of a sine wave, which can be converted to a uniform circular logarithmic form.

In other words, the first article is equivalent to the proof of circular logarithms, which verifies that the proof of the geometric Langlands program conjecture on the integer problem may be flawed and does not solve the stability problem of its space. This is also the biggest flaw in category theory. The proof of equivalence, isomorphism, homology, integerness, and reciprocity of circular logarithms ensures the reliability, stability, and zero error of space exchange.

9.3.2. The second paper studies the interaction between Kac-Moody positioning and global and circular logarithmic connection

The article studies the interaction between Kac-Moody localization and the global, and proves that the functor is indeed an equivalent functor under certain conditions, thus advancing the geometric Langlands program conjecture.

A Kac–Moody algebra is a Lie algebra , usually infinite-dimensional, defined by a generalized root system (as Victor Kac calls it). A Cartan subalgebra of a Kac–Moody algebra. If g is a monad of a Kac–Moody algebra such that **ω** is a monad,

Then g is called weighted **ω** . We can decompose a Kac–Moody algebra into its power space, then the power of the Cartan subalgebra is zero, the power of ei is α*i, and the power of fi is −α*i. If the Lie bracket of a two-power eigenvector is nonzero, then its power is the sum of two powers. (If) Then a condition means that α*i are all simple roots.

Then given a generalized Cartan matrix (that is, removing the positive definiteness required by the Cartan matrix), it also corresponds to a set of variables and Serre relations, and the Lie algebra generated by this is called the Kac-Moody algebra corresponding to this generalized Cartan matrix.

Its structure and representation theory have many similarities with semisimple Lie algebras. For example, its root system, Weyl group, weight lattice, and category can be defined. Its "integrable" irreducible representation is also determined by its highest power, and there is also a corresponding Weyl characteristic formula. (Of course, there are also differences, for example, its corresponding category is not Artinian) . Using this theorem, we can get a simple proof of the fundamental theorem of algebra.

When: point ∞ is the nth-order pole of an entire function, the entire function is an nth-order polynomial, that is, its Taylor expansion (or Laurent expansion) has a finite number of polynomials.

When: ∞ point is the essential singularity of the entire function, the Taylor expansion of this entire function must have infinite multiple terms. This type of entire function is called a transcendental entire function.

From the fundamental theorem of algebra, we know that an nth-degree polynomial must have n zeros (that is, roots). It can always be decomposed into the product of n first-order factors. For transcendental functions, it may have infinite zeros. For example, sinπz has all integers as its zero set.

Generally speaking, a transcendental entire function without zeros can always be expressed in the form of eg(z), where g(z) is also an entire function, and a transcendental entire function f(z) with infinite zeros also has a factorization formula : where g(z) is an entire function, 0 is the m-th order zero, zk is the set of non-zero zeros, and gk is a polynomial. This is the Weierstrass factorization theorem (the decomposition theorem means that any entire function f(z) can be decomposed into an infinite product form) .

Transcendental functions have another important property: if f(z) is a transcendental function, then for any complex number A (including A= ∞), there exists a sequence of points {zk} such that zk ∞ (k ∞) and f(zk)A. The Kac–Moody algebra \mathfrak is generated by the symbols e_i , f_i (i=1,..,n) and the space \mathfrak.

The limitations here are: it is only limited to the symmetry analysis of binary duality, and does not solve the asymmetry analysis of binary duality and the asymmetry analysis of binary duality, which can be converted into ternary complex analysis.

Circular logarithmic expansion of the Kac–Moody algebra \mathfrak. Generated by the symbols $(1-\eta^2)^K$_jik , f_jik(jik=1,..,n) and three-dimensional space \mathfrak.

As mentioned above, Lie algebra : Let g be a Lie algebra on the field F, and V be a vector space on F. A homomorphism ρ of the Lie algebra: g→g{(V) is called a linear representation of g on V, or simply a representation. Let (ρ, V) represent the representation ρ of g on V, and V is called the representation space of ρ. When dimV=n, take a basis of V, and regard g{(V) as the same as g{(n,F), so we get a Lie algebra homomorphism ρ: g→g{(n,F), still denoted as ρ, called a matrix representation of g. If a representation ρ of g is injective, then (ρ,V) is called a faithful representation. There is the Adorno-Iwasawa theorem: every finite-dimensional Lie algebra on the field F has a faithful representation. It can also be converted into a dimensionless circular logarithm.

negative power terms of zz_1 in the Laurent series , then the isolated singular point z_1 is called the essential singular point of F(z). It is called the symmetric equilibrium exchange relationship between the outside of each level (sub-term positive and negative characteristic modes) corresponding to the circular logarithmic center zero line (critical line) (1-η C 2) (K\=±1)(Kw=±0) ={0,1}, and the symmetric equilibrium point exchange relationship between the inside of each level (sub-term positive and negative characteristic modes) corresponding to the circular logarithmic center zero point (critical point) $(1-\eta_C{}^2)^{(K_w=\pm 0)}$ {0}.

For example: The function $e^{\wedge(1/z)}$ has 0 as its essential singular point. Because the function expansion is:
$e^{\wedge(1/z)}=1+z^{\wedge-1}+(1/2!)*z^{\wedge-2}+\ldots+(1/n!)*z^{\wedge-n}$

The circular logarithmic function $e^{\wedge(1/z)}$ has 0 as its essential singular point. Because the expansion of the function is:
$(1-\eta^2)^K=\{e^{\wedge(1/z)}/\mathbf{D}_0\}=1+z^{\wedge-1}/\{\mathbf{D}_0\}^{\wedge+1}+(1/2!)*z^{\wedge-2}/\{\mathbf{D}_0\}^{\wedge+2}+\ldots+(1/n!)*z^{\wedge-n}//\{\mathbf{D}_0\}^{\wedge+n}$
Among them: $\{\mathbf{D}_0\}^{\wedge+1}$, $\{\mathbf{D}_0\}^{\wedge+2}$ ... are the average values of any known values, reflecting the equivalence of the circular logarithm and the Euler logarithm.

(1) Matrices can be transformed into each other through basic row and column operations, but due to the existence of asymmetries, balanced exchanges must be driven by the zero point at the center of the circular logarithm.

(2) Two matrices are equivalent if and only if they have the same rank. "Equivalence" is asymmetric and must be driven by balanced exchange through the zero point of the circular logarithm center.

The second article, Kac-Moody, on the interaction between localization and globalization, does not prove that the functor cannot be an equivalent functor under certain conditions (symmetry and asymmetry). In other words, it has not yet fully proved the computational time of the isomorphism between localization and globalization.

As mentioned above, different types of limits determine the type of isolated singularity. In fact, the central zero of the circular logarithm can be solved by algebraic simultaneous equations.

"Circular logarithmic center zero point $(1-\eta_{[C]}{}^2)^K=0$, corresponding to each level (sub-item positive and negative characteristic mode). $(1-\eta_{[C]}{}^2)^{KK(n)}$ is controlled by the center zero point,
$(1-\eta^2)^{K(n)}=\{e^{\wedge(1/z)}/\mathbf{D}_0\}^{K(n)}=\{0.1\}$;
It is manifested as: (1) the external center point changes synchronously with the surrounding subset points.
(2) The center point controls the independent change relationship of the surrounding subset points.

The interaction between Kac-Moody positioning and the global situation in the paper may not be complete, and circular logarithm is needed to provide additional completeness.

9.3.3. The third paper talks about the interaction between Kac-Moody positioning and global localization technology and circular logarithm connection

The third paper says that through Kac-Moody localization and global interaction localization techniques, not only the equivalence results are extended to more general cases, but also the key insights for understanding the compatibility of Langlands program functors and constant term functors are obtained.

At the same time, the compatibility of the geometric Langlands program conjecture under reducible spectral parameters is proved, which lays the foundation for further proving the Langlands program conjecture under irreducible spectral parameters.

As mentioned above, irreducible polynomials: an algebraic expression consisting of the addition of several monomials is called a polynomial (if there is subtraction: subtracting a number is equal to adding its opposite). Each monomial in a polynomial is called a term of the polynomial, and the highest term among these monomials is the degree of the polynomial. Irreducible polynomials are an important type of polynomial.

The Kac-Moody algebra can be considered as a generalization of the Lie algebra. It is defined by a matrix (generalized Cartan matrix). This matrix includes some information about the roots of this algebra.

Under the current framework, Kac-Moody algebra can be roughly divided into three categories:
1. finite type (semisimple lie algebra) ; 2. affine type (affine lie algebra) ; 3. indefinite type.

From this classification, we can see that the Kac-Moody algebra is indeed a generalization of the Lie algebra to a certain extent.

Among them: reducible polynomials are polynomials that can be written as the product of two polynomials of lower degree. Irreducible polynomials are polynomials that cannot be written as the product of two polynomials of lower degree.

When: A polynomial with rational coefficients cannot be decomposed into the product of two rational system sensitive polynomials with a degree greater than zero, it is called an "irreducible polynomial" within the range of rational numbers. Irreducible polynomial identification method :

For example: Eisenstein criterion: Let $f(x)=a_0+a_1x+...+a_nx^n$ be a polynomial with integer coefficients . If there is a prime number P such that P does not divide a_n, but divides other $a_i(i=0,1,...,n-1)$; p^2 does not divide a_0, then f(x) is irreducible in the field of rational numbers, which is called "asymmetry".

For example, Hilbert's irreducibility theorem is a method to determine the irreducibility of multivariate polynomials.

Suppose : $f(x_1, x_2, …, x_n)$ is an n-variable polynomial over the number field P. If f is irreducible over the number field P, then for any m (0<m<n), there must exist $\alpha_{m+1}, …, \alpha_n \in P$, so that$f(x_1, x_2, …, x_m, \alpha_{m+1}, …, \alpha_n)$ is an m-variable irreducible polynomial over the number field P. In other words, the polynomial has an asymmetric expansion. If unavoidable "remainders" are generated, the dimensionless circular logarithm with the "mean function" of the "element-object" set as the base can ensure the integer and zero-error expansion of all "element-object" sets.

Circular logarithms consider irreducible polynomials to be asymmetric polynomials, which can be converted into relative symmetry through comparison. That is to say, circular logarithms can be used to unworry about completing the compatibility and key insights of the geometric Langlands program functor and the constant term functor, which are "independent of mathematical models and have no specific curve content . "

9.3.4. The fourth paper proves that the Ambibexterity theorem is connected with circular logarithms

This Ambibexterity theorem shows that the left adjoint and right adjoint of LG-cusp (which can be seen as the behavior of LG on a smaller category) are isomorphic. This is an important step in proving that LG is an equivalence functor. Here, there may be no conditions to prove how the "left adjoint and right adjoint" of binary numbers are isomorphic and can be converted to each other. In other words, "isomorphism" does not necessarily mean "commutative".

Circular logarithms clearly prove that: under the control of circular logarithms, "left adjoint and right adjoint" have the same circular logarithmic factors, and are not only isomorphic, but can also be randomly and non-randomly exchanged through the same circular logarithm.

Apply circular logarithm to deal with the asymmetry of "left companion (A) and right companion (B)",

(1) “Left adjoint (A) and right adjoint (B)” have symmetrical distribution:

Assume that there are isomorphic product combinations of binary numbers: A·B, with an average value of $\mathbf{D}_0 =(1/2)(A+B)$,

$(1-\eta^2)^K=({}^{(2)}\sqrt{A\cdot B})/D_0$,

$A=(1-\eta^2)^{(K=+1)}\cdot\mathbf{D}_0$; $B=(1-\eta^2)^{(K=-1)}\cdot\mathbf{D}_0$;

The isomorphism of the left adjoint (A) and the right adjoint (B) and the random and non-random commutativity of the cocircular logarithmic factors are shown.

$(1-\eta^2)^{(K=+1)}=A/\mathbf{D}_0$; $(1-\eta^2)^{(K=-1)}=B/\mathbf{D}_0$;

'infinity axiom' of the 'evenness' of circular logarithms leads to the 'left adjoint (A) and the right adjoint (B)':

$(1-\eta^2)^{(K=+1)} \leftrightarrow (1-\eta^2)^{(K=\pm 0)} \leftrightarrow (1-\eta^2)^{(K=-1)}$:

(2) “Left adjoint (A) and right adjoint (B)” have asymmetric distribution:
Assume that there are isomorphic product combinations of ternions : (A · B)· C,

of the characteristic modes are: $\mathbf{D}_0{}^{(1)}=(1/3)(A+B+C)$, $\mathbf{D}_0{}^{(2)}=(1/3)(AB+BC+CA)$,

Number of isomorphic circles: $(1-\eta^2)^K=[(^{(3)}\sqrt{ABC})/\mathbf{D}_0]^{K(3,2,1)}$

Symmetry of the circular logarithmic center zero point:

$(1-\eta_{[C]}{}^2)^K=(1-\eta_A{}^2)^{(K=+1)}+(1-\eta_B{}^2)^{(K=+1)}+(1-\eta_C{}^2)^{(K=-1)}=0$;

$(1-\eta_{[C]}{}^2)^K=ik(1-\eta_{AB}{}^2)^{(K=-1)}+ik(1-\eta_{BC}{}^2)^{(K=+1)}+(1-\eta_{CA}{}^2)^{(K=-1)}=0$;

Circular logarithm analysis of three roots (probability) complex analysis:

$JA=(1-\eta_A{}^2)^{(K=+1)}\cdot\mathbf{D}_0{}^{(1)}$; $iB=(1-\eta_B{}^2)^{(K=-1)}\cdot\mathbf{D}_0{}^{(1)}$; $KC=(1-\eta_C{}^2)^{(K=-1)}\cdot\mathbf{D}_0{}^{(1)}$;

Circular logarithm analysis of three roots (topology) complex analysis:

$JiAB=(1-\eta_C{}^2)^{(K=+1)}\cdot\mathbf{D}_0{}^{(2)}$; $iK\,BC=(1-\eta_A{}^2)^{(K=-1)}\cdot\mathbf{D}_0{}^{(2)}$; $KjCA=(1-\eta_B{}^2)^{(K=-1)}\cdot\mathbf{D}_0{}^{(2)}$;

Among them: $JiAB=(1-\eta_C{}^2)^{(K=+1)}=(1-\eta_A{}^2)^{(K=-1)}+(1-\eta_B{}^2)^{(K=-1)}$;

$iKBC=(1-\eta_A{}^2)^{(K=-1)}=(1-\eta_B{}^2)^{(K=+1)}+(1-\eta_C{}^2)^{(K=+1)}$;

$KjCA=(1-\eta_B{}^2)^{(K=-1)}=(1-\eta_A{}^2)^{(K=+1)}+(1-\eta_B{}^2)^{(K=+1)}$;

$Ji\,AB=(1-th_C{}^2)^{(K=+1)}=(1-th_A{}^2)^{(K=-1)}+(1-th_B{}^2)^{(K=-1)}$;

$iK\,BC=(1-th_A{}^2)^{(K=-1)}=(1-th_B{}^2)^{(K=+1)}+(1-th_C{}^2)^{(K=+1)}$;

$Kj\,CA=(1-n_B{}^2)^{(K=-1)}=(1-n_A{}^2)^{(K=+1)}+(1-n_B{}^2)^{(K=+1)}$;

The isomorphism of the left adjoint (A) and the right adjoint (B) and the random and non-random commutativity of the cocircular logarithmic factors are shown.

random and non-random exchange of circular logarithms leads to the "symmetric asymmetric" balanced exchange combination of "left adjoint (A) and right adjoint (B)" :

$(1-\eta_{[ABC]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{ABC}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{ABC}{}^2)^{(K=-1)}$:

$JiAB=(1-\eta_{AB}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^{2(K=\pm0)})\leftrightarrow(1-\eta_C{}^2)^{(K=+1)}=KC$;

$iKBC=(1-\eta_{BC}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^{2(K=\pm0)})\leftrightarrow(1-\eta_A{}^2)^{(K=+1)}=JA$;

$KjCA=(1-\eta_{CA}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^{2(K=\pm0)})\leftrightarrow(1-\eta_B{}^2)^{(K=+1)}=iB$;

Among them: In the three-dimensional rectangular coordinate system, the normal line of the binary plane (topology) projection and the axis (probability) projection have a yoke asymmetry, and become symmetric through the zero point of the circular logarithm center, and the circular logarithm factor symmetry is random Drives balanced exchange combination decomposition of {A, B, C} or {AB, BC, AB} elements.

In particular, the "asymmetry" of the circular logarithm for the "left adjoint (A) and the right adjoint (B)" is exchanged and applied to the "circular logarithm distribution theorem of prime numbers".

Circular Logarithm Distribution Theorem of Prime Numbers" is the expansion of the distribution of symmetry and asymmetry (including twin primes) in the "left adjoint (A) and right adjoint (B)" of the prime numbers {1 , 3 , (5 = 0) , 7 , 9} with the circular logarithm center zero $(1-\eta_{[C]}{}^2)^K=0$ corresponding to the natural number (**5**). It truly realizes the exchange of "symmetry and asymmetry" between "left adjoint (A) and right adjoint (B)". It connects the original geometry-algebra with number theory into a compact body.

9.3.5. Extension of the Fifth Paper and Connection with Circular Logarithms

The author of this paper introduced the previous conclusion and generalized it, which put an end to the long-lasting proof. This achievement should be affirmed. However, there is still a certain distance between the geometric Langlands program and the complete Langlands program, and perhaps a more abstract infinite circular logarithm construction set proof is needed. In the process of learning and verifying the geometric Langlands program, it is believed that the dimensionless circular logarithm can be connected with the dimensionless circular logarithm to give play to the unique "even symmetry and asymmetry, random and non-random balance exchange mechanism" and "infinite axiomatization" of the dimensionless construction.

9.4. Dimensionless circular logarithm to prove the Langlands program

9.4.1. Dimensionless circular logarithm construction set Proof of the Langlands Program

Through the proof and identification of circular logarithms, the geometric Langlands program was discovered, the dimensionless circular logarithm theory and tools were provided, and a true proof of completeness was obtained.

The proof of circular logarithms can be expanded to the entire Langlands Program, unifying "algebra-geometry-number theory (arithmetic)-group theory" into a holistic analysis with a simple basic algebra. In this way, circular logarithms, with "no mathematical model and no specific elements (numbers)", successfully unify algebra-geometry-arithmetic (number theory)-group theory with a simple classical formula.

$W=(1-\eta^2)^K W_0$: $(1-\eta^2)^K=\{\pm0,\pm1\}$;

Balanced exchange of dimensionless circular logarithms:

$W^{(K=+1)}=[(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta_C{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=-1)}]W_0=W^{(K=-1)}$

Where: W: "object", W_0: object characteristic modulus, $(1-\eta^2)^K$ dimensionless circular logarithm and property attributes.

In other words, the original Langlands program was a conjecture that the relationship and changes between all "objects" (algebra, geometry, number theory (arithmetic) and group combinatorial theory) could be described in a unified way using an elementary algebraic abstraction. A simple dimensionless circular logarithm formula called "dimensionless circular logarithm construction" was found to be analytically solved in the range of {0,1}.

The predecessor of the foundation of the "infinite circular logarithm construction set":$(1-\eta^2)^K$, is the expansion and application of the formula$(1-\eta^2)^K=(1-\eta)\cdot(1+\eta)$=(geometric mean/arithmetic mean) that often appears in the "Mathematical Handbook". The introduction of "infinite axiom random balance exchange" replaces the value of hundreds of years of complex mathematical analysis. It also proves that any "objects" such as numbers, values, functions, groups, etc. have asymmetry and cannot be directly balanced and exchanged. Driven by the unique dimensionless circular logarithm center zero point, the "object" can achieve conjugate and mutually inverse symmetric even-numbered balance exchange, which can be analyzed by analysis and combination.

9.4.2. Infinity Axiom and Dimensionless Circular Logarithm Construction

At present, mathematics emphasizes "mathematical logic", which includes proof theory, recursion theory, model theory, and axiomatic set theory. This was originally a problem for philosophers, but Hilbert introduced proofs into the mathematical system, and "meta-mathematics" or "proof" became "mathematical logic".

There is proof theory: "Axiom of Choice" has many equivalent forms. The following is a simpler description: Axiom of Choice Let C be a set consisting of non-empty sets (i.e. continuity). Then, we can select an element from each set in C and pair it with the set it is in to form an ordered pair to form a new set. The core question is whether "C" (such as "the set of natural numbers N and the set of real numbers R") exists? Cantor said "no", Gödel said "yes", but there is no proof. Mathematicians have been arguing for nearly 100 years. Many century-old mathematical problems have been stuck, and mathematics has not made substantial progress. This is a key mathematical foundation issue, which means that mathematics has once again encountered the fourth mathematical crisis.

Recursion theory: A recursive function is a type of number theory function, and its domain and range are both natural number sets. It is different from other number theory functions only because of the different function construction methods. When the domain is extended to not only natural number sets, it is the so-called generalized recursive function. In category theory, it refers to "object". The functions studied in recursion theory mainly include primitive functions, original recursive functions, recursive semi-functions and recursive full functions or general recursive functions, mimetic functions, etc. Recursion theory further studies the complexity of undecidable, that is, non-recursive, recursively enumerable sets.

In 1944, EL Post proposed the concept of unsolvability. He also gave a method for constructing relative computability. This led people to compare unsolvability and study the algebraic structure of unsolvability. In this regard, there are many powerful research methods such as finite damage priority method and infinite damage priority method, and many interesting research results have emerged. For computable recursive sets, its computational complexity can also be studied. Considering the time and space of calculation on the Turing machine, we can get the two complexities of the length of the calculation time and the amount of space occupied by the calculation. The study of computational complexity has a great influence and role in the development of computer science.

In 1936, Church and AM Turing independently proposed an argument that all computable functions are general recursive functions, which closely combined the theory of recursive functions with the theory of feasibility, thus greatly expanding the scope of application of recursive functions (see feasibility and general recursion). The progress of recursive functions themselves mainly lies in the generalization of the domain of definition, thus obtaining recursive word functions, a-recursive functions, recursive generalizations, etc. Since recursive functions can be equivalent to function classes with such different properties, Church and Turing simultaneously proposed that computable function classes are just recursive functions, and computable semi- and full functions are recursive semi- and full functions respectively. Their argument has now been unanimously agreed upon by the mathematical logic community and is regarded as a foundation of feasibility theory.

Model theory: The main contents include: compactness theorem, elliptical form theorem, endosomal theorem, complete theory and model complete theory, elementary bonds, cross products, model theory forcing method, he and model, etc. Some examples of the application of model theory methods to classical mathematics are also included.

For example, the Standard Model of particle physics is a set of theories that describe the three fundamental forces, strong force, weak force and electromagnetic force, and the fundamental particles that make up all matter. It belongs to the category of quantum field theory and is compatible with quantum mechanics and special relativity.

Model theory In probability theory, the characteristic function (abbreviation: ch.f, plural form: ch.f's) of any random variable completely defines its probability distribution.

Model theory In topology, the characteristic function of any random variable is called "object" in category theory and "element" in set theory, which completely defines the "morphism, mapping" process of its topological deformation.

In the dimensionless circle, the number is called "characteristic mode" (referring to the mean function of various combinations of "objects, elements, and spaces"), which reflects the (probabilistic, topological, and hypertopological) synthesis of their common characteristics. Among them: "characteristic mode" contains the relationship between the "external (discrete) and internal (continuous)" of the "object, element, and space" unit body.

Axiomatic set theory: It is the study of reconstructing (naive) set theory with axiomatic methods, as well as the study of the metamathematics of set theory and new axioms of set theory. In the 1870s, German mathematician G. Cantor gave a relatively complete set theory and studied the ordinal and cardinality of infinite sets. In the early 20th century, Russell's paradox pointed out the contradiction of Cantor's set theory. In order to overcome the paradox, people tried to axiomatize set theory and restrict sets with axioms.

So far, these axioms still have "incompleteness and insufficiency", which is manifested in the defect that one axiom cannot contain another axiom. So what is the axiom of completeness? Some mathematicians have proposed that "the axiom of completeness must contain all the axioms to which it is applied, called the 'axiom of infinity'", so where is the specific manifestation of the axiom of infinity?

The Chinese circular logarithm team discovered the "dimensionless circular logarithm of an infinite set of constructions" and the "infinite axiom mechanism of even symmetry and asymmetry, randomness and non-randomness of balanced exchange" that is unique to the dimensionless circular logarithm construction. In other words, the axiom of integrity expresses the mechanism of constraining "balance and exchange", and both are indispensable. This is the reason for the current axiomatization of "incompleteness".

In this way, the "infinite axiom mechanism of balanced exchange of even symmetry and asymmetry, randomness and non-randomness" randomly performs "balanced exchange" to prove its "truth" in the "irrelevant mathematical model and no specific element (mass) content" of the dimensionless circular logarithm. It plays the role of the "infinite axiom" unique to dimensionless, not only solving the verification of "itself", but also verifying other object systems. This is the true axiomatic function of integrity and sufficiency. Under the condition of the central zero-point symmetry of the even terms of the dimensionless circular logarithm, it drives the reliability and feasibility of balanced exchange between all levels (external and internal) of the "object", and gives play to the superiority of "dimensionless construction" in truthfulness, fairness, authority, etc. In other words, dimensionless has solved the fourth mathematical crisis and opened up another new mathematical era.

10. The development of mathematical history and mathematical crisis

The history of the development of mathematics records human understanding of nature, which was gradually formed by describing numbers and patterns. Many mathematicians, scientists, engineers, and educators emerged during this period. Their hard work has left rich achievements for human society, reflecting the human spirit of constantly pursuing the unknown world.

The development of mathematics has gone through five periods and four mathematical crises:

(1) The embryonic period of mathematics: from 2000 BC to 600 BC

The achievements of ancient Chinese mathematics include the "Book of Changes", "Nine Chapters on the Mathematical Classic" and "Tao Te Ching", which produced a large number of mathematicians and scientists and became the pinnacle of science and mathematics in the world at that time.

In 1000 BC, the counting method of Sun Zi Suan Jing in the Shang Dynasty of China had a "decimal system", which pointed out that numbers have two connotations: "numerical value and positional value", and clearly pointed out that "in any calculation method, you must first know its position ". This "position" refers to "positional value". It pointed out that the method of mathematical exploration should start with "positional value".

In 600 BC, the ancient Chinese mathematics book Tao Te Ching recorded that "Tao gave birth to one, one gave birth to two, two gave birth to three, and three gave birth to all things." It pointed out the direction of mathematical development. It pointed out that "three is more difficult than two" and "three gives birth to all things" is the most basic.

in 600 BC became the highest mathematical achievement of Greece. The Elements summarized the geometric knowledge of previous scholars such as Thales, Pythagoras and the Sophists, established definitions and axioms, and studied the properties of various geometric figures. In this work, Euclid established a set of geometric argumentation methods starting from axioms and definitions to prove propositions and obtain theorems, forming a rigorous logical system - geometry.

(2) Elementary mathematics period: 600 BC to 17th century AD

Mathematics in its infancy The development of mathematics throughout this period was centered on the theme of "integers". Representative figures included Pythagoras' theory of integers. The discovery of the irrational number $\sqrt{2}$ led to the " **first mathematical crisis** ".

In 370 BC, Eudoxus proposed the separation of "number and quantity", which was more than 200 years later than the "number and position" in Yang Xiong's "Tai Xuan Jing" in China. Irrational numbers overturned the Pythagoras theory and expanded new mathematical concepts.

(3) Variable mathematics period: from the 17th century to the 1820s

Since the emergence of calculus in European countries, the concept of "infinitesimal" has been vague, which has hindered the development of calculus. The " **Second Mathematical Crisis** " has emerged. Cauchy proposed the "limit" theory, which is essentially "variable" and "zero" as the limit, and established the basic principles of calculus and the strict theoretical foundation of calculus.

(4) Modern mathematics period: from the 1820s to the 1940s

Since the 17th century, the development of mathematics in Western countries has directly established "numerical analysis" without ignoring the role of "place value", and has continued to "logical analysis" based on set theory. Both limit theory and set theory are based on real numbers, and a set of axioms of set theory were proposed. The "Rosseau paradox" appeared, and the " **third mathematical crisis** " appeared. Frankl proposed the government axiom system and 8 axioms to solve the crisis caused by the "Rosseau paradox".

The ZF axiom system of set theory has the axiom of choice: also called the Zermelo axiom, which states that for any pairwise disjoint family of sets, there exists a set C such that for every set X in the given family, the intersection of X and C contains exactly one element.

In the 1920s, based on the continuous development of set theory, the great mathematician Hilbert proposed a grand plan to mathematicians around the world, which was to establish a set of axiom systems so that all mathematical propositions can be inferred to be true or false in a finite number of steps in principle. This is called "the completeness of the axiom system." Hilbert also required the axiom system to maintain "independence" (that is, all axioms are independent of each other, making the axiom system as simple as possible) and "non-contradiction" (that is, compatibility, no contradictions can be derived from the axiom system).

It is worth pointing out that the axioms Hilbert referred to are not what we usually think of as axioms, but rather they have been thoroughly formalized. They exist in a branch called metamathematics. The relationship between metamathematics and general mathematical theory is a bit like the relationship between application programs and ordinary files in a computer.

In 1931, Gödel proposed the "Incompleteness Theorem". This theory has brought about an epoch-making change in the basic research of mathematics and is a very important milestone in the history of modern logic. This theorem, together with Tarski's theory of truth in formal languages, Turing machines and decision problems, are praised as the three major achievements of modern logic science in philosophy. Gödel proved that any formal system, as long as it includes a simple description of elementary number theory and is self-consistent, must contain propositions that cannot be proved true or false by the methods allowed in the system, disrupting the "Hilbert Plan".

The three previous mathematical crises not only challenged the mathematical concepts of the time, but also promoted the development and improvement of mathematical theories.

(5) Modern mathematics period: from the 1840s to the early 21st century

Set theory is based on discrete symmetry, which is expressed as "the sum of itself divided by itself must be 1". Based on the Zermelo axiom, Cantor proposed whether there is another set C constructed between the real number set R and the natural number set N? Or the third infinite constructed set.

Cantor said "no", Gödel-Cohen said "yes". Neither has proved it.

After more than 40 years of exploration, the circular logarithm team led by Chinese scholar Wang Yiping discovered for the first time that there is a new infinite construction set "dimensionless circular logarithms" between the real number set R and the natural number set N, and a "balanced exchange mechanism of even symmetry and asymmetry, randomness and non-randomness" unique to the infinite construction set, which has the "truth of the axiom of infinity."

The dimensionless circular logarithm axiom hypothesis is proposed: "The group combination elements themselves are not necessarily 1 except for themselves and the circular logarithm center zero point symmetry can be balanced exchange". Using the dimensionless circular logarithm as the third-party construction set identity, it is verified that the traditional mathematical system referred to by Gödel has "inadequacy and non-direct exchangeability" in addition to "incompleteness". The balanced exchange rule is established:

Without changing the proposition, the characteristic modulus, or the isomorphic circular logarithm, the true proposition is balanced and exchanged into its inverse proposition by simply changing the properties of the circular logarithmic power function in the opposite direction.

$$(ABC\ldots S)^{(K=-1)}=(1-\eta_{[xyz]}{}^{2})^{(K=-1)}\cdot\{D_0\}^{(K=-1)(S)};$$
$$=[(1-\eta_{[xyz]}{}^{2})^{(K=-1)}\leftrightarrow(1-\eta_{[xyz]}{}^{2})^{(K=\pm 0)}]\leftrightarrow[(1-\eta_{[xyz]}{}^{2})^{(K=+1)}]\cdot\{D_0\}^{(3)}$$
$$\leftrightarrow(1-\eta_{[xyz]}{}^{2})^{(K=-1)}\cdot\{D_0\}^{(K=+1)(S)}=(ABC\ldots S)^{(K=+1)(S)};$$

The symmetry of the evenness of the dimensionless circular logarithm of the central zero line (critical line) adapts to the " group combination " series .

$(1-\eta_{[C]}{}^2)^{(K=\pm1)}=\sum(1-\eta_{[xyz]}{}^2)^{(K=+1)}+\sum(1-\eta_{[xyz]}{}^2)^{(K=-1)}=\{1\}$;

Symmetry of the evenness of the central zero (critical point) of the dimensionless circular logarithm: adaptation to each point in the " group combination " series ".

$$(\eta_{[C]})^K=\sum(+\eta_{[xyz]}{}^2)^K+\sum(1-\eta_{[xyz]}{}^2)^K=\{0\};$$

That is to say, in the "mathematical analysis and logical analysis" of traditional mathematics, if it belongs to the "dimensionless system", its "mathematical elements-objects" have asymmetry and insufficiency. For example, the balance of numerical analysis cannot be exchanged; the morphism and mapping of logical analysis cannot be balanced, and both are indispensable. It cannot be directly balanced and exchanged. Only by converting to dimensionless circular logarithms, under the condition of the zero-point symmetry of the circular logarithm center, can the "mathematical elements-objects" of the "dimensional" mathematical model be passively balanced and exchanged. That is, the "discrete-continuous, completeness and compatibility, and balanced exchangeability" of "macro-micro" mathematics constitute an integrated analysis. Once the circular logarithm is revoked, the original asymmetry and non-exchangeability are restored.

To this end, the mathematical system of Gödel's two theorems is defined as a "dimensional construction set" system, and the corresponding "dimensionless construction set" system. The multidisciplinary fields of "geometry-algebra-number theory (arithmetic)-group combinatorial theory" are unified in {±0,±1} with a simple circular logarithm formula, and the "random and non-random equilibrium exchange mechanism of dimensionless circular logarithms" has led to the solution of a large number of century-old mathematical problems. And as a third party of dimensionless construction sets, the new mathematical system has been re-verified, reshaped, and rebuilt, opening a new "dimensionless" mathematical historical period.

11. Discussion: The connection between dimensionless structure and the universe

Dimensionless construction reduces all traditional mathematics to a simple formula. Since "element-object" cannot be directly exchanged, the unique "infinite axiom" random balanced exchange combination (decomposition) drives the balanced exchange combination (decomposition) of "element-object". Similarly, similar "dimensionless construction" operations that are "irrelevant to mathematical models and have no mass content" also exist in nature. It has a wide range of connections with nature.

11.1: The connection between dimensionless construction and philosophy

Philosophy has a famous logical theorem: "symmetric logic" . Symmetric logic takes the law of symmetry as the basic law of thinking . It is the logic of symmetry between thinking content and thinking form, thinking subject and thinking object, scientific essence and objective essence HYPERLINK"https://baike.so.com/doc/6275899-6489332.html"\t "https://baike.so.com/doc/_blank" .

Dimensionless circular logarithm discovered that symmetric logic (called evenness) contains a balanced exchange mechanism of symmetry and asymmetry. The symmetric logic of existing philosophy often emphasizes the symmetry of "evenness", but does not find the asymmetry of "evenness", and has not found the balance and exchange mechanism of "converting the asymmetry of evenness into symmetry" in dimensionless circular logarithm. If "symmetry and asymmetry of evenness" and "converting asymmetry into symmetry" of evenness are found in "symmetric logic", then the "symmetric logic" of dialectical logic is the unity of concrete logic and abstract logic, which is the highest stage of complete and rigorous logical development.

11.2: The connection between dimensionless structure and the macroscopic universe

The famous "dark matter, dark energy, and black holes" in macroscopic physics can explain the transformation of dimensionless "even" symmetry and asymmetry systems into random and non-random equilibrium exchange combination (decomposition) systems with central zero-point symmetry of the "infinite axiom". There are two states of dimensionless circular logarithm corresponding transformation :

(1) Probabilistic "dark mass" (2) Topological "dark energy", a "black hole (topological critical line, probabilistic critical point)" composed of central zero points at various levels corresponding to the dimensionless circular logarithm, under the condition of dimensionless " even number " central zero point symmetry, drives the balance (parity balance) and exchange (parity evolution) of the central and reverse systems of the eternal universe, as well as the local " parity non-conservation " phenomenon.

11.3: Relationship between dimensionless construction and neural networks

The basic principle of neural network is to imitate the neuron structure of the human brain and realize complex information processing through a network formed by connecting a large number of simple computing units (neurons). Each neuron receives the input signal, performs weighted summation on it, and generates an output signal through an activation function. These signals propagate from front to back in the neural network, and after multiple weighted summations and activation functions, the network output is finally generated. The learning process of the neural network is mainly through the back propagation algorithm, which adjusts the connection weights between neurons according to the output error, so that the network can gradually learn the mapping relationship between input and output.

The basic principles are as follows: (1) Neuron: The basic building block of a neural network, which receives input signals, performs weighted summation, and generates output signals through activation functions. (2) Weights and biases: Weights represent the degree of influence of input signals on neuron outputs, while biases enable neurons to learn more complex patterns. (3) Activation function: Used to introduce nonlinearity, allowing neural networks to learn and simulate more complex functional relationships. Common activation functions include Sigmoid, tanh, and ReLU. (4) Forward propagation: The input signal passes through the network's forward calculation to obtain the network's output. This is the basic calculation process of a neural network. (5) Backpropagation: In the learning process of a neural network, by comparing the network output with the actual target, the error is calculated, and the error is backpropagated back to the network to adjust the weights and biases to reduce the error. This is the core algorithm for neural network learning. (6) Iterative learning: Through multiple iterations, the neural network continuously adjusts the weights and biases to gradually reduce the output error until the predetermined learning goal is reached.

Through these basic principles, neural networks can learn and simulate complex input-output relationships, thus playing an important role in various fields such as image recognition, speech recognition, natural language processing, etc. These are the random equilibrium exchange combination (decomposition) characteristics that are closely related to the dimensionless construction "infinite axiom".

11.4 Dimensionless Construction and Quantity-Particle Entanglement

The universal quantum correlation in the quantum world represented by quantum entanglement becomes the basic correlation that makes up the world. Perhaps the mystery of "quark confinement" can be explained from the perspective of entanglement. When a proton is in a state near the ground state, its various properties can be quite satisfactorily explained by the structure of three valence quarks. However, experiments have so far failed to separate the **u** quark with an electric charge of (2e/3) or the dquark with an electric charge of (-e/3) corresponding to the **e** electron, which is called "even asymmetry". This is because there are extremely strong quantum correlations between quarks, the latter of which is so strong that quarks can no longer be structural particles in the ordinary sense.

Neutrinos " **e** electron, **μ** neutrino charge (e/2) and **τ** neutrino charge (e/2) " may use the entanglement point of view to explain the mystery of "quark confinement". When a proton is in a state near the ground state, its various properties can be quite satisfactorily explained by the structure of two valence quarks. It is called "even symmetry and symmetry" .

These particles show that they have a "one-to-one correspondence" of positive and negative electron charges and an "even number" that constitutes a balance of electric charge.

Among them, the "third-order" mass particles are **u** quarks, **d** quarks and **e** electrons with asymmetric distribution. The "second-order" mass particles are muon neutrinos, tau neutrinos and **e** electrons with symmetric distribution.

The so-called structural particles usually have two types of quantum entangled particle states: "even" "symmetry and asymmetry":

(1) The two- order symmetry $\{2\}^{2n}$ even-numbered conjugated structure particles { **μ** and **τ** } form a composite particle {Xab $_{\}}$ = (**μ** · **τ**), (i.e., the binding energy of $\{{}^{(2)}\sqrt{ab}\}$ (geometric unit cell) is much smaller than the sum of the static energies of [(1/2)(a+b)] (arithmetic mean unit cell). The difference between the free state and the bound state of **μ** or **τ** is not large. They belong to the two-order symmetry structure quantum entangled particles.

(2) The three- order asymmetric $\{3\}^{2n}$ even-numbered conjugated structure particles { **u** , **d** and **e** } form a composite particle {Xabc $_{\}}$ =(**u** · **d**) (i.e., the binding energy of $\{{}^{(3)}\sqrt{abc}\}$ (geometric unit cell) is much smaller than the sum of the static energies of [(1/3)(a+b+c)] and [(1/3)(ab+bc+ca)] (arithmetic mean unit cell). The difference between the free state and the bound state of u, u and **d is** not **large** . They belong to the asymmetric three-order structure quantum entangled particles.

The quantum entangled particles are converted into dimensionless circular logarithmic descriptions. The corresponding three-dimensional physical space corresponds to the five-dimensional/six-dimensional power space: Assume: (ABCUV…S) distribution composed of "S" series structure quantum entangled particles:

(1) Quantum entangled particles in three- dimensional space with third-order asymmetry precession (radiation, oscillation):

$(ABC)^{(K=-1)}=(1-\eta_{[xyz]}^{2})^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(3S)}$; corresponding to { **u** and **d** and **e** }

(2) Quantum entangled particles precess (radiate, oscillate) or rotate in two- dimensional space with second-order symmetry:

$(UV)^{(K=-1)}=(1-\eta_{[UV]}^{2})^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(2S)}$;

(3) Quantum entangled particles in five- or six-dimensional orbital space: third-order precession (radiation, oscillation) + second-order rotation: corresponding to { **e** , **μ** , **τ** }

$(ABC\ UV...S)^{(K=-1)(nS)}=(1-\eta_{[xyz+uv]}^{2})^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(nS)}$;

There is an 'infinite axiom' balanced exchange combination (decomposition) between the holistic particles (external) and holistic particles (internal) of quantum entangled particles.

consistent with the precession (radiation, oscillation) form a five-dimensional power space, and **the inconsistent ones** form a six-dimensional power space. It can be expanded to guide arbitrary high-dimensional power particles to form a high-dimensional power space with multiple tracks.

(3) Exchange rules:

Under the dimensionless "infinity axiom" mechanism, the proposition, characteristic modulus, and isomorphic circular logarithm do not change. The dimensionless "infinity axiom" corresponds to the central zero point and characteristic modulus of the circular logarithm, and the properties of random and non-random power functions change in the opposite direction, and the true proposition is exchanged for the inverse proposition.

(1) Quantitative particle entanglement particle S-dimensional power at the same level of change of properties and property exchange:

Their number constitutes a multi-level, multi-directional, multi-parameter (weights, orbital distances, etc. are included in the cluster set variables), anisotropic three-dimensional physical space particle model or a multi-level planetary motion orbit in the universe:

(2) Three-dimensional physical space has S-dimensional power in each dimension, and each unit cell of each dimension is a subspace of S-dimensional power of five at each level.

{{{{(3-dimensional precession + 2-dimensional rotation}+{{2·[(S-3)+2]}+{3·[(S-3)+2)+2]}+…+(Z ` Sn)·[(S-3)+2)]};

Composed of a unified dimensionless circular logarithm formula:

$(ABCUV…S)^{(K=-1)}=(1-\eta_{[xyz+uv]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)K(Z\pm S\pm(((q=5…\text{infinite integer}))}$;

(3) Balanced exchange and combination decomposition of particles at all levels in three-dimensional physical space

$(ABCUV…S)^{(K=-1)}=(1-\eta_{[xyz+uv]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=-1)K(Z\pm S\pm(q=5…\text{infinite integer}))}$

$[(1-\eta_{[xyz+uv]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[xyz+uv]}^2)^{(K=\pm0)}\leftrightarrow[(1-\eta_{[xyz+uv]}^2)^{(K=-1)}]\cdot\{D_0\}^{K(Z\pm S\pm(q=5…\text{infinite integer}))}$

$\leftrightarrow(1-\eta_{[xyz+uv]}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)K(Z\pm S\pm(q=0,1,2,3…\text{infinite integer}))}=(ABCUV…S)^{(K=-1)K(Z\pm S\pm(q=5…\text{infinite integer}))}$;

The exchange of the central zero point of the dimensionless circular logarithm drives the balanced exchange of particles at all levels (abbreviation):

$(ABCUV…S)^{(K=+1)}\leftrightarrow(ABCUV…S)^{(K=\pm0))}\leftrightarrow(ABCUV…S)^{(K=-1)}$;

In particular, the quantum particles in three-dimensional physical space or any "element-object" in mathematics are in a wide spectrum of asymmetries and cannot be directly balanced by exchange and combination decomposition. They must be balanced by the circular logarithm of the "infinity axiom" mechanism. It can only be carried out under the leadership of others.

Among them: $(1-\eta_{[xyz+uv]}^2)^{(K=\pm0)}$ corresponds to the characteristic modes $\{\mathbf{D}_0\}^{K(Z\pm S\pm(q=5…\text{infinite integer}))}$ of each level, indicating that there are 5 particles as "elementary particles", and the characteristic modes can be {ABC,(O),UV}, the 'neutrino' of the universe in physics, the 'cell, embryo' in biology, and the 'dimensionless circular logarithmic unit' in mathematics. They all obey the balanced exchange combination decomposition of the 'infinite axiom' mechanism.

(b) Random conversion of three-dimensional precession and two-dimensional rotation of five-dimensional quantum entangled particles at any level {ABC, (O), UV} in three-dimensional physical space:

Assume: different levels and different energies of even symmetry {L,(O),MQ}∈{S}, exchange condition central zero point $(1-\eta_{[C][xyz+uv]}^2)^{(K=\pm0)}=0$ corresponding to characteristic mode, central zero point O position {ABC,(O),UV},

Exchange conditions: unchanged element particles. Unchanged characteristic modes, unchanged isomorphic circular logarithms of the same energy even number, random asymmetric distribution) exchange form (S=(5)=(3: ABC three-dimensional precession)+(2: UV two-dimensional rotation). The "closedness" of the exchange is manifested in that the central zero point corresponds to different characteristic modes and dimensional powers.

(1) Symmetric exchange at the same level (even number, same energy)

$(ABC+UV)^{(K=+1)}=(1-\eta_{[xyz+uv]}^2)^{(K=+1)}\cdot\{D_0\}^{(K=+1)(Z\pm S\pm(q=5))}$;

$=[(1-\eta_{[xyz+uv]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[xyz+uv]}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[xyz+uv]}^2)^{(K=-1)}]\cdot\{D_0\}^{(K=+1)(Z\pm S\pm(q=5))}$

$\leftrightarrow(1-\eta_{[xyz+uv]}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(K=+1)(Z\pm S\pm(q=5))}=(ABC+UV)^{(K=-1)}$;

$(ABC+UV)^{(K=+1)(5)}\leftrightarrow(ABC+UV)^{(K=\pm0)(5)}\leftrightarrow(ABC+UV)^{(K=-1)(5)}$

(2) Symmetric exchange of even numbers of central zero points at different levels (different levels of energy):

Assume: the level and center zero point position {L,(O),M}∈{Z`S}=(Z±S±(q=5))=(5), corresponding to the characteristic modes $\{\mathbf{D}_0\}^{(K=+1)(Z\pm(S=LM)\pm(q=5))}$ of different levels.

$(ABC+UV)^{(K=+1)(Z\pm(S=(L))\pm(q=5))}=(1-\eta_{[xyz+uv]}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(L)(5)}$;

$=[(1-\eta_{[xyz+uv]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[xyz+uv]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[xyz+uv]}{}^2)^{(K=-1)}]\cdot\{D_0\}^{(K=+1)(Z\pm(S=L,M)\pm(q=5))}$
$\leftrightarrow(1-\eta_{[xyz+uv]}{}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(M)}=(ABCUV)^{(K=-1)(K=+1)(Z\pm(S=(M))\pm(q=5))}$;
$(ABC+UV)^{(K=+1)(L)}\leftrightarrow(ABC+UV)^{(K=\pm0)(LM)}\leftrightarrow(ABC+UV)^{(K=-1)(M)}$;

(3) The five-dimensional power quantum entangled particle is decomposed into a three-dimensional particle function and a two-dimensional wave function, satisfying the random transformation rule of the "axiom of infinity": Assume: the level and center zero position {ABC,(O),UV} ∈ {Z`S}=(Z±S±(q=5))=(**5**), corresponding to the characteristic modes $(ABC+UV)^{(K=+1)(Z\pm(S=(L))\pm(q=5))}=(1-\eta_{[xyz+uv]}{}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(L)(5)}$;
$=[(1-\eta_{[xyz+uv]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[xyz+uv]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[xyz+uv]}{}^2)^{(K=-1)}]\cdot\{D_0\}^{(K=+1)(Z\pm(S=L,M)\pm(q=5))}$
$\leftrightarrow(1-\eta_{[xyz+uv]}{}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(M)}=(ABCUV)^{(K=-1)(K=+1)(Z\pm(S=(M))\pm(q=5))}$;
$(ABC+UV)^{(K=+1)(L)}\leftrightarrow(ABC+UV)^{(K=\pm0)(LM)}\leftrightarrow(ABC+UV)^{(K=-1)(M)}$;

(4) Random transformation of waves and particles within the three-dimensional precession of quantum entangled particles (exchange of properties without changing the same properties):

Assume: the level and center zero position { A, (O), BC} ∈ {Z`S}=(Z±S±(q=5))=(**5**), corresponding to the characteristic modes $\{\mathbf{D}_0\}^{(K=+1)(Z\pm(S=LM)\pm(q=5))}$ of different levels.
$(JIAB)^{(K=+1)(2S)}=(1-\eta_{[AB]}{}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(2S)}$;
$=[(1-\eta_{[ABC]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[ABC]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[ABC]}{}^2)^{(K=-1)}]\cdot\{D_0\}^{(3S)}$
$\leftrightarrow(1-\eta_{[Z]}{}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(S)}=(KC)^{(K=-1)(S)}$;
$(Ji\,AB)^{(K=+1)(2S)}\leftrightarrow[(1-\eta_{[ABC]}{}^2)^{(K=\pm0)}=(JiKABC)^{(K=\pm0))(3S)}]\leftrightarrow(KC)^{(K=-1)(S)}$;
$(JA)^{K=+1)(S)}\leftrightarrow[(1-\eta_{[AB]}{}^2)^{(K=\pm0)}=(Ji\,AB)^{(K=\pm0)(2S)}]\leftrightarrow(i\,B)^{(K=+1)(S)}$;
Among them: $(JI\,AB)^{(K=+1)(2S)}=(1-\eta_{[AB]}{}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=+1)(2S)}$ is the projection on the {**XOY**} plane, $(\boldsymbol{K}C)^{(K=-1)(S)}=(1-\eta_{[C]}{}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$ is the projection on the {**Z**} axis, they take the center zero point of the three-dimensional rectangular coordinate system as the conjugate center point $(\boldsymbol{JIK}ABC)^{(K=\pm0)(3S)}$, corresponding to the "element-object" $\{\mathbf{D}_0\}^{(3S)}$ composition asymmetric distribution, which is converted to circular logarithm into the center zero point symmetry distribution, and the center zero point symmetry drives the asymmetric "element-object" equilibrium exchange combination decomposition.

(5) Random transformation of the two-dimensional wave function of quantum spin entangled particles {U, V} (exchange of properties without changing the properties):

Assume: the level and center zero point position {U,(O),V} ∈ $\{Z\pm S\}^{K(Z\pm S\pm(q=5))}$=(**5**), the center zero point represents the characteristic mode $\{\mathbf{D}_0\}^{(K=+1)(Z\pm(S=LM)\pm(q=5))}$ corresponding to different levels with opposite or same rotation directions.
$(U)^{(K=+1)(S)}=(1-\eta_{[UV]}{}^2)^{(K=+1)}\cdot\{D_0\}^{(K=+1)(1)}$;
$=[(1-\eta_{[U]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[UV]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[V]}{}^2)^{(K=-1)}]\cdot\{D_0\}^{(2S)}$
$\leftrightarrow(1-\eta_{[V]}{}^2)^{(K=+1)}\cdot\{D_0\}^{(K=-1)(S)}=(V)^{(K=-1)(S)}$;

$(U)^{(K=+1)(S)}\leftrightarrow(1-\eta_{[UV]}{}^2)^{(K=\pm0)}]\leftrightarrow(U)^{(K=+1)(S)}$; (such as electrons rotating in the same direction);
$(V)^{(K=-1)(S)}\leftrightarrow(1-\eta_{[UV]}{}^2)^{(K=\pm0)}]\leftrightarrow(V)^{(K=-1)(S)}$(such as electromagnetic force rotating in the opposite direction);

(4) Symmetry of the evenness of the center zero line (critical line) of the dimensionless circle logarithm: Adaptation to the " group combination (5S) ".
$(1-\eta_{[C]}{}^2)^{(K=\pm1)}=\sum(1-\eta_{[xyz+UV]}{}^2)^{(K=+1)(5S)}+\sum(1-\eta_{[xyz+UV]}{}^2)^{(K=-1)}=\{1\}$;

(5) Symmetry of the evenness of the central zero point (critical point) of the dimensionless circular logarithm: Adaptation to " all points on the group combination (5) ".
$(1-\eta_{[C]}{}^2)^{(K=\pm1)}=\sum(1-\eta_{[xyz+UV]}{}^2)^{(K=+1)(5)}+\sum(1-\eta_{[xyz+UV]}{}^2)^{(K=-1)}=\{0\}$;

(6) Analysis (decomposition and combination) of the particle relationship between dimensionless circular logarithmic characteristic modes (S=5)
$(A)^{(K=+1)(S)}=(1-\eta_{[A][xyz+uv]}{}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$;
$(B)^{(K=+1)(S)}=(1-\eta_{[B][xyz+uv]}{}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$;
$(C)^{(K=+1)(S)}=(1-\eta_{[C][xyz+uv]}{}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$;
$(U)^{(K=-1)(S)}=(1-\eta_{[U][xyz+uv]}{}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$;
$(V)^{(K=-1)(S)}=(1-\eta_{[V][xyz+uv]}{}^2)^{(Kw=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$;

The quarks in the nucleus change greatly and drastically during the process of "taking them out", and people can only see hadrons such as mesons with integer charges. The same proton behaves differently in different processes. It is necessary to consider different equilibrium exchange components and different kinetics.

A proton is essentially an infinite object. In essence, the entire universe and neutrinos are an integral energy inertia system including real particles and space. Due to the existence of energy inertia, the entire energy system always moves according to certain energy motion laws. As a part of the cosmic energy, each particle in the universe always keeps its own energy inertia state consistent with the cosmic environment, that is, the stability of energy. Their electromagnetic energy waves always interact with each other. When two material particles are in a certain state at the same time, that is, try to make them in the ground state or energy control coding state, they produce electromagnetic energy inertia interaction and quantum entanglement when they interact. Therefore, matter has energy, and people can only obtain and utilize it from the interaction of matter.

In this way, the dimensionless construction "evenness" corresponds to their symmetric distribution (**μ , τ** neutrinos and **e-** electron "central elliptical" orbits) and asymmetric distribution (**u, d** quarks and $e=e_1e_2$ electron "eccentric elliptical" orbits) for random and non-random "infinite axiom" equilibrium exchange combination (decomposition) mechanism. The dimensionless circular logarithm connects the asymmetric "quark confinement" and the symmetric " neutrino " to describe the microscopic world . According to the "infinite axiom" mechanism of the symmetric and asymmetric characteristics of "neutrino- quark ", it can be derived to the macroscopic world. It shows that the "infinite axiom mechanism" has universality to describe the entire mathematical world to the physical macroscopic-microscopic world.

11.5: Dimensionless construction and its connection with AGL

11.5.1 Overview of Artificial Intelligence

At present, artificial intelligence has created computers (AI) with the concept of "discrete-symmetry" by von Neumann and Turing, replacing data networks, information networks, and neural networks for human big data statistics, driving the revolution of world science and economy, and penetrating into everyone's specific mastery and application. Among them: the basic principle of the famous neural network is to imitate the neuron structure of the human brain, and realize complex information processing through a network connected by a large number of simple computing units (neurons). Each neuron receives the input signal, performs weighted summation on it, and generates an output signal through an activation function. These signals propagate from front to back in the neural network, and after multiple weighted summations and activation functions, the network output is finally generated. The learning process of the neural network is mainly through the back propagation algorithm, adjusting the connection weights between neurons according to the output error, so that the network can gradually learn the mapping relationship between input and output.

In general, the basic principles of neural networks focus on the following aspects:

Neuron: The basic building block of a neural network, which receives input signals, performs weighted summation, and generates output signals through an activation function.

Weights and biases: Weights represent the degree of influence of the input signal on the output of the neuron, while biases enable neurons to learn more complex patterns.

Activation function: used to introduce nonlinearity so that the neural network can learn and simulate more complex functional relationships. Common activation functions include Sigmoid, tanh, and ReLU.

Forward propagation: The input signal passes through the network's forward calculation to obtain the output of the symmetric network. This is the basic calculation process of the neural network.

Back propagation: In the learning process of a neural network, by comparing the network output with the actual target, calculating the error, and back propagating the error back to the network, adjusting the weights and biases to reduce the error. This is the core algorithm of neural network learning.

Iterative learning: The neural network continuously adjusts weights and biases through multiple iterations, gradually reducing the output error until the predetermined learning goal is achieved.

Through these basic principles, neural networks are able to learn and simulate complex input-output relationships, thus playing an important role in various fields such as image recognition, speech recognition, natural language processing, etc.

11.5.2 Overview of Strong Artificial Intelligence

Artificial general intelligence (AGI) refers to AI systems that have the ability to solve problems and adapt to new situations similar to humans. Here are a few examples of artificial general intelligence:

AlphaGo: A Go-playing AI developed by Google that is able to win games against human Go champions.

Natural language understanding and question answering: Ability to convert human language into a format that machines can process, analyze and answer questions.

Image recognition and classification: Use computer vision technology to identify and classify images, as well as automatically annotate and describe image content.

Navigation and autonomous driving: Strong AI algorithms can make autonomous vehicles more in line with human expectations by sensing the environment, processing data, predicting driving behavior, and developing optimal driving plans.

Robotic manufacturing: Strong artificial intelligence can make robots more autonomous and flexible, quickly learn and infer the best operating behavior, and turn robots into intelligent manufacturing systems.

Medical diagnosis: Strong AI can assist doctors in diagnosing and treating diseases by analyzing medical images, biological signals, and medical databases.

Financial investment: Strong AI can more accurately predict market trends and guide financial investors to make better investments.

Emotion prediction: For example, EmotionAI is used to predict whether media and advertising consumers will find content enjoyable and memorable, or whether it increases the likelihood of purchasing something.

Personalized recommendations: For example, recommendation systems on e-commerce websites can accurately predict user needs and provide personalized services.

Virtual personal assistants: Intelligent digital personal assistants such as Siri, Google Now, and Cortana that can help users complete various tasks through natural language processing technology.

Video Games: AI characters in video games are able to understand the player's actions, respond to stimuli and react in unpredictable ways.

Purchase prediction: Provides highly reliable purchase prediction results by analyzing user addresses, purchase preferences, wish lists and other data.

Music and movie recommendation service: By analyzing the music or movies that users like, find the commonalities among them and recommend corresponding works.

The above examples demonstrate the application potential of strong artificial intelligence in different fields.

11.5. 3. New Algorithms Speed Up Global Computing

Traditional computers are built on the discrete-symmetric assumption, which reflects the external connection of the group combination characteristic module, but not the internal connection of the group combination characteristic module, which makes the computer lack the internal thinking ability. In other words, it cannot think - which has long been considered the main shortcoming of artificial intelligence (AI).

11.5. 4. Super Artificial Intelligence and Dimensionless Circular Logarithm

In the 21st century, mathematics, computer science, physics, and materials science have made great efforts to explore. In the process of analyzing the "neurons" of the human brain, people have discovered that the world is not all symmetrical, and a large amount of asymmetry exists. The symmetry of the existing neural network forward propagation and back propagation does not meet the needs. For example, neural networks often produce forward calculations of the network and obtain the output of an asymmetric network. For example, the calculation requires "inputting one data and a characteristic function, and requiring the output of two symmetrical data, or three asymmetric data", and the "ternary number" (asymmetry) calculation based on mathematics has not been solved. The "analysis, judgment, evaluation, analytical calculation, ..." of the super-strong artificial intelligence advanced imitation computer "neurons" has encountered an insurmountable gap. With the continuous development of technology, people expect artificial intelligence to play a role in more powerful, high-function, high-efficiency, zero-error accuracy and other aspects.

The Chinese circular logarithm team has for the first time solved the problem of "infinite construction sets and unique 'infinite axioms'" that can randomly perform "even number" symmetric and asymmetric, random and non-random equilibrium exchange combination decomposition, and can also randomly self-verify the truth. A dimensionless circular logarithm construction system has been established. This function is actually similar to the role of neutrinos in physics, or it can be said that one of the conditions for "decisive" verification has been obtained.

Dimensionless circular logarithm is the mathematical basis of super-strong artificial intelligence computing. Specific applications:

(1) Mathematical theory: discovered a new mathematical "dimensionless construction set" to solve the application function of zero-error calculation of discrete and continuous integration in mathematics. It opened a new era of "dimensionless construction". Won the "certificate" from the State Intellectual Property Office

(2) Thoroughly reform mathematics and computer algorithms: Based on the isomorphic circular logarithm (with the stability of the circular logarithm center zero point symmetry) and the integer nature of the invariant characteristic modulus (with closedness), through the expression level and position of the power function, "no mathematical model, no specific element-object" interference, and the application of the "infinite axiom" random self-proving truth and falsehood mechanism can avoid "multiple" weighted summations and activation functions, output the "error adjustment" connection weights between neurons, and ensure zero error development of each step of the program.

(3) Mathematical calculation: A simple dimensionless circular logarithm is used to replace all existing calculation methods and achieve grand unification.

(a) In 1984, he published "Graphical Calculation of Reinforced Concrete Components of Buildings" at the National Association of Graphics and Calculation in Qingdao, applying the principle of dimensionless circular logarithm. Later, it was improved to "Calculation Chart of Multi-element Multiplication".

(b) Propose a traditional intuitive "Circular Logarithmic Slide Rule" to solve arbitrary high-power dimensional equations and ellipse calculations, and apply for a national patent.

(4) Computer field: Propose new computing theories and new chip architectures.

(a) Storage system: The “quinary” chip architecture principle uses the odd numbers {1.3.(5=0).7.9} and even numbers {2.4.(5=0)5.6.8} of the natural number tails and the center zero point of the circular logarithm and the power function form to greatly save memory space.

(b) Computing system: The "ten-mechanism" chip architecture and "four-photon" control principle use circular logarithms and the "axiom of infinity" to perform balanced exchange and combination decomposition of three-dimensional space. It can analyze any high-order equations and any elliptical space, especially the circular logarithm isomorphism, avoiding complex calculation procedures, and has efficient three-dimensional $\{3\}^{2n}$ functions, ensuring high-precision zero error reaching the 10^200 universe level, greatly saving computing hardware and software and materials.

The computer's chip architecture and manufacturing principles have won the "Special Prize" from the China Artificial Intelligence Society for four consecutive years.

(c) Flexible computer hardware and software can be made based on the principle of the "slide rule" "circular logarithmic slide rule".

(5) Rotating Machinery Engineering: Applying the circular logarithm principle, we proposed the "aviation hydrogen-powered turbojet engine", "ship

He has 9 invention patents including "six-stroke low-temperature internal combustion engine for ships", "underwater propeller", etc.

In particular, the new computer algorithm principles have comprehensively reformed traditional computer algorithms and chip architecture principles. They have the ability to meet the needs of big data statistics, diversified, multi-level, multi-directional, and anisotropic discrete and continuous integration of super-artificial intelligence neural networks, providing the mathematical foundation for making a "super-universal computer" with reliable, controllable, and feasible zero-error calculations.

11.6: Dimensionless constructions and their link to neutrinos

The discovery of neutrinos dates back to 1930, when Austrian Wolfgang Pauli proposed the concept to explain the energy loss in a certain radioactive decay process. Then, in 1956, Italian physicists Reines and Cowan captured neutrinos for the first time through experiments. In October 2024, Chinese scientists discovered "neutrinos" 700 meters underground , which caused a great response in the world, and many countries are keen to explore "neutrinos".

Neutrinos, also known as ghost particles, are extremely small elementary particles with almost zero mass, belonging to the lepton family of elementary particles. They correspond to the calculation of dimensionless construction sets that have no mathematical model and no specific elements (mass content).

The dimensionless construction set may be equivalent to the physical " neutrino " system. Neutrinos are a type of particle that is difficult to capture because they interact very weakly with matter, which allows them to penetrate matter without being blocked. Among them, it has three different types, namely electron e neutrinos, muon neutrinos and tau neutrinos. These three types of neutrinos correspond to three different leptons, namely electron e, muon and tau. Each neutrino can be transformed into two other neutrinos. This phenomenon is called neutrino oscillation.

By studying neutrinos, scientists can reveal the origin of the universe and important events in its evolution.

The functions and uses of neutrinos mainly include the following aspects:

(**1**) Explore the symmetry and asymmetry, randomness and non-randomness of the neutrino's "infinite axiom" mechanism. Without changing the "material mass element", the neutrino, as the central zero point of symmetry and asymmetry, drives the balance, exchange, combination, decomposition and movement trajectory of all levels of the universe (deep space, life).

Among them: Neutrinos correspond to the dimensionless structure of the 'infinite axiom' "evenness" symmetric random balance exchange combination (decomposition).

(a) The circular logarithm "central zero line (critical line)" may be equivalent to the "threshold value" of the positive, negative and negative particles (mass) described in physics;

(b) The circular logarithm "central zero point" (critical point) may be equal to the "transition point of the neutrino into the positive, neutral and anti-mass particle (mass)" described by the physical symmetry. It is called the "ghost particle".

(c) The neutrinos "electron **e,** muon and tau " correspond exactly to the dimensionless construction set "$\{A_{[e]}\}^{(K=-1)}$, $\{B_{[\mu]}\}^{(K=-1)}$ and $\{C_{[\tau]}\}^{(K=-1)}$" ternary symmetry asymmetry, and prove the fact that "two gives birth to three, three gives birth to all things" as stated in the classic Chinese mathematics book "Tao Te Ching".

(**2**) Depicting the picture of the universe: Neutrinos are the only eyes that can directly observe the inside of the cosmic blast furnace. By capturing the neutrinos released during supernova explosions, we can infer the number of supernova explosions that occur in a specific period, and then establish a new cosmological model to uncover the mystery of dark energy and dark matter.

(**3**) Monitoring nuclear proliferation: Antineutrino detectors can be used to monitor nuclear proliferation and ensure nuclear safety. Antineutrinos are byproducts of nuclear fission. By analyzing the antineutrino flux of a nuclear reactor, the type of nuclear fuel can be determined, thereby effectively monitoring illegal nuclear tests and activities.

(**4**) Assessing the internal structure of the Earth: Neutrino science equipment can reveal the structural laws of the Earth's interior, including the source of the Earth's heat flow, the Earth's composition and origin, etc. By taking pictures of the Earth's interior, geologists can better understand the Earth's internal structure.

(**5**) Providing a new communication method: Neutrinos propagate in a straight line at a speed close to the speed of light in a "symmetrical and asymmetrical manner" and have extremely strong penetrating power. They can penetrate steel, seawater, mountains, etc., and even pass from the South Pole to the North Pole of the Earth. This provides a new communication method for interaction between the earth and the sky.

(**6**) Neutrino communication: Neutrino communication is a communication method that uses neutrinos to carry information. In addition to being used for global human communication, neutrino communication can also penetrate the moon and communicate with the space station on the back of the moon, or as a "special messenger", travel through space and directly communicate with spacecraft flying in the universe, serving mankind's conquest of the universe.

(**7**) Geological exploration: The cross section of the interaction between neutrinos and matter increases with the increase of neutrino energy. If a neutrino beam with an energy of more than one trillion electron volts is generated by a high-energy accelerator and directed to irradiate the strata, it will interact with the strata material and produce small local "earthquakes". People can use this principle to explore deep strata and scan the strata layer by layer.

(**8**) Research on dark energy and dark matter: Neutrinos have a symmetric and asymmetric distribution of "three particles", which can show the potential of dark energy (topological combination, wave) and dark matter (probabilistic combination, particle) detection. Neutrinos serve as dark energy and dark matter probes. The "particle-wave" interaction between neutrinos and dark energy and dark matter may produce high-energy neutrinos. By detecting the direction and energy spectrum of these high-energy neutrinos, the annihilation, generation or conversion process of dark energy and dark matter "particle-wave" can be traced back.

(**9**) Supernova explosion research: The role of neutrinos in supernova explosions. Supernova explosions are events at the end of a star's life that release huge amounts of energy, producing a large number of neutrinos. Supernova neutrino detection can provide important information about the mechanism of supernova explosions.

(**10**) Explore the equivalence between neutrinos and circular logarithms:

Neutrinos have the symmetric and asymmetric distribution of "three particles", and the "infinity axiom" mechanism appears randomly and non-randomly, driving (promoting, catalyzing) the random conversion of "particle-wave" (without changing the exchange of physical properties) of three-dimensional precession and two-dimensional rotation of quantum entangled particles : the following deductions, evaluations, analyses, etc. can be carried out.

Assume that the neutrino {**v**} has "three particles" { **μτ, e** } at all levels of the universe and the central zero point {O}, which constitutes the five-dimensional power space of {three-dimensional precession + two-dimensional rotation} of the three-dimensional physical space. The characteristic modes $\{\mathbf{D}_0\}^{(K=+1)(Z\pm(S=LM)\pm(q=5))}$ at different levels constitute the five-dimensional power subspace of the three-dimensional physical space:

$\{\mathbf{v}\}=\{\boldsymbol{\mu\tau}, (O), \mathbf{e}\}\{O\}\{\mathbf{U}_{\mu}, (O), \mathbf{V}_{\tau}\} \in \{Z\pm S\}^{=(Z\pm S\pm(q=5))}=(5)$,

Among them: Neutrinos can have three states, and with the three-dimensional physical space of the universe and the five-dimensional power states at all levels, three central zero-point levels appear:

First: {O} indicates that the neutrino center zero point is between three-dimensional precession and two-dimensional rotation;

Second: { **μτ** ,(O), **e** } indicates that the neutrino center zero point is between "one particle and two particles";

Third: { $\mathbf{U}_{\mu}$, (O), $\mathbf{V}_{\tau}$ } represents the inverse symmetry between **the μ** neutrino {spin charge (1/2) } and the **τ** neutrino {spin charge (1/2) } corresponding to the electron and **e :**

(1) Circular logarithmic description of neutrinos:

$\{\mathbf{v}\}=\{\boldsymbol{\mu\tau}, \mathbf{e}, \mathbf{U}_{\mu}, \mathbf{V}_{\tau}\}=[(1-\eta_{[v]}^2)\{D_0\}^{(K=\pm1)(Z\pm(Q=\mu\tau e)\pm(q=5))}$

(2) Circular logarithmic equilibrium exchange combination decomposition of neutrinos (electrons participate in the combination decomposition as a unit):

$$\{\boldsymbol{\mu\tau e}\mathbf{U}_{\mu}\mathbf{V}_{\tau}\}^{(K=+1)(5S)}=(1-\eta_{[\mu\tau]}^2)^{(K=-1)}\cdot\{D_{0[e\mu\tau]}\}^{(K=-1)(2S)};$$

$=[(1-\eta_{[e\mu\tau]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[e\mu\tau]}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[e\mu\tau]}^2)^{(K=-1)}]\cdot\{D_{0[e\mu\tau]}\}^{(3S)}$

$\leftrightarrow(1-\eta_{[e]}^2)^{(K=-1)}\cdot\{D_{0[e]}\}^{(K=-1)(S)}=(\mathbf{eC})^{(K=-1)(S)};$

$(\boldsymbol{\mu\tau})^{(K=+1)(2S)}\leftrightarrow(\mathbf{e})^{(K=-1)(S)};$

$$(\mathbf{U}_{\mu,})^{(K=+1)(2S)} \leftrightarrow (\mathbf{V}_{\tau})^{(K=+1)(S)};$$

$(\mu\tau AB)^{(K=+1)(2S)}=(1-\eta_{[\mu\tau]}{}^{2})^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=+1)(2S)}$ is the {XOY} plane projection,
$(C)^{(K=-1)(S)}=(1-\eta_{[e]}{}^{2})^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$ is the {Z} axis projection,
$(\mathbf{e})^{(K=-1)(S)}=(1-\eta_{[e]}{}^{2})^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$ is the rotation of {**XYZ**} three-dimensional space around **(μτ)** ,

They take the central zero point of the three-dimensional rectangular coordinate system as the conjugate center point, corresponding to the asymmetric distribution of the "element-object" composition, and the corresponding circular logarithm is the central zero point symmetric distribution. The central zero point symmetry drives the asymmetric "element-object" balanced exchange combination decomposition.

7.5.4. Neutrinos and dimensionless structures merge

Neutrinos are the only known particles with unknown mass. Measuring their mass will help discover new laws of physics beyond the Standard Model. Neutrinos are neutral elementary particles with extremely small mass and no charge. Neutrino communication is a communication method that uses neutrinos to carry information.

So far, are neutrinos the smallest? Can they be further divided? You should know that the volume of a neutrino is only 1/10 billion of an electron, that is, 10 billion neutrinos together equal one electron.

Neutrinos are also translated as neutrinos. They are a type of lepton and one of the most basic particles in nature. They are usually represented by the symbol **v** . Neutrinos are uncharged. The negative charge **e** of neutrino electrons corresponds to a **μτ** spin of (1/2) , which is equal to the positive charge, forming an "even number", and have a very light mass (less than one millionth of an electron), and move at a speed close to the speed of light.

Neutrinos are a mysterious substance in the field of physics . Dimensionless circular logarithms are a mysterious "element-object" in the field of mathematics. They are called "ghost particles" in the scientific community. Although neutrinos appear widely in the universe, they are extremely difficult to detect, and scientists know little about them . Their existence was not confirmed until 1934, and it was only recently that it was confirmed that neutrinos have mass.

Neutrinos are produced from stellar nuclear fusion, and the sun is one of the production sites. Neutrinos are a kind of elementary particles, which are uncharged, extremely small in mass, and almost do not interact with other substances. They are widely present in nature. Nuclear reactions inside the sun produce a large number of neutrinos, and billions of neutrinos pass through our eyes every second.

Similarly, mathematicians know little about dimensionless circular logarithms . Their existence was not confirmed until the end of the 20th century, and only recently have they been confirmed to belong to an infinite set of constructions and to a unique "infinity axiom" of random and non-random equilibrium exchange combination decomposition mechanism .

Discussion on the relationship between neutrinos and dimensionless circular logarithms : Based on the fact that the very light mass characteristics of neutrinos are almost the same as the dimensionless circular logarithm characteristics, there may also be a dimensionless "infinity axiom" mechanism, which constitutes the equilibrium exchange combination decomposition mechanism common to the universe.

Neutrinos have several almost identical properties to the dimensionless circular logarithm construction :

(A) Neutrino is a physical " elementary particle "

(B) The dimensionless circular logarithm is a "basic unit" of a group combination set, which can also be called a athematical " elementary particle ".

(A) The mass of neutrinos is extremely small: The mass of neutrinos is very small.

(B) The dimensionless constructed circular logarithm is at the "(infinitesimal) limit" at the "central zero point".

(A) Neutrinos are not charged and are not affected by electromagnetic force.

(B) Dimensionless construction is not disturbed by "specific "elements-objects (mass)".

(A) Neutrinos have strong penetrability: they can freely pass through the earth. Neutrinos move at a speed close to the speed of light. They can cross boundaries and pass through any object.

(B) The dimensionless construction has an 'infinity axiom' mechanism, and random and random balanced exchange group decomposition is performed across dimensional powers at the 'central zero point' of the circular logarithm.

(A) Neutrino evenness : The neutrino electron has a negative charge **e** and spin **μ , τ** { 1/2 }, which constitutes the "evenness" symmetry and asymmetry of equal positive and negative charges.

(B) The dimensionless structure has an even-numbered "infinity axiom" mechanism, which can exchange random and non-random cross-dimensional power balance at the zero point at the center of the circular logarithm.

(A) Neutrinos barely interact with other matter, making them virtually invisible in the universe.

(B) Dimensionless constructs have an "infinity axiom" mechanism that does not interact with other mathematical models , making them almost invisible in the mathematical field .

(A) Neutrinos are widely present in the universe and their effects satisfy the dimensionless 'axiom of infinity' and are difficult to discover .

(B) Dimensionless circular logarithms are widely present in the mathematical world, and their effects satisfying the dimensionless 'axiom of infinity' are difficult to find .

(A)The dimensionless circular logarithm verifies that there may be a " neutrino center zero point" $(1-\eta_{[C]}^2)^K=0$ for neutrinos , corresponding to the invariant characteristic mode - "all levels of the universe" . Without changing the original physical (mass) properties, through the random positive and negative changes in the properties, positive matter (positive ions) can be exchanged in the positive and negative directions to become negative matter (negative ions). The opposite is also true.

(B) Dimensionless circular logarithms are based on the 'infinity axiom' and the zero point of the circular logarithm $(1-\eta_{[C]}^2)^K=0$, corresponding to the invariant characteristic module - the "infinite construction set". Without changing the original proposition, the true proposition is exchanged to the inverse proposition through random changes in the properties and attributes in the positive and negative directions. The opposite is also true.

11.7: Dimensionless structure and its connection to the universe

The part of the universe outside of material entities is called space; in aerospace terminology: outer space is referred to as space, outer space or outer space. On the Internet: refers to the place where files or logs are stored. And any object that can be digitized, including the space of the macroscopic world and the space of the microscopic world. Neural network: the reasoning, judgment, decision-making, analysis, etc. that imitates the thinking activities of the human brain.

All "spaces" refer to a collection with special properties and some additional structures. Here, all (macro and micro) physical spaces are uniformly interpreted as the invariant characteristic modes selected by the circular logarithm corresponding to the three-segment form of the positive, middle and negative interaction of the dimensionless circular logarithm abstract space. Through the positive, middle and negative conversion of the dimensionless circular logarithm properties, the static-dynamic and positive, middle and negative change (evolution) process of nature and the universe is expressed:

True proposition, positive world, convergence, aging ↔ property attribute conversion, black hole, embryo, seed ↔ inverse proposition, reverse world, expansion ;

$W=[(1-\eta^2)^{(K=\pm1)(Kw=+1)}\leftrightarrow(1-\eta^2)^{(K=\pm1)(Kw=\pm0)}\leftrightarrow(1-\eta^2)^{(K=\pm1)(Kw=-1)}]\cdot W_0$

Here, the mathematical " circular logarithm " and the physical "neutrino", without changing their original material and non-material states respectively, with the 'axiom of infinity' and the central zero point $(1-\eta_{[C]}^2)^K=0$, each drives the balanced exchange combination decomposition of the mathematical "multiplication combination and addition combination" and the physical "entanglement and combination" .

From a mathematical science perspective :

(1) Neutrinos have unique physical even-number symmetry (two-particle **μτ**) and asymmetry (three-particle **e μτ**) functions similar to the mathematical characteristics of dimensionless central zero point 'infinity axiom' balance exchange combination decomposition, which are unique to dimensionless constructions .

(2) The "neutrino" is likely to have verified " the existence and possibility of the symmetric and asymmetric, random and non-random equilibrium exchange combination (decomposition) of the 'infinity axiom' unique to dimensionless structures and the 'infinity axiom' of the central zero point of the dimensionless structure ."

In other words, neutrinos decisively prove the existence of "dimensionless construction" mathematics, and conversely, "dimensionless construction" mathematics profoundly describes the " neutrino characteristics ". The two are intertwined, self-consistently and orderly linking physics and mathematics into a whole.

"Neutrinos" and "dimensionless structures" describe the combination of the real world and the virtual world in the most basic, abstract and profound way through the 'infinite axiom' mechanism.

Special: In the power function (K=±1), (K=+1) represents the macroscopic world (such as gravity, photon mechanics, convergence), (K=±1) represents the mesoscopic world (such as thermodynamics, cellular vitality, photon mechanics, balance), (K=-1) represents the microscopic world (such as nuclear mechanics, electromagnetic force, photon mechanics, neutrinos, expansion), and (K=`0) represents the central zero point of the macroscopic world, mesoscopic world, and microscopic world (such as the equilibrium conversion point of the positive and negative equilibrium exchange combination of nuclear mechanics, gravity, electromagnetic force, photon mechanics, neutrinos, etc.).

From the symbol of "two antisymmetric tadpoles inside a circle" in the Book of Changes 6,000 years ago in ancient Chinese philosophy and mathematics to today's " circular logarithms and neutrinos", with the 'axiom of infinity' and the central zero point $(1-\eta_{[C]}^2)^K = 0$, it has led to the balanced exchange combination (decomposition) of "element-object", which not only explains the category theory called " mapping functor , morphism ", but also led to the balanced exchange combination (decomposition) of "multiplication combination and addition combination" in mathematics .

Among them: the properties of the physical and network worlds: (K=+1) represents the macroscopic particle world, (K=-1) represents the microscopic quantum world, (K=±1) represents the neutral particle world, (Kw=±0) represents the microscopic neutrinos , the macroscopic black holes (Big Bang), the mesoscopic neural networks, and the transformation of life corresponds to the dimensionless 'infinite axiom' central zero point driving the random equilibrium exchange combination (decomposition) of the "elements-objects" in the macroscopic world .

In other words, the dimensionless "infinite axiom" symmetry and asymmetry, randomness and non-randomness drive the balance, exchange, combination (decomposition) of the entire nature . This dimensionless construction system not only corresponds to mathematics, philosophy, physics, economics, artificial intelligence, neural networks, data networks, information networks, the universe and other scientific fields , but also provides a reasonable solution to the "truth" of balance and exchange (inside and outside the system) for the complete cognition of the existence of facts .

1 2 . Conclusion

Since the 17th century, "mathematical analysis (including numerical analysis and logical analysis)" in Western countries has been proven by a third-party infinite construction set: due to inherent defects such as "incompleteness, insufficiency, and inability to balance exchanges" in axiomatization, mathematics has not only taken a tortuous detour, but also reached its "ceiling".

This is equivalent to the "Tao gives birth to one" proposed by ancient Chinese mathematics, which can only progress to "one gives birth to two" to establish the computational field of $\{2\}^{2n}$, but it is difficult to progress to "two gives birth to three (the symmetry solution of the special case of ternary numbers does not count)" which cannot clearly establish the complete computational field of $\{3\}^{2n}$. If we want to "three gives birth to all things", we will be hindered by a lot of century-old mathematical problems (including symmetrical and asymmetrical balanced exchange mechanisms). We can only follow the ancient mathematics "Sun Zi Suanjing" which says "In any calculation, we must first recognize its position" and first solve the dimensionless problem of "position value" before moving on to the second step of "analyzing the root elements" .

Thus, 400 years of mathematics in Europe returned to the original place of ancient Chinese mathematics , and discovered the "dimensionless circular logarithm" and the expansion of dimensionless "place value" and "balanced exchange of even symmetry and asymmetry, randomness and non-randomness". The zero-point symmetry of the circular logarithm center led to the "macro and micro" low-level and high-level mathematical analysis of all mathematical systems. Mathematics returned to the original, classical arithmetic "addition, subtraction, multiplication and division" symbol analysis under the control of dimensionless structures.

The dimensionless circular logarithm construction set has the most profound, abstract, basic and complete mathematical construction, which profoundly reflects the development process of mathematics: "simple arithmetic-elementary mathematics-polynomials-calculus-partial calculus equations-complex systems-modern algebra-new simple arithmetic-dimensionless circular logarithms. In other words, mathematics has developed in a circular way from simple to complex to simpler unity and integrity. At the same time, circular logarithms are also a third-party more basic and authoritative form to verify and prove whether various algorithms and theories are reasonable, complete and error-free.

From the perspective of the history of mathematics, dimensionless circular logarithms have inherited the achievements of mathematicians from ancient times to the present, both at home and abroad. From "numerical analysis" to "numerical-place value analysis", it conducts analysis "without mathematical models and without specific element content". It is a substantial progress and breakthrough since 1931.

In particular, Chinese scientists have recently discovered that the properties of "neutrinos" are similar to those of "dimensionless structures" , which has decisively verified the existence of dimensionless structures . In turn, dimensionless structures describe neutrinos very well . The integration and complementarity between the two enriches the reliability of the foundations of the mathematical world and the physical world respectively.

At the same time, it profoundly describes the asymmetry of the universe and the eternal "convergence-central zero point exchange-expansion" cycle evolution, revealing the asymmetry between the mathematical virtual world and the physical real world. The combination of the two complements each other, and both may use the corresponding "infinite axiom" balance exchange combination mechanism to enable physics-mathematics to describe the high degree of overlap between the physical world and the mathematical world in the most basic, profound and abstract way.

The dimensionless circular logarithm finally became a stable and strong mathematical system, reflecting the axiomatic development of the foundations of mathematics in Europe over the past 400 years:

Peano axioms → set theory axiomatization → Hilbert axioms

→ category theory set axiomatization → 'infinity axiom' mechanism.

The formal establishment of circular logarithms began on May 25, 1982, when it was first proposed and applied . It proposed a method to solve the general solution of "three-, four-, and five-order equations of one variable" . Later, it developed into the theory of arbitrary high-power group combinations, which was called the "dimensionless construction set ". Among them, there are more than 980 popular science and scientific public circular logarithm ideas and applications on Sina Blog from 2009 to 2018. From 2009 to 2024, many consecutive circular logarithm articles were published in "American Journal of Science", "JCCM" (Mathematics, Statistics and Science), "Gewu", etc. The progress of dimensionless circular logarithms has gone through " individual cases-special cases-concepts-systems-constructions " .

Now let's look at the universe. "Dimensionless circular logarithms" and "neutrinos" are respectively called mathematical "ghost particles" and physical "ghost particles" , and there are many rich treasures hidden in them .

The scientific field, the physical world , and the mathematical world may usher in an era of analysis and exploration of "dimensionless structures " , waiting for scientists around the world to collaborate in exploration and work hard to develop them for the benefit of mankind . (End)

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Interpretation of "Dimensionless Circular Logarithmic Construction"

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Summary : Based on the previous article "Dimensionless Circular Logarithm", this article further introduces the relationship between the "Even Random and Non-Random 'Infinite Axiom ' Balanced Exchange Combination Mechanism" and the "Dimensionless Central Zero Point-Higgs Particle" unique to the infinite construction set 'Infinite Axiom' (including circular logarithm-neutrino-quark) . Proof:

(1) The 'axiom of infinity' adapts to the closedness of the total "element-object" invariance, the characteristic modulus and the central zero point of the circular logarithm correspondence shared the properties of the power function.

(2) The circular logarithm-neutrino balance randomly drives the "element-object" balanced exchange and balanced combination.

(3) The operation symbols of traditional mathematics in circular logarithms: addition combination, union, etc. are the addition of factors; multiplication combination, intersection, etc. are the addition of factors of circular logarithmic power functions.

(4) Special supplementary proof that “element-object” cannot be directly combined is that the random balance

and symmetry of "circular logarithm" is combined into "1+1=2" (even number) and the asymmetry is added into "1+2=3" (odd number), which drives the random balance and symmetry combination of "element-object".

(5) The dimensionless peculiar "infinity axiom" can randomly self-prove the reliability of "truth or falsity", proving that the "elements-objects" of traditional mathematics and physics maintain the nature of mathematics and the correctness of zero-error deduction in balanced exchange combinations.

Keywords : basic mathematics; dimensionless construction set; infinite axiom mechanism ; central zero-point symmetry; balanced exchange combination decomposition;

Preface

In October 2024, Wang Yiping, a member of the Chinese Circular Logarithm Team, published " Demonstrating a New Infinite Construction Set: Dimensionless Circular Logarithms". It is referred to as "Dimensionless Circular Logarithms " . It has been upgraded from "a mathematical calculation method" to "a basic mathematical theoretical system". It uses the "even symmetry and asymmetry, randomness and non-randomness of the 'infinite axiom' balanced exchange and combination mechanism" unique to dimensionless constructions (possibly including neutrinos), referred to as the 'infinite axiom' mechanism. Specifically, it performs operations "without reference to mathematical models and without interference from specific elements" and the reliability of the random self-proving "true or false" function of the 'infinite axiom', proving that the "elements-objects" of traditional mathematics-physics always maintain the nature of mathematics and the correctness of zero-error deduction in the process of balanced exchange and combination.

The dimensionless construction relies on the "infinite axiom mechanism" with a circular logarithm formula of "characteristic modulus and circular logarithm", which encompasses the entire mathematical system: algebra, geometry, number theory, group combinatorial theory and other fields, as well as universally adapting to neutrinos from the macroscopic universe to the mesoscopic life world to the microscopic world, including: astronomy, biology, chemistry, philosophy, economics and other systems, etc., with a simple circular logarithm formula, all zero-error analysis and solutions within {0,1}.

In April 2022, Wang Yiping, Li Xiaojian, and He Huacan, three authors of the Chinese Circular Logarithm Team, published an article entitled "Principles of System Stability, Optimization, and Dynamic Control - Analysis and Cognition of Higher-Order Equations from 0 to 1", Journal of American Science (JAS) 2022/4 p1-106. The basic concept of dimensionless circular logarithms was proposed for the first time. As a computational mathematical consideration, it has a systematic explanation of definitions, theorems, proofs, and applications. Examples include "higher-order equations": circular logarithm analysis of "one-dimensional second, third, fourth, and fifth-order equations". For example, the eleventh-order universe equation consists of "one-dimensional' five smallest natural numbers {(1,2,3,4,5) } + six smallest prime numbers {(1+2= 3) , 3,5,7,9,11,13) } '. Through dimensionless circular logarithms, the analytical results are highly consistent with the existing experimental data related to physical observations (as can be seen from the derivation of the article, omitted) .

Two articles in October 2024 and April 2022 constitute the "Dimensionless Construction Set", which includes "Circular Logarithm Axiomatization Hypothesis: Dividing a Number by Itself is Not Always 1", which established the dimensionless circular logarithm system. In the exploration of neutrinos, the characteristics are highly consistent with the dimensionless circular logarithm, which provides hope for the realization of the grand unification of mathematics and physics. It also includes the use of dimensionless circular logarithm ideas to solve a large number of mathematical problems and the unification of a series of mathematical calculation methods, as well as the physical macroscopic universe-mesoscopic life-microscopic neutrinos, etc., all of which can be integrated into a circular logarithm formula.

The Chinese circular logarithm team was also surprised to find that it turned out to be a new rule of nature that mathematicians have been pursuing for a long time - the "dimensionless infinite axiom mechanism"; it was the symbol of "two (asymmetric colors) black and white tadpoles with mutually inverse symmetry in a circle" in the "Book of Changes" of ancient Chinese mathematics 4,000 years ago, which represented the "balanced exchange combination of even symmetry and asymmetry, randomness and non-randomness" and was exactly the "infinite axiom" mechanism; the "Tao Te Ching" said 3,000 years ago that "Tao gave birth to one, one gave birth to two, two gave birth to three, and three gave birth to all things", which vividly portrayed the rules of the decomposition of the balanced exchange combination of mathematics (circular logarithm) and physics (neutrinos) mutually inverse antisymmetry.

The dimensionless circular logarithm uses the dimensionless "infinite axiom mechanism" to study current major frontier mathematical topics, such as traditional mathematics (calculus, path integrals, three-dimensional complex analysis), axiomatization, continuum, four color theorem, category theory, Riemann zero conjecture, Langlands program, and exploration of neutrino characteristics and other sensitive topics, as well as published articles in the

American "Statistical and Mathematical Sciences " (JSSM), "Gewu" and other journals from 2018 to 2022.

Among them: a large number of mathematical problems: such as integer theorem (Hodge conjecture), isomorphism problem (P=NP), etc. can be solved by a simple characteristic modulus and circular logarithm formula, all within {0 to 1} zero error analysis, and it is expected to achieve "mathematical unification". If the circular logarithm verifies that the neutrinos are consistent with the neutrinos in physical experiments, it means that a new mathematical foundation and physical mathematical calculation theory have been integrated into a new system.

latest mathematical -physical achievements of "Grand Unification of Mathematics" and "Grand Unification of Mathematics and Physics " are:

(1) In July 2024, Dennis Gaitsgory and Sam

The "Geometric Langlands Program" was completed by a team led by Sam Raskin after more than 30 years of exploration. The classic formula "object-morphism" unifies all mathematics.

(2) In October 2024, a team led by Wang Yiping from China completed the “dimensionless circular logarithm construction”, also known as the “algebraic Langlands program” after more than 40 years of exploration. The classic formula “characteristic modulus-circular logarithm” unifies all mathematics.

The mathematical ideas of these two achievements are the same, but the methods are different and each has its own characteristics. The former: uses the logical language of "set theory axiomatization" to describe, and the latter: uses the classical arithmetic language of " dimensionless axiomatization" to describe. Both have highly abstract and integrated analysis and operations that summarize the entire mathematical system, becoming the latest achievements of current mathematical research and jointly promoting the development of world mathematics.

（3）In October 2024, physicists from the Chinese Academy of Sciences discovered "neutrinos" 700 meters underground, which attracted the attention of scientists and mathematicians around the world.

The Chinese circular logarithm team conducted deductions and comparisons and gave a profound description of the neutrino. If confirmed, it means that the neutrino has decisively proved the existence and reliability of the dimensionless circular logarithm, and can achieve a profound integration of physics and mathematics based on the "axiom of infinity" mechanism.

Here, we will talk about the article about "dimensionless circular logarithm" (including the mathematical description of neutrino characteristics and waiting for further physical verification) that everyone is concerned about.

I also thought of some missed issues, so I supplemented and interpreted them and wrote "Interpretation of Dimensionless Circular Logarithm " to provide everyone with reference, understanding , discussion and valuable suggestions.

The editors of American Science Magazine plan to organize international experts and scholars from various fields to discuss the publication of a special issue on "Dimensionless Circular Logarithms". Experts from home and abroad are welcome to participate in the discussion and submit articles. You can also contact the author directly on WeChat (Chinese) for cooperation. Thank you!

1. The origin of the development of world mathematics is in China

Human scientific undertakings are developing at a rapid pace. Scientific development has driven progress in society, mathematics, industry, economy, culture, life, etc. Artificial intelligence, robots, and computers are constantly developing and being applied in everyone's daily life, changing human cognition and worldview.

The development of mathematics began when humans lived in groups millions of years ago on Earth. Counting began with marking lines and symbols on stones, and later there were bamboo slips, tortoise shells and bone carvings, etc. According to the History of the Development of Mathematics in China, the Book of Changes: Xici records that "Fuxi made knotted ropes" and "the ancients used knotted ropes to govern", which included a decimal system of numbers, which was the earliest use of the "positional value" system; the Records of the Grand Historian: The Book of Xia used drawing and measuring tools such as compasses, squares, standards, and ropes; 2,500 years ago, there were concepts of circle, square, flat, and straight, and the Mohist Classic had definitions of certain geometric concepts; arithmetic operations were established in the Spring and Autumn Period, and the "99 table" was used for 1,600 years. The Zhoubi Suanjing is one of the earliest arithmetic classics in Chinese history. Zhou means circle, and bi means leg. Among them is the earliest written record of the Pythagorean theorem, that is, "the hook is three, the leg is four, and the chord is five", also known as the Shanggao theorem, which provides a proof. The Zhuangzi emphasizes mathematical thinking. It is generally believed that the Inner Chapters (7 chapters in total) of Zhuangzi were written by Zhuangzi himself, while the Outer Chapters (26 chapters in total) were written by his later disciples.

The Nine Chapters on the Mathematical Classic, Tao Te Ching, and Sun Zi's Mathematical Classic were the first to point out the laws of mathematical development: such as "Tao begets one, one begets two, two begets three, and three begets all things", as well as "to calculate its method, first know its position", and the limit properties of infinity such as "half fold". There are also ideas and buds such as analyzing quadratic equations and calculus mathematics...

The Song and Ming dynasties from the 10th to the 17th century reached the peak of world mathematics at that time. Western missionaries came to China one after another and began mathematical research combining Chinese and Western cultures. Chinese mathematics was also brought to Europe by missionaries. History has recorded fairly: European mathematical analysis was also established during this period. Mathematicians overcame many difficulties and developed it, and it has been more than 400 years so far.

Archaeologists have unearthed ancient human sites in China, such as the Sanxingdui cultural relic "Sun God" in Sichuan, the "Fence Building" in Hemudu, Zhejiang... Some are more than 10,000 years old. Many of China's archaeological achievements and exhibits in museums around the world are powerful and convincing, hiding the development and progress of mathematics, mechanics,... science in ancient China. These scientific and technological achievements had reached the world's advanced level at that time. Later generations continued to expand and establish new mathematics. However, ancient mathematics is still not fully explored.

The "Fuxi and Nuwa mating diagram" is similar to the double helix structure of DNA. Could it be that ancient people have already penetrated human genes?

The visualization of quantum entanglement is similar to the ancient Chinese "Tai Chi Diagram"; the "two mechanisms" of the "Book of Changes" are introduced into "circuit opening and closing".

The "Tai Chi diagram" is also known as the "Bagua", which is "two anti-symmetric 'tadpole' shapes of different shades of color within a circle: a vivid image of mutual opposition, mutual dependence, and random conversion" from the famous Chinese work "The Book of Changes".

What is even more amazing is that the "Tai Chi diagram" actually hides a key and important natural and mathematical rule that has not yet been discovered by humans: the "dimensionless even number symmetry and asymmetry, randomness and non-randomness 'infinite axiom' balance exchange mechanism", referred to as the "even number " balance exchange combination mechanism - 'infinite axiom'.

The discovery of this dimensionless construction and the mechanism of the "infinite axiom" has successfully established the "dimensionless circular logarithm construction set". It also verifies, as a third-party dimensionless construction, that the current traditional mathematical foundations, such as the "Peano axioms and axiomatic set theory" system, are not only "incomplete" by Gödel, but also "incomplete and inadequate". For example, the "element" balance of numerical analysis cannot be directly "morphism (commutation, mapping)", and the "object" "morphism (commutation, mapping)" of logical analysis cannot be "balanced", and the two mathematical systems cannot be unified. This is what Klein called "the compatibility of unrestricted classical analysis and set theory".

Strictly speaking, the mathematical system established by European countries in the past 400 years is still inadequate and has inherent defects. As a result, the mathematical analysis has become increasingly complex and cannot meet the rigorous zero-error analysis requirements of mathematics, nor can it meet the needs of high-precision analysis and calculation in the current scientific field. This is also what Klein said, "Establishing infinite mathematics on a rigorous basis."

The so-called "infinite axiom mechanism" is the conversion of group combinations into dimensionless structures (including the infinite mass of particles in physics). Under the condition that the infinite total "element-object" of the universe remains unchanged and the characteristic module remains unchanged, the closed circle of the unit body of the "circular logarithm-neutrino" is carried out without the interference of specific "(mass) element-object". Driven by the "even number" symmetry of the central zero point, the random balance exchange combination decomposition function and random self-verification of "true and false" are realized to achieve zero error expansion. It is expected to establish a dimensionless circular logarithm-neutrino construction mathematical system.

This physical-mathematical system analysis is different from the "direct balance" of classical analysis of classical mathematics; it is also different from the "direct mapping and morphism" of set theory analysis. Mathematical proof shows that the above two mathematical systems cannot be directly balanced and exchanged according to decomposition, and it is an independent third dimensionless mathematical theory analysis and "infinite axiom" mechanism. Most of the current mathematical analysis focuses on the $\{2\}^{2n}$ range of "dualism" symmetry , and cannot enter the $\{3\}^{2n}$ range of "ternary" symmetry and asymmetry . The efficiency of mathematical (including computer) analysis is very low, and it is still "approximate calculation". Dimensionless starts from "dimensionless analysis of quadratic and cubic equations of one variable , all the way to dimensionless analysis of high-power equations, and the same method can be used to obtain the general solution of zero error of integerness at the cosmic level. Moreover, the original mathematical-physical "element-object" is not changed in the balance exchange, and the zero-error true proposition conversion (exchange, morphism, mapping) is realized as the inverse proposition by "exchange" between the same level and "crossing" between different levels. It truly reflects the nature of mathematics-physics and the correctness of deduction.

World Mathematics Europe established "mathematical analysis" in the 17th century, and countless mathematicians have been pursuing it for more than 400 years. Mathematics has gone through the process of "simple-complex-integration". The efforts of senior mathematicians have expressed the "unremitting pursuit of unknown variables", and mathematics continues to move forward. They have left a profound contribution in the history of mathematics, and history will never forget their indelible and outstanding contributions.

From the perspective of the history of mathematics and physical mathematics: due to the discovery that "circular logarithm-neutrino" has surprisingly similar characteristics (it still requires in-depth verification without breaking the neutrino), the world of physics-mathematics may have ushered in a new era of "dimensionless construction" mathematics.

It means that human beings have unified mathematics and mathematical physics, and have expanded human beings' further understanding of the vast sky of nature and the universe. The development mathematical ideas and principles recorded in ancient Chinese mathematics, such as "symmetric and asymmetrical balanced exchange combination of even numbers" and "two produces three, and three produces all things", still have profound and sustainable historical significance for innovative development today.

From thousands of years of ancient Chinese mathematics to 400 years of development of mathematics in Europe, to the defects that Gödel described as "incompleteness" and then to the perfect solution of the 'infinite axiom mechanism' of modern dimensionless construction, their journeys are naturally linked together, which means that the source of mathematics has returned to China.

2. Mathematical proof of the adequacy of the dimensionless 'infinity axiom' mechanism

To date, the traditional mathematical system (referring to the mathematical system referred to by Gödel's incompleteness), including: Peano axioms, set theory axioms, infinite recursion method, etc., do not have the "balanced exchange" of "completeness and sufficiency axioms", which has become a concrete manifestation of the congenital defects of mathematics and cannot achieve mathematical "zero error" analysis and calculation.

For example, "category theory" uses set theory axioms to deal with the relationship between "objects" (sets of elements), "morphisms, functors, natural transformations, partially ordered sets" and "mappings" of set theory, which are collectively called "exchange". The entire "exchange" process of infinite sets cannot be "balanced", and it is difficult to achieve reverse (including external and internal) "combination and reduction", which limits its application.

"Dimensionless construction" uses "characteristic modulus" (average value of element-object set) and dimensionless "circular logarithm", as well as "random equilibrium exchange of infinite axioms" to deal with the relationship between them, which is collectively called "equilibrium exchange". "Infinite axioms" have completeness, sufficiency, and zero-error precision mathematical analysis methods.

Then some people may ask: Is the "axiom of infinity" reliable?

The circular logarithm answers: The axiom of integrity should be the "random equilibrium exchange combination mechanism and random self-authentication" of the "infinite axiom". This is a functionality that is not currently available in traditional mathematics. The element-object exchange (morphism, mapping) is processed in a dimensionless form. Driven by the zero-point symmetry of the circular logarithm center, there is no interference from specific elements and objects, ensuring the "self-authentication" and zero-error analysis of the dimensionless circular logarithm's "random equilibrium exchange" mechanism in an infinite set. Therefore, there is no problem of "unreliability and instability" in the mathematical foundation.

The derivation and proof of the 'axiom of infinity' mechanism have been explained above, and here we provide a general proof of sufficiency and series: we can find that their calculation methods have the characteristics of isomorphic unity, compactness, and evenness (including symmetry and asymmetry).

✷Definition 5.1.1 : A set of infinite series of “element-object” series :

$\{X\}^{K(Z\pm S)} \in \{\{x_1, x_2, \ldots x_S\}, \ldots, x_n\}$;

Make non-repeating combinations and collections to produce an infinite sequence of sub-items.

✷Definition 5.1.2 : "Element - object " is the infinite dimensionless circular logarithm: (multiply and add unit cells)

$(1-\eta^2)^K \in \{x_1/x_{01}\}^{K(1)} \ldots \{x_S/\{x_{0S}\}^{K(S)}\}, \ldots, \{x_n/\{x_{0n}\}^{K(Z\pm S)}\}$;

✷Definition 5.1.3 : " Element - object " is the set of any finite sequence in infinity

$\{X\}^{K(Z\pm S\pm Q\pm(q=0,1,2,3,\ldots\text{infinite integer})} \in \prod \{x_1, x_2, \ldots, x_S\}^{K(Z\pm S)}$;

✷Definition 5.1.4 : The characteristic modulus of an “element-object” is the mean function of an infinite set of sequences (combined with the combination coefficients):

$\{\mathbf{D}_0\}^{K(Z\pm S\pm Q\pm(q=0,1,2,3,\ldots\text{infinite integer})} \in \sum \{x_{01}, x_{02}, \ldots, x_{0S}\}$;

Among them: Characteristic mode combination coefficient:

$\{x_{01}\}^{K(Z\pm S\pm Q\pm(q=0)} = 1$;

$\{x_{02}\}^{K(Z\pm S\pm Q\pm(q=1)} = (1/S)^K$;

$\{x_{03}\}^{K(Z\pm S\pm Q\pm(q=2)} = [(2!/(S-0)(S-1)]^K$; …,

$\{x_{0P}\}^{K(Z\pm S\pm Q\pm(q=0)}=[(p-1)!/(S-0)!]^{K}$; …,

❋Definition 5.1.5 : Circular logarithm of "element-object" and complex analysis: $(1-\eta_{[A,B,C\ldots S]}{}^2)^{(K=-1)}=(1-\eta_{[jik]}{}^2)^{(K=+1)}$

corresponding multiplication characteristic modulus is the mean function of an infinite set of sequences (combined with the combination coefficients):

$\{^{K(S)}X\}^{K(Z\pm S)}\in\{\{^{K(S)}\sqrt{X}\}^{K(Z\pm S\pm Q\pm(q=0)},\ \{^{K(S)}\sqrt{X}\}^{K(Z\pm S\pm Q\pm(q=1)},\ \ldots\{^{K(S)}\sqrt{X}\}^{K(Z\pm S\pm Q\pm(q=P)}\},\ \ldots\}^{K(Z\pm S)}$;

corresponding additive characteristic modulus is the mean function of an infinite set of sequences (combined with the combination coefficients):

$\{\mathbf{D}_0\}^{K(Z\pm S)}\in\{x_0\}^{K(Z\pm S\pm Q\pm(q=0)},\{x_0\}^{K(Z\pm S\pm Q\pm(q=0)},\ldots\{x_0\}^{K(Z\pm S\pm Q\pm(q=0)}\},\ldots\}^{K(Z\pm S)}$;

Make non-repeating combinations and collections to generate infinite sequences of sub-item characteristic modules.

❋Definition 5.1.6 : "Element-object" is the ' infinity axiom' corresponding to the dimensionless isomorphic circular logarithm : (multiply and combine unit cells/add and combine unit cells)

$(1-\eta^2)^K\in\{x_1/x_{01}\}^{K(Z\pm S\pm(q=0))}=\{x_2/\{x_{02}\}^{K(Z\pm S\pm(q=1))}=\ldots=\{x_S/\{x_{0S}\}^{K(Z\pm S\pm(q=P))}\}$:

Among them: the characteristic module is the infinite set of sub-items, all of which have the total "element-object" invariant condition, including: unit cell of multiplication combination, probability addition combination, topological addition combination, super-topological addition combination, ... ;

The mathematical proof is as follows:

(1) Continuous "element-object" multiplication combinations (geometric mean unit cells, except that all multiplication combinations have integer expansion, based on integer expansion, ensure zero error accuracy.

Multiplication combination unit:

$\{^{(S)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm Q\pm(q=0)}$; $\{^{(S)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm Q\pm(q=1)}$; $\{^{(S)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm Q\pm(q=2)}$; $\ldots\{^{(S)}\sqrt{\mathbf{D}}\}^{K(Z\pm S\pm Q\pm(q=0,1,2,3,\ldots\text{infinite integer})}$;

(2) The discrete "element-object" addition combination (arithmetic mean) unit body, except that all addition combinations have integer expansion, is based on the integer expansion to ensure zero error accuracy.

Add combined unit:

$\{\mathbf{D}_0\}^{K(Z\pm S\pm Q\pm(q=0)}$; $\{\mathbf{D}_0\}^{K(Z\pm S\pm Q\pm(q=1)}$; $\{\mathbf{D}_0\}^{K(Z\pm S\pm Q\pm(q=2)}$; …; $\{\mathbf{D}_0\}^{K(Z\pm S\pm Q\pm(q=0,1,2,3,\ldots\text{infinite integer})}$;

Dimensionless isomorphic circles perform isomorphic multiplication/addition combinations of numbers :

$\{X/X_0\}^{K(1)}\in\{\{x_1/x_{01}\}^{K(Z\pm S\pm Q\pm(q=0)},\{x_2/\{x_{02}\}^{K(Z\pm S\pm Q\pm(q=1)};\ \ldots;\ \{x_S/\{x_{0S}\}^{K(Z\pm S\pm Q\pm(q=S)}\}$

$=\{(1-\eta_1{}^2)^{K(Z)},(1-\eta_2{}^2)^{K(Z)},\ldots(1-\eta_n{}^2)^{K(Z)}\}=\{0,1\}$;

Among them: $\{x_1\}$ is multiplied by the combination term, $\{x_{01}\}$ is added to the combination term, and the circular logarithm of $(1-\eta_1{}^2)^{K(Z)}$ corresponds to the sub-term of $\{x_1/x_{01}\}^{K(Z)}$.

Dimensionless circular logarithmic properties:

$(1-\eta^2)^{(K=\pm1)(Z)}\in\{\{x_1/x_{01}\}^{(K=\pm1)(1)},\ \{x_2\}/\{x_{02}\}^{(K=\pm1)(Z)(2)},\ldots,\{x_S/\{x_{0S}\}^{(K=\pm1)(Z\pm S)}\}=\{0,1\}$:

Among them: K=± 1 includes (+1 (forward function), ±0 (function corresponding to the central zero point of the conversion term), -1 (reverse function)) , shared with the characteristic mode and the central zero point of the circular logarithm, and controls the balanced exchange combination decomposition of the forward, mid and reverse directions of the function ;

(1) Symmetry balance and combination of the "evenness" of the dimensionless circular logarithm series of binary numbers :

$(1-\eta_{[C]}{}^2)^{(K=\pm1)}=(1-\eta_{[A]}{}^2)^{(K=+1)}+(1-\eta_{[B]}{}^2)^{(K=-1)}=\{0,2\}$;

$(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}=(1-\eta_{[A]}{}^2)^{(Kw=+1)}+(1-\eta_{[B]}{}^2)^{(Kw=-1)}=\{0,1\}$;

The evenness, balance, and asymmetry combination of the dimensionless circular logarithm series of binary numbers :

$(1-\eta_{[AB]}{}^2)^K=(1-\eta_{[A]}{}^2)^{(K=+1)}+(1-\eta_{[C]}{}^2)^{(K=\pm1)}+(1-\eta_{[B]}{}^2)^{(K=-1)}=\{0,2\}$;

(2) The balance and combination of the central zero line (critical line) of the "evenness" of the dimensionless circular logarithmic series of ternary numbers :

$(1-\eta_{[C]}{}^2)^{(K=\pm0)}=(1-\eta_{[A]}{}^2)^{(K=+1)}+(1-\eta_{[BC]}{}^2)^{(K=-1)}=\{0\}$;

$(1-\eta_{[A]}{}^2)^{(K=+1)}=\{+1\}$; $(1-\eta_{[BC]}{}^2)^{(K=+1)}=\{-1\}$;

(3) The balance and combination of the central zero point (critical point) of the "evenness" of the dimensionless circular logarithmic series of ternary numbers :

$(1-\eta_{[C]}{}^2)^{(Kw=\pm1)}=(1-\eta_{[A]}{}^2)^{(Kw=+1)}+(1-\eta_{[BC]}{}^2)^{(Kw=-1)}=\{0,3\}$;

$(1-\eta_{[BC]}{}^2)^{(Kw=-1)}=(1-\eta_{[B]}{}^2)^{(Kw=-1)}+(1-\eta_{[C]}{}^2)^{(Kw=-1)}=\{0,2\}$;

Dimensionless circular logarithmic center zero line (critical line) balance (generally refers to the external discrete jump transition form of characteristic mode)

In particular, pay attention to the difference between the circular logarithmic power function. The former is the balance of even symmetry, and the latter is the combination after even balance. Two different concepts.

(4) Dimensionless circular logarithm equilibrium exchange rule: unchanged true propositions, unchanged characteristic moduli, unchanged isomorphic circular logarithms. Only through the conversion of the positive, negative and inverse properties of circular logarithms, true propositions and inverse propositions achieve a mutually inverse equilibrium exchange mechanism.

$\{ {}^{K(S)}\sqrt{X}\}^{K(Z\pm S)} = (1-\eta^2)^K\{\mathbf{D}_0\}^{K(Z\pm S)}$

$=\{(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta^2)^{(K=\pm 0)}\leftrightarrow(1-\eta^2)^{(K=-1)}\}\{\mathbf{D}_0\}^{K(Z\pm S)}$

$=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{(K=-1)K(Z\pm S)}=\mathbf{D}$;

Among them: the infinite set is asymmetric between each sub-item (external) and each sub-item (internal), and cannot be directly balanced and exchanged. When the "element-object" is on both sides of the central zero point, the property changes the attribute. If it is on the same side of the central zero point, the property changes the power of dimension, and the property attribute remains unchanged.

There are two analysis steps for applying dimensionless circular logarithms:

(1) The characteristic mode center point and the surrounding elements "change synchronously", and the external discrete transition form of the characteristic mode is expressed in a circular logarithmic manner.

(2) The “positional relationship” between the center point of the characteristic mode and the surrounding elements is used to express the internal continuity transition form of the characteristic mode in a circular logarithmic way and analyze each root.

The above proves the 'infinity axiom'. Each sub-item of the infinite sequence set has the complete "balanced exchange mechanism of symmetry and asymmetry of even number randomness' infinity axiom'".

The unique advantage of dimensionless is that "the 'infinite axiom' has a random and non-random balanced exchange mechanism for zero-error analysis", which ensures the integer zero-error expansion of "isomorphism, homomorphism, homology, homotopy, and compactness" of each sub-item of the infinite sequence. Through the zero-point symmetry of the center of the dimensionless circular logarithm, the balanced exchange of all "elements-objects" of the infinite set is driven.

Once the circular logarithm is canceled, the original asymmetry is restored.

From the perspective of the history of mathematics, dimensionless circular logarithms have inherited the achievements of mathematicians from ancient times to the present, both at home and abroad. From "numerical analysis" to"numerical-place value analysis", the analysis "without mathematical models and without specific element content" has demonstrated substantial progress and breakthroughs since 1931.

3. Mathematical foundations and the ' axiom of infinity '

The most profound activity in mathematics in the 20th century was the exploration of foundations, which not only involved the nature of mathematics, but also the correctness of mathematical deduction. The solution to the foundation: the four major schools of thought formed by set theory axiomatization, logicism, intuitionism, and formalism, as well as various mathematical algorithms, all failed to achieve their goals and did not provide a universally acceptable approach to mathematics.

From the equations, calculus, functional analysis, etc. of formalistic numerical analysis to the set theory of logical analysis (referring to the collective composed of elements, divisible "things"), until the emergence of the current best mathematical achievement "Category Theory", mathematics has returned to the two parts of "objects and morphisms", based on the invariant "objects" and using "morphisms" as an important part of the operation for mathematical analysis. On the surface, mathematics seems to have become more abstract and simpler.

However, none of the four schools could accept each other and could not unify. Mathematics fell into a new crisis. Many current mathematical development problems are blocked by "grand unification". Specific manifestation: Cantor's question "Is there a new set of structures between natural numbers and real numbers?" Humans are expecting and questioning ... Has human exploration of mathematics reached its peak?

In 1900, Hilbert proposed 23 mathematical problems at the World Mathematical Congress, represented by the first problem:

The continuum hypothesis (CH) reflects the difficulties and complex development direction faced by mathematics in the 20th and 21st centuries.

Core question: How to construct a continuum using discrete methods? A computational mathematics theory that integrates the "completeness and compatibility, discrete and continuous types" of an infinite system.

Practice shows that nature hides "the balanced exchange mechanism of symmetry and asymmetry of 'evenness', randomness and non-randomness of 'infinite axioms' unique to dimensionless structures", which is the source of all mathematical problems. All mathematical problems cannot be solved without this mechanism, otherwise they cannot be established or are incomplete. Once solved, it will have a significant impact on the entire mathematical foundation and related scientific fields. Specifically, "problems in the mathematical world can be solved by a simple dimensionless circular logarithm formula in dimensionless $\{0,1\}^K$ analysis". The complex world is contained by such a simple dimensionless circular logarithm formula, which means that mathematics has entered the era of dimensionless analysis.

Mathematical foundation performance: Is there a new and more powerful set of infinite constructions that can integrate the mechanisms of **CH-GCH** and **ZFC** , and successfully integrate various schools of thought: logicism-intuition-formalism-Gödel's incompleteness theorem and various types of mathematical theory systems in a self-consistent manner?

If we look at it from a mathematical point of view: "There are even-numbered asymmetric circles in the world, carrying out a balanced exchange of symmetry and asymmetry, randomness and non-randomness." This is exactly what all mathematical problems must be demonstrated through the 'axiom of infinity' in order to be analyzed and calculated reliably.

The Langlands formula looks simple, but it involves a wide range of areas, including algebra, geometry, number theory, and group combinatorics, all of which are proved and derived with a simple formula. In layman's terms, the Langlands program is that certain theorems in different fields of mathematics (algebra, geometry, number theory, group representation theory) are interoperable, such as the "addition, subtraction, multiplication, and division" of arithmetic, which are their commonalities. In the unified construction of the Langlands program, they have no substantial difference. In other words, proving a theorem in group theory is equivalent to proving a theorem in other fields, such as number theory, even if they may seem unrelated at first glance.

The core lies in several key issues:

(1) What are the axioms of the integrity of axioms? The integrity problem of 'axiomatic set theory' (including natural number axioms, set theory axioms, and infinite recursion) has not yet been solved. This is reflected in the fact that "the mapping and morphism of the "object" of logical analysis cannot be directly balanced; conversely, the balanced ones cannot be exchanged." Strictly speaking, this 'axiomatic set theory' still does not meet the requirements of rigorous mathematical analysis. (Note: The problem is solved by using the 'infinite axiom-dimensionless axiom' constructed using dimensionless circular logarithms)

(2) Where is the axiom of the completeness of the axiom? For example, the $\{3\}^{2n}$ directly calculated in the three-dimensional space composed of ternary numbers is currently blank, but it is also a blank point in geometric algebra, otherwise this "program" will not be connected. (Note: The solution is obtained by using the dimensionless circular logarithm construction)

(3) How to find the central zero point of the core function? The "central zero point" conjecture of the Riemann function involves several zero point conjectures (Riemann zero point conjecture, twin prime zero point conjecture, Landau-Siegel zero point conjecture, Goldbach conjecture), and there is no satisfactory solution yet. (Note: The solution can be obtained by using the dimensionless circular logarithm construction).

The so-called central zero point (critical line, critical point) is the core solution of the Langlands program. Only by solving the central zero point of the circular logarithm can there be a conversion between even symmetry and asymmetry, and obtain the balanced exchange driven by the circular logarithm. The axiomatization of integrity mentioned above should have "balance and exchange between random and non-random", and can also randomly prove the authenticity. Several conditions are indispensable. At present, the central zero point has not been solved. (Note: The solution is obtained by using the dimensionless circular logarithm construction).

However, the dimensionless construction set has the unique "even symmetry and asymmetry, randomness and non-randomness and the balanced exchange of the 'infinite axiom', and the mechanism that can randomly prove the truth or falsity". The most critical thing is that the "infinite axiom" plays a decisive application. The generation of this

"even central zero point balanced exchange mechanism" has no expression in logical mathematics! It cannot be expressed in classical mathematics! Physical experiments have found that there is no mathematical description for the "Higgs particle"
phenomenon.

It can be said that the "infinite axiom" is still the first mathematical description proposed by mathematics-physics in the world. Under this "infinite axiom" mechanism, the "circular logarithmic central zero point" of mathematics and the "Higgs particle" of physics perform dimensionless "balanced exchange combination decomposition" and remain motionless, maintaining the "element-object" nature of mathematics-physics, and driving the balanced exchange combination decomposition under the dimensionless "central zero point-Higgs particle". In fact, this "mechanism" has existed in the
classical algebra of mathematics, from the quadratic and cubic equations. It's just that humans have never discovered it.

As a result, "mathematical analysis" appeared, such as mathematicians Galois and Abel said "quintic equations have no radical solutions", and mathematicians Hamilton said "there are no ternaries". The healthy development of mathematics was delayed for hundreds of years, until the "dimensionless circular logarithm construction", the solution of the "infinity axiom" and the random "balance exchange" of the central zero point, which made substantial progress. The dimensionless construction set fundamentally subverted the mathematical foundation of traditional mathematics-computational physics through the "infinity axiom" and the proof that all mathematical-physical "elements-objects" themselves cannot be
exchanged.

Wang Yiping's Circular Logarithm first proposed the dimensionless circular logarithm in May 1982 (documented). It first solved the general solution of "one-variable second, third, fourth, and fifth degree equations", and was later called the "dimensionless construction system". (At that time, it was called "coordination coefficient", and this form has not changed. At that time, it was not thought that it was a mathematical system, and later it was not thought that it was a construction set,
which shows that circular logarithm can only develop by gradually accumulating knowledge).

From 2009 to 2018, more than 980 popular science and science articles on Sina Blog further publicized the idea and application of circular logarithms. From 2009 to 2024, more than 50 articles on circular logarithms were published in the American Journal of Science, JCCM (Mathematical Statistics and Science), Gewu, etc. The progress of dimensionless circular logarithms has gone through the process of "special case-general case-concept-embodiment-construction" to establish a "dimensionless construction". A simple circular logarithm formula solves the analysis of all current mathematical problems. It meets the requirements of the grand unified Langlands program. This is what our Chinese circular logarithm
team calls "opening a new mathematical era for dimensionless circular logarithms."

4. About the Langlands Program

Developed by Robert Langlands in the 1960s, the Langlands Program is a broad generalization of Fourier analysis, a framework for representing complex waveforms as smoothly oscillating trigonometric waves. The Langlands Program holds important positions in three different areas of mathematics: number theory, geometry, and fields of functions. These three
areas are interconnected by a network of analogies known as the "Rosetta Stone" of mathematics.

In layman's terms, the Langlands Program states that certain theorems in different fields of mathematics (algebra, geometry, number theory, group representation theory) are interoperable, such as "addition, subtraction, multiplication and division" and "quadratic reciprocity". In the unified structure of the Langlands Program, there is no substantial difference between them. In other words, proving a theorem in group theory is equivalent to proving a theorem in other fields, such as
number theory, even if they may seem unrelated at first glance.

To put it very roughly, if you have a little mathematical expertise, it is to establish essential connections between some seemingly unrelated contents.

The Langlands program was built on ideas that already existed at the time: The Philosophy of Cusp Forms written by Gelfant a few years earlier; Harish-Chandra's results and methods for studying semisimple Lie groups; and technically, the Selberg trace formula of Selberg et al. Langlands's originality, in addition to his technical depth, lies in his direct connection
with number theory and the rich overall structure of his conception (the so-called functor property).

One of the strongest supports for the Langlands program was the proof of Fermat's Last Theorem by Andrew Wiles in the 1990s. Wiles' proof, along with work by others, led to the solution of the Taniyama-Shimura-Weil conjecture, which revealed the relationship between elliptic curves, geometric objects with profound arithmetic

properties, and modular forms
highly periodic functions that come from a very different field of mathematical analysis.

The Langlands Program proposes a network of relationships between Galois representations in number theory and automorphic forms in analysis. The roots of the Langlands Program can be traced back to one of the most profound results in
number theory - the quadratic reciprocity law. Gauss's quadratic reciprocity law:

Assume p and q are different odd prime numbers, then: $(p/q)\cdot(q/p)=(-1)^{(P-1)(q-1)/4}$;

The quadratic reciprocity law beautifully solves the problem of calculating Legendre symbols (Note: the dimensionless circular logarithm is written as

$(1-\eta^2)^{(K=+1)(K=-1)}=\{0,1\}$,

Integrate the conjecture of quadratic reciprocity with mathematical operations and central zero-point symmetry).

But the first rigorous proof of the "quadratic reciprocity law" was made by Gauss in 1796, and he later found seven other different proofs. In the book "Arithmetic Research" and related papers, Gauss called it the "cornerstone". Privately, Gauss praised the quadratic reciprocity law as a gem in arithmetic theory and a golden rule. Some people say: "The quadratic reciprocity law is undoubtedly the most important tool in number theory and occupies a central position in the history of the development of number theory." After Gauss, Jacobi, Cauchy, Liouville, Kronecker, Frobenius and others also gave new proofs. So far, there have been more than 200 different proofs of the quadratic reciprocity law. The quadratic reciprocity law can be extended to higher-order situations, such as the cubic reciprocity law, etc. The quadratic reciprocity law is called the "mother of number theory" and occupies an extremely high position in number theory. Later, mathematicians such as Hilbert
and Searle extended it to more general situations.

One of the original motivations for the Langlands program was to provide a complete understanding of the reciprocity laws in the more general case. The corresponding overall Langlands program proved by Lavergo provides such a complete
understanding for the more abstract case of so-called function fields rather than the usual number fields.

We can think of a function field as a set of quotients of polynomials, which can be added, subtracted, multiplied, and divided like rational numbers. (Note: This is the predecessor of what was later called dimensionless circular logarithms.) Lavroquet established an exact connection between the Galois group representation of any given function field and the automorphic forms associated with the field. Lavroquet also discovered a new geometric construction that may prove to be very important in the future. It is called the "Geometric Langlands Program." The impact of all these developments is
spreading throughout the entire field of mathematical research.

Now, a new set of papers has solved the Langlands conjecture in the geometry of the Rosetta Stone. “No other result this comprehensive and powerful has been proven in any other field,” says David Ben-Zvi of the University of Texas at Austin.

“This is beautiful mathematics, the best of its kind,” said Alexander Beilinson, one of the main founders of the geometric
Langlands program.

The Langlands Program is regarded as the largest single project in modern mathematical research and is known as the "grand unified theory of mathematics." It proposes that the three independently developed branches of mathematics, number
theory, algebraic geometry, and group representation theory, are actually closely related.

The ultimate hope of mathematicians: to encompass the entire existing mathematical system with a simple formula.

4.1. Two new advances in the 2024 Langlands Program research

At present, there are two latest mathematical achievements in "mathematical grand unification":

(A) :In July 2024 , a team led by Dennis Gaitsgory and Sam Raskin from the United States completed the " Geometric
Langlands Program" after more than 30 years of exploration.

(B) : In October 2024 , a team led by Wang Yi-ping of China completed the "dimensionless circular logarithm construction", also known as the "algebraic Langlands program", after more than 40 years of exploration. we briefly introduce the two latest mathematical achievements of the "grand unification of mathematics": (A) and (B) for your reference.

4.1.1 . Study the American “Geometric Langlands Program”

The "Geometric Langlands Program" research team, led by Harvard University professor Dennis Gaitsgory and Yale

University professor Sam Raskin, completed the task after more than 30 years of exploration.

Mathematical characteristics: It takes "set theory axiomatization" as its mathematical foundation, uses "objects" (sets of elements-objects) and "morphisms" (operational tools and methods) defined by category theory, and uses logically defined
language and symbols to highly abstractly summarize the analytical operations of the entire mathematical system.

First: They adopted the category theory ideas from logical mathematics and improved them.

(1) Define “object” as “the set of all element-functions”.

(2) Define “morphism” as “morphism, functor, self-transformation, poset (asymmetric and transitive)”.

Secondly: Alexander Beilinson 's "Geometric Langlands Program" was introduced. The core proof is about the deep correspondence between self-similarity and symmetry on Riemann surfaces. To explain it in the mode of Fourier analysis, mathematicians have known the "spectrum" side of the geometric Langlands conjecture for a long time, but the understanding of the "wave" side has gone through a long process. After the solution was obtained, the overall solution of the
"Geometric Langlands Program" was opened.

Mathematics can be summarized into five aspects:

The first article studies the construction of functors , which requires constructing a geometric Langlands functor LG from automorphic to spectral direction in an environment with zero characteristics and proving its equivalence, that is, being
able to establish a one-to-one correspondence between the two categories.

The second paper studies the interaction between Kac-Moody localization and the global state, proving that the functor
is indeed an equivalence functor under certain conditions, thus advancing the proof of the geometric Langlands conjecture.

so-called Kac-Moody algebra is a Lie algebra g(A) corresponding to A that was constructed independently by V. Kac and
R. Moody in 1968 from the generalized Cartan matrix according to a certain "procedure". It can be seen as a generalization of the finite-dimensional complex semi-simple Lie algebra. In general, g(A) has many properties similar to finite-dimensional complex semi-simple Lie algebras. But g(A) is infinite-dimensional. Kac-Moody algebra can also define concepts such as root systems, Weyl groups, weighted lattices, and category theory. Its "integrable" irreducible representation is also determined by the highest power, and has a corresponding Weyl characteristic formula, but there are also differences. For example, its corresponding category theory is not Artinian . If g is a univariate of the Kac-Moody algebra, then g is power (waeight)ω and becomes a power space. In its Cartan decomposition, the root space is still a mystery. The above two
articles are the basis of the theory of Kac-Moody algebra.

In the past 20 years, with the development of Kac-Moody algebra theory, it has been applied and influenced in many branches of mathematics such as combinatorial mathematics, number theory, finite groups, topology, and differential equations. In particular, it has many connections with mechanics and quantum physics in physics. It has gradually become a
more eye-catching branch of basic mathematics research.

The third article serves as a bridge, extending the known equivalence results to more general cases.

In the fourth paper, the authors proved a key theorem, the Ambidexterity Theorem. This theorem shows that the left adjoint and right adjoint of LG-cusp (which can be viewed as the behavior of LG on a specific, smaller category) are isomorphic, which is an important step in proving that LG is an equivalence functor.

The final paper uses this conclusion to generalize the conjecture to the general case, bringing an end to the long-lasting proof work. The entire article is 800 pages.

The "Geometric Langlands Program" research team further developed set theory and category theory, highly abstractly summarized the analytical operations of the entire mathematical system, and made new contributions to mathematics.

4.1.2. Introduction to China’s “Algebraic Langlands Program”

The "Algebraic Langlands Program" is also known as the "Dimensionless Circular Logarithm Construction". It was completed by a team led by Wang Yi-ping from China after more than 40 years of exploration. The representative works of
the entire system are:

(1) **In** April 2022 , the Chinese Circular Logarithm Team authors Wang Yiping, Li Xiaojian, and He Huacan published an article entitled "Principles of Stability, Optimization, and Dynamic Control of Systems: Analysis and Cognition of High-Order Equations from 0 to 1" in the Journal of American Science (JAS) . They proposed the

(dimensionless) "basic
concept of circular logarithm basis" for the first time.

(2) **In** October 2024 , Wang Yiping, a member of the Chinese Circular Logarithm Team, published an article entitled "Showing a New Infinite Construction Set: Dimensionless Circular Logarithms". For the first time, the third infinite construction set and the "even symmetry and asymmetry, randomness and non-randomness of the 'infinite axiom' balanced exchange mechanism" unique to the infinite construction set were discovered in {0, 1} analysis. It is defined as "the
dimensionless circular logarithm construction of the infinite construction set".

(3) From May 1982 to April 2022 , I spontaneously performed "dimensionless circular logarithm" calculations, starting from quadratic and cubic problems to centuries-old mathematical problems, such as the reciprocity theorem, the integer theorem, the Poincare topological conjecture, gauge field, NS equations, gravitational equations, electromagnetic force equations, photon force equations, and other Riemann functions. All of them were written as polynomials (including calculus
and pattern recognition) and converted into dimensionless circular logarithms for zero-error analysis.

Mathematical characteristics: With "infinity axiomatization" as the mathematical foundation, the dimensionless definition of "characteristic modulus" (median and anti-mean values of element-object sets) and "circular logarithm" (calculation tools and methods). The arithmetic addition, subtraction, multiplication and division symbols of the dimensionless definition language are highly abstracted to summarize the analytical operations of the entire mathematical
system.

(1) : A new dimensionless circular logarithm construction idea of infinite construction sets is adopted and improved.

The so-called "characteristic modulus" is the "mean function of the element-function set of all objects".

The so-called "circular logarithm" is "the balanced exchange relationship between the internal and external elements of the function set of all objects". First, the dimensionless relationship between the newly discovered real number set (geometric mean) and natural numbers (arithmetic mean) was used. That is, the analysis of "the infinite construction set-a dimensionless circular logarithm" and the unique "balanced exchange mechanism of even symmetry and asymmetry, randomness and non-randomness' dimensionless axiom'" at $\{0,1\}^{K.}$ The "characteristic modulus-circular logarithm" is used to perform
"analysis and calculation without mathematical model, no specific (mass) element content".

(2) : Introducing Alexander Beilinson 's "Geometric Langlands Program". The core proof is about the deep correspondence between self-similarity and symmetry on Riemann surfaces. Using the Fourier analysis model to explain it, mathematicians have long understood the "spectrum" side of the geometric Langlands conjecture, but the understanding of the "wave" side is converted to: self-similarity and even symmetry on Riemann surfaces, as well as Taylor series and Fourier wave functions, as well as polynomials, Taylor series, and Euler equation series described in circular logarithmic form. The most difficult part is: the analysis of the dimensionless circular logarithm of infinite construction sets and the even symmetry and asymmetry constructed using dimensionless circular logarithms at $\{0,1\}^{K.}$ This problem was solved by the "Algebraic
Langlands Program" - a new dimensionless construction system came into being.

The entire set of dimensionless circular logarithms includes the April 2022 "Principles of Stability, Optimization and Dynamic Control of Systems - Analysis and Cognition of Higher-Order Equations from '0 to 1'" and the October 2024 "Presenting a New Infinite Construction Set: Dimensionless Circular Logarithms" to form a mathematical system of "Wang
Yiping's Circular Logarithms".

(3) : A series of articles such as "Dimensionless Circular Logarithmic Construction" elaborated on several important
mathematical links and made key breakthroughs:

(1) 、"Dimensionless axiom".

1931 , Gödel's "incompleteness" pointed out the "incompleteness" of the mathematical system at that time: Peano's axiomatization and set theory axiomatization. Circular logarithms further discovered the root of incompleteness, which is that "the balance of numerical elements cannot be exchanged and logical objects cannot be balanced." "Without a balance exchange mechanism", balance exchange cannot be performed directly, making the mathematical calculation process
complicated and unable to obtain zero-error analysis.

After studying the interaction between Kac-Moody localization and global , g(A) has many properties similar to finite-dimensional complex semi-simple Lie algebra. But g(A) is infinite-dimensional and can be converted into a regularized expansion of Newton binomial. It is further proposed that "any finite element function" in infinity can extract "numerical characteristic modulus and position value circular logarithm" respectively. Among them: the symmetry and asymmetry of evenness unique to infinite construction sets, and the balance exchange mechanism of random and non-random "infinite axiom". It is called the dimensionless axiom.

(2) 、Dimensionless "integer, reciprocity, isomorphism"

In the dimensionless proof of "integerality (Hodge conjecture), reciprocity (reciprocity theorem), isomorphism (P=NP) ", the functions that solve any asymmetry and inequality have "integerality, reciprocity, isomorphism", which can be converted into the symmetry of circular logarithms. Only with the balance of symmetry can exchange (morphism, mapping, etc.) be achieved.

(3)、 Dimensionlessness and the 'axiom of infinity'.

Based on dimensionless "balanced exchange", there is no interference from specific elements and objects, and the advantage of "random self-authentication". Therefore, the "infinite axiom" has existence, reliability and operability. It completely solves the problem of "element-object" balanced exchange driven by dimensionless circular logarithm and circular logarithm center zero point.

(4)、"Even numbers include binary and ternary numbers"

Symmetry has many names, such as "conjugate symmetry", "pair of pairs", etc., emphasizing the "even symmetry aspect" of binary numbers, but not the "even asymmetry aspect" of ternary numbers. Some philosophers call "conjugate symmetry" the advanced stage of the development of dialectical logic and the most advanced philosophical concept. It seems that there is room for expansion.

The fact shows that complete "conjugate symmetry" or "evenness" has "symmetry and asymmetry" (i.e. conjugate reciprocal symmetry and asymmetry). So far, mathematics and philosophy have never found a satisfactory way to solve the "asymmetry of evenness in conjugate symmetry".

(5)、 "Characteristic modulus and circular logarithm"

The conversion of group combinations into characteristic modules as unit cells plays two important and indispensable roles in circular logarithmic operations:

(a) Outside the characteristic mode: With the numerical characteristic mode of the place value circle logarithm as the center, it changes synchronously with the surrounding individual elements. Adaptive series function, called "central zero line (critical line)".

(b) Inside the characteristic mode: The analysis of the position of the center of the characteristic mode and the surrounding individual elements based on the numerical circular logarithm. The adaptation series function is called the

(c) "central zero point (critical point) on the central zero line (critical line)".

They respectively express the integrity that the balanced exchange mechanism of circular logarithms must be not only complete (external) but also compatible (internal), which can constitute the conditions for integration.

(6)、 Dimensionless equilibrium exchange mechanism:

Without changing the proposition, the characteristic modulus, or the isomorphic circular logarithm, the true proposition is balanced and exchanged into its inverse proposition by simply changing the properties of the circular logarithmic power function in the opposite direction.

$$(ABC\ldots S)^{(K=-1)(S)}=(1-\eta_{[xyz+uv]}{}^{2})^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}$$
$$=[(1-\eta_{[xyz+uv]}{}^{2})^{(K=-1)}\leftrightarrow(1-\eta_{[xyz+uv]}{}^{2})^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[xyz+uv]]}{}^{2})^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{(S)}$$
$$=(1-\eta_{[xyz+uv]}{}^{2})^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(S)}=(ABC\ldots S)^{(K=+1)(S)};$$

Conclusion : The research team of the "Algebraic Langlands Program" inherits the philosophical mathematical principle of ancient Chinese mathematics "Tao begets one, one begets two, two begets three, and three begets all things", inherits and expands the set theory and category theory of the European mathematical system, and It summarizes the analytical operations of the entire mathematical system in the most profound, abstract and fundamental way, and makes new contributions to mathematics.

5. Einstein's Theory of Relativity and Dimensionless Circular Logarithm

The late 19th century was a period of great change in physics. Einstein re-examined the basic concepts of physics based on experimental facts and made fundamental breakthroughs in theory. Some of his achievements have greatly promoted the development of astronomy. His general theory of relativity has a great influence on astrophysics, especially theoretical
astrophysics.

Einstein's special theory of relativity successfully revealed the relationship between energy and mass. Adhering to the deterministic position of the quantum theory interpretation of "God throwing dice" (the vector sum of particle vibration and
translation), it solved the long-standing problem of the source of stellar energy.

In recent years, there are more and more high-energy physical phenomena, and the special theory of relativity has become the most basic theoretical tool to explain such phenomena. Its general theory of relativity also solved a long-standing mystery in astronomy - the precession of Mercury's perihelion. This is something that Newton's theory of gravity cannot explain, and it inferred the light bending phenomenon that was later verified, and also became the theoretical basis for many
subsequent astronomical concepts.

In 1905 , Einstein published the Special Theory of Relativity, the famous formula:
$B=\sqrt{1-(v/C)^2}$ is equivalent to the circular logarithm $(\eta^2)^K=[1-\{^{(S)}\sqrt{X}\}/\{\mathbf{D}_0\}]^K$

The former formula uses "the invariance of the speed of light" as the comparative basis of relativity and is widely used in physics, becoming the two major physical pillars of relativity and quantum theory in the 20th century. The latter formula uses "characteristic mode (mean function)" as the comparative basis of relativity, discovers the status, function and effect of the "infinity axiom" and "central zero-point-Higgs particle", and is widely used in computational mathematics in mathematics
and physics (macro, meso and micro).

The mathematical form of the special theory of relativity is similar to the form of dimensionless circular logarithm. Therefore, Lorentz Einstein had come up with the idea of "dimensionless" more than 110 years ago. After publishing the "General Theory of Relativity" in 1915 , Einstein felt that it was not enough and spent the last 40 years of his life exploring the "structure" of relativity. Due to historical reasons, there was no progress until his death in 1955. Fortunately, the Chinese
circular logarithm team may have fulfilled Einstein's last wish.

from 1982 to 2024 , explored the construction of dimensionless circular logarithms, expanding the "relative" physical thinking and the "Langlands Program" mathematical unification conjecture. He proposed a one-to-one relativistic comparison of dimensionless circular logarithms with "numerical characteristic modulus (average value of positive and negative functions)-position-valued circular logarithms" as the mathematical basis, and discovered the dimensionless-specific "infinite axioms" and "random equilibrium exchange and random self-authentication" functions. Beyond the scope allowed by Hilbert metamathematics, it is widely used in applications that imitate human brain thinking, mathematics, physics, biology,
information transmission, etc.

Mathematicians once expected that any true statement would be established within the framework of some axiomatic system or implemented through a dimensionless set of constructions.

6. Proof of Fermat's Last Theorem, BSD Conjecture , and Dimensionless Circular Logarithm

6.1 Background of Fermat's Last Theorem

In 1665, when Fermat was reading the French translation of Diophantus' Arithmetic, he wrote next to Proposition 8 of Volume 11: "It is impossible to divide a cube into the sum of two different cubes, or a fourth power into the sum of two different fourth powers, or generally to divide a power higher than quadratic into the sum of two different powers of the same order. I am sure I have discovered a wonderful proof, but unfortunately the space here is too small to write it down." (Original Latin text: "Cuius rei demonstrationem mirabilem sane detexi. Hanc marginis exiguitas non caperet.") After all, Fermat did not write down the proof, and his other conjectures made great contributions to mathematics, thus inspiring the interest of many great mathematicians in this conjecture. The relevant work of mathematicians enriched the content of number theory and promoted the development of number theory.

In 1753, Euler proved the case of n=3.

In 1825, Legendre and Dirichlet independently proved the case where n=5.

In 1839, Lamb proved the case where n=7.

In 1922, British mathematician Mordell proposed a famous wrong conjecture, which is called "Mordell's conjecture." In its original form, the conjecture says: "Any irreducible two-variable polynomial with rational coefficients, when its "genus" is greater than or equal to 2, has at most a finite number of solutions. Let this polynomial be f(x, y), and the conjecture means: there exist at most a finite number of pairs xi, yi∈Q, such that f(xi, yi)=0." Later, people mistakenly expanded the conjecture to polynomials defined in any number field (including irrational number field), and with the emergence of abstract algebraic geometry, algebraic curves were used to describe this conjecture again.

The Model polynomial $\mathbf{x}^{\wedge n}+\mathbf{y}^{\wedge n-1}$has no singularity and its genus is (n-1)(n-2)/2. When n≥4, the Model polynomial satisfies the conjecture. Therefore, if the Model conjecture holds, then the equation $\mathbf{x}^{\wedge n}+\mathbf{y}^{\wedge n}=\mathbf{z}$^n in the Model conjecture essentially has at most finite integer solutions.

In 1983, German mathematician Faltings proved the Model conjecture, which opened a new chapter for Fermat's Last Theorem. Faltings was awarded the Fields Medal in 1984.

In June 1993, British mathematician Andrew Wiles claimed to have proved that for a large class of elliptic curves over the rational number field, the "Taniyama-Shimura conjecture" holds. Since he showed in his report that the irrational number equation formula Frey curve , that is, the irrational number equation curve of the identity Mordel conjecture formula , happens to belong to the large class of elliptic curves he mentioned, it also shows that he finally proved the "Fermat's Last Theorem"; but experts found loopholes in his proof. In fact, some loopholes cannot be fixed. Frey's formula is an irrational number equation formula , and the formula of Taniyama-Shimura conjecture is a rational number formula , but the formula of Fermat's Last Theorem is an integer inequality formula , so the number fields of these three formulas are different. In other respects, Frey's formula and identity Mordel conjecture formula are not the formulas of Fermat's Last Theorem at all. In other words, the theorem proved by Andrew Wiles is not Fermat's Last Theorem at all. He just asserted that the " conjecture " Fermat's Last Theorem holds, rather than directly proving that Fermat's Last Theorem holds.

Whether the Taniyama -Shimura conjecture is true or not, it has nothing to do with Fermat's Last Theorem. Because the formula of the Taniyama-Shimura conjecture is a rational number equation formula, and the formula of Fermat's Last Theorem is an integer inequality formula, and these two formulas cannot be mixed together . Later, Wiles' efforts found a way to fix the loophole, which was the idea that had been abandoned before. Finally, the loophole was solved and the conjecture was proved to be true . This was in 1995. As a result, Wiles won the Fields Medal in Mathematics and became one of the greatest mathematicians of the 20th century.

In 2003, McLarty began to look for a simple method to prove Fermat's Last Theorem . He published a paper titled "What to use to prove Fermat's Last Theorem? Grothendieck and the logic of number theory" in the 3rd issue of "Symbolic Logic Bulletin" in 2010. His paper discussed the set theory assumptions used in the currently published proof of Fermat's Last Theorem, how Wiles used these assumptions, and the prospects of using weaker assumptions to prove Fermat's Last Theorem. Some of his views have attracted people's attention and discussion. Zhou Haizhong, a Chinese mathematician and linguist who has read this paper, believes that McLarty analyzed the axiomatic method used to prove Fermat's Last Theorem from the perspective of mathematical philosophy , put forward some views that are fundamentally different from others , and provided a useful exploration and attempt to solve the difficult problems of number theory.

2019 , McLarty reported his preliminary results of proving Fermat's Last Theorem using the Peano algorithm at the Joint Mathematical Meetings held in San Diego, USA. American mathematical logician Harvey Friedman believes that McLarty's work has taken the first step and hopes that his work can be expanded to whether the theorem can be proved only by numbers without using sets. McLarty said, "I believe it can be done, but it requires many new insights into numbers, which will be very difficult."

According to a recent report by Science Daily, American philosopher and mathematician Colin McLarty said that the method used to prove Fermat's Last Theorem using Peano Arithmetic is simpler than the method used by British mathematician Andrew Wiles, uses fewer axioms, and is easy for most mathematicians to understand. His statement shocked the academic community.

6.2. Unification of ellipse and perfect circle - Fermat's Last Theorem does not hold

Speaking of Fermat's Last Theorem, we have to go back to the Shang Dynasty in China, the time of Hammurabi in ancient Babylon, or the time of Pythagoras in ancient Greece, because Fermat's Last Theorem was caused by the Pythagorean Theorem or the Pythagorean Theorem. Anyone with a secondary school education can understand that in a right triangle, the lengths of the right angles are a and b, and the length of the hypotenuse is c, then there is a relationship such as $a^2+b^2=c^2$. This relationship has been recognized and applied in the civilizations of the Shang Dynasty in China, ancient Babylon, and even earlier ancient Egypt in the 18th-16th century BC. The reason why it is usually called the Pythagorean Theorem in the academic language system is that Pythagoras is considered to be the first person to prove this theorem with the rigorous logic of mathematics.

Three thousand years later, during the Renaissance, Pierre de Fermat, the "king of amateur mathematicians" in France, proposed a proposition when studying whether there are countless integer solutions to the Pythagorean theorem (**a, b, c**). If the quadratic here is changed to a cubic or higher power, there is no integer solution. In mathematical terms, it is a "ternary number" mathematical problem of $\mathbf{a}^n+\mathbf{b}^n+\mathbf{c}^n$ · When n>2, there is no such set of non-zero integer solutions (**a, b, c**). This is the connection between Fermat's Last Theorem, the BSD conjecture, and the "cubic equation".

The Taniyama-Shimura conjecture uses proof by contradiction. First, assume that Fermat's Last Theorem does not hold, that is, there is an integer solution. Then, through transformation, the Fermat equation mentioned above can be transformed into the form of an elliptic equation. Then, if the Taniyama-Shimura conjecture is correct, that is, elliptic equations can be modularly formalized, and this converted elliptic equation can be proved to be unmodular, it can be proved that this elliptic equation does not exist, thus proving that the Fermat equation cannot have a solution. In the next 18 months, countless mathematicians devoted themselves to the process of proving that this elliptic equation cannot be modularly formalized. In the summer of 1986, Ken Libet of Berkeley, California, gave this proof.

In the history of proving Fermat's Last Theorem , we can see that Frey's formula is an irrational number equation formula , which is actually a real number set , while the formula of Taniyama-Shimura conjecture is a rational number formula , which is actually a natural number set . However, the formula of Fermat's Last Theorem is an integer inequality formula , so the number fields of these three formulas are different . Among them: in Wiles ' proof, the two number fields of " elliptic curve and modular form (i.e. perfect circle model) " are inconsistent and cannot be combined. In fact, there is no complete proof of " Fermat's Last Theorem ".

2019 , McLarty used Peano Arithmetic to prove Fermat's Last Theorem , but he still failed to achieve completeness. Is Fermat's Last Theorem valid ? It is still "one step away" from completeness proof .

In fact, the Taniyama-Shimura conjecture, Wiles ' proof, and McLarty's proof are all wrong. The root cause is that it is impossible to prove it if we still use traditional mathematical tools from the 17th to 21st centuries.

Fermat's Last Theorem and BSD conjecture require that, without changing the power dimension n and the elements of

$\mathbf{x}^n+\mathbf{y}^n+\mathbf{z}^n$, there exists an inequality for $n \geq 3$. Wiles ' proof: " Elliptic curves and modular forms (i.e., perfect circle patterns) " belong to two areas that cannot be unified, and " Fermat's Last Theorem holds". On the contrary, if new mathematical tools are used, such as dimensionless circular logarithmic analysis, "a cubic equation and any integer n>2", such a set of non-zero integer solutions (a, b, c) can be obtained. This is the connection between Fermat's Last Theorem and BSD conjecture, which solves Fermat's Last Theorem and BSD conjecture 2. It means that traditional mathematics has made mistakes in dealing with the mathematical problem of "ternary numbers". If the two areas of elliptic curves and modular forms (i.e., perfect circle patterns) are unified, then it can be said that " Fermat's Last Theorem does not hold".

What is going on?

It will be proved below that " elliptic curves and module forms (i.e., perfect circle models) " can be made consistent and integrated through the dimensionless circular logarithm form.

The random self-proving equilibrium exchange combination is unified by applying the "infinite axiom" mechanism. Here we will explain: the proof of constructing a set using dimensionless circular logarithms , and prove that these two mathematical problems (including irrational number equations , rational number formulas , integer inequality formulas) can be integrated. The result proves that the expression of Fermat's Last Theorem can become an "identity" .

an element -object of a third-party dimensionless construction set, there is no interference from the specific element content. The dimensionless construction set has the symmetry and asymmetry of "even number" and the random self-verification truth and falsity mechanism of infinite axioms. It has strictness, closure, compactness, isomorphism, homology, and the conjugated and mutually inverse symmetry of the central zero line (critical line) and the central zero point (critical point), so that "dimensionless" cannot interfere with "dimensionless" or random self-verification , ensuring the fairness, accuracy and authority of dimensionless analysis and verification of other construction sets by the third party itself.

Here we use a new mathematical tool - dimensionless circular logarithm to solve the problem that "Fermat's Last Theorem does not hold". The proof is as follows:

certificate

There is a continuum proof at the beginning of this article: when the real number set contains the unit cell of rational numbers and irrational numbers (multiplication combination, geometric mean) divided by the unit cell of natural number set and rational numbers (addition combination, arithmetic mean), the integer expansion of the dimensionless construction set is obtained.

Modular forms are a special theory of automorphic forms. The automorphic forms on the general Fuchs group developed by (J.-)H. Poincare are a subject in the theory of functions of single and complex variables. The modular forms created by E. Heck are automorphic forms for the modular group Sl2(Z) or other arithmetic groups. In terms of its content and methods, they should be part of number theory. In its later development, it has a very deep connection with the theory of elliptic curves, algebraic geometry, representation theory, etc. and has become a comprehensive subject in mathematics.

Assume that the elliptic curve belongs to the set of irrational numbers, $\{X\} \in \prod\{x_1x_2 \dots x_n\}$, and multiply the combined unit cell:

$\{^{(n)}\sqrt{X}\}^{(1)}, \{^{(n)}\sqrt{X}\}^{(2)}, \dots, \{^{(n)}\sqrt{X}\}^{(n)}$,

The characteristic mode (i.e. the perfect circular mode, the average value of the center and the reverse) belongs to the set of rational numbers, plus the combined unit body:

$\{X_0\}^{(1)} = (1/n)(x_1+x_2+\dots+x_n)$,

$$\{X_0\}^{(2)} = \sum(2/n(n-1) \prod_{ij=2} (x_1 x_2 + x_2 x_3 + \dots),$$

$\{X_0\}^{(P)} = \sum((P-1)!/n!)\prod_{ij=p} (x_1 x_2 \dots x_P + x_2 x_3 \dots x_P +)$,

The expansion of the characteristic module form is the Steller formula:

$\{X_0\}^{(n)} = \{X_0\}^{(0)} + \{X_0\}^{(1)} + \{X_0\}^{(2)} + \dots + \{X_0\}^{(P)} + \dots$;

Circular logarithmic discriminant:

$(1-\eta^2)^K = \{^{(n)}\sqrt{X/X_0}\}^{(1)} = \{^{(n)}\sqrt{X/X_0}\}^{(2)} = \dots = \{^{(n)}\sqrt{X/X_0}\}^{(n)} = \{0,1\}$;

The center point of any function with resolution 2 is decomposed into two conjugate mutually inverse asymmetric sub-functions to form elliptic functions, corresponding to $x^n + y^n$ respectively. Then z^n forms an additive combination unit body, corresponding to the perfect circular mode and characteristic mode.

When $n \geq 2$, it is converted to Fermat 's Last Theorem identity

(1)、$x^n+y^n=(1-\eta_{xy}^2)^K z^n$。$(1-\eta^2)^K=\{0,1\}$,

(2)、Peano arithmetic is based on$A^n+B^n=(1-\eta_{AB}^2)^K C^n$。$(1-\eta^2)^K=\{0,1\}$,

It reflects that the dimensionless circular logarithm successfully solves the unification of " ellipse, elliptical curve and module form (i.e., perfect circle model) ".

Among them: x^n, yn , z n are equivalent to x^n, y^n, z^n 与 A^n, B^n, C^n and$(1-\eta_{xy}^2)^K=(1-\eta_{AB}^2)^K$; A, B, C are any natural integers,

When: n=2, for any integer, convert Fermat's Last Theorem identity

(3)、 $x_0^2+y_0^2=(1-\eta_{[0]}^2)^K z_0^2$。$(1-\eta_{[0]}^2)^K=\{1\}$, corresponding to the characteristic mode (uneven distribution on the perfect circle boundary).

$[(x^n+y^n)/z^n]=[(x^n+y^n)/z^n]/[(x_0^n+y_0^n)/z_0^n]\cdot[(x_0^n+y_0^n)/z_0^n][(x_0^2+y_0^2)/z_0^2]$

$=(1-\eta_{[0]}^2)^K[(x_0^2+y_0^2)/z_0^2]$;

(4)、 $A_{00}^2+B_{00}^2=(1-\eta_{[00]}^2)^K C_{00}^2$。$(1-\eta_{[0]}^2)^K=\{1\}$, corresponding to the perfect circle mode (uniform distribution on the perfect circle boundary).

$[(A^n+B^n)/C^n]/[(A_{00}^2+B_{00}^2)/C_{00}^2]\cdot[(A_{00}^2+B_{00}^2)/C_{00}^2]$

$=(1-\eta_{[00]}^2)^K[(A_{00}^2+B_{00}^2)/C_{00}^2]$。$(1-\eta^2)^K=\{0,1\}$,

(6)、The characteristic mold has the same boundary function and the same numerical average value,

$[(\mathbf{x}_0^2+\mathbf{y}_0^2)/\mathbf{z}_0^2] = [(\mathbf{A}_{00}^2 + \mathbf{B}_{00}^2)/\mathbf{C}_{00}^2]$.

The difference between the two is that the center point O of the characteristic mold is not at the center of the geometric circle O_0, while the center point of the perfect circle mode must be at the center of the geometric circle O_0. This difference is expressed by the position value circle logarithm $(1-\eta_{[C]}^2)^K$:

$(1-\eta_{[C]}^2)^K=[(x_0^2+y_0^2)/z_0^2]/[(A_{00}^2+B_{00}^2)/C_{00}^2]=(1-\eta_{[0]}^2)^K/(1-\eta_{[00]}^2)^K=\{0,1\}$;

$$(1-\eta^2)^K=[(x^n+y^n)/z^n]/[(x_0^n+y_0^n)/z_0^n]\cdot[(x_0^n+y_0^n)/z_0^n]/[(x_{00}^n+y_{00}^n)/z_{00}^n]$$

$$=[(A^n+B^n)/C^n]/[(A_0^n+B_0^n)/C_0^n]\cdot[(A_0^n+B_0^n)/C_0^n]/[(A_{00}^n+B_{00}^n)/C_{00}^n]$$

$=(1-\eta_{[0]}^2)^K+(1-\eta_{[00]}^2)^K=\{0,1\}$;

(7)、Exchange : elements: [xn, yn, zn] = [An, Bn , Cn] , etc. The equivalent conditions remain unchanged , and the dimensionless perfect circle model is used as the circular logarithm basis , $[A_{00}^n$, B_{00}^n, $C_{00}^n]$ is the medium, and through the exchange of the zero point of the circular logarithm center itself, it drives the elements: $[x^n, y^n, z^n]=[A^n, B^n, C^n]$;

$[(x^n+y^n)/z^n]=(1-\eta_{[C]}^2)^{(K=-1)}[(X_{00}^2+Y_{00}^2)/Z_{00}^2]$

$\leftrightarrow[(1-\eta_{[C]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=`1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=+1)}]\{(X_{00}^n+Y_{00}^n)/Z_{00}^n]/[(A_{00}^n+B_{00}^n)/C_{00}^n\}\leftrightarrow$

$\leftrightarrow(1-\eta_{[C]}^2)^{(K=+1)}[(A_{00}^2+B_{00}^2)/C_{00}^2]=[(A^n+B^n)/C^n]$;

(8)、We obtain: $[(x^n+y^n)/z^n]=(1-\eta_{[C]}^2)^K[(A_{00}^n+B_{00}^n)/C_{00}^n]$

The process from any ellipse to a centrally symmetric ellipse to a characteristic mode (uneven distribution on the boundary of a perfect circle to a perfect circle mode (uniform distribution on the boundary of a perfect circle) is described by the circular logarithm, which is reflected as the record of the circular logarithm power function (path integral)

$(1-\eta_{[C]}{}^2)^K = (1-\eta_{[00]}{}^2)^{K(n=0,1,2,3\ldots)}$. (n=0,1,2,3…)
represents each transformation record.

In this way, $[(\mathbf{x}^n+\mathbf{y}^n)/\mathbf{z}^n]$ (n=0,1,2,3, … n integers) remains invariant, and the evenness of circular logarithms and the perfect circle model (number theory) of the "infinity axiom" mechanism establish the identity of Fermat's Last Theorem . In other words, the dimensionless circular logarithm proves that " Fermat's Last Theorem " does not hold.

6.3 、BSD Conjecture Background

The BSD conjecture, the full name of which is the Birch and Swinnerton-Dyer conjecture, is one of the seven great mathematical problems in the world. It describes the connection between the arithmetic and analytic properties of Abelian varieties, and is closely related to Fermat's Last Theorem.

In mathematics, a group is an algebraic structure that has binary operations that satisfy closure, associativity, identity, and inverses, including Abelian groups, homomorphisms, and conjugation classes.

Galois viewed numbers and operations at a higher level. In Galois's view, "numbers and operations" combined together can form a mathematical structure, which is a more essential and abstract mathematical structure. When this structure is further abstracted from "numbers and operations in the conventional sense", a new mathematical concept is formed - group.

BSD conjecture: Given an Abelian variety over a global domain, it is conjectured that the rank of its Modal group is equal to the zero order of its L function at 1, and the leading coefficient of the Taylor expansion of its L function at 1 is exactly related to the finite part size, free part volume, period of all prime positions, and sand group of the Modal group.

The so-called Abelian Group, also known as the commutative group or addition group, is a group:

It consists of its own set G and the binary operations "multiplication and addition". In addition to satisfying the general group axioms, namely the associative law of operations, G has an identity element, and all elements of G have inverses, it also satisfies the commutative law axiom. Because the group operations of the Abelian group satisfy the commutative and associative laws, the value of the product of the group elements is independent of the order of the multiplication operations.

The concept of an Abelian group is one of the fundamental concepts of abstract algebra. Its basic research objects are modules and vector spaces. The theory of an Abelian group is simpler than that of other non-Abelian groups. Finite Abelian groups have been thoroughly studied. The theory of infinite Abelian groups is an area of current research and has not been solved so far.

The first half is usually called the weak **BSD** conjecture. The BSD conjecture is a generalization of the class number formula for cyclotomic fields. Gross proposed a refined **BSD** conjecture. Bloch and Kato proposed a more general Bloch-Kato conjecture for motifs.

The statement of the BSD conjecture relies on Moder's theorem: the rational points of an Abelian variety over a global field form a finitely generated commutative group. The exact part relies on the finiteness conjecture of the Sand group.

For the case where the analytic rank is **0** , Coates, Wiles, Kolyvagin, Rubin, Skinner, Urban and others proved the weak BSD conjecture, and the exact BSD conjecture holds for all cases except 2.

For the case of analytic rank **1** , Gross, Zagier et al. proved the weak BSD conjecture, and the exact BSD conjecture holds except for 2 and derivations.

6.4. Proof of the BSD conjecture

Due to the influence of Modal's impossible trinity law, after Hamilton solved binary complex analysis, he encountered the "difficulty of balanced exchange of combinations of univariate numbers and binary numbers" when he moved on to ternary complex analysis. He said that there was no "ternary number"$A^3+B^3+C^3=0$ or $A^n+B^n+C^n=0$; and that integer analysis could not be obtained . As a result, ternary numbers could not be expanded and became blank.

The proof of the BSD conjecture requires that it consists of the set G of ternary numbers and the ternary operations "multiplication and addition". In addition to satisfying the general group axioms, namely the associative law of operations,
the identity element, and the inverse element, it also satisfies the commutative law axiom.

As we all know, the linear equation: A+B+C=0, the elliptic equation: $A^2+B^2+C^2=0$; this identity is easy to prove and is
closely related to triangles and the Pythagorean theorem.

certificate

Assume that the geometric automorphic function is the set of irrational numbers (elliptic function)

$$\{\mathbf{R}\}=(\mathbf{ABC})\in(\mathbf{A^nB^nC^n})\in\prod\{(a_1a_2\ldots a_n),\ (b_1b_2\ldots b_n),\ (c_1c_2\ldots c_n)\},$$

Geometric automorphic functions are unit cells of characteristic modular multiplication of irrational number sets:

$\{^{(n)}\sqrt{\mathbf{R}}\}^{(1)}$, $\{^{(n)}\sqrt{\mathbf{R}}\}^{(2)}$, …, $\{^{(n)}\sqrt{\mathbf{R}}\}^{(n)}$,

Arithmetic automorphic functions are the characteristic modulus of the rational number set (i.e., the perfect circle mode, the average value of the center and the reverse) and belong to the rational number set, plus the combined unit body:

$\{\mathbf{R}_0\}^{(1)}=\sum(1/n)(\mathbf{R}_1+\mathbf{R}_2+\ldots+\mathbf{R}_n)$,

$\{\mathbf{R}_0\}^{(2)}=\sum(2/n(n-1))\prod_{ij=2}(\mathbf{R}_1\mathbf{R}_2+\mathbf{R}_2\mathbf{R}_3+\ldots)$,

$\{\mathbf{R}_0\}^{(P)}=\sum((P-1)!/n!)\prod_{ij=p}(\mathbf{R}_1\mathbf{R}_2\ldots\mathbf{R}_P+\mathbf{R}_2\mathbf{R}_3+\ldots)$,

Taylor (characteristic mode) expansion:

$$\{\mathbf{R}_0\}^{(n)}=\{\mathbf{R}_0\}^{(0)}+\{\mathbf{R}_0\}^{(1)}+\{\mathbf{R}_0\}^{(2)}+\ldots+\{\mathbf{R}_0\}^{(P)}+\ldots;$$

Circular logarithmic discriminant:

$(1-\eta^2)^K=\{^{(n)}\sqrt{\mathbf{R}/\mathbf{R}_0}\}^{(1)}=\{^{(n)}\sqrt{\mathbf{R}/\mathbf{R}_0}\}^{(2)}=\ldots=\{^{(n)}\sqrt{\mathbf{R}/\mathbf{R}_0}\}^{(n)}=\{0,1\}$;

The center point of any function with resolution 2 is decomposed into two conjugate mutually inverse asymmetric sub-functions to form an elliptic function, corresponding to $\mathbf{x}^n+\mathbf{y}^n$ respectively . Then $\mathbf{z}^n$ forms a combined unit body, corresponding to the perfect circle mode and characteristic mode. From the BSD conjecture, many conjectures such as the parity conjecture and the Sylvester conjecture can be derived. The most famous one is that a positive integer without a square factor can definitely become the area of a right triangle with a rational side length.

$(1-\eta^2)^{(K=`1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=`0)}+(1-\eta^2)^{(K=-1)}=\{0,2\}$;

$(1-\eta^2)^{(K=`0)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0,1\}$;

Among them: ($\mathbf{A^n\ B^n\ C^n}$) corresponds to the (external) characteristic mode of the group combination, and the circular logarithmic central zero point symmetry is the central zero line (critical line);

($\mathbf{a^n\ b^n\ c^n}$) corresponds to the characteristic mode (inside the group combination), and the circular logarithmic central zero point symmetry is the central zero point (critical point);

If $\mathbf{A^n\ B^n\ C^n}$ appears as a cubic equation of a ternary number, then the cubic equation can extract the "numerical characteristic modulus" and "place value circular logarithm" respectively, and convert it into a dimensionless circular logarithm proof of the 'axiom of infinity', and the balanced exchange combination decomposition of the ternary number is driven by the evenness of the circular logarithm and the central zero point symmetry.

(**1**) 、The BSD conjecture corresponds to the cubic equation of $\{\mathbf{R}_0\}$:

the characteristic modulus $\{\mathbf{R}_0^n\}$ of the boundary function $\{\mathbf{R}^n\}$ of the geometric L function (multiplication combination), or the characteristic modulus $\{\mathbf{D}_0^n\}$ of the boundary function $\{\mathbf{D}^n\}$ of the arithmetic L function (addition combination) , both functions can be analyzed using the dimensionless circular logarithm.

Operation and derivation: Replace $\mathbf{A^n, B^n, C^n}$ corresponding to $\{\mathbf{R^n}\}$, $\{\mathbf{R_0^n}\}$, $\{\mathbf{R_{00}^n}\}$ with $\mathbf{A^n, B^n, C^n}$ corresponding to $\{\mathbf{R^n}\}$, $\{\mathbf{R_0^n}\}$, $\{\mathbf{R_{00}^n}\}$ respectively.

Characteristic mode: $\{\mathbf{R}_0\}^{(1)}=\sum(1/3)(A+B+C)$, $\{\mathbf{R}_0\}^{(2)}=\sum(2/n(n-1))\prod_{ij=2}(AB+BC+CA)$,

Circular logarithmic discriminant: $\Delta=(\eta^2)^K=\{^{(3)}\sqrt{\mathbf{R}/\mathbf{R}_0}\}^{(1)}=\{^{(3)}\sqrt{\mathbf{R}/\mathbf{R}_0}\}^{(2)}=\{^{(3)}\sqrt{\mathbf{R}/\mathbf{R}_0}\}^{(3)}=\{0,1\}$;

According to the above (ternary complex analysis), we can deduce:

The three consecutive multiplication combinations are transformed into three circular logarithm addition combinations . The circular logarithm center zero is between "one-dimensional number and two-dimensional number", which becomes an

"even number" asymmetric distribution. That is, the asymmetry $\{A\cdot(B\cdot C)\}$ is transformed into the symmetry

$[(1-\eta_{[A]}^2)^K + (1-\eta_{[A]}^2)^K + (1-\eta_{[A]}^2)^K]$ corresponding to $\{\mathbf{R}_{00}\}^{(3)}$

In particular , the exchange rules of ternary numbers (asymmetric distribution) must be based on the symmetry of the center zero point of the "evenness" of the circular logarithm. Under the dimensionless circular logarithm factor of "the same sum of evenness " on both sides of the center zero point , the original proposition, characteristic modulus, and isomorphic circular logarithm remain unchanged. Through the positive and negative properties of the circular logarithm properties, the " element-object " value is decomposed by the balanced exchange combination of symmetry and asymmetry , "infinity axiom"

randomness and non-randomness.

Decomposition of the balanced exchange combination .

$\{A\cdot(B\cdot C)\}=[(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[BC]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$

$=[(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[B]}^2)^{(K=-1)}+(1-\eta_{[C]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$;

$(1-\eta_{[BC]}^2)^{(K=-1)}=(1-\eta_{[B]}^2)^{(K=-1)}+(1-\eta_{[C]}^2)^{(K=-1)}$;

(**2**)、Exchange rule: The three "element-object" propositions remain unchanged, the characteristic module remains unchanged, and the isomorphic circular logarithm remains unchanged. Only by changing the properties of the circular logarithm in the middle and in the opposite direction, the true propositions are exchanged (changed). , mapping, morphism) becomes the inverse proposition

Exchange of the decomposition of the circular logarithmic center zero-point balance exchange combination:

Dimensionless circular logarithmic center zero line (critical line) series: (adapting to the outside of the characteristic mode) corresponding to the characteristic mode $\{ABC\}^{(Kw=\pm0)}$

Overall conversion:

$ABC^{(K=-1)}=\{^{(3)}\sqrt{\mathbf{R}}\}^{(K=-1)(3)}=(1-\eta_{[ABC]}^2)^{(K=-1)}\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow[(1-\eta_{[ABC]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[ABC]}^2)^{(K=+1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow(1-\eta_{[ABC]}^2)^{(K=+1)}\{\mathbf{R}_{00}\}^{(3)}=\{^{(3)}\sqrt{\mathbf{R}}\}^{(K=+1)(3)}=CBA^{(K=+1)}$;

Abbreviation: $ABC^{(3)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)(3)}\leftrightarrow(CBA)^{(3)}$;

Cross-dimensional power conversion:

$A=(1-\eta_{[A]}^2)^{(K=+1)}\{\mathbf{R}_{00}\}^{(1)}$

$\leftrightarrow[(1-\eta_{[A]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[BC]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow(1-\eta_{[BC]}^2)^{(K=-1)}\{\mathbf{R}_{00}\}^{(2)}=BC$;

$A^{(1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)(3)}\leftrightarrow(B+C)^{(2)}$;

Cross-dimensional power conversion:

$ABC=(1-\eta_{[ABC]}^2)^{(K=-1)}\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow[(1-\eta_{[ABC]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[ABC]}^2)^{(K=+1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow[(1-\eta_{[BC]}^2)^{(K=+1)}+(1-\eta_{[CA]}^2)^{(K=-1)}+(1-\eta_{[AB]}^2)^{(K=-1)}+]\{\mathbf{R}_{00}\}^{(2)}$

$\leftrightarrow[(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[B]}^2)^{(K=-1)}+(1-\eta_{[C]}^2)^{(K=-1)}+]\{\mathbf{R}_{00}\}^{(1)}$

$=\{A(=C\cdot B),B(=A\cdot C),C(=A\cdot B)\}^{(1)}$;

Abbreviation: $ABC^{(3)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow A+C+B$;

（2）、Dimensionless circular logarithm center zero point (critical point): (adapting to the interior of the characteristic mode) corresponding to the characteristic mode $\{abc\}^{(Kw=\pm0)}\in\{ABC\}^{(Kw=\pm0)}$

Overall conversion:

$abc^{(K=-1)}=\{^{(3)}\sqrt{\mathbf{R}}\}^{(K=-1)(3)}=(1-\eta_{[abc]}^2)^{(K=-1)}\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow[(1-\eta_{[abc]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[abc]}^2)^{(K=+1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow(1-\eta_{[abc]}^2)^{(K=+1)}\{\mathbf{R}_{00}\}^{(3)}=\{^{(3)}\sqrt{\mathbf{R}}\}^{(K=+1)(3)}=cba^{(K=+1)}$;

Abbreviation: $abc^{(3)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(cba)^{(3)}$;

Cross-dimensional power decomposition:

$a=(1-\eta_{[A]}^2)^{(K=+1)}\{\mathbf{R}_{00}\}^{(1)}$

$\leftrightarrow[(1-\eta_{[abc]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[cba]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow(1-\eta_{[BC]}^2)^{(K=-1)}\{\mathbf{R}_{00}\}^{(2)}=BC$;

$A^{(1)}\leftrightarrow(ABC)^{(K=\pm0)(3)}\leftrightarrow(B+C)^{(2)}$;

Cross-dimensional power conversion:

$ABC=(1-\eta_{[ABC]}^2)^{(K=-1)}\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow[(1-\eta_{[ABC]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[ABC]}^2)^{(K=+1)}]\cdot\{\mathbf{R}_{00}\}^{(3)}$

$\leftrightarrow[(1-\eta_{[BC]}^2)^{(K=+1)}+(1-\eta_{[CA]}^2)^{(K=-1)}+(1-\eta_{[AB]}^2)^{(K=-1)}+]\{\mathbf{R}_{00}\}^{(2)}$

$\leftrightarrow[(1-\eta_{[A]}^2)^{(K=+1)}+(1-\eta_{[B]}^2)^{(K=-1)}+(1-\eta_{[C]}^2)^{(K=-1)}+]\{\mathbf{R}_{00}\}^{(1)}$

$=\{a(=c\cdot b),b(=a\cdot c),c(=a\cdot b)\}^{(1)}$;

Abbreviation: $abc\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow A+C+B$;

Abbreviation: $abc\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow A+C+B$;

Among them: numerical characteristic mode:

$\{\mathbf{D}_0^n\}\leftrightarrow\{R_0^2\}=R_{0x}^2+R_{0y}^2+R_{0z}^2=\{\mathbf{R}_0^{\mathbf{n}}\}\leftrightarrow\{R_{00}^2\}=R_{00X}^2+R_{00Y}^2+R_{00Z}^2$;

with $(1-\eta_{[C]}^2)^{(K=\pm0)}=\{R_{00}^2\}$ perfect circle modeas the dimensionless circular logarithm as the basis.

(iii) Analysis: Roots of ternary numbers.

$\mathbf{A\cdot B\cdot C}=(1-\eta^2)^K\{\mathbf{R}_0\}^{(3)}$, reduced to $\mathbf{A^n\cdot B^n\cdot C^n}=(1-\eta_{[n]}^2)^K\{\mathbf{R}_0^{\mathbf{n}}\}^{(3)}$;

Dimensionless circular logarithmic center zero point symmetry:

According to the discriminant of circular logarithm:

$\Delta=(\eta^2)^K=\{\eta_{[A]}^2/\mathbf{R}_0^2\}+\{\eta_{[B]}^2/\mathbf{R}_0^2\}+\{\eta_{[C]}^2/\mathbf{R}_0^2\}=\{0\}$;

Or: $(1-\eta^2)^K=(1-\eta_{[A]}^2/\mathbf{R}_0^2)^{(K=+1)}+(1-\eta_{[BC]}^2/\mathbf{R}_0^2)^{(K=-1)}$

$=(1-\eta_{[A]}^2/\mathbf{R}_0^2)^{(K=+1)}+(1-\eta_{[B]}^2/\mathbf{R}_0^2)^{(K=-1)}+(1-\eta_{[C]}^2/\mathbf{R}_0^2)^{(K=-1)}=\{0,3\}$;

$(1-\eta_{[A]}^2)^{(K=+1)}-(1-\eta_{[B]}^2)^{(K=-1)}+(1-\eta_{[C]}^2)^{(K=-1)}=0$;

Or: $(1-\eta^2)^K=(1+\eta_{[A]}/\mathbf{R}_0)^K+(1-\eta_{[B]}/\mathbf{R}_0)^K+(1-\eta_{[C]}/\mathbf{R}_0)^K=\{0,3\}$;

$(+\eta_{[A]})+(-\eta_{[B]})+(-\eta_{[C]})=0$;

Get: three probability root numbers:

$\{A\}=[(1-\eta_{[A]}^2)^{(K=+1)}]\cdot\{\mathbf{R}_{00}\}^{(1)}$corresponds to the X-axis;
$\{(B\}=[(1-\eta_{[B]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(1)}$corresponds to the Y axis;

$\{C)\}=[(1-\eta_{[C]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(1)}$corresponds to the Z axis;
Three topological root numbers:
$\{BC\}=[(1-\eta_{[BC]}^2)^{(K=+1)}]\cdot\{\mathbf{R}_{00}\}^{(2)}$corresponds to the YOZ plane and the X axis;
$\{(CA\}=[(1-\eta_{[CA]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(2)}$ corresponds to the ZOX plane and the Y axis;
$\{AB)\}=[(1-\eta_{[AB]}^2)^{(K=-1)}]\cdot\{\mathbf{R}_{00}\}^{(2)}$corresponds to the XOY plane and the Z axis;

the associative law and commutative law of circular logarithmic composition (addition or multiplication) , the problem that traditional mathematics cannot directly balance exchanges is overcome, or in other words, the mathematical basis for proving that traditional numerical analysis and logical algebra category theory cannot directly morphism and map, and that classical analysis cannot be directly balanced is supplemented.

Among them: characteristic mode: uneven distribution of perfect circle boundary { $\mathbf{R}_0$ }, perfect circle mode: uniform distribution of perfect circle boundary) $\{\mathbf{R}_{00}\}$

$(1-\eta_{[C]}^2)^K=(1-\eta_0^2)^K+(1-\eta_{00}^2)^K=\{\mathbf{R}_0\}/\{\mathbf{R}_{00}\}=\{0,1\}$;

get:

（1）、Fermat's Last Theorem:

$x^n+y^n+z^n= (1-\eta_{[n]}^2)^K\{\mathbf{D}_0^n\}\leftrightarrow x_0^2+y_0^2+z_0^2= (1-\eta_{[n]}^2)^K\{\mathbf{D}_0\}^2$,

（2）、BSD conjecture"

$A^n+B^n+C^n= (1-\eta_{[n]}^2)^K\{\mathbf{R}_0^n\}$
$\leftrightarrow(1-\eta_0^2)^K\leftrightarrow(1-\eta_{00}^2)^K\leftrightarrow(1-\eta_{[C]}^2)^K[A_{00}^2+B_{00}^2+C_{00}^2]$,

Where：$(1-\eta_{[n]}^2)^K\neq1$；(n=3,…infinite integers)

When：$(1-\eta_{[n]}^2)^K=1$；That is a right triangle.

$A^2+B^2=C^2=2\{\mathbf{R}_{00}^2\}\leftrightarrow2\cdot(\pi/2)\cdot\{\mathbf{R}_{00}^2\}$,
$A^2+B^2[=(\pi/2)\cdot\{\mathbf{R}_{00}^2\}]=C^2[=(\pi/2)\cdot\{\mathbf{R}_{00}^2\}]$;

$(1-\eta_{\Delta[ABC]}^2)^{(Kw=\pm0)}$ and $(1-\eta_{\Delta[abc]}^2)^{(Kw=\pm0)}$ corresponding to $\{\mathbf{D}_0\}^{(3)}$ in the proof process emphasize the transitional role of the intermediate medium , reflecting the even-numbered balanced exchange-combination decomposition of the ternary number (asymmetric numerical value). A and B C (or a and bc) drive the exchange of A , B , C (or a, b, c) under the circular logarithmic center zero-point symmetry balance of the " infinity axiom " mechanism , which is called the asymmetry of the "even-numbered" ternary number, the random balanced exchange - combination decomposition and the self-authentication characteristics.

The two proofs are " Fermat's Last Theorem " and "BSD Conjecture", which are proved to be sufficient and necessary through the 'axiom of infinity' mechanism . The two complement and integrate each other and are indispensable.

7. Microscopic particles and dimensionless circular logarithm

Neutrinos, also translated as neutrinos, are a type of lepton and one of the most basic particles in nature. They are usually represented by the Greek letter ν. Neutrinos are small, uncharged, can freely pass through the earth, have a spin of (1/2) , are very light (some are less than one millionth of an electron), move at a speed close to the speed of light, and interact very weakly with other matter. They are known as the "invisible man" and "ghost particle" in the universe. It took the
scientific community more than 20 years from predicting its existence to discovering it .

On November 23, 2013, scientists captured high-energy neutrinos for the first time. Using a particle detector buried
under the Antarctic ice, they captured high-energy neutrinos originating from outside the solar system for the first time.

In May 2022 , the second large-scale neutrino experiment project hosted by China, the Jiangmen Neutrino Experiment, is under construction. The Jiangmen Neutrino Experiment is a large scientific facility whose primary scientific goal is to
measure the neutrino mass order.

7.1.1 Mathematical description of "neutrino":

(1) New formula for eigenvectors to describe neutrinos

In August this year, Peter B. Denton, an assistant physicist at Brookhaven National Laboratory in the United States, Stephen J. Parke, a physicist from New Zealand, and Xining Zhang, a student at the University of Chicago who is engaged in theoretical particle physics research and a disciple of Stephen J. Parke, conducted their research on

"neutrinos" as planned.
However, they never expected that this physics experiment would cause a stir in the mathematics community.

They discovered a completely new formula for solving eigenvectors, which attracted a lot of attention from the mathematics community, who said it could lead to textbook reforms.

When they calculated the probability of neutrino oscillation, they found that the geometric essence of eigenvectors and eigenvalues is actually the rotation and scaling of space vectors. The three neutrinos (**e-** electrons, **muons** , and **tauons**) are equivalent to the transformation between the three vectors in space.

Neutrino oscillation is a quantum mechanical phenomenon. Experiments have found that the three types of neutrinos, **e-** electron neutrinos, **muon** neutrinos and **tau** neutrinos, can be transformed into each other, and this is the neutrino oscillation phenomenon.

They discovered a new formula for solving the eigenvector. Knowing the eigenvalue, they only need to write a simple
equation to solve the eigenvector.

$$|\hat{U}_{\alpha i}|^2 = \frac{(\lambda_i - \xi_\alpha)(\lambda_i - \chi_\alpha)}{(\lambda_i - \lambda_j)(\lambda_i - \lambda_k)}$$

A week later, Terence Tao and three physicists published a paper describing the proof of this formula. As soon as this paper came out, the entire mathematics community went wild. Yale University mathematician Van Vu used the words "amazing" and "interesting" to describe this discovery. A Hacker News netizen even believed that the theoretical value of this formula is higher than Cramer's rule. Cramer's rule is a basic theorem in linear algebra, which uses determinants to calculate the solution of a system of n-variable linear equations. "This formula looks incredibly good." Even Terence Tao, who has proven that the formula is correct, said, "I never thought that the eigenvalues of the submatrix encode hidden information about the
eigenvectors of the original matrix." This means that there may be more general rules between eigenvectors and eigenvalues.

If the formula is correct, it means that we can simply create a submatrix by deleting rows and columns from the original matrix. Then, by combining the eigenvalues of the submatrix with the eigenvalues of the original matrix, we can calculate the
eigenvectors of the original matrix. In short, given the eigenvalues, we can find the eigenvector with one equation.

Here we will introduce the calculation of dimensionless circular logarithm. If the boundary function and characteristic modulus (mean value) are known, we can use dimensionless circular logarithm to calculate it. It is simpler, more uniform and
has zero error than the calculation of characteristic vector formula.

(2) Dimensionless circular logarithm describes neutrinos

From a mathematical point of view: neutrinos belong to the asymmetric distribution of the "even term " ternary number . The "even" asymmetric particles of the "infinity axiom" can be used to mathematically describe the balanced exchange combination of random and non-random.

[**e μ τ**] In the non-random equilibrium exchange combination decomposition of the ' infinity axiom ' mechanism , the original quantum particles, the characteristic modulus (average mass of quantum particles), and the isomorphic circular logarithm are not changed. Only by changing the properties of the power function, the positive particles are converted into negative particles . The opposite is also true. It is represented by " ↔ ".

Neutrino second-order symmetry description (radiation, oscillation) $(\mu\tau)^{(K=+1)}$ or electron rotation $\{e^{(K=-1)}\}$; "evenness" corresponds to the divalence of electrons $\{e=\mu\tau\}^{(2S)}$

$(\mu\tau)^{(K=+1)}=(1-\eta_{[\mu\tau]}{}^2)^{(K=-1)}\cdot\{D_{0[\mu\tau]}\}^{(K=-1)(2S)}$;

neutrinos :

$(\mu\tau)^{(K=+1)}=(1-th_{[\mu\tau]}{}^2)^{(K=+1)}\cdot\{D_0\}^{(K=+1)(2S)}$;

$=[(1-\eta_{[e\mu\tau]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[e\mu\tau]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[e\mu\tau]}{}^2)^{(K=+1)}]\cdot\{D_0\}^{(2S)}$

$=(1-\eta_{[e]}{}^2)^{(K=-1)}\cdot\{D_0\}^{(K=-1)(2S)}=\{e^{(K=-1)}\}$;

Compare: Neutrino [**e μ τ**] is calculated by three numbers: The new formula of the eigenvector describes the formula of neutrino: When: [$\mu \neq \tau$] , $e \in e_1 e_2$, although $e_1 \neq e_2$ has the same charge, it can be that different energy orbits produce
different energies corresponding to different [**μ , τ**] . Therefore, the energy is not necessarily equal to **μ + τ** .

The energy forms two asymmetric sub-terms of the even-numbered term. Through the mechanism of the 'infinity axiom', the proposition [**e μ τ**] is not changed. The logarithmic center zero point of the circle is randomly driven.

$(\lambda_i-\lambda_j)(\lambda_i-\lambda_k)$ is incorrect. It should be the three known different interaction eigenvalues

$\{\mathbf{D_0}\} \in (\lambda_j),(\lambda_i),(\lambda_k)$ corresponding to the neutrino **[eμτ]** composition (characteristic mode).

$(\lambda_i - \xi_\alpha)(\lambda_i - x_\alpha)$ is not appropriate. It should be composed of three different known interacting eigenvectors

$(\xi_{\alpha\beta\gamma}) \in (\xi_\alpha)\cdot(\xi_\beta)\cdot(\xi_\gamma)$ (energy function).

Multiply the combined unit body:

$(\xi_{\alpha\beta\gamma})^{(1)} = \{^{(3)}\sqrt{(\xi_a);(\xi_b);(\xi_c)}\}^{(1)}$, $(\xi_{\alpha\beta\gamma})^{(2)} = \{^{(3)}\sqrt{(\xi_a)\cdot(\xi_b)\cdot(\xi_c)}\}^{(2)}$,

Add combined unit cell:

$\{\mathbf{D}_0\}^{(1)} = (\lambda_i - \lambda_j)(\lambda_i - \lambda_k) = (1/3)(\lambda_j + \lambda_i + \lambda_k)$; $\{\mathbf{D}_0\}^{(2)} = (\lambda_i - \lambda_j)(\lambda_i - \lambda_k) = (1/3)(\lambda_i\lambda_j + \lambda_j\lambda_k + \lambda_k\lambda_i)$

$(1-\eta_{[e\mu\tau]}{}^2)^{(K=\pm1)} = [(\xi_{\alpha\beta\gamma})/\{\mathbf{D}_0\}]^{(1)} = [(\xi_{\alpha\beta\gamma})/\{\mathbf{D}_0\}]^{(2)} = [(\xi_{\alpha\beta\gamma})/\{\mathbf{D}_0\}]^{(3)} = (1-\ddot{\upsilon}_{\alpha i}{}^2) = \{0,1\}$;

Conclusion: The root cause of the improper calculation of this vector is that the traditional mathematical ternary number uses symmetry to calculate, which does not exist. The three eigenvectors (**e μ τ**) interact with each other and have asymmetry. For example, in $(\lambda_i - \lambda_j)(\lambda_i - \lambda_k)$, λ_i^2 does not exist, and the three vectors (eigenvectors) " 2-2 combination "

$\{\mathbf{D}_0\}^{(2)} = (\lambda_i - \lambda_j)(\lambda_i - \lambda_k) = (1/3)(\lambda_i\lambda_j + \lambda_j\lambda_k + \lambda_k\lambda_i)$

are composed, corresponding to three different energies [**e μ τ**] .

7.1.2 Mathematical description of "quark":

Quarks combine to form composite particles called hadrons. The most stable of the hadrons are protons and neutrons, which are the building blocks of atomic nuclei. Due to a phenomenon called "quark confinement", quarks cannot be observed directly or separated. They can only be found inside hadrons. For this reason, most of what we know about quarks comes from observations of hadrons.

All neutrons are made up of three quarks, and antineutrons are made up of three corresponding antiquarks, such as protons and neutrons. Protons are made up of two up quarks and one down quark, and neutrons are made up of two down quarks and one up quark.

There are six types of quarks, called flavors, and they are up, down, charm, strange, bottom, and top. Up and down quarks have the lowest masses of all quarks. Heavier quarks can quickly change into up or down quarks through a process called particle decay. Particle decay is the process of changing from a high-mass state to a low-mass state. For this reason, up and down quarks are generally very stable, so they are very common in the universe, while strange, charm, top, and bottom quarks can only be produced through collisions of high-energy particles (such as cosmic rays and particle accelerators).

From a mathematical point of view, "quarks" belong to the "even" asymmetric distribution of ternary numbers. We can use the "even" asymmetric particles of the "infinity axiom" to mathematically describe the random and non-random balanced exchange combination decomposition.

Quark quantum entangled particles in three- dimensional space have three-order asymmetric precession (radiation, oscillation) $\{(2/3)u\cdot(1/3)d\,)^{(K=+1)} = 2ud = ud\}^{(3S)}$ or electron rotation $\{\,e^{(K=-1)}\}$; "even number" corresponds to three valence electrons $\{\,e = ud\,\}^{(3S)}$:

$(\mathbf{e\text{-}ud})^{(K=\pm1)} = (1-\eta_{[eud]}{}^2)^{(K=\pm1)}\cdot\{\mathbf{D}_0\}^{(K=\pm1)(3S)}$;

$(\mathbf{2ud})^{(K=+1)} = (1-\eta_{[2ud]}{}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=+1)(3S)}$

$= [(1-\eta_{[e\cdot 2u\cdot d]}{}^2)^{(K=+1)} \leftrightarrow (1-\eta_{[e\cdot 2u\cdot d]}{}^2)^{(K=\pm0)}] \leftrightarrow [(1-\eta_{[e\cdot 2u\cdot d]}{}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0\}^{(3S)}$

$= (1-\eta_{[e]}{}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)(3S)} = \{\mathbf{e}^{(K=-1)(3S)}$;

7.2. The relationship between exotic particles and dimensionless circular logarithms

7.2.1 Strange Particle Background

Strange particles were first observed in 1947 during the study of cosmic rays, but it was only after they were produced in accelerator experiments in 1954 that their "strange" properties became clear after systematic study. It refers to a large number of new particles that were discovered at that time.

The characteristic is that when they are produced by collisions between particles, they are always produced together and very quickly, but they decay independently and very slowly. In simple terms, they are always produced cooperatively and decay non-cooperatively. At that time, a problem was found in the decay process of the lightest exotic particle (now called K meson), namely the so-called "θ-τ" problem. The problem lies in that two particles with the same mass, lifetime and charge were found in the experiment, one is called θ meson and the other is called τ meson. The only difference between these two particles is that θ meson decays into two π mesons, while τ meson decays into three π mesons. Analysis of the experimental results shows that the total angular momentum of three π mesons is zero, and the parity is negative, while if the total angular momentum of two π mesons is zero, then their parity can only be positive. Given that the three items of mass, lifetime and charge are the same, these two particles should be the same, but from the decay behavior, if parity should be conserved, then θ and τ cannot be the same particle. In 1956, Tsung-Dao Lee and Chen-Ning Yang conducted a comprehensive review of history and current situations. They pointed out that the key to this problem lies in the fact that people believe that the parity of microscopic particles must be conserved during their motion. The conservation of parity has been tested in the process of strong interaction and electromagnetic interaction, but in the process of weak interaction, parity has not been decisively tested, and there is no basis to say that it must be conserved.

The characteristic is that when they are produced by collisions between particles, they are always produced together and very quickly, but they decay independently and very slowly. In simple terms, they are always produced cooperatively and decay non-cooperatively. In 1953, Gell-Mann used a new quantum number, the strange number, to describe this characteristic, and assumed that the strange number is conserved in strong interactions, but may not be conserved in weak interactions, so that the characteristics of strange particles can be properly explained.

At that time, a problem was discovered in the decay process of the lightest exotic particle (now called K meson), namely the so-called "θ-τ" problem. The problem lies in that two particles with the same mass, lifetime and charge were discovered in the experiment, one is called the θ meson and the other is called the τ meson. The only difference between these two particles is that the θ meson decays into two π mesons, while the τ meson decays into three π mesons. Analysis of the experimental results shows that the total angular momentum of three π mesons is zero, and the parity is negative, while if the total angular momentum of two π mesons is zero, then their parity can only be positive. Given that the mass, lifetime and charge are the same, these two particles should be the same, but judging from the decay behavior, if parity should be conserved, then θ and τ cannot be the same particle.

Research achievements of Tsung-Dao Lee and Chen-Ning Yang

In 1956, Tsung-Dao Lee and Chen-Ning Yang conducted a comprehensive review of history and current situations. They pointed out that the key to this problem lies in the fact that people believe that the parity of microscopic particles must be conserved during their motion. The conservation of parity has been tested in the process of strong interaction and electromagnetic interaction, but in the process of weak interaction, parity has not been decisively tested, and there is no basis to say that it must be conserved.

Strange particles are a general term for a class of subatomic particles. In contrast to strange particles are ordinary particles, including ordinary hadrons and leptons such as protons, neutrons, and pions. In 1947, Rochester (GD Rochester) and Butler (CC Butler, 1922-) discovered some particles with strange properties such as Λ, K, and K in cosmic rays. In 1953, more strange particles were discovered in accelerators. Unlike ordinary particles, strange particles are always produced quickly in strong interactions, at least two at a time, and then slowly decay into non-strange particles through weak interactions.

Gelman et al.

In 1953, American physicist Gell-Mann, Japanese physicist Nakano Toshio, and Nishijima Kazuhiko independently proposed to use a new quantum number - strange number to explain the properties of strange particles. Strange numbers can only be integers, and the strange number of ordinary particles is 0. The strange number of strange particles is determined by the following reaction: **$\pi + p \rightarrow \Lambda + K$**

The singular number of the K particle is stipulated to be +1, the singular number of the Λ particle is stipulated to be -1, and then the singular numbers of the remaining particles are determined by other reactions.

Strange particles with the strange number S=+1 include K, K, etc.

The strange particles with strange number S=-1 include K, Λ, Σ, Σ, Σ, etc.

Strange particles with strange number S=-2 include Ξ, Ξ, etc.

Strange particles with strange number S=-3 include Ω, etc.

In strong interactions, strange particles are produced in concert, and the strange number S is strictly conserved. Strange particles can decay into several ordinary particles independently, which takes a long time and is achieved through weak
interactions. In weak interactions, the strange number S may not be conserved, ΔS=0,±1.

If parity is not conserved during weak interactions, the θ-τ problem will be solved.

7.2.2 How do exotic particles change physical properties?

According to a report by Popular Mechanics on November 7, 2024: Strange particles can change physical properties. What is going on?

For 16 years, scientists have hypothesized the existence of a quasiparticle called a semi-Dirac fermion. Now a new study claims that researchers have discovered these particles in a semimetallic material, a material that conducts electricity like
normal materials but exhibits quantum behavior under extreme conditions.

When these particles are affected by a magnetic field flowing in a specific direction, they have no mass, and when the direction changes, they have mass. The researchers said: This particle is very like you walk down a street. If

you walk straight, it's very easy and you have no mass. But if you turn 90 degrees east or west, you feel super heavy. The subatomic world is
full of mysteries in the fields of quantum physics and classical physics.

It is well known that when particles are cooled to absolute zero, their behavior becomes strange and quantum effects begin to appear. For some particles, superconductivity occurs - due to the lack of resistance, the current can theoretically exist forever. For other particles, such as semi-Dirac fermions, this means that the mass fluctuates with the direction of the electromagnetic field. This is the conclusion of a paper in the American magazine "Physical Review X". The British magazine "New Scientist" said that this material exhibits quantum effects, making the particles "like self-reinforcing waves, flowing around vortices", which is in line with the motto that "the closer to absolute zero, the stranger the properties of matter." Because these quasiparticles are in the middle ground between normal electrons in metals and massless neutrinos flowing in the universe. Further research and exploration of these particles may help to solve various physical problems,
including Coulomb interactions and other quantum phenomena.

7.2.3、 Strange particles and dimensionless circular logarithmic description

Strange particles: **π+ p → Λ+K .** It includes strange particles with strange number S=+1, strange particles with strange number S=-1, strange particles with strange number S=-2, and strange particles with strange number S=-3.

Assume: Strange particle: has conjugated reciprocity symmetry and asymmetry $(\pi p)^{(K=+1)}\cdot(\Lambda K)^{(K=-1)}$ state, expressed in terms of the second-order energy $\{\mathbf{D}\}^{(2n)}$ from calculus , and the energy average $\{\mathbf{D}_0\}^{(2n)}$.

The quartic symmetric and asymmetric equations are composed (it can be seen that the four color theorem is similar to different combinations of descriptions), and converted into dimensionless circular logarithms in { **0,1** }.

Exotic particles (corresponding to second-order energy calculations), whose symmetries describe positive (radiation, oscillation) $(\pi p)^{(K=+1)}$ or negative rotation $\{\Lambda K^{(K=-1)}\}$; "even terms " correspond to $(\pi p)^{(K=+1)}$ and $(\Lambda K)^{(K=-1)}$, with the dimensionless unique ' infinity axiom ' (a kind of random equilibrium transformation combination decomposition and self-proving truth and falsehood mechanism in mathematics), it is converted into the "even term" symmetry of the central zero point of the circular logarithm . Driven by the central zero point symmetry, it does not change the nature of the strange particle, the characteristic mode (the average value of the strange particle energy), or the circular logarithm form. It only converts the true proposition of the strange particle into the inverse proposition of the strange particle by the direct and reverse conversion of the properties of the power function . There is not only the conversion of energy (supplementation or release) across the "energy well", but also the transformation of position orbit.

Written as a formula to describe strange particles:

Assume: a known exotic particle (corresponding to the second-order total energy) $\mathbf{D}=(\pi p\cdot\Lambda K)^{(K=`1)}$,

Known characteristic mode:

" 1-1 combination" $\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{1S}=\sum(1/S)\{\mathbf{D}_{i[\pi p\cdot\Lambda K]}\}^{(S)}$,

" 2-2 combination" $\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}=\sum(2/(S-0)(S-1)\{\mathbf{D}_{i[\pi p\cdot\Lambda K]}\}^{(2S)}$,

Given the above two variable functions, we can obtain:

$(\pi p\cdot\Lambda K)^{(K=`1)}=(1-th_{[\pi p\cdot\Lambda K]}{}^2)^{(K=`1)}\cdot\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$;

Circular logarithmic center zero point: $(1-\eta_{[C][\pi p\cdot\Lambda K]}{}^2)^{(K=`1)}=0$ corresponds to $\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$;

The symmetry satisfies: $(\eta_{[\pi]}{}^2)+(\eta_{[p]}{}^2)+(\eta_{[\Lambda]}{}^2)^{(K=`1)}+(\eta_{[K]}{}^2)=0$,

The zero point of the circular logarithm can be analyzed:

$(\pi)^{(K=`1)}=(1-\eta_{[\pi]}{}^2)^{(K=`1)}\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$,

$(p)^{(K=`1)}=(1-\eta_{[P]}{}^2)^{(K=`1)}\{\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$,

$(\Lambda)^{(K=`1)}=(1-\eta_{[\Lambda]}{}^2)^{(K=`1)}\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$,

$(K)^{(K=`1)}=(1-\eta_{[K]}{}^2)^{(K=`1)}\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$,

Among them: (S=1,2,3...integer, representing the total number of particles at each level of strange particles).

Balanced exchange of exotic particles (second-order energy) in general :

$(\pi p\cdot\Lambda K)^{(K=+1)}=(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}\cdot\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(K=+1)(2S)}$

$\leftrightarrow[(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}]\cdot\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$

$=(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\cdot\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(K=-1)(2S)}$

$=(\pi p\cdot\Lambda K)^{(K=-1)}$;

Balanced exchange across the "2-2 combination" exotic particles (second-order energy) :

$(\pi p)^{(K=+1)}=(1-th_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}\cdot\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(K=+1)(2S)}$

$\leftrightarrow[(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}]\cdot\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$

$=(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\cdot\{\mathbf{D}_{0[\pi p\cdot\Lambda K]}\}^{(K=-1)(2S)}$

$=(\Lambda K)^{(K=-1)}$;

Balanced exchange across the "1-3 combination" exotic particles (second-order energy) :

$(\pi)^{(K=+1)}$+e(公式节) $=(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}\cdot\{D_{0[\pi p\cdot\Lambda K]}\}^{(K=+1)(2S)}$

$\leftrightarrow [(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}]\cdot\{D_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$

$=(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\cdot\{D_{0[\pi p\cdot\Lambda K]}\}^{(K=-1)(2S)}$

$=(p\cdot\Lambda K)^{(K=-1)}$;

Balanced exchange across the "3-1 combination" exotic particles (second-order energy) :

$(p\cdot\Lambda K)^{(K=+1)}=(1\text{-th}_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}\cdot\{D_{0[\pi p\cdot\Lambda K]}\}^{(K=+1)(2S)}$

$\leftrightarrow [(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=\pm0)}]\leftrightarrow[(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}]\cdot\{D_{0[\pi p\cdot\Lambda K]}\}^{(2S)}$

$=(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}\cdot\{D_{0[\pi p\cdot\Lambda K]}\}^{(K=-1)(2S)}$

$=(\pi)^{(K=+1)}$+e(replenish energy) ;

Among them: the decomposed strange particles, whose positions are on the same side of the central zero point, do not change the sign of their property attributes; otherwise, the sign of their property attributes will change.

Explains the characteristics of strange particles: if the dimensionless structure goes straight, the zero point at the center of the circle logarithm $(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=\pm0)}=0$; the corresponding neutral particle has no mass. But if it turns 90 degrees eastward $(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=+1)}$ or westward $(1-\eta_{[\pi p\cdot\Lambda K]}{}^2)^{(K=-1)}$, the conversion appears to have mass.

Similarly: strange particles still rely on the 'infinite axiom' mechanism, and are randomly balanced, exchanged, and combined and decomposed under the drive of the dimensionless circular logarithmic center zero point of the symmetry and asymmetry of the 'even terms'.

7.3 Mathematical description of elementary particles

7.3.1 Overview of elementary particles

The world is made up of elementary particles, mainly quarks (6 flavors × 3 colors × positive and negative particles = 36 kinds), leptons (12 kinds), gauge bosons (14 kinds), Higgs particles, etc. Elementary particles include fermions (such as quarks and leptons) and bosons (such as gauge bosons and Higgs bosons).

Fermions: Fermions are fundamental particles that make up matter. They obey Fermi-Dirac statistics and have half-integer spin. Fermions can be further divided into two categories: quarks and leptons.

Quarks: There are six known quarks: up quark (**u**), down quark (**d**), strange quark (**s**), charm quark (**c**), bottom quark (**b**) and top quark (**t**). Each quark has a corresponding antiparticle. Quarks do not usually exist alone, but are combined into other particles, such as mesons and baryons (including protons and neutrons).

Leptons: Leptons are another type of fermion, including electrons (**e**), muons (**μ**), tau (**τ**), and the corresponding neutrinos (ν_e, ν_μ, ν_τ). Leptons do not participate in strong interactions, but they participate in weak interactions, electromagnetic interactions, and gravitational interactions.

Bosons: Bosons are particles that mediate fundamental interactions, they obey Bose-Einstein statistics and have integer spins.

Gauge bosons: Gauge bosons are responsible for transmitting three of the four fundamental interactions. These include photons, which transmit electromagnetic interactions, W+, W-, and Z0 bosons, which transmit weak interactions, and gluons, which transmit strong interactions.

Higgs boson: Higgs boson is a special boson that gives mass to other elementary particles. Higgs boson is the last particle predicted by the Standard Model to be experimentally confirmed. Higgs boson is a spin-zero boson predicted by the Standard Model of particle physics. It is also the last undiscovered particle in the Standard Model. Physicist Higgs proposed the Higgs mechanism. In this mechanism, the Higgs field causes spontaneous symmetry breaking and gives mass to gauge propagators and fermions.

The Higgs boson is a quantized excitation of the Higgs field, which acquires mass through self-interaction. On July 2, 2012 , the Fermi National Accelerator Laboratory under the U.S. Department of Energy announced that the laboratory's latest data is close to proving the existence of the Higgs boson, known as the "God particle."

February 4, 2013 , the laboratory confirmed the existence of the "God particle".

Judging from the physical phenomena and characteristics of the Higgs particle, the Higgs particle is likely to be the "central zero point" described by the dimensionless circular logarithm, and its status, function and role are similar.

The elementary particles listed here are based on the standard model theory of particle physics. In addition, there are some particles predicted by the theory, such as gravitons (particles that transmit gravity), dark matter, dark energy, Higgs bosons (mathematically called central zero-point conversion particles), etc. However, due to experimental limitations, these particles have not yet been directly observed. Physicists have listed relevant relationship diagrams for these elementary particles, such as the table of 62 elementary particles (quoted from the Internet). We know that the world is made up of matter and elements, and elementary particles refer to the smallest and most basic units of matter that people know, that is, the smallest volume of matter without changing the properties of matter. This theory is a natural philosophy that is closest to the grand unified theory since Newton's classical physics.

For a long time, all 61 elementary particles in the table have been discovered, but the graviton has never been observed before. However, LIGO detected the first gravitational wave signal on September 14, 2015. On December 26, 2015 , two gravitational wave detectors in Hanford, USA and Livingston, Louisiana simultaneously detected a gravitational wave signal, which was the second gravitational wave signal detected by humans. The discovery of gravitational waves also made this theory more perfect.

7.3.2 Elementary particles and mathematical description Are the 62 elementary particles in the diagram (15.1) the most "basic" particles in the material world? In fact, this has been challenged in science, and some experimental results that are inconsistent with the standard model have been found. Philosophically, this issue is also denied. Philosophy believes that matter is infinitely divisible, and any "basic" particle can be: one divided into two (even number), two divided into three, and three to create all things, becoming the symmetric and asymmetric distribution state of the "even number" of elementary particles. Through the "infinity axiom" - "Higgs particle (dimensionless central zero point)" random and non-random phenomena, the elementary particles are driven to "-balance-convergence-exchange-expansion-balance-" dynamic periodic repetitive cycle. So far, there has been no complete mathematical description of the relationship between them, exchange, combination, and decomposition. The elementary particles can also be mathematically described by the random and non-random equilibrium exchange, combination and decomposition of the "central zero-point particles" in the 'axiom of infinity' corresponding to the circular logarithm, which drives the random and non-random equilibrium exchange, combination and decomposition of the "elementary particles", among which: according to the law of the immortality of matter, the energy-particles between cross-regions in the combination-decomposition will produce "release" or "supplement" of energy-particles.

7.3.3 Elementary particles and graph computing

In October 1984, Wang Yiping published an article titled "Calculation of Reinforced Concrete Components" at the 4th National Conference of the National Association of Calculation and Calculation in Qingdao. This theory was based on the 1982 achievement "General Solution of Single-Variable Higher-Order Equations" and was made into a table, which overturned similar textbooks in China (former Soviet version) and abroad. After the emergence of computers, the theory should be turned to other fields and expanded until the new achievements of the paper. This table is still innovative, and it can

be universally applied if the corresponding "professional terms" are adjusted, as shown in (Figure 15.2)

$(ABC\text{-}UV, \mathbf{e})^{(K=`1)(62S)} = (1-\eta_{[\Omega]}{}^{2})^{(K=-1)} \cdot \{D_{0\Omega}\}^{(62S)}$

种类	分类	正粒子	反粒子
轻子（12种）		电子	正电子
		μ子	反μ子
		τ子	反τ子
	中微子	电子中微子	反电子中微子
		μ子中微子	反μ子中微子
		τ子中微子	反τ子中微子
夸克（36种）	红	上夸克	反上夸克
	绿		
	蓝		
	红	下夸克	反下夸克
	绿		
	蓝		
	红	粲夸克	反粲夸克
	绿		
	蓝		
	红	奇夸克	反奇夸克
	绿		
	蓝		
	红	顶夸克	反顶夸克
	绿		
	蓝		
	红	底夸克	反底夸克
	绿		
	蓝		
规范玻色子（14种）	胶子	引力型-中性胶子（Ⅰ型开弦）上夸克-上夸克	引力型-中性胶子（Ⅰ型开弦）反上夸克-反上夸克
		磁力型-中性胶子（Ⅰ型闭弦）（反）下夸克-（反）下夸克	磁力型-中性胶子（Ⅰ型闭弦）夸克-反夸克
		阳电力型胶子	阴电力型胶子
		阳电力型胶子	阴电力型胶子
	光子	光子（光量子）	
	引力子	引力子（还是一个假设）	
	玻色子	W+玻色子	W-玻色子
		Z玻色子	
		希格斯玻色子	

Diagram (7.1) 62 elementary particles

The entire chart has four quadrants:

The first quadrant: $(ABC\text{-}UV, \mathbf{e})^{(K=-1)(LS)}$ constitutes a particle diagonal series, which corresponds to the mass

values of the particles and constitutes the average value, corresponding to $A^{(LS)}$.
Where: (+X) is the value (LS) exchanged with the circular logarithm $(1-\eta_{[\Omega]}^2)^{(K=+1)}$.

Second quadrant: (ABC -UV, **e**) $^{(K=-1)(62S)}$ forms a circular logarithmic series of particles, corresponding to the center
zero point of the particle $\leftrightarrow (1-\eta_{[\Omega]}^2)^{(K=-1)(K=-1)} \cdot \{D_{0\Omega}\}^{(62S)}$.

Among them: (+Y) is the exchange line between the positive direction $\leftrightarrow (1-\eta_{[\Omega]}^2)^{(K=-1)(K=+1)}$ and the reverse direction $\leftrightarrow (1-\eta_{[\Omega]}^2)^{(K=-1)(K=-1)}$ of the center zero line (critical line) and the center zero point (critical point).

The third quadrant: (ABC -UV, **e**) $^{(K=-1)(62S)}$ constitutes a circular logarithmic series of particles, corresponding to the
center zero point of the particle $\leftrightarrow (1-\eta_{[\Omega]}^2)^{(K=-1)(K=+1)} \cdot \{D_{0\Omega}\}^{(62S)}$.
Where: (-X) is the circular logarithm $(1-\eta_{[\Omega]}^2)^{(K=+1)}$ and the value (M S) exchange line.

The fourth quadrant: (ABC -UV, **e**) $^{(K=-1)(MS)}$ constitutes a particle diagonal series, which corresponds to the mass values of the particles and constitutes the average value, corresponding to $B^{(MS)}$.
Among them: (-Y) is the line where values are exchanged.

The line connecting the four coordinates is the calculation line:

$A^{(LS)} = (1-\eta_{[A]}^2)^{(K=+1)} \cdot \{D_{0\Omega}\}^{(K=+1)(LS)}$

$\leftrightarrow [(1-\eta_{[\Omega]}^2)^{(K=-1)} \leftrightarrow (1-\eta_{[\Omega]}^2)^{(K=`0)} \leftrightarrow (1-\eta_{[\Omega]}^2)^{(K=+1)}] \cdot \{D_{0\Omega}\}^{(62S)}$

$(1-\eta_{[B]}^2)^{(K=+1)} \cdot \{D_{0\Omega}\}^{(K=+1)(MS)} = B^{(MS)}$;

Calculate the balance and gap of the line: $A^{(LS)} \leftrightarrow B^{(MS)} = (1-\eta_{[\Omega]}^2)^{(K=`0)} \cdot \{D_{0\Omega}\}^{(LM)(S)}$

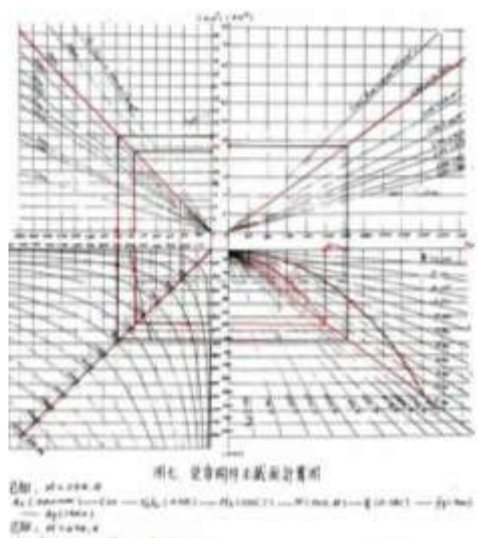
$A^{(LS)}/\{D_{0\Omega}\}^{(K=`1)(LS)} = [ (1-\eta_{[A]}^2)^{(K=+1)} \leftrightarrow (1-\eta_{[\Omega]}^2)^{(K=`0)} \leftrightarrow (1-\eta_{[B]}^2)^{(K=-1)}] = B^{(MS)}/\{D_{0\Omega}\}^{(K=+1)(MS)}$

Numerical properties such as "energy, force, ...", etc. It can also be adjusted to mathematical analysis and calculation of terms in other scientific fields.(1) Neutrinos have unique physical even-number symmetry (two-particle **μτ**) and asymmetry (three-particle **e μτ**) functions similar to the mathematical characteristics of dimensionless central zero point 'infinity axiom' balance exchange combination decomposition, which are unique to dimensionless constructions .

(2) Mathematical descriptions such as “neutrinos” , “exotic particles” and elementary particles are likely to verify the “existence and possibility of symmetric and asymmetric, random and non-random equilibrium exchange combinations (decompositions) of the ‘infinity axioms’ peculiar to dimensionless structures and the ‘infinity axioms’ at the central zero point of dimensionless structures .”

In other words, neutrinos may decisively prove the existence of "dimensionless construction" mathematics, and in turn, "dimensionless construction" mathematics profoundly describes " neutrino characteristics " and " exotic particle characteristics ". The two are intertwined, self-consistently and orderly linking physics and mathematics into a whole.

"Neutrinos" , "strange particles" and "dimensionless structures" describe the combination of the real world and the virtual world in the most basic, abstract and profound way through the 'infinite axiom' mechanism.



(Figure 7.2) Calculation chart of the decomposition of the circular logarithmic equilibrium exchange combination of elementary particles (different professional terms can be adjusted)

8. The nature of mathematics and the correctness of deduction - the connection between arbitrary high-element high-power equations and circular logarithms

At the end of the 20th century, people discovered that there were many problems in traditional mathematics. The core points of exploration were "Is the foundation of mathematics solid?" and "What is the nature of mathematics?" Now, the dimensionless construction set and the **infinity axiom** mechanism have been found, proving that mathematics The analysis is no longer the direct analysis of numerical **element objects**, but the balanced exchange combination decomposition through the analysis of dimensionless circular logarithm construction (balanced exchange combination decomposition) and the random self-proof mechanism, which drives the balanced exchange of any function. Combination decomposition.

What is the nature of mathematics: Real mathematical analysis operations are dimensionless structures driving mathematical analysis operations, and are by no means a direct combination and decomposition of numerical (mass) elements. Through the analysis of dimensionless construction sets and the **infinity axiom** mechanism: any mathematical operation symbols and methods boil down to the addition of power functions of multiplicative combinations and the addition of circular logarithmic factors of additive combinations. In other words, the real mathematical analysis operation is the "balanced exchange combination decomposition of dimensionless circular logarithms under the mechanism of dimensionless construction of **positive infinity axioms**, which drives traditional mathematical analysis operations and ensures the zero-error correctness of deduction. This is what truly touches the essence of mathematics.

For example, the essence of calculus reform: Traditional calculus is an important tool for mathematical analysis. It is based on the fact that a single variable is an invariant group, and the calculus subterm is composed of a pair of asymmetric reciprocal group combination mean functions, in which the reciprocal The property theorem contains the relationship of "reciprocity of roots and coefficients". Therefore, the calculus equation still maintains the dynamic analysis of the random equilibrium exchange combination decomposition of dimensionless circular logarithms under the mechanism of the dimensionless construction of positive 'infinity axioms', driving the dynamic operation of traditional mathematical analysis to ensure the zero-error correctness of the deduction. This is what really touches the mathematical essence of dynamic change analysis in calculus.

When: the order value changes, one element group is differential (reduced by nth order), and the other is integral (increased by nth order). The change of Newtons binomial calculus order value in the polynomial becomes differential (du/dx)·integral (∫udx) to differential($\partial^{(n)}u/dx^{(n)}$)·integral($\int^{(n)}udx^{(n)}$) :

$(a+b)^n = Aa^n + B(n,1)a^{(n-1)}b^{(n+1)} + C(n,2)a^{(n-2)}b^{(n+2)} + \ldots + C(n,n)b^n$

$= a^n + Ba^{(n-1)} b + Ca^{(n-2)}b^{(n+1)} + \ldots + b^n$;

Among them：(A=C(n,0) =1);(B=C(n,1) =1/n);(C=C(n,2) =2/n(n-1));(P=C(n,P-1) =(P-1)!/(n-0)!);

The binomial expansion introduces the dimensionless circular logarithm:

$(a+b)^{(n)}=\{(a+b)/(R_0)^{(n)}\cdot(R_0)^{(n)}=(1-\eta^2)^K(R_0)^{(n)}$； (eigenmodule)-(multiplicative combination)

It can be seen that {a, b} of polynomial (a+b)n are the sets of two n-element series of {a} and {b} respectively, and the infinite {a} and {b} series are Infinite program expansions of regularized symmetries of reciprocity. In the one-to-one comparison of their analysis, the numerical characteristic module and the dimensionless circular logarithm were extracted respectively, forming two close and indispensable connections, solving the relationship between the "wholeness" of the group combination calculus and the "individuality" of each one. . The added functional property attribute K controls the set trend of two n-element series {a} and {b}. For example, the differential is defined as (-N=0,1,2,3,4,…), and the integral is defined as (+N=0,1,2,3,4,…) controls the expansion of infinite order sequences and is included in the polynomial power function, a general funct

Among them: the binomial expansion introduces dimensionless circular logarithms:

$(a+b)^{K(n)}=\{(a+b)/(R_{00})\}^{K(n)}\cdot(R_0)^{K(n)}=(1-\eta^2)^K(R_{00})^{(n)}$； (Perfect Circle Mode) - (Geometrically Uniform Distribution)

It can be seen that {a, b} of polynomial (a+b)n are the sets of two n-element series of {a} and {b} respectively, and the infinite {a} and {b} series are Infinite program expansions of regularized symmetries of reciprocity. In the one-to-one comparison of their analysis, the numerical characteristic module and the dimensionless circular logarithm were extracted respectively, forming two close and indispensable connections, solving the relationship between the "wholeness" of the group combination calculus and the "individuality" of each one. . The added functional property attribute K controls the set trend of two n-element series {a} and {b}. For example, the differential is defined as (-N=0,1,2,3,4,…), and the integral is defined as (+N=0,1,2,3,4,…) controls the expansion of infinite order sequences and is included in the polynomial power function, a general function Dynamic changes are defined as differential (-N=0,1,2) and integral as (+N=0,1,2), corresponding to (-N=0,1,2,3,4,…), int

The analysis is carried out in two steps:

(1), apply the numerical eigenmodule $(\mathbf{D}_0)^{(n)}$ to solve the overall synchronicity between the {a}, {b} series, and the calculus synchronous changes with the surrounding set elements. In the calculus equation, use the eigenmodule (Mean function) $\{\mathbf{D}_0\}^n$ serves as the center point to solve the synchronous changes between the {a}, {b} series and between them and their surroundings. This "synchronous" change inherits the geometric-algebraic unit variables of traditional calculus. relationship, calculated in the same way.

(2), apply the dimensionless circular logarithm $(1\text{-}\eta^2)^K$ and the central zero point of the circular logarithm $(1\text{-}\eta_{[C]}^2)^K=\{0,1\}$ through the characteristic mode and surrounding elements (probability, topological distribution) Relationships, parsing individual root elements. If the analyzed root element is still in the form of a group combination, then as the next level, continue the analysis according to (1) (2) until each unit root.

In the application, in addition to the calculation of the above equations, any high-order equations in any dimension that people have not solved mathematically are particularly selected. That is, high-order (M-element G-dimensional equations) differential (N=-0,1,2) dynamic analysis of three-dimensional networks. For traditional mathematics: the calculation method has been completely reformed and transformed, greatly reducing calculation procedures and calculation time (including any computer programs and algorithms). It means that dimensionless construction opens a new era of mathematics. It can be seen that {a, b} of polynomial (a+b)n are the sets of two n-element series of {a} and {b} respectively, and the infinite {a} and {b} series are Infinite program expansions of regularized symmetries of reciprocity. In the one-to-one comparison of their analysis, the numerical characteristic module and the dimensionless circular logarithm were extracted respectively, forming two close and indispensable connections.

Therefore, calculus analysis is also carried out in two steps:

(1), apply the numerical eigenmodule $(\mathbf{D}_0)^{K(n)}$ to solve the overall synchronicity between the {a}, {b} series, and the calculus synchronous changes with the surrounding set elements. In the calculus equation, use the eigenmodule (Mean function) $\{\mathbf{D_0}\}^{\mathbf{K(n)}}$ serves as the center point to solve the synchronous changes between the {a}, {b} series and between them and their surroundings. This "synchronous" change inherits the geometric-algebraic unit variables of traditional calculus. relationship, calculated in the same way.

(2), apply the dimensionless circular logarithm $(1\text{-}\eta^2)^K$ and the central zero point of the circular logarithm $(1\text{-}\eta_{[C]}^2)^K=\{0,1\}$ through the characteristic mode and surrounding elements (probability, topological distribution) Relationships, parsing individual root elements.

In particular, the changes and conversions of the calculus order are represented in the power function factors, and can also include more analysis content. It avoids the difficulties that traditional calculus complex programs cannot calculate or even analyze. Completely useful reform of calculus.

Calculation principles are visible 2.4.2. Differential order (- N=0,1,2) dynamic analysis of three-dimensional networks

8.1. Seven-dimensional equation of one variable (S=1*7)

In 1900, Hilbert proposed: "Given two variable functions, a general solution is required" author note: the variable function requires a regularized distribution condition). Currently, there is no zero-error solution.

[Derivation 1]:

Assume: Unknown variable function of a seven-dimensional equation of one variable (S=1*7):

$\{X\}\in(a,b,c,d,e,f,g)=\{x_1,\dots,x_7\}$;

It is known that the two variable functions are the boundary function (multiplicative combination) **D** and the additive combination eigenmodule $\mathbf{D}_0$. Perform complex analysis of the three-dimensional network (physical space), and the 7th power of the three-dimensional physical space (quantum particle-element-cluster set dynamic equation) Complex analysis

[Q=***jik***+2***uv***]: (N=-0,1,2);

For example: the central zero point is between "three-dimensional precession(***jik***)and two two-dimensional rotations (2***uv***) (a,b,c,(O),d,e,f,g), two rotations (2***uv***) The moving particles precess around the three central zero points, and seven particles (eigenmode center points) rotate around it, forming a seven-dimensional vortex + precession space. Generally called vortex dynamic space[***jik***+2***uv***] (three-dimensional precession + two two-dimensional rotation) or other.

Dynamic spaces: Among them: one-dimensional (linear, curve) linear equation (the rotation normal line direction and the precession can coincide or Do not overlap) [Q=***jik+juv*** corresponds to {***j+2uv***、***i+2uv*** ，***k+2uv***], two-dimensional (plane, curved surface) nonlinear equation plane projection {**YOZ,ZOX,XOY**} and the ternary number of the plane normal line in the three-dimensional rectangular coordinates {**X,Y,Z**}. Rotation 2·**(*uv*)** follows**(*jik*)**, and the normal directions of **(uv)** coincide with each other to form a five-dimensional vorte

The power function " K(Z±(S=1*7)±(Q=[jik+uv])±(N=0,1,2)±(q=7))/t; is the three-dimensional space calculus Zero-order, first-order, and second-order dynamic equations.

Boundary function numerical product combination: $\mathbf{D}^{(Q=3)}=(^{(7)}\sqrt{\mathbf{D}})^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\dots7)/t}$;

Combination coefficient: 1：7：21：35：35：21：7：1，, total: $\{2\}^7=128$；

Characteristic modular function:

$D_0^{(1)}=(1/7)(a+b+c+d+e+f+g)$；$D_0^{(2)}=(1/21)(ab+bc+\ldots+fg)$; $D_0^{(3)}=(1/35)(abc+bcd+\ldots+fga)$;

13.1. Establish the numerical model of the seventh degree equation of one variable: (modeling is not necessarily required, the circular logarithm discriminant is introduced for direct analysis)

$$\{X\pm({}^{(7)}\sqrt{D})\}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\ldots7)/t}$$
$$=X^{(7)}\pm7D_0^{(1)}X^{(6)}+21D_0^{(2)}X^{(5)}+35D_0^{(3)}X^{(4)}+35D_0^{(4)}X^{(3)}+21D_0^{(5)}X^{(2)}\pm7D_0^{(6)}X^{(1)}+D$$
$$=(1-\eta^2)[X^{(7)}\pm D_0^{(1)}X^{(6)}+D_0^{(2)}X_0^{(5)}+D_0^{(3)}X_0^{(4)}+D_0^{(4)}X_0^{(3)}+D_0^{(5)}X_0^{(2)}\pm D_0^{(6)}X_0^{(1)}]+D_0^{(7)},$$
$$=(1-\eta^2)\{X\pm D_0\}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\ldots7)/t};$$
$$=(1-\eta^2)\{(0,2)\cdot D_0\}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\ldots7)/t};$$

Circular logarithm discriminant：

$$(1-\eta_{[jik+2uv]}^2)^K=[({}^{(7)}\sqrt{D})/D_0]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2)\pm(q=0,2,\ldots7)/t}$$
$$=(1-\eta_{[j+2uv]}^2)^K\cdot X+(1-\eta_{[i+2uv]}^2)^K\cdot Y+(1-\eta_{[k+2uv]}^2)^K\cdot`$$
$$=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,\ldots7)/t};$$

Among them: $[Q=3=(jik+2\cdot uv)]$ means that the 7 root elements are decomposed into "three element precession and two pairs of rotation" elements, and the 7-power dimensional space motion in the three-dimensional space is in Calculus equations of axes and planes. The central zero points of the seven elements are: {***j***a,***i***b,***k***c,(O),***jik***de,***jik***fg} (see [Number Example 11]).

It can also be **{abcd,O,efg}**、**{ab,O,cde,fg}**、**{a,O,bc,de,fg}**，**{ab,（O=c）,de,fg}** (a central particle , there are three pairs of rotating particles around it), **{abc,（O=d）,efg}**、**{abcd,（O=e）,fg}** and other states, all of which depend on the "zero position of the circular logarithm center". The three-dimensional network corresponds to the order calculus (±N=0,1,2) (zero order, first order, second order) corresponding to the corresponding boundary value; because the dimensionless circular logarithm for calculus order changes is only reflected in the power function , other calculation formulas have no obvious changes and can be merged and calculated together. In other words, the analytical calculation method for converting an equation into a dimensionless circular logarithm is the same, the difference is only in the numerical values of the power function and the number of analytical roots. Three-dimensional 7-dimensional space calculus (N=0,±1,±2) dynamic
equation (j direction coincides), corresponding.

The three-dimensional network corresponds to the order calculus (±N=0,1,2) (zero order, first order, second order) corresponding to the corresponding boundary value; because the dimensionless circular logarithm for calculus order changes is only reflected in the power function , other calculation formulas have no obvious changes and can be merged and calculated together. In other words, the analytical calculation method for converting an equation into a dimensionless circular logarithm is the same, the difference is only in the numerical values of the power function and the number of analytical roots. Three-dimensional 7-dimensional space calculus (N=0,±1,±2) dynamic equation (***j*** direction coincides), corresponding to the three-dimensional sequence {***(J,i,k)+(2uv)***}, representing a three-dimensional (three elements) Precession + two two-dimensional numbers (binary numbers) rotate around the three-dimensional center zero point to form the calculus
dynamic changes of radiation, motion, energy, and force distan.

8.2. Calculation and analysis is carried out in three steps:

(A). The first step of calculation: Calculate the dimensionless, and set the center point of the characteristic mode and the surrounding seven root elements to have synchronous changes. Zero-order (original function) equation (N=0):

$$\{X\pm({}^{(7)}\sqrt{D})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[X_0\pm D_0]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[(0,2)D_0)]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t};$$

First-order differential equation (N=-1): 一阶微分方程式(N=-1)：

$$\{X\pm({}^{(7)}\sqrt{D})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-1)\pm(q=0,\ldots7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[X_0\pm D_0]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-1)\pm(q=0,\ldots7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[(0,2)\,(D_0)]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-1)\pm(q=0,\ldots7)/t};$$

Second-order differential equation (N=-2):

$$\{X\pm({}^{(7)}\sqrt{D})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-2)\pm(q=0,\ldots7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[X_0\pm D_0]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-2)\pm(q=0,\ldots7)/t}$$
$$=(1-\eta_{[jik+uv]}^2)^K\cdot[(0,2)\,(D_0)]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-2)\pm(q=0,\ldots7)/t};$$

First-order integral equation (N=+1)：

$$\{X\pm({}^{(7)}\sqrt{D})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=+1)\pm(q=0,\ldots7)/t}$$

$=(1-\eta_{[jik+uv]}^2)^K\cdot[X_0\pm\mathbf{D}_0]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=+1)\pm(q=0,\ldots7)/t}$
$=(1-\eta_{[jik+uv]}^2)^K\cdot[(0,2)\,(\mathbf{D}_0)]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=+1)\pm(q=0,\ldots7)/t}$;

Second-order integral equation (N=+2):

$\{X\pm({}^{(7)}\sqrt{D})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2)\pm(q=0,\ldots7)/t}$
$=(1-\eta_{[jik+uv]}^2)^K\cdot\{X_0\pm\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-12)\pm(q=0,\ldots7)/t}$
$=(1-\eta_{[jik+uv]}^2)^K\cdot\{(0,2)\cdot\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-12)\pm(q=0,\ldots7)/t}$;

Unknown variable function and boundary Functional relationship:

$\{X\}=(1-\eta_{[jik+uv]}^2)^K\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\ldots7)/t}$;

$(1-\eta_{[jik+uv]}^2)^K=\{0,1\}$ corresponds to the characteristic mode {D0}(S=7)±(q=0,…7)/t;

$(1-\eta_{C[jik+uv]}^2)^K=\{0,1\}$; there are respectively a central zero line (critical line) and a central zero point (critical point);

(B), Calculation second step: Calculus conversion ; Infinite Axiom; stochastic equilibrium exchange combination decomposition and random self-proof): Conversion rules: In the conversion of calculus equations, the boundary function$\{{}^{(7)}\sqrt{\mathbf{D}}\}$remains unchanged and the characteristics The module $\{\mathbf{D}_0\}$ remains unchanged, and the form of the circular logarithm $(1-\eta_{[jik+uv]}^2)^K$remains unchanged, relying only on the forward and inverse transformation of the properties of the calculus order. The central zero point of the logarithm of a dimensionless circle drives the change of element values.

Therefore, the root analysis of calculus is the same.

(1) Zero-order integral transformation of calculus dynamic equations ('Infinite Axiom' balanced exchange
combination decomposition mechanism):

$\{X\}=(1-\eta_{[jik+uv]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$
$\leftrightarrow[(1-\eta_{[jik+uv]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik+uv]}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}=(1-\eta_{[jik+uv]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$;

The abbreviation of the zero-order integral conversion of calculus:

$\{X\}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow\{\mathbf{D}_0\}$;

(2) The zero-order three-dimensional precession of the calculus dynamic equation and two two Decomposition of stochastic equilibrium exchange combinations of dimensional rotation:

$\{X\}=(1-\eta_{[jik]}^2)^{(K=+1)}\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$
$\leftrightarrow[(1-\eta_{[jik]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[uv]}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$
$\leftrightarrow[(1-\eta_{[jik]}^2)^{(K=+1)}+(1-\eta_{[uv]}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$
$=(1-\eta_{[uv]}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$;

Abbreviation for zero-order integral conversion of calculus:

$\{X_{[jik+uv]}\}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow\{\mathbf{D}_{0[jik+uv]}\}$;

(3) Differential equations and integrals Stochastic equilibrium exchange combination decomposition of dynamic equations:

$\{X\}=(1-\eta_{[jik+uv]}^2)^{(K=-1)(N=-0,1,2)}\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(q=0,\ldots7)/t}$
$\leftrightarrow[(1-\eta_{[jik]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)(N=\pm0)}\leftrightarrow(1-\eta_{[uv]}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7))\pm(q=0,\ldots7)/t}$
$\leftrightarrow[(1-\eta_{[jik]}^2)^{(K=+1)}+(1-\eta_{[uv]}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$
$=(1-\eta_{[jik+uv]}^2)^{(K=+1)(N=+0,1,2)}\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(q=0,\ldots7)/t}$;

Abbreviation for calculus order conversion:

$\{X_{[jik+uv]}\}^{(N=-0,1,2)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)(N=\pm0)}\leftrightarrow\{\mathbf{D}_{0[jik+uv]}\}^{(N=+0,1,2)\pm(q=0,\ldots7)/t}$;

In the formula: $(1-\eta_{[jik+uv]}^2)^K=\{-1$ or (0) or $+1\}$ means taking the center zero point {**0**} of the three-dimensional space characteristic module (7 elements) as the center, at {**0, 1**} Jump transition form between.

$(1-\eta_{[jik+uv]}^2)^K=\{-1$ or (0) or $+1\}$ represents the continuous transition form between {**-1, +1**} with the central zero point {**0**} as the center.

In particular, all conversions of numerical values, orders, elements, etc. of calculus equations require balance through the zeroth order and the central zero point of the circular logarithm $(1-\eta_{[C]}^2)^{(K=\pm0)(N=\pm0)}$ The exchange combination is driven by decomposition. Three-dimensional (three-element) precession is the same as the velocity (first-order), acceleration (second-order), energy (second-order), and force (second-order) of two two-dimensional (two-dimensional numbers). In the logarithmic factor of the same circle Under the conditions, rely on the;infinity axiom; to randomly balance the exchange
combination decomposition function. Example of selecting numbers:

Calculate the third step: the distance relationship between the center point of the feature module and the

surrounding seven root elements. Three-dimensional 7-dimensional space calculus (N=0, ±1, ±2) dynamic equation (j direction coincides), corresponding to the three-dimensional sequence {**(J,i,k+2uv)**}, representing a three-dimensional (three-element)
precession +Two two-dimensional (quaternion) rotations around the three-dimensional center zero point.

This is determined based on the position of the zero point of the characteristic mode probability center.

The characteristic module corresponding to the center zero of the logarithm of a circle: $(\eta_{[C]}{}^2)=0$ corresponds to {$\mathbf{D}_0$}; The relationship between the place value factor and the numerical factor of the logarithm of a circle: $(\eta_\Delta)=2(\eta)\mathbf{D}_0$;

The value of the zero point of the center of the logarithm of a circle Factor symmetry.

$\{(1-\eta_{\Delta1})\mathbf{D}_0,(1-\eta_{\Delta2})\mathbf{D}_0,(1-\eta_{\Delta3})\mathbf{D}_0,(\mathbf{D}_0=0),(1+\eta_{\Delta4})\mathbf{D}_0,(1+\eta_{\Delta5})\mathbf{D}_0,(1+\eta_{\Delta6})\mathbf{D}_0,(1+\eta_{\Delta7})\}\mathbf{D}_0\}/B=\{(\mathbf{D}_0-15)+(\mathbf{D}_0+15)\}/B=0$

For example: the center point of resolution 2 is "between three dimensions and two two dimensions" (a,b,c,(O),d,e,f,g), and the characteristic mode $\{\mathbf{D_0}\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2\pm(q=0,\dots7)/t}$; analyzed by the circular logarithmic center zero point (η)) and the circular logarithmic numerical factor $(\eta_{\Delta1})$ 7 root elements.

8.3. [Numerical Example 11] Seventh degree equation of one variable

Known: There are two variable functions of the seventh degree equation of one variable, respectively: boundary function **D=32986800**, characteristic module function:$\mathbf{D_0=(13)}$,

Solution: root element of the seventh degree general expression of one variable

Boundary function numerical multiplication combination: $\mathbf{D}^{(Q=3)}\mathbf{=(^{(7)}\sqrt{D})}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\dots7)/t}$=32,986,800; Combination coefficient:1:7:21:35:35:21:7:1, , total: $\{2\}^{(7)}$=128;

Characteristic modular function: $\mathbf{D}_0{}^{(1)}$=(1/7)(a+b+c+d+e+f+g)=13; $13^{\wedge7}$=67,748,517; ; (It can also be other known topological combinations.Feature module $\mathbf{D}_0{}^{(1,2,3)}$ Corresponding orders of calculus equations such as: first-order network level (1-1 combination)$\mathbf{D}_0{}^{(1)}$, second-order network level (2-2 combination) $\mathbf{D}_0{}^{(2)}$), third-order network level (3-3 combination) $\mathbf{D}_0{}^{(3)}$, high-power network remainder and so on.

Derivation:

Circular logarithm discriminant:

$$\Delta=(\eta_{[jik+2uv]}{}^2)^K=[(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D}_0]^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2)\pm(q=0,\dots7)/t}$$
$$=(1-\eta_{[j+2uv]}{}^2)^K\cdot X+(1-\eta_{[i+2uv]}{}^2)^K\cdot Y+(1-\eta_{[k+2uv]}{}^2)^K\cdot Z$$
$$=\{0\text{or }[0\text{ to }(1/2)\text{ to }1]\text{or 或 }1\}^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,\dots7)/t};$$

Or: $\Delta=(\eta_{[jik+2uv]}{}^2)=(\eta^2)$=32,986,800/67,748,517=0.48690≤1; $(1-\eta^2)$=0.51;

Establishing a numerical model for a seventh degree equation of one variable: (modeling is not necessarily required,
there is a circular logarithm discriminant for direct analysis)

$$\{\mathbf{X\pm(^{(7)}\sqrt{32986800})}\}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\dots7)/t}$$
$$=X^{(7)}\pm7\mathbf{(13)}^{(1)}X^{(6)}+21\mathbf{(13)}^{(2)}X^{(5)}\pm35\mathbf{(13)}^{(3)}X^{(4)}+35\mathbf{(13)}^{(4)}X^{(3)}\pm21\mathbf{(13)}^{(5)}X^{(2)}+7\mathbf{(13)}^{(6)}X^{(1)}\pm\mathbf{32986800}$$
$$=(1-\eta^2)[X^{(7)}\pm\mathbf{(13)}^{(1)}X^{(6)}+\mathbf{(13)}^{(2)}X_0{}^{(5)}\pm\mathbf{(13)}^{(3)}X_0{}^{(4)}+\mathbf{(13)}^{(4)}X_0{}^{(3)}\pm\mathbf{(13)}^{(5)}X_0{}^{(2)}+\mathbf{(13)}^{(6)}X_0{}^{(1)]}\pm\mathbf{(13)}^{(7)},$$
$$=(1-\eta^2)\{\mathbf{X\pm(13)}\}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\dots7)/t}$$
$$=(1-\eta^2)\{\mathbf{(0,2)(13)}\}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)\pm(q=0,\dots7)/t},$$

The center zero point of the logarithmic place value corresponds to the eigenmodule: $(\eta_{[C]}{}^2)=0$, which corresponds to the eigenmodule {**13**};

The relationship between the place value factor and the numerical factor of the logarithm: $(\eta_{[C]}{}^2)=2(\eta_\Delta)\mathbf{D}_0$;

Symmetry of the numerical factor (probability) of the zero point of the logarithmic center of the circle:

$\{(\mathbf{D}_0-\eta_{\Delta1}),(\mathbf{D}_0-\eta_{\Delta2}),(\mathbf{D}_0-\eta_{\Delta3}),(\mathbf{D}_0=13),(\mathbf{D}_0+\eta_{\Delta4}),(\mathbf{D}_0+\eta_{\Delta5}),(\mathbf{D}_0+\eta_{\Delta6}),(\mathbf{D}_0+\eta_{\Delta7})\}/B_0=[(\mathbf{D}_0-15)+(\mathbf{D}_0+15)]/\mathbf{B}$

=\{(13-8),(13-5),(13-2),(D_0=13),(13+1),(13+2),(13+4),(13+8)\}/B=[(13-15)+(13+15)]/B=0;

={5,8,11,(O=$\mathbf{D}_0$=13)14,15,17,21}/**B**,

Among them: select **B**, you can also choose$\mathbf{D}_0$, because the numerical factor (probability) must satisfy the symmetry around the central zero point and the result is {**0**};

Obtain the root element:

5=$(1-\eta_{\Delta1})\cdot\mathbf{D}_0$=(13-8), 8=$(1-\eta_{\Delta2})\cdot\mathbf{D}_0$=(13-5), 11=$(1-\eta_{\Delta3})\cdot\mathbf{D}_0$=(13-2), 13=$(\mathbf{D}_0-\eta_{[C]})$=(13-13)=0, 14=$(1-\eta_{\Delta4})\cdot\mathbf{D}_0$=(13+1), 15=$(1-\eta_{\Delta2})\cdot\mathbf{D}_0$=(13+2), 17=$(1-\eta_{\Delta3})\cdot\mathbf{D}_0$=(13+4), 21=$(\mathbf{D}_0-\eta_{[C]})$=(13+8);

The abbreviation: {5,8,11,(**O**=13)14,15,17,21} is just convenient to analyze the root element by comparing it with the symmetry of the numerical factor at the zero point of the logarithm center of the circle. Among them: **[**Q=3=(***jik***+2·***uv***)] means that the 7 root elements are decomposed into three root elements of precession {5,8,11} and two pairs of rotational root elements , in the three-dimensional space, perform 7-power vortex movement in the five-dimensional space.

In particular, the three precessing root elements {5,8,11} and the two pairs of rotating root elements {(14,15), (17,21)} have a random equilibrium exchange function, that is to say; the three particles advance Motion is equivalent to four rotating particles.

(A), vortex conversion of three precessions and four rotating particles (energy, force, speed, acceleration, kinetic energy) (energy):

$$[(1-\eta_{[jik]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow2(1-\eta_{[uv]}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$$

(B), the (reciprocal) combination or decomposition of three precessions and four rotating particles (energy, force, speed, acceleration, kinetic energy):

$$\{[(1-\eta_{[jik]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow2(1-\eta_{[uv]}^2)^{(K=-1)}]\cdot\{\mathbf{D}_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t}$$
$$\leftrightarrow[(1-\eta_{[jik]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[j]}^2)^{(K=+1)}+2(1-\eta_{[i]}^2)^{(K=+1)}+2(1-\eta_{[k]}^2)^{(K=+1)}]\leftrightarrow$$
$$\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm\pm(q=0,\ldots7)/t}\leftrightarrow$$
$$\leftrightarrow[(1-\eta_{[uv]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow2(1-\eta_{[U]}^2)^{(K=-1)}+2(1-\eta_{[V]}^2)^{(K=-1)}]$$
$$=(1-\eta_{[j]}^2)^{(K=+1)}+(1-\eta_{[i]}^2)^{(K=+1)}+(1-\eta_{[k]}^2)^{(K=+1)}+2(1-\eta_{[U]}^2)^{(K=-1)}+2(1-\eta_{[V]}^2)^{(K=+1)}]\}\}\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=0)\pm(q=0,\ldots7)/t};$$

Example: The 'infinity axiom' mechanism of dimensionless circular logarithms drives the movement of seven particles (radiation + vibration, vibration). If there is a change in the jumping mode across particle levels, the central zero point $(1-\eta_{[C]}^2)^{(K=\pm0)}$ becomes a **particle trap point and conversion point**, then energy release or replenishment occurs, maintaining or adjusting the constant energy of each particle orbit. The;**infinity axiom**; closed mechanism based on dimensionless circular logarithm control drives the balanced exchange combination decomposition of particle elements, without being interfered by other particles.

This is a dynamic equation of dimensionless circular logarithm trying to describe seven quantities of particles. It can be extended to the state of multiple quantities of particles. Is it consistent? Waiting for physicists to verify. In turn, verifying the reliable, controllable, and feasible zero-error accuracy of the dimensionless circular logarithm**infinity axiom**; mechanism can also form a new chip architecture and calculation program operation? Waiting for verification and practice by mathematicians and computer experts.

At present, there is no other solution to the seven (any high power) equation of one variable. In addition to the above circular logarithm, the above circular logarithm chart can also be used to analyze and analyze

8.4. Dynamic analysis of three-dimensional network high-order (high-element seven-dimensional equations) calculus (N=±0,1,2)

The above proof: Dynamic analysis of high-order (seven-dimensional equations of one variable) calculus (N=-0,1,2) of three-dimensional networks, it can be found that: the "element-object" of numerical values maintains the original true proposition (element) during the analysis -object) remains unchanged, relying on dimensionless even number property, symmetry and asymmetry, 'infinity axiom', randomness and inconsistency The mechanism of random conversion (balanced exchange combination decomposition) and random self-verification of authenticity, through the conversion of dimensionless circular logarithms and circular logarithms central zero points and power function properties, drives the conversion of "element-object" into (element -object) unchanged converse proposition maintains the unchanging nature of mathematics and the correctness of deduction. Further explore the state of the currently unsolved ultra-high power three-dimensional physical network space analysis. It is sti.

Its combination and decomposition rules: "additive combination" is reflected as "adding" of circular logarithmic factors, and "multiplicative combination" is reflected as "adding" of power function factors. Then we can use the "recursive method" analogy: "additive combination" is reflected as "multiplication" of circular logarithmic factors, and "multiplication combination" is reflected as "multiplication" of power function factors, all the way to any ultra-high power equation.

Induction: (High-dimensional equation of one variable) Calculus (N=-0,1,2)

[Corollary 1]:

Three-dimensional network high-power network space dynamic analysis method: Assume: Seven-dimensional equation of one variable in infinite arbitrary finite elements: variable function $\{X\}\in\{X_1X_2\ldots X_7\}$, power function: $K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0)\pm(q=0,,\ldots7)/t$ Combination coefficient: 1:7:21:35:35:21:7:1, total: 128; meets the Yang Hui-Pascal regularization coefficient distribution rule.

Known boundary function: $D^K=\{^{(1*7)}\sqrt{D}\}^{K(1*7)}$,

$$\{D_0\}^{K(1*7)(q=1and7)}=\sum_{[x=1]}(1/7)\{D_1+\ldots+D_7\}^{K(1*7)(q=(1*7))},$$
$$\{D_0\}^{K(1*7)(q=2and\ 5)}=\sum_{[x=2]}(1/21)\prod_{[q=2]}\{D_1D_2+\ldots+D_7D_1\}^{K(1*7)((q=(1*7))}$$

$\{D_0\}^{K(1*7)(q=3and\ 4)}=\sum_{[x=3]}(1/35)\prod_{[q=3]}\{D_1D_2D_3+\ldots+D_7D_1\}^{K(1*7)(q=(1*7))}$

(**1**) Equation operation:

$\{X\pm\{^{(1*7))}\sqrt{}D\}^{K(1*7))}\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{(0,2)\cdot D_0\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0)\pm(q=0,\ldots 7)/t}$;

$(1-\eta_{[jik]}{}^2)^{(K=+1)}=\{0,1\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0)\pm(q=0,\ldots 7)/t}$;

(**2**) Equation balance calculation results: Relying on the even number combination and decomposition (0,1+1↔2) of the dimensionless circular logarithm **infinity axiom** to drive the equation calculation.

(A), subtraction combination: $\{\{X-\{^{(1*7)}\sqrt{}D\}^{K(1*7)}\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{(0)\cdot D_0\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0)\pm(q=0,\ldots 7)/t}$;

(B), plus combination: $\{\{X+\{^{(1*7)}\sqrt{}D\}^{K(1*7)}\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{(1+1\leftrightarrow 2)\cdot D_0\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0)\pm(q=0,\ldots 7)/t}$;

(**3**), 'Infinite Axiom' conversion: the true proposition (element-object) remains unchanged, relying on the dimensionless even number symmetry and asymmetry of the 'Infinite Axiom' random and non-random conversion (balanced exchange combination decomposition) and random self-verification of authenticity Through the conversion of dimensionless circular logarithms, central zero points of circular logar

$\{X\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$\leftrightarrow[(1-\eta_{[jik]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[uv]}{}^2)^{(K=+1)}]\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$\leftrightarrow[(1-\eta_{[jik]}{}^2)^{(K=+1)}+(1-\eta_{[uv]}{}^2)^{(K=-1)}]\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$=(1-\eta_{[uv]}{}^2)^{(K=-1)}\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=1*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

The abbreviation for the integral transformation of zero-order, first-order and second-order calculus: The abbreviation for the integral transformation of zero-order/first-order/second-order calculus of one variable (S=1*7):

$\{X\pm Y\}_{[jik+uv]}{}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y][jik+uv]}\}^{(K=+1)(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

The abbreviation of one-variable calculus zero-order/first-order/second-order (S=1*7) three-dimensional precession conversion to two-dimensional rotation:Abbreviation for integral conversion of zeroth order, first order and second order in calculus：

$\{X\pm Y\}_{[jik]}{}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y][uv]}\}^{(K=+1)(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

8.5. Three-dimensional network high-order (two-dimensional 7-dimensional equation) (S=2*7) calculus (N=±0,1,2) dynamic analysis

[Corollary 2]:

Assume: a binary seven-dimensional equation in infinite arbitrary finite elements (S=2*7):

(S=2*7) variable function: $\{X\}\in\{X_1\ldots X_7\}$, $\{Y\}\in\{Y_1\ldots Y_7\}$, $\{X\pm Y\}\in\{(X_1\pm Y_1),\ldots(X_7\pm Y_7),\}\in\{[X,Y]\}$,

Power function: K(Z±[Q=3]±(S=2*7)±(N=0)±(q=0,,…7)/t

Known boundary function:

Combination coefficient: 1:7:21:35:35 :21:7:1, sum: 128;

Known boundary function: $D_{[x,y]}{}^K=\{^{(2*7)}\sqrt{}D_{[x,y]}\}^{K(2*7)}$,

$\{D_{0[x,y]}\}^{K(q=1and\ 7)}=\sum_{[x,y=1]}(1/7)\{D_1+\ldots+D_7\}^{K(2*7)}$,

$\{D_{0[x,y]}\}^{K(q=2and\ 5)}=\sum_{[x,y=2]}(1/21)\prod_{[x,y][q=2]}\{D_1D_2+\ldots+D_7D_1\}^{K(2*7)}$

$\{D_{0[x,y]}\}^{K(q=3and\ 4)}=\sum_{[x,y=3]}(1/35)\prod_{[x,y][q=3]}\{D_1D_2D_3+\ldots+D_7D_1D_2\}^{K(2*7)}$

(1), Equation balance calculation:

$\{(X\pm Y)\pm\{^{(2*7)}\sqrt{}D_{[x,y]}\}^{K(2*7)}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{(0,1+2\leftrightarrow 3)\cdot D_{0[x,y]}\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

$(1-\eta_{[jik]}{}^2)^{(K=+1)}=\{0,1\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

(2), Equation balance calculation results: Also rely on the even number combination and decomposition (0,1+2↔3) of the dimensionless circular logarithm，**infinity axiom** to drive the equation calculation.

(A), subtraction combination: $\{X-\{^{(2*7)}\sqrt{}D_{[x,y]}\}^{K(2*7)}\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{(0)\cdot D_0\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0)\pm(q=0,\ldots 7)/t}$;

(B), plus combination: $\{X+\{^{(2*7)}\sqrt{}D_{[x,y]}\}^{K(2*7)}\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{(1+2\leftrightarrow 3)\cdot D_0\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0)\pm(q=0,\ldots 7)/t}$;

(3), **Infinite Axiom**; conversion: the true proposition (element-object) remains unchanged, relying on the dimensionless even number symmetry and asymmetry of the **Infinite Axiom** random and non-random conversion (balanced exchange combination decomposition) and random self-verification of authenticity The mechanism of the dimensionless circular logarithm, the central zero point of the circular logarithm and the conversion of the positive, neutral and negative of the properties of the power function drive the binary &qu

$\{X\pm Y\}_{[jik+uv]}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{D_{0[x,y]}\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$\leftrightarrow[(1-\eta_{[jik]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[uv]}{}^2)^{(K=+1)}]\cdot\{D_{0[x,y]}\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$\leftrightarrow[(1-\eta_{[jik]}{}^2)^{(K=+1)}+(1-\eta_{[uv]}{}^2)^{(K=-1)}]\cdot\{D_{0[x,y]}\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$=(1-\eta_{[uv]}{}^2)^{(K=-1)}\cdot\{D_0\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

That is: $\{D_{0[x,y]}\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$ is not Change, change of properties: (K=-1)↔(K=±0)↔(K=+1);

Abbreviation for integral transformation of zero-order/first-order/second-order (S=2*7). binary calculus :

$\{X\pm Y\}_{[jik+uv]}{}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y][jik+uv]}\}^{(K=+1)(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

The abbreviation of the zero-order/first-order/second-order (S=2*7) three-dimensional precession and two-dimensional rotation conversion of binary calculus:

$\{X\pm Y\}_{[jik]}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^{2})^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y][uv]}\}^{(K=+1)(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

Among them: the power dimension remains unchanged in analytical calculations, the mathematical nature of exchange and addition combination remains unchanged only in the "additive combination (1+2=3)" of circular logarithmic factors, and the transformation of the 'infinite axiom' mechanism ensures deduction Zero-error correctness.

8.6. Dynamic analysis of high-order three-dimensional network (ternary 7-dimensional equation) (S=3*7) calculus (N=±0,1,2)

[Corollary 2]:

Features: In the analysis and calculation, the ternary remains unchanged, the power dimension (7) remains unchanged, and the mathematical nature of exchange and additive combination remains unchanged only in the "additive combination (1+3=4); of circular logarithmic factors, with infinity The conversion of the axiom mechanism ensures the correctness of the deduction with zero error. Assume: a binary seven-dimensional equation in infinite arbitrary finite elements (S=3*7):

(S=3*7) variable function: $\{X\}\in\{X_1\ldots X_7\}$, $\{Y\}\in\{Y_1\ldots Y_7\}$, $\{Z\}\in\{Z_1\ldots Z_7\}$,

Power function: K(Z±[Q=3]±(S=**3***7)±(N=0)±(q=0,,…7)/t

Combination coefficient: **3***{1：7：21：35：35：21：7：1}， the total coefficient:**3***$\{2\}^7$=**3***128;

Known boundary function: $D_{[x,y,z]}{}^{K}=\{^{(3*7)}\sqrt{D_{[x,y,z]}}\}^{K(3*7)}$,

$\{D_{0[x,y]}\}^{K(q=1and\ 7)}=\sum_{[x,y=1]}(1/7)\{D_1+\ldots+D_7\}^{K(3*7)}$,

$\{D_{0[x,y,z]}\}^{K(q=2and5)}=\sum_{[x,y,z=2]}(1/21)\prod_{[x,y,z][q=2]}\{D_1D_2+\ldots+D_7D_1\}^{K(3*7)}$

$\{D_{0[x,y,z]}\}^{K(q=3and\ 4)}=\sum_{[x,y,z=3]}(1/35)\prod_{[x,y,z][q=3]}\{D_1D_2D_3+\ldots+D_7D_1D_2\}^{K(3*7)}$

Equation balance calculation results:

（1）、Equation balance calculation:

$\{(X\pm Y\pm Z)\pm[^{(3*7)}\sqrt{D_{[x,y,z]}}]\}^{K(3*7)}=(1-\eta_{[jik+uv]}{}^{2})^{(K=+1)}\cdot(0,3*2^{(7)})\cdot\{D_{0[x,y,z]}\}^{K(Z\pm[Q=3]\pm(S=(3*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

$(1-\eta_{[jik]}{}^{2})^{(K=+1)}=\{0,1\}^{K(Z\pm[Q=3]\pm(S=3*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

（2）、Equation balance calculation results:

It also relies on the even number combination and decomposition (0, 1+2↔3) of the dimensionless circular logarithm **infinity axiom** to drive equation calculations.

（A）、minus combination：$\{X-\{^{(3*7)}\sqrt{D_{[x,y,z]}}\}^{K(3*7)}\}=(1-\eta_{[jik]}{}^{2})^{(K=+1)}\cdot(0*3^{(7)})\cdot D_{0[x,y,z]}\}^{K(Z\pm[Q=3]\pm(S=3*7)\pm(N=0)\pm(q=0,\ldots G)/t}$;

（B）、minus combination：$\{X+\{^{(3*7)}\sqrt{D_{[x,y,z]}}\}^{K(3*7)}\}=(1-\eta_{[jik]}{}^{2})^{(K=+1)}\cdot(2*3^{(7)})\cdot D_{0[x,y,z]}\}^{K(Z\pm[Q=3]\pm(S=3*7)\pm(N=0)\pm(q=0,\ldots G)/t}$;

（3）、**Infinite Axiom** conversion: the true proposition (element-object) remains unchanged, relying on the dimensionless even number symmetry and asymmetry of the **Infinite Axiom** random and non-random conversion (balanced exchange combination decomposition) and random self-verification of authenticity The mechanism of the dimensionless circular logarithm, the central zero point of the circular logarithm, and the conversion of the positive, neutral and negative of the properties of the power function drive the true

$\{X\pm Y\pm Z\}_{[jik+uv]}=(1-\eta_{[jik]}{}^{2})^{(K=+1)}\cdot\{D_{0[x,y,z][jik+uv]}\}^{K(Z\pm[Q=3]\pm(S=3*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$\{X\pm Y\pm Z\}_{[jik]}=(1-\eta_{[jik]}{}^{2})^{(K=+1)}\cdot\{D_{0[x,y,z][jik]}\}^{K(Z\pm[Q=3]\pm(S=3*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$\leftrightarrow\{[(1-\eta_{[jik]}{}^{2})^{(K=-1)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^{2})^{(K=\pm0)}\leftrightarrow[(1-\eta_{[jik]}{}^{2})^{(K=+1)}+(1-\eta_{[uv]}{}^{2})^{(K=+1)}]$

$\leftrightarrow[(1-\eta_{[uv]}{}^{2})^{(K=-1)}]\}\cdot\{D_{0[x,y,z][uv]}\}^{K(Z\pm[Q=3]\pm(S=(3*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$

$=(1-\eta_{[uv]}{}^{2})^{(K=-1)}\cdot\{D_{0[x,y,z][uv]}\}^{K(Z\pm[Q=3]\pm(S=3*7)\pm(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

That is: $\{D_{0[x,y,z]}\}^{K(Z\pm[Q=3]\pm(S=(3*7))\pm(N=0,1,2)\pm(q=0,,\ldots 7)/t}$ remains unchanged, the properties change: (K=-1)↔(K=±0)↔(K=+1);

Ternary calculus zero-order/first-order/second-order (S=**3***7) Holistic conversion abbreviation:

$\{X\pm Y\pm Z\}_{[jik+uv]}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^{2})^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y,z][jik+uv]}\}^{(K=+1)(N=0,1,2)\pm(q=0,\ldots 7)/t}$;

The abbreviation of the zero-order/first-order/second-order ternary calculus (S=3*7) three-dimensional precession and two-dimensional rotation conversion:

$$\{X\pm Y\pm Z\}_{[jik]}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^{2})^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y,z][uv]}\}^{(K=+1)(N=0,1,2)\pm(q=0,\ldots 7)/t};$$

Among them: the power dimension remains unchanged in analytical calculations, the mathematical nature of exchange and addition combination remains unchanged only in the "additive combination (1+2=3); of circular logarithmic factors, and the transformation of the 'infinite axiom' mechanism ensures deduction Zero-error correctness.

8.7. Dynamic analysis of high-order (three-dimensional G-dimensional equation) calculus (N=±0,1,2) of three-dimensional network .

[Corollary 3]:

Features: The ternary remains unchanged in the analysis and calculation, the power dimension progresses from (7) to ternary to the (G) power dimension, and the conversion, exchange and addition combination maintain the "addition combination (4) and (G) of the circular logarithmic factor") The mathematical nature of "power dimension" remains unchanged, and the conversion of the **infinite axiom** mechanism ensures the correctness of the zero error in deduction.

During the exchange: the ternary numerical value (proposition) remains unchanged, the power dimension (G) remains unchanged, exchange and additive combination, conversion based on the**infinity axiom** mechanism, using the circular logarithmic factor "additive combination drives numerical additive combination", Ensure that the nature of mathematics remains unchanged and the correctness of deduction is zero error.

Assume: three-dimensional G-dimensional equation in infinite arbitrary finite elements（S=3*G）:

（S=3*G） variable function: $\{X\}\in\{X_1\dots X_G\}$，$\{Y\}\in\{Y_1\dots Y_G\}$，$\{Z\}\in\{Z_1\dots Z_G\}$，

$\{X\pm Y\pm Z\}\in\{(X_1\pm Y_1\pm Z_1),\dots(X_7\pm Y_7\pm Z_1),\}\in\{[X,Y,Z]\}$，

Power function: $K(Z\pm[Q=3]\pm(S=3*G)\pm(N=0)\pm(q=0,,\dots 7)/t$ (S=3*G)

Combination coefficient: sum: $\{2\}^{K(3*G)}$;

1：$(1/G)^K$：$[(2!/(G-0)(G-1)]^K$：$[(3!/(G-0)(G-1)(G-2)]^K$：…：$[(P-1)!/(G-0)(G-2)]^K$：…：1;

Known: Boundary function: $D_{[x,y,z]}{}^K=\{^{(3*G)}\sqrt{}D_{[x,y,z]}\}^{K(3*G)}$,

Eigenmodule：

$\{D_{0[x,y,z]}\}^{K(q=1and(G)}=\sum_{[x,y,z=1]}(1/G)^K\{D_1+\dots+D_7\}^{K(3*G)}$,

$\{D_{0[x,y,z]}\}^{K(q=2and(G-2)}=\sum_{[x,y,z=2]}[(2!/(G-0)(G-1)]^K\prod_{[x,y,z][q=2]}\{D_1D_2+\dots+D_7D_1\}^{K(3*G)}$,

$\{D_{0[x,y,z]}\}^{K(q=3and4(G-3)}=\sum_{[x,y,z=3]}[(3!/(G-0)(G-1)(G-2)]^K\prod_{[x,y,z][q=3]}\{D_1D_2D_3+\dots+D_7D_1D_2\}^{K(3*G)}$, …

（1）、Equation balance calculation:

$\{(X\pm Y\pm Z)\pm[^{(3*G)}\sqrt{}D_{[x,y,z]}]\}^{K(3*G)}=(1-\eta_{[jik+uv]}{}^2)^{(K=+1)}\cdot(0,3*2^{(G)})\cdot\{D_{0[x,y,z]}\}^{K(Z\pm[Q=3]\pm(S=(3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$;

$(1-\eta_{[jik]}{}^2)^{(K=+1)}=\{0,1\}^{K(Z\pm[Q=3]\pm(S=3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$;

（2）、Equation balance calculation results:

It also relies on the even number combination and decomposition (0, 1+2↔3) of the dimensionless circular logarithm 'infinity axiom' to drive equation calculations.

（A）、minus combination：$\{X-\{^{(3*G)}\sqrt{}D_{[x,y,z]}\}^{K(3*G)}\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot(0*3^{(7)})\cdot D_{0[x,y,z]}\}^{K(Z\pm[Q=3]\pm(S=3*G)\pm(N=0)\pm(q=0,\dots G)/t}$;

（B）、minus combination：$\{X+\{^{(3*G)}\sqrt{}D_{[x,y,z]}\}^{K(3*G)}\}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{(2*3^{(7)})\cdot D_{0[x,y,z]}\}^{K(Z\pm[Q=3]\pm(S=3*G)\pm(N=0)\pm(q=0,\dots G)/t}$;

（3）、**Infinity axiom** conversion: the true proposition (element-object) remains unchanged, relying on the dimensionless even number symmetry and asymmetry of the **infinity axiom** random and non-random conversion (balanced exchange combination decomposition) and the mechanism of random self-verification of authenticity, through The transformation of the dimensionless circular logarithm and the central zero point of the circular logarithm and the positive, neutral and negative proposition of the power function properties has led to the transformation of the invariant true proposition of the ternary **element-object** into the invariant inverse proposition of the ternary (element-object).

$\{X\pm Y\pm Z\}_{[jik+uv]}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{D_{0[x,y,z][jik+uv]}\}^{K(Z\pm[Q=3]\pm(S=(3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$;

$\{X\pm Y\pm Z\}_{[jik]}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{D_{0[x,y,z][jik]}\}^{K(Z\pm[Q=3]\pm(S=(3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$; $\leftrightarrow\{[(1-\eta_{[jik]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)}\leftrightarrow[(1-\eta_{[jik]}{}^2)^{(K=+1)}+(1-\eta_{[uv]}{}^2)^{(K=+1)}]$

$\leftrightarrow[(1-\eta_{[uv]}{}^2)^{(K=-1)}]\}\cdot\{D_{0[x,y,z][uv]}\}^{K(Z\pm[Q=3]\pm(S=(3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$;

$=(1-\eta_{[uv]}{}^2)^{(K=-1)}\cdot\{D_{0[x,y,z][uv]}\}^{K(Z\pm[Q=3]\pm(S=(3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$;

That is: $\{D_{0[x,y,z][uv]}\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\dots 7)/t}$ remains unchanged, the properties change: (K=-1)↔(K=±0)↔(K=+1)

The abbreviation for the integral conversion of zero-order/first-order/second-order ternary calculus (S=3*G):

$\{X\pm Y\pm Z\}_{[jik+uv]}{}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y,z][jik+uv]}\}^{K(Z\pm[Q=3]\pm(S=(3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$;

The abbreviation of the zero-order/first-order/second-order ternary calculus(S=3*G) three-dimensional precession and two-dimensional rotation conversion:

$\{X\pm Y\pm Z\}_{[jik]}{}^{(K=-1)(N=0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=0,1,2)}\leftrightarrow\{D_{0[x,y,z][uv]}\}^{K(Z\pm[Q=3]\pm(S=(3*G)\pm(N=0,1,2)\pm(q=0,\dots G)/t}$;

Among them: the power dimension remains unchanged in analytical calculations, the mathematical nature of exchange and addition combination remains unchanged only in the **additive combination (1+2=3)** of circular logarithmic factors, and the transformation of the **infinite axiom** mechanism ensures deduction Zero-error correctness.

8.8. Dynamic analysis of high-order (M-element G-dimensional equation) differential (N=-0,1,2) of three-

dimensional network

Features: In the analysis and calculation, the ternary element has been improved to M elements, the power dimension G remains unchanged, the conversion, exchange and addition combination keep the mathematical nature of the additive combination (M+1); of the circular logarithmic factors unchanged, with infinity The conversion of the axiom mechanism ensures the correctness of the deduction with zero error.

[推论 4]：

Characteristics: In the analysis and calculation, the M elements remain unchanged, the power dimension (G) power dimension, conversion, exchange and addition combination maintain the "additive combination (M+1) and (G) power dimension of the circular logarithmic factor" The nature of mathematics remains unchanged, and the conversion of the 'infinite axiom' mechanism ensures the correctness of the deduction with zero error. Features: In the analysis and calculation, the ternary remains unchanged, the power dimension (G) remains unchanged, and the mathematical nature of exchange and additive combination remains unchanged only in the "additive combination (1+3=4)" of circular logarithmic factors, with 'infinity The conversion of the axiom' mechanism ensures the correctness of the deduction with zero error.

Assume: M-element G-dimensional equation in infinite arbitrary finite elements（S=(M*G)：

（S=M*G）Variable function：[x,y,z,…,M]。

$\{X^{[G]}\}\in\{X_1\ldots X_{[G]}\}$，$\{Y^{[G]}\}\in\{Y_1\ldots Y_{[G]}\}$，$\{Z^{[G]}\}\in\{Z_1\ldots Z_{[G]}\}$，…$\{M_{[G]}\}\in\{M_1\ldots M_{[G]}\}$，

$\{X^{[G]}\pm Y^{[G]}\pm Z^{[G]}\pm\ldots\pm M^{[G]}\}\in\{(X_1\pm Y_1\pm Z_1\pm\ldots\pm M_1),\ldots(X_{[G]}\pm Y_{[G]}\pm Z_{[G]}\pm\ldots\pm M_{[G]}),\}\in\{[X_{[G]},Y_{[G]},Z_{[G]},\ldots,M_{[G]}]\}$，

Power function：K(Z±[Q=3]±(S=M*G)±(N=0)±(q=0,…G)/t, Element M, term order: G, term ordinal number: G+1, general term: (P-1),

(S=M*G) combination coefficient: sum: $M*\{2\}^G$;

$M*\{1：(1/M)^K：[(2!/(M-0)(M-1)]^K：[(3!/(M-0)(M-1)(M-2)]^K：…：[(P-1)!/(M-0)(M-2)]^K：…：1\}$;

Known boundary function: $D_{[x,y,z,\ldots,M]}{}^K=\{^{(M*G)}\sqrt{D_{[x,y,z,\ldots,M]}}\}^{K(M*G)}$,

Eigenmodule：$\{D_{0[x,y,z,\ldots,M]}\}^{K(q=1and\ (G-1)}=\sum_{[x,y,z,\ldots,M]}(1/M)^K\prod_{[q=1]}\{D_1+\ldots+D_G\}^{K(M*G)}$,

$\{D_{0[x,y,z,\ldots,M]}\}^{K(q=2and\ (G-2))}=\sum_{[x,y,z,\ldots,M]}[(2!/(M-0)(M-1)]^K\prod_{[q=2]}\{D_1D_2+\ldots+D_GD_1\}^{K(M*G)}$,

$\{D_{0[x,y,z,\ldots,M]}\}^{K(q=3and\ (G-3)}=\sum_{[x,y,z,\ldots,M]}[(3!/(M-0)(M-1)(M-2)]^K\prod_{[q=3]}\{D_1D_2D_3+\ldots+D_GD_1D_2\}^{K(M*G)}$, …：

$\{D_{0[x,y,z,\ldots,M]}\}^{K(q=(G)and\ (G-P))}=\sum_{[x,y,z,\ldots,M]}[((P-1)!/(M-0)!]^K\prod_{[q=P]}\{D_1\ldots D_G+\ldots+D_G\ldots D_2\}^{K(M*G)}$, …：

(1)、(S=M*G)Three-dimensional physical space (five-dimensional vortex) complex analysis：

$\{[X\pm Y\pm Z\pm\ldots\pm M]\pm[^{(M*G)}\sqrt{D_{[x,y,z,\ldots,M]}}]\}^{K(M*G)}$

$=(1-\eta_{[jik+uv]}{}^2)^{(K=\pm1)}\cdot\{(0,M*2^{(G)})\cdot D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

$(1-\eta_{[jik+uv]}{}^2)^{(K=\pm1)}=\{0,1\}^{K(Z\pm[Q=3]\pm(S=M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

(2)、M-yuan (S=M*G) equation balance calculation results:

It also relies on the even number combination and decomposition (0, 1+2↔3) of the dimensionless circular logarithm 'infinity axiom' to drive equation calculations.

(1)、minus combination : $\{X-\{^{(M*G)}\sqrt{D_{[x,y,z]}}\}^{K(M*G)}\}=(1-\eta_{[jik+uv]}{}^2)^{(K=+1)}\{(0,M*2^{(G)})\}\cdot D_{0[x,y,z]}{}^{K(Z\pm[Q=3]\pm(S=M*G)\pm(N)\pm(q=0,\ldots G)/t}$;

(2)、plus combination : $\{X+\{^{((M*G))}\sqrt{D_{[x,y,z]}}\}^{K(M*G)}\}=(1-\eta_{[jik+uv]}{}^2)^{(K=+1)}\{(2,M*2^{(G)})\}\cdot D_{0[x,y,z]}{}^{K(Z\pm[Q=3]\pm(S=M*G)\pm(N)\pm(q=0,\ldots G)/t}$;

(3)、**Infinity axiom** conversion: the true proposition (element-object) remains unchanged, relying on the dimensionless even number symmetry and asymmetry of the**infinity axiom** random and non-random conversion (balanced exchange combination decomposition) and the mechanism of random self-verification of authenticity, through dimensionless The conversion of circular logarithms and central zero points of circular logarithms and power function properties led to the transformation of M-yuan(S=M*G) element-object" invariant true propositions into M-yuan(S=M*G) (element-object)
invariant converse proposition,

Rule: The true proposition remains unchanged, the characteristic modulus $\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=2*7)\pm(N=0,1,2)\pm(q=0,\ldots7)/t}$ remains unchanged, circular logarithm $(1-\eta_{[jik+uv]}{}^2)$ remains unchanged, the properties and attributes change in the middle and reverse direction: (K=-1)↔(K=±0)↔(K=+1), the zero point of the logarithm center of the circle drives the "element" -object" is converted into a converse proposition;

（4）、 Holistic exchange:

$\{[X\pm Y\pm Z\pm\ldots\pm M]\}_{[jik+uv]}=(1-\eta_{[jik+uv]}{}^2)^{(K=-1)}\cdot\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

$\leftrightarrow\{[(1-\eta_{[jik+uv]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik+uv]}{}^2)^{(K=-1)}]$

$\cdot\{D_{0[[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

$=(1-\eta_{[jik+uv]}{}^2)^{(K=+1)}\cdot\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

（5）、Precession and rotation exchange across levels:

$\{[X\pm Y\pm Z\pm\ldots\pm M]\}_{[jik]}=(1-\eta_{[jik]}{}^2)^{(K=+1)}\cdot\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

$\leftrightarrow\{[(1-\eta_{[jik]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[uv]}{}^2)^{(K=+1)}]$

$\cdot\{D_{0[[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

$=(1-\eta_{[uv]}{}^2)^{(K=-1)}\cdot\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

（6）、Decomposition of the balanced exchange combination of the whole and the individual:

$\{[X\pm Y\pm Z\pm\ldots\pm M]\}_{[jik+uv]}=(1-\eta_{[jik+uv]}{}^2)^{(K=+1)}\cdot\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

$\leftrightarrow\{[(1-\eta_{[jik+uv]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik+uv]}{}^2)^{(K=+1)}]$

$\cdot\{D_{0[[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

$=[(1-\eta_{[x]}{}^2)^{(K=+1)}+(1-\eta_{[y]}{}^2)^{(K=+1)}+(1-\eta_{[z]}{}^2)^{(K=+1)}+(1-\eta_{[x]}{}^2)^{(K=-1)}+(1-\eta_{[x]}{}^2)^{(K=-1)}]$

$\cdot\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

（7）、Exchange between differential↔integral：

M element (S=**M***G) differential integral differential↔integral conversion (abbreviation):

$\{D_{0[x,y,z,\ldots,M]}\}^{(K=-1)(N=-0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=\pm0,1,2)}\leftrightarrow\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

M yuan(S=**M***G) differential holistic conversion (abbreviation）：

$\{D_{0[x,y,z,\ldots,M]}\}^{(K=-1)(N=-0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=\pm0,1,2)}\leftrightarrow\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

M-element(S=**M***G) integral zero-order/first-order/second-order three-dimensional precession and two-dimensional rotation conversion (abbreviation):

$\{D_{0[x,y,z,\ldots,M]}\}^{(K=-1)(N=+0,1,2)}\leftrightarrow(1-\eta_{[C][jik+uv]}{}^2)^{(K=\pm0)(N=\pm0,1,2)}\leftrightarrow\{D_{0[x,y,z,\ldots,M]}\}^{K(Z\pm[Q=3]\pm(S=(M*G)\pm(N=0,1,2)\pm(q=0,\ldots G)/t}$;

Among them: in calculus conversion, total elements = object value remains unchanged. The logarithm of the circle remains unchanged, and the characteristic mode (positive and negative mean values) produces order (N=-0,1,2) and (N=+0,1,2) sign changes, corresponding to high-power dimensional networks producing order (N=-0,1,2…G) and (N=+0,1,2…G), after reflecting the order change, the change of the combination coefficient becomes a new order characteristic mode. The signs on the same side of the zero point at the center of the circle's logarithm remain unchanged, and the signs on both sides of the zero point across the center change. Dimensionless analysis uses even number symmetry and asymmetry and the 'infinite axiom' mechanism to decompose balance transformation combinations. In the exchange, additive combination is the addition of circular logarithmic numerical factors 2*M (even function), 3*M (odd function), and multiplication combination" is th.

The application scope is $\{2\}^{2n}$, $\{3\}^{2n}$ respectively. The mathematical nature remains unchanged, ensuring the correctness of zero error in deduction. The above proves that when dimensionless circular logarithms are decomposed in balanced exchange combinations under the **infinity axiom** mechanism, any **element-object** value remains invariant, and the "element-object" value is driven by the balance symmetry of the central zero point of the circular logarithm. exchange. The unchanging nature of mathematics and the correctness of deduction are clarified. It can be concluded that "traditional numerical analysis and logical analysis" cannot be directly exchanged. Strictly speaking: the axiomatic analysis relied on is inappropriate analysis.

9. The connection between dimensionless structure and the macroscopic universe

The famous "dark matter, dark energy, and black holes" in macroscopic physics can explain the transformation of dimensionless "even" symmetry and asymmetry systems into random and non-random equilibrium exchange combination (decomposition) systems with central zero-point symmetry of the " infinite axiom " . There are two states of dimensionless circular logarithm corresponding transformation :

(1) Probabilistic “dark mass” .

(2) Topological “dark energy”

topological critical line, probability critical point)" composed of central zero points at various levels corresponding to the dimensionless circular logarithm , under the condition of dimensionless " even " central zero-point symmetry, drives the balance (parity balance) and exchange (parity evolution) of the central and reverse systems of the eternal universe, as well as the local " parity non-conservation " phenomenon.

The part of the universe outside of material entities is called space; all "space" refers to a collection with special properties and some additional structures. This includes the space of the macroscopic world and the space of the microscopic world. Neural network: reasoning, judgment, decision-making, analysis, etc. that imitate the thinking activities of the human brain. Here, all (macro and micro) physical spaces are uniformly interpreted as the invariant characteristic modes selected by the circular logarithm corresponding to the three-segment form of the positive, middle and reverse interaction of the dimensionless circular logarithm abstract space. Through the positive, middle and reverse conversion of the dimensionless circular logarithm properties, the static-dynamic and positive, middle and reverse change (evolution) process of nature and the universe is expressed:

True proposition, positive world, convergence, aging ↔ property attribute conversion, black hole, embryo, seed ↔ inverse proposition, reverse world, expansion ;

$W= [(1-\eta^2)^{(K=\pm1)(Kw=+1)} \leftrightarrow (1-\eta^2)^{(K=\pm1)(Kw=\pm0)} \leftrightarrow (1-\eta^2)^{(K=\pm1)(Kw=-1)}]\cdot W_{00}$

Here, the mathematical " circular logarithm " and the physical "neutrino" do not change their original material and non-material states respectively, but with the "axiom of infinity" and the central zero point $(1-\eta_{0[C]}^2)^{K}=0$, they each drive the balanced exchange combination decomposition of the mathematical "multiplication combination and addition combination" and the physical "entanglement and combination" .

(Figure 9.1) The axiom of infinity reveals the random equilibrium exchange combination decomposition mechanism of the even terms in the universe

Special : In the power function (K=±1) , (K= + 1) represents the macroscopic world (such as gravity, photon mechanics, convergence), (K=±1) represents the mesoscopic world (such as thermodynamics, cellular vitality, photon mechanics, balance), (K= - 1) represents the microscopic world (such as nuclear mechanics, electromagnetic force, photon mechanics, neutrinos, expansion), (K=`0) represents the central zero point of the macroscopic world, mesoscopic world, and microscopic world (such as the equilibrium conversion point of the positive and negative equilibrium exchange combination of nuclear mechanics, gravity, electromagnetic force, photon mechanics, neutrinos, etc.).

It can be seen that the "infinite axiom" of dimensionless construction sets is not only applicable to mathematical systems

(numerical analysis and logical analysis), but also to physical microscopic particles, neural networks, data networks, information networks, mesoscopic life cells, and the macroscopic universe.

In other words, the dimensionless " infinite axiom " symmetry and asymmetry, randomness and non-randomness

drive the balance, exchange, combination (decomposition) of the entire nature . This dimensionless construction system not only corresponds to mathematics, philosophy, physics, economics, artificial intelligence, neural networks, data networks, information networks, the universe and other scientific fields , but also provides a reasonable solution to the "truth" of balance and exchange (inside and outside the system) for the complete cognition of the existence of facts .

The dimensionless circular logarithm has created the world's first precedent for dimensionless construction to describe "mathematics-elementary particles-universe" and the evolution of the "convergence (decay)-central zero point conversion-expansion (growth)" periodic cycle of the "infinite axiom" of the entire universe. It has a wide range of application prospects that are fully adapted to mathematics-physics-life cells-supercomputers.

According to the ancient Chinese philosophy and mathematics, from the symbol "two antisymmetric tadpoles inside a circle" in the Book of Changes 6,000 years ago to today's " circular logarithms and neutrinos " , with the "axiom of infinity" and the central zero point $(1-\eta_{[C]}^2)^{(K=0)}=\{0,1\}$, it has led to the balanced exchange combination (decomposition) of "element-object", which not only explains the category theory called " mapping functor , morphism

", but also leads to the balanced exchange combination (decomposition) of "multiplication combination and addition combination" in mathematics .

Among them: the properties of the physical and network worlds: (K=+1) represents the macroscopic particle world, (K=-1) represents the microscopic quantum world, (K=±1) represents the neutral particle world, (Kw=±0) represents the microscopic neutrinos , the macroscopic black holes (Big Bang), the mesoscopic neural networks, and the transformation of life corresponds to the dimensionless 'infinite axiom' central zero point driving the random equilibrium exchange combination (decomposition) of the "elements-objects" in the macroscopic world .

Meaning of the pattern **(Figure 9.1)** : The three "even-numbered asymmetric Tai Chi circles" at the top, middle and bottom are the symbols of the Bagua circle in Chinese philosophy and mathematics 6,000 years ago (positive tadpole-central critical curve-reverse tadpole). The red and black dots are the "elementary particles-chip architecture" corresponding to the points of each macroscopic universe and microscopic particles at different levels. The light gray in the center represents the eternal "infinite axiom mechanism", which carries out the cyclic evolution of "true proposition ↔ central zero point (critical point) ↔ inverse proposition" symmetrically and asymmetrically, randomly and non-randomly. It shows the most profound, abstract and basic universe-mathematical structure and space of the "dimensionless circular logarithm construction set". (Pattern design: He Huacan and Wang Yiping).

10: Dimensionless construction and its connection with artificial general intelligence (AGL)

10.1 Overview of Artificial Intelligence

At present, artificial intelligence has created computers (AI) with the concept of "discrete-symmetry" by von Neumann and Turing, replacing data networks, information networks, and neural networks for human big data statistics, driving the revolution of world science and economy, and penetrating into everyone's specific mastery and application. Among them: the basic principle of the famous neural network is to imitate the neuron structure of the human brain, and realize complex information processing through a network connected by a large number of simple computing units (neurons). Each neuron receives the input signal, performs weighted summation on it, and generates an output signal through an activation function. These signals propagate from front to back in the neural network, and after multiple weighted summations and activation functions, the network output is finally generated. The learning process of the neural network is mainly through the back propagation algorithm, adjusting the connection weights between neurons according to the output error, so that the network can gradually learn the mapping relationship between input and output.

In general, the basic principles of neural networks focus on the following aspects:

Neuron: The basic building block of a neural network, which receives input signals, performs weighted summation, and generates output signals through an activation function.

Weights and biases: Weights represent the degree of influence of the input signal on the output of the neuron, while biases enable neurons to learn more complex patterns.

Activation function: used to introduce nonlinearity so that the neural network can learn and simulate more complex functional relationships. Common activation functions include Sigmoid, tanh, and ReLU.

Forward propagation: The input signal passes through the network's forward calculation to obtain the output of the symmetric network. This is the basic calculation process of the neural network.

Back propagation: In the learning process of a neural network, by comparing the network output with the actual target, calculating the error, and back propagating the error back to the network, adjusting the weights and biases to reduce the error. This is the core algorithm of neural network learning.

Iterative learning: The neural network continuously adjusts weights and biases through multiple iterations, gradually reducing the output error until the predetermined learning goal is achieved.

Through these basic principles, neural networks are able to learn and simulate complex input-output relationships, thus playing an important role in various fields such as image recognition, speech recognition, natural language processing, etc.

10.2. Super Artificial Intelligence and Dimensionless Circular Logarithm

In the 21st century, mathematics, computer science, physics, and materials science have made great efforts to explore. In the process of analyzing the "neurons" of the human brain, people have discovered that the world is not all symmetrical, and a large amount of asymmetry exists. The symmetry of the existing neural network forward propagation and back propagation does not meet the needs. For example, neural networks often produce forward calculations of the network and obtain the output of an asymmetric network. For example, the calculation requires "inputting one data and a characteristic function, and requiring the output of two symmetrical data, or three asymmetric data", and the "ternary number" (asymmetry) calculation based on mathematics has not been solved. The "analysis, judgment, evaluation, analytical calculation, ..." of the super-strong artificial intelligence advanced imitation computer "neurons" has encountered an insurmountable gap. With the continuous development of technology, people expect artificial intelligence to play a role in more powerful, high-function, high-efficiency, zero-error accuracy and other aspects.

Dimensionless circular logarithm is the mathematical basis of super-strong artificial intelligence computing. Specific applications:

(1) Mathematical theory: discovered a new mathematical "dimensionless construction set" to solve the application function of zero-error calculation of discrete and continuous integration in mathematics. It opened a new era of "dimensionless construction". Won the "certificate" from the State Intellectual Property Office

(2) Thoroughly reform mathematics and computer algorithms: Based on the isomorphic circular logarithm (with the stability of the circular logarithm center zero point symmetry) and the integer nature of the invariant characteristic modulus (with closedness), through the expression level and position of the power function, "no mathematical model, no specific element-object" interference, and the application of the "infinite axiom" random self-proving truth and falsehood mechanism can avoid "multiple" weighted summations and activation functions, output the "error adjustment" connection weights between neurons, and ensure zero error development of each step of the program.

(3) Mathematical calculation: A simple dimensionless circular logarithm is used to replace all existing calculation methods and achieve grand unification.

(a) In 1984, he published "Graphical Calculation of Reinforced Concrete Components of Buildings" at the National Association of Graphics and Calculation in Qingdao, applying the principle of dimensionless circular logarithm. Later, it was improved to "Calculation Chart of Multi-element Multiplication".

(b) Propose a traditional intuitive "Circular Logarithmic Slide Rule" to solve arbitrary high-power dimensional equations and ellipse calculations, and apply for a national patent.

(4) Computer field: Propose new computing theories and new chip architectures.

(a)、Storage system: The "quinary" chip architecture principle uses the odd numbers {1.3.(5=0).7.9} and even numbers {2.4.(5=0)5.6.8} of the natural number tails and the center zero point of the circular logarithm and the power function form to greatly save memory space.

(b)、Computing system: The "ten-mechanism" chip architecture and "four-photon" control principle use circular logarithms and the "axiom of infinity" to perform balanced exchange and combination decomposition of three-dimensional space. It can analyze any high-order equations and any elliptical space, especially the circular logarithm isomorphism, avoiding complex calculation procedures, and has efficient three-dimensional $\{3\}^{2n}$ functions, ensuring high-precision zero error reaching the 10^200 universe level, greatly saving computing hardware and software and materials.

(c)、Flexible computer hardware and software can be made based on the principle of the "slide rule" "circular logarithmic slide rule".

In particular, the new computer algorithm principles have comprehensively reformed traditional computer algorithms and chip architecture principles. They have the ability to meet the needs of big data statistics, diversified, multi-level, multi-directional, and anisotropic discrete and continuous integration of super-artificial intelligence neural networks, providing the mathematical foundation for making a "super-universal computer" with reliable, controllable, and feasible zero-error calculations.

Finally, the author sincerely thanks many mathematicians at home and abroad for their outstanding contributions. Thanks to the members of the circular logarithm team for their long-term selfless contributions. Thanks to the Quzhou Association of Senior Scientists for their long-term support. Thanks to many well-known and unknown teachers and netizens on the Internet for their guidance and help in publishing articles.

Therefore, the central dimensionless construction set is a newly developed mathematical mine that hides rich treasures. It belongs to China and the world. The Chinese circular logarithm team has the key to open the door and is openly contributing it to everyone.

The circular logarithm team warmly welcomes scholars, teachers and experts from home and abroad to jointly develop and make new contributions to the progress of human mathematics and science.

Thank you all for your enthusiastic support, communication, discussion, promotion, supplementation, and criticism , guidance, and help that contribute to the progress of science and mathematics ! (End)

Appendix:

(1) In April 2023, "Wang Yiping's Circular Logarithms" received the National Copyright Administration's work registration certificate. Registration number: National Copyright Administration Registration Number: 2023-A — 00137955

(2) The National Artificial Intelligence Innovation Competition of the China Artificial Intelligence Society, Round Logarithm has won awards for four consecutive years (2021-2024)

(1)、2024 年中国人工智能全国创新大赛

(2)、2023 年中国人工智能全国创新大赛

(3)、2022 年中国人工智能全国创新大赛

(4)、2021 年中国人工智能全国创新大赛

Notes to Editors and Readers

Dear Editor-in-Chief Ma and fellow editors:

Dear readers, experts, and teachers:

The Wang Yiping circular logarithm team in China inherited the achievements of mathematicians from ancient and modern times, and discovered a new infinite construction set for the first time "between real numbers and natural numbers": dimensionless circular logarithms and the unique even-numbered "infinity axiom" random equilibrium exchange group decomposition mechanism. In the multi-disciplinary fields of algebra, geometry, number theory, and group theory, the team analyzed and solved sensitive topics such as traditional mathematics (including calculus, path integrals, and ternary complex analysis), four-color theorem, axiomatization, continuum, central zeros of Riemann functions, category theory, and Langlands program , as well as elementary particles and cyclic evolution of the universe with a simple circular logarithm formula in {±0, ±1} . This means substantial progress and fundamental breakthroughs in mathematics since Gödel's incompleteness theorem in **1931** ; it demonstrates the powerful vitality and precise high-level algorithm of dimensionless construction sets , with zero error reaching $10^{(\pm 222)}$ universe level; it shows the most profound, abstract, and basic mathematical -physical elementary particle system construction; or it may open a new round of mathematical period in mathematics in more than 400 years!

Dimensionless circular logarithms can serve the peaceful construction of science -mathematical engineering in various countries and the world !

We welcome scholars from home and abroad to exchange and cooperate, explore and innovate, and enjoy the future!

We cordially invite scientists, mathematicians, philosophers, engineers, and educators from all over the world to give us advice, comments, support, and promotion!

Thank you for your magazine 's attention and support for every progress of circular logarithms since 2018. From special cases to general cases to concepts to systems, there are articles published. If this article " Dimensionless Construction " is suitable, please arrange for strict review, website publication, and journal publication by the editor-in-chief.

Thank you everyone!

Wang Yiping, the first author of the Chinese circular logarithm team, 2024.10.1.
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