Exploring the Integration of Classical and Logical Analysis in Mathematics-Artificial Intelligence ——
Mathematical Inversion and Neural Network Implementation of Inverse Engineering for High-order Equation

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Abstract: This paper explores the foundations of mathematics and artificial intelligence, revealing a novel infinite construction set—the dimensionless logical circle. It demonstrates the integration of classical analysis and logical analysis, while introducing the "infinite axiom" balancing exchange combination analysis and stochastic self-proofing error correction mechanism. Maintaining the inherent nature of "mathematics-physics-artificial intelligence," it employs a simple circular logarithmic formula: dual logic (numerical/bitwise) codes; mutual inversion conversion between central points, central zeros, and property attributes. The paper resolves the continuum CH problem, establishes P=NP isomorphism, and formulates new theorems including the zero-point conjecture. It proposes a high-density information transmission model for 3D data search and native data processing, along with an integrated storage-computing memory. The 3D chip design principles emphasize zero error, miniaturization, intelligence, robustness, low energy consumption, and high computational power. The work achieves top-tier open-source compatibility and privacy protection. It highlights critical current challenges: solving higher-order mathematical equations and implementing interpretable reverse engineering for neural networks.
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Keywords: Mathematics-Artificial Intelligence; Circle Logarithm Theory; Compatibility of Classical Analysis and Logical Analysis; Dual Logic (Numerical/Bit-Value) Code Matrix; Central Point and Central Zero Point; 'Infinity Axiom' Random Self-Verification Mechanism for Truth and Falsity; High-Density Information Transmission

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Author Introduction: Wang Yiping, founder of Yuan Logarithm, born on December 4, 1937, in Haining, Zhejiang. Graduated from Zhejiang University in 1961, he is a senior engineer and senior researcher at the Quzhou Association of Senior Science and Technology Workers and the Quzhou Qiushi Science and Technology Federation. He was the first in the world to discover the third infinite construction set in mathematics and the unique 'infinite axiom,' as well as the 'compatibility between classical analysis and logical analysis' and the random self-validation mechanism for truth and falsehood. He successfully solved the following problems: the Continuum CH problem; the fusion of symmetry and asymmetry in the Goldbach Conjecture and the central point asymmetry and central point symmetry in the Riemann zero point conjecture; the P=NP isomorphism problem; the Hodge integer conjecture; and the century-old mathematical challenges of improving artificial intelligence Turing machines (0/1) from 'one-to-one' low-density information transmission to 'one-to-many' high-density information transmission. He also advanced zero-error high algorithms from $\{2\}^{2n}$ to $\{S\}^{2n}$ (S=1,2,3,4,5,6,7,8,9...), achieving infinite computational power. He established a novel, independent, and China model third-generation mathematical-artificial intelligence 'dimensionless logic' deductive system.

Members of the China Logarithm Team: Wang Yiping (Founder of China Logarithm), He Huacan (Professor and Doctoral Supervisor at Northwestern Polytechnical University), Li Xiaojian (Professor at North China University of Technology), Zheng Zhijie (Professor at Yunnan University), Gao Longchang (Professor at Southwest Jiaotong University), Gou Huajian (Senior Engineer at Sichuan Railway Company), Zhai Dongqing (Senior Engineer at the Institute of Mathematics, Chinese Academy of Sciences), Feng Jiali, Wang Peizhuang, Yin Bo, Li Min, Zhao Chuan, Wang Hongxuan, Li Siqi, He Zhaoji, Wang Quanxin, Zhao Hongping, Shen Lijun, Zhu Kongcang, Lü Chenjin, Wu Shuiqing, Luo Zhengda, Feng Jinsong, Wang Tongchao, Wu Huaiyu, Zhang Yi, Chen Zhicheng, Huo Zhili, Shen Weiguo, Zhao Zegong, Guan Qiang, Zhang Yudong, Sun Jue, and over 40 others (order is not in any particular sequence).

1. Introduction

1.1 Historical Background of Mathematics and Artificial Intelligence"。

Mathematics: China ancient mathematics records the "Gou San Gu Si Xian Wu" theorem in the "Zhou Bi Suan Jing" around 1100 BC; the counting method of counting rods recorded in the "Sun Zi Suan Jing" is: "In all calculation methods, first identify their positions, one vertical and ten horizontal, a hundred upright and a thousand rigid, a thousand and ten facing each other, ten thousand and a hundred corresponding," establishing the decimal system. Yang Xiong of the Ming Dynasty wrote in the "Tai Xuan Jing" based on the "Dao De Jing": "The Dao gives birth to one, one gives birth to two, two gives birth to three, three gives birth to all things." Plato (around 348 BC) in the "Republic" introduced the initial analytical method of right-angled triangles "**n^2-1, n^2+1, 2n**"; Euclid (around 275 BC) in the "Elements" systematically summarized the geometric knowledge gained by predecessors such as Pythagoras and the Sophists through practice and reflection, established definitions and axioms, and studied the properties of various geometric figures, thereby forming a rigorous logical system of geometric proof methods that derive propositions from axioms and definitions to prove theorems.

In the 17th century, Italian mathematicians such as Tartaglia and Cardan discovered the root-finding formula for cubic equations, while Ferrari formulated the formula for quartic equations. Mathematicians were highly optimistic at the time, believing they could soon derive root-finding formulas for quintic, sextic, and even higher-order equations. After resolving two-dimensional complex analysis, Hamilton confidently advanced to ternary complex analysis... Later, Hamilton claimed the existence of "ternary numbers," while Abel asserted that "quintic or higher-order equations cannot be solved with integer roots."

Four centuries have passed, and the field of mathematics has witnessed the rise of renowned methodologies such as iteration, functional analysis, Lie groups, finite element analysis, approximation computation, and radical solutions. It has also seen the emergence of distinct schools like the logical, intuitive, and formal schools. These schools respectively adopted the "Piano axioms (classical analysis)" and "set theory axioms (logical analysis)." However, the axiomatization process was constrained by Gödel's incompleteness. Unable to transcend the limitations of axiomatization, none of these approaches provided a universally acceptable framework for mathematics, leading to a stagnation in its development. This marked the end of the traditional mathematical computation system, which remained confined to operations within the "one plus two" scope, resulting in numerical or logical analyses limited to the $\{2\}^{\wedge 2n}$ range.

Notably, computations within the $\{2\}^{\wedge 2n}$ range are termed "even-numbered terms," which exhibit both symmetry and asymmetry. The computational environment for $\{2\}^{\wedge 2n}$ encounters challenges in achieving balanced reciprocal transformations. Specifically, $\{2\}^{\wedge 2n}$ has consistently failed to overcome the "binary-to-ternary" threshold (i.e., the barrier between binary and ternary $\{3\}^{\wedge 2n}$), failing to meet the current demands of rapid scientific advancement for zero-error mathematical algorithms and high-performance computations. Mathematicians and AI experts urgently require reforms.

Expecting a new mathematical foundation, which must be confined to the mathematical symbols of "addition, subtraction, multiplication, and division," to achieve the logicalization of mathematics and the arithmeticization of logic, and to be universally accepted by a wide range of disciplines. However, this requirement is quite high. So where do mathematical problems arise?

Artificial intelligence: computational methods created by humans. From knot-tying to counting rods, abacuses, slide rules, and mechanical computers, these tools aided memory and calculation. They played their respective historical roles in different periods. The "even-numbered items" in the ancient Chinese "I Ching" (Book of Changes) used (formal) symmetry and the asymmetry of black and white to mark two tadpoles, inspiring the development of modern electronic computers. This marked the embryonic stage of artificial intelligence.

The work of Fourier in the early 19th century provided crucial mathematical and physical tools for the development of modern artificial intelligence. Thus, the earliest origins of AI's physical components can be traced back to the early 19th century. Fourier series demonstrated that any continuous periodic signal could be composed of a set of appropriate sine waves. This discovery holds significant importance for understanding the composition of complex signals and has been widely applied in fields such as digital audio and image processing.

In the 1940s, Alan Turing introduced the concept of the Turing machine, which became the cornerstone of computer science and AI theory. This means artificial intelligence has been evolving for over a century. The concept of AI first emerged at the 1956 Dartmouth Conference, where John McCarthy coined the term "artificial intelligence." Since then, AI development has progressed through multiple stages, with research spanning machine learning, theorem proving, pattern recognition, expert systems, and other fields. It has been widely applied in sectors such as healthcare, finance, manufacturing, and education.

Artificial intelligence has evolved from basic algorithms and databases to machine learning and deep understanding. Supported by big data and computing power, it has given rise to computers (commonly called 'computers'). A computer is a modern electronic device designed for high-speed computation, capable of numerical and logical calculations with memory storage. It operates automatically and efficiently according to programs, processing massive data volumes at high speed.

The first generation of computers: In 1930, American scientist Vannevar Bush created the world's first analog electronic computer.

The second generation of computers (1958–1964) featured transistor-based digital machines. In software, they included operating systems, high-level languages, and their compilers, primarily used for scientific computing and transaction processing, while also entering industrial control applications. These machines typically achieved speeds of up to 3 million operations per second (3.0×10^{6}), marking a significant performance leap over first-generation computers. The third generation (1964–1970) introduced integrated circuit-based digital machines. Hardware-wise, they adopted medium and small-scale integrated circuits (MSI/SSI) for logic components, while core memory remained magnetic core-based. Software innovations included time-sharing operating systems and structured, large-scale programming methods. Computing speeds reached tens of millions of operations per second (1.0×10^{8}), with products becoming standardized, serialized, and widely available. Applications expanded into word processing and graphics/image processing. These three generations of computers are collectively referred to as the "first generation of artificial intelligence."

The Fourth Generation of Computers (1970–present): Large-Scale Integrated Circuit (LSI) Computers. In hardware, logic components adopted large-scale and very large-scale integrated circuits (LSI and VLSI). Software innovations included database management systems, network management systems, and object-oriented languages. The world's first microprocessor was developed in Silicon Valley, USA, in 1971, ushering in a new era of microcomputers. Applications expanded from scientific computing and transaction management to process control and household use. Advances in integration technology enabled semiconductor chips to achieve higher density, with each chip capable of housing tens of thousands to millions (1.0×10^{8}) transistors. This allowed the integration of arithmetic and control units on a single chip, giving rise to microprocessors. These processors, combined with large-scale and very large-scale integrated circuits, formed microcomputers—commonly known as personal computers (PCs)—referred to as the "second generation of artificial intelligence."

The various logic chips in large-scale and ultra-large-scale integrated circuit manufacturing have seen rapid development in computing speed. For example, in 1024, China's Tianhe-2 achieved a performance of 30.65 PFlops in the Linpack test, which translates to 30.65 quadrillion 3.0×10^{15} floating-point operations per second, reclaiming the title of the world's fastest supercomputer. However, it still has a considerable distance to go from meeting the minimum requirement of 10,000,000 qubits, or $\{2\}^{10000000}$for human societal needs.

This era also witnessed the emergence of new-generation programming languages, database management systems, and network software. As physical components evolved, not only did computer mainframes undergo generational upgrades, but their peripheral devices also saw continuous transformations. For instance, external storage devices progressed from early cathode-ray tube displays to magnetic cores and drums, eventually evolving into universal disks, and ultimately the compact, high-capacity, and high-speed read-only optical discs (CD-ROM).

Regrettably, artificial intelligence has yet to develop an independent computational theory, remaining constrained by discrete-symmetric assumptions. The established iterative methods lack interpretability, stability, robustness, security, and cost-effectiveness, while consuming substantial memory space. Computational processes often exhibit high power/hydraulic consumption, elevated error rates, low computational power, prolonged processing time, elevated economic costs, and environmental unfriendliness, significantly limiting AI performance. Recently, to enhance computational power, many computer scientists have embraced "distillation techniques" to optimize algorithms, yet computational capacity has reached its ceiling. Some experts argue that current computing power has already hit its limit, and future advancements must rely on experimental discoveries in physics and new materials.

Yet, no one anticipated that the root obstacle to computational power lies in computers '(0/1) "one-to-one" low-density information transmission. Beyond identifying the physical structural causes of new functionalities, the most effective approach to fundamentally enhance computer capabilities lies in upgrading to "one-to-many" high-density information transmission. High-density information transmission in computers involves solving general solutions to higher-order linear equations in mathematics, signifying the evolution of computers from basic to advanced knowledge. Artificial intelligence's computer knowledge is fundamentally mathematical, yet even the analytical framework for "cubic equations in one variable" remains incomplete. So where should we begin to develop AI's computer knowledge?

Thus, both mathematics and artificial intelligence involve reforms in mathematical foundations. Current mathematics faces numerous challenges, including mathematical problems and data processing issues in artificial intelligence neural networks. How can these mathematical problems be addressed?

In his work *Ancient and Modern Mathematical Thoughts* (Volume 3[p353], Shanghai Science Press, August 2014), American mathematician Merris Kline observed that mathematics' entire development has left two unresolved major challenges: proving the compatibility between unrestricted classical analysis and set theory, and establishing mathematics on a rigorous foundation—or determining the limits of this approach. The root of these difficulties lies
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the concept of infinity (infinity) used in infinite sets and infinite processes.

Contemporary mathematician Weyl provided an apt description of the current state of mathematics{1}: The question of mathematics 'ultimate significance remains unresolved—we do not know where to find its final answer. Practical experience has shown that Klein's "two final major problems" are more significant than the pure mathematics "Langlands Program". (Note: The theory of circular logarithms can also resolve the "Langlands Program", as published in the Journal of the American Society for the Study of Mathematics (JAS) in December 2024. This article pointed out that the "Geometric Langlands Program" published by a U.S. team in May 2025 failed to overcome the axiomatization dilemma and had shortcomings.) In other words, once the "two final major problems" left by current mathematics are resolved, it is likely to become a key challenge in the reform and development of mathematics-artificial intelligence integration.

Mathematicians hypothesize that there might be a new natural law yet to be discovered by humans.

Where could such laws possibly exist?

1.2 The Technical Background of the Dimensionless Logical Circle

The dimensionless logical circle has emerged. Its core components comprise three key theories: Einstein's 1905-1915 relativity, Bayesian theory from 1980, and the "Wang Yiping Circular Logarithm" theory from the late 20th to early 21st century. These theories share a fundamentally similar formulaic structure, each demonstrating how a single simple formula can encompass diverse disciplinary content. This approach effectively overcomes the axiomatic constraints inherent in classical and logical analysis, thereby enhancing solutions for mathematical-ai algorithmic challenges.

According to media reports, a Nobel laureate stated: "Currently, there are fewer than five people in the world who can truly understand relativity." In October 2018, John Nash, the Nobel laureate in Economics, discussed with American mathematicians that "establishing a new mathematics in the form of Einstein's relativity might be a good approach."

Unfortunately, over the past 120 years, the emergence of dimensionless logical circles has not been seriously understood or sufficiently valued by many people. As for whether they can become a new and acceptable mathematical system, it can be said that there is insufficient mental preparation.

Relativity: In 1905, Einstein formulated the Special Theory of Relativity, which postulates that the speed of light remains constant across different reference frames. This theory modifies Newtonian mechanics to address the problem of flat spacetime in inertial frames, excluding gravitational effects. Its two fundamental principles—the constancy of the speed of light and the principle of relativity—form an exceptionally precise and elegant mathematical model, validated by extensive experimental data. Media reports indicate that fewer than five people worldwide truly comprehend the theory. The mathematical formulation of Special Relativity;

$$\beta=\sqrt{1-(v/c)^2};$$

In mathematics, the application of relativity is limited because of the "invariant speed of light" and the lack of flexibility and plasticity.

Bayesian theory: its background knowledge includes the basic concepts of probability theory and statistics, the definition of prior knowledge and posterior knowledge, the mathematical expression of Bayesian theorem, and the application and development trend of Bayesian statistics in modern data science and artificial intelligence.

The core principle of Bayesian statistics lies in updating probability estimates for parameters or events by integrating prior knowledge with new observational data. Prior knowledge refers to information about a parameter or event that existed before data collection, typically expressed as a probability distribution known as the prior distribution. The posterior distribution, derived from the relationship between the prior distribution and the likelihood of the observed data, describes how to obtain the posterior distribution from the prior and observed data. Its mathematical expression is:

$$P(A|B) = (P(B|A) * P(A)) / P(B)\ ;$$

In mathematics, Bayesian theory is difficult to determine due to the "posterior knowledge" in mathematical calculations, mainly because the prior knowledge data likelihood is not precise. This leads to significant errors in evaluating the posterior probability and the efficiency of posterior relationships, limiting its application. The advantage lies in the reciprocity and exchange throughout the computation, thereby overcoming the limitations of axiomatization.The circular logarithm extends the Bayesian "inductive reasoning method of numerical probability theory" to the "infinite axiom of positional probability-topological theory" of the dimensionless circular logarithm.

Circular logarithmic theory: The dimensionless logical circle theory is a new third-generation infinite set theory and computational model that emerged after classical analytic algebra and logical analytic algebra. It represents a variable element in the form of "multiplicative combination" (geometric mean) of any finite (group combination) within infinity, while artificial intelligence manifests as "data processing".

The circular logarithm employs a dimensionless logical circle as a flexible variable to handle the inverse

relationship between "multiplicative combinations" and "additive combinations," preserving the inherent nature of "infinite numbers and transmission symbols." It represents a known variable element through the "additive combination" (arithmetic mean) concept from probability/topology. The circular logarithm itself is also an element. Given any two of the three elements and the unique "infinite axiom" balancing exchange mechanism with random self-validation and error-correction, the analysis can be conducted. This approach circumvents the concept of "infinity" and overcomes the
limitations and difficulties of axiomatization. The mathematical expression is:

$$W= (1-\eta^2)^K W_0;\quad (1-\eta^2)^K=\{0,1\};$$

The introduction of circular logarithm in AI computing achieves seamless integration between mathematical {0,1} analysis and AI's {0/1} information transmission. Through mathematical-AI synthesis, we propose the "Dual-Logic (Numeric/Bit) Code" framework, which converts to a dual-logic {1/0}-{0/0}-{0/1} high-density character transmission system with randomized self-validation error correction. This ensures every computational step remains "zero-error".

Artificial intelligence computing formula and process:

(data search)↔{1/0}(output)↔{0/0} (conversion) ↔){0/1} (input) ↔ (display);

"Dual logic (numerical/bit value) code" operation:

↔{1000} (AND gate)↔{0000}(NOT gate)↔{0111} (OR gate);

The system architecture features: {1/0}={1000} represents the forward (encoder ADC) information transmission function, {0/0}={0000} denotes the balanced, conversion-based, and randomized self-validation error correction mechanism, while {0/1}={0111} indicates the reverse (decoder DAC) information transmission function. The circular logarithmic {0,1} framework is grounded in the "general solution of monomials in high powers," where information symbols $(0/1)^K$ enable high-density data transmission through mathematical $\{0,1\}=(0/1)^K$ analysis, transforming binary systems into multi-ary systems. This advancement in artificial intelligence elevates quantum information transmission from {2}^2n to $\{3\}^{\wedge 2n}$ qubits, achieving fundamental computational power enhancement. The circular logarithmic theory bridges gaps in advanced computer mathematics while establishing new benchmarks for interpretability, robustness, and randomized self-validation error correction mechanisms.

1.3 Integration of Mathematics and Artificial Intelligence.

1.3.1， Mathematics-Physics:

The difficulty lies in how to solve the integration of classical finite-element computation and infinite logical analysis in mathematics, such as the three major problems of modern mathematics and the seven century-old mathematical problems of the Clay Mathematics Institute in the United States.

Notably, Godel's incompleteness theorem essentially negates the existence of the commutative property between "axiomatic number theory" and "axiomatic set theory". The absence of a "random commutative self-validation mechanism" prevents direct commutability between two numerical values (natural numbers and logical values). For four centuries, Western mathematics has remained confined to the $\{2\}^{\wedge 2n}$ realm of "one plus two", unable to overcome the $\{3\}^{\wedge 2n}$ challenge of asymmetric computation involving multiple unequal variables.

Artificial Intelligence: Despite the evolution of multiple generations of computers—from vacuum tubes to integrated circuit transistors—no independent theoretical framework for artificial intelligence has emerged. Computers transmit information through logical gates {00 11 10 01} using low-density "one-to-one" character transmission, which cannot achieve the high-density "one-to-many" transmission required. Coupled with outdated algorithms like the "iterative method" and "approximate computation," these limitations have significantly constrained computer performance.

Academician Zhong Yixin from China University of Posts and Telecommunications proposed the paradigm revolution of artificial intelligence, while Academician Zhang Bo from Tsinghua University put forward the third-generation vision of artificial intelligence: possessing advanced capabilities in "knowledge, data processing, algorithms, and computing power".

The China logarithm team led by Chinese scholar Wang Yiping has spent over 60 years exploring the foundations of mathematics and artificial intelligence, inheriting the essence of ancient Chinese mathematics and the achievements of Chinese and foreign mathematicians. They made the first discovery that "there exists a third 'infinite construction set' between the real number set R and the natural number set N, along with a unique 'infinite axiom' random self-validation and error-correction mechanism." They proposed the "dual logic (numerical/bit value) code" and "three-dimensional complex analysis rules," reforming traditional mathematics-artificial intelligence algorithms and the design and fabrication methods of three-dimensional chip circuits. The information transmission capability of computers (0,1) has progressed from $\{2\}^{\wedge 2n}$, i.e., quantum bits based on "2," to $\{S\}^{\wedge 2n}$, quantum bits based on "S=2,3,4,... infinite," fundamentally enhancing infinite computing power. This demonstrates the "compatibility between classical analysis and logical analysis," titled "Wang Yiping's Circular Logarithm" (Circular Logarithm

Theory, Dimensionless Logical Circle), which has been approved and registered by the National Intellectual Property Administration and is protected by national intellectual property rights.

The "Circular Logarithm Theory", as a next-generation mathematical deduction framework, embodies the dual principles of "mathematical logic and logical mathematics", operating exclusively through the arithmetic symbols of addition, subtraction, multiplication, and division. Its dimensionless logical circular computation features: independent mathematical models, absence of specific (mass) element content within the {0,1} range, and preservation of the inherent nature of infinite mathematics and information transmission {0/1} without altering characteristic patterns. Through the bidirectional conversion of "logical (numerical/bit) codes" and property attributes, it deduces the circular logarithm factor "$(\eta_{\Delta})/(\eta_{[C]})$", thereby driving the elements of analytical or composite propositions.

1.3， The groundbreaking innovations of logarithmic circle theory encompass:

(1) ,Solving continuous CH problems; addressing P=NP problems; formulating Riemann's zero point conjecture; establishing Goldbach's conjecture; and developing high-order equations for high-density information transmission and three-dimensional chip fabrication. These achievements constitute the foundational theorems of logarithmic circle theory. The theory fundamentally transforms traditional mathematical-artificial intelligence algorithms, enabling multi-dimensional, multi-parameter, multi-layered, and heterogeneous error-free switching with zero-error deduction.

(2) ,The concept of dimensionless logical circles introduces a mathematics-free framework: devoid of concrete (mass) elements, it preserves the nature of infinite true propositions and information transmission. Through 'infinite axioms' and a 'random self-validation mechanism,' it resolves the incompleteness issues inherent in Pianos axiomatization and set theory axiomatization, while proving the compatibility of unrestricted classical analysis with logical analysis set theory. This approach establishes a rigorous foundation for new mathematics and defines computational methods within the {0,1} domain.

(3) ,The framework introduces "dual-logic (numerical/bit-level) coding", "infinite axioms", and "three-dimensional complex analysis" to establish numerical center points and bit-level zero points in logical lattice matrices, enabling symmetric/asymmetric balance conversion and self-validation mechanisms. It discards the traditional mathematical-ai "iterative method", streamlines operational procedures, and achieves efficient 3D data processing with cost-effective storage through integrated CPU/GPU/NPU architecture. The mathematical-ai system advances from $\{2\}^{\wedge 2n}$ to multi-element $\{3\}^{\wedge 2n}...\{S\}^{\wedge 2n}$ configurations with zero-error algorithms, delivering infinite computational power through multi-qubit scaling.

Inspired by Klein's "Two Greatest Final Problems" in *Ancient and Modern Mathematical Thoughts*, the circle logarithm theory has successfully integrated classical mathematics with logical analysis in AI. By incorporating computer deduction, it enables mathematical reversibility verification. This approach has resolved numerous century-old mathematical challenges and high-density information transmission problems in AI.

2，Mathematical-AI Dimensionless Circular Logarithmic Deduction Model

2.1. Mathematical-AI Problems to be Solved

The current challenges in mathematics and artificial intelligence involve high algorithms, high computational power, data search, and model processing.

（1）How does the mathematical-ai (0,1)=(0/1) maintain its inherent stability in deduction?

（2）How to solve the zero error deduction of symmetry and asymmetry by mathematics-artificial intelligence?

（3）How to improve the high information density transmission of logic gates by mathematics-artificial intelligence?

（4）Mathematics-AI How to Implement Reverse Engineering of Neural Networks with Mechanical Explanability?

The unresolved issues have kept traditional mathematical-ai systems stuck in a low-computational-efficiency phase, where $\{2\}^{\wedge 2n}$ qubits with symmetry at resolution 2 struggle to meet the demands of today's rapidly advancing scientific research.

Mathematics-AI exploration objectives: Without altering infinite propositions, achieve "compatibility between classical analysis and logical analysis," as well as the balanced exchange combination decomposition and random self-validation mechanism of "infinite axioms." Crossing the threshold of "two-to-three" mentioned in ancient China mathematics, it generates $\{3,4,5,7,9...\text{infinite}\}^{\wedge 2n}$ qubit high algorithms. Its applications are not limited to: natural language, audio, video, product functions, etc., large model program transformations, exploring and reforming traditional mathematics-AI mathematical foundations from the mathematical root through dimensionless logical circles, ensuring zero-error deduction of high algorithms and high computing power.

2.2. Main Definitions of Mathematics-AI

The circle logarithm theory is a new and independent third mathematical system, which has the characteristics of "arithmetic logic and logic arithmetic". All the calculation symbols are limited to: ＋， －， ×（·）， ÷（/）, as well as the operations of power, square root, set, decomposition, and the operation of double logic code grid.

Definition **2.1**: Group combination**:** (Z±S) is the combination of two or more elements (equal variables and unequal variables) of any finite element in infinite elements, which is called group combination.

Definition **2.2**: Group Combination Form: Group combination forms include two types with constant total elements—multiplication combination (geometric mean) and addition combination (arithmetic mean). They are analyzed statically and dynamically, respectively, involving the external overall operation of (group combination) and the internal relationships between elements of (group combination).

For example, the product of combinations (real numbers, geometric mean, unit body): $\mathbf{D}^{\mathbf{K}}=({}^{(S)}\sqrt{abcde\ldots})^{\mathbf{K(S)}}$;

the sum of combinations (natural numbers, arithmetic mean, unit body):

$$\mathbf{D_0^{(1)}=\{(1/S)^K(a^K+b^K+c^K+d^K+\ldots)^K\}^K;\quad K=+1,\pm0,-1,\pm1;}$$

$$\mathbf{D_0^{(2)}=\{[(2!/S(S-1)]^K(ab^K+bc^K+cd^K+\ldots)^K\}^K;\quad K=+1,\pm0,-1,\pm1;}$$

$$\mathbf{D_0^{(P)}=\{[(P!/(S-0)!]^K(ab\ldots P^K+bc\ldots P^K+cd\ldots P^K+\ldots)^K\}^K;\quad K=+1,\pm0,-1,\pm1;}$$

Definition **2.3**: Circular logarithm logic circle: A group that combines the multiplication and addition of its own elements (or "self divided by itself") to produce a dimensionless logical circle, also known as an isomorphic bina circular logarithm. For example:

$$(1-\eta^2)^K=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D}_0\}^{K[(Z\pm S]/t}=(1-\eta_{[1]}^2)^K+(1-\eta_{[2]}^2)^K+\ldots+(1-\eta_{[Z\pm S]}^2)^K=\{0\text{ to }1\};$$

The formula includes: power function K[(Z±S)/t] = K[(Z±S=1,2,3...∞)±(Q=jik+uv)±(N=0,1,2)±(q=0,1,2,3...∞)] (where Z±S=1,2,3...S is any finite high-dimensional power exponent in the infinite series); three-dimensional precession and rotation of physical space (Q=jik+...) in three dimensions; calculus (N=±0,1,2...neural net)/t zero-order, first-order, second-order, and network dynamics; (q=0,1,2,3...S) higher-order equations-combination forms of network subterms (hierarchy, nodes).

Definition **2.4**: Three-dimensional complex analysis in circular logarithmic theory. Mathematical-ai models are projected into a three-dimensional Cartesian coordinate system, including: axis probability projection $\{(\boldsymbol{j}a+\boldsymbol{i}b+\boldsymbol{k}c)+(\boldsymbol{u}d+\boldsymbol{v}e+\ldots)\}$ and plane topology projection $\{\boldsymbol{ji}ab+\boldsymbol{ik}bc+\boldsymbol{kj}ca+(\boldsymbol{uv}de+\ldots)\}$. The notation **{jik+…}** denotes multi-element sets, combinations, decompositions, and the complex analysis of each axis probability in three-dimensional physical space, as well as high-power equations in plane topology.

Notably, traditional numerical analysis is constrained by "axiomatic incompleteness," preventing direct reciprocal balancing and exchange. Therefore, artificial intelligence computation must first employ the "three-dimensional complex analysis" framework of circular logarithmic theory. Through this complex analysis, combined with methods and an "infinite axiom random self-validation mechanism" with error-correction rules, a logical numerical-bit value center zero-point balancing exchange combination decomposition and random self-validation error-correction mechanism can be established.

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$$\mathbf{R}^K=\{(1-\eta_{[jik]}^2)^K\cdot\{\mathbf{N_0}\}^K=\{0,1\}^K:$$

The notation includes: **{R}** or **D** (real number set, geometric mean, product combination, boundary function); **{N₀}** or **{D₀}** (natural number set, arithmetic mean, sum combination, characteristic modulus); P(ℵ) denotes dimensionless logical power factor combination, while P(**ω**) represents dimensionless logical bit value factor combination. {jik+…] denotes three-dimensional high-power "three-dimensional precession + multi-directional spin".

Definition **2.5** : Logical code value center point-bit value center zero point: is the decomposition point of any group combination-multiple variables in numerical resolution 2 balance:

(1) The numerical center point has balanced asymmetry $(1-\eta_{\Delta C}^2)^{(K=\pm1)}=1$, which cannot be directly exchanged, corresponding to the Turing machine logic gate "AND gate".

(2) The bit value center zero point has the symmetry of the balanced exchange combination decomposition, $(1-\eta_{[C]}^2)^{(K=\pm0)}=0$, which corresponds to the Turing machine "OR gate".

(3) The attribute transformation of the balance property between the numerical center point and the bit value center zero point corresponds to the Turing machine logic "NOT gate" and the random self-proofing error correction mechanism.

Definition **2.6** : Calculus Equation: The analytical resolution 2 is decomposed into two series units of "symmetric and asymmetric" group combinations with "even terms":

Given: (S) dimensions, the boundary function **D** (permutations) ∈ ∏(a, b,..., s); the characteristic module $\mathbf{D_0}^{(S)}$ (combinations) ∈ $\sum(C_S{}^n)$ (a, b,..., s);

Circular logarithm: $(1-\eta^2)^K$. Among the three elements, two (not necessarily requiring mathematical modeling) can be analyzed or combined.

The computational characteristics are as follows: The group combination elements remain invariant, and the calculus (zeroth, first, second order) is performed through isomorphic circular logarithmic calculus (N=±0,1,2) logical operations. In root analysis, their analytical root elements are identical, allowing simultaneous execution of the original function equation.

$$\{{}^{(S)}\sqrt{(\mathbf{D})}\}^{K[(Z\pm S)}=(1-\eta^2)^K\sum_{(S)}[\mathbf{D}_0]^{K[(Z\pm S\pm(N=0,1,2\ldots \text{neural net})/t}=\{0 \text{ to } 1\};$$

Differentiation (Combination) $\{X\}^{(S)}=\prod\{{}^5\sqrt{(a,b,\ldots,s)}$:

First order of a cell; $\partial\{X\}^{(S)}=[(1/S]^{(K=-1)}\{X\}^{(K=-1)(S)(N=-1)}=\{X_0\}^{(K=-1)(S)(N=-1)}$;

Second order of a cell; $\partial^{(2)}\{X\}^{(S)}=[(2!/S(S-1)]^{(K=-1)}\{X\}^{(K=-1)(S)(N=-2)}=\{X_0\}^{(K=-1)(S)(N=-2)}$;

P-order of the element; $\partial^{(p)}\{X\}^{(S)}=[(p-1)!/(S-0)!]^{(K=-1)}\{X\}^{(K=-1)(S)(N=-p)}=\{X_0\}^{(K=-1)(S)(N=-p)}$;

Points (Combination) $\{X\}^{(S)}=\prod\{{}^5\sqrt{(a,b,\ldots,s)}$:

Integral element: (first order); $\int^{(1)}\{X_0\}^{(K=+1)(S)(N=-1)}dx^{(1)}=\{X_0\}^{(K=+1)(S)(N=+1)}$;

Integral Element: (Second Order); $\int^{(2)}\{X_0\}^{K(S)(N=-2)}dx^{(2)}=\{X_0\}^{(K=+1)(S)(N=+2)}$;

Integral element: (P-th order); $\int^{(p)}\{X\}^{(S)K(S)(N=-2)}dx^{(p)}=\{X_0\}^{(K=+1)(S)(N=+p)}$;

Circular logarithmic calculus:

First derivative: $\partial\{X\}=\partial\{{}^{(S)}\sqrt{\mathbf{D}}\}=(1-(d\eta_V)^2)^K\mathbf{D}_0{}^{K(Z\pm(S)\pm(N=-1)\pm\underline{(q=1,2,3\ldots \text{integer,})/t}}$,he first term q=(0) of the polynomial is not available.

Second order differential: $\partial^2\{X\}=\partial\{{}^{(2)}\sqrt{\mathbf{D}}\}=(1-(d^2\eta_a)^2)^K\mathbf{D}_0{}^{K(Z\pm(S)\pm(N=-2)\pm\underline{(q=2,3\ldots \text{integer,})/t}}$,The first and second terms of the polynomial q=(0,1) are not available.

Where: (η_v) denotes the logarithmic change rate of the circle, with the corresponding group combination $\{X^{(S)}\}$ being $(1/S)^{(K=-1)}\{X^{(S)}\}^{(K=-1)(N=-1)}$, and the transformed characteristic mode is $\{X_0{}^{(S)}\}^{(K=-1)(N=-1)}$

(η_a) represents the logarithmic change acceleration of the circle, with the corresponding group combination being $[(2!/S(S-1)]^{(K=-1)}\{X^{(S)}\}^{(K=-1)(N=-2)}$ and the transformed characteristic mode is $\{X_0{}^{(S)(K=-1)}\}^{(N=-2)}$

First order integral: $\int\{X_v\}dx=(1-(\int\eta_v dx)^2)^K\mathbf{D}_0{}^{K(Z\pm(S)\pm(N=+1)\pm\underline{(q=0,1,2,3\ldots \text{integer,})/t}}$; Restoring the first term of the polynomial (0);

Second order integral: $\int^{(2)}\{X_a\}dx^2=(1-(\int^{(2)}\eta_a dx^{(2)})^2)^K\mathbf{D}_0{}^{K(Z\pm(S)\pm(N=+2)\pm\underline{(q=0,1,2,3\ldots \text{integer,})/t}}$; (Restoring the first and second terms of the polynomial q=(0,1));

The integral $(\int\eta v dx)^2)$ represents the velocity of the circular logarithmic integral change, corresponding to the group combination transformation characteristic mode as $\{X_0{}^{(S)}\}^{(K=+1)(N=+1)}$;

The integral $(\int^{(2)}\eta a dx^{(2)})$ represents the acceleration of the circular logarithmic integral change, corresponding to the group combination transformation characteristic mode as $\{X_0{}^{(S)}\}^{K=+1)(N=+2)}$.

Notably, (S) denotes the invariance of the total sum of all elements. Changes in calculus order do not affect the eigenmode itself, manifesting solely as variations in the labeling of polynomial terms' power function calculus factors (N=0,1,2...S), where-N represents differentiation （gradation）and +N denotes integration（gradation）. The circular logarithm calculus preserves the truth of infinite propositions, maintains the form of the eigenmode, and ensures isomorphic consistency in dynamic changes of dimensionless logic (circular logarithm) computation time.

Definition **2.7** : AI Logic Gate Information Character Transmission: Without altering the inherent nature of logic gates,this method constructs a grid-based logic matrix using numerical/bit values of logic codes, converting them into four-logic gate configurations (1000↔0000↔0111) that correspond to the sequence of logical value codes "AND-OR↔AND-AND" through reciprocal permutation. Each four-logic value contains multi-element density information character transmission. The traditional transmission method improves from "one-to-one" low-density to "one-to-many" high-density data, algorithms, and computational power.

Definition **2.8**: The 'Infinite Axiom' Exchange and Random Self-Proof Rule. This principle preserves the mathematical essence of infinite true propositions by converting dual-logic codes into dimensionless logical isomorphism circular logarithms. Through symmetrical and asymmetrical transformations using numerical center points (zero points, critical points) and central zero points (zero lines, critical lines), it facilitates the reciprocal conversion of power function properties, three-dimensional complex analysis rules, and the random equilibrium exchange combination decomposition with self-proofing error correction mechanisms. This demonstrates the 'fusion of numerical classical analysis and bit-value logic analysis,' enabling the conversion of true propositions into their inverse forms. For example:

$$\text{(}\textbf{true statement}\text{)}\ \{a,b,c\ldots s\}^{(K=-1)[(Z\pm S\pm(N)\pm(q=1)]/t}$$
$$\leftrightarrow(1-\eta^2)^{(K=-1)}\cdot\{\mathbf{D_0}\}^{(K=-1)[(Z\pm S\pm(N)\pm(q=1)]/t}$$
$$\leftrightarrow\{(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1\pm\eta^2)^{(K=+1)}\}^{(K=\pm1)}\cdot\{\mathbf{D_0}\}^{(K=\pm1)[(Z\pm S\pm(N)\pm(q=2,3,\ldots S)]/t}$$
$$\leftrightarrow(1-\eta^2)^{(K=+1)}\cdot\{\mathbf{D_0}\}^{(K=+1)[(Z\pm S-(N)\pm(q=2,3,\ldots S)]/t}$$
$$\leftrightarrow\{a,b,c\ldots s\}^{(K=+1)[(Z\pm S+(N)\pm(q=2,3,\ldots S)]/t}\ \text{(}\textbf{converse proposition}\text{)};$$

When: Exchange of attributes with the same property does not change the attribute, while exchange of attributes with different properties changes the attribute.

The symbol "↔" denotes the conjugate inverse projection, mapping, and morphism of dimensionless circular logarithmic equilibrium exchange, which preserves the essential characteristics of elements and their calculus states.

Definition **2.9** 'Dual-Logic Code' Composition: All elements are first organized into a logical value code sequence matrix based on natural number sequences. By comparing the relativity of multiplication and addition combinations, this is transformed into a dimensionless logical bit value matrix sequence. This forms a (**2D/3D**) grid network of logical 'value/bit value' code matrices, establishing interconnected, mutually restrictive, convertible, and self-verifying error-correction mechanisms.

(1), Definition of "logical numerical grid": All elements of a true proposition are converted into two-dimensional ($S\times S=S^2$) or three-dimensional ($S\times S^2=S^3$) matrix codes of logical natural numbers (or other specific information codes). The grid starts from the first cell in the top-left corner (marked as 1) and extends to the last cell in the bottom-left corner.

For example, in a ternary number (3×3=9), the sequence from the top-left first cell (1) to the bottom-right last cell (9) forms a matrix with the center point a [5].

The 5×5 matrix (5×5=25), the sequence from the top-left first cell (1) to the bottom-right last cell (25) forms a sequence, with the center point being [13].

The 7×7 matrix (7×7=49) has a sequence from the top-left first cell (1) to the bottom-right last cell (49), with the center point being [25].

The 9×9 matrix (9×9=81) has a sequence from the top-left first cell (1) to the bottom-right last cell (81), with the center point being [41].

The numerical grid features: the matrix is transformed into a combination of "symmetry and asymmetry" with four logical values, where the logical numerical center point($\pm\boldsymbol{\eta}_{\Delta C}$)=1 corresponds to the numerical characteristic mode $\{\mathbf{D}_0\}$ exhibiting symmetry and asymmetry. The numerical center point generates an unstable offset, constrained by the "incompleteness axiomatization," allowing only balance between numerical values, not exchange.

(2) , Definition of "logical bit value grid": This is a dimensionless logical matrix sequence arranged according to the numerical code sequence matrix. It consists of a four-valued multi-element multiplication formed by the numerical code matrix, divided by the average value to yield the logical bit value code matrix. Starting from the grid's center zero point ($\pm\boldsymbol{\eta}_{[C]}$)=00, the sequence is arranged sequentially from ($-\eta_1$) to the first cell on the left and then to the last cell on the right, forming the bit value sequence.

The ternary numbers ($\pm\eta_{[5]}$), quinary numbers ($\pm\eta_{[13]}$), heptary numbers ($\pm\eta_{[25]}$), and nonary numbers ($\pm\eta_{[41]}$) correspond to the numerical center points of characteristic mode codes. The grid network, composed of vertical, horizontal, and diagonal lines, forms four logical values that correspond to logic gates (outputting dimensionless logical high-density information characters through multiplication and combination operations).

The computer logic gate uses "dual logic (numerical/bit value) code" to transmit in the form of{1000↔0000↔0111} corresponding to (AND gate, numerical sequence multiplication combination) and (OR gate, bit value sequence addition combination), respectively. Through the inverse permutation and self-validation of (NOT gate), it achieves high-density transmission and driving of information characters.

The bit value grid network features: with the dimensionless logical bit value center zero point ($\pm\eta_{[C]}$) = (0/0) corresponding to the bit value characteristic mode $\{\mathbf{D}_{00}\}$ on both sides of the center zero point arranged symmetrically, balanced exchange combination decomposition and random self-validation mechanism are carried out to drive the analysis of true proposition elements.

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The numerical characteristic modulus$\{\mathbf{D}_0\}=\sum_{(s)}(x_j)$,, where ,($\pm\eta_{\Delta[}$)=$\mathbf{D}/\{\mathbf{D}_0\}$=1. The bit-value characteristic modulus

$\{\mathbf{D}_{00}\}=\sum_{(s)}(x_{0j})$, where $(\pm\eta_{[C]})=\mathbf{D}/\{\mathbf{D}_{00}\}=0$. The numerical characteristic modulus corresponds to the product combination's additive combination $\{\mathbf{D_0}\}$, termed the "geometric positive circular non-uniform distribution numerical center point". The bit-value characteristic modulus $\{\mathbf{D_{00}}\}$ corresponds to the bit-value additive combination's additive combination $\{\mathbf{D_{00}}\}$, termed the "geometric positive circular uniform distribution bit-value center zero point". Numerically, $\{\mathbf{D_0}\} = \{\mathbf{D_{00}}\}$, and the positional offset between the two geometric figures' center points and the center zero point is $\{\mathbf{D_0}\} = \{\mathbf{D_{00}}\}$, referred to as the relative center zero point offset: $(1\pm\boldsymbol{\eta}_0{}^2)^K=\{\mathbf{D}_0\}/\{\mathbf{D}_{00}\}^K$.

(3) , The dual-logic code grid matrix converts four-valued signals into dual-logic (digital/bit) codes, demonstrating the integration of classical and logical analysis. This technology is applied in mathematical-ai computing systems. The logical (bit-value/digital-value) codes' AND/OR operations directly correspond to logic gates (0/1). Each information character contains multiple high-density transmission logic gate pairs {1000↔0000↔0111}, which generate dimensionless high-density logical information character outputs.

Definition **2.10** "Dual-Logic Code" Rule: This method converts all finite group combinations within an infinite set of true propositions into a code matrix sequence that maintains two distinct functionalities: numerical center point balance asymmetry and central zero symmetry. The group elements are encoded as natural numbers to form a grid matrix sequence. The artificial intelligence Turing machine extracts four logical values through matrix operations (multiplication, combination, division, and addition) along both vertical and diagonal axes, transforming the logic value code matrix into a dimensionless bit value sequence matrix. By leveraging the central zero symmetry of the bit value matrix, the system reverses the asymmetry on both sides of the numerical center point, thereby driving the root element analysis of true propositions.

The four-valued logic sequential multiplication belongs to classical analysis, and the four-valued logic bit addition belongs to logical analysis. The grid of the two analyses shows that the classical analysis and the logical analysis are self-consistent and compatible, and become the operation mode shared by mathematics and artificial intelligence.

3，Important Theorem of Mathematics-Artificial Intelligence

The infinite set of true propositions in mathematics and artificial intelligence can be transformed into a matrix of "dimensionless logical circles (bit-value logarithmic circles)" and "dual logic (numerical/bit-value sequence) codes". By leveraging the value center points and bit-value zero center points of these logical codes, a balanced exchange mechanism for combination decomposition and random self-validation is achieved. This demonstrates the unique superiority of "compatibility between classical analysis and logical analysis", resolving centuries-old mathematical puzzles to form the key theorem of the "dimensionless logical circle" in mathematics and artificial intelligence. This framework may be embraced by various academic schools and mathematical methodologies, potentially evolving into a grand unified theory known as "dimensionless logical circle, circle logarithmic theory, Wang Yiping's circle logarithmic theory".

3.1, [Theorem One] Continuum Hypothesis — Dimensionless Logic Circle Theorem

In mathematics, the Continuum Hypothesis (CH) posits that the real number set—comprising points on a straight line—forms a continuum. The continuum's potential is defined as the superfinite numerical potential **P(ℵ)** (where ℵ, pronounced' aleph 'in Greek, represents the set of natural numbers) and the superfinite positional sequence **P(ω)** (where ω, pronounced' omega' in Greek, represents the set of natural numbers).

Kantor proved that the cardinality of the continuum set is equal to the cardinality of the power set of natural numbers. What does this mean?

In layman's terms, the real number set $\mathbf{R}=\{^{(S)}\sqrt{\prod abc\ldots s}\}^{(S)}$, P(ℵ) corresponds to the power set (S), while the natural number set $\mathbf{N}=\mathbf{Do}^{(S)}=\{(1/S)(\sum(a+b+c+\ldots+s\}^{(S)}$, P(ω) corresponds to the power set (S). The sets"**P(ℵ)+P(ω)**" share common power sets. The numerical sequence (combinatorial multiplication) with its numerical center point **P(ℵ)** = **C1**=$[\eta_{\Delta C=0}]$ corresponds to the characteristic modulus $\mathbf{Do}^{(S)}$ (geometrically represented as a positive circle with uneven distribution); similarly, the power set (S) with its positional center zero point power set **P(ω)** = **C0**=$[\eta_{[C]=00}]$ corresponds to the characteristic modulus $\mathbf{D}oo^{(S)}$ (geometrically represented as a positive circle with uniform distribution). While $\mathbf{Do}^{(S)}=\mathbf{Doo}^{(S)}$share identical numerical values, $\mathbf{Do}^{(S)}\neq\mathbf{Doo}^{(S)}$ their central points and zero points differ. Both sets share the same logical circle, each serving distinct functions.

3.1.1 Proof of the Continuum Hypothesis

In the history of mathematics, Cantor raised the question: "Is there a third infinite set between the set of real numbers and the set of natural numbers?" Cantor answered "No," while Gödel stated "Yes." The question "Is there one?" remains unanswered to this day. A proof of this would signify the birth of a new mathematical concept.

The Continuum Proof demands: How to describe the state of continuity R through discrete states N? It first revealed that the real number set **R** and the natural number set **N** share a "third infinite construct set": Through the "**P(ℵ) + P(ω)**" one-to-one correspondence principle, they generate a "dimensionless logical circle" —a logical code representing "logarithms with quadratic bases," termed the "dimensionless logical circle." This circle logarithm unifies the "multiplicative combinatorial set and additive combinatorial set" into a single dimensionless infinite construct set via projection (conversion, morphism, mapping), resolving the integration of "classical analysis and logical analysis" —precisely Klein's "proof-free compatibility between classical analysis and set theory without restrictions."

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Key features: Without altering the infinite true proposition, the real number set **R** (classical analysis, multiplicative method) and the natural number set **N** (logical analysis, additive method) are mapped through the relativity principle into a unified "dimensionless logical circular logarithm" $(1-\eta^2)^K$ within the {0,1} range via a one-to-one correspondence between the multiplicative combination $\{^{(S)}\sqrt{\prod abc...s}\}^{(S)}$ and the additive combination $\{((1/S)(\sum(a+b+c+...+s\}^{(S)})$. Utilizing unique "infinite axioms", "dual logic codes", and "three-dimensional complex analysis" mechanisms, this system achieves zero-error precision operations through "mathematical models without specific (mass) elemental content" and properties with positive/negative reversibility. This transforms true propositions into reversible inverse propositions, establishing a novel, independent, and reliable mathematical framework.

3.1.2 Proof of the Continuum Hypothesis

[Proof 1]:

The Continuum Problem: Through a dimensionless logical circular form, this approach maintains (infinite) true propositions while using an unrestricted 'dual logic code' grid matrix to balance the asymmetry of logical numerical centers in the continuum of real numbers R. By leveraging inherent properties and a self-validated random verification mechanism, it transforms into (infinite) inverse propositions. This method is termed 'dimensionless logic,' which converts to discrete natural numbers N corresponding to the zero-centered symmetry of dimensionless logical bit values, satisfying the associative and commutative laws of two-dimensional/three-dimensional complex analysis. This aligns perfectly with the 'RMI Principle' proposed by Chinese mathematician Xu Zhili in Selected Lectures on Mathematical Methodology [2].

The dimensionless logic is constructed by mapping the real number set **R** to $\mathbf{R^K[P(\aleph)]}$ (combinatorial, geometric mean, classical analysis) and the natural number set **N** to $\mathbf{N^K[P(\omega)]}$ (adapted to combinatorial, arithmetic mean, and logical analysis), forming a shared infinite set cardinality and power set cardinality **[P(ℵ)+P(ω)]** along with a dimensionless logarithm $(1-\eta^2)^K$. This approach preserves the combinatorial (infinite) truth proposition method, circumventing the 'infinite' dilemma through dimensionless logic and random self-validation. It resolves the incompleteness of 'axiomaticization' by establishing a 'infinite axiom' equilibrium exchange and random self-validation mechanism.

The dimensionless logic circle solves the fusion of classical analysis and logical analysis, the form description of real number set R by natural number set N, and the mechanism of unification, coordination, balance, conversion and random elf-proving of truth and falsehood by the way of "no mathematical model, no specific (mass) element content".

In the field of "Mathematics and Artificial Intelligence," this is not merely a theoretical mathematical issue but also an algorithmic challenge requiring urgent resolution in high-density information character transmission within AI logic gates. The logical grid matrix, composed of matrix dimensions and diagonal lines, forms "symmetrical and asymmetrical" A and B logic code values and bit values. The term "four-logic" denotes parallel or serial circuit connections for AI's four-group logic gates {1000↔0000↔0111}.

[Mathematical Proof]:

Cantor has demonstrated that the real number set $R^{K[P(\aleph)]}$ is equipotent to the natural number set $N^{K[P(\omega)]}$, as shown by: [P(ℵ)]=[P(ω)]=(S), where (S)=(0,1,2,3,...,∞);

(a) The real number set $R^{K[P(\aleph)]}$ can be expressed as a unitary equipotent set:

$$\{^{(S)}\sqrt{(x_1x_2x_3\ldots x_S)}\}^{[P(\aleph)]=(S)}=\{^{(S)}\sqrt{(X)}\}^{[P(\aleph)]=(S)}\{^{(S)}\sqrt{D}\}^{[P(\aleph)]=(S)};$$

(b) The real number set R can be represented by different combinations of elements as "subterms":

$$(x_1)^{[P(\aleph)]=(S=1)};$$

$$\prod_{[i=2]}(x_2x_3)^{[P(\aleph)]=(S=2)};\prod_{[i=P]}\{x_1x_2\ldots x_p)\}^{[P(\aleph)]=(S=p)};$$

The natural number set $N^{K[P(\omega)(S)]}$ corresponds to a characteristic modulus (arithmetic mean) $\{D_0\}^{[P(\aleph)]=(S)}$,

(c) The natural number set$N^{KP(\omega)(S)]}$ has a characteristic modulus (arithmetic mean)

$\{D_0\}^{[P(\aleph)]=(S\pm(q=1)}=\{D_0\}^{(1)}=\sum(\mathbf{1/S})(x_1+x_2+x_3+\ldots+x_S)$;（1-1 combination）$(x_1\neq x_2\neq x_3\neq\ldots\neq x_S)$

$\{D_0\}^{[P(\aleph)]=(S\pm(q=2)}=\{D_0\}^{(1)}=\sum[\mathbf{2!/S(S-1)}]\prod_{[i=2]}(x_1x_2+x_2x_3+\ldots+x_Sx_1)$;（2-2 combination）;…;

$\{D_0\}^{[P(\aleph)]=(S\pm(q=p)}=\{D_0\}^{(1)}=\sum[\mathbf{p!/(S-0)!}]\prod_{[i=p]}(x_1x_2\ldots x_p+x_2x_3\ldots x_p+\ldots+x_p\ldots x_Sx_1)$; （ p-p combination ）

Question:

Why can $R^{[P(\aleph)]=(S\pm(q=p)}$, $N^{KP(\omega)]=(S\pm(q=p)}$ be unified projections (or mappings, morphisms) onto the dimensionless logical circle space?

(A), [Proof 1]

Necessity Proof: According to $\mathbf{R}^{K[P(\aleph)]}=(S\pm(q=p)$, $\mathbf{N}^{K[P(\omega)]}=(S\pm(q=p))$, under the same potential (S=1,2,3,...S), the expansion of the product of combinations satisfies the regularized symmetry distribution, with the following sub-term combinations:

$$\begin{aligned}(x_1x_2x_3\ldots x_S)&=(x_1x_2x_3\ldots x_S)/(\mathbf{1/S})(x_1+x_2+x_3+\ldots+x_S)\cdot\{D_0\}^{(+1)}\\&=[(\mathbf{1/S})(x_1+x_2+x_3+\ldots+x_S)/(x_1x_2x_3\ldots x_S)]^{(-1)}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+1)}\\&=[(\mathbf{1/S})^{(-1)}(x_1^{(-1)}+x_2^{(-1)}+x_3^{(-1)}+\ldots+x_S^{(-1)})]^{(-1)}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+1)}\\&=\{D_0\}^{(-1)}\cdot\{D_0\}^{(+1)}\cdot(x_1x_2x_3\ldots x_S)\\&=\{D_0\}^{(-1)}\cdot\{D_0\}^{(+1)}\cdot(x_1x_2x_3\ldots x_S)\\&=\{D_0\}^{(-1)}/\{D_0\}^{(+1)}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+1)}\cdot\{D_0\}^{(+1)}\\&=(1-\eta^2)^{(K=\pm1))[P(\aleph)+P(\omega)]}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+2)}\end{aligned}$$

Move$(x_1x_2x_3\ldots x_S)$to the left side of the equation, and the inverse theorem is generated:

$$\begin{aligned}&(x_1x_2x_3\ldots x_S)^{(K=+1)}\cdot(x_1x_2x_3\ldots x_S)^{(K=-1)}\\&=R^{(K=+1)[P(\aleph)}\cdot R^{(K=-1)P(\omega)]}=\{D_0\}^{(+1)}\cdot\{D_0\}^{(-1)};\end{aligned}$$

Under the same conditions$(1-\eta^2)^{(K=\pm1))[P(\aleph)+P(\omega)]}$, the equality sign in the formula can be swapped between the two sides. $(1-\eta^2)^{(K=\pm1))[P(\aleph)+P(\omega)]}=R^{(K=-1)[P(\aleph)}/N^{(K=-1)P(\omega)]}=R^{(K=+1)[P(\aleph)}/N^{(K=+1)P(\omega)]}=\{\mathbf{D_0}\}^{(-1)}/\{\mathbf{D_0}\}^{(+1)}$

In like manner, same argument

$$\begin{aligned}(x_1x_2x_3\ldots x_S)&=(x_1x_2x_3\ldots x_S)/\sum[\mathbf{p!/(S-0)!}]\prod_{[i=p]}(x_1x_2\ldots x_p+x_2x_3\ldots x_p+\ldots+x_p\ldots x_Sx_1)\cdot\{D_0\}^{(+P)}\\&=[\sum[\mathbf{p!/(S-0)!}]\prod_{[i=p]}(x_1x_2\ldots x_p+x_2x_3\ldots x_p+\ldots+x_p\ldots x_Sx_1)/(x_1x_2x_3\ldots x_S)]^{(-1)}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+P)}\\&=[\sum[\mathbf{p!/(S-0)!}]\prod_{[i=p]}(x_1x_2\ldots x_p^{(-1)}+x_2x_3\ldots x_p^{(-1)}+\ldots+x_p\ldots x_Sx_1^{(-1)})]^{(-1)}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+P)}\\&=\{D_0\}^{(-P)}\cdot\{D_0\}^{(+P)}\cdot(x_1x_2x_3\ldots x_S)\\&=\{D_0\}^{(-P)}\cdot\{D_0\}^{(+P)}\cdot(x_1x_2x_3\ldots x_S)\\&=\{D_0\}^{(-P)}/\{D_0\}^{(+P)}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+1)}\cdot\{D_0\}^{(+1)}\\&=(1-\eta^2)^{(K=\pm1))[P(\aleph)+P(\omega)]}\cdot(x_1x_2x_3\ldots x_S)\cdot\{D_0\}^{(+2P)}\end{aligned}$$

Move $(x_1x_2x_3\ldots x_S)$ to the left side of the equation, and the inverse theorem is generated:

$$(1-\eta^2)^{(K=\pm1))[P(\aleph)+P(\omega)]}=(x_1x_2x_3\ldots x_S)^{K=+1)}\cdot(x_1x_2x_3\ldots x_S)^{K=-1)}=R^{(K=+1)[P(\aleph)}\cdot R^{(K=-1)P(\omega)]}=\{D_0\}^{(+P)}\cdot\{D_0\}^{(-P)};$$

Under the same conditions $(1-\eta^2)^{(K=\pm1))[P(\aleph)+P(\omega)]}$, the equality sign in the formula can be swapped between the two sides.

$$(1-\eta^2)^{(K=\pm1))[P(\aleph)+P(\omega)]}=R^{(K=-1)[P(\aleph)}/N^{(K=-1)P(\omega)]}=R^{(K=+1)[P(\aleph)}/N^{(K=+1)P(\omega)]}=\{D_0\}^{(-P)}/\{D_0\}^{(+P)};$$

The above proves that: "$R^{[P(\aleph)]=(S\pm(q=p)}$, $N^{KP(\omega)]=(S\pm(q=p)}$ can be uniformly projected (map, morphism) onto the isomorphic dimensionless logical circle space of computational time consistency."

But on the same dimensionless logical circle space, can they exchange? The answer is no. Why?

The numerical value "$R^{[P(\aleph)]=(S\pm(q=p)}$, $N^{KP(\omega)]=(S\pm(q=p)}$ are projected onto a dimensionless logical circle, constrained by "Gödel's incompleteness." On both sides of the numerical center point at resolution 2, there exists a variable equilibrium asymmetry, preventing reciprocal equilibrium exchange.Therefore, this paper says that "direct exchange is not possible".

Numerous mathematical schools and analytical methods, including century-old problems such as Riemann's central zero conjecture, the seven major mathematical problems, Goldbach's conjecture, and the three major modern mathematical challenges, often exhibit instability in numerical centers when applied to traditional axiomatic proofs. These issues—such as the inability of classical analysis to achieve reciprocal equilibrium or integrate operations—remain unsolved to this day.

[Proof 2] Sufficiency Proof:

$$R^{(K=-1)\mathbf{[P(\aleph)]}}=(1-\eta^2)^{(K=\pm1)}\cdot\{N_0\}^{(K=+1)\mathbf{[P(\aleph)]}(Z\pm S\pm(q=0,1,2,3,\ldots\text{integer})};$$

The two states of symmetry and asymmetry in even-numbered items form the "logical numerical code matrix" and the dimensionless "logical bit value code matrix," respectively. By converting the numerical center point's asymmetric balance through multiplication combinations into the bit value center zero point symmetry through addition combinations, the dimensionless logical bit value center zero point symmetry and dimensionless logical factors are used for balanced exchange and random self-validation of truth and falsehood. This drives the balanced exchange and combination decomposition between true proposition elements and inverse proposition elements, forming a new mathematical operation approach.

The first is the change of the whole outside of the group, which means the change of the element and the center point of the characteristic mode synchronously.

$$\{X_{\omega}{}^{KP(\omega)]}\}=\{^{K(S)}\sqrt{X}\}^{K[P(\omega)](Z\pm S\pm(q=1)}=(1-\eta^{2})^{K}\cdot\{N_{00}\}^{K[P(\omega)](Z\pm S\pm(q=1]};$$

The second is the relationship between the change of the elements in the group and the center zero point, which indicates that theelements and the center zero point of the characteristic mode are not synchronized.

$$\{^{K(S)}\sqrt{X}\}^{K[P(\aleph)]+[P(\omega)](Z\pm S\pm(q=3\cdots\text{整数})}=(1-\eta_{\Delta}{}^{2})^{K}\cdot\{N_{o}\}^{K[P(\aleph)]+[P(\omega)](Z\pm S\pm(q=2])};$$

$$(1-\eta_{\Delta}{}^{2})^{K}=(1-\eta_{\Delta1}{}^{2})^{K}+(1-\eta_{\Delta2}{}^{2})^{K}+\ldots+(1-\eta_{\Delta s}{}^{2})^{K};$$

Third, the zero-point symmetry of the dimensionless logical bit value circle logarithmic pattern

$(1-\eta_{[C]}{}^{2})^{(K=\pm0)}=\Sigma(1-\eta^{2})^{(K=+1)}+(1-\eta^{2})^{(K=-1)}=0$; corresponding $\{N_{00}\}^{K[P(\aleph)](Z\pm S\pm(q=0,1,2,3,\cdots\text{integer})}$;

Among: $(1-\eta_{[C]}{}^{2})$, $(\eta_{[C]}{}^{2})$, $(\eta_{[C]})$ They have the same logaritmic factor and are equivalent.

The application employs the unique "irrelevant mathematical model without specific (mass) element content" of dimensionless logic circles, calculated within the {0,1} range, along with the zero-symmetry reversibility of the infinite axiom's balanced exchange combination decomposition and its stochastic self-validation mechanism for error correction.

because:

$$R^{(K=-1)P(\aleph))[(Z\pm S+(N)\pm(q=2,3,\ldots S)]/t}\leftrightarrow(1-\eta^{2})^{(K=\pm1))[P(\aleph)+P(\omega)]}\cdot\{R_{0}{}^{P(\aleph)}\}^{(K=-1)[P(\aleph)][Z\pm S]};$$

$$N^{(K=+1)P(\omega))[(Z\pm S+(N)\pm(q=2,3,\ldots S)]/t}\leftrightarrow(1-\eta^{2})^{(K=\pm1))[P(\aleph)+P(\omega)]}\cdot\{N_{0}{}^{P(\omega)}\}^{(K=+1)[P(\aleph)][Z\pm S]};$$

heve:

$$(1-\eta^{2})^{(K=\pm1))[P(\aleph)+P(\omega)]}=(1-\eta^{2})^{(K=+1))[P(\aleph)+P(\omega)]}+(1-\eta^{2})^{(K=\pm0)[P(\aleph)+P(\omega)]}+(1-\eta^{2})^{(K=-1)[P(\aleph)+P(\omega)]}=\{0,1\},$$

get:

$$(\text{true statement})\ R^{(K=-1)[P(\aleph)][Z\pm S]}=(1-\eta^{2})^{(K=-1)}\cdot R_{0}{}^{KP(\aleph)]}\}^{[Z\pm S]}$$

$$\leftrightarrow\{(1-\eta^{2})^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^{2})^{(K=\pm0)}\leftrightarrow(1\pm\eta^{2})^{(K=+1)}\}^{(K=\pm1)}\cdot\{R_{00}{}^{KP(\aleph)]}+N_{00}{}^{KP(\omega)]}\}^{(K=\pm1)[P(\aleph)+P(\omega)][Z\pm S]}$$

$$\leftrightarrow(1-\eta^{2})^{(K=+1)}\cdot\{N_{0}\}^{P(\omega)](K=+1)[(Z\pm S-(N)\pm(q=2,3,\ldots S)]/t}$$

$$=\{N^{K[P(\omega)]}\}^{(K=+1)[(Z\pm S+(N)\pm(q=2,3,\ldots S)]/t}\ (\text{converse statement});$$

When: Exchange of attributes with the same property does not change the attribute, while exchange of attributes with different properties changes the attribute.

The symbol "↔" denotes the conjugate inverse projection, mapping, and morphism of dimensionless circular logarithmic equilibrium exchange, which preserves the essential characteristics of elements and their calculus states.

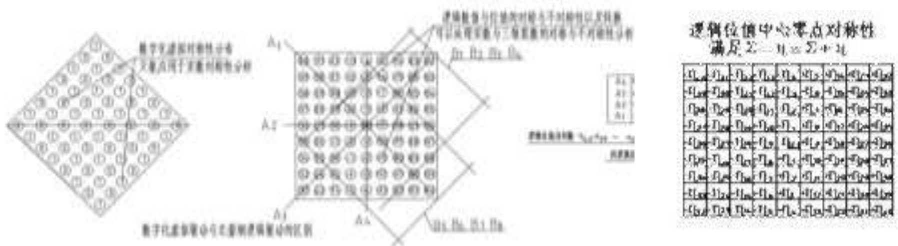
Specifically, the numerical center point (belonging to the multiplication combination) corresponds to the geometrically non-uniform distribution's center point D_0 (also known as the center ellipse or eccentric circle), while the positional zero center point belongs to the addition combination, corresponding to the geometrically uniform distribution's center point D_{00} (also known as the center circle). These two center points are respectively the power set of the continuum set equal to the natural number set. That is: $P(\aleph)=C1$. The numerical center point corresponds to "$P(\aleph)=C_{1}1$; the multiplication combination R_0 and R_{00} correspond to D_0 and D_{00}; the positional zero center point corresponds to $P(\omega)=C0$; the addition combination N_0 and N_{00} correspond to D_0 and D_{00}"

When $D_0=D_{00}$ indicates "identical values", the center points of **$D_0\neq D_{00}$** do not overlap at the same position, resulting in positional "offsets" between the center points and the zero center points. The relative positional deviation between the two center points is **$(1-\eta_0{}^2)^K$**.

$$\mathbf{(1-\eta_0{}^2)^K=C_1/C_0=\{R_0/R_{00}\}^{K[P(\aleph)]}=\{N_0/N_{00}\}^{K[P(\omega)]}=\{D_0/D_{00}\}^{K[P(\aleph)+P(\omega)}=\{0\ to\ 1\}^K;}$$

Through **2D/3D** complex analysis, conjugate center points enable balanced exchanges according to 3D complex analysis rules, driving the equilibrium and self-validation of logical values/bit values to return the inverse proposition. This demonstrates the gap between classical analytical concepts (central ellipse, eccentric circle) and logical analytical concepts (central circle). Traditional numerical analysis often employs "approximate computation," failing to achieve "zero-error" analysis at each computational step. The central circle concept in logical analysis lacks a random self-validation mechanism for truth/falsity and exhibits interpretability deficiencies. Thus, first and second-generation AI lack theoretical foundations, creating the technical backdrop for the emergence of third-generation mathematical-AI.

(B) Grid Matrix Proof: For infinite true propositions in the physical world, their elements are processed through two grid matrices—logical numerical grid and logical bit-value grid—to address the asymmetry of logical code numerical centers and the zero-symmetry of bit-value centers. By leveraging the zero-symmetry of bit-value centers, this method resolves the balance exchange combination decomposition of multivariate numbers and establishes a random self-validation mechanism for truth verification, ultimately achieving zero-error analytical root elements (Figure 1).



(Figure 1) Schematic diagram of virtual code and logical circular code

For instance, in Example 2, elements are represented by a four-logical matrix in the virtual world {0,1}, employing no asymmetric methods. Each information character utilizes a "one-to-one" low-density transmission with inefficient algorithms and limited computational power. The unit chip operates at a byte level: $\{2\}^{\wedge 10}=1\times1024$ characters per processing unit. To enhance character processing capacity, hierarchical configurations are required. Currently, the highest parallel character capacity is 8×64=512 characters per byte in DeepSeek. The maximum level reaches 255 tiers with petaflops-level character processing capability. However, the fundamental binary low-density transmission (0/1) remains unchanged.

For example, in the case of the real number set $R^{K[P(\aleph)]}$, the first logical value code {1,2,3,4,5,6,7,8,9} can be converted into a 9×9=81 logical code two-dimensional matrix, or alternatively written as a 9×81=729 three-dimensional matrix, which represents a single character or byte (0/1). The numerical center point average [41] can be derived from the four-logical {**1000↔0000↔0111**} matrix of logical gates $\{0,1\}=\{0,(1-\eta^2)^K\}$, employing center point symmetry and asymmetry methods. This high-density transmission method for information characters or single characters, utilizing a "one-to-nine" iterative approach, achieves high-performance algorithms and computational power in a single step.

The multi-quantum (including qubits) multiplication (combination or decomposition) of artificial intelligence expands each sub-term with numerical center points and positive/negative elements, through the "dual logic code" four-valued {**1000↔0000↔0111**} mutual inversion balance and random self-validation operations.

$$AX^{(S-0)}+BX^{(S-1)}+CX^{(S-2)}+\dots$$
$$=(1/S)^{(-1)}N_0^{(S+1)}X^{(S-1)}+[(2!/(S-0)(S-1)]^{(-1)}N_0^{(S+2)}X^{(S-2)}+\dots$$
$$=(1-\eta^2)\{(2)\cdot N_0\}^{(S)};$$
$$(1-\eta^2)=(1-\eta_1^2)+(1-\eta_2^2)+=(1-\eta_3^2)+\dots+(1-\eta^2)=\{0,1\};$$

Where: A, B, C... denote the coefficients of polynomial combinations. $\mathbf{\{(2)N_0\}^{(S)}}$corresponds to $\mathbf{\{N_0\}^{(2S)}}$ qubits (high-density information transfer based on natural numbers).

The dimensionless logic circle $\mathbf{(1-\eta^2)^K}$ of artificial intelligence, as a combination of Turing machine logic gates and high-density information characters {**1000↔0000↔0111**}demonstrates the chip's information processing and character transmission capabilities for program algorithms, corresponding to the higher-order linear equation and the dimensionless logic circle$\mathbf{(1-\eta^2)^K}$.

The logical grid matrix forms symmetric Type **A** four-valued logic matrices in both longitudinal and transverse directions, while diagonal orientations create asymmetric Type **B** four-valued logic matrices. The dimensionless logical bit values are composed of numerical matrices for both types. The concatenation of $\mathbf{\{1,\dots[41]\dots,81\}^{K[P(\aleph)}}$ demonstrates that the logical numerical center point [41] cannot be interchanged. By converting RK[Z±(S=9)]K[P(ℵ)] into the second logical bit value code $\mathbf{\{(-\eta_{41})\dots[0]\dots(+\eta_{41})\}^{KP(\omega)]}}$, the logical bit value center zero point $[0]=\mathbf{(1-\eta_{[C]}^2)^{(K=\pm 0)}}$ satisfies symmetry. Additionally, the random self-validation mechanism on both sides of the center zero point ensures zero-error deduction.

The logical value code is a four-value serial combination, arranged in a table (2, 3, 5, 7, 9, etc.) and stored in memory (details omitted).

The logic bit value code is a four-bit sequential combination, arranged in a table (2, 3, 5, 7, 9, etc.) and stored in memory (details omitted).

The illustrative example demonstrates how the asymmetry and reciprocity of the numerical center points of nine A and B-type four-valued elements are transformed into symmetry around the zero-centered logical bit values. This transformation satisfies the associative and commutative laws of conjugate zeros in three-dimensional complex analysis, enabling the balanced exchange and decomposition of dimensionless logical bit values through a self-verifying mechanism. This effectively resolves the "axiomatic incompleteness," ensuring the invariance of true proposition elements in dimensionless logic while avoiding the concept of "infinity."

For instance, consider the nine-element number: the product of combinations D=ABCDEFGHl) and natural numbers $\{N\}^{K[P(\omega)]=[9]}$ plus combinations **D=abcdefghl**). Both are transformed into a (1,2,3,4,5,6,7,8,9) grid matrix. The extracted four logical-type numerical codes {1…[41]…49} and converted to a （$\eta_1,\eta_2,\eta_3,\eta_4,\eta_5,\eta_6,\eta_7,\eta_8,\eta_9$） logical bit-value code matrix$\{(-\eta_{41})\ldots[\eta_{[C]}=0]\ldots(+\eta_{41})\}$represent numerical element positions without inherent numerical meaning. Through the bit-value center zero symmetry$\{N_{00}\}^{K[P(\aleph)]+[P(\omega)]=[9]}$, corresponding to $(1-\eta_{[C]}{}^2)^{(K=\pm0)}=0$, this mechanism aligns with the random self-validation verification system and the operational approach of the 'infinite axiom'.

Mathematics-AI workflow:

$$\mathbf{D}^{K(Z\pm S)+[P(\aleph)]}\leftrightarrow(1-\eta)^{(K=\pm1)}\leftrightarrow(1-\eta_{\Delta C})^{(K=\pm1)}\leftrightarrow(1-\eta_{[C]})^{(K=\pm0)}\leftrightarrow(1-\eta_{\Delta C})^{(K=\pm1)}\leq 1\leftrightarrow\mathbf{Do}^{K(Z\pm S)+[P(\omega)]};$$

In the series analysis of three-dimensional complex functions, given a multi-element dimensional power (S) and a combination **D**=(abc…s), the characteristic modulus $\mathbf{Do}^{(1)}=(1/S)(a+b+c+\ldots+s)$, and a dimensionless logical bit value code $(1-\eta)^{(K=\pm1)}=\mathbf{D/Do}^{(S)}=\{0,1\}$, two elements can be analyzed through the numerical center point$(1-\eta_{\Delta C})^{(K=\pm1)}$ and the bit value center zero point $(1-\eta_{[C]})^{(K=\pm0)}$ using mathematical formulas or a "dual logic code" grid. The mathematical-ai dimensionless logic $(1-\eta)^{(K=\pm1)}=\mathbf{D/Do}^{(S)}=\{0,1\}$and the bit value center zero point $(1-\eta_{[C]})^{(K=\pm0)}$ along with the numerical center point $(1-\eta_{\Delta C})^{(K=\pm1)}$, establish a one-to-one correspondence to analyze the dimensionless logical bit value-numerical code root element. By leveraging the dual logic code and the original proposition's characteristic modulus relationship, the analysis and combination of the original proposition's root are then returned.

In other words, the aforementioned dimensionless logical circle formula or grid matrix can be described using the two forms $\{\mathbf{D}_0\}$and $\{\mathbf{D}_{00}\}$ from the natural number set $N^{\mathbf{K[P(\omega)]}}$to represent the real number set $R^{\mathbf{K[P(\aleph)]}}$. Alternatively, the uniform and non-uniform distributions of geometric circles can all be described by the dimensionless logical circle to represent any closed circular shape, without altering the boundary function.

The multi-qubits exist the numerical center point balance asymmetry, belong to the movable state, can be listed as the logic value code matrix sequence or the calculation table or the memory system.

By demonstrating the continuum problem, this approach resolves the dimensionless logical gap between real numbers $R^{K[P(\aleph)]}$ and natural numbers $N^{K[P(\omega)]}$, unified within the newly discovered third-party infinite construction set. The solution features a dimensionless logic model devoid of mathematical models or specific (mass) element content. Through the equilibrium exchange decomposition of 'infinite axioms,' 'dual logic codes,' and 'three-dimensional complex analysis,' combined with a stochastic self-validation mechanism, it ensures mathematical-artificial intelligence systems maintain numerical invariance and the {0,1} dimensionless logical circle. This enables zero-error deduction, thereby establishing a rigorous proof of the continuum CH problem.

3.1.3. Demonstrating the positive implications of the Continuity Hypothesis (CH):

(1) From the perspective of mathematical-ai computational methodology: "Wang Yiping's Circular Logarithm" fundamentally resolves the integration of classical and logical analysis, or more precisely, the fusion of multiplication and addition through the inverse permutation of dimensionless logical circles. By employing a "dual-logic code" grid matrix to process the asymmetric non-interchangeability between the numerical center points of "even-numbered terms" and the positional zero points, it demonstrates the integration of discrete and continuous analysis, thereby reforming the traditional mathematical-ai framework into a dimensionless logical mathematical system.

Mathematical algorithms: From traditional symmetric $\{2\}^{\wedge 2n}$ operations to infinite symmetric and asymmetric $\{S\}^{\wedge 2n}$ operations (S=1,2,3,4...); Artificial intelligence logic gates: From "one-to-one" symmetric $\{2\}^{\wedge 2n}$ operations to "one-to-many" symmetric and asymmetric $\{S\}^{\wedge 2n}$ high-density information transmission operations.

(2) From the perspective of mathematical-artificial intelligence development: "Wang Yiping's Circular Logarithm" introduces a new mathematical domain and concept through dimensionless logical circles,' dual logical codes ',' three-dimensional complex analysis ', and' infinite axioms'. It effectively handles the relationship between "real number sets (multiplicative combinations, geometric averages) and natural number sets (additive combinations, arithmetic averages)" in a third-party form, demonstrating the profound integration of "numerical analysis and logical analysis".

This generates a new "dimensionless logical circle mathematical deduction system" that fundamentally resolves the "fusion of classical analysis and logical analysis" in traditional mathematical-artificial intelligence. Consequently, it becomes a new mathematics—dimensionless logical circle concentric circles (logical analysis) describing multiplicative combinations (classical analysis). This breakthrough solves a series of century-old challenges in mathematical-artificial intelligence algorithms, computational power, and big data compression/decomposition, featuring significant open-source potential, maximum privacy, and high-robustness, interpretable algorithms, high computational power, and data processing capabilities. It establishes a new reliable, feasible, and zero-error deductive mathematical foundation.

3.2, [Theorem 2]: Hodge Conjecture-Theorem of Dimensionless Logic Circle and Whole Number

3.2.1, Historical Background of Hodge Conjecture

Before the 1670s, geometry and algebra had achieved considerable development, yet they remained two distinct disciplines. Descartes conducted comparative analysis of geometric and algebraic methods, advocating for reducing geometric problems to algebraic formulations and solving them through algebraic techniques to achieve ultimate resolution. Based on this philosophy, he established what we now call "analytic geometry." By the 19th century, mathematicians sought to extend Descartes' approach. Starting with algebraic equations, they defined solutions as "geometric" objects. These algebraically derived objects became known as "algebraic varieties," which were equivalent to "polynomials." The simplest algebraic varieties were plane curves. Elliptic functions, elliptic integrals, and Abel integrals all relate to plane curves. The theory of algebraic functions for complex variables (referring to multiple variables) and Riemannian surface theory further advanced modern algebraic geometry.

In the latter half of the 19th century, German mathematicians R. Clebsch, J. Plucker, and M. Noether, along with the Italian school, made significant contributions. Building upon the work of J.H. Poincare, C.E. Picard, J.W.R. Dedekind, and A. Cayley, E. Noether, E. Artin, and their student van der Waalden established abstract algebra in the 1920s-1930s, revitalizing the study of algebraic geometry.

In 1937, Chinese scholar Wei-Liang Chow published his first two papers in the German journal *Mathematische Annalen*. The first was co-authored with Van der Waalde, and the second was his doctoral dissertation. These two papers built upon the work of Cayley and Prügler and extended it to algebraic varieties on n-dimensional projective spaces Pn. They pointed out that any irreducible projective family X in an n-dimensional projective space Pn can be uniquely determined by a configuration, the coordinates of which are the famous Chow coordinates. This coordinate system is a generalization of Prügler coordinates and has since become a fundamental tool in the study of algebraic geometry. This is the famous "Chow Theorem." "In a projective space, any compact analytic variety is essentially an 'algebra.'"

The "algebraic" world constructed by polynomial equations and the "analytic" world dependent on calculus and complex analysis share a unified mathematical framework. However, as mathematics advances, geometric representations of boundaries interacting with various curves/surfaces have given rise to non-singular complex algebraic varieties. This means polynomial equations encounter challenges when dealing with multiple variables, making them incompatible with modern computational demands. The algebraic-geometric approach to solving integer expansion has emerged as a new mathematical challenge.

3.2.2. Hodge Conjecture-Dimensionless Logic Round Integers

Hodge's Conjecture, a seminal unsolved problem in algebraic geometry, was proposed by William Hodge. It posits that non-singular complex algebraic varieties must simultaneously possess both the abstract structure of algebra and the intuitive geometry of geometric forms, requiring flexible mental transitions between the two. This conjecture explores the relationship between the algebraic and algebraic-topological properties of non-singular complex algebraic varieties, as well as their geometric expressions derived from polynomial equations defining subvarieties. Alongside Fermat's Last Theorem and Riemann's Conjecture,

Hodge's Conjecture forms the geometric-topological framework and tools for the integration of general relativity and quantum mechanics in M-theory. Recognized as one of the seven major unsolved mathematical problems, the conjecture asserts that for the special class of projective algebraic varieties, components known as Hodge closed chains are essentially combinations of geometric components called algebraic closed chains (rational linear).

[Proof]:

According to [Theorem 1]

Kantor proved that the real number set power set $R^{K[P(\aleph)]}$and the natural number set power set $N^{K[P(\omega)]}$ have the same cardinality, where$K[P(\aleph)]=K[P(\omega)^{]}=(S)$. The cardinality is expressed as a combinatorial form of the integer counts of elements {S=1,2,3,...,infinite}, where the elements consist of multiple unequal variables or elements with unequal curvature. Corresponding to any function element (arithmetic, geometry, algebra, group theory), it can be written as an "algebraic variety," leading to the introduction of the "Hodgson conjecture."

Given: Any function element $\{X\}\in\{x_1x_2\ldots x_S\}$, where , $\{x_1\neq x_2\neq\ldots\neq x_S\}$. The geometric mean is$^{(S)}\sqrt{\{abc\ldots s\}}$, and the algebraic (arithmetic) mean is$(1/s)\{a+b+c+\ldots+s\}$. These values are converted into dimensionless logical circular representations through geometric/algebraic transformations, resulting in integer values: power functions exhibit simple natural number variations.

(1), Multiplication of the real number set $R^{K[P(\aleph)]}=(S)$ set cardinality:

$$R^{K[P(\aleph)]}=\{abc\ldots s\}/^{(S)}\sqrt{\{abc\ldots s\}}=\{\mathbf{D}\}/\{^{(S)}\sqrt{\{\mathbf{D}\}}^{(1)}=(S);$$

(2) ,Add combination and natural number set power $N^{K[P(\omega)]}=(S)$ integer;

$$N^{K[P(\omega)]}=\{a+b+c+\ldots+s\}/(1/s)\{a+b+c+\ldots+s\}=\{\mathbf{D_0}^{(S)}\}/\{\mathbf{D_0}^{(1)}\}=(S);$$

The multiplication combination of real number set$R^{K[P(\aleph)]}$ represents geometric space, the addition combination and natural number set $N^{K[P(\omega)]}$represents algebra, arithmetic, number theory space, the combination (or decomposition) of multiple unequal variables based on elements is defined as group combination (group theory).

(3),Identical potentials (S) form a dimensionless logical unit. Through one-to-one correspondence, we derive a dimensionless logical circle $(1-\eta^2)^K$ with constant ratio parameters, which can be transformed into a variable proportional circle. This mechanism allows any group to be grouped under the same potential (S), regardless of differences, disparities, uniformity or non-uniformity, symmetry or asymmetry. The principle of 'self-dividing by itself' does not necessarily yield '1', as it provides maximum fault tolerance to ensure the integrity of the potential (S). This is termed the integer property of the dimensionless logical circle.

$$(1-\eta^2)^K=R^{K[P(\aleph)=S]}/N^{K[P(\omega)=S]}=[\{{}^{(S)}\sqrt{abc\ldots s}\}^{(1)}/(1/s)\{a+b+c+\ldots+s\}]^{(S)}=\{0,1\};$$

(4), The reciprocity of the integer properties between geometric mean (multiplicative combination) and arithmetic mean (additive combination):

$$(1-\eta^2)^K=\{\mathbf{D}\}/\{\mathbf{D_0}^{(S)}\}=\{{}^{(S)}\sqrt{\mathbf{D}}\}^{(1)}/\{\mathbf{D_0}^{(1)}\}=\{{}^{(S)}\sqrt{\mathbf{D}}\}^{(2)}/\{\mathbf{D_0}^{(2)}\}=\ldots=\{{}^{(S)}\sqrt{\mathbf{D}}\}^{(S)}/\{\mathbf{D_0}^{(S)}\};$$

The above dimensionless logical circle, when expressed as an algebraic-geometric manifold, describes how any geometric-algebraic space undergoes shape changes under the condition of invariant boundary functions. This process involves the numerical center point's asymmetry converging toward the bit value center zero point, manifesting as the integer property of power functions with the dimensionless logical circle as its base. This phenomenon is referred to as path integral and recorded in historical documentation.

Under the condition of invariance of (infinite) true propositions, the set $\{{}^{(S)}\sqrt{\mathbf{D}}\}^{(S)}/\{\mathbf{D_0}^{(S)}\}$ corresponds to the dimensionless circular reciprocity of integers. Through the transformation of properties via reverse centralization, the true proposition is converted into its inverse proposition. The distinct multiplication combination subterms are correspondingly transformed into the characteristic modules of different addition combination subterms. Consequently, all analytic functions can be reduced to addition combination operations, geometrically represented as a variation process with a standard circle as its base, facilitated by power functions (path integrals, historical records). (Figure 2)

(Figure 2) Schematic diagram of path integral of dimensionless logic circle variation

The geometric figure changes are expressed by the dimensionless logic circle path integral:

$$(1-\eta^2)^{K(S=1+2+3+\ldots\ldots S+0)}\in(1-\eta_1{}^2)^K\leftrightarrow(1-\eta_2{}^2)^K\leftrightarrow(1-\eta_3{}^2)^K\leftrightarrow\ldots\leftrightarrow(1-\eta_s{}^2)^K\leftrightarrow(1-\eta_0{}^2)^K=\{0,1\};$$

Any closed circle 1↔Any closed circle 2↔Eccentric ellipse↔Central ellips↔Eccentric perfect circle (with combination)↔Central perfect circle and concentric circles (with combination);

Where: (K=+1) indicates the convergence of the center point of any function to the center zero symmetry (combination), conversely, it represents the (analytic) process from the center zero point to any function.

The above, through the dimensionless logical circle, the "self divide self" way, eliminate the polynomial "residual term", through the dimensionless logical circle logarithm expression of arbitrary function (algebra, geometry, number theory, arithmetic, group combination) integer and reversibility.

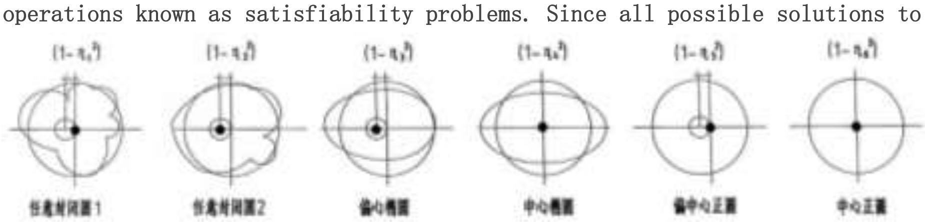
According to the well-known Brouwer's theorem that "the geometric boundary value set reflects the positive center point", the power function of the boundary function becomes the relative value of the stability that tends to the "zero point of the geometric center of the bit value (the geometric space with any non-uniform distribution) towards the geometric center of the bit value (the geometric space with uniform distribution)" under the condition of the total element of the boundary function is unchanged, which provides a way to record the difference of change.

This is what is meant by adopting the dimensionless logical circle "irrelevant to mathematical models, without specific (mass) element content in the integer range {0,1} deduction", power functions represent various functions, the gap of geometric space, or a good proof of the "Hodgson conjecture" integer conjecture.

3.3, [Theorem 3]: P=NP Problems-Dimensionless Logic Circle Isomorphism Theorem

3.3.1, Historical Background of P=NP Problems

It was discovered that all fully polynomial-time non-deterministic problems can be transformed into a class of logical operations known as satisfiability problems. Since all possible solutions to such



problems can be computed in polynomial time, researchers began to wonder: Could there exist a deterministic algorithm capable of directly computing or searching for the correct answer within polynomial time? This intriguing question is famously known as the NP=NP?

conjecture.

Consider a simple math problem: 3+4=7; 3×4=12.

These are called forward operations—straightforward and

universally accepted.

For example: 7=3+4=1+6=2+5; 12=3×4=2×6=1×12.

This demonstrates that reverse operations can yield multiple uncertain results.

So, is there a unified formula for reverse operations to determine quickly?The corresponding artificial intelligence involves neural network implementation of interpretable reverse engineering.Because traditional axiomization has no reverse reasoning, Godel's theorem proves its "incompleteness", which is called "the numbers can't be exchanged

directly" in this paper.

This seemingly simple arithmetic problem involves finding a computational method to quickly determine the correct answers. Moreover, this method can be applied to both forward and inverse operations. Known as the NP=NP problem,

there currently exists no satisfactory solution algorithm.

In computer algorithms, time complexity and space complexity are commonly used to evaluate computational efficiency. Space complexity refers to the amount of memory space an algorithm requires during computation, while time complexity measures the computational effort needed to obtain a solution. This metric specifically examines how quickly

the algorithm's computational load changes as input values approach infinity.

Is there a deterministic algorithm that can directly compute or search for the correct answer within polynomial time? Whether we are skilled at programming or not, determining whether an answer can be quickly verified using internal knowledge or requires extensive time without such hints is considered one of the most prominent problems in logic and

computer science. It was first stated by Stephen Cook in 1971.

The significance of NP-complete problems lies in their crucial role in mathematical and artificial intelligence scientific computing theory. These problems represent the most challenging category of computational challenges. If any NP-complete problem could be solved in polynomial time using human-designed logical code polynomial P, then all NP problems would be solvable in polynomial time. This would lead to the P=NP isomorphism problem, unifying all mathematical computation methods and AI algorithms. Computational programs could then abandon approximate calculations through "iterative methods" and instead establish "logically consistent computation time" by maintaining "constant total element count" in logical code. This would dramatically enhance the high-density transmission of Turing machine logic gate information, fundamentally improving algorithms. This remains one of the most unsolved problems in mathematics and artificial intelligence science, and is also recognized as one of the world's seven major mathematical

challenges.

For example, the problem of prime number distribution in number theory is a problem of "prime number distribution is not uniform and has no definite rule" in a certain range. The polynomial established by this problem is called NP complete polynomial non-deterministic problem. How to transform it into a kind of problem called

satisfiability problem of simple polynomial P logical operation problem.

For example, the uniformity or non-uniformity of the distribution of geometric space boundary (mass, space, prime) element points, the formation of complex spatial graphics or complex polynomials, and the establishment of complex algebraic clusters, are referred to as NP-complete polynomial non-deterministic problems. How to convert these into a known logical code form with uniform or controllable positive circle boundary distribution is called the P-logical

operation problem of satisfiability.

Definition: NP-complete problems are referred to as complex polynomial problems, which can be solved by non-deterministic Turing machines in polynomial time. The characteristic of such problems is that although it may be very difficult to find a solution, once a solution is found, its correctness can be verified in polynomial time.

Definition: P is called simple polynomial, or logic operation problem composed of artificial logic code to satisfy the problem of satisfiability.

By using the continuous theorem and the Hodge integer theorem, we prove that any complex polynomial and simple polynomial can be solved by isomorphic and consistent dimensionless logical circle to solve the **P≠NP** complete problem.

Key points: The discussion focuses on the **NP** complex problem of polynomial non-determinism, where all variable elements are represented in a numerical/bit value 'dual logic code' (grid matrix sequence) format, satisfying P=NP. By integrating the 'three-dimensional complex analysis' rules of dimensionless logical circles and the balanced exchange combination analysis of 'infinite axioms' with a random self-validation mechanism, a dimensionless logical isomorphic circle pair logarithm-sharing rule and deterministic algorithm are employed. This directly computes or searches for the correct answer that can be reversibly converted, thereby proving that any polynomial P=NP complete problem can be solved.

3.3.2, [P=NP Necessity Proof]

The inverse theorem of asymmetry distribution on both sides of the numerical center point is proved from simple equation (P) to any complex equation (NP), and the deduction of the zero point symmetry theorem of the dimensionless logic bit value is unified.

[(P) prove]

Set: ternary number (or controllable numerical logic code) as a simple determinable polynomial (P) as an illustrative example.

Given: The polynomial (P) in ternary numbers $\mathbf{D}=(abc)^{(K=\pm1)}=(abc)^{(K=-1)}\cdot(abc)^{(K=+1)}$.

The unit element is $\mathbf{X}={}^{K(3)}\sqrt{(abc)}^{(K=\pm1)}$

Characteristic moduli: $\{\mathbf{D_0}\}^{(1)}=(1/3)(a+b+c)$； $\{\mathbf{D_0}\}^{(2)}=\mathbf{(1/3)(ab+bc+ca)}$;

Proof: Can the logarithm of dimensionless logical isomorphism circle be established?

According to [Theorem 1],

Given the boundary function (multiplication combination) **D**, the characteristic mode $\mathbf{D_0}$ (addition combination),two variable functions with the same power, the circular logarithm discriminant (no modeling required) can be introduced to achieve analytical results.

Polynomial (P) ternary numbers and dimensionless logical circle relationship:

$$X^{(3)}\pm BX^{(2)}+CX^{(1)}\pm\mathbf{D}=(1-\eta_{[P]}{}^2)^K\cdot\{(0,2)\cdot\mathbf{D_0}\}^{(3,2,1)};$$

logarithmic discriminant of circle： $(1-\eta_{[P]}{}^2)^K=[{}^{K(3)}\sqrt{(abc)}/\{\mathbf{D_0}\}]^{(3,2,1)(K=\pm1)}=\{0,1\}$,

Circular logarithmic center zero symmetry: $(1-\eta_{[C]}{}^2)^{(K=\pm0)}=[{}^{K(3)}\sqrt{(abc)}/\{\mathbf{D_0}\}]^{(3,2,1)(K=\pm0)}=\{0\}$,

For example, $\mathbf{\{D_0\}^{(3,2,1)}}$ denotes the notation for merging integer powers of $\mathbf{\{D_0\}^{(3)}}$, $\mathbf{\{D_0\}^{(2)}}$, and $\mathbf{\{D_0\}^{(1)}}$ respectively.

Proof of converting simple polynomial (P) to circular logarithmic isomorphism (satisfying the symmetry distribution rule of polynomial combination coefficients)

（**prove.1.1**） $(abc)^{(K=-1)}\cdot(abc)^{(K=+1)}=[(abc)/(a+b+c)]^{(K=+1)}\cdot(a+b+c)]^{(K=+1)}\cdot(abc)^{(K=-1)}$

$=[((a+b+c))/(abc)]^{(K=-1)}\cdot(a+b+c)]^{(K=+1)}\cdot(abc)^{(K=-1)}$

$=[(1/ab+1/bc+1/ca)]^{(K=-1)}\cdot(a+b+c)]^{(K=+1)}\cdot(abc)^{(K=-1)}$

（**prove.1.2**） $(abc)^{(K=-1)}\cdot(abc)^{(K=+1)}=[(abc)/(ab+bc+ca)]^{(K=+1)}\cdot(ab+bc+ca)]^{(K=+1)}\cdot(abc)^{(K=-1)}$

$=[(a+b+c)/(ab+bc+ca)]^{(K=-1)}\cdot(ab+bc+ca)]^{(K=+1)}\cdot(abc)^{(K=-1)}$

$=[(1/a+1/b+1/c)]^{(K=-1)}\cdot(ab+bc+ca)]^{(K=+1)}\cdot(abc)^{(K=-1)}$;

The (a,b,c) $^{(K=-1)}$ generated above is moved to the left side of the formula, with its property attribute changed to (a,b,c) $^{(K=+1)}$.

By the mutual inversibility of (prove.1.1) and (prove.1.2):

$(abc)^{(K=-1)}\cdot(abc)^{(K=+1)}=[(1/ab+1/bc+1/ca)]^{(K=-1)}\cdot(a+b+c)]^{(K=+1)}$

$=[(1/a+1/b+1/c)]^{(K=-1)}\cdot(ab+bc+ca)]^{(K=+1)}$

$=[(1/a+1/b+1/c)]^{(K=-1)}\cdot(a+b+c)]^{(K=+1)}$

$=[(1/ab+1/bc+1/ca)]^{(K=-1)}\cdot(ab+bc+ca)^{(K=+1)}$;

get： $(abc)^{K(1)}=(1-\eta^2)^{(K=\pm1)}\cdot[(1/3)(a+b+c)]^{(3)}$;

$(abc)^{K(2)}=(1-\eta^2)^{(K=\pm1)}\cdot[(1/3)(ab+bc+ca)]^{(3)}$;

$(1-\eta^2)^{(K=\pm1)}=(1-\eta_a{}^2)^{(K=\pm1)}+(1-\eta_b{}^2)^{(K=\pm1)}+(1-\eta_c{}^2)^{(K=\pm1)}$

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

The theorem of reciprocity of the simple transformation to the circular logarithm isomorphism

First Theorem of Reciprocity

$$\mathbf{G_{[P]}(\cdot)F_{[P]}(\cdot)=\zeta_{[P]}(s)^{(K=-1)}\cdot\zeta_{[P]}(s)^{(K=+1)}=[(1-\eta^2)^{(K=-1)}+(1-\eta^2)^{(K=+1)}]\cdot\zeta_{[P]}(s_0)^{(K=\pm0)}=\{1\}};$$

Second Theorem of Reciprocal Inversion (Theorem of Isomorphic Circle Pair):

$$\mathbf{(1-\eta_{[P]}^2)^K=G_{[P]}(\cdot)/F_{[P]}(\cdot)=\{D_{0[P]}^{(1)}\}^{(K=-1)}/\{D_{0[P]}^{(1)}\}^{(K=+1)}=\ldots=\{D_{0[P]}^{(3)}\}^{(K=-1)}/\{D_{0[P]}^{(3)}\}^{(K=\pm1)}=\{0\ to 1\}};$$

The Third Theorem of Reciprocal Inversion (Theorem of Symmetry of Zero Point at Center):

$$\mathbf{(1-\eta_{[C]}^2)^K=G_{[P]}(\cdot)\cdot F_{[P]}(\cdot)=\{D_0^{(1)}\}^{(K=-1)}\cdot\{D_0^{(1)}\}^{(K=+1)}=\ldots=\{D_0^{(3)}\}^{(K=-1)}\cdot\{D_0^{(3)}\}^{(K=\pm1)}=\{0\}};$$

The three numbers of P are determinable on the basis of the characteristic mode of the center point and the center zero point, which is based on the dimensionless logic 'double logic code' and three inverse theorems, and the dimensionless logic bit value expansion.

$$(1-\eta_{[P]}^2)^{(K=\pm1)}=(1-\eta_a^2)^{(K=\pm1)}+(1-\eta_b^2)^{(K=\pm1)}+(1-\eta_c^2)^{(K=\pm1)}=\{0,1\};$$

Get the root of the cubic equation:

$$a=(1-\eta_a^2)^{(K=\pm1)}\{\mathbf{D}_0^{(1)}\});\quad b=(1-\eta_b^2)^{(K=\pm1)}\{\mathbf{D}_0^{(1)};\quad c=(1-\eta_c^2)^{(K=\pm1)}\{\mathbf{D}_0\}^{(1)};$$

The isomorphism of the logarithm of the dimensionless logical circle is used to express the isomorphism of the same
characteristic mode of the P equation.

[NP prove]

Given: The equation of complex uncertainty (NP). The multi-variable function of NP has a corresponding dimension power (S), with two variable functions: {**D**} and {**D₀**}. Known: (**NP**) multi-variable:

$$(abc...s)^{(K=\pm1)} = (abc...s)^{(K=+1)}\cdot(abc...s)^{(K=-1)}.$$

Cell cube, unit body, haplont : $\{\mathbf{X}_{0(NP)}\}={}^{K(S)}\sqrt{(abc\ldots s)^{(K=\pm1)}}$ (called a composite cell)

characteristic mode: $\{\mathbf{D}_{0(NP)}\}^{(1)}=(1/S)^K[(a+b+c\ldots+s)]^K$; (addition combination probability unit)

$\{\mathbf{D}_{0(NP)}\}^{(2)}=\sum[2!/S(S-1)]^K\ \prod_{[S=2]}[(ab+bc+\ldots+sa)]^K$; …; called a combined binary topological unit)

$\{\mathbf{D}_{0(NP)}\}^{(P)}=\sum[(P-1)!/(S-0)!]^K\prod_{[S=p]}(abc\ldots q_p+abc\ldots m_p+abc\ldots s_p)$; (called a P-element topological cell)

The uncertainty polynomial has a definite power dimension, regardless of the distance, orientation, hierarchy, or heterogeneity of parameters between elements.

It is referred to as the 'dual logic code matrix' when represented by logical numerical code sequences and logical bit value code sequences, forming any monomial (S≥4) equation corresponding to [NP]. The complex polynomial (NP) and the dimensionless logic circle relationship:

$$X^{(S)}\pm BX^{(S-1)}+CX^{(S-2)}\pm\ldots+\mathbf{D}$$
$$={}^{K(S)}\sqrt{(abc\ldots s)^{(S-0)}}\pm b\,{}^{K(S)}\sqrt{(abc\ldots s)^{(S-1)}}+c\,{}^{K(S)}\sqrt{(abc\ldots s)^{(S-2)}}\pm\ldots+\mathbf{D}$$
$$=(1-\eta_{[NP]}^2)^K\cdot\{(0,2)\cdot\mathbf{D}_0\}^{(q=S\ldots3,2,1)(K=\pm1)};$$

logarithmic discriminant of circle: $(1-\eta_{[NP]}^2)^K=[{}^{K(S)}\sqrt{(abc\ldots s)}/\{\mathbf{D}_0\}]^{(S=1,2,3,\ldots S)(K=\pm1)}=\{0,1\}$,

zero symmetry of circle logarithm center: $(1-\eta_{[NP]}^2)^{(K=\pm0)}=[{}^{K(3)}\sqrt{(abc)}/\{\mathbf{D}_0\}]^{(S=1,2,3,\ldots S)(K=\pm0)}=\{0\}$,

The dimensionless logic is characterized by "irrelevant mathematical models and no interference from specific(mass) element content", as demonstrated in [Proof 3]:

Similarly, the proof of converting (NP)-complex expressions into logarithmic circle isomorphisms (note the symmetric distribution of polynomial combination coefficients).

[Proof 3]: $(abc...s)^{(K=-1)}\cdot(abc...s)^{(K=+1)}$

$$=[(abc...s)/(a+b+\ldots+s)]^{(K=+1)}\cdot(a+b+\ldots+s)]^{(K=+1)}\cdot(abc...s)^{(K=-1)}$$
$$=[(a+b+\ldots+s)/(abc...s)]^{(K=-1)}\cdot(a+b+\ldots+s)]^{(K=+1)}\cdot(abc...s)^{(K=-1)}$$
$$=[(1/a+1/b+1/c)]^{(K=-1)}\cdot(a+b+c)]^{(K=+1)}\cdot(abc...s)^{(K=-1)}$$

[Proof 4]: $(abc...s)^{(K=-1)}\cdot(abc\ldots s)^{(K=+1)}$

$$=[(abc...s)/(ab+bc+\ldots+ca)]^{(K=+1)}\cdot(ab+bc+ca)]^{(K=+1)}\cdot(abc...s)^{(K=-1)}$$
$$=[(a+b+\ldots+s)/(ab+bc+\ldots+sa)]^{(K=-1)}\cdot(ab+bc+\ldots+sa)]^{(K=+1)}\cdot(abc...s)^{(K=-1)}$$
$$=[(1/ab+1/bc+\ldots+1/sa)]^{(K=-1)}\cdot(ab+bc+\ldots+sa)]^{(K=+1)}\cdot(abc...s)^{(K=-1)};$$

The aforementioned $(abc...s)^{(K=-1)}$ is moved to the left side of the formula, with its property attribute changed to $(abc...s)^{(K=+1)}$. This adjustment preserves the symmetry of the normalized combination distribution.

By the reciprocity of [Proof 3] and [Proof 4]:

$$(abc...s)^{(K=-1)}\cdot(abc...s)^{(K=+1)}=[(1/ab+1/bc+\ldots+1/sa)]^{(K=-1)}\cdot(ab+bc+\ldots+sa)]^{(K=+1)}$$
$$=[(1/a+1/b+1/c)]^{(K=-1)}\cdot(ab+bc+ca)]^{(K=+1)}$$
$$=[(1/ab+1/bc+\ldots+1/sa)]^{(K=-1)}\cdot(a+b+c)]^{(K=+1)}$$
$$=[(1/ab+1/bc+\ldots+1/sa)]^{(K=-1)}\cdot(ab+bc+ca)^{(K=+1)};\ldots;$$

get: $(abc...s)^{K(1)}=(1-\eta^2)^{(K=\pm1)}\cdot[(1/S)(a+b+\ldots+s)]^{(K=+1)(S)};$

$(abc\ldots s)^{K(2)}=(1-\eta^2)^{(K=\pm1)}\cdot[(2!/S(S-1))(ab+bc+\ldots+ca)]^{(S)}$;
$(1-\eta^2)^{(K=\pm1)}=[(1-\eta_a^2)^{(K=\pm1)}+(1-\eta_b^2)^{(K=\pm1)}+\ldots+(1-\eta_S^2)^{(K=\pm1)}]$;
$=[(1-\eta_{ab}^2)^{(K=\pm1)}+(1-\eta_{bc}^2)^{(K=\pm1)}+\ldots+(1-\eta_{Sa}^2)^{(K=\pm1)}]=\{0,1\}$;

The Inversion Theorem of the Circular Logarithmic Isomorphism of NP

First reciprocity theorem：

$$G(\cdot)F(\cdot)=\zeta(s)^{(K=-1)}\cdot\zeta(s)^{(K=+1)}=(1-\eta^2)^{(K=-1)}\zeta(s_0)^{(K=-1)}+(1-\eta^2)^{(K=+1)}\zeta(s_0)^{(K=+1)}=\{1\};$$

The second dimensionless logical bit value inverse theorem:

$$(1-\eta^2)^{(K=\pm1)}=G(\cdot)/F(\cdot)=\zeta(s)^{(K=-1)}/\zeta(s)^{(K=+1)}=\zeta(s_0)^{(K=-1)}/\zeta(s_0)^{(K=+1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0 \text{ to } 1\};$$

The Third Theorem of Symmetry of Zero Point of the Inverse Position Value Center：

$$(1-\eta_{[C]}^2)^{(K=\pm0)}=G(\cdot)\bullet F(\cdot)=\zeta(s)^{(K=-1)}\bullet\zeta(s)^{(K=+1)}=\zeta(s_0)^{(K=-1)}\bullet\zeta(s_0)^{(K=+1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0\};$$

Here, $(1-\eta^2)^{(K=\pm1)}=\{0 \text{ to } 1\}$ and$(1-\eta^2)^{(K=\pm1)}=\{0 \text{ or } 1\}$. For dimensionless logical circular logarithms, the addition and multiplication operations are essentially equivalent. When unified into dimensionless complex analysis, they can all satisfy the 'addition' logic analysis in probability or topology.

The NP corresponding (S) number can be determined by the center point and the center zero point corresponding feature mode based on the dimensionless logic 'double logic code' and three inverse theorems, the dimensionless logic bit value expansion,

The dimensionless logic 'double logic code' and three inverse theorems, with the dimensionless logic bit value expansion, through the center point and the center zero point corresponding feature mode, there is NP corresponding (S) number can be determined in the invariant:

$$(1-\eta_{[NP]}^2)^{(K=\pm1)}=(1-\eta_a^2)^{(K=\pm1)}+(1-\eta_b^2)^{(K=\pm1)}+\ldots+(1-\eta_s^2)^{(K=\pm1)}=\{0,1\}\text{corresponding}\{\mathbf{D_0}\}^{(S)};$$

The NP corresponding (S) root is obtained through the dimensionless logic circle position zero point.

$$a=(1-\eta_a^2)^{(K=\pm1)}\{\mathbf{D_0}\}^{(1)};\quad b=(1-\eta_b^2)^{(K=\pm1)}\{\mathbf{D_0}\}^{(1)};\quad \ldots;\quad S=(1-\eta_s^2)^{(K=\pm1)}\{\mathbf{D_0}\}^{(1)};$$
$$ab=(1-\eta_a^2)^{(K=\pm1)}\{\mathbf{D_0}\}^{(2)};\quad bc=(1-\eta_b^2)^{(K=\pm1)}\{\mathbf{D_0}\}^{(2)};\quad \ldots;\quad Sa=(1-\eta_s^2)^{(K=\pm1)}\{\mathbf{D_0}\}^{(2)};\quad \ldots;$$

The above proves that both P and NP equations can be transformed into isomorphic consistency circle logarithm, which shows the combination and analysis of the zero symmetry of isomorphic circle logarithm under the invariant characteristic mode of "first, second, third,..., Sth" calculus equations.

3.3.3, [P=NP sufficiency proof]

Given P≠NP, the simple equation P and complex equation NP together form a new polynomial (P+NP) and a characteristic module (P_0+NP_0). This transformation establishes a unified dimensionless logical circle logarithm and mutual inverse theorem (the first and second mutual inverse theorems), demonstrating thatP≠NP deterministically projects all elements (maps, morphisms) onto the dimensionless logical circle. The 'dual logic code' grid matrix is constructed, revealing how all numerical logic codes in P≠NP generate asymmetry or potential asymmetric states when balanced at a movable center point. These can be converted into the zero-centered symmetry of the dimensionless logical bit value matrix.

Based on [Theorem 1] continuous spectrum problem and [Theorem 2] integer problem, the polynomial is transformed into an isomorphic dimensionless logical circle.

$$(P)=(1-\eta_{(p)}^2)^{(K=\pm1)}(P_0);$$
$$(NP)=(1-\eta_{(Np)}^2)^{(K=\pm1)}(NP_0);$$
$$(P+NP)=(1-\eta_{(p+NP)}^2)^{(K=\pm1)}(P_0+NP_0);$$

The equation$(1-\eta_{(Np)}^2)^{(K=\pm1)}=(1-\eta_{(p)}^2)^{(K=\pm1)}=(1-\eta_{(Np)}^2)^{(K=\pm1)}$corresponds to the numerical center point $(P_0+NP_0)^{(K=\pm1)(P+NP)}$. Geometrically, this manifests as a non-uniformly distributed perfect circle. The numerical pairs (P+NP) and(P_0+NP_0)form a group combination-equation-function, where the equilibrium of the numerical center point cannot be exchanged, meaning they may not necessarily prove "isomorphism." Many mathematicians find it challenging to overcome the axiomatization hurdle of "numerical analysis cannot be directly exchanged."

"P=NP Verification 1" achieves the balance exchange and random self-validation mechanism through the 'infinite axiom' bit-value center zero-point symmetry and the additive rule of three-dimensional complex analysis.

$$\text{According to}P=(1-\eta_{(p)}^2)^{(K=\pm1)}(P_0)\leftrightarrow(1-\eta_{0(p)}^2)^{(K=\pm1)}(P_{00});$$
$$NP=(1-\eta_{(Np)}^2)^{(K=\pm1)}(NP_0)\leftrightarrow(1-\eta_{0(Np)}^2)^{(K=\pm1)}(NP_{00}),$$
$$\{P+NP\}=(1-\eta_{(Np)}^2)^{(K=\pm1)}(P_0+NP_0)\leftrightarrow(1-\eta_{0(P+Np)}^2)^{(K=\pm1)}(P_{00}+NP_{00}),$$

The distribution of the two center points (P_0 and $\mathbf{NP_0}$) is not uniform, forming an eccentric circle (or two ellipses). ($\mathbf{P_{00}+NP_{00}}$) represents the concentric circle of the two center points ($\mathbf{P_{00}}$ and NP_{00}) with zero-symmetry superposition state."**(P=NP)** Verification of the 2nd-bit value center zero point $\mathbf{(1-\eta_{[C][NP+[NP]]}^2)^{(K=\pm0)[P+NP]}}$exchange and self-validation rule:

Under the condition of isomorphic circle logarithm, the mutual exchange of central zero symmetry and the self-proving mechanism of the 'infinite axiom

$$'(\mathbf{1-\eta_{[P]}{}^2})^{(K=+1)[P]}\leftrightarrow(\mathbf{1-\eta_{0[C][NP+[NP]]}{}^2})^{(K=\pm0)[P+NP]}\leftrightarrow(\mathbf{1-\eta_{[NP]}{}^2})^{(K=-1)[NP]};$$

Under the condition of isomorphic circle logarithm, the mutual exchange of central zero symmetry and the self-proving mechanism of the 'infinite axiom'

Special: All algebraic varieties or arbitrary geometric spaces, as algebraic varieties$P=(1-\eta_{(p)}{}^2)^{(K=\pm1)}(P_0)$ and $NP=(1-\eta_{(Np)}{}^2)^{(K=\pm1)}(NP_0)$ cannot be directly exchanged. Only when all are transformed into $(1-\eta_0(p)^2)(K=\pm1)(P_{00})$ do they become two uniformly distributed positive circles, enabling the "superposition of center-zero symmetry." This still requires balancing through $\mathbf{(1-\eta_{0[C][NP+[NP]]}{}^2)^{(K=\pm0)[P+NP]}}$ (P_{00} and NP_{00}) to achieve "concentric positive circles with center-zero points." The $\mathbf{(1-\eta_{0[C][NP+[NP]]}{}^2)^{(K=\pm0)[P+NP]}}$ equilibrium state of the center-zero point superposition corresponding to the dimensionless logical circle reflects the complete isomorphism **(P+NP)**center-zero point symmetry of the "concentric circles" in the dimensionless logical circle. This maximizes the conversion points of balanced exchange combination decomposition and random self-validation error correction mechanisms.

3.3.4 Polynomial Time Isomorphism:

[Auxiliary Proof]: The dual-logic (numerical/bitwise) code grid matrix.

In 1975, Beman and Hartmanis (known as the BH conjecture) proposed the existence of a pair of functions G() and F(·), where G(·) is the inverse function of F(). Based on the distinct sparsity and density of G(·) and F(·), they termed the "even-term asymmetry" in the 2-center decomposition of resolution, noting that no one-to-one correspondence exists between them. Furthermore, G(·) and F(·) are axiomatically restricted and non-commutative. The BH conjecture asserts that all NP-complete problems are polynomial-time isomorphic, thereby proving P=NP.

The reality is more complex. As illustrated in the 7-ary number grid matrix, the central point exhibits multiple asymmetric distributions on both sides of the equilibrium, such as "1-6", "2-5", and "3-4", making it challenging to achieve P=NP.

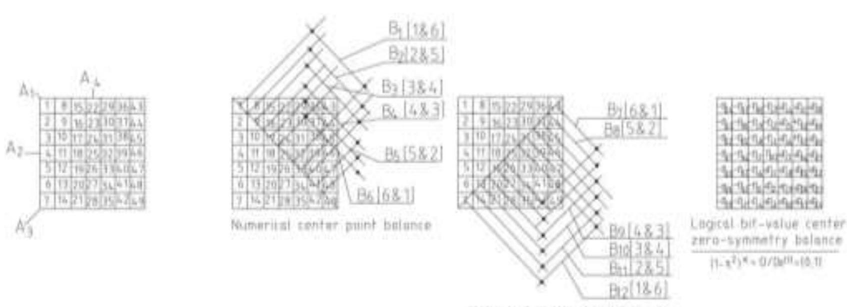
The dual-logic grid network establishes the feasibility of data multiplication-combination compression, where the "numerical center point" exhibits mobility while maintaining non-exchangeable balanced asymmetry. By applying the "multiplication-combination unit divided by addition-combination unit" principle, it generates a dimensionless logical circle structure that introduces "bit-value center zero point" symmetry. This enables interpretable and robust balanced exchange combinations, complemented by a randomized self-validation error-correction mechanism to ensure zero-error operations throughout mathematical-artificial intelligence processes.

Demonstration example: Based on the complex analysis of three-dimensional physical space represented by "seven-element numbers", a three-dimensional biological double-helix DNA-RNA engineering system is simulated. This system comprises seven arrays forming a double-code matrix (1 to 49) with 7×49=343 information characters. The matrix features a "double-code" logical (numerical/bit value) grid network, where the central point's numerical characteristic modulus Do=25. Four logical A (horizontal/vertical quadruples) and B (diagonal quadruples) are converted into four logical values corresponding to seven code sequences of information character density (Figure 3).

The logical numerical grid is composed of the numerical center point [ηΔ[C]=25] whose total elements of the corresponding true proposition remain unchanged.

$$\{1,2,3,4,5,6,7,8,9,10,\ldots,[\eta_{\Delta[C]}=25],\ldots,41,42,43,44,45,46,47,48,49\};$$

The logic bit value grid: The matrix of "four logic values" is composed of "self-multiplication combination divided



(Figure 3) Schematic diagram of the matrix of seven-valued dual logic (numerical/bit value) code grid

by self-addition combination" to obtain the dimensionless logic bit value code, which forms the zero point of the bit value code $[\eta_{[C]}=0]$ corresponding to "seven-element characteristic modulus (arithmetic average)".

$$\eta_{A1}=\{(-\eta_1,-\eta_2,\ldots,-\eta_6)^{(K=+1)},[\eta_{[C]}=0],(+\eta_1,+\eta_2,\ldots,+\eta_6)^{(K=-1)}\};$$

It shows that the logic code matrix produces four logical values, the numerical logic code is symmetric and asymmetric distribution, and the center zero point symmetry is converted into the logic bit value code.

The grid network forms a "four-logic value" through vertical, horizontal, or diagonal lines. In third-generation artificial intelligence, it integrates logic gates (AND, OR, NOT) to achieve "high-density information transmission." This system simulates "seven-element dual-logic (numerical/bit) codes," enabling both compressed $\{7\}^{\wedge 2n}$ qubit combinations for information transmission and $\{7\}^{\wedge 2n}$ qubit computations for analysis. The logical numerical code can be converted into a bit value code, as shown in the table (Figure 4), which now transforms G(·) and F(·) into a dimensionless logical circular exchange to stabilize numerical values. This introduces isomorphic dimensionless logic: G(·)·F(·)=GF(·)=1;

$$G(\cdot)\cdot F(\cdot)=(1-\eta^2)^{(K=\pm1)}GF(\cdot);$$

$$G(\cdot)=(1-\eta^2)^{(K=+1)}GF(\cdot);\quad F(\cdot)=(1-\eta^2)^{(K=-1)}GF(\cdot);$$

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

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

Specifically, the equation $(1-\eta_{[C]}{}^2)^{(K=\pm0)}=0$ corresponds to GF(·). By converting the numerical code asymmetry (P=NP) into bit-value code symmetry, a balanced exchange and self-validation mechanism can be implemented, thereby satisfying (P=NP).

Convert logical numeric code to logical bit value code (Figure 4)

(Figure 4) Conversion of logical value codes to bit value codes

3.3.6，复杂电路的同构性

Mathematics-AI determines that the problem corresponds to a**{0,1}** symbol set, where each**{0,1}** symbol set can be associated with a Boolean function {fn}. The function $\{\mathbf{f_n}\}(x_1x_2\ldots x_n)$ is converted into a logical code $\{\mathbf{f_n}\}(1,2,\ldots n)$ that forms a matrix $(n\times n=n^2)$.

In third-generation artificial intelligence, the dual-logic code matrix employs a symmetrical combination of A (horizontal/vertical) and diagonal lines to form "four-logic values" that work with the logic gate "1000↔(0/1)↔0111" to create: AND gate (multiplication combination)↔NOT gate (balance, random truth verification error correction)↔OR (addition combination). Here, (0/1) becomes a high-density information transmission containing "seven-element numbers," not only enhancing "high-density information transmission" but also ensuring zero-error deduction in every step of mathematical-ai processes.

	A纵横向对应特征模中心点对称性				B斜线向对应系列特征模中心零对称性	
	$\{1-\eta_{[\ldots]}{}^2\}^k$		$\{1-\eta_{[\ldots]}{}^2\}^k$		$\{1-\eta_{[\ldots]}{}^2\}^k$	
1	A₁=253,586,125	A₅=118,514,880	$\{1-\eta_1{}^2\}^k$=0.042	$\{1-\eta_5\}^k$=0.019	389,509,120	$\{1-\eta_1{}^2\}^k$=0.216
2	A₂=1,136,678,400	A₆=323,516,160	$\{1-\eta_2\}^k$=0.186	$\{1-\eta_6\}^k$=0.053	525,404,880	$\{1-\eta_2\}^k$=0.270
3	A₃=2,131,900,225	A₇=648,862,400	$\{1-\eta_3\}^k$=0.349	$\{1-\eta_7\}^k$=0.106	709,430,400	$\{1-\eta_3\}^k$=0.258
4	A₄=5,967,561,600	A₈=1,297,684,800	$\{1-\eta_4\}^k$=0.978	$\{1-\eta_8\}^k$=0.213	949,625,600	$\{1-\eta_4\}^k$=0.213
5		A₉=2,818,133,440		$\{1-\eta_9\}^k$=0.461	1,257,268,320	$\{1-\eta_5\}^k$=0.154
6		A₁₀=4,150,656,720		$\{1-\eta_{10}\}^k$=0.680	1,646,023,680	$\{1-\eta_6\}^k$=0.094
7		A₁₁=5040		$\{1-\eta_{11}\}^k$=0.000	574,741,440	$\{1-\eta_7\}^k$=0.270
8		A₁₂=17,297,280		$\{1-\eta_{12}\}^k$=0.002	935,543,760	$\{1-\eta_8\}^k$=0.206
9		A₁₃=586,051,200		$\{1-\eta_{13}\}^k$=0.096	1,297,900,800	$\{1-\eta_9\}^k$=0.156
10		A₁₄=33,891,580,800		$\{1-\eta_{14}\}^k$=5.552	1,574,773,200	$\{1-\eta_{10}\}^k$=0.116
11		A₁₅=135,970,773,120		$\{1-\eta_{15}\}^k$=22.277	1,646,730,540	$\{1-\eta_{11}\}^k$=0.086
12		A₁₆=632,937,943,360		$\{1-\eta_{16}\}^k$=70.933	1,321,205,760	$\{1-\eta_{12}\}^k$=0.064

说明：逻辑数值为七元数请乘　　$\{1-\eta_{[\ldots]}{}^2\}^k$= 逻辑位值为逻辑数值七元数乘数值／逻辑七数值算术平均值

This system simulates the "seven-element dual-logic (numerical/bit value) code", which resolves the information transmission for $\{7\}^{\wedge\mathbf{2n}}$ qubit combinations (compression) and supports $\{7\}^{\wedge\mathbf{2n}}$ qubit computations (decoding).

The reversible conversion between dual-logic codes demonstrates the integration of classical analysis and logical analysis. Any complex polynomial (true proposition) **NP** can be transformed into a simple logical code **P** through the following relationships: $\{\mathbf{P}_0{}^{(P)}\}/NP_0{}^{(NP)}\}$ (for AND gates), ,$\{\mathbf{P}_{00}{}^{(P)}\}/NP_{00}{}^{(NP)}\}$ (for OR gates), and $(1-\boldsymbol{\eta}_{[C][P+NP]}{}^2)=0$(for balanced, random true proof, NOT gates). These relationships establish the feasibility, reliability, robustness, and interpretability of AI's deductive reasoning for true propositions.

$$\mathbf{P}=(1-\boldsymbol{\eta}_{[P]}{}^2)(\mathbf{P_0});\quad \mathbf{NP}=(1-\boldsymbol{\eta}_{[NP]}{}^2)(\mathbf{NP_0});$$

$$(\mathbf{1}-\boldsymbol{\eta}_{[P]}{}^2)=(\mathbf{P}/\mathbf{P_0});\ (\mathbf{1}-\boldsymbol{\eta}_{[NP]}{}^2)=((\mathbf{NP}/\mathbf{NP_0});$$

$$(\mathbf{1}-\boldsymbol{\eta}_{0[P]}{}^2)=(\mathbf{P}/\mathbf{P_{00}});\ (\mathbf{1}-\boldsymbol{\eta}_{[NP]}{}^2)=((\mathbf{NP_0}/\mathbf{NP_{00}});$$

The characteristic module comparison under the same isomorphic circle logarithm generates parameters, processing the relationship between the characteristic module of true propositions and the characteristic module of logical code. For example, the comparison coefficient between the characteristic module of true propositions and the logical code is Ω∈(α or β). Under the same (S) and the same dimensionless logical circle, they can be mutually interchangeable, converting the logical code into true propositions.

equal：$(1-\boldsymbol{\eta}_{[P]}{}^2)=(1-\boldsymbol{\eta}_{[NP]}{}^2)$，get **Ω∈(α or β)**

$$\Omega\in(\alpha \text{ or } \beta)=(1-\eta_{[P+NP]}^2)=(P_0/NP_0)=\{D_0^{(P)}\}/\{D_0^{(NP)}\}=\{D_{00}^{(P)}\}/\{D_{00}^{(NP)}\};$$

Where: **(α)** represents parameters with symmetric distribution of numerical center points, such as the numerical values (multiplication combination) in the grid matrix's longitudinal and transverse directions. **(β)** represents parameters with asymmetric distribution of numerical center points, such as the numerical values (addition combination) in the diagonal direction of the grid matrix.

The three-dimensional physical space serves as the essential foundation for third-generation AI to conduct 3D data searches, perform native data processing, and establish complex 3D analysis. Utilizing a 3×3=9 grid matrix, it systematically organizes four logical value AB items through vertical, horizontal, and diagonal orientations (including symmetric and asymmetric configurations) to form code matrix sequences. These sequences correspond to Turing machine logic gates: "(1000)$^{(K=+1)}$ AND gate (logical value multiplication combination) , "(0111) $^{(K=-1)}$OR gate (logical bit value addition combination", and "(0000) $^{(K=\pm0)}$ NOT gate (AB $^{(K=\pm0)}$)and ($\pm\eta_{[C]}=0$) $^{(K=\pm0)}$ balanced conversion with random self-validation error correction mechanism)". These components collectively define the shared numerical center points and bit value zero points for characteristic mode comparison in complex 3D analysis.

$$\leftrightarrow(1-\eta_{[C]/jik/}^2)^{(K=+1)}=(1000)\leftrightarrow(1-\eta_{\Delta C/jik/}^2)^{(K=\pm0)}=(0000)\leftrightarrow(1-\eta_{[C]/jik/}^2)^{(K=-1)}=(0111)\leftrightarrow;$$

According to the principle of the calculation time of the circular logarithm isomorphism consistency, the corresponding computer (0/1) complex circuit, relying on the dimensionless logic circle mathematics foundation, from voltage, current, capacitance, resistance, inductor to carry out unified design, the traditional (0/1) low density information transmission symbol is reformed into high density information transmission symbol, fundamentally subverts the chip design principle.

The inverse transformation of the grid matrix shows the fusion of "classical analysis and logical analysis", and proves that the mathematical-artificial intelligence can only get the zero error precise solution by the combination of the two and the infinite axiom if the separate operation of the two cannot get satisfactory results.

The use of the dimensionless logic code grid matrix sequence not only adapts to (symmetry) big data, big models, images, audio, video, information high-density transmission,..., but also adapts to (asymmetry) various different requirements of three-dimensional neural network, information network deduction.

Arbitrary polynomial equations (calculus, complex analysis) demonstrate that any polynomial (P+NP), (P), (NP) exhibit dimensionless logical circle logarithmic isomorphism, corresponding to their respective characteristic modes, shared numerical center points, and conjugate bit-value center zeros. This demonstrates a 'dual logical code' reciprocal conversion, reflecting the principle of

↔The exchange of balance asymmetry in logical value codes ↔ **0000**

↔ the balance symmetry of dimensionless logical bit value codes ↔

It shows that '(P+NP), (P), (NP),' calculus equations (N=±0,1,2,...)/t, and system control equations all share dimensionless logical circle isomorphism with consistent computational time under the same invariant characteristic mode. The operational differences arise from the ratio between characteristic modes, which constitutes a constant.

In other words, under the condition of invariant characteristic modes, the equation is transformed into a dimensionless circular logarithmic framework. This framework ensures consistent computational efficiency for solving differential equations, system control equations, "simple (P) equations," and "complex (NP) equations." The zero point at the center of the circular logarithm facilitates balanced exchange combinations and random self-validation mechanisms for shared characteristic mode symmetry. This approach is termed the dimensionless logic "infinite axiom," which transcends traditional axmioatic constraints and embodies AI technology with completeness, interpretability, and robustness.

The dimensionless logical equilibrium exchange rule: Based on invariant (infinite) true propositions (group combination mean functions) and consistent computational time for isomorphic circle logarithms, along with the zero-point symmetry of circle logarithm centers. Utilizing the 'infinite axiom' mechanism, it facilitates the random equilibrium exchange decomposition and self-validation of 'arbitrary equations-big data models' (both internal and external) through numerical center points (critical lines) and positional zero points (critical points).

Conclusion: For deterministically analyzable simple polynomials (P) and any finite complex uncertainty polynomials (NP) in the infinite domain, under identical dimensional power conditions, the original proposition of the physical world (infinite) remains unchanged. All elements (regardless of their distance magnitudes, varying degrees of sparsity, or non-uniform distribution) maintain the same number of elements (with geometric spatial boundary functions remaining invariant) at equal power dimensions. The natural sequence of logical natural numbers (or other private sequences) is simulated as code sequences, forming ordered numerical matrices.

The resolution **2** corresponds to the numerical center point [ΔC] ($1-\eta_{\Delta C}^2$), decomposed into two balanced asymmetric subset matrices. Through "multiplication and addition" one-to-one correspondence comparisons, it transforms into dimensionless isomorphic logical code bit values and central zero points ($1-\eta_{[C]}^2$) balanced symmetry. Combining the 'infinite axiom', 'dual logic code', two-dimensional/three-dimensional complex analysis rules, and random self-valid ation error correction mechanisms, zero-error deduction is achieved.

The proof of the P=NP complete problem of isomorphism consistency of computation time is given, and the isomorphism theorem of dimensionless logic is formed by the connection with the design of artificial intelligence computer chip circuit.

The Langlands Program posits that arbitrary functions (in algebra, arithmetic, geometry, and group theory) can be processed through dimensionless logical circular methods. This approach preserves the mathematical-ai invariant nature by maintaining "invariant (infinite) true propositions," thereby circumventing challenges related to "infinite, irrational numbers, and arbitrarily digitizable objects." Furthermore, the "dual logic code," complex analysis rules, and stochastic self-validation mechanisms are employed to minimize interference from (internal and external) concrete elements and information, as well as contradictions arising from various complex problems.

The isomorphism theorem, as a foundational mathematical principle, can resolve a series of (infinite) mathematical challenges and address the difficulty of transmitting information density in artificial intelligence logic gates. It fundamentally enhances algorithms, computing power, data processing, and the fabrication methods of three-dimensional chip architectures. This advancement can be extended to algorithmic applications in other scientific fields, significantly transforming the traditional low-efficiency, low-performance, and high-consumption application environment of mathematics and artificial intelligence.

3.4, [Theorem 4] BSD Conjecture-Dimensionless Logic Circle and Calculus Reform

3.4.1 Historical Background of BSD Conjecture

The BSD conjecture, formally known as the Birch and Swinnerton-Dyer conjecture, is one of the seven major unsolved mathematical problems. It describes the relationship between the arithmetic properties (commonly called 'additive properties') and the analytic properties (commonly called 'multiplicative properties') of abelian varieties.

The arithmetic properties of Abelian varieties are intrinsically linked to the geometric structure of their moduli spaces, with research focusing on concepts such as lifting properties, singular rationality, rationality, and weak approximation. An Abelian variety is a complete group scheme of geometrically integral over a field, which is necessarily projective, smooth, and commutative. Elliptic curves serve as a prime example of Abelian varieties. Their Abelian variety is both an algebraic group and a complete algebraic variety. The completeness condition imposes strict constraints on Abelian varieties, enabling them to be embedded as closed subvarieties in projective spaces. Non-singular Abelian varieties are characterized by every rational map being regular, and the group law on Abelian varieties is commutative.

In abelian varieties, 'arithmeticity' mainly involves the following aspects: Arithmetic Rank Bound: In the study of arithmetic rank bounds of abelian varieties over function fields, it involves identifying categories of tangent segments and exceptional tangent planes, as well as analogical relationships obtained through appropriate sorting calculations. These relationships preserve intersection numbers and are related to the computation of mappings and intersection numbers. Geometric Structure of Moduli Spaces: The arithmetic properties of abelian varieties are closely related to the geometric structure of their moduli spaces. For example, the birational geometry of the coarse moduli space of principally polarized abelian varieties (ppavs) over the field of rational numbers, as well as the study of lifts and other arithmetic properties of ppavs themselves, all fall within the scope of arithmeticity. Lifting Properties: For high-dimensional abelian varieties, arithmeticity also involves whether abelian varieties can be lifted from finite fields to the field of rational numbers or p-adic fields. For instance, abelian varieties equipped with a principal polarization can sometimes be lifted to the field of rational numbers.

Rationality and Singular Rationality: The arithmetic properties of Abelian varieties are closely tied to their rationality and singular rationality. For instance, certain Abelian varieties exhibit singular rationality in their moduli spaces under specific conditions, which is intrinsically linked to their arithmetic properties. Super-singular Abelian Varieties: The arithmetic theory of super-singular Abelian varieties is also a subject of study, though specific details are not elaborated in the search results5. In summary, the concept of "arithmeticity" in Abelian varieties is broad, encompassing multiple aspects from geometric structures to arithmetic properties, including lifting properties, rationality, singular rationality, and arithmetic problems related to moduli spaces. Research into these properties and structures contributes to a deeper understanding of the intrinsic characteristics of Abelian varieties and their applications in mathematics.

The arithmetic properties of abelian varieties constitute a complex and profound research domain, involving multiple aspects of mathematical theories and methods. Given an abelian variety over an integral domain, it is conjectured that the rank of its moduloid group equals the order of its L-function at zero, and that the leading term coefficient of its L-function's Taylor expansion at zero has precise equalities with the size of the finite part, the volume of the free part, the periods of all prime positions, and the sand group. The first half of this conjecture is commonly referred to as the weak BSD conjecture. The BSD conjecture is a generalization of the number of classes formula for cyclotomic fields. Gross proposed a refined BSD conjecture. Bloch and Kato introduced a more general Bloch-Kato conjecture for motives. In the mathematical analysis of algebraic varieties, the Taylor expansion is a method of representing functions as infinite series, which approximates functions through derivatives (dx/dt, d^2x/dt^2, d^3x/dt^3,...) or integral forms ($\int f(x)'\,dt$, $\int^2 f(x)''dt^2$, $\int^3 f(x)'''dx^3$,...) at a certain point (typically the arithmetic mean, single-variable point, or zero point on elliptic functions). This approach inevitably introduces polynomial "residues" in calculus, for which no elimination method exists.

BSD conjecture extends the class number formula from the division ring domain. These problems can be addressed through "mathematical models without specific (mass) element content that are analytically defined in {0,1}." In layman's terms: how any function (algebraic geometry) approaches the uniform circular function. The general analysis of arbitrary functions employs the concept of elliptic curves, where "points" are defined as multivariable combinations of unit cells: $dX= (S)\sqrt{(abc...s)}$; $dy= (1/s)\{a+b+c+...+s\}$. The balance transformation relationship between {dx/dy} and the Taylor-McLaurin formula of differential equations can be developed with zero error.

From the point of view of Taylor-McLaughlin expansion, the paper proves that the "classical analysis and logical analysis" of BSD conjecture is equivalent to the completeness of the mechanism of "projective, smooth, exchange and self-proving" between "ellipse (eccentric circle) and center circle (concentric circle)".

The general form of Taylor-McLaurin expansion is equivalent to the polynomial of calculus, which is the basis of calculus calculation:

$$f(x)=f(a)+f'(a)(x-a)+2!f''(a)(x-a)^2+3!f'''(a)(x-a)^3+\ldots+(\mathbf{Rn(x)})$$
$$=\mathbf{A}f(a)+\mathbf{B}f'(a)(x-a)+\mathbf{C}f''(a)(x-a)^2+\mathbf{D}f'''(a)(x-a)^3+\ldots+(\mathbf{Rn(x)});$$

A, B. C. D... represents the relationship between the coefficients of the Taylor-McLaurin polynomial series and their derivatives:

A=1; corresponds to the combination of multiplication (calculus unit $dx=\{(^{(S)}\sqrt{(abc...s)}\}^{(1)})$;

$B=[(1/s)\{a+b+c+...+s\}]^K$ {number of elements plus combination form q=1 (elements are one and one "1-1" addition),corresponds to f ');

$C=[((2!/(s-0)(S-1)!)]^K\prod_{[q=2]}\{ab+bc+cd+...\}=\{D_0^{(2)}\}$ {number of elements plus combination form q=2 (elements are two and two "2-2" multiplication), corresponds to f '");

$D=[3!/(s-0)(S-1)9S-2)]^K\prod_{[q=P]}\{abc+bcd+cde+...\}=\{D_0^{(3)}\}$ {number of elements plus combination form q=3 (elements are three and three" 3-3 "multiplication), corresponds to f'");...;

$P=[((P-1)!/(s-0)!)]^K\prod_{[q=P]}\{ab...s+bc...s+cd...s+...\}=\{D_0^{(P-1)}\}$ {number of elements plus combination form q=P (elements are p and p "p-p" multiplication), corresponds to $f_{(P-1)}$; (P=0,1,2,3,4,5,...n infinitely).

The nth derivative of the traditional function (f) at point (a). The first (n+1) terms of this series constitute the nth-order Taylor polynomial of (f) at (a), while the remaining infinite terms are termed the remainder terms (Rn(x)) of the Taylor expansion.

The significance of the open residual term lies in its provision of an approximation error estimate. Complex iterative methods (including Turing machine iteration programs) employed for "approximate computation" within finite ranges cannot achieve zero-error results at every step. Consequently, the mathematical community holds that the Taylor series formula is a representation of a function's values in its vicinity using information at a specific point. If the function is sufficiently smooth, given the known values of its derivatives at a certain point, the Taylor series can be constructed using these derivative values as coefficients to approximate the function's values in the neighborhood of that point. The expansion of the Taylor series and the BSD conjecture have become century-defining challenges in artificial intelligence. Particularly, proving how to handle the mutual conversion between "even and odd symmetry" generated by "multiplication and addition," as well as eliminating the connection between the residual terms (Rn(x)) of the Taylor series and right-angled triangles, remain critical issues.

In layman's terms, the BSD conjecture aims to determine the optimal method to achieve an integer expansion of the Taylor-McLaurin formula's infinite series without residual terms. This involves modifying the dynamics of calculus and system control equations, with homotopy, homology, and isomorphism proofs that maintain isomorphism and consistency. Put simply, it explores how to establish connections between arbitrary geometric spaces and "concentric circles," thereby overcoming the challenges of group multivariable element analysis in calculus.

Based on the connection between Taylor-McClaurin formula and calculus, it has become a crucial source of calculus theory. Once a reliable method to eliminate the 'residual term' is obtained, the integral equation of any group with different variables can be solved. Under the condition of maintaining the total number of elements unchanged, the multiplication and combination of subterms proceed sequentially without repetition. Various combinations form the order of terms, resulting in deterministic first-and second-order calculus. The hierarchical structure of neural networks and information networks is transformed into numerical characteristic modes and dimensionless logical operations within the {0,1} range.

The specific method: Taylor-McLaughlin formula f(x) represents the combination of different variables, with each sub-term in calculus being the dynamic change of the distance from the center zero point on (positive circle, concentric circles) in the form of different variables and different combinations of group combinations.

(1) ，The group numerical center point and the surrounding different elements change synchronously, in the mode of $(1-\eta^2)^K f(x_0)$ (ellipse, eccentric circle);

(2) ，Convert the numerical value $\mathbf{(1-\eta^2)^K f(x_0)}$ (ellipse or eccentric circle) to the bit value $\mathbf{(1-\eta_{00}^2)^K f(x_{00})}$ (perfect circle or concentric circles) mode.

(3) ，The relationship between the symmetry of the center of the group position value and the surrounding different

elements is analyzed. The root element is expressed by the mode $\mathbf{(1-\eta_{00}^2)^K f(x_{00})}$.

This is a complex analysis method of dimensionless logical circle, which connects the zero error relation of the integral change of calculus, drives the thorough reform of calculus, and also fundamentally drives the reform of artificial intelligence algorithm to improve computing power, which may be the positive significance of proving BSD conjecture.

According to [Theorem 1], [Theorem 2], [Theorem 3], it is easy to prove that the differential dynamic equation and the root element differential have the isomorphism and synchronization expansion, and the iteration method is abandoned. The Taylor formula is related to the dimensionless circle logarithm, and it is written as:

$$f(x)=f(a_0)+f'(a)(x-a_0)+2!f''(a)(x-a_0)^2+3!f'''(a)(x-a_0)^3+\ldots+(Rn(x))$$
$$=Af(a_0)+Bf'(a_0)(x-a_0)+Cf''(a)(x-a_0)^2+Df'''(a)(x-a_0)^3+\ldots+(Rn(x))$$
$$=(1-\eta^2)^K f(x_0)^{K(N=\pm 0,1,2,\ldots n)\pm(S)\pm(q=1,2,3,\ldots infinite)}$$
$$=(1-\eta_{00}^2)^K f(x_{00})^{K(N=\pm 0,1,2,\ldots n)\pm(S)\pm(q=1,2,3,\ldots infinite)};$$

or ： $$f(x)=(1-\eta_{00}^2)^K f(x_{00})^{K\pm(S)\pm(q=1,2,3,\ldots infinite)};$$

Here, $\mathbf{f(x_0)}$represents the "elliptic" form of a normal circular distribution with classical analytical characteristics, while $\mathbf{f(x_{00})}$ denotes the "concentric circle" form of a normal circular distribution with logical analytical features. $\mathbf{(a_0)}$ indicates the tangent point, tangent plane, or numerical center point of a function. The calculus symbol is written as **(N=±0,1,2)，** where "0,1,2,3...n" represents the hierarchy of three-dimensional neural networks and information networks. Calculus indicates that under the condition of constant total elements (S) in polynomial (group combination), the first-order calculus f' or $\int^{(1)}$ is (N=±1)(q=1) "1-1" combination form, and the second-order calculus f "or $\int^{(2)}$ is (N=±2)(q=2)" 2-2" combination form.

The specific meaning of calculus is the concentric circles, the elements are distributed on the concentric circles, the elements are distributed unevenly, and the concentric circles are transformed into the uniform distribution of (two-dimensional, three-dimensional) positive circular plane through the logarithm of circle.

3.4.2. Necessity Proof of BSD Conjecture

Given a boundary function {S} of any high-dimensional power (S) and two variables: the geometric mean of $^{\{S\}}\sqrt{\mathbf{D}}$ and the arithmetic mean of $\mathbf{\{Do\}^{(S)}}$, a dimensionless logical circle can be established for analysis. Furthermore, any function can be decomposed into non-repeating subterms through multiplicative combinations, exhibiting a normalized (normal distribution) distribution of polynomial combination coefficients in calculus.

The characteristic of calculus operation is that the combination of each term is kept unchanged, isomorphism, homotopy, homology, characteristic module (boundary function) are kept unchanged, and the operation of dimensionless logical circle {0,1} is kept unchanged.

The BSD conjecture and the necessary proof of calculus employ a dimensionless logical circle, tracing the path of integration from any function (algebraic, geometric, number theory, or group) to the "uniform distribution function of concentric circles." This function exhibits isomorphic, homotopic, and homoeomorphic properties, expressed as concentric circles. Under boundary function invariance, the dimensionless logical circle reaches its maximum at ±1 and minimum at ±0 (referred to as limit points, transition points, phase transition points, or zero-valued center points).

Under uniform distribution of a perfect circle (referred to as a concentric circle), the angular function (or weight) corresponding to the rotation of each radius level at the bit value center zero point exhibits synchronous variation with the boundary function. Similarly, under non-uniform distribution of a perfect circle (ellipse), the angular function (or weight) corresponding to the rotation of each radius level at the bit value center zero point cannot exhibit synchronous variation with the boundary function.

Current mathematical computations are grounded in classical analysis centered on ellipses, which creates significant challenges when integrating with the arithmetic properties of Abel algebra. Drawing parallels between the BSD conjecture and Taylor's formula, we select the unitary multiplication combination $^{(S)}\sqrt{(abc\ldots s)}^{(K=\pm 1)(S)}$. The real number set's power set $\mathbf{R}^{K[P(\aleph)]}$ and the natural number set's power set $\mathbf{N}^{K[P(\omega)]}$ exhibit identical power sets (S), each corresponding to the same dimensionless logical circle power function.

found：$dx=\{x_0^{(1)}\}={}^{(S)}\sqrt{(abc\ldots s)}^{(K=\pm1)}=[{}^{(S)}\sqrt{(abc\ldots s)}^{(K=+1)}\cdot{}^{(S)}\sqrt{(abc\ldots s)}^{(K=-1)}]^{(S=1)}$，（Combination $R^{K[P(\aleph)]=(S=0,1,2,3\ldots 无穷)}$）；

$dx=\{x_0^{(1)}\}^{(K=+1)(S)}=[(1/S)(a+b+c\ldots+s)]^{(K=+1)(S=1)}$；（Add combination $N^{K[P(\omega)]=(S=0,1,2,3\ldots 无穷)}$）；

$\{x_0^{(1)}\}^{(K=-1)(S)}=[(1/S)(1/a+1/b+1/c\ldots+1/s)]^{(K=+1)(S)}=[(1/S)(a\ldots s+b\ldots s+c\ldots s+\ldots+s\ldots a)]^{(K=+1)(S=1)}$;

$\{x_0^{(2)}\}^{(K=+1)(S)}=[(2!/(S-0)!](ab+bc+ca\ldots+sa)]^{(K=+1)(S=2)}$;

$\{x_0^{(2)}\}^{(K=-1)(S)}=[(2!/(S-0)!](1/ab+1/bc+1/ca\ldots+1/sa)]^{(K=-1)(S=2)}$;

$\{x_0^{(3)}\}^{(K=+1)(S)}=[(3!/(S-0)!](ab+bc+\ldots+sa)]^{(K=+1)(S=3)}$;

$\{x_0^{(3)}\}^{(K=-1)(S)}=[(3!/(S-0)!](1/ab+1/bc+\ldots+1/sa)]^{(K=-1)(S=3)}$;

$\{x_0^{(P)}\}^{(K=+1)(S)}=[(P-1)!/(S-0)!](ab+bc+ca\ldots+sa)]^{(K=+1)(S)=p}$;

$\{x_0^{(P)}\}^{(K=-1)(S)}=[(P-1)!/(S-0)!](1/ab+1/bc+1/ca\ldots+1/sa)]^{(K=-1)(S=p)}$;

$\{x_{00}^{(P)}\}^{(K=\pm1)(S)}=\{R_{00}^{(P)}\}^{(K=\pm1)(S)}$;Represents the central circle (uniform circle) (i.e., the algebraic variety with radius $\{R_{00}^{(P)}\}$ and arithmetic addition operation)；

inside：$(P-1)!/(S-0)!=[(P-1)/(P-2)\ldots3\cdot2\cdot1!]\,/\,[(S-0)(S-1)\ldots3\cdot2\cdot1!]$ (P-1)!factorial of order;(S-0)!Power of the rank of the permutation。

According to the reciprocity theorem, we have: $(1-\eta^2)^K=\{{}^{(S)}\sqrt{(abc\ldots s)}^{(K=\pm1)}/\{x_0^{(1)}\}^{(K=-1)}\}^{(S)}$;

Add combination corresponding to (positive circular non-uniform distribution, ellipse) unit body**Do**;

Add (centered uniform circle) cell **Doo**;T he connection between the two: $\mathbf{(1-\eta_{00}{}^2)^K=Do/Doo}$；

[Proof 3.1], first-order differential (N=-1)/t form: (/t) is temporarily omitted, the same applies below.

The differential symbol ∂t is expressed as a positive power function (K=+1) or negative power function (K=-1)/t (the division sign /t is omitted here, and the same applies below).

$$\partial\{x^{(S)}\}=\partial(abc\ldots s)^{(K=+1)(S)}\cdot\partial x^{(K=-1)(S)}=\{x^{(S)}\}^{(K=+1)(N=-1)(S)}$$
$$=[(abc\ldots s)/\{x_0^{(1)}\}]^{(K=+1)(N=-1)(S)}\cdot\{x_0^{(1)}\}^{(K=+1)(N=-1)(S)}\cdot x^{(K=-1)(N=-1)(S)}$$
$$=[\{x_0^{(1)}\}/(abc\ldots s)]^{(K=-1)(N=-1)(S)}\cdot\{x_0^{(1)}\}^{(K=+1)(N=-1)(S)}\cdot x^{(K=-1)(N=-1)(S)}$$
$$=[(1/S)(1/a\ldots s+1/b\ldots s+1/c\ldots s)+1/s\ldots a]^{(K=-1)(N=-1)(S\pm(q=1))}\cdot x_0^{(K=-1)(S\pm(q=1))}\cdot x^{(K=-1)(N=-1)(S)}$$
$$=[(1/S)(1/a+1/b+1/c)+\ldots+1/s]^{(K=-1)(N=-1)(S\pm(q=1))}\cdot x_0^{(K=-1)(S\pm(q=1))}\cdot x^{(K=-1)(N=-1)(S)}$$
;Move x $x^{(K=-1)(N=-1)(S)}$ to the left side of the equation to obtain the inverse theorem of differential equations:

$$(1-\eta^2)^K=\{x_0^{(1)}\}^{(K=+1)(N=-1)(S)}\cdot\{x_0^{(1)}\}^{(K=+1)(N=-1)(S)}=\{x\}^{(K=-1)(N=-1)(S)}\cdot\{x\}^{(K=+1)(N=-1)(S)}$$

Get the first-order differential equation:

$$\{x\}^{(K=-1)(N=-1)(S\pm(q=1))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=+1)(N=--1)](S\pm(q=1))};$$

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$$\{x\}^{(K=-1)(N=-1)(S\pm(q=1))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=--1)](S\pm(q=1))}$$
$$\leftrightarrow\{(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=0)}\leftrightarrow(1-\eta^2)^{(K=+1)}\}\cdot\{x_0^{(S)}\}^{(K=-1)(N=--1)](S\pm(q=1))}$$
$$(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=--1)](S\pm(q=1))}=\{x\}^{(K=-1)(N=-1)(S\pm(q=1))};$$

First derivative: $(1-\eta_{00}{}^2)^K=[\{\mathbf{x_0}\}/\{\mathbf{x_{00}}\}]^{(S\pm\mathbf{(N=-1)}\pm(q=1))/t}=\{0,1\}$;

Where: (q=1) denotes the [1-1] probability combination of the second term in the polynomial of calculus. $(1-\eta_{00}{}^2)^K$ indicates the relationship between the ellipse and the central circle.

[Proof 3.2], The second-order differential form (N=-2): The differential symbol ∂²t is expressed as (K=+1)(N=-2)/t.

$$\partial^2\{x^{(S)}\}=\partial^2(abc\ldots s)^{(K=+1)(S)}\cdot\partial^2x^{(K=-1)(S)}$$
$$=[(abc\ldots s)/\{x_0^{(2)}\}]^{(K=+1)(N=-2)(S)}\cdot\{x_0^{(2)}\}^{(K=+1)(N=-2)(S)}\cdot x^{(K=-1)(N=-2)(S)}$$
$$=[\{x_0^{(1)}\}/(abc\ldots s)]^{(K=-1)(N=-2)(S)}\cdot\{x_0^{(2)}\}^{(K=+1)(N=-2)(S)}\cdot x^{(K=-1)(N=-2)(S)}$$
$$=[(2!/(S-0)!](1/ab\ldots s+1/bc\ldots s+1/cd\ldots s)+1/ea\ldots s]^{(K=-1)(N=-2)(S\pm(q=2))}\cdot x_0^{(K=-1)(N=-2)(S\pm(q=2))}\cdot x^{(K=-1)(N=-2)(S)}$$
$$=[(2!/(S-0)!](1/ab+1/bc+1/cd)+\ldots+1/sa]^{(K=-1)(N=-2)(S\pm(q=1))}\cdot x_0^{(K=-2)(S\pm(q=1))}\cdot x^{(K=-1)(N=-2)(S)};$$

Move $x^{(K=-1)(N=-2)(S)}$ to the left side of the equation to obtain the inverse theorem of differential equations:

$$(1-\eta^2)^K=\{x_0^{(2)}\}^{(K=+1)(N=-2)(S)}\cdot\{x_0^{(2)}\}^{(K=+1)(N=-2)(S)}=\{x\}^{(K=-1)(N=-1)(S)}\cdot\{x\}^{(K=+1)(N=-2)(S)}$$

second order differential equation：

$$\{x\}^{(K=-1)(N=-2)(S\pm(q=2))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=+1)(N=--2)](S\pm(q=2))};$$

Infinite Axiom Equilibrium Exchange and Random Self-Proof

$$\{x\}^{(K=-1)(N=-2)(S\pm(q=2))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=--2)](S\pm(q=2))}$$
$$\leftrightarrow\{(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=0)}\leftrightarrow(1-\eta^2)^{(K=+1)}\}\cdot\{x_0^{(S)}\}^{(K=-1)(N=--2)](S\pm(q=2))}$$
$$(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=--2)](S\pm(q=2))}=\{x\}^{(K=-1)(N=-2)(S\pm(q=2))};$$

Second-order differential: $(1-\eta_{00}{}^2)^K=[\{\mathbf{x_0}\}/\{\mathbf{x_{00}}\}]^{(S\pm\mathbf{(N=-2)}\pm(q=2))/t}=\{0,1\}$;

The differential equation of second order $(1-\eta^2)^K=[\{D_0\}/\{D_{00}\}]^{\mathbf{(N=-2)}(S\pm(q=2))/t}=1$; (q=2) indicates the [2-2] topological combination of the third term of the calculus polynomial. $(1-\eta_{00}^2)^K$ represents the relationship between the ellipse and the center circle.

[Proof 3.3]: The differential P = S^{-1} (where the second-to-last term of the calculus is a positive power function, ∂P/dt is expressed as (K=+1) (N=-P)/t,

$$\partial^{\mathbf{P}}\{X^{(S)}\}^{(K=+1)}=\partial^{\mathbf{P}}(abc\ldots s)^{(K=\pm1)}$$
$$=[(abc\ldots s)/\{x_0^{(\mathbf{p})}\}]^{(K=+1)(N=-p)(S)}\cdot\{x_0^{(\mathbf{p})}\}^{(K=+1)(N=-p)(S)}\cdot x^{(\mathbf{p})(K=-1)(N=-p)(S)}$$
$$=[\{x_0^{(p)}\}/(abc\ldots s)]^{(K=-1)(N=-p)(S)}\cdot\{x_0^{(\mathbf{p})}\}^{(K=+1)(N=-p)(S)}\cdot x^{(\mathbf{p})(K=-1)(N=-1)(S)}$$
$$=[(P-1)!/(S-0)!](1/ab\ldots s+1/bc\ldots s+1/cd\ldots s)+1/ea\ldots s]^{(K=-1)(N=-p)(S\pm(q=p))}\cdot x_0^{(\mathbf{p})(K=-1)(S)}\cdot x^{(\mathbf{p})(K=-1)(N=-p)(S)}$$
$$=[(P-1!/(S-0)!](1/ab+1/bc+1/cd)+\ldots+1/sa]^{(K=-1)(N=-1)(S\pm(q=1))}\cdot x_0^{(\mathbf{p})(K=-1)(S)}\cdot x^{(\mathbf{p})(K=-1)(N=-p)(S)}$$
$$=[(1/(S)](1/a+1/b+1/c)+\ldots+1/s]^{(K=-1)(N=-1)(S\pm(q=1))}\cdot x_0^{(K=-1)(S\pm(q=1))}\cdot x^{(K=-1)(N=-P)(S)};$$

Move x $^{(K=-1)\,(N=-1)\,(S)}$ to the left side of the equation to obtain the inverse theorem of differential equations:

$$(1-\eta^2)^K=\{x_0^{(p)}\}^{(K=+1)(N=-1)(S)}\cdot\{x_0^{(p)}\}^{(K=+1)(N=-1)(S)}=\{x^{(S)}\}^{(K=-1)(N=-1)(S)}\cdot\{x^{(S)}\}^{(K=+1)(N=-1)(S)}$$

Obtain the P-order differential equation or network hierarchy formula:

$$\{x\}^{(K=-1)(N=-p)(S\pm(q=p))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=+1)(N=--p)](S\pm(q=p))};$$

Infinite Axiom Equilibrium Exchange and Random Self-Proof

$$\{x\}^{(K=-1)(N=-p)(S\pm(q=p))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=--p)](S\pm(q=p))}$$
$$\leftrightarrow\{(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=0)}\leftrightarrow(1-\eta^2)^{(K=+1)}\}\cdot\{x_0^{(S)}\}^{(K=-1)(N=--p)](S\pm(q=p))}$$
$$(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=--2)](S\pm(q=p))}=\{x\}^{(K=-1)(N=-1)(S\pm(q=p))};$$

p-th differential : $(1-\eta_{00}^2)^K=[\{\mathbf{x_0}\}/\{\mathbf{x_{00}}\}]^{(S\pm(\mathbf{N=-p})\pm(q=p))/t}=\{0,1\};$

In this context: the (P)-order $(1-\eta^2)^K=[\{D_0\}/\{D_{00}\}]^{(s\pm(q=p))/t}=1$ or (q=P) denotes the (P-1)-term of the calculus polynomial with [P-P] network hierarchical topology.$(1-\eta_{00}^2)^K$ represents the relationship between the ellipse and the central circle.

[Proof 3.4]: Expressing integrals (of the form (1/2), P-order)**(∫, ∫$^{(2)}$, ∫$^{(p)}$)** as power functions (where K=+1, N=+p)/t Same argument

You can obtain the calculation formulas for each order of the integral equation, and get the P-order integral equation or network-level formula:

$$\{x\}^{(K=-1)(N=+p)(S\pm(q=p))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=+1)(N=+p)](S\pm(q=p))};$$

Infinite Axiom Equilibrium Exchange and Random Self-Proof

$$\{x\}^{(K=-1)(N=+p)(S\pm(q=p))}=(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=+p)](S\pm(q=p))}$$
$$\leftrightarrow\{(1-\eta^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=0)}\leftrightarrow(1-\eta^2)^{(K=+1)}\}\cdot\{x_0^{(S)}\}^{(K=-1)(N=+p)](S\pm(q=p))}$$
$$(1-\eta^2)^K\cdot\{x_0^{(S)}\}^{(K=-1)(N=+p)](S\pm(q=p))}=\{x\}^{(K=-1)(N=+p)(S\pm(q=p))};$$

[Proof 3.5]: Similarly, the inverse operation yields: the first-order and second-order integrals, and the reciprocal theorem corresponding to the P-network hierarchy [P=NP].

$$\int^{(\mathbf{P})}\{X^{(S)}\}^{(K=+1)(\mathbf{N=-p})}d^{\mathbf{P}}(abc\ldots s)^{(K=\pm1)}$$
$$=[(abc\ldots s)\cdot\{x_0^{(\mathbf{p})}\}]^{(K=+1)(N=+p)(S)}$$
$$=[(1-\eta^2)^K\cdot\{x_0^{(\mathbf{p})}\}]^{(K=+1)(N=+p)(S)};$$
$$(1-\eta^2)^K=\{0,1\}^{(K=+1)(N=+P)(S)};$$

3.4.3. Sufficiency Proof of BSD Conjecture

Calculus equations belong to polynomials. Under constant total element count (S), each sub-term corresponding to sub-term expansion is represented by differential ($\partial^{(1)}$, $\partial^{(2)}$, $\partial^{(P)}$) (N=-1, -2, -P) and integral (∫$^{(1)}$, ∫$^{(2)}$, ∫$^{(P)}$ (N=+1, +2, +P), where (-N) and (+N) exhibit reciprocal symmetry. Through dimensionless logical circle logarithm-based balanced exchange combination decomposition and stochastic self-validation calculus dynamics, along with systematic control deduction.

（1），The Dimensionless Logic Circle Isomorphism Integrity and the Corresponding Shared Characteristic Mode

$$^{(S)}\sqrt{\{\mathbf{D}\}}\leftrightarrow(1-\eta^2)^{K(Z\pm S)}\{\mathbf{D_0}^{(S)}\}\leftrightarrow(1-\eta_{00}^2)^{K(Z\pm S)}\{\mathbf{D_{00}}^{(S)}\}:$$
$$(1-\eta^2)^{K(Z\pm S)}=(1-\eta_1^2)^K\leftrightarrow(1-\eta_2^2)^K\leftrightarrow\ldots\leftrightarrow(1-\eta_0^2)^K\leftrightarrow(1-\eta_{00}^2)^K\in\{0,1\};$$

Corresponding graphic description: The total boundary function (length, area) remains unchanged, in a high-dimensional power space. The center point of the dimensionless logical circle and the zero point of the geometric center connect to the two boundary points. The movement of the dimensionless power function between the center point and the center zero point indicates changes in area and volume.

Any closed circle↔ eccentric ellipse↔ central ellipse↔eccentric circle↔ or concentric circle.The first step of the calculus of order change is similar to the traditional calculus (single variable) in that the group characteristic mode of the whole change is not very different. The key is the second step (the ellipse transformation is the center of the circle) and the third step to deal with the relationship between the zero point of the position value center and the surrounding elements with "concentric circles".

At present, the progress of mathematics has reached the elliptic level of Fermat's Last Theorem, which considers that the central ellipse and the central circle belong to two different number fields and cannot be integrated, and therefore makes the conclusion of unreliability. "The expression of Fermat's Last Theorem is true" is not true.

(2) ,The BSD conjecture posits that the central ellipse evolves into a central circle (Figure 3). Under the central circle condition, the Pythagorean theorem holds true for (n^2+1), (n^2), and (n^2-1). The zero point of the central circle is located at $(n^2/2)$. The BSD conjecture progresses from D_0 (a combination of ellipse and eccentric circle) to D_{00} (a combination of ellipse and circle). For the boundary function: the eccentric circle equals the central ellipse, and the central ellipse D_0 (a combination) equals the central circle D_{00} (a combination). In the central circle, these functions exhibit identical values, but the central point D_0 and the zero point D_{00} do not coincide (i.e., they are not superimposed). Thus, the numerical center point merely balances asymmetry and cannot be exchanged. Only by converting it into a central circle (concentric circles) with uniformly distributed spatial elements can balanced exchange combinations be performed. Through the bit-value center zero point, the numerical center point is restored, driving the numerical analysis to regress to the original boundary function. This operational sequence demonstrates the integration of classical analysis and logical analysis, ensuring zero error in every computational step.

(Figure 5) The BSD conjecture represents a progression from D_0 (multiplicative combination, ellipse) to D_{00} (additive combination, circle).

(3) ,By demonstrating Taylor's formula, we first resolve the root cause of residual terms: The traditional elimination method assumes f(x) is univariate, or more precisely, a multivariate average function (in geometric space) corresponding to boundary function S. Its numerical center point converges toward the geometric center zero point through a process of moving, ultimately reaching the center zero point of the concentric circle (uniform type). This process maintains synchronization in boundary curve, surface, and angular (directional) changes corresponding to the center concentric circle, where f(x) = Doo = R. In practical applications, boundary function geometric shapes exhibit asynchronous changes in curves, surfaces, and angles (directions) except for the center concentric circle, while S and angles (directions) remain asynchronous.

（4），The actual boundary function: Given: The calculus element $f(x)=\{^{(s)}\sqrt{(abc\ldots\ldots s)}\}^{(s)}$, where the analytical properties correspond to the "product of combinations and geometric mean" boundary function. The average value is:

$\mathbf{Do}^{(1)}=\{(1/S)(a+b+\ldots+s)\}^{(s)}$;

$\mathbf{Do}^{(2)}=\{[(2!/(S-0)!](ab+bc+\ldots+s)\}^{(s)}$;

$\mathbf{Do}^{(3)}=\{[(3!/(S-0)!](abc+bcd+\ldots+sba)\}^{(s)}$; …;

The arithmetic properties of Abel varieties are the average of the combination corresponding boundary function:

$\mathbf{Doo}^{(1)}=\{(1/S)(r+r+\ldots+r)\}^{(s)}$;

$\mathbf{Doo}^{(2)}=\{[(2!/(S-0)!](r^2+r^2+\ldots+r^2)\}^{(s)}$;

$\mathbf{Doo}^{(3)}=\{[(3!/(S-0)!](r^3+r^3+\ldots+r^3)\}^{(s)}$; …;

It is well known that the geometric mean is less than the arithmetic mean of the positive circle asymmetry (called eccentric positive circle), and less than the positive circle symmetry (called center positive circle);

$$\mathbf{f(x)<Do<Doo=R};$$

Obtained: The connection between the arithmetic properties and analytic properties of Abel varieties:

$$f(x)=\{^{(s)}\sqrt{(abc\ldots\ldots s)}/\mathbf{Do}\}^{(s)}=(1-\eta^2)\mathbf{Do}=(1-\eta_\Delta^2)\mathbf{Doo};$$

Analytic property： $\mathbf{(1-\eta^2)}=\{^{(s)}\sqrt{(abc\ldots\ldots s)}/\mathbf{Do}\}^{(s)}\mathbf{Do=\{0\ to\ 1\}};$

Arithmetic properties of abelian varieties： $(1-\eta_0^2)=(1-\eta_\Delta^2)\mathbf{Do}/(1-\eta_0^2)\mathbf{Doo=\{0\ to\ 1\}};$

The logarithmic change records and path integrals between any function and the zero point of the center of the circle remain unchanged. After first-order calculus, their errors cannot be eliminated. The reform of calculus is smoothly achieved by polynomial transformation, converting to dimensionless logical circle isomorphism, homotopy, a n d isomorphism of calculus zero-error calculation.

The application of dimensionless logic circle and the fusion of classical analysis and logic analysis solve the zero

e r r o r
integer expansion of Taylor formula and establish the foundation of calculus reform.$\partial^{(P)}$

$$f(a)=f^{(P)}(a_0)(x-a_0)=(1-\eta^2)/\mathbf{Do}=(1-\eta_{00}^2)/\mathbf{Doo},$$

The Pythagorean theorem and Plato's *Republic* describe the characteristics of right-angled triangles, with the sequence "n²-1, 2n, n²+1" mirroring the dimensionless logical circle pairs' sequence "η²-1, 2η, η²+1". Classical analysis derives the ellipse {**Do**} through (multiplicative combinations), yet it remains one step away from the "central circle **Doo**". The dimensionless logical circle pairs bridge this gap by employing probability-based topological combinations across concentric circles.

This transformation converts the Taylor (calculus) formula into a dimensionless logical circle, eliminating residual terms and yielding an integer expansion. It ensures zero-error analytical solutions in calculus computations, demonstrating that the dimensionalless logical circle derived from the Taylor formula integrates algebraic varieties with analytical analysis—or more precisely, "classical analysis with logical analysis" —thereby validating the BSD conjecture. Currently, mathematicians emphasize computational methods such as "elliptic functions and L functions," where the boundary function (S) remains invariant. Numerically, the numerical center point $\mathbf{Do}^{(1)}=\mathbf{R0}$ and the bit-value center zero point $\mathbf{D_{oo}=R_{00}}$ are identical in value but differ in their positions.

(6) Strict differentiation between central ellipses and central circles. Failure to distinguish them often leads to confusion between the asymmetry of eccentric circles and the symmetry of central circles. In AI Turing machine deduction, pattern confusion and collapse frequently occur. This can be addressed through the unique 'infinite axiom' of dimensionless logical circles for random verification.

(a), For instance, the Pythagorean theorem has been discovered and extensively studied by ancient civilizations worldwide, which explains its many names.

According to Cantor's set theory, a straight line has n infinite points, corresponding to physical space (which differs from the n-dimensional power in mathematics).

The points ($\boldsymbol{J}X^n+\boldsymbol{i}Y^n$) and ($\boldsymbol{J}X^n+\boldsymbol{i}Y^n+\boldsymbol{K}Z^n$) shine as a brilliant gem in geometry, known as the "cornerstone of geometry." Moreover, they have extensive applications in advanced mathematics and other disciplines.

When the two-dimensional composition (X^n+Y^n) exists: In physical three-dimensional space, it manifests as a two-dimensional quadrant complex analysis.

$$(1/2)(\boldsymbol{J}X^n+\boldsymbol{i}Y^n)=(1-\eta_{00}^2)Z_{00}^n;\quad (1-\eta_{[\mathbf{ji}]}^2)=Z_{00}^n/(X^n+Y^n)=Z_0^2/(X^2+Y^2)=1,$$
$$(1-\eta_{[ji]}^2)=(1-\eta_{[j]}^2)+(1-\eta_{[i]}^2)=\{0,1\};$$

In three-dimensional composition ($X^n+Y^n+Z^n$), physical space: three-dimensional eight-quadrant complex analysis exists.

$$(1/3)(\boldsymbol{J}X^n+\boldsymbol{I}Y^n+\boldsymbol{K}Z^n)=(1-\eta_{00}^2)Z_{00}^n;$$
$$(1-\eta_{[\mathbf{jik}]}^2)=Z_{00}^n/(XY^n+YZ^n+ZX^n)=Z_0^2/(X^2+Y^2+Z^2)=1,$$
$$(1-\eta_{[jik]}^2)=(1-\eta_{[j]}^2)+(1-\eta_{[i]}^2)+(1-\eta_{[k]}^2)=\{0,1\};$$
$$(1-\eta_{[jik]}^2)=(1-\eta_{[ik]}^2)+(1-\eta_{[kj]}^2)+(1-\eta_{[ji]}^2)=\{0,1\};$$

The three-dimensional physical space is exchanged and randomly self-proven by the zero point of the conjugate position value of the dimensionless logical circle:

$$(1-\eta_{[j]}^2)=(1-\eta_{[ik]}^2);\quad (1-\eta_{[i]}^2)=(1-\eta_{[kj]}^2);\quad (1-\eta_{[k]}^2)=(1-\eta_{[ji]}^2);$$

Therefore, under the condition of constant boundary function, the area, volume and high-dimensional space of the center circle (concentric circle) Z00n are the maximum values.

(b), For instance, Fermat's Last Theorem, also known as the' Fermat's Last Theorem,' was proposed by the French mathematician Fermat. He asserted that for any integer n>2, the equation x^n + y^n = z^n has no positive integer solutions for x, y, and z. This is the origin of Fermat's Last Theorem.

The equation x^n + y^n = z^n has no positive integer solutions for x, y, and z when n>2. In the 18th century, the renowned mathematician Euler proved Fermat's Last Theorem for n=3 and n=4. In simpler terms, it means that the sum of one cube and two cubes is impossible, or that a number greater than a square cannot be divided into two cubes of the same power. The mathematician Sophie Germain introduced a special prime number p, characterized by 2p+1 also being a prime number, and demonstrated that Fermat's Last Theorem holds for such primes.

Some mathematicians took a different approach, attempting to find counterexamples to invalidate Fermat's conjecture. In 1960, mathematician Wall proposed a prime number conjecture: Fermat's conjecture would be invalid if there were a counterexample for this prime number. Subsequently, Chinese mathematicians Sun Zhihong and Sun Zhiwei proved it in 1992. This imagined prime number was named "Wall-Sun-Sun prime." Unfortunately, Fermat's Last Theorem was proven just two years later. After being proposed, it underwent multiple conjectural debates and a history spanning over three centuries. Finally, in 1994, British mathematician Andrew Wiles proved it.

It is established that elliptic circles and perfect circles belong to distinct number fields. When the power remains constant, the dimensionless logical circle can achieve "balanced displacement." Consequently, Fermat's Last Theorem does not hold. In December 2018, the author published "A Logarithmic Proof of Fermat's Last Theorem's Invalidation" in AAJ (Journal of Algebra and Number Theory), pages 8-18. The following further demonstrates:

[Proof] Objective:

To verify whether the sum of two circles with identical powers can maintain equality under the condition that the power of n remains constant.

Set up： $x^{\wedge n} + y^{\wedge n} \neq z^{\wedge n}$,n≥3 invariant, $R_0^n=(1/2)(x_0^{\wedge n} + y_0^{\wedge n})$， $(x_0^{\wedge n} \neq y_0^{\wedge n})$(mean radius of ellipse);

$R_{00}^n=(1/2)=(x_{00}^{\wedge n} + y_{00}^{\wedge n})$，$(x_{00}^{\wedge n} = y_{00}^{\wedge n})$(The average radius of the concentric circles at each level n);

Add auxiliary elements:

$$(x^{\wedge n}\, y^{\wedge n})^{(K=\pm1)(2)}=(x^{\wedge n}\, y^{\wedge n})^{(K=-1)}\cdot(x^{\wedge n}\, y^{\wedge n})^{(K=+1)}=1; \quad (K=+1,\pm0,-1,\pm1)$$

$$(x_0^{\wedge n}\, y_0^{\wedge n})^{(K=\pm1)(2)}=(x_0^{\wedge n}\, y_0^{\wedge n})^{(K=-1)}\cdot(x_0^{\wedge n}\, y_0^{\wedge n})^{(K=+1)}=1; \quad \text{(mean radius of ellipse)}$$

$$(x_{00}^{\wedge n}\, y_{00}^{\wedge n})^{(K=\pm1)(2)}=(x_{00}^{\wedge n}\, y_{00}^{\wedge n})^{(K=-1)}\cdot(x_{00}^{\wedge n}\, y_{00}^{\wedge n})^{(K=+1)}=1; \quad \text{(radius of central circle)}$$

dimensionless logic circle： $(1-\eta^2)^{(K=\pm1)}=[(x^{\wedge(-n)}+ y^{\wedge(-n)})]^{(K=-1)}/[(x^{\wedge n} + y^{\wedge n})]^{(K=+1)}=\{0,1\}$;

According to [Theorem 1] (existence of dimensionless logical circles, coordination of multiplication and combination relations); [Theorem 2] (existence of integer properties of logical circles); [Theorem 3] (existence of isomorphism-preserving polynomial time); there exists:

$$\begin{aligned}(x^{\wedge n}\, y^{\wedge n})&=[(x^{\wedge n}\, y^{\wedge n})/(x^{\wedge n} + y^{\wedge n})]\cdot(x^{\wedge n}+ y^{\wedge n})\\ &=[(x^{\wedge n} + y^{\wedge n})/(x^{\wedge n}\, y^{\wedge n})]^{(K=-1)}\cdot(x^{\wedge n} +y^{\wedge n})\cdot(x^{\wedge n}\, y^{\wedge n})\\ &=[(x^{\wedge(-n)}+ y^{\wedge(-n)})]^{(K=-1)}\cdot(x^{\wedge n}+ y^{\wedge n})\cdot(x^{\wedge n}\, y^{\wedge n})\\ &=[(x^{\wedge(-n)}+ y^{\wedge(-n)})]^{(K=-1)}/(x^{\wedge n} + y^{\wedge n})\cdot(x^{\wedge n}+ y^{\wedge n})\cdot(x^{\wedge n}\, y^{\wedge n})]\cdot(x^{\wedge n}+ y^{\wedge n})\\ &=(1-\eta^2)^K\cdot(x^{\wedge n}\, y^{\wedge n})\cdot(x^{\wedge n}+ y^{\wedge n})^2\end{aligned}$$

Move $(x^{\wedge n}+y^{\wedge n})$ to the left side of the equation：

$$(x^{\wedge n}\, y^{\wedge n})^{(K=\pm1)(2)}=(1-\eta^2)^{(K=\pm1)}\cdot(x^{\wedge n}+ y^{\wedge n})^{(2)};$$

Get：

$$(x^{\wedge n}\, y^{\wedge n})^{(K=\pm1)}=(1-\eta^2)^{(K=\pm1)}\cdot(x^{\wedge n}+ y^{\wedge n});$$

$$=(1-\eta^2)^K\cdot(2\cdot R_0^{\wedge n}); \quad \text{(Ellipse, eccentric circle)}$$

The two root series elements are analyzed to establish a conversion relationship between elliptic elements and circular logarithms:

$$(x^{\wedge n})=(1-\eta^2)^{(K=+1)}\cdot(R_0^{\wedge n}); \quad (y^{\wedge n})=(1-\eta^2)^{(K=-1)}\cdot(R_0^{\wedge n});$$

Similarly, the central circle establishes a conversion relationship with the logarithm of the circle:

$$(x_0^{\wedge n}\, y_0^{\wedge n})=(1-\eta_{00}^2)^K\cdot(2\cdot R_{00}^{\wedge n}); \quad \text{(center circle)}$$

The two root series elements establish a conversion relationship between the central positive circle element and the logarithm of the circle:

$$(R_0^{\wedge n})=(1-\eta_{00}^2)^{(K=+1)}\cdot(R_{00}^{\wedge n});$$

$$(x_0^{\wedge n})=(1-\eta_{00}^2)^{(K=+1)}\cdot(R_{00}^{\wedge n});$$

$$(y_0^{\wedge n})=(1-\eta_{00}^2)^{(K=-1)}\cdot(R_{00}^{\wedge n});$$

When X^n+Y^ncan be transformed into any triangle $(2R_0^{\wedge n}) =Z^n$ through $(1-\eta^2)$.

$$(x^{\wedge n} + y^{\wedge n})=(1-\eta^2)^{(K=\pm1)}\cdot Z^{\wedge n} \quad \text{(Eccentric ellipse, any closed circle)};$$

X^n+Y^n can be transformed into any triangle $(2R_0^{\wedge n})=Z^n$ through the formula $(1-\eta_0^2)$.

$$(x^{\wedge n} + y^{\wedge n})=(1-\eta_0^2)^{(K=\pm1)}\cdot Z_0^{\wedge n} \quad \text{(Center ellipse)}$$

X^n+Y^n can be transformed into any triangle $(2R_{00}^{\wedge n})=Z^n$ through the $(1-\eta_{00}^2)$ conversion.

$$(x_0^{\wedge n} + y_0^{\wedge n})=(1-\eta_{00}^2)^{(K=\pm1)}\cdot Z_{00}^{\wedge n} \quad \text{(Center Circle, Concentric Circles)}$$

In particular, (X^n+Y^n), Z^n is invariant, the equation of Fermat's big theorem is controlled by

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

But, such proof is not enough, it needs to rely on the third party identity of the 'infinite axiom' of the dimensionless logic circle through the center zero point and random self-verification mechanism, to solve the completeness, overcome the axiom incompleteness of the difficulty of not being reversible, self-verification, exchange.

The rule of exchanging dimensionless logical circle and the mechanism of random self-proving: without changing the true proposition (i.e. X^n+Y^n), Z^n is unchanged), through the conversion of the positive and negative mutual inversion of the properties of dimensionless logical circle, the true proposition becomes the inverse proposition.

The Equilibrium Exchange and Self-Proof Mechanism of Two Inequal Elements（X^n)≠(Y^n）in Elliptic Conformal Geometry

$$(x^{\wedge n})=(1-\eta^2)^{(K=+1)}(Z_{00}^{\wedge n})$$

$$\leftrightarrow\{(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=-1)}\}\text{corresponding}(Z_{00}^{\wedge n})$$

$$\leftrightarrow(1-\eta^2)^{(K=-1)}(Z_{00}^{\wedge n})=(y^{\wedge n});$$

The Equilibrium Exchange and Self-Proof Mechanism of Two Inequal Elements($x^{\wedge n}+y^{\wedge n}$) and ($Z^{\wedge n}$) in the Central Circle.

$$(x^{\wedge n}+y^{\wedge n})=(1-\eta_0^2)^{(K=+1)}(Z_{00}{}^{\wedge n})$$
$$\leftrightarrow\{(1-\eta_0^2)^{(K=+1)}\leftrightarrow(1-\eta_{0[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_0^2)^{(K=-1)}\}\text{corresponding }(Z_{00}{}^{\wedge n})$$
$$\leftrightarrow(1-\eta_0^2)^{(K=-1)}(Z_{00}{}^{\wedge n})=(Z^{\wedge n});$$

The aforementioned framework establishes connections between arbitrary closed circles Z0n, ellipses (eccentric circles), and concentric circles Z00n through dimensionless logical circles, while preserving infinite true propositions. It addresses the axiomatization dilemma and circumvents the complexities of infinity and irrational numbers. The proposed mechanism features balanced transformation, combination decomposition, and randomized self-validation error correction, ensuring the completeness, robustness, and integrity of Fermat's Last Theorem function proofs.

The proof demonstrates that under the condition of constant n, the expression ($x^{\wedge n}+y^{\wedge n}$) can be balanced and self-validated through the logarithmic transformation of circles $(1-\eta_{0[C]}{}^2)^{(K=\pm0)}$. Specifically, any circle ($2R_0{}^{\wedge n}$) = $Z^{\wedge n}$, ellipse ($2R_0{}^{\wedge n}$) = $Z^{\wedge n}$, and concentric circles ($2R_{00}{}^{\wedge n}$) =$Z^{\wedge n}$ can all maintain balance and mutual transformation through the logarithmic effect of circles, thereby invalidating Fermat's Last Theorem.

Discussion: In his seminal work, Wiles demonstrated the existence of Fermat's Last Theorem through a key argument. The proof, often described as "the ellipse and the circle" (a metaphor for distinct number fields), asserts that "non-balanced permutations" cannot occur when the power n is ≥3. While this establishes the theorem's validity, the proof only partially demonstrates the core claim—that elliptic and circular fields are distinct number fields. The critical flaw lies in the "non-balanced permutations" premise, which reveals Wiles 'proof's inherent incompleteness and ultimately leads to an erroneous conclusion.

Under the condition of the boundary function n is invariant, firstly, the ellipse and the circle are two different number fields cannot be unified; in fact, through the dimensionless logical circle, the algebraic cluster can be integrated and exchanged to satisfy the invariant power of the dimension, and the analytic equation can still be kept.

Secondly, the "elliptic center point" and the "zero point of the circle center" cannot be equal in the same boundary function (e.g., area, volume, high-dimensional functions). The change process can be described through dimensionless logic circle power function, path integral, and historical records (see Figure 2).

The above shows that Wiles is still one step away from the proof of Fermat's Last Theorem for the ellipse (eccentric circle) and the center circle (concentric circle).

（3）、For instance, the Poincare conjecture, proposed by French mathematician Henri Poincare, was one of the seven Millennium Prize Problems offered by the Clay Mathematics Institute. Mathematician Perelman proved the conjecture by demonstrating the analytical isomorphism, homotopy, and homology of three-dimensional spheres in his work "Hamiltonian Perelman Theory of Ricci Flow: Poincare and the Geometric Conjecture".

Ricci flow, a mathematical tool for studying manifold geometry, describes the evolution of metrics over time, revealing the topological properties of manifolds. It played a pivotal role in solving the Poincare Conjecture. Mathematicians have utilized Ricci flow to address this conjecture, with Shing-Tung Yau's encouragement and influence being particularly significant. Yau not only made groundbreaking contributions to geometric analysis but also proved or co-proved several important conjectures. The relationship between Ricci flow and geometric analysis: As a tool for proving geometric theorems, Ricci flow has been used to demonstrate profound theorems about three-dimensional manifold geometry. For instance, following Hamilton's pioneering work, it became a crucial tool in geometric analysis. Additionally, it is considered a potential solution to geometric problems like the Poincare Conjecture. Perelman leveraged Ricci flow and related geometric techniques to provide a complete proof of the Poincare Conjecture.

In addition, the research of Ricci flow includes the related literature and papers, such as the study of the change of some important geometric quantities along the Finsler-Ricci flow in Finsler geometry, and the study of Ricci flow on the surgery of three-dimensional manifold.

The dimensionless logical circle posits that mathematician Perelman and others may still have two unresolved issues regarding the proof of the Poincare conjecture:

(a) It is not specified that the numerical center point (multiplicative combination of algebraic varieties) at any spatial position is separated from the zero point of the three-dimensional positive circular bit value center (additive combination of algebraic varieties), and the two center points cannot be superimposed. The approach to describe how the numerical center point approaches the bit value center zero point lacks further analysis, leading to complexity and inconvenience in the analysis.

(b)、It is not pointed out that in analytic analysis, the geometric space is still limited by the "axiomatic incompleteness" and lacks a random mechanism for self-validation of truth or falsity. The foundation of this proof from two-dimensional to three-dimensional geometric space remains questionable.

(c)、The dimensionless logical circle, characterized by "independence from mathematical models and a self-validation mechanism," remains compatible with the Poincare Conjecture. When the boundary function (manifold) of a geometric space (2D/3D) varies along a path—or when the difference between any geometric function's center point and the zero point of the ellipse's center (or the geometric circle's center) is expressed as a path integral of isomorphism in the dimensionless logical circle—this satisfies the algebraic-geometric conversion between dimensional power values. This manifests as the center point of any function first approaching the ellipse's center (an eccentric circle), then converging to the zero point of the geometric circle (a concentric circle). Through power functions, path integrals, and historical records, the analytical equation remains valid (see Figure 2).

3.4.4. The Inverse Theorem of BSD Conjecture and the 'Infinite Axiom' Mechanism.

The proof of the BSD conjecture using dimensionless logical circles reveals a profound correspondence between algebraic geometry (rational points) and analytic number theory (L-functions), offering a framework for "studying arithmetic problems through analytical tools." This framework employs dimensionless logical circles—mathematical models devoid of specific (qualitative) elements, operating within the {0,1} analytic paradigm. Both algebraic geometry (rational points) and analytic number theory can be unified through projections (morphisms, mappings) onto dimensionless logical circles and the bit-value circle of "infinite axioms." The zero-point reciprocity theorem's symmetry enables balanced exchanges and random self-validation mechanisms, ultimately yielding proofs of completeness and reliability.

The mutual inverse theorem in mathematics refers to two theorems that correspond to each other in terms of their conditions and conclusions. These theorems are termed 'mutually inverse' when their conditions and conclusions are respectively matched. The 'infinite axiom' mechanism, which converts true propositions into inverse propositions through dimensionless logical bit-value center zero-point conversion and incorporates a random self-validation error-correction system, resolves the axiomatization incompleteness that prevents direct balance and exchange.

Similarly, the reciprocity theorem exhibits symmetry and asymmetry on both sides of the central point, which is also constrained by axiomatic incompleteness and cannot be directly transformed. It must undergo reciprocal balance conversion through dimensionless logical circular position zero points, and further through 'infinite axioms' for balanced exchange, combination decomposition, and random self-validation mechanisms.

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

Here, the dimensionless logical circle achieves a zero-error deduction of completeness and isomorphism in one step through the balanced exchange combination of numerical/bit value 'dual logic code' and 'infinite axiom' decomposition and random self-validation mechanism.

The exchange rule is to decompose the mathematical-invariant properties of the infinite axiom by the shared property of the infinite axiom, the balanced exchange combination and the random self-proving mechanism.

$$G(\cdot)^{(K=-1)}=(1-\eta_{[G]}^2)^{(K=-1)}\cdot[G_0(\cdot)]^{(K=-1)}$$
$$\leftrightarrow[(1-\eta_{[G]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C][GF]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[F]}^2)^{(K=+1)}]\cdot[GF(\cdot)]^{(K=\pm1)}$$
$$\leftrightarrow(1-\eta_{[F]}^2)^{(K=+1)}\cdot[F_0(\cdot)]\leftrightarrow F(\cdot)^{(K=+1)};$$
$$(1-\eta_{[G]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C][GF]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[F]}^2)^{(K=+1)}=\{0,1\};$$

Theamong ：GF（·） center of the bit value$(1-\eta_{[C]}^2)^{(K=\pm0)}$ is the transition point (phase transition) between$[G_0(\cdot)]$ and$[F_0(\cdot)]$.The symbol "↔" denotes projections (maps, morphisms) with random invertibility and a self-validation mechanism. When elements are transformed across different number fields, the invertibility must be modified; however, within the same number field, invertible transformations can be performed with unchanged properties.

When encountering missing terms in calculus equations (which may not require modeling), the coefficient regularization principle is inherently satisfied since the given function represents a "multiplicative combination." Through differential operations that reduce order elements and integral operations that increase order, the system can revert to a zero-order function process. By integrating the numerical center point of the "dual logic code" with the bit value center zero point through calculus order transformations, each root element can be analytically resolved. Artificial intelligence manifests as (including multi-qubit computing technology) the "one-to-many" high-density transmission of logical gate information characters, combined with machine learning and deep learning analysis through grid memory systems.

The BSD conjecture revolutionized traditional calculus. Conventional calculus, confined to single-variable numerical analysis, not only lost its "independence" but also faced axiomatic incompleteness, rendering it inadequate for group combinatorial (multivariable) calculus. The dimensionless logical circle calculus, leveraging group combinatorial principles (where "a variable divided by itself is not necessarily 1"), successfully resolved the residual term issue in Taylor's formula. This approach can be viewed as an advanced version of the Dirichlet class number formula (linking ideal class groups to L-function values) on elliptic curves, thereby advancing non-commutative Iwasawa theory and related fields.

BSD conjectures that in artificial intelligence applications, through the proof of dimensionless logical circles, the Turing machine logic gate manifests as a "dual logic code" of the "four logic values" [GF(·)] series (integrating numerical and logical analysis), corresponding to the high-density information transmission of the logic gate {1000↔0111}.

The BSD conjecture elucidates the function of Langlands program's algebraic-geometric-arithmetic-group theory framework. By employing the dimensionless logical circle's principle that 'mathematical models are independent of specific (mass) elements in {0,1} deduction,' it applies the circle's unique' infinite axiom, 'dual-logical numerical/bit-value codes, and three-dimensional complex analysis rules. This mechanism integrates numerical centers with bit-value zero points through random self-validation, transforming arbitrary functions into' probability-topology 'path integrals between concentric circles. The historical record's description demonstrates the superiority of 'classical-analogy and logical-analogy fusion' operations, potentially achieving universal mathematical acceptance.

3.5, [Theorem 5] Goldbach Conjecture — Symmetry and Asymmetry Theorem

3.5.1, Historical Background of the Goldbach Conjecture

On June 7, 1742, Gottfried Wilhelm Goldbach posed two questions to Leonhard Euler:

(A)， Every even number not less than 6 is the sum of two odd numbers, demonstrating symmetry in the even terms as "p1 + p2", such as

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, showing asymmetry in the even terms as the odd term "-p1 + p2 + p3", such as

9=3 + 3 + 3; 29=5 + 11 + 13; 103=23 + 37 + 43;...;

In his letter, he asked: "Is my assertion correct? If so, I hope you can prove it for me. If not, please provide an example." Euler replied: "Although I cannot yet prove it, I am absolutely certain that this is a completely correct theorem." This became known as the Goldbach Conjecture.

Generally, proposition (A) is termed the even Goldbach Conjecture, while (B) is called the odd Goldbach Conjecture. These two conjectures form the mathematical foundation of natural numbers, distinguishing odd from even numbers. Traditional mathematical-ai analysis tends to focus on the symmetry of even terms, failing to address the asymmetry of odd terms. However, this also includes the Pythagorean axiom: **1+1=2? 1+2=3?** The inability to prove mutual reversibility is termed "axiomatic incompleteness," indicating that numerical values (in numerical analysis) cannot be mutually reversible or balanced.

So far, mathematicians have not completed the "zero point balance" conjecture of Riemann function and the "zero point balance" conjecture of the completeness of Goldbach (zero point) conjecture. Relying on "traditional axiom" as the basis of mathematical proof is not feasible, which has always been a sensitive problem in the international exploration of the foundation of mathematics.

The essence of Goldbach's conjecture is that the sum of even terms has symmetry and asymmetry respectively. How to realize balance, transformation and unification?

(1) Strong Goldbach Conjecture: "The sum of sufficiently large two-element numbers {Q=2} is an even number with 'even-term symmetry'."

The best result is the "1+2 problem" by Chinese mathematician Chen Jingrun, which uses the "weighted sieve method of Chen's theorem" to determine prime numbers, proving that "a sufficiently large even number is the sum of a prime number and a natural number."

China mathematician Chen Jingrun proved: "Any sufficiently large even number can be expressed as the sum of a prime number and the product of no more than two prime numbers" (abbreviated as "1+2"). In fact: (a) when a prime number is multiplied by two prime numbers, these two values are constrained by the traditional "axiomatic incompleteness (Piano axiomatization, set-theoretic axiomatization)" and cannot be directly "added or commuted." The sum of {Q=2} is the "even number" of the "even number symmetry."

(b) In two-dimensional or three-dimensional complex analysis, the dimensionless logical bit value center zero-point equilibrium symmetry follows the 'splitting' rule of complex analysis, resulting in the 'sum of three complex numbers' where 1+2=3. This is termed an 'odd number.' The sum of {Q=3} represents the 'odd number' of 'even-term asymmetry.'

In other words, Chen Jingrun's proof of' 1+1=2 'or' 1+2=3' was just one step away, marking a significant advancement that gained widespread recognition both domestically and internationally.

（2）、The weak Goldbach conjecture: "the sum of three elements is odd when it is sufficiently large."

Chinese-American mathematician Tao Zhe-xuan used the logical analysis method to prove that 1+2=3, which is the sum of six prime numbers.

In May 2013, Harold Hofvort, a researcher at the Ecole Normale Superieure in Paris, published two papers announcing a definitive proof of the weak Goldbach conjecture. The proof was achieved through computer calculations reaching 2^40.

This computer proves that there is no reliable mathematical foundation at present, and it has not been recognized by the academic community. Mathematicians expect that there is a reliable mathematical foundation proof of mathematical-artificial intelligence.

Thus, due to the incompleteness of axiomaticization in both Piéton's and set theory, it is challenging to directly apply the (strong or weak) Goldbach Conjecture to the sum of prime numbers through pure numerical or logical analysis. Many mathematicians believe that existing mathematical methods are insufficient to prove these century-old problems, and new approaches must be sought or discovered to resolve them.

3.5.2 , The Goldbach Conjecture in Number Theory and the Dimensionless Logical Circle

Number theory is a branch of mathematics that investigates the properties and structures of integers. It is based on prime numbers and employs ancient arithmetic rules to perform deterministic, error-free operations. The field primarily focuses on the properties of integers, their proofs, and relationships between them. Originally termed arithmetic, it was not until the early 20th century that the term 'number theory' became widely used. Depending on the research methodology, number theory can be broadly categorized into elementary number theory and advanced number theory.

Elementary number theory is the number theory which is studied by elementary methods. Its research method is essentially to use the divisibility property of the integer ring, which mainly includes the divisibility theory, the congruence theory and the theory of continued fractions.

Advanced number theory includes more profound tools of mathematical research, which generally includes algebraic number theory, analytic number theory, computational number theory, etc.

Number theory has extensive applications in cryptography, computer science, and communication technology. In cryptography, it is utilized to design and crack cryptographic algorithms. In computer science, it is employed to develop efficient algorithms and data structures. In communication technology, it is applied to error detection and correction.

Define a scalar prime: an arithmetic mean with positive integer values that has no "direction" influence and only numerical (mass) magnitude. It applies to primes in the proof of the Goldbach Conjecture.

Define vector prime: A positive integer with a "direction," influenced by interactions between primes, and a numerical (mass) value with direction angles, etc., forming an arithmetic mean. It applies to primes in the proof of the Riemann zero point conjecture.

(1), There are two basic states of prime numbers in the proof of Goldbach's conjecture: (1) Strong Goldbach's conjecture (1+1): the sum of two large enough prime numbers is an even number.

(2), The weak Goldbach conjecture (1+2): The sum of three sufficiently large prime numbers is an odd number.

This is not only a problem of number theory, but also a basic problem of mathematics which is concerned by many scientific disciplines in the current mathematical field.

The core problem of Goldbach's conjecture: two or three prime numbers form a prime function, there are two forms of "even term symmetry and asymmetry" of the resolution of 2 center point, how to eliminate the "infinite" and "axiomatic" dilemma, to achieve the balance of conversion and random self-proving true or false?

Notably, traditional axiomatization is constrained by Godel's incompleteness due to the lack of a "mechanism for random self-validation of truth and falsity." This "sum of prime numbers (values)" cannot be directly added to the prime numbers (values) themselves. The root cause lies in the inadequacy of existing mathematical methods (including several number theory theorems: such as Euler's theorem, Fermat's little theorem, Wilson's theorem, and the China remainder theorem, etc.). Many mathematicians have proposed that a new method might be needed to supplement and resolve this issue.

Previously, all mathematical-ai operations relied on traditional axiomatic systems, lacking random equilibrium exchange self-validation mechanisms, making it difficult (or highly complex) to verify their "truth or falsity." This explains why computer-generated proofs in mathematics (lacking mathematical foundations) such as the Four Color Theorem (Four-Color Theorem) and Four-Logarithm Values have not gained recognition.

Here, it is proposed that the third party's dimensionless logical circle, which is unrelated to the mathematical model and has no specific element (mass) content, can be used to conduct balanced exchange combinations and analysis within the {0,1} range, while maintaining the inherent nature of infinite prime numbers. This approach also introduces a random self-validation mechanism for the' infinite axiom' to verify its truth or falsity.

That is to say, whether the result of adding two or three prime numbers is even or odd cannot be determined in advance, nor can it be proved and calculated by adding prime numbers directly, but by using a third party infinite construction set which is "independent of mathematical model and free from interference of specific (mass) element content" -the method of dimensionless logical circle, which is fair and reliable.

This approach gives rise to the dimensionless logic of infinite construct sets in the "Goldbach Conjecture". The continuum problem's Theorems 1-4, integrated through dual logic (numerical/bit value) codes, create a mathematical environment blending numerical and logical analysis. The dimensionless logic circle demonstrates: without altering the original proposition's primes (i.e., preserving algebra-geometry and number theory-group combinations), the invariant remains unchanged. Instead of directly using "prime sum" form, the numerical center point asymmetry and bit value center zero point symmetry of the dimensionless logic circle are linked. The statistical count of characteristic modulus-corresponding primes within specified ranges forms the "even term's reciprocal symmetry and asymmetry" at resolution 2. The (1-1) combination of the dimensionless logic circle is termed (2) "even function", while the reciprocal asymmetry (1-2) combination is called (3) "odd function". This combination includes prime addition combinations and prime multiplication combinations corresponding to power function addition combinations. Through the balance exchange and self-validation mechanism of the dimensionless logic circle, it drives the calculation of prime "sums".

3.5.3. Connection between Dimensionless Logic Circle and Strong Goldbach Conjecture

According to Cantor-Gödel's proof: "A system that maintains the total number of elements unchanged (without considering mathematical model construction) cannot prove its own truth or falsity." Traditional mathematical systems, when axiomatized, inherently contain partial axioms while omitting others, resulting in "incompleteness." To achieve completeness—specifically, establishing a mechanism that enables balanced exchange and random mutual verification of truth/falsity on both sides of the "equality" (the central point)—this mechanism is termed the "infinite axiom." Prime numbers, due to their numerical quality average, generate the central point. By composing polynomials through prime number multiplication, we transform them into dimensionless logical operations that preserve the inherent nature of prime numbers. For instance, the "two-prime series" corresponds to a quadratic equation, while the "three-prime series"
corresponds to a cubic equation, both of which are converted into dimensionless logical deductions.

$$\{AX^{(2)}-BX^{(1)}+\mathbf{D}\}=(1-\eta_{ab}{}^{2})[(0)\cdot\mathbf{D_0}]^{(2)}:$$

$$\{AX^{(3)}-B^{\prime}X^{(2)}+CX^{(1)}-\mathbf{D}\}=(1-\eta_{abc}{}^{2})[(0)\cdot\mathbf{D_0}]^{(3)};$$

The combination coefficients of the polynomial of two prime numbers are $AX_0{}^{(2)}$,$BX_0{}^{(1)}$, where A=1, B=2$\mathbf{D_0}{}^{(1)}$; The combination coefficients of the polynomial of three prime numbers are $AX_0{}^{(3)}$,$BX_0{}^{(2)}$,$CX^{(1)}$, where A=1, B=3$D_0{}^{(2)}$, C=3$\mathbf{D_0}{}^{(1)}$;

[Proof 1]

Let {X} be {ab} or {a+b} (where ab denotes two sufficiently large prime numbers). These primes can be expressed as a quadratic polynomial. The strong Goldbach conjecture and its dimensionless logical relationship are: any sufficiently large pair of prime numbers can be expressed as a product of primes. The formula is $\mathbf{D}=(\sqrt{ab})^2$, with the characteristic modulus $\mathbf{D}_0=(1/2)(a+b)$.

(1) , Prime Proving of the Strong Goldbach Conjecture

According to [Theorem 1], introduce the dimensionless logarithmic discriminant of the circle:

$$(\eta^2)=\{a-b\}/\{a+b\}=\{X_a-X_b\}/\{X_a+X_b\}==\{\mathbf{D_0}-X_b\}/\{\mathbf{D_0}\}=\{X_a-\mathbf{D_0}\}/\{\mathbf{D_0}\};$$

The introduction of quadratic equation and the logarithm of the circle discriminant of dimensionless logic equation:

$$\begin{aligned}\{X\pm\sqrt{ab}\}^{(2)}&=\{X^{(2)}\pm2\mathbf{D_0}{}^{(1)}X^{(1)}+\mathbf{D}\}\\&=\{(\sqrt{X})^{(2)}\pm2\mathbf{D_0}{}^{(1)}(\sqrt{X})^{(1)}+\mathbf{D}\}\\&=(1-\eta_{ab}{}^{2})[X_0+\mathbf{D_0}]^{(2)}\\&=(1-\eta_{ab}{}^{2})[(0\text{ 或 }2)\cdot\mathbf{D_0}]^{(2)}:\end{aligned}$$

Dimensionless logical bit value center zero symmetry:

$$(\eta)^{(K=+1)}=(\eta_a)^{(K=+1)}=(\eta_b)^{(K=+1)}=\{0,1\};$$

Obtained through the combination of two prime numbers $\{BX_0{}^{(1)}=B\mathbf{D_0}\}$, the dimensionless logical relationship between the equation of two prime numbers and its form:

$$X_0=(1-\eta_{ab}{}^{2})\mathbf{D_0}=(1-\eta_{ab}{}^{2})(1/2)(a+b);$$

$$a=(1-\eta_a{}^{2})D_0;\quad b=(1-\eta_b{}^{2})\mathbf{D_0};$$

The dimensionless logic (complex analysis) plus method (associative and commutative laws) rules: Note the isomorphism consistency and integer characteristics:

$$(\eta_{ab}{}^{2})^{(K=+1)}=(\eta_a{}^{2})^{(K=+1)}+(\eta_b{}^{2})^{(K=+1)}\text{对应}(1+1)(\eta^2)^{(K=+1)}=(2)(\eta^2)^{(K=+1)};$$

The sum of two large enough prime numbers is carried by the dimensionless logic, and the "invariant nature of prime numbers" is obtained. There is no dimensionless logic (2) for the direct addition of prime numbers. Definition (2) is "even number": that is to say, the sum of two prime numbers is odd number (2), which is not the direct addition of prime numbers, but the result of the two logical addition of "infinite axiom".

$$X=BX_0=(1-\eta_{ab}^2)(B\mathbf{D_0})=(2)[(1/2)(a+b)];$$

The Balance Exchange and Random Self-Proof Mechanism of the Zero Point Symmetry of the 'Infinity Axiom'

$$a=(1-\eta_a^2)\mathbf{D_0}\leftrightarrow(1-\eta_{[C]}^2)\mathbf{D_0}\leftrightarrow(1-\eta_{\backslash b}^2)\mathbf{D_0}=b;$$

Obtain the binary prime multiplication combination $\{AX_0=(\sqrt{ab})(2)\}$ with A=1. The logical relationship between prime functions and dimensionless units:

$$(\eta_{ab})\in[(\eta_a)+(\eta_b)=(\eta_a)+(\eta_b)]=0;$$
$$[(1-\eta_a)^{(K=+1)}+(1-\eta_b)^{(K=+1)}]=(1-\eta_b)^{(K=\pm1)(2)};$$

The Balance Exchange and Random Self-Proof Mechanism of the Zero Point Symmetry of the 'Infinity Axiom'

$$a=(1-\eta_a^2)^{(K=+1)}\mathbf{D_0}^{(1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\mathbf{D_0}^{(2)}\leftrightarrow(1-\eta_b^2)^{(K=-1)}\mathbf{D_0}^{(1)}=b;$$

The logarithm of a logical circle is related to the logarithm of a prime number. The logarithm of a logical circle is equal to the logarithm of a prime number.

The logarithm of a logical circle is equal to the logarithm of a prime number.

$$\{\sqrt{X_{ab}}\}^{(1+1=2)}=(1-\eta_{ab})^{(K=\pm1)}\mathbf{D_0}^{(1+1=2)};$$
$$\{a+b\}^{(1+1=2)}=[(1-\eta_a)^{(K=\pm1)}+(1-\eta_b)^{(K=\pm1)}]\mathbf{D_0}^{(1)}=2\mathbf{D_0}^{(1)};$$

The addition of prime numbers transforms into a dimensionless logical combination, which carries distinct connotations. For instance, (2) denotes a dimensionless logical combination with an 'infinite axiom' self-validation mechanism. This is termed 'even-term symmetry.' It drives the 'even' nature of prime addition (1+1=2) or the 'even power function' of primem ultiplication (1+1=2).

If artificial intelligence is introduced, the (2×2=4) corresponding four logic values of the logic gate (1000↔0000↔0111) "double logic code sequence (number-bit value) matrix" can also be adopted. Through the "infinite axiom" of dimensionless logic, the mutual inversion balance exchange combination decomposition and self-proving mechanism can be used to prove the strong Goldbach conjecture.

In this context, the dimensionless logical bit value center zero point merely represents the positional exchange and superposition of bit values, without involving any concrete logical computation of bit content. Thus, the dimensionless logic principle that (1+1=2) applies not only to prime numbers themselves (addition method) but also to power functions (addition method) where multiplication combinations are performed with dimensionless logical circular logarithms as the base. The entire 'infinite axiom' framework resolves the challenges of 'infinite' and 'axiomatization incompleteness.'

3.5.4, [Proof 2]: The Connection between the Dimensionless Logic Circle and the Weak Goldbach Conjecture

The ternary numbers {X} and {abc} or {a+b+c} (where abc denote three sufficiently large prime numbers) are used to express the "weak Goldbach conjecture (1+2)" and its dimensionless logical relationship through a "cubic equation":

Let: any sufficiently large three primes as multiplicative combinations; $\mathbf{D}=(3\sqrt{ab})^3$, $\mathbf{D}o(1)=(1/3)(a+b+c)$, $Do(2)=(1/3)(ab+bc+ca)$, $X=AX_o^3$,

where A is the polynomial combination coefficient with A=1; $X=BX_o^2$,

where B is the polynomial combination coefficient with B=3;

introduce the dimensionless logical circle logarithmic discriminant:

$$(\eta^2)=\{a-(b+c\}/\{a+(b+c)\}=\{a-(bc\}/\{a+(bc)\}$$
$$=\{X_a-(X_{bc}\}/\{X_a+X_{bc}\}=\{\mathbf{D}_0^{(2)}-X_{bc}\}/\{\mathbf{D}_0^{(2)}\}$$
$$=\{^{(3)}\sqrt{abc})/\mathbf{D}o\}^{(2)}=\{^{(3)}\sqrt{abc})/\mathbf{D}o\}^{(1)}=\{^{(3)}\sqrt{abc})/Do\}^{(3)}$$
$$=\{X_a-\mathbf{D}_0\}/\{\mathbf{D}_0\}+\{D_0-X_b\}/\{\mathbf{D}_0\}+\{\mathbf{D}_0-X_c\}/\{\mathbf{D}_0\};$$

The dimensionless logarithm factor of the circle (η), (η^2), $(1-\eta^2)$ are equivalent, the latter $(1-\eta^2)$ emphasizes the superposition of the coordinate center point and the conjugate zero point of complex analysis.

(1), (3) Prime Proving of the Weak Goldbach Conjecture:

According to theorem 1: the logarithm discriminant of dimensionless logic circle is introduced into the equation:

Add combination:

$$\{X\pm^{(3)}\sqrt{\{abc\}}\}^{(3)}=\{X^{(3)}\pm 3\mathbf{D}o^{(1)}X^{(2)}+3\mathbf{D}o^{(2)}X^{(1)}\pm\mathbf{D}\}$$
$$=(\{(^{(3)}\sqrt{X})^{(3)}\pm 3\mathbf{D}o^{(1)}(^{(3)}\sqrt{X})^{(2)}+3\mathbf{D}o^{(2)}(^{(3)}\sqrt{X})^{(1)}\pm\mathbf{D}\}$$
$$=(1-\eta_{abc}{}^{2})[X_0\pm\mathbf{D}_0]^{(3)}$$
$$=(1-\eta_{abc}{}^{2})[(0,2)\cdot\mathbf{D}_0]^{(3)}$$

Dimensionless logical bit value center zero symmetry:

$$(\eta_{abc})^{(K=+1)}\in[(\eta_a)^{(K=+1)},(\eta_b)^{(K=+1)},(\eta_c)^{(K=+1)}]=\{0,1\};$$

The method for obtaining triple primes plus combination $X=BX_0{}^{(1)}=B\mathbf{D}_0{}^{(1)}$ is derived, along with the dimensionless logical relationship between prime number equations.

$$X_0=(1-\eta_{abc}{}^{2})\mathbf{D}_0{}^{(3)}=(1-\eta_{abc}{}^{2})[(1/3)(a+b+c)]^{(3)}=(1-\eta_{abc}{}^{2})[B\mathbf{D}_0]^{(3)};$$
$$a=(1-\eta_a{}^{2})\mathbf{D}_0;\quad b=(1-\eta_b{}^{2})\mathbf{D0};\quad c=(1-\eta_c{}^{2})\mathbf{D}_0;$$

The triple prime (abc) can be decomposed into two forms: （**ab·c)** or （**a·bc**） with the combination value center point, which requires circular logarithmic complex analysis.

Dimensionless logical bit value center zero symmetry:

$$(\pm\eta_{abc})=(-\eta_a)+(+\eta_{bc})=(-\eta_a)+[(+\eta_b)+(+\eta_c)]=0;$$
$$(\pm\eta_{ab})+(-\eta_c)=0;(+\eta_{bc})+(-\eta_a)=0;(+\eta_{ca})+(+\eta_b)]=0;$$

The dimensionless logic (complex analysis) plus method (combination law, commutative law) rules: maintain the invariable nature of prime numbers, through the combination, decomposition, and random self-validation of the properties of dimensionless logic and complex analysis, along with error correction mechanisms. Note: pay attention to the consistency of logarithmic isomorphism and the characteristics of integer properties.

$$(\pm\eta_{abc})=(+\eta_a)+(+\eta_{bc})=(+\eta_a)+[(+\eta_b)+(+\eta_c)]\text{对应}(1+2=3)(\pm\eta);$$

The sum of sufficiently large three primes, through the dimensionless logic as a carrier, yields a "preservation of prime number nature." Without the direct addition of primes, the dimensionless logic (3) is defined as "odd": that is, the sum of three primes (3) is not the direct addition of primes but the result of adding three logical bit values of the 'infinite axiom' to the prime number.

$$X=(1-\eta_{abc}{}^{2})(B\mathbf{D}_0)=(1-\eta_{abc}{}^{2})(a+b+c)=(3)(a+b+c);$$

The Balance Exchange and Random Self-Proof Mechanism of the Zero Point Symmetry of the 'Infinity Axiom'

$$a=(1-\eta_a{}^{2})\mathbf{D}_0{}^{(1)}\leftrightarrow(1-\eta_{[C]}{}^{2})(B\mathbf{D}_0)^{(3)}\leftrightarrow(1-\eta_{bc}{}^{2})\mathbf{D}_0{}^{(2)}$$
$$\leftrightarrow(1-\eta_b{}^{2})\mathbf{D}_0{}^{(1)}+(1-\eta_c{}^{2})\mathbf{D}_0{}^{(1)}=(b+c);$$

Here: Keep the prime number unchanged, without disturbing the original proposition of prime number, relying on the dimensionless logic 'infinite axiom' to balance exchange and random self-prove the truth and falsehood.$(1-\eta_{[C]}{}^{2})^{K}$ represents the zero-point symmetry of the even-term bit value center. By introducing "dimensionless logic", it has the same circular logarithm factor, and achieves the balance exchange combination decomposition and self-proving of 1+2=3.

If artificial intelligence computation is adopted, a (3×3=9) logical gate corresponding to four-valued logic (1000↔0111) 'dual logical code sequence (numeric-place value) matrix' can also be used. By leveraging the mutual inverse balance exchange combination decomposition and self-proof mechanism of 'infinite axiom' in dimensionless logic, the strong Goldbach conjecture can be proven.

Among them: The dimensionless logic place value center zero point merely represents the exchange superposition of the original number position and does not involve specific original number content in logical calculation. Therefore, under dimensionless logic, (1+2=3) not only applies to the addition method of prime numbers themselves but also applies to power functions (addition method) through multiplication combinations with the circle logarithm as the base (dimensionless logic). The entire 'infinite axiom' eliminates the difficulty of axiomatization incompleteness. Among them: $(1-\eta_{[C]}{}^{2})$ represents the 'even term' center zero symmetry. By introducing 'dimensionless logic', they share a common circular logarithmic factor, achieving the balanced exchange combination decomposition and self-proof of (1+1=2). Symmetry of the dimensionless logic place value circle center zero point:

$$(1-\eta_{abc}{}^{2})=(1-\eta_a)^{(K=+1)}+(1+\eta_{bc})^{(K=-1)}$$
$$=(1-\eta_a)^{(K=+1)}+(1+\eta_b)^{(K=-1)}+(1+\eta_c)^{(K=-1)}=0,$$

Get the dimensionless logical factor:

$$(\eta_{abc})\in[(\eta_a)+(\eta_{bc})=(\eta_a)+(\eta_b)+(\eta_c)]=0$$
$$a=(1+\eta_a)\mathbf{D_0}{}^{(1)};\quad bc=(1-\eta_{bc})\mathbf{D_0}{}^{(2)};$$
$$(1-\eta_{bc})^{(K=-1)}\mathbf{D_0}{}^{(2)}=(1-\eta_b)^{(K=-1)}\mathbf{D_0}{}^{(1)}+(1-\eta_c)^{(K=-1)}\mathbf{D_0}{}^{(1)};$$
$$[(1-\eta_a)^{(K=+1)}+(1-\eta_b)^{(K=+1)}+(1-\eta_c)^{(K=+1)}]=(3);$$

The logarithm of a circle is related to the logarithm of a prime number. The logarithm of a circle plus a combination is equal to the logarithm of a prime number plus a combination.

$$X=(1-\eta_{abc})^{(K=-1)}3\mathbf{D_0}^{(1)}$$
$$=[(1-\eta_a)^{(K=+1)}+(1-\eta_b)^{(K=+1)}+(1-\eta_c)^{(K=+1)}](3)\mathbf{D_0}^{(1)}=(a+b+c);$$

Obtaining the logical circle logarithm multiplication combination is equivalent to specific prime multiplication combination:

$$X=(1-\eta_{abc})^{(K=-1)}\mathbf{D_0}^{(3)}$$
$$=[(1-\eta_a)^{(K=+1)}+(1-\eta_b)^{(K=+1)}+(1-\eta_c)^{(K=+1)}]\mathbf{D_0}^{(3)}=(abc);$$

For example, the addition of prime numbers is equivalent to dimensionless logical addition, yet they differ in essence. (3) represents dimensionless logical addition with an 'infinite axiom' self-validation mechanism, termed 'even-term asymmetry.' Traditional mathematics classifies (1+2=3) as 'odd' or 'odd-power function,' while dimensionless logic is closely related to three-dimensional complex analysis.

(2) Exchange of Dimensionless Logic Circle and the Self-Proof of the Infinitesimally True or False of the 'Infinity Axiom'

Binary and ternary numbers can both adopt the 2×2={2}^2 grid and 3×3={3}^2 grid of dual logic codes (numerical/bit values), which can be extended to S×S={S}^2 (S=0,1,2,3,... infinite integers), achieving the integration of mathematical and artificial intelligence computing through "numerical analysis and logical analysis".

The solution employs a logical code numerical center-point matrix to address balance asymmetry. This method converts the dimensionless logic of "multiplication and addition" into zero-symmetry bit-value centers. By combining the numerical center points with bit-value zero points and applying random self-validation to ensure error-free deduction, it resolves the challenges of "infinite" and "axiomatic incompleteness" through its unique "infinite axiom" mechanism. In essence, the "dual logical code (numerical/bit-value)" ensures the invariance of numerical properties for "infinite" and "irrational" numbers, achieving zero-error precision in deduction.

For example, the equilibrium exchange of two elements (ab) and one element (c) in a ternary system:

$$\text{(true statement)}\ \{\mathbf{a,b}\}^{(K=-1)[(Z\pm S\pm(N)\pm(q=01,2,3)]/t}=(1-\eta_{ab}^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)[(Z\pm S\pm(N)\pm(q=2)]/t}$$
$$\leftrightarrow[(1-\eta_{[ab]}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[c]}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{(K=\pm1)[(Z\pm S\pm(N)\pm(q=0,12,3)]/t}$$
$$\leftrightarrow(1-\eta_{[c]}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=+1)[(Z\pm S-(N)\pm(q=1)]/t}\leftrightarrow\{\mathbf{c}\}^{(K=+1)[(Z\pm S+(N)\pm(q=1)]/t}\ \text{(reciprocal statement)}$$

(3), The Operational Approach of "Dimensionless Logic Circle"

The dimensionless logic circle is based on the operation of "no mathematical model, no interference of specific elements", and the results of "infinite axioms" deal with the combination and transformation of "multiplication and addition", which depends on the "fusion of classical analysis and logical analysis".

(a)、The asymmetry of the logical value center point (the center zero line and the critical line) satisfies the completeness of the even term of the discrete jump transition.

(b)、The zero point (critical point) symmetry of the bit value center satisfies the compatibility of the "even term" of the continuous-discrete inverse transition of the characteristic mode.

(c)、The zero point symmetry of the logarithm center of the dimensionless logic circle contains the random self-proving of the truth and falsehood through the zero point symmetry of the logarithm center of the dimensionless logic circle.

The balance of the even and odd number value center points and the balance of the zero value of the bit value center are respectively considered.

"Even parity" is converted to logical bit value parity, forming "even":

$$(1-\eta_{[C]}^2)^{(K=\pm0)}=[\Sigma(-\eta_a)+\Sigma(+\eta_{bc})]=0;$$

or: $$\Sigma(1-\eta_a^2)^{(K=\pm1)}+\Sigma(1-\eta_b^2)^{(K=\pm1)}=2(1-\eta_{ab}^2)^{(K=\pm1)};$$

Convert "even parity" to logical bit value parity, forming "odd parity":

$$(1-\eta_{[C]}^2)^{(K=\pm0)}=[\Sigma(-\eta_3)+\Sigma(+\eta_1+\eta_2)]=0.$$

or: $$\Sigma(1-\eta_a^2)^{(K=\pm1)}+\Sigma(1-\eta_b^2)^{(K=+1)}+\Sigma(1-(1-\eta_c^2)^{(K=-1)}=3(1-\eta_{abc}^2)^{(K=\pm1)};$$

(4), Generalization:

The new discovery of the dimensionless logic circle logarithm is a kind of circle logarithm infinite construction set between the real number set (S=0,1,2,3,... infinite) and the natural number set (S=0,1,2,3,... infinite). It has compactness, symmetry, isomorphism, and contains the zero point symmetry of infinite axioms and the random self-verification mechanism.

Set: Prime Elements X=(a,b,c,…S),

combined unit $X_0^{(1)}={}^{(S)}\sqrt{(a,b,c,\dots S)}$; combined unit $D_0^{(1)}=(1/S)(a+b+c+\dots+S)$;

Establish the logical relationship between prime numbers and dimensionless quantities:

Additive form: $X_0^{(1)}=(1-\eta^2)^{(K=\pm1)}\mathbf{D}_0^{(1)}$;

Combination form: $X_0^{(S)}=(1-\eta^2)^{(K=\pm1)}\mathbf{D}_0^{(S)}$

For example, in the S=(abcd...s) element, the 'infinite axiom' equilibrium exchange combination decomposition and its random self-validation mechanism: $\{\mathbf{D_0}\}^{(K=\pm1)[(Z\pm S\pm(N)\pm(q=S)]/t}$,

Balanced exchange of multiple elements (abcd...s) with partial elements:

$$\text{(true statement)}\ \{\mathbf{a,b,c}\}^{(K=-1)[(Z\pm S\pm(N)\pm(q=3)]/t}=(1-\eta^2)^{(K=-1)}\cdot\{\mathbf{D}_0\}^{(K=-1)[(Z\pm S\pm(N)\pm(q=3)]/t}$$

$$\leftrightarrow[(1-\eta_{[abc]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1\pm\eta_{[S-3]}{}^2)^{(K=+1)}]\cdot\{\mathbf{D}_0\}^{(K=\pm1)[(Z\pm S\pm(N)\pm(q=S)]/t}$$

$$\leftrightarrow(1-\eta_{[S]}{}^2)^{(K=+1)}\cdot\{\mathbf{D}_0\}^{(K=+1)[(Z\pm S-(N)\pm(q=S-3)]/t}=\{\mathbf{d\ldots s}\}^{(K=+1)(K=\pm1)[(Z\pm S+(N)\pm(q=S-3)]/t}\ \text{(reciprocal statement)};$$

Here, the mathematical nature is kept unchanged, the original proposition characteristic mode is not disturbed, and the balance exchange and random self-proving mechanism of the infinite axiom rule of the dimensionless logic is relied on to prove.

The distribution of prime numbers exhibits irregular patterns with varying density, currently represented by x/linx. This method remains within the realm of "approximate computation" and cannot achieve zero error. To address this, the x value corresponds to the feature modulus, forming a natural number logic value code sequence. This sequence is then converted into a logic bit value code sequence through multiplication/composition or addition/composition. By balancing and inverting the logic bit value code sequence from its zero-centered point, along with a random self-validation mechanism, zero-error computation can be achieved.

Notably, $(1-\eta_{[C]}{}^2)^{(K=\pm0)}$ embodies the zero-point symmetry inherent in the "infinite axiom". All equilibrium exchanges, while preserving the truth of (infinite) propositions, transform all elements into a 'dual logic code' matrix—a synthetic sequence of artificial logic codes. This approach integrates "numerical analysis" and "logical analysis" into a unified zero-point equilibrium exchange framework, enabling randomized self-validation of truth and falsity. By resolving "axiomatic incompleteness," it achieves proof independence, fairness, and correctness.

3.5.4 **Conclusion**

The Goldbach Conjecture employs a third-party dimensionless logical circle logarithm infinite construction set and its unique 'infinite axiom' for balanced exchange and random self-validation. Without altering the original proposition, it utilizes dual-logic code's dimensionless logic—' irrelevant to mathematical models and devoid of specific element content '—to achieve reciprocal balanced exchange, decomposition, and self-validation mechanisms. This drives the proof of (strong and weak) Goldbach Conjecture calculations for two or three prime numbers: (strong) Goldbach Conjecture:' Two sufficiently large prime numbers form an even number, essentially corresponding to the combination o f two dimensionless logical circle logarithms.'

$$\mathbf{(1-\eta_{[1+1]}{}^2)^{(K=+1)}}\text{(even symmetry)}\leftrightarrow\mathbf{(1-\eta_{[C]}{}^2)^{(K=\pm0)}}\text{(zero center)}\leftrightarrow\mathbf{(1-\eta_{[2]}{}^2)^{(K=-1)}}\text{(even function)};$$

(Good)Goldbach's Conjecture: "Three sufficiently large primes to form an even number, which is essentially the combination of logarithms of three dimensionless logical circles"

$$\mathbf{(1-\eta_{[1+2]}{}^2)^{(K=+1)}}\text{ (even item asymmetry)}\leftrightarrow\mathbf{(1-\eta_{[C]}{}^2)^{(K=\pm0)}}\text{(zero center)}\leftrightarrow\mathbf{(1-\eta_{[3]}{}^2)^{(K=-1)}}\text{(odd function)};$$

In number theory, geometry, algebra, group combinatorics, and various discrete-continuous mathematical models, the "prime multiplication combinatorics" framework achieves even and odd power functions through third-party logical equilibrium exchanges and self-validation mechanisms. This provides a mathematical foundation for Riemann function operations, the zero-point conjecture, and solving a series of century-old mathematical AI challenges. With maximum open-source compatibility and highest privacy protection, it is widely applicable across real-world scientific domains (physics, chemistry, biology, economics, military, and daily life).

3.6, [Theorem 6] Riemann's Zero Hypothesis — The Central Point and Central Zero Theorem

3.6.1, Historical Background of Riemann's Zero Hypothesis

One of the mathematical conjectures proposed by the great German mathematician Riemann in 1859 is:

(1), the conjecture about the distribution of zeros of Riemann's zeta function ζ(s)

(2), the conjecture that the non-trivial zeros of Riemann's zeta function $\zeta(s) = \sum n^{(K=-1)(S)}$(n from 1 to infinity) are all on the line Re(s) = 1/2.

In 1932, German mathematician C.L.Siegel presented a proof of the Riemann conjecture in the Riemann manuscripts. The author of the paper derived from a conclusive formula in the manuscript that all zeros of the zeta function (ζ(s)) in the rectangular region lie on the critical line.Mathematicians have advanced the Generalized Riemann Hypothesis (GRH), an extension of the Riemann Hypothesis, which addresses the distribution of zeros of L-functions. These complex functions play a pivotal role in number theory. GRH asserts that all L-functions have non-trivial zeros with real parts equal to 1/2. If this hypothesis holds, it would profoundly impact numerous problems in number theory.

For each original Dirichlet character χ, the generalized Riemann hypothesis (GRH†[χ]) is proposed based on the zeros of the associated L-function L(s, χ). The results show that for any such character, GRH†[χ] is equivalent to the generalized Riemann hypothesis.

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3.6.2、[Proof]:Generalized Riemann Function and Inverse Theorem

First, the incorrect notation of Riemann function $\zeta(s) = [\sum n^{(K=-1)(S)}]$ to $\zeta(s) = \sum n^{(K=-1)(S)}$, where the inverse of the Riemann function is taken again, which does not affect its generality.

The corresponding inverse function is $\zeta(s) = [\sum n^{(K=+1)(S)}]^{(K=+1)}$.

Define generalized Riemann function:

Positive Generalized Riemann Function Written as (Positive Power Function)$\zeta(s)^{(K=+1)}=\sum[n^{(K=+1)}]^{(K=+1)(Z\pm S)}$

Negative Generalized Riemann Function Written as (Negative Power Function)$\zeta(s)^{(K=-1)}=\sum[n^{(K=-1)}]^{(K=-1)(Z\pm S)}$,

Neutral Generalized Riemann Function Written as (Neutral Function)$\zeta(s)^{(K=\pm0)}=\sum[n^{(K=-1)}]^{(K=\pm0)(Z\pm S)}$,

Notably, the Riemann function ζ(s) = ∑_{n=-1}^{∞} (K=-1) (S) is rewritten as ζ(s) = ∑{n=-1}^{∞} (K=-1) (Z±S), termed the negative power function without altering its generality. Negative power functions, along with positive power functions and neutral power functions, form a series that transforms into a dimensionless logical circle. Here, the entire set of prime numbers 'dual logical value codes' constitutes a natural number sequence forming a 'logical value code matrix.' This matrix, composed of vertical and horizontal 'four-logical values' multiplicative combinations, yields a dimensionless logical circle's bit value code matrix sequence through division by the' average value of four-logical values squared. 'This yields

$$\zeta(s)^{(K=-1)} = \sum(1-\eta^2)^{(K=\pm1)} \cdot\zeta(s_0)^{(K=+1)(Z\pm S)},$$

facilitating the derivation of bit value center zero-point symmetry—a method for proving the Riemann zero-point conjecture. In Riemann function analysis, obtaining the relationship between bit value center zero points and surrounding bit value logical factors allows the original logical value code to be reconstructed, then mapped to the function equation's prime numbers. Thus, any high-order equation composed of arbitrary primes can achieve analytical roots.

Mathematical models describe the operational and transformational characteristics of universal laws, giving rise to the inverse theorem. However, the numerical values directly described by mathematical models and existing elemental forms are constrained by the axiomatic incompleteness and locality, often preventing direct implementation of operations and transformations with positive, neutral, and negative properties. The inverse theorem, derived within the dimensionless logical circle {0,1} as a third-party "irrelevant mathematics without specific (elemental) content," excludes interference from concrete elements, thereby ensuring a certain degree of fairness and reliability.

The Riemann zero point conjecture is based on the zero point of the invariant array of the characteristic module, and the zero symmetry of the Riemann function is proved.

[Proof]: Derived from the above five theorems

first reciprocity theorem：

$$G(\cdot)F(\cdot)=\zeta(s)^{(K=-1)}\cdot\zeta(s)^{(K=+1)}=(1-\eta^2)^{(K=-1)}\zeta(s_0)^{(K=-1)}+(1-\eta^2)^{(K=+1)}\zeta(s_0)^{(K=+1)};$$

The Second Dimensionless Logic Bit Value Inversion Theorem：

$$(1-\eta^2)^{(K=\pm1)}=G(\cdot)/F(\cdot)=\zeta(s)^{(K=-1)}/\zeta(s)^{(K=+1)}=\zeta(s_0)^{(K=-1)}/\zeta(s_0)^{(K=+1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0 \text{ to } 1\};$$

The Third Theorem of Symmetry of Zero Point of the Inverse Bit Value Center：

$$(1-\eta^2)^{(K=\pm0)}=G(\cdot)\bullet F(\cdot)=\zeta(s)^{(K=-1)}\bullet\zeta(s)^{(K=+1)}=\zeta(s_0)^{(K=-1)}\bullet\zeta(s_0)^{(K=+1)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=-1)}=\{0 \text{ or } 1\};$$

The dimensionless logical circle unification formula:

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

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

specifically: $(1-\eta^2)^{(K=\pm1)}=\{0 \text{ to } 1\}$ corresponds to the multiplication combination; $(1-\eta^2)^{(K=\pm1)}=\{0 \text{ or } 1\}$ corresponds to the addition combination. Under the logarithmic dimension logic circle framework, multiplication and addition combinations can be randomly interchanged, sometimes without substantial differences—this phenomenon is termed the duality of multiplication and addition combinations. The controlling factors are (classical analysis) numerical center asymmetry and (logical analysis) bit value center zero symmetry. These two aspects exhibit integrative properties, enabling successful analysis of numerous phenomena and forms under this integration.

3.6.3、According to the results of theorem 1 and 2, we get;

positive Riemann function：$\zeta(s)^{(K=-1)}=\{1+1/2^{(S)}+1/3^{(S)}+1/4^{(S)}+\ldots\}^{(K=-1)}$

negative Riemann function：$\zeta(s_0)^{(K=+1)}=(1/S)\{1+2^{(S)}+3^{(S)}+4^{(S)}+\ldots\}^{(K=-+1)}$

The Relationship and Expansion of Logarithm of Dimensionless Logic Circle with Riemann Function：

$$\zeta(s)^{(K=-1)}=(1-\eta^2)^K\zeta(s_0)^{(K=+1)};$$

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

S=1,2,3,...n... (Z±S) is the combination of any finite prime number in the infinite prime number, and the expansion of the prime number by the dimensionless logic circle can easily find the {1/2} of the critical point of the "Riemann function center zero symmetry" on the critical line {0,1};

(1) **,** When the total number of elements remains constant, the geometric mean unit of the product combination $\{^{(S)}\sqrt{abc...s}\}$ divided by the arithmetic mean unit of the sum combination $\mathbf{D_0^{(1)}}$ yields a 'constant' that maintains isomorphic computational time consistency, adaptable to varying combinations of prime elements. This constant, termed 'self-divided by itself is not necessarily 1,' forms a dimensionless logical circle $(1-\eta^2)^{(K=\pm1).}$ Formula:

Geometrical mean,geometric average,geometric mean: $\mathbf{D=\{^{(S)}\sqrt{D}\}^{(S)}}=\{^{(S)}\sqrt{abc\ldots s}\}^{(S)}$;

Aarithmetic mean value : $\mathbf{Do^{(1)}}=(1/S)(a+b+c+\ldots+s)$

$$\mathbf{(1-\eta^2)^{(K=\pm1)}=\{^{(S)}\sqrt{D/Do^{(1)}}\}^{(S)}=\{0\ to\ 1\}};\quad (S=0\ 1\ 2\ 3\ 4\ldots infinite);$$

(2), The total number of elements is the same, the prime number multiplication combination resolution 2 center point two sides decomposition into "even number of items symmetry and asymmetry" (A,B) two sub items, respectively get (A,B) corresponding$[(1-\eta_A{}^2)^{(K=+1)}+(1-\eta_A{}^2)^{(K=-1)}$"],

Geometric mean of (A, B) respectively :

$$D_A=\{^{(S)}\sqrt{D_A}\}^{(S)}=\{^{(S)}\sqrt{abc\ldots s}\}_A{}^{(K=+1)(S)};\quad D_B=\{^{(S)}\sqrt{D_B}\}^{(S)}=\{^{(S)}\sqrt{abc\ldots s}\}_B{}^{(K=-1)(S)};$$

Aarithmetic mean value :

$$\mathbf{Do_A{}^{(K=+1)(1)}}=(1/S)(a+b+c+\ldots+s)_A;\ \mathbf{Do_B{}^{(K=-1)(1)}}=(1/S)(a+b+c+\ldots+s)_B$$

$$(1-\eta_A{}^2)^{(K=\pm1)}=\mathbf{\{^{(S)}\sqrt{D/Do^{(1)}}\}_A{}^{(K=+1)(S)}}=\{0\ to\ 1\}_A;\quad (S=0\ 1\ 2\ 3\ 4\ldots infinite);$$

$$(1-\eta_B{}^2)^{(K=\pm1)}=\mathbf{\{^{(S)}\sqrt{D/Do^{(1)}}\}_B{}^{(K=-1)(S)}}=\{0\ to\ 1\}_B;\quad (S=0\ 1\ 2\ 3\ 4\ldots infinite);$$

(3), The Conversion Between Logic Code and True Proposition:

Based on the Variable "Constant" of the Combination Form of the Prime Number Corresponding to the Logarithm of the Isomorphic Circle

（a）， modulus of symmetry characteristic of distribution of numerical center points (identical position)**{α}:**

$$(1-\eta_A{}^2)^{(K=\pm1)}/(1-\eta_B{}^2)^{(K=\pm1)}=\mathbf{\{^{(S)}\sqrt{D/Do^{(1)}}\}_A{}^{(S)}/\{^{(S)}\sqrt{D/Do^{(1)}}\}_\alpha{}^{(S)}}$$

$$\mathbf{=\{^{(S)}\sqrt{D_A}/^{(S)}\sqrt{D_B}/^{(S)}=\{Do_A{}^{(1)}/Do_B{}^{(1)}\}^{(S)}=\{\alpha\}};$$

（b）， Modular Coefficient of Asymmetry of Distribution of Zero Points in Numerical Value Center**{β}:**

$$(1-\eta_A{}^2)^{(K=\pm1)}/(1-\eta_B{}^2)^{(K=\pm1)}=\mathbf{\{^{(S)}\sqrt{D/Do^{(1)}}\}_A{}^{(S)}/\{^{(S)}\sqrt{D/Do^{(1)}}\}_\beta{}^{(S)}}$$

$$\mathbf{=\{^{(S)}\sqrt{D_A}/^{(S)}\sqrt{D_B}/^{(S)}=\{Do_A{}^{(1)}/Do_B{}^{(1)}\}^{(S)}=\{\beta\}};$$

（c）， The dual-logic numerical/bit value code matrix grid forms a dimensionless logic circle:

$$\mathbf{(1-\eta^2)^{(K=\pm1)(Z\pm S\pm Q\pm N\pm(q=0,1,2,\ldots infinite)}=\{0,1\}},$$

among：The numerical geometric mean of the "double logic code" matrix is the matrix of the numerical center point balance asymmetry expansion, which deals with the relationship of "multiplication combination and addition combination", and forms the dimensionless logic circle value center zero point symmetry expansion matrix.

In particular, in the same number field, if the number of elements is the same and the position of the numerical center point is the same, the characteristic modulus coefficients **{α}, {β}** of their characteristic modulus (average value) or boundary function (geometric mean value) are obtained when they are converted into the log of the circle of the bit value.

(a)，The rationality and feasibility of the "double logic code" of the integer theorem have expanded the application scope of mathematics and artificial intelligence.

(b)，Proves that within the same number field, the "infinite axiom" achieves zero-error computation at each step through a balanced conversion combination decomposition centered on the zero point of the numerical/bit value and a random self-validation mechanism.

Thus, through the dimensionless logical bit value circle logarithm power function (path integral) controls n=K (Z±S±Q± (N=0,1,2)± (q=1,2,3,... infinite) rational linear expansion.

3.6.4、**[Proof 3]:** The Prime Number Theorem and the Dimensionless Logic Circle and Characteristic Mode

The Prime Number Theorem characterizes the general distribution of prime numbers. Individually, prime numbers appear without discernible pattern among positive integers. Yet when viewed collectively, their count follows discernible regularity. For positive real numbers x, **π**(x) is defined as the number of prime numbers not exceeding x. Mathematicians have developed functions to estimate the value of **π**(x). The first such approximation is:**π**(x) ≈ x/ln x, where ln x denotes the natural logarithm of x. This formula indicates that as x approaches infinity, the ratio of **π**(x) to x/ln x converges to 1 (Note: This result was discovered by Gauss). However, this convergence does not imply that their numerical values increase proportionally with x.

In 1901, Swedish mathematician Helge von Koch proved that if the Riemann conjecture holds, the error term estimate of the above relation can be improved to: **π(x) = Li(x) + O(x^$^{(1/2)}$ ln x)**, but the constant of the large **O** term is still unknown.

The traditional Prime Number Theorem (PNT) cannot solve the "large O-term constant" problem. Computers rely on the distribution of prime numbers in big data models to approach the zero-symmetry center, which brings inconvenience to scientific computing.

The characteristic mode and the dimensionless logic circle are extracted from the Riemann function respectively. According to the theorem above, the average value of the prime number combination form {$\mathbf{D}_0^{(S)}$} is composed in the specified prime number field, and the method is as follows:

（**1**）The "Dual-Logic Code" employs natural number logic sequences for all prime numbers (including twin primes) across number fields, regardless of uniformity, non-uniformity, or distance between primes. These sequences generate "Numerical Analysis" matrices to reflect the asymmetry of central point balance (critical line function). When converted into "Logical Bit Values" matrices, the symmetry of central zero points demonstrates stability, reliability, and interpretability. The relationship between prime number groups and individual primes, along with their quantities, is analyzed through characteristic modulus coefficients **{α}{β}**.

（**2**）The "Dimensionless Logical Circle" employs natural number logic codes to form central point values across all prime numbers (including twin primes) in the number field, regardless of uniformity or distance between primes. Each prime number undergoes positional exchange (mapping or morphism) through "shared numerical center points," creating uniformly distributed prime number blocks that reflect no central point asymmetry. These are then transformed into a "logical bit value" matrix, where the symmetry of the central zero point demonstrates stability, reliability, and interpretability. The relationship between prime number groups and individual primes, along with their quantities, is analyzed using characteristic modulus coefficients**{α}{β}**.

（**3**）The logical numerical code and characteristic mode solve the statistical difficulty of "Riemann conjecture" because of "uneven distribution of prime numbers". As long as the position of the numerical center point is not changed, no matter the distance between prime numbers, the dimensionless logical bit value is not changed. The {$\mathbf{D}^{(S)}$} solves the "prime number theorem" and the bit value center zero point $(1-\eta_{[C]}^2)=0$ for accuracy and stability, ensuring zero error accuracy.

（**4**）The logical numerical code and characteristic mode solve the statistical difficulty of "Riemann conjecture" because of "uneven distribution of prime numbers". As long as the position of the numerical center point is not changed, no matter the distance between prime numbers, the dimensionless logical bit value is not changed. The {$\mathbf{D}_0^{(S)}$} solves the "prime number theorem" and the bit value center zero point $(1-\eta_{[C]}^2)=0$ for accuracy and stability, ensuring zero error accuracy.

In this way, the dimensionless logic maintains the reliability and feasibility of Riemann function zeros by preserving their zero-centered symmetry through logical bit values, without altering the original prime numbers (in terms of quantity or value). This eliminates the need to process the irregular distribution of prime numbers over time. These advancements provide a solid mathematical foundation for the Riemann function zero conjecture, revolutionizing traditional mathematical computation methods.

3.6.5、proof of the Riemann zero point conjecture

Riemann functions constitute a pivotal mathematical domain bridging algebraic geometry and topology. The challenge in proving the Riemann zero point conjecture stems from the inherent limitations of axiomatic systems, which prevent numerical values from being commutative when employing balanced asymmetry proofs centered on numerical points. Empirical evidence demonstrates that all classical analytical algorithms (including classical computing) developed for "arbitrary finite number fields within infinity" fail to identify central zeros in contemporary scientific contexts. These approaches prove computationally intensive, resource-consuming, and energy-intensive, ultimately yielding only approximate computations.

The inverse theorem of dimensionless logic circle mentioned above is the introduction of the concept of "irrelevant mathematical model" to Riemann function, which is composed of multiple elements to form a double logic (numerical/bit value) code to form an infinite arbitrary finite grid matrix, and obtains the numerical center point and the bit value center zero point symmetry through the dimensionless logic circle, ensuring the stability and accuracy of the center zero point of Riemann function.

The invariant proposition (large models, big data) forms the characteristic mode, numerical center point, and bit-value center zero position to ensure the reliability of the matrix sequence. Through the relative comparison of "multiplicative combination and additive combination," it is converted into a dimensionless logical bit-value code. By maintaining the symmetry of the dimensionless logical bit-value center zero, the stability of the center zero point is preserved, yielding precise and stable Riemann center zero point values, bit values, and positions.

The mobility of the center point of balanced asymmetry based on logical numerical center points is termed the mobility of the center point position on the critical line of Riemann functions. When converted to the zero-symmetry of bit-value centers, the fixed position of the critical point "zero center point" on the critical line of Riemann functions ensures analytical reliability and precision. Thus, the Riemann zero point conjecture encompasses proofs for both the critical line (where the numerical center point corresponds to the characteristic mode center point) and the critical point (where the zero-symmetry of bit-value centers corresponds to the zero center point).

proof of necessity：

Let: Riemann function of any finite prime number field in infinity, called "sum of reciprocal and reciprocal"

$$\zeta(s)^{(K=-1)}=\{1+1/2^{(S)}+1/3^{(S)}+1/4^{(S)}+1/5^{(S)}+1/6^{(S)}+1/7^{(S)}+1/8^{(S)}+1/9^{(S)}+\ldots\}^{(K=-1)},$$

Riemann function, riemann function ：

$$\zeta(s_0)^{(K=+1)}=(1/S)\{1+2^{(S)}+3^{(S)}+4^{(S)}+5^{(S)}+6^{(S)}+7^{(S)}+8^{(S)}+9^{(S)}+\ldots\}^{(K=-+1)}$$

Logarithmic Relation Between Riemann Function and Dimensionless Logic Circle：

$$\zeta(s)^{(K=-1)}=(1-\eta^2)^{(K=+1)}\zeta(s_0)^{(K=+1)};$$

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

Riemann Function and Dimensionless Logic Circular Symmetry Mechanism：

$$(1-\eta_]{}^2)^{(K=\pm0)}=(1-\eta^2)^{(K=+1)}+(1-\eta^2)^{(K=--1)}=\{0,11\};$$

Infinitary Axiom Random Self-Proof Mechanism:

$$(1-\eta^2)^{(K=+1)}\leftrightarrow(1-\eta^2)^{(K=\pm0)}\leftrightarrow(1-\eta^2)^{(K=--1)} \text{ corresponding } \mathbf{D}_0{}^{(S)};$$

Establishing the Dimensionless Logic Circle Logarithm System of Equations

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

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

among：$(1-\eta^2)^K$ processing "multiplication combination and addition combination", in the dimensionless logic circle form of expression is not too much difference.

Get the bit value center zero point: $(1-\eta_{[C]}{}^2)^K$：

$$(1-\eta_{[C]}{}^2)^K=\{1/2\}\text{suit}\{0,1\}; \text{ or } (1-\eta_{[C]}{}^2)^K=\{0\}\text{sui}\{+1,-1\};$$

Among：The Riemann zero point conjecture involves the group combination's internal and external dimensionless circle logarithmic center zero points. The movement of the coordinate center point does not affect the logical circle values.

Numerical center point (critical line):topological product of corresponding eigencharacter；

$$\Delta_1=(1-\eta_{\Delta[C]}{}^2)^{(K=\pm0)}=\zeta(s_0{}^{(S)})^{(K=-1)}/\zeta(s_0{}^{(S)})^{(K=+1)}=\{0,1\};$$

Bit value center zero point (critical point):The corresponding feature probability is added to the combination;

$$\Delta_2=(1-\eta_{[C]}{}^2)^{(K=\pm0)}=\zeta(s_0{}^{(1)})^{(K=-1)}/\zeta(s_0{}^{(1)})^{(K=+1)}=\{0\text{or}[1/2]\text{or}1\};$$

The Riemann function employs a "dual logic (numerical/bit value) code" to demonstrate numerical equilibrium asymmetry with the numerical center point as the critical line. This critical line transforms into a point of logical bit value symmetry along the critical line. Specifically, the Riemann zero point conjecture directly utilizes the numerical center point to prove its critical line, which is converted into a third-party dimensionless logical circle, yielding $(1-\eta_{[C]}{}^2)^K=\{1/2\}$ bit value center zero point symmetry. Thus, the Riemann zero point conjecture requires the "integration of classical analysis and logical analysis" to achieve precise center zero points.

Hamilton proved that the three-dimensional complex analysis cannot handle the conversion between two-element and one-element numbers, stating that "there are no ternary numbers." To date, this mathematical field remains a void. They play a crucial role in the theoretical construction of artificial intelligence.

The application of Goldbach's Conjecture in Theorem 5 employs dimensionless logical circles to resolve the "symmetry-asymmetry equilibrium transition" problem, establishing a relationship between Riemann functions and dimensionless logical circles that can be extended to three-dimensional complex analysis [***jik***]. Specifically, the numerical conversion between two-dimensional elements (plane projections, topology) and one-dimensional elements (axes, probability) can be achieved through the "irrelevant mathematical model" of dimensionless circles—specifically, the analytical or combinatorial representation of logical circles without concrete elements within the {0,1} interval analogously:

$$\zeta(s)^{(K=-1)}=(1-\eta_{[jik]}{}^{2})^{(K=+1)}\zeta(s_0)^{(K=+1)};$$
$$(1-\eta_{[jik]}{}^{2})^{K}=(1-\eta_{[jik]}{}^{2})^{(K=+1)}+(1-\eta_{[jik][C]}{}^{2})^{(K=\pm0)}+(1-\eta_{[jik]}{}^{2})^{(K=-1)}=\{0,2\};$$

Among：$(1-\eta_{[jik][C]}{}^{2})^{(K=\pm0)}$As the conjugate center point of three-dimensional complex analysis, the zero point of the position value logic circle is kept balanced and symmetrical exchange.

Riemann Function and Dimensionless Logic Circle Three Dimensional Complex Analysis ***[jik***] Symmetry Mechanism:

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

Infinitary Axiom Random Self-Proof Mechanism：

The Balance Exchange and Random Self-Proof of the External Integrity of Groups

$$(1-\eta_{[jik]}{}^{2})^{(K=+1)}\leftrightarrow(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik]}{}^{2})^{(K=-1)} \text{ corresponding } \mathbf{D}_0{}^{(S)};$$

群组合内部整体性的平衡交换与随机自证：

$$(1-\eta_{[j]}{}^{2})^{(K=+1)}\leftrightarrow(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}\leftrightarrow(1-\eta_{jik]}{}^{2})^{(K=-1)} \text{ corresponding } \mathbf{D}_0{}^{(S)};$$

Establish a dimensionless three-dimensional logical circle logarithmic system of equations: Obtain:

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

The Symmetry and Stability of the Three-dimensional Bit-value Center Zero Point $(1-\eta_{[C][jik]}{}^{2})^{K}$ of Riemann Function

$$(1-\eta_{[C][jik]}{}^{2})^{K}=\{1/2\}\text{suit }\{0,1\}; \text{ or } (1-\eta_{[C][jik]}{}^{2})^{K}=\{0\}\text{suit}\{+1,-1\};$$

among：Riemann zero point conjecture contains group combination internal and external dimensionless circle logarithm center zero point, three-dimensional coordinates movement does not affect the logical circle value.

Number center point (critical line):

$$\Delta_1=(1-\eta_{\Delta[C]][jik]}{}^{2})^{(K=\pm0)}=\zeta(s_0{}^{(S)})^{(K=-1)}/\zeta(s_0{}^{(S)})^{(K=+1)}=\{0,1\};$$

corresponding to the characteristic mode, topology, multiplication combination;

Bit value center zero point (critical point):

$$\Delta_2=(1-\eta_{[C]][jik]}{}^{2})^{(K=\pm0)}=\zeta(s_0{}^{(1)})^{(K=-1)}/\zeta(s_0{}^{(1)})^{(K=+1)}=\{0 \text{ or } [1/2] \text{ or} 1\};$$

corresponding to the feature mode, probability, combination;

among：$\zeta(s_0)^{(K=\pm1)}$（Fit to combination, ellipse, eccentric circle）,$\zeta(s_{00})^{(K=\pm1)}$（Fit with combination, centered circle） They function as the center point and zero point of the 'geometric mean function' and 'arithmetic mean function', respectively. The shift in the coordinates of the circular logarithm's zero point does not affect its positional value. When Δ_1 and Δ_2 are distinct, it triggers an adjustment of the numerical center point. When Δ_1 and Δ_2 coincide, it results in a balanced exchange combination decomposition and self-validation of the numerical center point.

In particular, $(1-\eta_{[jik][C]}{}^{2})^{(K=\pm0)}$ is the projection of the plane in the three-dimensional quadrant of the complex analysis coordinate center (called conjugate center zero point), and the normal line is parallel to the axis, which establishes the conjugate center zero point reciprocal transformation characteristic.

first-order limit： $(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=+1)}+(1-\eta_{[i]}{}^{2})^{(K=+1)}]+(1-\eta_{[k]}{}^{2})^{(K=+1)}=\{0,1\};$

fifth restriction： $(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=+1)}+(1-\eta_{[i]}{}^{2})^{(K=+1)}]+(1-\eta_{[k]}{}^{2})^{(K=-1)}=\{0,1\};$

second order limit： $(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=+1)}+(1-\eta_{[i]}{}^{2})^{(K=-1)}]+(1-\eta_{[k]}{}^{2})^{(K=+1)}=\{0,1\};$

Sixth Limitation： $(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=+1)}+(1-\eta_{[i]}{}^{2})^{(K=-1)}]+(1-\eta_{[k]}{}^{2})^{(K=-1)}=\{0,1\};$

third-order restriction：$(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=-1)}+(1-\eta_{[i]}{}^{2})^{(K=-1)}] +(1-\eta_{[k]}{}^{2})^{(K=+1)}=\{0,1\};$

the seventh limit： $(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=-1)}+(1-\eta_{[i]}{}^{2})^{(K=-1)}] +(1-\eta_{[k]}{}^{2})^{(K=-1)}=\{0,1\};$

fourth limit： $(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=-1)}+(1-\eta_{[i]}{}^{2})^{(K=-1)}] +(1-\eta_{[k]}{}^{2})^{(K=+1)}=\{0,1\};$

the eighth restriction： $(1-\eta_{[jik]}{}^{2})^{(K=\pm0)}=[(1-\eta_{[j]}{}^{2})^{(K=-1)}+(1-\eta_{[i]}{}^{2})^{(K=-1)}] +(1-\eta_{[k]}{}^{2})^{(K=-1)}=\{0,1\};$

among：The sixth element is the restriction 1, that is, the order of the subscripts determines the properties and attributes.

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

In three-dimensional complex analysis, probability conditions are systematically combined through sequences strictly following the Hamilton-Wang Yiping "Left-Hand Rule". This rule specifies that when four fingers are curled toward the palm, the direction is clockwise, with the thumb pointing to "+"; conversely, it points to "-". The framework comprises six axes, eight quadrants, and each quadrant contains three planes where normal lines and axes exhibit balanced symmetry, thereby establishing the physical space.

In the artificial intelligence computer, the logic must pass through the three-dimensional/ two-dimensional complex analysis, through the logic gate {1000↔0000↔0111} to carry out the high-density information network transmission of probability condition combination.

As previously stated, in any finite prime field, a polynomial composed of any number of identical elements can be transformed into a dimensionless logical bit value circle. This transformation demonstrates that the central zero symmetry exhibits isomorphic consistency, with the central zero bit value remaining unchanged. The central zero point is defined as '0' in the {−1,0,+1} set, or as '1/2' in the {0,1} set. The coordinate shift of the central point does not affect the specific logical bit value.

[sufficiency proof]

Numerous mathematical models capture the complexity of the world, introducing inherent complexities, uncertainties, intricate computational procedures, and even unsolvable problems. When the number of elements (or combinations) is known, their inherent complexity can be disregarded. By creating logical code grids (numerical/bit values) corresponding to the number of elements, these can be transformed into operations using binary logic codes. In this context, converting all elements into binary logic codes serves as a "template and tool." By applying the principle of permutation, this approach facilitates solving a series of traditional mathematical challenges, cryptography issues, and high-density information transmission problems in artificial intelligence logic gates. This methodology is adaptable to both third-generation AI and superquantum computers, meeting their operational requirements.

（**1**）、A grid matrix for dual logic (digital/bit) codes

The numerical center point exhibits (energy) balance asymmetry, whereas the bit value center zero point demonstrates (energy) balance symmetry. This yields a "dimensionless logical code value/bit value (dual logical code)". Machine learning extracts the four-logical-value logic gate {1000↔0000↔0111} for "one-to-nine" information haracter high-density transmission .

In this context: (truth propositions (function, model, space, group combination elements) are represented by bold letters, while logical codes are indicated by hollow letters) The relationship between logical code sequence and real propositions:

$$(1-\eta^2)^K=\mathbf{D}/\mathbf{Do}^{(9)}=\mathbf{D}/\mathbf{Do}^{(9)}=D/\mathbf{D}=Do^{(9)}/\mathbf{Do}^{(9)}=Do/\mathbf{Do};$$

Center zero offset adjustment: $\eta_{[\Delta C]}Do/\eta_{[C]}$ (set the bit value center zero symmetry to 0 by selecting an integer);

（**2**）、Riemann function equation:

Given any two of the three elements **D, Do**, $(1-\eta^2)^K$, the analysis can be performed without necessarily requiring mathematical modeling.

For instance, the Riemann function (a nine-prime number equation) corresponds to dual-logic codes (numerical/bit values), forming either a 9×9=81 two-dimensional matrix or a 9×81=729 three-dimensional matrix. The AI matrix establishes four groups of "four-logic-value" symmetry A and asymmetry B, with their corresponding logic values adapted to logic gates (1000 ↔0000 ↔0111) and circuits. The asymmetric four-logic-value composition is illustrated in (Figure 6).

The dimensionless logic bit value code sequence satisfies the center zero symmetry: $\Sigma(-\eta_{AB}) + \Sigma(+\eta_{AB}) = 0$; the numerical center point balance cannot achieve exchange. Converting to the bit value center zero can balance the exchange combination decomposition and the random self-validation error correction mechanism.

(3) Conversion between truth propositions and logical propositions: (1- η2) = D(9)/D0(9) = D0(9)/D0(9). This demonstrates that any mathematical equation element can be converted into a "dual logic (numerical/bit value) code" for combination or analysis.

(4) Any model and three-dimensional grid mathematics-Artificial intelligence grid size adapt to the mathematical model needs, write the size of the grid, at the same time in the operation of a logical circle isomorphic consistency simple program, to carry out "high-density information network transmission", greatly improve the computing power, simplify the mathematical-artificial intelligence calculation program.

(**5**)、If the grid object is a ternary, quinary, heptary, nonary, undecary, tridecary, quinary, or nonary number (Go grid), the corresponding matrix's bit value center zero point becomes the grid matrix's infinite computational power.

The numerical values of the grid feature mode center points are as follows: the previous feature mode {D0+4n}=the subsequent feature mode numerical value center points: (n=1,2,3,4,6,7...infinite) 1,5,13,25,41,61,85,113...;

This fundamentally enhances high-density information transmission capabilities, significantly improves algorithms, computational power, and data processing efficiency, while reducing the size of computational programs/chips, power consumption, and the overall volume of software/hardware.

The double logic (value-bit value) code grid sequence is variable, and the characteristic modulus value is variable, but the bit value center zero point $[\eta_{[C]}]$ =0 remains constant. The calculation program remains unchanged, while the characteristic modulus comparison coefficients {α}, {β} can be converted into a three-dimensional complex analysis $(1-\eta_{[jik]}^2)^K$ matrix.

The calculations demonstrate: 3×3=9, 5×5=25; 7×7=49; 9×9=81,11×11=121;...; 3×3×3=29,5×5×5=125; 7×7×7=343; 9×9×9=729,11×11×11=1331;...; where the center point values of the two-dimensional feature mode match those of the three-dimensional feature mode. The matrices of **2D** complex analysis $(1-\eta[ji]^2)K$ and **3D** complex analysis $(1-\eta_{[jik]}^2)^K$ are applied to 3D chip fabrication. This indicates that the design principles for **2D** and **3D** chips are identical.

(Figure 6.1) (Illustrative example) Schematic diagram of Riemann function grid formation for converting four-valued logic

(Figure 6.2) (Illustrative example) Schematic diagram of Riemann function grid formation for converting four-valued logic

（**6**）、The high-density transmission of information network in two-dimensional and three-dimensional forms:

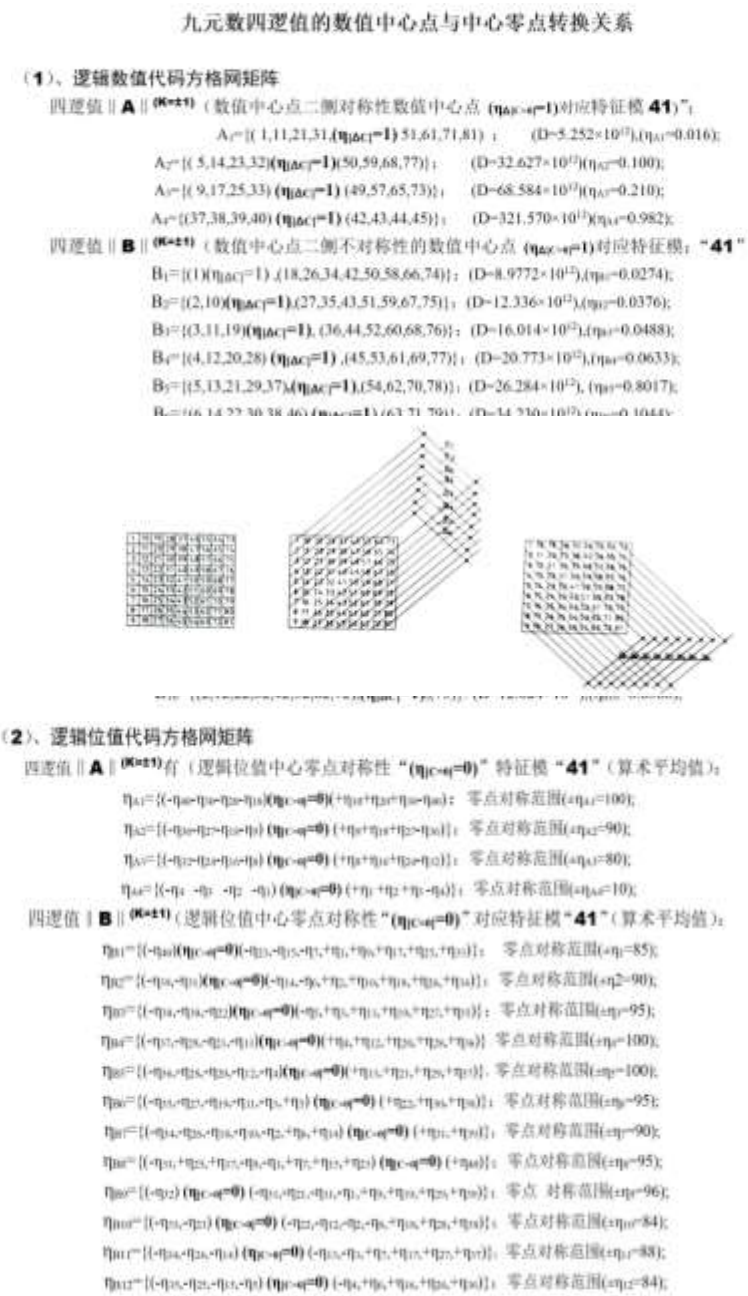
$\{3\}^{2n};\{5\}^{2n};\ \{7\}^{2n};\ \{9\}^{2n};\{11\}^{2n};\ \ldots;$ or $\{3\}^{3n};\{5\}^{3n};\ \{7\}^{3n};\ \{9\}^{3n};\{11\}^{3n};\ \ldots;$

Correspondence between three-dimensional (***jik***) logic lattice networks:

$$(1-\boldsymbol{\eta}_{[jik]}^2)^K=\{\mathbf{D/Do}\}^{K(Z\pm S\pm Q\pm N\pm q))/t}=(1-\boldsymbol{\eta}_{[jik]}^2)^K+(1-\boldsymbol{\eta}_{[jik]}^2)^K+(1-\boldsymbol{\eta}_{[jik]}^2)^K=\{0 \text{ to } 1\};$$

The conversion relationship between the axis of the three-dimensional (***jik***) logic grid and the plane:

$$(1-\boldsymbol{\eta}_{[j]}^2)^{(K=+1)}=(1-\boldsymbol{\eta}_{[ik]}^2)^{(K=+1)};\ (1-\boldsymbol{\eta}_{[i]}^2)^{(K=+1)}=(1-\boldsymbol{\eta}_{[kj]}^2)^{(K=+1)};\ (1-\boldsymbol{\eta}_{[k]}^2)^{(K=+1)}+(1-\boldsymbol{\eta}_{[ji]}^2)^{(K=+1)};$$



The three-dimensional (***jik***) logical lattice provides a reliable and interpretable mathematical foundation for advancing quantum computing and chip manufacturing.

(Figure 6.3) (Illustrative example) Schematic diagram of Riemann function grid formation for converting four-valued logic

3.6.6, The Relation between the Infinite True Proposition and the Matrix Sequence of Logic Code

[Theorem 1] demonstrates the solution to the fusion problem between multiplicative combinations (geometric mean) and additive combinations (arithmetic mean), introducing the concept of 'dimensionless logical circle (circle logarithm)'. [Theorem 2] addresses the integer expansion of polynomials. [Theorem 3] establishes the isomorphic consistency of computational time for logical circles (circle logarithms). [Theorem 3] proposes the inverse transformation between ellipses and central circles. [Theorem 4] reveals the balance asymmetry of numerical center points. [Theorem 5] presents the inverse transformation of balance asymmetry for dimensionless logical numerical center points. [Theorem 6] investigates the symmetry transformation of bit-value center zero points.

Similarly, for a true proposition about prime numbers within a specific range, regardless of whether the distribution is uniform or sparse, we select any finite number of prime numbers as (Z±S). This forms a "logical numerical code" matrix composed of natural numbers (or other custom codes) in the sequence. By multiplying and combining the numerical codes across the vertical, horizontal, or diagonal lines of the numerical center point, we obtain a dimensionless "logical bit value code" matrix. The bit value codes corresponding to the vertical, horizontal, or diagonal lines of the bit value center zero point are added and combined to form a bit value code with zero-point symmetry. This process achieves balanced exchange and random self-validation, returning numerical codes that drive the numerical analysis of the true proposition's prime root.

The double logic code can correspond to any true proposition (with the same number of elements), and there is a mutual conversion relationship between true propositions and logic codes, which makes the double logic code form have great flexibility and privacy.

For example: (illustrative example) S=9 prime numbers) boundary function (permutative combination) $\mathbf{D}_{(Z\pm S=9)}$ = {abcdefghl},

polynomial combination coefficient：(1,9,36,84,126,126,84,36,9,1),total combination coefficient：$2^9=512$；

characteristic mode (plus combination average)：$\mathbf{Do}^{(1)}$=(1/9){a+b+c+d+e+f+g+h+l}

To better understand the conversion relationship between numerical center points and positional zero points, the nine true proposition elements are transformed into a sequence of logical numerical codes.

For example: $\mathbf{Do}^{(1)}$ = (1/9) {a+b+c+d+e+f+g+h+l} = "11".

Considering the numerical balance and asymmetric distribution of nine elements, we construct a 9-element matrix (9×9=81) with code sequence {1,2,3,...,[41],...,79,80,81} corresponding to the numerical center point (41), forming a balanced asymmetric distribution.

[0↔9][1↔8][2↔7][3↔6][4↔5][5↔4][6↔3][7↔2][8↔1]；

In other words, the numerical center point is symmetrically offset from the zero center point by η△C, where this offset is measured in code units (the same applies hereafter). Proof: The relationship between dimensionless logical true propositions and logical code conversion:

[Prove]

Given: True proposition elements multiplied by combination **D**, characteristic modulus $\mathbf{Do}^{(S)}$ (represented by real letter hearts); logical code sequence elements multiplied by combination **D**, characteristic modulus {**Do**} (represented by empty letter hearts); solving the characteristic modulus comparison coefficient **(Ω)=[{α}, {β}]** problem.

$$\{^{(S)}\sqrt{\mathbf{D}}\}=(1-\boldsymbol{\eta}_{\mathbf{D}}^2)\{\mathbf{Do}\}; \quad \{^{(S)}\sqrt{\mathbf{D}}\}=(1-\boldsymbol{\eta}_{\mathbf{D}}^2)\{\mathbf{Do}\};$$

Obtained: Logical Factor Conversion Coefficient (Ω) (Greek letter, pronounced Ouga):

$$(\mathbf{\Omega})=\{^{(S)}\sqrt{\mathbf{D}}\}/\{^{(S)}\sqrt{\mathbf{D}}\}=(1-\boldsymbol{\eta}_{\mathbf{D}}^2)/(1-\boldsymbol{\eta}_{\mathbf{D}}^2)\{\mathbf{Do}\}/\{\mathbf{Do}\}\boldsymbol{\eta}_{\triangle\mathbf{D}}/\boldsymbol{\eta}_{\triangle\mathbf{D}};$$

Get: True proposition logical factor offset value range:

$$\mathbf{D}=(1-\boldsymbol{\eta}_{\mathbf{D}}^2)\mathbf{Do}; \ \mathbf{D}=(1-\boldsymbol{\eta}_{\mathbf{D}}^2)\cdot\{/\mathbf{Do}\};$$

When $(1-\eta_D^2)$ equals $(1-\boldsymbol{\eta}_{\mathbf{D}}^2)$, the logical factor conversion coefficient (**Ω**) is obtained (Greek letter, pronounced 'Ouga').

$$(\mathbf{\Omega})=(1-\boldsymbol{\eta}_{\mathbf{D}}^2)=\mathbf{D}/\mathbf{D}=\{\mathbf{Do}/\mathbf{Do}\}=\boldsymbol{\eta}_{\triangle\mathbf{D}}/\boldsymbol{\eta}_{\triangle\mathbf{D}};$$

{abcdefghl}corresponding$(1-\boldsymbol{\eta}_{\mathbf{D}}^2)=(1-\boldsymbol{\eta}_{\mathbf{D}}^2)$：：

$$(\mathbf{\Omega})\cdot[(1-\boldsymbol{\eta}_{\triangle\mathbf{D}1}),(1-\boldsymbol{\eta}_{\triangle\mathbf{D}2}),(1-\boldsymbol{\eta}_{\triangle\mathbf{D}3}),\ldots,(1-\boldsymbol{\eta}_{\triangle\mathbf{D}9})]\cdot\{\mathbf{Do}\},$$

$$\mathbf{D}=(\mathbf{\Omega})\cdot[(1-\boldsymbol{\eta}_{\triangle\mathbf{D}1}),(1-\boldsymbol{\eta}_{\triangle\mathbf{D}2}),(1-\boldsymbol{\eta}_{\triangle\mathbf{D}3}),\ldots,(1-\boldsymbol{\eta}_{\triangle\mathbf{D}9})]\cdot\mathbf{Do}^{(S)}\},$$

Thus, the root element can be derived from the logical factor offset value($\boldsymbol{\eta}_{\triangle\mathbf{D}}/\eta_{\triangle D}$).

$$\mathbf{D}_1=(\mathbf{\Omega})\cdot(1-\boldsymbol{\eta}_{\triangle D1})\cdot\mathbf{Do}^{(1)}\},$$

$$\mathbf{D}_2=(\mathbf{\Omega})\cdot(1-\boldsymbol{\eta}_{\triangle D2})\cdot\mathbf{Do}^{(1)}\},\ldots;$$

$$\mathbf{D_P=(\Omega)\cdot(1-\eta_{\triangle DP})\cdot Do^{(1)}\},}$$

For example, the grid size of mathematical AI can be customized to meet mathematical model requirements, and it can be implemented as an AI memory or a universal computing table.Then, the random self-verification mechanism is carried out.

In this way, without altering or preserving the premise of (infinite) true propositions, any mathematical prime number model can extract both "logical numerical codes" and "logical bit value codes" —referred to as "dual logical codes" —and obtain "irrelevant mathematical models with no specific (quality) element content" through "self (multiplication element) divided by self (addition element)". These models perform computations within the logical circle {0,1} using a random self-validation error correction mechanism. This approach not only resolves the "infinite" issue but also overcomes the challenge of "axiomatic incompleteness".

The zero-point symmetry of dimensionless logical bit value circle logarithm ensures the critical line of Riemann function's numerical center point and the stability, security, balance exchangeability, and random self-validation mechanism of the critical point "$(1-\eta_{[jik]}{}^2)^K$={0 to 1}" on the critical line corresponding to the zero point of bit value center. The critical point on the critical line is "±1/2" suitable for {0,±1} (coordinate movement does not affect the numerical value of bit value circle logarithm).

Similarly, for a true proposition about prime numbers within a specific range, regardless of whether the distribution is uniform or sparse, we select any finite number of prime numbers as (Z±S). This forms a "logical numerical code" matrix composed of natural numbers (or other custom codes) in the sequence. By multiplying and combining the numerical codes across the vertical, horizontal, or diagonal lines of the numerical center point, we obtain a dimensionless "logical bit value code" matrix. The bit value codes corresponding to the vertical, horizontal, or diagonal lines of the bit value center zero point are added and combined to form a bit value code with zero-point symmetry. This process achieves balanced exchange and random self-validation, returning numerical codes that drive the numerical analysis of the true proposition's prime root.

Specifically, due to the uneven distribution of prime numbers, the complex analysis of the circular logarithm "(1-η[jik]2)K={0 to 1}" is used to adjust the distribution, making it more uniform and suitable for statistical calculations. This method is similar to the approach in the "Four Color Theorem."

3.6.7. The Difference Between the Numerical Center Point and the Positional Center Zero Point

For example (with S=9 elements): The "Dual Logic (Numeric/Bit) Code" converts all true proposition elements into natural number sequences (or custom codes) as logical value codes (9×9=81) matrices. The average value of all matrix elements is termed the characteristic modulus $\mathbf{Do}^{(1)}$.

(1) ，Logical value code matrix: Each value is structured with symmetrical four-logical values (A) multiplied by combinations DA in both vertical and horizontal rows, and asymmetrical four-logical values (B) multiplied by combinations DB in diagonal rows. This matrix is uniformly denoted as $\mathbf{D}_{AB}$ or **D**, with the unit cell defined as $\{{}^{(9)}\sqrt{\mathbf{D}}\}$. The numerical center point {ΔC=41} corresponds to each row's logical value, where the "numerical center point" is decomposed into two parts at resolution 2 to balance asymmetry.

[0↔9],[1↔8],[2↔7],,[3↔6],[4↔5],[5↔6],[6↔5],[7↔2],,[8↔1],[9↔0],

Arrange the matrix combination in natural number order. Its "numerical center point" is arranged in natural number order, with balanced asymmetry and non-commutability.

（2）、The logic bit value code matrix is a four-valued matrix, each element of which is multiplied by the combination/feature modulus. Based on the "numerical center point," it is transformed into the "bit value center zero point" resolution 2, decomposed into balanced symmetry, and then undergoes the balanced exchange combination decomposition and random self-validation of the "infinite axiom."

$$(1-\boldsymbol{\eta}^2)=\{{}^{(9)}\sqrt{\mathbf{D}}\}/\mathbf{Do^{(1)}};$$

$$(1-\boldsymbol{\eta}_{[C]}{}^2)^{(K=\pm0)}=\boldsymbol{\Sigma(-\eta^2)+\Sigma(+\eta^2)=0;\ or\ (\eta_{[C]})^{(K=\pm0)}=\Sigma(-\eta)+\Sigma(+\eta)=0;}$$

$$(1-\boldsymbol{\eta}_{40}{}^2)^{(K=+1)},(1-\boldsymbol{\eta}_{39}{}^2)^{(K=+1)},\ldots,(1-\boldsymbol{\eta}_{1}{}^2)^{(K=+1)},(1-\boldsymbol{\eta}_{[C]}{}^2)^{(K=\pm0)},(1-\boldsymbol{\eta}_{1}{}^2)^{(K=+1)}\ldots,(1-\boldsymbol{\eta}_{39}{}^2)^{(K=-1)},(1-\boldsymbol{\eta}_{40}{}^2)^{(K=-1)},$$

The "Dual-Logic (Numeric/Bit) Code" visually demonstrates the unrestricted integration of classical computing and logical computation, thereby avoiding the circuit-intensive and power-consuming iterative methods of traditional computers.

The "Dual-Logic (Numeric/Bit) Code" exhibits top-tier open-source characteristics, while the logic code format on both ends maintains top-tier privacy. The computational table can also serve as an artificial intelligence Turing machine memory system .

3.6.8 Positive Role of Zero Theorem of Riemann Zero Point Conjecture

In the dimensionless logic practice, the total number of prime numbers within the computational range of Riemann functions remains constant, regardless of their unevenness or asymmetry. The characteristic modulus composed of prime numbers (power dimension) is obtained through 'dual logic code,' 'infinite axiom,' and three-dimensional complex analysis exchange rules, leading to the universal application of the Riemann zero point conjecture (numerical center point and bit value center zero symmetry) in the field of mathematics-artificial intelligence.

（1）、The Characteristic Mode of Prime Distribution Theorem: Regardless of the uneven distribution of specific primes (or any other numerical values), the magnitude of prime numbers, the distance between them, varying parameters, different orientations, or varying levels of "cluster sets," a deterministic characteristic mode (arithmetic mean) $\mathbf{Do}^{(S)}$ can be defined for prime numbers or prime code values. $\mathbf{Do}^{(S)}$ is expressed as $\Sigma_{[s=1]}\{\mathbf{X}^{(-S)})^{(K=-1)}$, where X may represent primes, cluster sets, or other logically codeable numerical sequences. In this context, the distribution of prime numbers is not a key component in exploring the Riemann zero point conjecture.

（2）、The dimensionless logical bit value matrix $(1-\eta_D{}^2)$ equals 1. The set S of $^{(S)}\sqrt{\mathbf{D}/\mathbf{Do}}=\{0,1\}$ preserves infinite true propositions. By establishing the numerical center point asymmetry logic threshold $\mathbf{(1-\eta_{\Delta C}{}^2)\neq\{0,1\}}$ and the logical bit value threshold $\mathbf{(1-\eta_{\Delta[C]}{}^2)=0}$, this framework achieves zero-point equilibrium symmetry between bit values and random self-validation truth systems, enabling analytical verification of propositions. This paradigm fundamentally transforms traditional mathematical engineering and AI (high-density information character transmission) algorithms.，

（3）、Based on prime function (infinite true proposition) and other continuous digitalizable values, the entanglement-type multiplication combination (numerical analysis) grid $\mathbf{(1-\eta_{\Delta C}{}^2)\neq\{0,1\}}$ is transformed into a dimensionless logical (bit value analysis) grid network symmetric addition combination $\mathbf{(1-\eta_{\Delta[C]}{}^2)=\{0,1\}}$. While preserving the inherent nature of true propositions, it effectively handles the relationships between group combinations as a whole and individual elements, between wholes and wholes, and between individual elements.

Thus, variations in prime numbers (and other quantifiable values), dynamic control systems, and three-dimensional network hierarchies can be mathematically represented through first-and second-order calculus, as well as network-level analysis. Specifically:

(a) The synchronization dynamics between global group combinations are distinguished by power functions (N=±0,1,2... network levels);

(b) For a given power level (calculus order), the relationship between global group combinations and individual root elements' logarithmic relationships can be effectively analyzed through calculus, system engineering control, zero-error high-computing-power solutions, high-dimensional power equation analysis, and high-density information character transmission challenges.

From the perspective of mathematical-ai algorithms, dimensionless logical circle computation represents a novel mathematical theory that demonstrates exceptional integration of classical and logical analysis. All mathematical objects—including the Langland Program (covering arithmetic, algebra, geometry, and group theory)—can be transformed into algebraic 簇-polynomials. These can be extracted into a 'dual logic (numerical/bit-level) code' matrix sequence, along with characteristic modulus conversion coefficients {Ω}, central zero-point symmetry, and stochastic self-validation mechanisms. This approach achieves zero-error precision, enabling the transmission of high-density information characters from original single-variable arbitrary-order Turing machine logic gates, as well as the analysis of root element properties.

3.6.9，Conclusion

The central zeros of Riemann functions can be obtained through the 'dual logic code' matrix, which addresses the questions required by the Riemann zero conjecture (Table 1): Firstly, the numerical characteristics are determined by the size of the grid formed by any finite element of Do(S) (where S = 2, 3, 4, 5, 6,... infinitely), thereby clarifying the number of prime numbers.

Secondly, the critical points on the bit value critical line exhibit either (±1/2) symmetry for the {0,±1} range or (0) symmetry for the {+1, -1} range, where coordinate shifts do not affect the specific values.

（**1**）、The numerical characteristic matrix corresponds to the logical numerical code sequence $(\eta_{\Delta C}=1)^{(K=\pm1)}$, and its connecting line is the critical line, and the points on the line are the numerical center points, which satisfy the balance asymmetry.

(2) The dimensionless logical bit value matrix corresponds to the logical bit value code sequence and numerical center point superposition $(\eta_{[C]}=0)^{(K=\pm0)}$, with its numerical critical line transitioning to the bit value center zero point, satisfying equilibrium symmetry.

(3) For any prime function (an infinite true proposition), regardless of its internal sparsity, if deterministic power dimensions and characteristic modules are available, computations can be performed using deterministic equal-power-dimension 'dual logic codes' and 'infinite axioms' along with three-dimensional complex analysis rules. The root solution of the prime function (entangled multi-qubit state) is then derived through dimensionless logical coefficients (Ω). This approach enables high-density information character transmission in artificial intelligence, fundamentally

enhancing data processing capabilities and boosting $\{S\}^{\wedge 2n}$ qubit computational power.

The mathematical feature of the dimensionless logical circle resolves the "integration of classical analysis and logical analysis," applicable across scientific domains including physics, chemistry, biology, economics, military science, and daily life. It also enhances the information density transmission of logic gates (1000↔0000↔0111) in artificial intelligence Turing machines, improves their computational power, and facilitates three-dimensional chip design and fabrication.

4. Artificial Intelligence, Quantum Computing and Dimensionless Logic

From its early 1980s laboratory origins to today's global quantum race, artificial intelligence has evolved into a strategic arena where algorithms, computing power, data, and theoretical frameworks now compete as indicators of national technological prowess and economic strength. The industry has witnessed explosive advancements in chip design, manufacturing techniques, material selection, and network transmission technologies, making it a focal point of competition among nations.

4.1.1, Historical Background of Artificial Intelligence Turing Machines and Machine Learning

In artificial intelligence, machine learning based on Turing machine computation involves applying machine learning and deep learning to specific datasets while making predictions and judgments on other data. As an interdisciplinary field, it integrates probability theory, statistics, computer science, and related disciplines. The core concept entails training models with massive training datasets to uncover underlying patterns, enabling accurate classification or prediction of new inputs. The theoretical foundations of machine learning trace back to the 1950s, when the earliest concepts of artificial intelligence emerged. Early developments primarily focused on symbolic systems, including logic gate-based binary information transmission reasoning and expert systems that achieved intelligent behavior through rule-based knowledge bases.

Now, the dimensionless logical circle emerges, built upon reliable mathematical solutions for "single-variable higher-order equations." It introduces "dual logic (numerical/bit value) codes" and three-dimensional complex analysis rules, along with the "infinite axiom" numerical center zero-point symmetry balance exchange combination decomposition and a random self-validation error correction mechanism. This ensures zero-error operations in every step of mathematical-artificial intelligence integration.

The machine learning mechanism of the dimensionless logical circle quantum computer operates through four stages:

(1) ,Data selection (identifying statistical feature modes);

(2) ,Model data processing (converting dimensionless logical circle logarithms);

(3) ,Model application (employing dual-logic code);

Model optimization (selecting infinite axioms to balance exchange combination decomposition with random self-validation). The system outputs ternary logic gates {1000↔0111} for high-density information character transmission, delivering inference capabilities and universal system performance with high computational results.

Using the balanced exchange and random self-validation mechanism of dual-logic code, the numerical example demonstrates how this approach resolves the "one-to-many" high-density transmission of information characters for monomorphous higher-order equations and quantum computer logic gates (multiplication combination: (1000), addition combination: (0111). This breakthrough not only fundamentally enhances computational power and revolutionizes traditional quantum (internal/external) analysis methods, but also transforms two-dimensional chip manufacturing into three-dimensional chip production.

4.1.2 Three Current Computer Algorithms

In 2024, Professor Zhang Bo, an academician of the Chinese Academy of Sciences at Tsinghua University, said: Classical computers (first-generation computers): {0 or 1} choose one; (i.e., input one piece of information, output one piece of information); mainly rely on "conclusions, algorithms, and computational power"; Quantum computers (second-generation computers): {0, 1} exist simultaneously; (i.e., input one piece of information, output two pieces of information), mainly rely on "data, algorithms, and computational power". It is called "{2}2n qubits". The computational foundation of quantum computers is Shor's algorithm + Toffel algorithm = quantum entanglement. Shor's algorithm is a quantum algorithm {2}2n designed for integer factorization problems. The Floyd algorithm is a classical dynamic programming algorithm that n-approximates many computational principles.

$$\{a^n+b^n\}=(a^{r/2}+1)(b^{r/2}-1)=(R_0{}^r-1)(R_{0r}+1)\to(R_0{}^{2r}-1)\to(1-1/R_0{}^{2r})R_0{}^{2r}\to\{2\}^{2n},$$

Because the quadratic root cannot be applied in computer, the logarithm of circle is introduced into computer in the form of dimensionless logical circle, so the number 2 is called the reliable mathematical basis of quantum computer. The Shor algorithm is converted into the dimensionless circle logarithm quantum bit {2}^2n algorithm, which has the same calculation result.

$$\{a^n+b^n+\Delta 1\}=\{A^n+B^n\}^{(2)}\to(1-\eta^2)^K\{2R_0\}^{2n}\to(1-\eta^2)^K\{2\cdot R_0\}^{2n}\to(1-\eta^2)^K\{2\}^{2n};$$

The circular logarithm has an isomorphic consistency calculation method, which can be extended to the combination and decomposition of multi-element qubits. Currently, it is only applied to the "combination" transmission stage. In other words, the "decomposition" stage may not yet have a satisfactory solution. For example, the team led by Pan Jianwei in China applied new high-parallel computing to solve 1000 quantum computations, which was listed as one of the top ten physical achievements of 2025.

Quantum computer with circular qubits (third-generation computer):

$$\{a^n+b^n+\Delta 1\}^{(3)}=\{A^n+B^n\}^{(3)}\to(1-\eta^2)^K\{2R_0\}^{3n}\to(1-\eta^2)^K\{3\ \cdot R_0\}^{2n}\to(1-\eta^2)^K\{3\}^{2n};$$

The above derivation mimics the Scholz algorithm but lacks interpretability. The Cardan formula based on cubic monomials only computes symmetry, rendering it universally applicable. The logarithm of circles takes a novel approach: it resolves the symmetry and asymmetry of cubic monomials through dimensionless logical circles, and by leveraging

computers, it becomes a quantum computer with base-3.

Artificial intelligence computers first require solving ternary complex analysis of circular logarithm, corresponding to establishing the conversion of four-valued logic gates {10 01 00 11} into {1000↔0111} (the inverse conversion between multiplication combination and addition combination). This is referred to as the first step in artificial intelligence to solve ternary qubits {3}^2n, creating new transmission conditions for high-power information transfer in the next step. The "logic gate" operates by inputting circular logarithm information to drive high-density information transmission, outputting three complex analyses and "high-density information" known as "even-term asymmetric information", with base $\{3\}^{\wedge 2n}$ as dimensionless circular logarithm qubits. This can be extended to $\{S\}^{\wedge 2n}$ or $\{S\}^{\wedge 3n}$ (S=1,2,3,4,... infinite) of {1000↔0111} (representing the inverse conversion between multiplication combination and addition combination), achieving infinite computational power with zero error at each step.

The circular logarithm boasts an isomorphic consistency calculation method, which can be extended to the combination and decomposition of multi-element qubits. Currently, it is only applied to the "combination" transmission stage. In other words, the "decomposition" stage (i.e., "physical mechanical implementation of interpretable neural network reverse engineering") remains unsolved. International AI experts anticipate a solution by 2026. Coincidentally, the circular logarithm has successfully resolved this challenge.

4.2 ,Third-Generation Artificial Intelligence: Dimensionless Logical Circular Quantum Computer

4.2.1 , Overview of AI Development

From 2019 to 2025, artificial intelligence will see computer processing power reach {2}^2n qubits. Japan launched 50 qubits this year and plans to introduce 1000-level qubits by 2030; Google's quantum chip has increased from 53 qubits to 105 qubits. By 2025, China's Pan Jianwei team has already achieved 1000 optical qubits.

If the global scientific agenda requires one million qubits, it may still take a considerable time. This highlights the current shortage of computing power. As first and second-generation AI lacked independent theoretical frameworks, their development hit a ceiling. To address this challenge, AI experts worldwide have proposed that third-generation AI systems should be built on "theory, data, algorithms, and computing power".

Many artificial intelligence experts at home and abroad have proposed suggestions and directions for the development of artificial intelligence. For example, Academician Zhong Yixin from China's Beijing University of Posts and Telecommunications proposed a "paradigm revolution," which involves a comprehensive transformation of traditional computers in terms of theory, chips, operating procedures, production methods, data processing, as well as algorithms and computing power. The China Artificial Intelligence Society holds an innovation competition every year. Academician Zhong Yixin has successively awarded the "First Prize" (2021) and three "Special Prizes" (2022,2023,2024) to the "Series of Circular Logarithm Theory" in the (Theoretical Innovation Group).

In 2024, Academician Zhang Bo said at an international artificial intelligence conference: The third-generation artificial intelligence has the following characteristics: novel and independent "mathematical theoretical foundation, efficient data compression or decomposition processing capability, high algorithmic consistency with isomorphism, and infinite computing power with zero-error calculation methods at every step." In 2024, Academician Zhang Bo was awarded the innovative "logarithm of circle theory" and the "Special Prize," indicating that the China Artificial Intelligence Society highly values the development and application of the "Wang Yiping logarithm of circle" theory.

The Circle Logarithm Theory (dimensionless logical circle) operates without mathematical models or specific (mass) elements in {0,1} operations. Through dual-logic (numerical/bit) codes, innovative three-dimensional complex analysis, and a randomized self-validation error-correction mechanism, it ensures zero-error deduction of new algorithms and infinite computational power. It boasts top-tier open-source compatibility and unparalleled privacy. The Circle Logarithm Quantum Computer emerges as the optimal candidate for third-generation artificial intelligence.

4.2.2, The Circle Logarithm Theory of Artificial Intelligence and Computer Qubits

Given: The boundary function (multiplicative combination) of the large model $\mathbf{D}_{[jik]}$ = (abc...s) S=1,2,3...∞; Task: Perform arbitrary high-order quantum (including weights) combinations and analysis of $\mathbf{Do}_{[jik]}{}^{(S)}$ in three-dimensional physical space. There is:

Numerical characteristic mode：

$$\mathbf{b=Do_{[jik]}}^{(1)}=(1/s)(a+b+c+...+s),\ \mathbf{c=Do}^{(2)}=(2/s(S-1))(ab+bc+...+sa),\ \ldots;$$

Dimensionless logic circle：

$$(1-\eta_{[jik]}^2)^K=\boldsymbol{D/Do^{(S)}}=(^{(S)}\sqrt{\boldsymbol{D/\{Do\}}})=\{0,1\};$$

Dimensionless logic circle expansion：

$$(1-\eta_{[jik]}^2)^{K(Z\pm S)}\in[(1-\eta_{[0]}^2)^K+(1-\eta_{[1]}^2)^K+(1-\eta_{[2]}^2)^K+\ldots+(1-\eta_{[s]}^2)^K]_{[jik]};$$

The position of the zero-point symmetry of the bit value center of the grid matrix satisfies:

$$(1-\eta_{[C][jik]})^K=\Sigma(1-\eta)^K+\Sigma(1+\eta)^K=0;$$

The high-power polynomial transformation of dimensionless logic circle can be used for three-dimensional quantum computing and three-dimensional chip manufacturing.

$$\{X\pm^{(S)}\sqrt{\mathbf{D}}\}_{[jik]}{}^{(S)}=aX^{(S-0)}\pm bX^{(S-1)}+cX^{(S-2)}\pm\ldots+mX^{(1)}\pm\mathbf{D}=(1-\eta_{[jik]}^2)^K[(0,2)\bullet\mathbf{Do}]^{(S)};$$

In artificial intelligence computation, the arbitrary (S) equation first performs (S±Q=***jik***) three-dimensional compound equation to establish a three-dimensional dual-logic code grid network.

Correspondence between three-dimensional (***jik***) logic lattice networks:

$$(1-\boldsymbol{\eta}_{[jik]}^2)^K=\{\mathbf{D/Do}\}^{\mathbf{K}}=(1-\boldsymbol{\eta}_{[jik]}^2)^K+(1-\boldsymbol{\eta}_{[jik]}^2)^K+(1-\boldsymbol{\eta}_{[jik]}^2)^K=\{0\text{ to }1\};$$

The conversion relationship between the axis of the three-dimensional (***jik***) logic grid and the plane:

$$(1-\boldsymbol{\eta}_{[j]}^2)^{(K=+1)}=(1-\boldsymbol{\eta}_{[ik]}^2)^{(K=+1)};\ (1-\boldsymbol{\eta}_{[i]}^2)^{(K=+1)}=(1-\boldsymbol{\eta}_{[kj]}^2)^{(K=+1)};\ (1-\boldsymbol{\eta}_{[k]}^2)^{(K=+1)}+(1-\boldsymbol{\eta}_{[ji]}^2)^{(K=+1)};$$

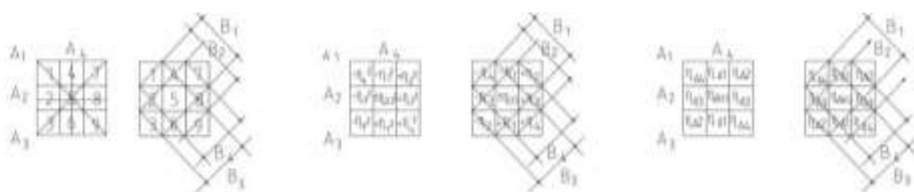
The three-dimensional (***jik***) logical lattice provides a reliable and interpretable mathematical foundation for advancing quantum computing and chip manufacturing.

For the letter arrangement: Left-handed technique involves rolling the four fingers toward the palm, with the thumb pointing to '+' and the opposite direction to '-'.

4.2.3 Arbitrary Model and (jik) Dual-Logic (Numerical/Bit) Code Grid

The artificial intelligence computer first performs ternary complex analysis of circular logarithms to establish the four-valued logic gate {10 01 00 11}. This corresponds to the ternary number {3}^2n {1000↔0111} (the inverse transformation between multiplication and addition combinations). The "logic gate" can input one circular logarithm, output three complex analyses, and generate "high-density information" known as "even terms 2n" with a dimensionless circular logarithm quantum bit base 3. This can be extended to {S}^2n (S=1,2,3,4,... infinite) {1000↔0111} (the inverse transformation between multiplication combination [0×1=0] and addition combination [0+1]).

Demonstration example: The ternary number series (ABC) forms a 3×9=27-value "dual-code" three-dimensional matrix, with a characteristic modulus of {5} or [$\eta_C=5^{(3)}$]; (Figure 7)



(Figure 7.1) Arbitrary model and 3D grid

If the ternary number grid remains unchanged, the object is a ternary number matrix, and the grid matrix with bit value center zero points [1,2,3,4,5,6,7,8,9.0] obtained a numerical element code combination of 729+81=810 from the "Circular Logarithm 999+99 Multiplication Table".

4.3. [Digital Example 2]: A program for a quantum computer to calculate the number of pairs of circles:

Adapt to data compression for information transmission: Key points: Select 'a numerical value as the processing form' from big data, and solve the combination and analysis of quantum information transmission problems by manually calculating the logic code of single digits (or using the multiplication table of 999 for logarithmic calculations).

Given: (13 bits) a=1,389,607,603,414, (14 bits) b=16,035,762,758,323, (12 bits) c=357,674,890,850, compressed into three-element computation. In this case, the logic gate information {1000↔0000↔0111} is transmitted as "1 information drives 3 numerical characters".

4.3.1 Complex Analysis of Trinomials (Cubic Equations in One Variable):

Select information transmission logic code:

"a=1,389,607,603,414(*2)；b=16,035,762,758,323(*6)；c=357,674,890,850(*7) "

information transmission key； a=(*2); b=*6; c=(*7), The product of three keys is **D**=84, and the sum of three keys is $\mathbf{D_0}^{(1)}$=5.00.

Trinomial (Trinomial Equation) Complex Analysis：

Known: Boundary function：$\boldsymbol{D}$=84， feature module $\boldsymbol{D}0^{(1)}$=15/3=5.00，or: $\boldsymbol{D}0^{(2)}$=22.67，

$$\{X\pm^{(3)}\sqrt{\mathbf{D}}\}^{(3)}=X^{(3)}\pm bX^{(2)}+cX^{(1)}\pm\mathbf{D}=(1-\eta[jik]^2)^K\{(0,2)\cdot\{\boldsymbol{D}0\}^{(3)};$$

1， Enter a known ternary number (a, b, c); feature module $\boldsymbol{D}$=84，

characteristic mode: $\boldsymbol{D}0^{(1)}$=15/3=5.00， $\boldsymbol{D}0^{(2)}$=22.67，

2， Machine learning (1) Circular logarithm digit value discriminant: Refer to the 'LC-999 Multiplication Table' (feature module $\mathbf{D_0}$=15/3)

$$\Delta 1=[(1\pm\eta\Delta^2)^K\mathbf{D0}]/\mathbf{D0}=0.672;\quad \Delta 2=\{\mathbf{D0}\}^{(2)}/(\mathbf{D0})^2=0.904;$$

Where: $\{D_0\}^{\wedge(2)}$ denotes the multiplication combination corresponding to a normal distribution with an uneven probability; $(\mathbf{D_0})$^2 denotes the multiplication combination corresponding to a normal distribution with a uniform probability.

3， Machine Learning (2) Logarithmic Discriminant:

The deviation of the bit value center point and the numerical center point;

$$\Delta 1=(1-\eta^2)^K=(^{(3)}\sqrt{\boldsymbol{D/D0}})=(\boldsymbol{D/D0}^{(3)})=84/125=0.672,$$

Get the zero deviation of the numerical center, and make the numerical jump adjustment;

$$\Delta 2=\{\boldsymbol{D0}^{(2)}\}/(\boldsymbol{R00}^2)=22.67/25=0.904,$$

4， Machine Learning (3) Circular logarithm digit value balance symmetry:

$$(\pm\eta^2)^K=(-3.00/5.00)^K+(+1.00/5.00)^K+(+2/5.00)^K=0;$$

5， Data Training (4) Circular Logarithmic Numerical Symmetry and elf-Verification mechanism: The balanced exchange of bit value logarithm factor with combination:

$$(a+b+c)=[(1-(3/5.00))^{(K)}\leftrightarrow(1\pm\eta[C]^2)^{(K=\pm0)}\leftrightarrow(1+(1/5.00))^{(K)}+(1+(2/5.00))^{(K)}]\cdot 5.00^{(1)}$$

The terminal input is {$\mathbf{D_0}$} and {**D**} and the sequence number, and the terminal output is {$\mathbf{D_0}$} and {**D**} and the sequence number.

6, Data Training (5) Circular-Logarithmic Symmetry: The multiplication combination manifests as 'Circular-Logarithmic Power Function Factor Balance Exchange:'

$$(1-\eta^2)^{(K=\pm1)}=(1-\eta[a]^2)^{(K=+1)}+(1-\eta[bc]^2)^{(K=-1)}=(1-\eta^2)^{(K=1+2=3)};$$

$$(a\cdot b\cdot c)=[(1-(3/5.00))^{(K=+1)}\leftrightarrow(1\pm\eta[C]^2)^{(K=\pm0)}\leftrightarrow(1-(1/5.00))^{(K=-1)}]^{(K=1+2=3)}\cdot 5.00^{(3)}\quad (1\pm\eta[C]^2)^{(K=\pm0)}=(1-\eta^2)^K\cdot 5.00^{(3=2+1)}=(0.672)\cdot 125=84;$$

7， Data Training (6) Symmetry between the logarithmic center point and the positional zero point, look up the table

$$(1-\eta\Delta[C]^2)^{(K=\pm1)}=(\pm3)=[(-3)+(+1)+(+2)]/5.00=0;$$

8，Calculate result：

Three logical code real roots：“2；6；7”

$\mathbf{a}$=(1-3/5.00) ·5.00=2；$\mathbf{b}$=(1+1/5.00) ·5.00=6；$\mathbf{c}$=(1+2/5.00) ·5.00=7；

Probability (Axis Projection)：

“***j***2， ***i***6， ***k***7”； $\{\boldsymbol{D}0^{(1)}\}$=(1/3)(2+6+7)=15/3=5.00；

Topology (plane projection)： ***ik*bc**=6 ·7;***kj*ca**=7 ·2；***ji*ab**=2 ·6; $\{\boldsymbol{D}0^{(2)}\}$=(1/3)(42+14+12)=22.67；

The conjugate center zero point symmetry property of the first quadrant circle logarithmic rectangular coordinate system is transformed, and the numerical exchange is driven.

“***ik*** 42↔$(1\pm\eta[C]^2)^{(K=\pm0)}$↔***j*** 2； ***kj*** 14↔$(1\pm\eta[C]^2)^{(K=\pm0)}$↔***i*** 6； ***ji*** 12↔$(1\pm\eta[C]^2)^{(K=\pm0)}$↔***k*** 7”。

4.3.2，Data model compression and information transmission of ternary autonomous code

[Digital Example 3]: The segmented (hierarchical) approach for autonomous code of ternary numbers compressed by geometric progression with base 3:**D=(xxx)$^{[S]}$ ，…，447，396，837，753，255；**

Select three bytes per group for segmentation and number them in ascending power of the code: [S]...[5], [4], [3], [2], [1] to indicate:

(Figure 7.2) 3D Complex Analysis Grid Table

among：**(jx+ix+kx)[S]** …Corresponding ； (447)×10[5] ； (396)×10[4] ； (873)×10[3] ； (753)×10[2] ； (255)


始端输出：$(D_0)\times10^{[1]}=(5)\times10^{[1]}$，$(D)\times10^{[1]}=132\times10^{[1]}$
终端输入：$(J2+I5+K5)\times10^{[1]}$；$(JI10+IK25+KI10)\times10^{[1]}$，
始端输出：$(D_0)\cdot10^{[2]}=(5)\times10^{[2]}$，$(D)\cdot10^{[2]}=105\times10^{[2]}$
终端输入：$(J7+I5+K3)\times10^{[2]}$，$(JI35+IK15+KI21)\times10^{[2]}$，
始端输出：$(D_0)\cdot10^{[3]}=(6)\times10^{[3]}$，$(D)\cdot10^{[3]}=168\times10^{[3]}$
终端输入：$(J8+I7+K3)\times10^{[3]}$；$(JI56+IK21+KI24)\times10^{[3]}$，
始端输出：$(D_0)\cdot10^{[4]}=(5)\times10^{[4]}$，$(D)\cdot10^{[4]}=132\times10^{[4]}$
终端输入：$(J3+I9+K6)\times10^{[4]}$，$(JI27+IK54+KI18)\times10^{[4]}$，
始端输出：$(D_0)\cdot10^{[5]}=(5)\times10^{[5]}$，$(D)\cdot10^{[5]}=112\times10^{[5]}$
终端输入：$(J4+I4+K7)\times10^{[5]}$，$(JI16+IK28+KI18)\times10^{[5]}$，…

×10[1];

(*j*4+***i***4+***k***7)×10[5] ； (*j*3+***i***9+***k***6)×10[4] ； (*j*8+***i***7+***k***3)×10[3] ； (*j*7+***i***5+***k***3)×10[2] ； (*j*2+***i***5+***k***5)×10[1];

Write it as a geometric series with a base of "3":

$\{3\}^1=3$, $\{3\}^2=9$, $\{3\}^3=27$, $\{3\}^4=81$, $\{3\}^5=243$, $\{3\}^6=729$, $\{3\}^7=2187$, $\{3\}^8=6561$, $\{3\}^9=19683$, $\{3\}^{10}=59049$,

It means that the number of values is 59049, and it is compressed into 3 values by 10 times.

The method involves: designing a new chip architecture based on the "Circular Logarithm 999 Multiplication Table," where the digital encoding utilizes ternary numbers as the output and input of autonomous code. Machine learning automatically converts: feature mode $\{\mathbf{D_0}\}^{(1)}$, boundary function **D**, using three symbols for logical density information transmission.

4.4， Dimensionless Logic Dual Logic Code Grid Matrix and Three-dimensional Chip Circuit Design

Artificial intelligence (AI) encompasses the broadest scope, including machine learning. Machine learning, a key research area in AI, further includes deep learning.

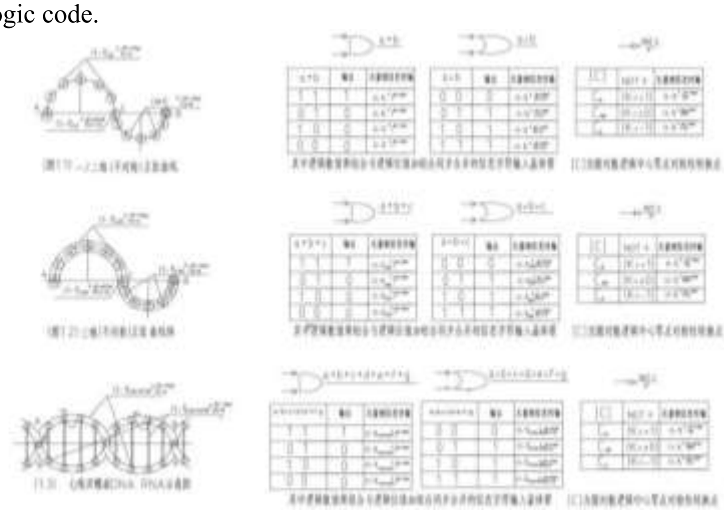
Machine learning, abbreviated as ML, is the English term for machine learning. While artificial intelligence remains a promising vision, how can we achieve it? The answer lies in machine learning. Deep learning, abbreviated as DL, is the English term for deep learning. Machine learning models are an evolving process. Later, researchers developed a more intelligent and versatile model—the convolutional neural network (CNN). CNN mimics the connections between synapses in the human brain, adjusting parameters to simulate synaptic strength.

(Figure 8) Schematic diagram of physical world simulation values/bits and computer logic gates

The artificial intelligence computer converts the physical world's sinusoidal curve into logical numerical sequence code, expressing the physical world's simulation values. It then transforms these values into logical bit value codes and computer logic gates (1000 (AND gate) -0000 (NOT gate) -0111 (OR gate)) as shown in Figure 8.

4.4.1. Convert the physical world into a numerical matrix of dual-logic code, then transform it into a four-valued logic gate.

The examples are as follows: (1) traditional two-dimensional digital logic code; (2) three-dimensional logic code; (3) high-dimensional logic code.



The traditional computer interprets the quadratic relation of "discrete-symmetry" as the four logical values "00 11 01 10" of the logic gate, and the information transmission density is "1 to 1". It means that one integrated circuit and electron tube {0,1} symbol drive one information transmission, which is inefficient. The mathematical limit is the determinant operation, which brings about the complex and huge calculation program.

In order to improve the transmission of information density, many artificial intelligence-physics experts, some from improving the algorithm, increasing the effect of data processing; some from the perspective of material physics, put forward "superconducting", "silicon light", etc., it is undeniable that can replace some functions. Unfortunately, no one has proposed to start from the high algorithm of mathematical method and logic gate information transmission so far, and the computer operation remains on the basis of $\{2\}^{\wedge 2n}$ (binary complex qubit). Especially the neural network, the program is huge, and the energy consumption is very large. The China Circular Logarithm team took the reform of mathematical methods as the starting point, proposed the dimensionless logical circle (circular logarithm) method to successfully solve the mathematical problem of any "one-element high-order method", and introduced the reform of computer algorithms as the "four-logic value" approach:

{11 00 01 10}∈{1×1=1； 0×0=0； 0×1=0； 1×0=0}={1000}；(AND gate with combination）；

{00 01 10 11}∈{0+0=0； 0+1=1 ； 1+0=1 ； 1+1=1}={0111}；(AND gate, OR gate）；

Logical Number/Bit Value Code Center Zero Symmetric Balance Conversion Infinite Axiom Self-Proof Mechanism

Internal Information Transmission of Dual Logic Code；**{1000↔0000↔0111}；**

External information transmission of dual logic code： **{1/0↔0/0↔01}；**

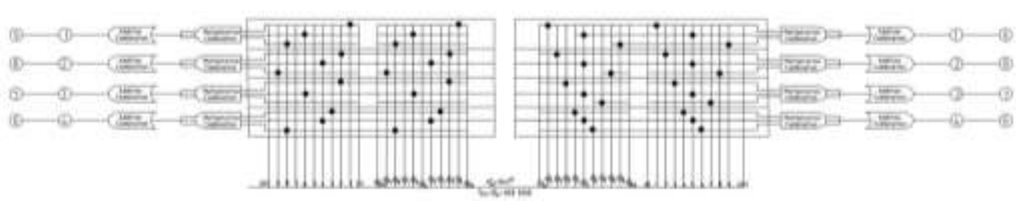
The logic gate passes through the numerical/bit value symbol, which contains high information transmission from {00 11 01 10} to {1000↔ 0111} (i.e., the multiplication combination of AND gate, the addition combination of OR gate, and the balanced inversion of NOT gate). This establishes a "dual logic (numerical/bit value) code," three-dimensional complex analysis, and the "infinite axiom" self-proof mechanism, fundamentally enhancing computational power.

The specific effects: The mathematical computation progresses from $\{2\}^{\wedge 2n}$ (binary complex qubits) to $\{3\}^{\wedge 2n}$ (ternary complex analysis) and further to $\{S\}^{\wedge 2n}$ (S=1, 2, 3, 4,... infinite) (S-ary complex qubits), thoroughly resolving the conversion relationship between "multiplicative combinations and additive combinations," the "symmetry and asymmetry" of high-power equations, and the reciprocal conversion rules of three-dimensional complex analysis. This reform enhances algorithms, computational power, and data processing capabilities.

Implementation method: {0,1} corresponds to $\{(1\pm\eta_{\Delta}^{2})^{(K=\pm1)}$ (logical value code addressing numerical center point asymmetry) and $(1\pm\eta^{2})^{(K=\pm1)}$ (logical bit value code resolving bit value zero-point symmetry exchange combination decomposition)}} mapping to {1000↔0000↔0111} (i.e., AND gate's AND combination↔OR gate's OR combination, along with $\{(1\pm\eta^{2})^{(K=\pm0)})$ NOT gate's balanced inversion conversion). By solving monomials of higher-order equations, the logarithm of a circle inherently contains higher-order information symbols. This enables high-density information transmission through logical gates, fundamentally revolutionizing mathematical foundations to drive advanced information transfer in logic gates.

4.4.2、The dual-logic code facilitates three-dimensional complex analysis through conversion. The logic code matrix extracts four logical values (A, B) from corresponding numerical/bit values. Specifically, the three-dimensional complex analysis logic code refers to high-power dimension equations under the conditions of probability distribution (J, i, k) of physical space axis projections and topological distribution (Ji, ik, kj) of plane projections. See the circuit schematic (Figure 9).

The first stage of computer science involves dimensionless logical circular three-dimensional complex analysis. This system, driven by logarithmic circular dynamics, combines probability-topology (including calculus dynamics and neural network analysis) with complex analysis and combinatorial rules to achieve numerical solutions for high-power-dimensional series. Essentially, three-dimensional complex analysis establishes the computational foundation for high-density information transmission through logical gates.(patent applied for at home）。



(Figure 9) Schematic diagram of a four-state logic value conversion circuit for A and B

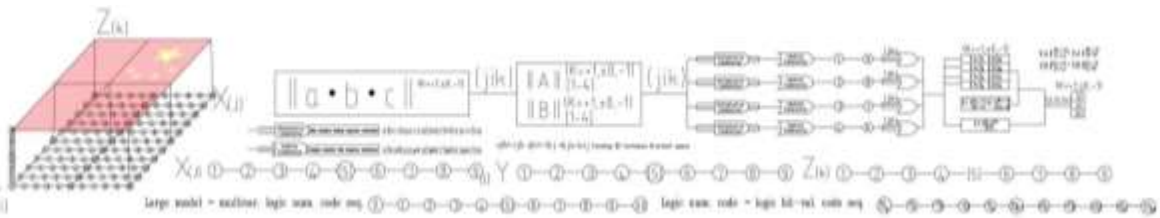
4.4.3， Principles of 3D Chip Design:

The principles of three-dimensional chip design and fabrication utilize two-dimensional/three-dimensional dual logic (digital/bit-level) codes, featuring invariant characteristic patterns and isomorphic consistent operation procedures. By employing four-bit values, the logic gates can be enhanced to {1000 ↔0111} (multiplicative AND/summative AND inverse permutation) {S}^2n, enabling high-density information transmission based on "S (high base)" as the foundation. This system uniformly corresponds to computer memory and algorithm programs through the A-series (centered point symmetry distribution) and B-series (centered zero-point symmetry distribution) of four-bit values.

The significance of this program lies in its dual-logic (digital/bit) code, which enables the design of three-dimensional circuit diagrams based on this principle.(patent applied for at home）**(Figure** 10)。

Three-dimensional chip architecture features: While maintaining the (0/1)K invariant property, it employs a circular logarithmic algorithm to dynamically adjust circuit parameters including current/voltage (serial/parallel control at 3-6V), capacitors, transistors, and inductors for high-density data transmission. This breakthrough elevates positioning density from **1×8 to 9×8=72**, while exponentially scaling data processing capacity from $\mathbf{\{2\}^{\wedge 2n}=1.024\times10^{\wedge 3}}$ to $\mathbf{\{9\}^{\wedge 2n}=33.4\times10^{\wedge 9}}$**.** The innovation fundamentally redefines conventional chip design principles.(Patent application pending).

Advantages: The **3D** chip features: 3D data search, compression processing, dual logic (numerical/bit value) code, mechanical interpretable neural network implementation for reverse engineering, and high-density information transmission.



(Figure 10) Schematic diagram of three-dimensional chip design principle

4.4.4、Three-dimensional Chip Design Principle of Dimensionless Logic 'Dual Logic Code'

The integration of higher-order equations, grid networks and logic gates expresses the 'double logic code' and 'infinite axiom' of 'dimensionless logic' deduction, three-dimensional complex analysis, and the rationality and interpretability of mutual reversibility verification.

The mathematical unification formula of the dimensionless circle logarithm corresponding to the quantum bit deduction:

$$\{X+{}^{(S)}\sqrt{\mathbf{D}}\}^{K(Z\pm S)}=(1-\eta^2)^K\{(2)\cdot\mathbf{D}_0\}^{K(Z\pm S\pm(Q=JIK+uv)\pm(N=0,1,2,\dots\text{神经网络})\pm(q=0,1,2,3,4,5\dots\text{无穷整数})/t},$$

When the four-logic value is (matrix grid symmetry composition A circuit:$\mathbf{A^{(K=\pm1)}}$:

$$\mathbf{(1000)_A\leftrightarrow(1-\eta_{[\Delta C]/jik/}{}^2)_A\leftrightarrow(1-\eta_{[C]/jik/}{}^2)_A\leftrightarrow(0111)_A;}$$

When the four-logic value is (the matrix grid symmetry composition $\mathbf{B}^{(K=\pm1)}$ circuit)：

$$\mathbf{B^{(K=\pm1)}:(1000)_B\leftrightarrow(1-\eta_{[\Delta C]/jik/}{}^2)_B\leftrightarrow(1-\eta_{[C]/jik/}{}^2)_A\leftrightarrow(0111)_B;}$$

When the four-logic value equals (the matrix grid network AB circuit forms a random balanced "negation gate" $\mathbf{C}^{(K=\pm0)}$:

$$\mathbf{C^{(K=\pm0)}:(1000)_C\leftrightarrow(1-\eta_{[\Delta C]/jik/}{}^2)_C\leftrightarrow(1-\eta_{[C]/jik/}{}^2)_C\leftrightarrow(0111)_C;}$$

or abbreviated as： $\leftrightarrow(1/0)^{(K=+1)}\leftrightarrow(0/0)^{(K=\pm0)}\leftrightarrow(0/1)^{(K=-1)}\leftrightarrow$**;**

The dual-logic (digital/bit) code system mentioned above adapts seamlessly to both external and internal applications, forming the basis for **2D** and **3D** chip design and fabrication. In this context, each logic code character facilitates high-density character information transmission (Figure 9), yielding a new algorithmic tool for dimensionless logic (complex analysis) in mathematical-artificial intelligence integration, along with a 3D chip architecture design approach, as demonstrated in the digital examples presented herein.(Patent application) among ： $(1-\eta^2)^K$ is the high-density information network transmission symbol corresponding to the isomorphism dimensionless logic, $\{(2)\cdot\mathbf{D_0}\}$ represents the logic gate (1000 ↔ 0000↔ 0111) three control {0, (1⟶4),1} circuit, the power function is the level and address of the numerical bit value, corresponding to the multi-element entangled state, superposition state (high base) qubit $\{S\}^{\wedge 2n}$.

4.4.5. Calculation steps

The balance exchange combination decomposition of zero point symmetry of the infinite axiom center and the random self-verification mechanism of (not) gate are presented in the {0,1} range of the characteristic mode constraint, while the mathematical-physical invariance is maintained.

（1）、Set the known elements (large models such as clusters, vectors, rational numbers, irrational numbers, transcendental numbers, arbitrary digitalizable objects, parameters, weights, etc.) as small dots, the element center as the location range of all "large models", and the boundary conditions for all elements (multiplication combination and addition combination):

$$\mathbf{D}=\sum\prod[D_{1(xj\omega irk\ldots)}{}^K\cdot D_{2(xj\omega irk\ldots)}\cdot\ldots]; \quad \{\mathbf{D}_0\}=\prod\sum[(P-1)!/(S-0)!]^K(D_{1(xj\omega irk\ldots)}{}^K+D_{2(xj\omega irk\ldots)}{}^K+\ldots)。$$

（2）、The region containing all "large models" forms a perfect circle with radius $\mathbf{R_0=D_0}$, encompassing all objects.

The distance from each object to the center point R0 is calculated as (xjωirk...), yielding the logarithmic value $(1-\eta_\Delta{}^2)$ and the characteristic modulus $\mathbf{D_0}$, which indicate the non-uniform distribution of the perfect circle. $(\mathbf{R_{00}})$ represents the geometric center of the perfect circle, where the numerical value $\mathbf{R_0}$ equals $\mathbf{R_{00}}$, though the positional center zero point does not coincide with the numerical center point $(\mathbf{R_0=D_0})$.

（4）、The Difference Between the Circular Non-uniform Distribution and the Circular Uniform Distribution：$(R_0=D_0)=(1-\eta_\Delta{}^2)\cdot R_0=(1-\eta_0{}^2)\cdot R_{00}$。

$$(x_j\omega_i r_k\ldots)=(1-\eta_\Delta{}^2)\cdot D_0=(1-\eta_\Delta{}^2)\cdot(x_{0j}\omega_{0i}r_{0k}\ldots),$$

（4）、Machine Learning(1) Application of Circular Logarithm Discriminant：$\Delta=\{{}^{K(S)}\sqrt{\mathbf{D}/\mathbf{D}_0}\}=(\pm\eta^2)$；

（5）、Machine Learning(2) Application of the Symmetry of the Zero Point of the Circular Logarithm：

$$(1-\eta^2)=\{1-({}^{K(Z\pm S)}\sqrt{D/D_0})^2\}=\sum_{(Z\pm S)}(1\pm\eta^2)^K=\{0,1\};$$

（6）、Machine learning (3) to obtain the symmetry of the logarithmic center point of the circle:

$$\sum_{(Z\pm S)}(1\pm\eta_\Delta{}^2)^K=\sum_{(Z\pm S)}(1\pm\eta_\Delta{}^2)^{(K=\pm0)}=0;$$

（7）、Data training (4) The infinite axiom of the random balance exchange combination decomposition and self-proving of the symmetry of the zero point of the circle logarithm digit value.

（8）、Data training (5): Symmetry analysis of the logarithmic center zero point for circular functions. Numerical analysis of the analytical roots.

（9）Data training (6) Analyze the symmetry of the logarithmic center zero point of a circle, and perform three-dimensional/two-dimensional complex analysis:

（10）The root analytical expression of the three-dimensional network with any high power dimension and the dimensionless logical coefficient {Ω} in different forward and reverse states is obtained.

Under the infinite axiom mechanism, the logical factors $(\pm\eta)^K$ or $(\eta)^{(K=\pm1)}$ and $(\eta_\Delta)^{(K=\pm1)}(\eta_{[C]})^{(K=\pm1)}$ respectively control the dimensionless logical circle logarithmic factor superposition of the numerical/bit value reciprocity.

The traditional computer algorithm is suitable for discrete-symmetry, the dimensionless logic is suitable for discrete-symmetry, and the continuous-asymmetry algorithm is also suitable for discrete-symmetry. In other words, the traditional program writing is not suitable for dimensionless logic program, and must be rewritten.

4.5，Preprocessing Function of Chip Circuit Driven by Dimensionless Logic

Both mathematics and artificial intelligence, as deduced from Turing machines, possess two preprocessing functions:

The first method: The JiK series (three-dimensional physical world simulation) converts logical values/bit sequences into a three-dimensional matrix using the Greek letter ABC series. This matrix incorporates logical "multiplication combination D" and "addition combination Do" (characteristic modulus, arithmetic mean), forming a dimensionless logical method through "D/Do" that transforms logical value sequences into bit sequences of dimensionless logical codes.

Secondly: The decomposed sequences (J, i, K) are converted into first, second, and third-order logic/bit value code sequences. These sequences form a "four-logic-value" multiplication and addition combination through a "grid matrix," resulting in a dimensionless logic value sequence (ABC) that constitutes the logic/bit value sequence matrix. The three-dimensional chip circuit facilitates high-density transmission of logic gate information characters, which are then decoded back into the original physical world.

4.5.1，[Preprocessing Function 1] Example: 3D (jik) Complex Analysis Series

The traditional digital virtual {01011101} information character 2D plane 8×8=64 matrix cannot distinguish "asymmetry"; the dimensionless logic {1,2,...[25]...48,49} dual-code logic forms a 9×49=2433D matrix that clearly distinguishes "symmetry and asymmetry". Both can be converted to four logic values {A1A2A3A4}, {B1B2B3B4} corresponding to logic gates {1000,0001}, forming a machine learning approach for 3D chip architecture. Based on the invariance of logic gates, the circuit can adapt to existing integrated circuits, photonic circuits, and other specialized circuits.

A 3×9=27-element three-dimensional matrix with dual codes, featuring a characteristic mode {5} or [ηC=5(3)].

The bit value AB combination corresponds to balanced symmetry: the bit value C exhibits zero-centered symmetry [η[C]=0] (K=±0) for balanced exchange and random self-validation. The ternary logic dual code values (1-9) (±η1...±η4) form a grid-based logic code conversion system for four-valued logic.

logical code value：

$$\{159_{A1},258_{A2},357_{A3},456_{A4},168_{B1},249_{B2},348_{B3},267_{B4}\}/[\eta_C=5^3]$$

logical code bit value：

$$\{\sum(\eta_1,\eta_2,\eta_3,\eta_4)^{(K=+1)},[\eta_{[C]}=0]^{(K=\pm0)},\sum(\eta_1,\eta_2,\eta_3,\eta_4)^{(K=-1)}\}：\{\sum(\eta_{\Delta1},\eta_{\Delta2},\eta_{\Delta3},\eta_{\Delta4})^{(K=\pm1)}$$

$$(1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)}=\{(1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)},\ (1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)},\ (1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)}\}\text{,分解:}$$

three dimensional complex analysis decomposition：

$$(j)\leftrightarrow(iK)：(1-\eta_{[j]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[ik]}{}^2)^{(K=-1)},$$

$$(i)\leftrightarrow(KJ)：(1-\eta_{[i]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[kj]}{}^2)^{(K=-1)};$$

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

The projection of the axis of the dimensionless logic circle and the plane projection can be balanced and exchanged at the zero point of the three-dimensional conjugate center.、

4.5.2, [Preprocessing Function 2] Example: Nine-Element Series

The "Nine-Element Number" series forms a three-dimensional matrix logic grid network using {1,2,3,4,...[41],...78,79,80,81}. This grid consists of "four-logic values" composed of three numerical bits, with the grid's vertical and horizontal directions labeled as A ($A_1A_2A_3A_4$) and the diagonal direction labeled as B ($B_1B_2B_3B_4$). These values correspond to the logic gate switches {00,01,10,11}, enabling the conversion between four-logic values {0001} and {1000} through logic gates (AND, OR, NOT) and corresponding voltage, current, resistance, capacitance, and sensor adjustments in four-logic value circuits.Convert dual-code values/bit values to four-bit values for dimensionless logical circular quantum tables (stored in memory).

Symmetry and Asymmetry of Logical Number Center Point

$$A_{[1-16]}(\text{Total: }16)；B_{[1-12]}(\text{Total: }12);$$

The symmetry of the zero point of the bit value center: (28 in total), (16 in common feature mode);

$$\eta_{A1}=\{(-\eta_1,-\eta_2,\ldots,-\eta_6)^{(K=+1)},[\eta_{[C]}=0],(+\eta_1,+\eta_2,\ldots,+\eta_6)^{(K=-1)}\}:$$

Nine-Element Real World Simulation Symbol:

$$\mathbf{D}=\{abcdefghl\}，\mathbf{D_0}=(1/9)\{a+b+c+d+e+f+g+h+l\},$$

Convert to the same sequence of logical values by multiplying the combination **D** and adding the combination **Do**

$$\mathbf{D}=\prod\{1,2,3,4,5,6,7,8,9\}；“\mathbf{Do}=(1/9)\sum\{1+2+3+4+5+6+7+8+9\}=41”,$$

Get the same logarithm of the circle：

$$(1-\boldsymbol{\eta}^2)=D/Do^{(9)};\ (1-\boldsymbol{\eta}^2)=\mathbf{D/Do^{(9)}};$$

In particular, the characteristic mode is invariant, and the different positions of the numerical center points bring different logarithm of circle and different boundary functions.

When the numerical center point $\eta_\Delta=1$ lies between element combination sequences [5-4], it satisfies numerical balance asymmetry. The logical bit value code $\boldsymbol{\eta_{AB}=\{-\eta_{40},\ldots,-\eta_4,\eta_{[C]},+\eta_1,\ldots,+\eta_{40}\}}$; the bit value center zero symmetry $\boldsymbol{\eta}_{[C]}=0$, which satisfies balance exchange and the 'infinite axiom' random self-verification.

4.5.3，Examples of Digital Applications of Artificial Intelligence Dual-Logic Code

The numerical center point exhibits (energy) balance asymmetry, whereas the bit value center zero point demonstrates (energy) balance symmetry. This yields a "dimensionless logical code value/bit value (dual logical code)" that enables machine learning to extract the logical gate (1000 0001) for high-density transmission of "one-to-nine" information characters.

In this context: (truth propositions (function, model, space, group combination elements) are represented by bold letters, while logical codes are indicated by hollow letters)

The Relationship between Logic Code Sequence and Real Proposition

$$(1-\boldsymbol{\eta}^2)=D/Do^{(9)}=\mathbf{D/Do^{(9)}}=D/\mathbf{D}=Do^{(9)}/\mathbf{Do^{(9)}}=Do/\mathbf{Do};$$

Center zero offset adjustment: $\boldsymbol{\eta_{[AC]}}\mathbf{Do}/\boldsymbol{\eta_{[C]}}$(set the bit value center zero symmetry to 0 by selecting an integer);

[Example 4]

(Example) Schematic diagram of converting nine-ary number series logic values/bit values to four-ary logic values (see table Nine-ary Numbers)

Given: A True Proposition with Two Variables：**D**=138373200**;** **Do**=11;

Dimensionless Logic Bit Value and Circular Logarithm Discriminant of True Proposition

$(1-\boldsymbol{\eta}^2)=D/Do^{(9)}=138373200/2357947691=0.0581$

Select artificial intelligence Turing machine analysis: **9** root elements:

(1)，Three-dimensional complex analysis: The multiplication combination D of real-world physical elements corresponds to the numerical sequence multiplication combination D of analog logic code values. Using machine learning with "three-dimensional grid network [1-9] series individual information code characters", the decomposition logic gate in three-dimensional directions includes (ABC) corresponding to {jik}, {ji, ik, kj} three series information character density (see table).

(axis probability)：$Jik_{[\mathbf{ABC}]}=J(1-\eta_{[\mathbf{x}]}{}^2)+i(1-\eta_{[\mathbf{y}]}{}^2)+K(1-\eta_{[\mathbf{z}]}{}^2)$;

(plane topology)：$Jik_{[\mathbf{ABC}]}=J(1-\eta_{[\mathbf{yz}]}{}^2)+i(1-\eta_{[\mathbf{zx}]}{}^2)+K(1-\eta_{[\mathbf{xy}]}{}^2)$;

(2)，Machine learning addresses the asymmetry in logical numerical balance (see Figure 7):

$B_5=\{(5,13,21,29,37),(\eta_{[C=0]}=41),(54,62,70,78)\}$；$(D=73.284\times10^{12})$对应$(\boldsymbol{\eta}_{B5}=0.223)$;

characteristic modulus： $Do^{(9)}=\mathbf{11}^{(9)}=2.357\times10^{12}$ $\mathbf{Do}^{(9)}=[41^{(9)}]=3.273\times10^{14}$

logarithm of dimensionless logic circle： $(1-\boldsymbol{\eta}^2)=D/Do^{(9)}$**;** $(\mathbf{1}-\boldsymbol{\eta}^2)=\mathbf{D}/\mathbf{Do}^{(9)}$**;**

Obtain the characteristic mode coefficient α：

$\alpha=(1-\boldsymbol{\eta}^2)/(\mathbf{1}-\boldsymbol{\eta}^2)=D/\mathbf{D}=Do^{(9)}/\mathbf{Do}^{(9)}=Do/\mathbf{Do}=11/\mathbf{41}$;

The symmetry of the logarithmic center of the logical code circle has two offset range values:$(\boldsymbol{\eta}_{B5}=100)$and $(\boldsymbol{\eta}_{B13}=80)$;

$\eta_{\Delta C}=(1/2)(100+80)=90$;

The numerical center point [0] is not balanced and the two sides of the asymmetry energy are the same, so the direct exchange is not possible. The equivalent replacement is realized by the bit value center zero point symmetry.

(3)，The symmetric logic circle logarithmic balance symmetric point can be processed by machine learning, which can be inversely replaced:

$\boldsymbol{\eta}_{B5}=\{(-\eta_{36}-\eta_{28}-\eta_{20}-\eta_{12}-\eta_4)(\eta_{[C=0]}=\mathbf{0})(+\eta_{13}+\eta_{21}+\eta_{29}+\eta_{37})\}$;

zero point symmetry range: $(\pm\eta_5=100)$;

$\eta_{\Delta5}=(11/41)\times(\pm90)=24$;

Select true proposition as probe$(\pm\eta_{\Delta5}=23$ or $24)$

The logarithmic factor of the table circle is adjusted according to the characteristic mode coefficient to satisfy the zero-symmetry of the logical bit value center:

'Infinite axiom' balance exchange and random self-proof mechanism: (Select the logical code as an integer) $\Sigma(-\eta_{23})+(+\eta_{23})=0$:

Random Self-Proof: Testing (23) Corresponding to $(\boldsymbol{\eta}_{B5}$ and $\boldsymbol{\eta}_{B13})$

$$\begin{aligned}\eta_{B5}&=\{(-\eta_{36}-\eta_{28}-\eta_{20}-\eta_{12}-\eta_4)(\eta_{[C=0]}=\mathbf{0})(+\eta_{13}+\eta_{21}+\eta_{29}+\eta_{37})\}\times0.23\\&=\{(-\eta_{8.26}-\eta_{6.44}-\eta_{4.6}-\eta_{2.76}-\eta_{0.92})(\eta_{[C=0]}=\mathbf{0})(+\eta_{2.99}+\eta_{4.83}+\eta_{6.67}+\eta_{8.53})\}\\&=\{(-\eta_8-\eta_6-\eta_4-\eta_3-\eta_2)(\eta_{[C=0]}=\mathbf{0})(+\eta_4+\eta_5+\eta_6+\eta_8)\}\\&=\{(-\eta_{23})(\eta_{[C=0]}=\mathbf{0})(+\eta_{23})\}=0;\end{aligned}$$

$$\begin{aligned}\eta_{B13}&=\{(-\eta_{36},-\eta_{26},-\eta_{16},-\eta_6,-\eta_4)(\eta_{[C=0]}=\mathbf{0})(+\eta_5,+\eta_{15},+\eta_{25},+\eta_{35})\}\times0.23\\&=\{(-\eta_{8.28}-\eta_{5.98}-\eta_{3.68}-\eta_{1.38}-\eta_{0.92})(\eta_{[C=0]}=\mathbf{0})(+\eta_{1.15}+\eta_{3.45}+\eta_{5.75}+\eta_{8.05})\}\\&=\{(-\eta_8-\eta_6-\eta_4-\eta_3-\eta_2)(\eta_{[C=0]}=\mathbf{0})(+\eta_4+\eta_5+\eta_6+\eta_8)\}\\&=\{(-\eta_{23})(\eta_{[C=0]}=\mathbf{0})(+\eta_{23})\}=0;\end{aligned}$$

The reason is that the logical code sequence matrix under multi-element conditions has a numerical/bit value center zero point symmetry and is not easy to control.

(4)，Machine learning processing, through the dual-code logic sequence matrix to restore or parse the root element;

$\{(1-\eta_8),(1-\eta_6),(1-\eta_4),(1-\eta_3),(1-\eta_2)(\eta_{[C=0]}=\mathbf{0}),(1+\eta_4),(1+\eta_5),(1+\eta_6),(1+\eta_8)\}$**Do** characteristic mode11;

(5)，Machine learning deduces root elements through 3D chip architecture differentiation, parsing, and combination.

{3,5,7,8,10,[0],15,16,17,19}（Analysis of the original proposition）{abcdefghl}，

(6)，machine learning validation：

(3,5,7,8,9),[0],(15,16,17,19)corresponding,954×77520=73256400;(combinatorial sumD);

(1/9)(3+5+7+8+9+15+16+17+19)=11corresponding(Meet the combinationDo);

From the above example, we can see that the circular logarithm discards the iterative method, greatly reduces the program and memory space, and creates a favorable "agent" space for flexible application of machine learning, automatic program writing, circuit reduction, and power consumption reduction for large, medium, and small enterprises.

5，Application of Dimensionless Logic Circle Logarithm in Calculation

(A) ，historical background In 259-195 BC, ancient China's Han Dynasty scholar Yang Xiong proposed in the "Taixuan Jing" and "Dao De Jing" that "the Dao gives birth to one, one gives birth to two, two gives birth to three, and three gives birth to all things," pointing out the direction and function of mathematical development. In the 18th century, the Cardan formula for cubic equations used the Veda theorem for symmetry analysis (a special case) to derive quartic equations, while algebraic equations could only handle $\{2\}^{\wedge 2n}$ as the limit. For asymmetry, there was no satisfactory solution. The logarithmic theory of circles achieved "fusion of classical analysis and logical analysis" through "dual logic (numerical/bit value) codes," expanding the computational range from $\{2\}^{\wedge 2n}$ to $\{3\}^{\wedge 2n}$ and then to $\{S\}^{\wedge 2n}$ (S=1 2 3 4... infinite), becoming a reliable, feasible, and zero-error mathematical theory foundation for infinite computing power. This revolutionized the " mathematics-artificial intelligence" paradigm.

For centuries, algebraic equations have faced challenges in solving cubic equations and asymmetric cubic equations, with no satisfactory zero-error solutions achieved. For instance, the continuity-asymmetry solution for quintic equations remains elusive, while Hilbert's 23rd mathematical problem in 1900—requiring a seventh-order solution—still lacks a zero-error resolution. Similarly, numerous century-old mathematical puzzles involving higher-order equations remain unsolved. In essence, almost all fields of number theory, geometry, algebra, and group theory can be transformed into algebraic equations. To date, except for binary number "symmetry" solutions, these areas remain "blank" in mathematical research.

In May 1982, Wang Yiping's team specializing in circular logarithms published the seminal paper "Circular Logarithms." Their research was later expanded into the 1984 paper "Analysis of Multi-Element Combinations" presented at the Fourth National Graphical Computing Conference, which became known as the "Dimensionless Logical Circle." Through decades of dedicated exploration, the team identified these concepts as the core focus of mathematicians' discussions on "the nature of mathematics," classifying them as part of the "third infinite set." These elements demonstrate a unique "fusion of classical and logical analysis" and feature a distinctive "infinite axiom" balancing mechanism with random self-validation. The work was officially registered under the title "Wang Yiping's Circular Logarithms" with the National Copyright Administration (Registration No.: Guo Zuo Deng Zi: 2023-A--00137955). This foundational work subsequently evolved into a comprehensive system of definitions and theorems, ultimately forming the "Circular Logarithm Theory."

The deduction process: Without altering (infinite) true propositions, it extracts numerical characteristic modules and dimensionless logical circles through element multiplication combinations. The "dual logic (numerical/bit value) code" demonstrates the "fusion of classical analysis and logical analysis," enabling zero-error deduction that "relates to no mathematical models and lacks specific (quality) element content." Through rigorous mathematical proofs and validation of a series of challenging problems, the "circle-to-number theory" establishes a new mathematical framework. This theory has gradually gained recognition in the academic community both domestically and internationally. When soliciting contributions for foreign journals.

The American journal **WJMS** (Journal of Mathematical Statistics) described early logarithmic circle mathematics as follows:

The deep integration of universal logic and factor space theory has long posed an unresolved theoretical challenge. While many factor space theory results are directly expressed through statistical probabilities—such as the probability of an event occurring or not, the probability of two events occurring simultaneously (AND), and conditional probabilities—no complete set of universal logical operations exists to represent conditional probabilities. This paper investigates this issue to address a fundamental limitation in universal logic. In practical applications, a distinct mathematical problem emerges: universal logic expressions typically contain four independent variables (x, y, m, n) and one dependent variable (z), whereas probabilistic results are limited to x, y, and z, requiring the calculation of m and n. Keywords: universal logic; conditional probability; circular logic theory;

The American Journal of Science (JAS) and the American Association of Journals (AAJ) have published three full-length articles on the logarithmic scale, both in the lead story and on the cover. Now the circle logarithm theory has gone deep into the exploration of "mathematics-physics-artificial intelligence", mathematicians are keen on the "algebra-number theory-geometry-group-artificial intelligence" of the mathematic grand unification of the Langland program. In fact, the dimensionless logic circle has a more profound, more basic, and universally accepted and applied mathematical-artificial intelligence knowledge foundation. **（B)），Calculation Principles of Dimensionless Logic Circle.** It is known that in the dimensionality of power, three elements are required: the boundary function **W**, the numerical characteristic modulus $W_0^{K\ (Z\pm S\pm N\pm q)}$, and two elements from the logarithm of the circle $(1-\eta^2)^K$. The third element can be derived without necessarily requiring a mathematical model. Furthermore, the analytical or composite methods of three-dimensional complex analysis can incorporate artificial intelligence computer logic gates to achieve "high-density information transmission," fundamentally enhancing zero-error infinite computational power.

Direct relation of three elements：

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

$$\mathbf{(1-\eta^2)^{K(N=0,1,2)/t}=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } \pm1\}};$$

To unify the operations of mathematics and artificial intelligence, **W=D** denotes the function of group combination-function-manifold-complex system, while $\mathbf{W_0=D_0}$ represents the known numerical characteristic modulus (centered inverse mean variable function). The $(1-\eta^2)^K$-bit value logarithm or discriminant corresponds to the computer logic gate "00 11 01 10", which is**{1000↔ 0000↔ 0111}**and corresponds to "AND gate-OR gate-NOT gate".

The circle logarithm number field in (0,1) respectively takes into account the existence of "**or**" to express the discrete element jump transition; "**to**" to express the continuous transition of entangled elements.

Based on the invariance of characteristic modes, the analysis establishes a logically zero-error arithmetic calculation framework for "irrelevant mathematical models without specific quality element content." The K property attribute, represented by (N=±0,1,2)/t, denotes differential (N=-0,1,2)/t or integral (N=+0,1,2)/t (zeroth, first, second order) combined with time representation. The circular logarithmic symbol "η" (pronounced eta in Greek) serves as an abstract dimensionless positional symbol, indicating the location and positional value of numerical elements.

This study employs the group correspondence circular logarithm method to extract characteristic modulus, bit-value circular logarithm, and circular logarithm center-zero symmetry for asymmetric functions (including determinants). It resolves the symmetry and asymmetry operations of monomials in cubic (higher-order) equations in dimensionless form. The logical zero-error arithmetic general solution for bit-value circular logarithms {0, ±1} can be extended to unified analysis and transformation of regularized equations with multi-parameter, multi-direction, multi-level, and heterogeneous characteristics in real numbers, complex numbers, manifolds, and complex systems.

Specifically, the computational approach of this equation forms the interpretable knowledge base for AI computers' "high-density information transmission symbols".

It is important that the three elements "boundary function **W=D**, characteristic mode $\mathbf{W_0=D_0}$, circle logarithm $(1-\eta^2)^K$" can be calculated when two elements are known, and the mathematical model is no longer a barrier.

5.1、Linear Equations in One Variable and the Logarithm of a Circle

Background: Linear equations first appeared in ancient Egypt around 1600 BC. Around 820 AD, mathematician Al-Khwarizmi introduced the concepts of "combining like terms" and "transposition" in his book *On Reduction and Substitution*. In the 16th century, mathematician Vieta established symbolic algebra and proposed the principles of transposition and commutative division for equations. In 1859, mathematician Li Shanlan formally translated these equations as linear equations.

In ancient times, solving linear equations primarily relied on geometric diagrams. The ancient Egyptians developed a geometric-based method for solving such equations, adapting them to land surveying needs. By transforming linear equations into geometric problems, they leveraged the properties of geometric figures to find solutions. A linear equation is defined as an equation containing only one unknown, with the highest power of the unknown being 1, and both sides being polynomials. These equations can be applied to solve most engineering problems, travel distance calculations, distribution issues, profit and loss scenarios, integration tables, and telephone billing problems.

The circular logarithm redefines linear equations with three distinct components in group combination computations: (1) external holistic transformation of group combinations where the numerical center point synchronously changes with surrounding elements; (2) conversion of numerical center asymmetry into bit-value circular logarithm zero-point symmetry; (3) internal processing of surrounding elements' linear equations (determinants) or composite root elements through zero-point symmetry at the circular logarithm center within group combinations.

Thus, the linear equation becomes a crucial function in group combination logarithmic circles.

[Example 5.1]: Linear Equations in One Variable (Including Differential Equations)

Known: Boundary function：$\mathbf{D}=\prod(a,b,c,\dots S)$；

Characteristic mode：$\mathbf{D_0}=\sum(1/S)(a,b,c,\dots S)$；K=(+1,±0,-1±1)

Equation (Equivalent Determinant)：

Differential equation ： zero-order(N=±0)：first order(N=-1)：second order: (N=-2)

(5.1.1) $X=(1-\eta^2)^K \mathbf{D_0}^{K(N=\pm0)}$；

(5.1.2) $\partial X=(1-\eta^2)^K\mathbf{D_0}^{\mathbf{K(N=-1)}}=(1-\eta_V{}^2)^K\mathbf{D_0}^{\mathbf{K}}$;

(5.1.3) $\partial^{(2)}X=(1-\eta^2)^K\mathbf{D_0}^{\mathbf{K(N=-2)}}=(1-\eta_a{}^2)^K\mathbf{D_0}^{\mathbf{K}}$;

Integal equation ： zero-order(N=±0) ;first order(N=+1);second orde(N=+2)

(5.1.4) $X=(1-\eta^2)^K\mathbf{D_0}^{\mathbf{K(N=\pm0)}}$;

(5.1.5) $\int^{(1)}Xdx^{(1)}=(1-\eta^2)^K\mathbf{D_0}^{\mathbf{K(N=-+1)}}=(1-(\eta_V dx)^2)^K\mathbf{D_0}^{\mathbf{K}}$

(5.1.6) $\int^{(2)}Xdx^{(2)}=(1-\eta^2)^K\mathbf{D_0}^{\mathbf{K(N=+2)}}=(1-(\eta_a dx^2)^2)^K\mathbf{D_0}^{\mathbf{K}}$;

logarithmic discriminant of circle：

(5.1.7) $\Delta=(1-\eta^2)^{(K=+1)}=({}^{(n)}\sqrt{\mathbf{D}})/\mathbf{D_0}\leq1,(K=+1)$; indenotes convergence；

$\Delta=(1-\eta^2)^{(K=-1)}=({}^{(n)}\sqrt{\mathbf{D}})/\mathbf{D_0}\geq1,(K=-1)$; indicates expansion；

$\Delta=(1-\eta^2)^{(K=\pm1)}=({}^{(n)}\sqrt{\mathbf{D}})/\mathbf{D_0}=1,(K=\pm1)$; indicates balance；

$\Delta=(1-\eta^2)^{(K=\pm0)}=({}^{(n)}\sqrt{\mathbf{D}})/\mathbf{D_0}=1,(K=\pm0)$; indicates Convert；

Balance asymmetry of numerical center point：

(5.1.8) $(1-\eta_\Delta{}^2)^{(K)}=\mathbf{(a,b,c,\ldots S)/S}D_0{}^{\mathbf{(1)}}$;

$=(1-\eta_a{}^2)^{(K=-+1)}+(1-\eta_b{}^2)^{(K=-+1)}+\ldots+(1-\eta_{S-1}{}^2)^{(K=-+)}+(1-\eta_S{}^2)^{(K=-+)}=1$,对应 $\mathbf{S}D_0{}^{\mathbf{(1)}}$;

Bit value center zero point balance symmetry:

(5.1.9) $(1-\eta_{[C]}{}^2)^{(K=\pm0)}=\mathbf{(a,b,c,\ldots S)/D_0}$

$=(1-\eta_a{}^2)^{(K=-+1)}+\ldots+(1-\eta_{[C]}{}^2)^{(K=-\pm0)}+\ldots+(1-\eta_S{}^2)^{(K=--1)}=0$, corresponding $D_0{}^{\mathbf{(1)}}$;

Root analysis is performed according to the bit value center zero point.

(5.1.10) $\mathbf{(+\eta)+\sum(-\eta)=0};\{2\eta_\Delta\mathbf{D}_0{}^{\mathbf{(1)}}\}$

Obtain the analytical solution of the root of a linear equation in one variable：

(5.1.11) $a=(1-\eta_a{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(1)}}$; $b=(1-\eta_b{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(1)}}$; ……; $s=(1-\eta_s{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(1)}}$;

(5.1.12) $ab=(1-\eta_{ab}{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(2)}}$; $bc=(1-\eta_{bc}{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(2)}}$; ……; $sa=(1-\eta_{sa}{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(2)}}$;

(5.1.13) $abc=(1-\eta_{abc}{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(3)}}$; $bcd=(1-\eta_{bcd}{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(3)}}$; ……; $sab=(1-\eta_{sab}{}^2)^{(K=-+1)}\mathbf{D}_0{}^{\mathbf{(3)}}$;

The entire method of dimensionless logical circle (logarithm of circle) replaces the traditional determinant matrix. It can also adapt to the projection (morphism, mapping) of group combination complex analysis on three-dimensional axes **(J, I, k)**, as well as the description of dynamic equations in calculus (first-order, second-order,... neural network hierarchy).

5.2、The Relationship Between Quadratic Equations and Logarithm of Circle

Background information, background material：Around 2000 BC, Babylonian cuneiform tablets documented quadratic equations and their solutions. For example, when given a number and its reciprocal sum equaling a fixed value, the solution was derived by solving the system: $x_1+x_2 = b$; $x_1x_2 = 1$, and $x^2-bx+1 = 0$. This demonstrates that the Babylonians had mastered quadratic equation formulas. However, since they did not accept negative numbers, negative roots were intentionally omitted from their solutions.

In the 4th and 5th centuries BC, ancient Chinese mathematics had already mastered the formula for solving quadratic equations. However, the Greek mathematician Diophantus (246-330) only took one positive root of a quadratic equation, and even when both roots were positive, he would choose only one of them.

In 628 AD, Brahmagupta of India derived a formula for solving quadratic equations of the form x^2+px+q=0 from his work Brahmagupta's Revised System. In Algebra, the Arab mathematician Al-Harizi explored equation-solving methods, including solutions for linear and quadratic equations. He identified six distinct forms involving positive coefficients a, b, and c, such as $ax^{\wedge2}=bx$, $ax^{\wedge2}=c$, $ax^{\wedge2}+c=bx$, $ax^{\wedge2}+bx=c$, and $ax^{\wedge2}=bx+c$. Al-Harizi's classification of quadratic equations into these forms followed the approach of Diophantus. Beyond providing specific solutions for special cases, he pioneered a general method for solving quadratic equations, acknowledging the existence of two roots and irrational roots, though he did not recognize imaginary roots.

In the 16th century, Italian mathematicians began to apply complex roots to solve cubic equations. Veda (1540-1603) not only established that linear equations always have solutions in the complex number domain but also derived the relationship between roots and coefficients.

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Now, the dimensionless logic circle (logarithm of circle) can solve the topological projection (morphism, mapping) of group combination in the plane (IK, kJ, JI) in three-dimensional space, and the probability projection (morphism, mapping) on the corresponding axis (J, i, K) can also become the binary number for dynamic analysis of calculus.

[Example 5.2.1] Quadratic Equation

In this context, the 18th-century Veda's discriminant formula: $\Delta=b^2-4ac$ (where a=1) and $\Delta=b^2-4c$, can be restructured as $\Delta=4c/b^2=\{\sqrt{c}/(b/2)\}^2=\{\sqrt{\mathbf{D}/\mathbf{D_0}}\}^{(2)}$, aligning with the dimensionless logical circle framework. This approach overcomes the challenges of "root solution" and serves as a pivotal technology in mathematics-artificial intelligence, transitioning from "(0/1) low-density information transmission" to "(0/1) high-density information transmission" as the driving force and application key.

Given: The boundary function $\mathbf{D}=\prod(a, b, c,... s)$ has a "2-2 combination". Select one of these quadratic equations:

Characteristic mode：$\mathbf{D}_0^{(1)}=(1/2)(a+b)$：$\mathbf{D}_0^{(2)}=(ab)$

Combined unit：$\prod_{[ji=2]}(^{(2)}\sqrt{ab})$;

Equation (Determinant)：

(5.2.1)
$$\{X\pm(^{(S)}\sqrt{\mathbf{D}})\}^{(2)}=x^2\pm bx+\mathbf{D}$$
$$=(1-\eta^2)^{(K=\pm1)}\{X\pm\mathbf{D_0}\}^{(2)}$$
$$=(1-\eta^2)^{K}\{(0,2)\cdot\mathbf{D_0}\}^{(2)};$$

logarithmic discriminant of circle：

(5.2.2)
$$\Delta=(1-\eta^2)^{(K=-+)}=\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}\le1,(K=+1);$$ indenotes convergence；
$$\Delta=(1-\eta^2)^{(K=-1)}=\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}\ge1,(K=-1);$$ indicates expansion；
$$\Delta=(1-\eta^2)^{(K=\pm1)}=\{^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}=1,(K=\pm1);$$ indicates balance；
$$\Delta=(1-\eta^2)^{(K=\pm0)}=\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}=0,(K=\pm0);$$ indicates convert；

Here, $\{(^{(n)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}$denotes the combinatorial form of binary elements, unlike $\{(^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{\mathbf{2}}$ which represents the self-multiplication form of binary elements.

The symmetry of the center point balance for each combination value cannot be directly exchanged due to axiomatic limitations. $X^2\in(ab,bc,\ldots sa)$；

(5.2.3)
$$(1-\eta_\Delta{}^2)^{(K)}=X^2/\{[S(S-1)/2!]\cdot D_0{}^{(2)}\}$$
$$=(1-\eta_{ab}{}^2)^{(K=-+1)}+(1-\eta_{bc}{}^2)^{(K=-+1)}+\ldots+(1-\eta_{Sa}{}^2)^{(K=-+)}=1,\text{corresponding}[S(S-1)/2!]D_0\}^{(2)};$$

Each combination bit value center zero point balance symmetry, based on 'infinite axiom' and random self-proving mechanism, can be directly exchanged:$X^2\in(ab,bc,\ldots sa)$；$(1-\eta_{[C]}{}^2)^{(K=\pm0)}$

(5.2.4)
$$(1-\eta_{[C]}{}^2)^{(K=\pm0)}=\{X/\mathbf{D_0}\}^{(2)}=(1-\eta_{ab}{}^2)^{(K=-+1)}+(1-\eta_{bc}{}^2)^{(K=-+1)}+\ldots+(1-\eta_{Sa}{}^2)^{(K=-+)}=0;$$

(5.2.5)
$$\boldsymbol{\sum(+\eta^2)+\sum(-\eta^2)=0} \text{ and } \boldsymbol{\sum(+\eta)+\sum(-\eta)=0};$$

According to the position value center zero point corresponding to $\{2\eta_\Delta D_0{}^{(1)}\}$ (positive circle hook Pythagorean characteristic), it drives the root analysis;

Get the analytical solution for the quadratic combination equation:

(5.2.6)
$$ab=(1-\eta_{ab}{}^2)^{(K=-+1)}\mathbf{D}_0^{(2)};\ \ldots\ldots;\ sa=(1-\eta_{sa}{}^2)^{(K=-+1)}\mathbf{D}_0^{(2)};$$
$$a=(1-\eta a^2)^{(K=-+1)}\mathbf{D}_0^{(1)};\ b=(1-\eta_b{}^2)^{(K=-+1)}\mathbf{D}_0^{(1)};\ \ldots\ldots;\ s=(1-\eta_s)^{(K=-+1)}\mathbf{D}_0^{(1)};$$

The combination element number ab can be decomposed into two elements through the circular logarithm.

The dimensionless logical circle (logarithmic circle) methodology completely replaces traditional determinant matrices. This approach also accommodates group combination complex analysis projections on three-dimensional planes (JI, IK, kJ) and axes (JiK) (including morphisms and mappings), as well as the description of dynamic equations in calculus (first-order, second-order,... neural network levels). It further supports path integrals and historical records of geometric shape transformations in two-dimensional planes. The normal lines of the projection planes are parallel to the center. When conjugate center points exist, they align on the same axis, representing the balance asymmetry of numerical center points. This transformation converts them into bit-value center zero-point symmetry, enabling balanced exchange combination decomposition and random self-validation mechanisms.

[Example 5.2.2] A Real Convergence Example of a Quadratic

Known: Boundary function：**(S=2)**； haplont ：$\mathbf{D=12=(\sqrt{12})^{(2)}}$;

multinomial coefficient **: B=7**；characteristic mode:$\mathbf{D_0=3.5(2)=12.25}$；

combination coefficient ：{1：2：1}=$\{2\}^2=4$；

criterion ：$\Delta=(\eta^2)^K=(\sqrt{12})/3.5)=12/12.25=0.96\le1$；It is a convergent real number computation.

logarithmic discriminant of circle：$(1-\eta^2)^K=(1-(\sqrt{\Delta})^2)=(1-12/12.25)=1-0.96\le1$；$\eta^2=1/49$；$\eta=1/7$；

characteristic mode：$D_0{}^{K(2)}=x_0{}^{K(2)}=[(1/2)^{(+1)}(x_1{}^{(+1)}+x_2{}^{(+1)})]^{(K=+1)}$； （K=+1），

Here, the power function '(2)' denotes the combination form of 2-2 elements, where '2' represents the square of itself. Numerically, the discriminant is identical to the logarithmic discriminant of a circle. The positional difference lies in the fact that the former is calculated from the boundary, while the latter is calculated from the center zero point. In other words, the shift of the coordinate center does not affect the logarithmic value of the circle.

（A）、Analysis: For convergent (positive) functions:

(5.2.7) $\{X\pm\sqrt{\mathbf{D}^K}\}^{K(2)}=X^{(2)}\pm BX+\mathbf{D}$

$=X^{(2)}\pm 7X+(\sqrt{\mathbf{12}})^{(2)}$

$=(1-\eta^2)^K\cdot[X_0^{(2)}\pm 2\cdot X_0\cdot 3.5+3.5^2]$

$=(1-\eta^2)^K\cdot\{X_0\pm\mathbf{D}_0\}^{K(2)}$

$=(1-\eta^2)^K\cdot[\{0,2\}\cdot 3.5]^{K(2)}=\{0\leftrightarrow 48\}^K$;

Here, "↔" indicates the reversible variation range between the upper and lower limits of a value (±m). (The same applies to other cases.)

（B）、Four calculation results of the equation：

(5.2.8) $(X-{}^{(2)}\sqrt{\mathbf{D}})^{K(2)}=(1-\eta^2)^{K(Kw=-1)}[\{0\}\cdot 3.5]^{K(2)}=0$； entanglement rotation, subtration, circle;

(5.2.9) $(X+{}^{(2)}\sqrt{\mathbf{D}})^{K(2)}=(1-\eta^2)^{K(Kw=+1)}[\{2\}^K\cdot 3.5]^{K(2)}=48$； entangled precession,addition,round;.

(5.2.10) $(X\pm{}^{(2)}\sqrt{\mathbf{D}_0})^{K(2)}=(1-\eta^2)^{K(Kw=\pm1)}[\{0\leftrightarrow 2\}\mathbf{3.5}]^{K(2)}$； The entangled vortex space is expanded;

(5.2.11) $(X\pm{}^{(2)}\sqrt{\mathbf{D}_0})^{(K=0)(2)}=(1-\eta^2)^{K(Kw=\pm0)}\cdot[\{0\leftrightarrow 2\}\mathbf{3.5}]^{K(2)}$； The function conversion of the inner and outer functions of the entanglement type;

The entanglement type refers to the combination of multiplication of elements, and the discrete type refers to the combination of addition of elements.

（C）、solution root

In the 18th century, the Veda formula and the logarithm of the circle formula gave the same result for the calculation of two roots, but the logarithm of the circle is more universal (it can be extended to any high power dimension of group combination-network equation).

（1）、Probability of zero-point symmetry of center-logarithm of topological circle

$(1-\eta_C^2)^K=({}^{K(2)}\sqrt{12}/3.5)^{K(2)}=12/12.25=0.96\leq 1$； $\eta^2=1/49$； $\eta=1/7$；

$(1-\eta^2)^K D_0^{K(2)}=[(1-\eta)^{+1}\cdot(1+\eta)^{-1}]\mathbf{D}_0^2=\{0 \text{ 到 } 1\}\mathbf{D}_0^2$；

The center zero point of the circular logarithm satisfies the symmetry: $(\eta_C^2) = (+\eta^2) + (-\eta^2) = (\pm 1/7)$; (satisfies the symmetry on both sides of the center zero point).

(5.2.12) $x_1=(1-\eta)^K\mathbf{D}_0= (1-1/7)\cdot 3.5=3$;

$x_2=(1+\eta)^K\mathbf{D}_0=(1+1/7)\cdot 3.5=4$;

（2）test and verify, validate, confirmation, proving：

(5.2.13) $X^{(2)}\pm BX^{K(1)}+\mathbf{D}=12\pm 24+\mathbf{12}$

$=(1-\eta)^K(12.25\pm 24.5+12.25)=\{0 \text{ or } 48\}$ Balance；

That is, the inverse operation of the aforementioned arithmetic example：

$GF(\cdot)=(1/2)[G(\cdot)+F(\cdot)]=3.5,$

$7=(1-\eta^2)^{(K=\pm1)}3.5=2\times 3.5$； $G(\cdot)=(1-\eta^2)^K 3.5=3$； $F(\cdot)=(1+\eta^2)^K 3.5=4$；

$12=(1-\eta^2)^{(K=\pm1)}3.5^{(2)}$； $G(\cdot)=(1-\eta^2)^K 3.5^{(2)}=3$； $F(\cdot)=(1+\eta^2)^K 3.5^{(2)}=4$；

For instance, when (η^2) equals (1/3.5), the method for determining (η^2) allows for a one-step calculation.

[Example 5.2.3] Real and Complex Discrete Quadratic Equations

known number：**(S=2)；$\mathbf{D_0=5.5}$；$\mathbf{D_0^{K(2)}=5.5^2=30.25}$；$\mathbf{D=30.25=({}^{K(2)}\sqrt{30.25})^2}$；**

logarithmic discriminant of circle：$\Delta=(\eta^2)^K=({}^{K(2)}\sqrt{30.25}/5.5)^{K(2)}=30.25/30.25=1$；

Discrimination result: discrete type，$(1-\eta^2)^{(K=\pm1,\pm0)}=\{0,1\}$；

Specifically: (K=±1) forward-reverse equation equilibrium (symmetry vs. asymmetry); (K=±0) forward-reverse conversion form. This approach adapts to current big data statistics in computer natural language, audio, video, and text. The numerical balance exhibits symmetry and asymmetry, achieved through isomorphic circular logarithmic value center zero-point equilibrium conversion.

characteristic mode：$\mathbf{D_0}^{K(1)}=X_0^{K(1)}=(1/2)[(x_1^K+x_2^K)]^{K(1)}=5.5^K$；

characteristic mode conversion：$\mathbf{D_0}^{(K=\pm0)}=x_0^{(K=\pm0)}=(1/2)[(x_1^{(1)}+x_2^{(1)})]^{(K=\pm0)(1)}=5.5^{(K=\pm0)}$；

（A），Example of Operations of Real Numbers in Quadratic Discrete Type

(5.2.14) $(X\pm{}^{K(2)}\sqrt{\mathbf{D}})^{K(2)}=X^{(2)}\pm BX^{(1)}+\mathbf{D}$

$=X^{(2)}\pm 11X+({}^{K(2)}\sqrt{30.25})^{(2)}$

$= (1-\eta^2)^K\cdot[X_0^{(2)}\pm 2\cdot X_0^{(1)}\cdot 5.5+5.5^2]^K$

$=[(1-\eta^2)^K\cdot(X_0\pm\mathbf{D}_0)]^{(2)}$

$=(1-\eta^2)^K\cdot[(0,2)\cdot 5.5]^{(2)}=(0\leftrightarrow 121)^K$;

（B）、solution root

（1）、Central Zero Symmetry Probability Topological Circle Logarithm

$(1-\eta_C^2)^K=({}^{K(2)}\sqrt{30.25}/5.5)^{K(2)}=1$；$\eta^{K(2)}=0$；$\eta^{K(1)}=0$；

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

among：$(\eta_C^2)^K=2(\eta_\Delta)$；$(+\eta_\Delta)=(-\eta_\Delta)=0$；（symmetry of the bit value center with respect to the zero point）。

(5.2.15) $x_1=(1-\eta)\mathbf{D_0}=(1-0/11)\cdot 5.5=5.5$；

$x_2=(1+\eta)\mathbf{D_0}=(1+0/11)\cdot 5.5=5.5$；

（2） validate： $X^{(2)}\pm BX^{(1)}+\mathbf{D}=30.25\pm 2\cdot 30.25+30.25=\{0\leftrightarrow 121\}$，（Balance）；

[Example 5.2.4] Quadratic Expansion of a Single Variable (Complex Number Rule)：$\Delta\geq 1,(K=-1)$

Known number ：(S=2)； $D=42.16=({}^{(2)}\sqrt{42.16})^{(2)}$； $D_0=4.6$；$D_0^2=4.62=21.16$；

Discriminant, criterion ： $\Delta^2=(\eta^2)^{(K=+1)}=(42.16/21.00)^{(K=+1)}=(1\leq 1.9924\leq 2)$；性质属性：（K=-1）

Discrimination result: plural： $\mathbf{D_{[ji]}}=42.16-21.16=21.00=(\sqrt{\mathbf{D}})^2=(\sqrt{21.00})^2$；

Rule for converting complex numbers to logarithmic form:

(5.2.16) $(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[ji]}^2)^{(K=+1))}$；

$=(\sqrt{\mathbf{D}}-\mathbf{D}_0)^{(2)}/\mathbf{D}_0^{(2)}=(42.16-21.16)/21.16$

$=21.00/21.16$

$=0.9924\leq 1$；logarithmic complex number balance of circle；

The complex numbers **(ji=±1), (j=±1), (i=±1)** form a conjugate Cartesian coordinate system, creating a four-quadrant **(±X, ±Y)** complex number space

Complex probability characteristic modulus：

(5.2.17) $\{\mathbf{D}_0\}^{(K=-1)(1)}=\{X_0\}^{(K=-1)(1)}=(1/2)[(x_1^{(Kw=+1)(1)}+x_2^{(Kw=-1)(1)})]^{(K=-1)(1)}$；

complex topological characteristic module：

(5.2.18) $\{\mathbf{D}_0\}^{(K=-1)(2)}=\{X_0\}^{(K=-1)(2)}=[{}^{(2)}\sqrt{(x_1\cdot x_2)}]^{(K=\pm1)(Kw=\pm1)(2)}$；

Circular mode： $(1-\eta^2)^{(K=-1)}=[{}^{(2)}\sqrt{(x_1\cdot x_2)}/\{X_0\}]^{(K=-1)}=[(x_1\cdot x_2)/\{X_0^{(2)}\}]^{(K=-1)}$；

It shows the isomorphism (homology) consistency between axis probability and area topology.

The two-dimensional complex space: **{ji}=±1; ({j}=±1), {i}=±1)** is mapped to the Cartesian coordinate system (±X), (±Y) quadrants.

(5.2.19) $(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[ji]}^2)^{(K=+1)}$

$=[(1-\eta_{[j]}^2)^{(Kw=+1)}\cdot X+(1-\eta_{[i]}^2)^{(Kw=-1)}\cdot Y]^{(K=+1)}$；

（A）,Operations on quadratic complex number equations：

(5.2.20) $(X\pm\sqrt{\mathbf{D}})^{(2)}=X^{(2)}\pm BX^{(1)}+\mathbf{D}$

$=X^{(2)}\pm 9.2\cdot X^{(1)}+({}^{(2)}\sqrt{21.00})^{(2)}$

$=(1-\eta^2)^{(K=-1)}\cdot[X_0^{(2)}\pm 2\cdot 4.6X_0^{(1)}+4.6^{(2)}]^{(K=-1)}$

$=(1-\eta^2)^{(K=-1)}\cdot\{X_0\pm\mathbf{D}_0\}^{(K=-1)(2)}$

$=(1-\eta_{[ji]}^2)^{(K=+1)}\cdot\{X_0\pm\mathbf{D}_0\}^{(K=-1)(2)}$

$=(1-\eta_{[ji]}^2)^{(K=+1)}\cdot[(0,2)\cdot\{4.6\}]^{(K=-1)(2)}$

$=\{0\leftrightarrow 168.64_{[ji]}\}^{(K=+1)}$；

(5.2.21) $(1-\eta_{[ji]}^2)^{(K=+1)}=[n+({}^{(2)}\sqrt{\mathbf{D}})/\mathbf{D}_0]^{(K=+1)(q=+0,1,2,3)}=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}$；

（B）, solution root

By discriminant：$\Delta^2=1.9924\geq 1$，$(1+\eta^2)^{(K=-1}\leftrightarrow(1-\eta_{[ji]}^2)^{(K=+1)}$,

Satisfied, content, satisfy, fulfil, appease ： $(1-\eta^2)^{(K=-1)}=(1-21.00/21.16)=(1-0.992449)=0.007551\leq 1$，

Complex analysis of real numbers.

（1）、Probability of zero-point symmetry of center-logarithm of topological circle

Analytic root：

$(1-\eta_C^2)=(1-21.00/21.16)=(1-0.992449)$；

$\eta^2=0.007551$；$\pm\eta=0.4/4.6$；

$(1-\eta_{[ji]}^2)\mathbf{D}_0^2=[j(1-\eta_{[j]})^{+1}+i(1+\eta_{[i]})^{-1}]\mathbf{D}_0^2$

$=[\mathbf{j}\ (1-0.4)^{(Kw=+1)}+\mathbf{i}\ (1+0.4)^{(Kw=-1)}]\cdot 4.6^2$；

Satisfying the conjugate symmetry of the center zero point two side:$(+\eta)=(-\eta)=\pm(0.40/4.6)$；

(5.2.22) $\mathbf{j}X_1=(1+\eta_{[j]})\mathbf{D}_0=(1+0.40/4.6)\cdot 4.6=\mathbf{j}\ 5.0$；

$\mathbf{i}X_2=(1-\eta_{[i]})\mathbf{D}_0=(1-0.40/4.6)\cdot 4.6=\mathbf{i}\ 4.2$；

Complex number: $\{\mathbf{X}\}^{(k=-1)(1)}=(\mathbf{j}\ 5.0+\mathbf{i}\ 4.2)$; or $\{X\}^{(k=-1)(2)}=\boldsymbol{ji}(5.0\ 4.2)$; (where ***ji*** includes vector parameters).

（C）,validate：

$\mathbf{D}=\mathbf{D}_0+\mathbf{ji}(x_1\cdot x_2)=\mathbf{ji}(21.00+21.16)=42.16$；$\mathbf{D}_0=21.00$(Represents a periodic value)

$X^2\pm BX+\mathbf{D}=42.16\pm 2\cdot 42.16+42.16=\{0 \text{ or } 168\leftrightarrow 64\}$，(equilibrium of complex equations)

Specifically, complex analysis also yields four types of computational results (details omitted).

[Example 5.2.4] Quadratic Circle Logarithmic Calculus-Dynamic (±N=0,1,2) Equation

Fundamental Principles: In calculus, the total dimension remains constant for (S=1,2,3... integers), while the group variable combination forms (±N=0,1,2,0th,1st,2nd order) undergo dynamic changes. The group variable combination forms (±q=0,1,2,3... integers)/t exhibit order-dependent dynamic variations, manifested as changes in combination coefficients. These transformations are expressed through characteristic modes, circular logarithms, and shared power functions of group combinations, with calculus symbols embedded within power functions. The analysis is conducted within circular logarithms, termed circular logarithm calculus (hereinafter the same). The definition involves two asymmetric group combination series units decomposed into resolution 2:

First derivative: (The combination form term q=0 is not available)

(5.2.23) $\partial\{X\}=\partial\{^{(S)}\sqrt{\mathbf{D}}\}=(1/S)\{^{K(S)}\sqrt{(x_1x_2\dots x_S)}\}=(1-(d\eta)^2)^K\mathbf{D_0}^{K(Z\pm(S)\pm(N=-1)\pm\underline{(q=1,2,3\dots infinite)/t}}$;

Second-order differential: (combination form term q=0,1 is not available);

(5.2.24) $\partial^2\{X\}=\partial\{^{(2)}\sqrt{\mathbf{D}}\}=(1/S)\{^{K(S)}\sqrt{(x_1x_2\dots x_S)}\}=(1-(d^2\eta)^2)^K\mathbf{D_0}^{K(Z\pm(S)\pm(N=-2)\pm\underline{(q=2,3\dots infinite)/t}}$;

Where: ηv denotes the logarithmic change rate of the circle, with the corresponding group combination $\{X^{(S)}\}$ being $(1/S)^{(K=-1)}$ ， $\{X\}^{(S)K(N=-1)}$, and the transformed characteristic modulus is $\{X_0^{(S)K(N=-1)}$. ηa represents the logarithmic change acceleration of the circle, with the corresponding group combination being $[(2!/S(S-1)]^{(K=-1)}$， $\{X^{(S)}\}^{K(N=-2)}$, and the transformed characteristic modulus is $\{X0^{(S)})\}^{K(N=-2)}$.

First-order integral: (Combination form term q=0 restoration)；

(5.2.25) $\int\{X_v\}dx=(1-(\int\eta_v dx)^2)^K D_0^{K(Z\pm(S)\pm(N=+1)\pm\underline{(q=0,1,2,3\dots infinite)/t}}$;

Second-order integral: (Combination form term q=0,1 restored)；

(5.2.26) $\int^{(2)}\{X_a\}dx^2=(1-(\int^{(2)}\eta_a dx^{(2)})^2)^K D_0^{K(Z\pm(S)\pm(N=+2)\pm\underline{(q=0,1,2,3\dots infinite)/t}}$;

The integral of $[\int\eta_v dx^{(1)})^2]$ represents the logarithmic integral change rate of the circle, with the corresponding group combination transformation characteristic mode being $\{X_0^{(S)}\}^{(N=+1)(K=+1)}$; $dx^{(1)}$denotes the "1-1 combination" unit cell.

The integral (2)ηadx$^{(2)}$2 represents the logarithmic integral of acceleration, with the corresponding group combination transformation feature module being $X_0^{(S)}\}^{(N=+2)(K=+1)}$; $dx^{(2)}$ denotes the "2-2 combination" unit cell.

（A）， first order differential dynamic equation

Taking the example of the convergence of quadratic real numbers in one variable as an example,

Known: characteristic mode：$\mathbf{D_0}=\{3.5\}$，boundary value：$\mathbf{D=\{12\}}$，For any two asymmetric numerical group combinations

first order dynamic control;

$$\partial^{(1)}X^{(2)}=2\times(q=1)/t=K(Z\pm(S=2)\pm\mathbf{(N=-1)}\pm(q=[0],1,2,3\dots)/t;$$

The bracket [0] indicates that the first term of the polynomial is absent during differentiation and is restored during integration.

(5.2.27)
$$\begin{aligned}
&\partial^{(1)}\{X\pm\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(N=0)\pm(q=0,1,2,3\dots infinite)/t};\\
&=(1/2)^{(K=-1)}\{X\pm\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(N=-1)\pm(q=[0],1,2,3\dots infinite)/t}\\
&=(1/2)^{(K=-1)}\{X\pm(^{K(2)}\sqrt{\mathbf{12}})\}^{K(Z\pm(S=2)\pm(N=-1)\pm(q=[0],1,2,3\dots infinite)/t}\\
&=(1-(d\eta)^2)^K\cdot\{X_0\pm\mathbf{D_0}\}^{K(Z\pm(S=2)\pm(N=-1)\pm(q=[0],1,2,3\dots infinite)/t}\\
&=(1-\eta^2)^K\cdot[X_0\pm 3.5]^{K(Z\pm(S=2)\pm(N=-1)\pm(q=[0],1,2,3\dots infinite)/t}\\
&=(1-\eta^2)^K\cdot[\{0,2\}\cdot 3.5]^{K(Z\pm(S=2)\pm(N=-1)\pm(q=[0],1,2,3\dots infinite)/t}\\
&=\{0\leftrightarrow 48\}^{K(Z\pm(S=2)\pm(N=-1)\pm(q=[0],1,2,3\dots infinite)/t}\\
&(1-\eta_v^2)^K=[\eta_2-\eta_1]/t=(0,1);
\end{aligned}$$

Where: (1-(dη)²)K= (1-(η_v)²)^K; (velocity). For uniform notation, it can be expressed as: (1-η²)K corresponding to $\mathbf{D_0}^{(N=-1)}$. **（B）**， First-order integral dynamic equation:

(5.2.28)
$$\begin{aligned}
&\int^{(1)}\{x\pm\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(N=-1)\pm q)/t}d^{(1)}X\\
&=\int^{(1)}([\{x^2\pm\sqrt{\mathbf{D}}\}/dt]^{K(Z\pm(S=2)\pm(N=+1)\pm(q=1],2,3\dots infinite)/t}\\
&=\int^{(1)}[\{X\pm(^{K(2)}\sqrt{\mathbf{12}})\}/dt]^{K(Z\pm(S=2)\pm(N+1)\pm(q=1,2,3\dots infinite)/t}\\
&=(1-(\int\eta_v dx)^2)^K\cdot[\{X_0\pm D_0\}]^{K(Z\pm(S=2)\pm(N=+1)\pm(q=0,1,2,3\dots infinite)/t}\\
&=(1-\eta_v^2)^K\cdot[[X_0\pm 3.5]]^{K(Z\pm(S=2)\pm(N=+1)\pm(q=0,12,3\dots infinite)/t}\\
&=(1-\eta_v^2)^K\cdot[\{0,2\}\cdot 3.5]^{K(Z\pm(S=2)\pm(N=+1)\pm(q=0,1,2,3\dots infinite)/t}
\end{aligned}$$

$=\{0\leftrightarrow 48\}^{K(Z\pm(S=2)\pm(N=0)\pm(q=[0,1],2,3\ldots infinite)/t}$;

where: $(1-(\int\eta_v dx)^2)^K=(1-(\eta_v)^2)^K$; (η_v), velocity), for uniform notation, it can be written as $(1-\eta^2)^K$ corresponding to $\mathbf{D_0}^{(N=+1)}$;

[Example 5.2.6] Calculating Second Order Differential Equations of Quadratic Integral

Second order dynamic control;

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

For example, the bracket [0,1] indicates that the first and second terms of the polynomial are absent during differentiation but restored during integration.

（A），second order differential equation ：

(5.2.29) $\partial^{(2)}\{X\pm\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(N=0)\pm(q=0,1,2,3\ldots infinite)/t}$

$=[(2!/S(S-1)]^{(K=-1)}\{X\pm\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(N=-2)\pm(q=[2,3\ldots infinite)/t}$

$=[(2!/S(S-1)]^{(K=-1)}\{X\pm(^{K(2)}\sqrt{\mathbf{12}})\}^{K(Z\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3\ldots infinite)/t}$

$=(1-(d^2\eta)^2)^K\cdot\{X_0\pm\mathbf{D}_0\}^{K(Z\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3\ldots infinite)/t}$

$=(1-\eta^2)^K\cdot[X_0\pm 3.5]^{K(Z\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3\ldots infinite)/t}$

$=(1-\eta^2)^K\cdot[\{0,2\}\cdot 3.5]^{K(Z\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3\ldots infinite)/t}$

$=\{0\leftrightarrow 48\}^{K(Z\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3\ldots infinite)/t}$;

$(1-\eta_a^2)^K=[\eta_{2v}-\eta_{1v}]/t=(0,1)$;

The equations are: $(1-(d^2\eta)^2)^K=(1-(\eta_a)^2)^K$; where (η_a) denotes acceleration. For standardized notation, the expression can be written as $(1-\eta^2)^K$ corresponding to $\mathbf{D_0}^{(N=-2)}$.

（**B**），Second order integral equation：

(5.2.30) $\int^{(2)}[(2!/S(S-1)]^{(K=-1)}\{x\pm^{K(2)}\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(N=+2)\pm(q=[0,1],2,3\ldots infinite)/t}d^{(2)}X$

$=[(2!/S(S-1)]^{(K=-1)}\{x^2\pm^{K(2)}\sqrt{\mathbf{D}}\}^{K(Z\pm(S=2)\pm(N=++2)\pm(q=[0,1],2,3\ldots infinite)/t}$

$=(1-\eta^2)^K\cdot\{X_0\pm D_0\}^{K(Z\pm(S=2)\pm(N=-2+2)\pm(q=[0,1],2,3\ldots infinite)/t}$

$=(1-\eta^2)^K\cdot[X_0\pm 3.5]^{K(Z\pm(S=2)\pm(N=-2+2)\pm(q=[0,1],2,3\ldots infinite)/t}$

$=(1-\eta^2)^K\cdot[\{0,2\}\cdot 3.5]^{K(Z\pm(S=2)\pm(N=-2+2)\pm(q=[0,1],2,3\ldots infinite)/t}$

$=\{0\leftrightarrow 48\}^{K(Z\pm(S=2)\pm(N=-2+2)\pm(q=[0,1],2,3\ldots infinite)/t}$;

Where:$(1-(\int^{(2)}\eta_a)^2)^K=(1-(\eta)^2)^K$; (acceleration). For uniform notation, it can be written as: $(1-\eta^2)^K$ corresponding to $\mathbf{D_0}^{(N=+2)}$.

(C) ,Analysis of Roots of a Quadratic Equation in One Variable：

(1), The cluster calculation is represented by the digital equation with the characteristic mode $\mathbf{D_0}$={3.5} and the boundary value **D**={12}. It consists of a group combination (composed of two or more asymmetric functions).

Unknown variable: $\{X_A^K,X_B^K\}=\{12\}^{K(Z\pm(S=2)\pm(N=0)\pm q=0,1,2,3\ldots infinite)/t}$:

known characteristic mode： $\{X_{0AB}\}^K=(1/2)\{X_A^K+X_B^K\}=\{3.5\}^{K(Z\pm(S=2)\pm(N=0)\pm q=0,1,2,3\ldots infinite)/tt}$;

logarithmic discriminant of circle：Δ=12.00/12.50≤1,(K=+1)，real number calculation example,

Or： Δ=12.50/12.00≥1,(K=-1)，Examples of complex number calculations,

The calculus of dynamic order (N=±0,1,2) and complex analysis are obtained, and the analytic solution of the root is the same (the same applies below, omitted).

$$X_A^K=(1-\eta)^K 3.5=3^{(N=0)};\quad X_B^K=(1+\eta)^K 3.5=4;$$

The quadratic equation is suitable for "even term symmetry", if "even term asymmetry" appears, it belongs to the cubic (high) degree equation. The corresponding root analysis is not suitable for the quadratic equation root analysis.

5.2.2，**Analysis of Quadratic Equations and Infinite Axiom Random Self-Proof Mechanism**

(1)，The conversion rules for real and complex numbers can be performed in a logarithmic manner:

The two-dimensional quadrants (formed in a two-dimensional Cartesian coordinate system) can reach the $\{2\}^{\wedge 2n}$ state. This can be further extended to three-dimensional space, achieving the $\{3\}^{\wedge 2n}$ state. Corresponding to the physical three-dimensional space where **k=±0**.

(5.2.31) $(1-\eta^2)^{(K=+1)}=(1+\eta^2)^{(K=-1)}=(1-\eta_{[ji]}^2)^{(K=-1)}$

$=J\,[(1-\eta^2)^{K(Kw=+1)}+(1-\eta^2)^{K(Kw=-1)}]^{(K=-1)}+i\,[(1-\eta^2)^{K(Kw=+1)}+(1-\eta^2)^{K(Kw=-1)}]^{(K=-1)}$;

(5.2.32) $\{X\}^{K(S=2)}=(1-\eta^2)^K\cdot\{D_0\}^{K(Z\pm(S=2)\pm(N=0)\pm q=0,1,2,3\ldots infinite)/t}$

$=(1-\eta^2)^K\cdot\{3.5\}^{K(Z\pm(S=2)\pm(N=0)\pm(q=0,1,2,3\ldots infinite)/t}$;

The plane topological combination **Ji=±1**, the plane normal line corresponding to the axis **k=±1**; ***Ji*** and ***k*** in the three-dimensional coordinate system of right angles form conjugate reciprocal space.

(2)，logarithm of probability circle：

(5.2.33) $(1-\eta_{\Delta}^2)^{(K=\pm1)}=(1-\eta_{\Delta}^2)^{(Kw=+1)}+(1-\eta_{\Delta}^2)^{(wK=-1)}=1$；

其中：(K=±1)表示内外部性质属性；(Kw=±1)特别表示内部性质属性。(Kw=±1)(Kw=±1)=(+1,±0,-1,±1);

(3)，zero point symmetry of circular logarithm center：

(5.2.34) $(1-\eta_C^2)^{(Kw=\pm1)}=(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}=0$；

(4)，Root series of two groups of asymmetry：

(5.2.35) $X_a^{K(1)}=(1-\eta)^{(Kw=+1)}\cdot\{D_0\}=(1-1/7)\cdot3.5=3=J3$；

$X_b^{K(1)}=(1+\eta)^{(Kw=-1)}\cdot\{D_0\}=(1+1/7)\cdot3.5=4=i4$；

(5)，complex analysis

(5.2.36) $X_{AB}^{K(2)}=[JX_A^{K(1)}+iX_B^{K(1)}]=[J3+i4]^{K(Z\pm(S=2)\pm(N=0)\pm(q=0,1,2,3\ldots infinite)/t}$；

The two-element multiplication form is converted into the two-element addition form by transforming the circular logarithm, and the numerical combination with the circular logarithm achieves exchange.

(6)，Relationship between ellipse and circle：

(5.2.37) $X_{AB}^{K(2)}=[JX_A^{K(1)}+iX_B^{K(1)}]=(1-\eta^2)^{(Kw=\pm1)}\cdot\{(2)\cdot3.5^{(2)}\}=(1-1/49)^{(Kw=\pm1)}\cdot\{24.5\}$；

gain： $\{24.5\}\times(1-\eta^2)^{(Kw=-1)}=\{24.5\}\times(48/49)^{(Kw=-1)}=25=5^2$；

The following conditions: $(1-\eta^2)$, $(1+\eta^2)$, and ($2\eta^2$ or 2η) form a right-angled triangle under the positive circle.

Obtained: The Pythagorean Theorem for Right Triangles： $A^2+B^2=C^2$ ； $5^2=3^2+4^2$；

Here, it is proven that $X_{AB}^{K(2)}=(1-\eta^2)^{(Kw=\pm1)}\cdot\{(2)\cdot D_0^{(2)}\}$， where $\{D_0^{(2)}\}$ represents either the average radius of an ellipse or the radius of an eccentric circle $\{D_{00}^{(2)}\}$.

(5.2.38) $\{D_0^{(2)}\}=(1-\eta^2)^{(K=\pm1)}\{D_{00}^{(2)}\}$；

(5.2.39) $X_{AB}^{K(2)}=[JX_A^{K(1)}+iX_B^{K(1)}]=(1-\eta^2)^{(Kw=\pm1)}\{D_0^{(2)}\}=(1-\eta_{00}^2)^{(Kw=\pm1)}\{D_{00}^{(2)}\}$；

The two-element multiplication form is converted into the two-element addition form by transforming the circular logarithm, and the numerical combination with the circular logarithm achieves exchange.

Specifically, this is a multi-layered double-periodic rotational space with arbitrary ellipse major and minor axes $\{JX_A+iX_B\}^{K(Z\pm(S=2)\pm(N=0)\pm(q=0,1,2,3\ldots infinite)/t}$. The difference between the ellipse $\{D_{00}^{(2)}\}$ and the circle {D0(2)} is the logarithm of the circle $(1-\eta^2)^{(Kw=\pm1}$, which can be combined into $(1-\eta_0^2)^{(K=\pm1)}$.

The logarithm of the circle has a large "fault tolerance", which can be extended to the condition of keeping the power dimension unchanged:

(5.2.40) $A^n+B^n=(1-\eta^2)^{(K=\pm1)}C^n$；

When the symmetry factor of the center of the circular logarithm is the same, the random exchange can occur.

(5.2.41) $a=(1-\eta_{[j]}^2)^{(K=+1)}\{D_0\}^{K(1)}$

$\leftrightarrow\{(1-\eta_{[j]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C][ji]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[i]}^2)^{(K=-1)}\}\cdot\{D_0\}^{K(2)}$

$\leftrightarrow(1-\eta_{[i]}^2)^{(K=-1)}\}\cdot\{D_0\}^{K(1)}=b$;

(5.2.42) $ab=(1-\eta_{[j]}^2)^{(K=+1)}\{D_0\}^{K(2)}$

$\leftrightarrow\{(1-\eta_{[ab]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C][ji]}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[AB]}^2)^{(K=-1)}\}\cdot\{D_{00}\}^{K(2)}$

$\leftrightarrow(1-\eta_{[AB]}^2)^{(K=-1)}\}\cdot\{D_{00}\}^{K(1)}=[JX_A^{K(1)}+iX_B^{K(1)}]$;

When $X_{ab}^{K(2)}=(1-\eta_{[ji]}^2)^{(K=+1)}=(1-\eta)\cdot(1+\eta)=\{0,1\}$， , the state$D_0^{(K=\pm1)(Z\pm(S=2)\pm(N=0)\pm(q=2,3\ldots infinite)/t}$) still exhibits the duality or transformation between wave functions (topology) and particle functions (probability) through $(1-\eta_{[C][ji]}^2)^{(K=\pm0)}$.

Here, $(1-\eta^2)$，(η^2)，(η) are equivalent.

5.3、The Relationship Between Cubic Equation and Circular Logarithm

The Historical Background of Cubic Equations Humans have long mastered the solution methods for quadratic equations, but the research on cubic equations has progressed slowly. Ancient mathematicians in China, Greece, and India all made efforts to study cubic equations, but the several solutions they created could only solve special forms of cubic equations and were not applicable to general forms.

In the 16th century in Europe, with the development of mathematics, the fixed method of solving cubic equations was also developed. In many mathematical literature, the formula for solving cubic equations is called "Cardano's formula", which is obviously to commemorate the world's first Italian mathematician Cardano who published the formula for solving cubic equations.

Today, the advent of logarithmic equations has revealed that Cardano's formula is a special case of the "even function symmetry" solution, lacking a "general root solution," which limits its practical application. The fundamental reason lies in the decomposition of the three elements of a cubic equation into two categories: "one element to one element, with the center point coinciding with one element," termed the "even function symmetry solution"; and "one element to two elements," termed the "even function asymmetry solution."

So far, the cubic equation of the asymmetry of even function and the three-dimensional complex analysis have not made satisfactory progress.

The circular logarithm is processed as follows:

[Example 5.3.1] Principle of Solving a Cubic Equation in One Variable

Given: The boundary function **D**=X=$\prod$**(a,b,c,…s)** can be expressed as a "3-3 combination" to form a cubic equation in one variable.

characteristic mode：$\mathbf{D_0}^{(3)}=\sum[(3!/(S-0)(S-1)(S-2)]\prod_{[jik=3]}(abc+bcd+\dots+sab)$; K=(+1,±0,-1±1),

combined unit：$\prod_{[jik=3]}({}^{(3)}\sqrt{abc}, {}^{(3)}\sqrt{bcd},\dots,{}^{(3)}\sqrt{sab})$;

Select one of the three sequences of ternary numbers as a cubic equation：

characteristic of cubic equation：$[(3!/(S-0)(S-1)(S-2)]\prod_{[jik=3]}(abc+bcd+\dots+sab)$;

Equation (Determinant)：

(5.3.1) $$\{X\pm({}^{(S)}\sqrt{\mathbf{D}})\}^{(3)}=x^3\pm bx^2+cx\pm\mathbf{D}$$
$$=(1-\eta^2)^{(K=\pm1)}\{X\pm\mathbf{D_0}\}^{(3)}$$
$$=(1-\eta^2)^{K}\{(0,2)\cdot\mathbf{D_0}\}^{(3)};$$

Logarithmic discriminant of isomorphic circles:

(5.3.2) $\Delta=(1-\eta^2)^{(K=-+)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(3)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}\le1,(K=+1)$; indenotes convergence;

$\Delta=(1-\eta^2)^{(K=-1)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(3)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}\ge1,(K=-1)$; indicates expansion;

$\Delta=(1-\eta^2)^{(K=\pm1)}=\{{}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(3)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}=1,(K=\pm1)$; indicates balance;

$\Delta=(1-\eta^2)^{(K=\pm0)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(3)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}=\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}=0,(K=\pm0)$; indicates Convert;

Here, $\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(3)}$denotes the combination of three elements in a group, unlike $\{({}^{(S)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{3}$ which represents the triad's self-multiplication.

balance asymmetry of numerical center point：$X^{(1)}\in\prod_{[jik=3]}({}^{(3)}\sqrt{abc}, {}^{(3)}\sqrt{bcd},\dots,{}^{(3)}\sqrt{sab})$;

(5.3.3) $(1-\eta_\Delta{}^2)^{(K)}=X/[(3!/(S-0)(S-1)(S-2)]\cdot\mathbf{D_0}{}^{(3)}\}$
$=(1-\eta_{abc}{}^2)^{(K=-+1)}+(1-\eta_{bcd}{}^2)^{(K=-+1)}+\dots+(1-\eta_{sab}{}^2)^{(K=-+)}=1$,corresponding$[((S-0)(S-1)(S-2)/3!]D_0\}^{(3)}$;

bit value center zero point balance symmetry：$X^{(3)}\in(abc,bcd,\dots sab)$

(5.3.4) $(1-\eta_{[C]}{}^2)^{(K=\pm0)}=\{X/\mathbf{D_0}\}^{(3)}$
$=(1-\eta_{abc}{}^2)^{(K=-+1)}+(1-\eta_{bcd}{}^2)^{(K=-+1)}+\dots+(1-\eta_{sab}{}^2)^{(K=-+)}=0$,对应 $D_0{}^{(3)}$;

(5.3.5) $$\sum(+\eta^2)+\sum(-\eta^2)=0 \text{ and } \sum(+\eta)+\sum(-\eta)=0;$$

Root analysis is performed based on the position value center zero point corresponding to $\{2\eta_\Delta D_0{}^{(1)}\}$;

In particular, the values are limited by the axiom incompleteness, and can not be exchanged directly. Only through the zero point symmetry of the logarithm center of the dimensionless logical circle 'infinite axiom' and the random self-proving mechanism can the zero error analysis or decomposition be obtained.

trinary number integral exchange：

(5.3.6) $$abc^{(K=-+1)}=(1-\eta_{abc}{}^2)^{(K=-+1)}D_0{}^{(3)}$$
$$\leftrightarrow\{(1-\eta_{abc}{}^2)^{(K=-+1)}\leftrightarrow(1-\eta_{[C]]abc}{}^2)^{(K=-\pm0)}\leftrightarrow(1-\eta_{abc}{}^2)^{(K=--1)}\}D_0{}^{(3)}$$
$$\leftrightarrow(1-\eta_{abc}{}^2)^{(K=--1)}D_0{}^{(3)}=abc^{(K=--1)};$$

The Decomposition and Combinatorial Exchange of Triadic Number：

(5.3.7) $$a^{(K=-+1)}=(1-\eta_a{}^2)^{(K=-+1)}D_0{}^{(1)}$$
$$\leftrightarrow\{(1-\eta_a{}^2)^{(K=-+1)}\leftrightarrow(1-\eta_{[C]]abc}{}^2)^{(K=-\pm0)}\leftrightarrow(1-\eta_{bc}{}^2)^{(K=--1)}\}D_0{}^{(3)}$$
$$\leftrightarrow(1-\eta_{bc}{}^2)^{(K=--1)}D_0{}^{(2)}\leftrightarrow[(1-\eta_b{}^2)^{(K=--1)}D_0{}^{(1)}+(1-\eta_c{}^2)^{(K=--1)}]D_0{}^{(1)}=bc^{(K=--1)};$$

Obtain the analytical solution of the root of a linear equation in one variable：

(5.3.8) $$abc=(1-\eta_{abc}{}^2)^{(K=-+1)}D_0{}^{(3)};\ \dots\dots;\ sab=(1-\eta_{sab}{}^2)^{(K=-+1)}D_0{}^{(3)};$$
$$ab=(1-\eta_{ab}{}^2)^{(K=-+1)}D_0{}^{(2)};\ bc=(1-\eta_{bc}{}^2)^{(K=-+1)}D_0{}^{(2)};\ \dots\dots;\ sa=(1-\eta_{sa})^{(K=-+1)}D_0{}^{(2)};$$
$$a=(1-\eta_a{}^2)^{(K=-+1)}D_0{}^{(1)};\ b=(1-\eta_b{}^2)^{(K=-+1)}D_0{}^{(1)};\ \dots\dots;\ s=(1-\eta_s)^{(K=-+1)}D_0{}^{(1)};$$

Specifically, abc can be decomposed into elemental forms (two plus one) and (one plus one plus one) using the circular logarithm $(1-\eta_{ab}2)^{(K=+1)}D_0{}^{(3)}$.

The dimensionless logical circle (logarithmic circle) methodology completely replaces traditional determinant matrices. It also applies to group combination complex analysis, including projections (morphism, mapping) on three-dimensional axes ***(J, I, k)*** and planes ***(JI, IK, kJ)***, as well as the description of dynamic equations in calculus (first-order, second-order,... neural network levels). Additionally, it handles path integrals and historical records for geometric transformations in one-dimensional, two-dimensional, and three-dimensional spaces. The normal lines of its projection planes are parallel to the center. When conjugate center points exist, they align on the same axis, representing the balance asymmetry of numerical center points. This transforms into the zero-point symmetry of positional center values, enabling balanced exchange combination decomposition and random self-validation mechanisms.

[Example 5.3.2] A monic cubic convergent (K=+1) asymmetric distribution:

The Cardan formula provides a radical solution where the root elements are symmetrically distributed around a central zero point, with each element sharing the same distribution pattern. This represents a special case of symmetry. Specifically, the central zero point exhibits symmetry between "one root element and two root elements," known as "even-term asymmetric distribution." This numerical example serves as a mathematical foundation for solving complex analyses in three-dimensional artificial intelligence networks, as well as for developing AI computational programs and high-density information transmission systems.

known number ： **(S=3)； $D_0^{(3)}=5^{(3)}=125$； $D=(\sqrt{D})^{(3)}=({}^{(3)}\sqrt{96})^{(3)}$；**

combination coefficient ： {1：3：3：1}={2}$^{(3)}$=8；

discriminant, criterion ： $\Delta=(\eta^2)=({}^{(3)}\sqrt{96})/5)^{(3)}=96/125=0.768\leq 1$；

$(1-\eta^2)^{(K=+1)}\leq 1$，(K=+1)；convergent real number computation。

Circular logarithm：$(1-\eta^2)^K=(1-(\sqrt{\Delta})^2)=(1-0.768)=0.232\leq 1$；

characteristic mode：$X_0^{(1)}=[(1/3)(X_1+X_2+X_3)]^{(K=+1)(1)}=\{5\}^{K(1)}$；(K=+1)You can leave it blank (if you want to emphasize the contrast, you must label it)。

characteristic mode ： $X_0^{(2)}=[(1/3)(X_1X_2+X_1X_3+X_2X_3)]^{(K=+1)(2)}=(68/3)^{(2)}$； $22.67^{(2)}\neq\{5^2\}$；

where the eigenmode can be extended to (K=-1), as shown in the figure.

characteristic probability：$X_0^{(K=-1)(1)}=[(1/3)(X_1^{(K=-1)}+X_2^{(K=-1)}+X_3^{(K=-1)})]^{(K=-1)(1)}=\{5\}^{(K=-1)(1)}$

characteristic mode (topology)：$X_0^{(K=-1)(2)}=[(1/3)(X_1X_2^{(K=-1)}+X_1X_3^{(K=-1)}+X_2X_3^{(K=-1)})]^{(K=+1)(2)}=(68/3)^{(K=-1)(2)}$；

The methods (K=+1) and (K=-1) have been proven in the "Inversely Theorem".

For the convergent circular logarithm: $(1-\eta^2)^K=1-0.768=0.232$; η≈0.48. The numerical exploration is based on the zero-point equilibrium symmetry of the reference center. According to the hierarchical composition sequence decomposition, the last two root elements are obtained, i.e., ∑(+η)=∑(-η). The corresponding root elements can be determined by the circular logarithm factor during root calculation.

（a）、 operation, arithmetic, operating

(5.3.9) $\{X\pm({}^{K(3)}\sqrt{\mathbf{D}})\}^{K(3)}=AX^{(3)}\pm BX^{(2)}+CX^{(1)}\pm\mathbf{D}$

$=X^{(3)}\pm BX^{(2)}+CX^{(1)}\pm\mathbf{96}$

$=(1-\eta^2)^K[X^{(3)}\pm 3\cdot 5X^{(2)}+3\cdot 25X^{(1)}\pm\mathbf{5}^{(3)}]$

$=(1-\eta^2)^K\{X_0\pm\mathbf{5}\}^{K(3)}$

$=(1-\eta^2)^K[\{0,2\}\{\mathbf{5}\}]^{K(3)}$

$=[0\leftrightarrow 768]$；

(5.3.10) $(1-\eta^2)^K=[({}^{K(3)}\sqrt{\mathbf{D}})/\mathbf{D}_0]^{K(Z\pm S\pm(q=0,1,2,3)/t}=\{$ 0or [0 to (1/2) to 1] or 1$\}$；

The three numbers or three roots belong to the asymmetric distribution. The roots have (q=0,1,2,3) respectively, i.e. "0-0 combination, 1-1 probability combination, 2-2 topological combination, 3-3 combination". The value of the logarithm of the circle itself has the same isomorphism and conjugate consistency.

（b）、Operation result：

(5.3.11) $(X-{}^{(3)}\sqrt{\mathbf{D}})^{(K=+1)(3)}=(1-\eta^2)^{K(Kw=-1)}[\{0\}\cdot\mathbf{5}]^{K(3)}=0$；entangled rotation, subtraction, ring；

(5.3.12) $(X+{}^{(3)}\sqrt{\mathbf{D}})^{(K=+1)(3)}=(1-\eta^2)^{K(Kw=+1)}[\{2\}\cdot\mathbf{5}]^{K(3)}=1000$；entangled precession, addition, sphere;.

(5.3.13) (5.3.10) $(X\pm{}^{(3)}\sqrt{\mathbf{D}_0})^{(K=+1)(3)}=(1-\eta^2)^{K(Kw=\pm 1)}[\{0\leftrightarrow 2\}\cdot\mathbf{5}]^{K(3)}$；The entangled vortex space is expanded;

(5.3.14) $(X\pm{}^{(3)}\sqrt{\mathbf{D}_0})^{(K=\pm 0)(3)}=(1-\eta^2)^{K(Kw=\pm 0)}\cdot[\{0\leftrightarrow 2\}\cdot\mathbf{5}]^{K(3)}$；internal function conversion of positive and negative space-numbers-group combination;

（c）、solution root：

logarithmic discriminant of circle：$(\Delta)=(\eta^2)^K=(0.768)$；$(1-\eta^2)^K=0.232\leq 1$；

Probe: whether it can satisfy the circular logarithmic symmetry：$(1-\eta_1^2)+(1-\eta_2^2)+(1-\eta_3^2)=0$；

deviation factor of root element balance distribution；$(\eta_\Delta)=2(\eta^2)\mathbf{D_0}=2\times 0.232\times 5=2.3$；

Option (ηΔ): K≈2.3/$\mathbf{D_0}$=2/5 (unstable); Option (η): K≈3/5 (stable).

This deviation, (ηΔ)K≈3/$\mathbf{D_0}$=3/5, can be precisely found in the 'Circular Logarithm 999 Multiplication Table'.

Obtain the bit value center zero point symmetry balance:

$$(-\eta_1)+(-\eta_2)+(+\eta_3)=[(-2/5)+(-1/5)]+(+3/5)=(-3/5)+(+3/5)=0;$$

(5.3.15) $x_1=(1-\eta_1^2)\mathbf{D}_0=(1-2/5)\cdot(5)=3$；

$x_2=(1-\eta_2^2)\mathbf{D}_0=(1-1/5)\cdot(5)=4$；

$x_3=(1+\eta_3^2)\mathbf{D}_0=(1+3/5)\cdot(5)=8$；

（d）、Test and verify, validate, confirmation, proving：

(1)、$\mathbf{D}=(3\cdot 4\cdot 8)=96$；

(2)、$(1-\eta^2)^K[(5)^{(3)}\pm 3\cdot(5)^{(3)}+3\cdot(5)^{(3)}\pm \mathbf{5}^{(3)}]$

$=[({}^{K(3)}\sqrt{96})^3\pm 3(5)({}^{K(3)}\sqrt{96})^2+3(5)^2({}^{K(3)}\sqrt{96})\pm({}^{K(3)}\sqrt{96})^{\mathbf{3}}]$

$=[0, (8\cdot 96)]=[0\leftrightarrow 768]$；

[Digital Example 5.3.3] Peironic Sequence (K=+1) and the Relationship with the Circular Logarithm

The Fibonacci sequence has the following characteristics: A+B=C; B+C=D;... (the first two numbers equal the next one), (a+b=c), (ab=c), {X}=(abc).

（1）、Asymmetry Distribution of the Third-Ponachia Number Sequence：

known number ： $\mathbf{D}=(abc)=({}^{(3)}\sqrt{D})^{(3)}=520$；$\mathbf{D_0=(1/3)(a+b+c)}=B/3=26/3$；

Circular logarithm： $(1-\eta^2)^K=(1-{}^{(3)}\sqrt{\mathbf{D}}/\mathbf{D_0})=0.20119\le 1$；满足圆对数平衡条件；

discriminant, criterion ： $\Delta=(\eta_\Delta{}^2)=({}^{(3)}\sqrt{\mathbf{D}/\mathbf{D_0}})=(({}^{(3)}\sqrt{\mathbf{520}})/(26/3)^{(3)}=4680/17576\approx 0.26\le 1$；属于收敛型实数计算；

Selection near the zero point balance symmetry deviation factor of the logarithm center of circle：$(2(\eta_\Delta)\mathbf{D_0})=(0.4)/\mathbf{D_0}$；

Analysis: Three numbers in the Fibonacci sequence.

A cubic equation in one variable for the Peonachy sequence

(5.3.16) $$X^{(3)}+BX^{(2)}+CX^{(1)}+\mathbf{D}$$
$$=X^{(3)}+3\{\mathbf{D_0}\}^{(1)}X^{(2)}+3\{\mathbf{D_0}\}^{(2)}X^{(1)}+\mathbf{D}$$
$$=(1-\eta^2)^K\cdot[X_0{}^{(3)}+3\{\mathbf{D_0}\}X_0{}^{(2)}+3\{\mathbf{D_0}\}^{(2)}X_0+\{\mathbf{D_0}\}^{(3)}]$$
$$=(1-\eta^2)^K\cdot[X_0+\{\mathbf{D_0}\}]^{(3)}$$
$$=(1-\eta^2)^K\cdot[(2)\cdot\{\mathbf{D_0}\}]^{(3)};$$

(5.3.17) $$X^{(3)}=(1-\eta^2)^K\cdot\{\mathbf{D_0}\}^{(3)};$$

According to the known D or Peironic sequence, the circle logarithm rule is introduced, according to the characteristic mode (**D0**) = 26/3≈8.66;

The circle logarithm symmetry of the center zero point:[(-3.67)+(-0.67)]+(+4.34)=0;

(5.3.18) $$\{[(1-\eta_a{}^2)+(1-\eta_b{}^2)]-(1+\eta_c{}^2)\}\cdot(\mathbf{D})$$
$$= \{[(1-3.67)+(1-0.67)]-(1+4.34)\}\cdot(\mathbf{D});$$

(5.3.19) $$a=(1-\eta_a)B=(1-3.67)8.67=5;$$
$$b=(1-\eta_b)B=(1-0.67)8.67=8;$$
$$c=(1+\eta_c)B=(1+4.34)8.67=13;$$

For the analytical roots of the Peironic number series, the characteristic mode roots can be derived by applying the logarithmic center zero deviation factor of the circle, or by consulting the table "Logarithmic Multiplication Table of 999 for Circles".

Root solution: Two additional methods exist. First, the general calculation of ternary number circular logarithms: The center zero point of circular logarithm is $(\eta_C) = 2\times 0.26\times B/B \approx (0.50)B/B \approx (13/26)$. Trial selection: The Fibonacci sequence emphasizes integer values: $(\eta_\Delta) = (9\pm 4)/26$.

The symmetry of the circular logarithm's center zero point satisfies the factor balance of circular logarithm.

(5.3.20) $$[(-\eta_a)+(-\eta_b)]+(+\eta_c)=((-4)/26+(-1)/26+(+5)/26=0;$$

Analytic root：

(5.3.21) $$\eta_a=(9-4)/26=5/26;\quad a=(1-\eta_a)B=(1-5/26)B=5;$$
$$\eta_b=(9-1)/26=8/26;\quad b=(1-\eta_b)B=(1-8/26)B=8;$$
$$\eta_c=(9+4)/26=13/26;\quad c=(1+\eta_c)B=(1+13/26)B=13;$$

The zero-point symmetry of the circle logarithm is not limited to the Peironic number sequence, but also to any ternary number and three-dimensional complex analysis.

Secondly, the symmetry calculation of Hua Luogeng's classic formula: The distribution of the Fibonacci sequence derived from the classic formula (0.618) and (0.382) by Chinese mathematician Hua Luogeng:

Under the condition that B=2C: Given any Fibonacci number, such as (B=26), or based on D and D0,

Calculate the zero point (η_C) of the circle's logarithm center =0.50.

Circular logarithmic center zero point symmetry：

$$(1-\eta_a{}^2)+(1-\eta_b{}^2)=0.5;\quad (1-\eta_a{}^2)=0.5;$$

The zero point of the center is on the equal sign between (ab) and (c).。

(5.3.22) $\mathbf{a}=(1-\eta_a^2)(\mathbf{c})=0.382(13)=5$;
$\mathbf{b}=(1-\eta_b^2)(\mathbf{c})=0.618(13)=8$;
$\mathbf{c}=(1-\eta_c^2)(\mathbf{c})=1.50000(13)=13$;

[Digital Example 5.3.4] Complex Analysis of Triadic Numbers and Circular Logarithms

The cubic equation has two classical formulas: Cardan's formula (symmetry distribution) and Hua Luogeng's (Peponacci sequence) formula, both being special cases. Without solving the general solution of cubic equations, complex analysis cannot be performed. For instance, when studying three-dimensional complex analysis, Milton failed to resolve the general solution of ternary numbers (symmetry and asymmetry conversion), stating that "ternary numbers do not exist." The logarithm of the circle solved three-dimensional complex analysis by satisfying the balance and conversion rules between real and complex numbers. The transformation rules for complex-number corresponding characteristic modulus D0: Maintain true propositions, characteristic modulus, power functions corresponding to isomorphic circle pairs, and property attributes. The mechanism involves reverse conversion between positive and negative states, along with a random self-validation error-correction system to ensure zero-error conversion of true propositions into inverse propositions. Based on the strict sequence of three-dimensional complex analysis, the subscript letters are arranged clockwise as "+" and counterclockwise as "-", known as the "left-hand rule" of three-dimensional Hamilton-Wang quaternion and exchange rules.**Jik**={0,±1}; **ik**={0,±1}; **kJ**={0,±1}; **Ji**={0,±1}; A Three-dimensional Complex Analysis Expansion of Circular Logarithm (5.3.23) $(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[jik]}^2)^{(K=+1)}=(1-\eta_{[j]}^2)^{(K=+1)}\cdot\mathbf{X}+(1-\eta_{[i]}^2)^{(K=+1)}\cdot\mathbf{Y}+(1-\eta_{[k]}^2)^{(K=+1)}\cdot\mathbf{Z}$ (complex analysis of three dimensional axis); $=(1-\eta_{[ik]}^2)^{(K=+1)}\cdot\mathbf{ik}+(1-\eta_{[kj]}^2)^{(K=+1)}\cdot\mathbf{kj}+(1-\eta_{[ji]}^2)^{(K=+1)}\cdot\mathbf{ji}$ (3D Plane and Surface Complex Analysis); Symmetry of Zero Point of Three Dimensional Complex Analysis Center:

(5.3.24) $(1-\eta_{[j]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[ik]}^2)^{(K=+1)}$; $(1-\eta_{[i]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[kj]}^2)^{(K=+1)}$; $(1-\eta_{[k]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[ji]}^2)^{(K=+1)}$;

(5.3.25) $(1-\eta_{[j]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[ki]}^2)^{(K=-1)}$; $(1-\eta_{[i]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[jk]}^2)^{(K=-1)}$; $(1-\eta_{[k]}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[ij]}^2)^{(K=-1)}$;

圆对数的三维复分析交换

(5.3.26) $(1-\eta^2)^{(K=\pm1)}=(1+\eta^2)^{(K=+1)}\leftrightarrow(1+\eta^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik]}^2)^{(K=+1)}$对应$\{\mathbf{D_0}^{(S)}\}$
$=(1-\eta_{[j]}^2)^{(K=+1)}\cdot\mathbf{X}\leftrightarrow(1-\eta_{[i]}^2)^{(K=+1)}\cdot\mathbf{Y}\leftrightarrow(1-\eta_{[k]}^2)^{(K=+1)}\cdot\mathbf{Z}$ (complex analysis of three dimensional axis);
$=(1-\eta_{[ik]}^2)^{(K=+1)}\cdot\mathbf{ik}\leftrightarrow(1-\eta_{[kj]}^2)^{(K=+1)}\cdot\mathbf{kj}\leftrightarrow(1-\eta_{[ji]}^2)^{(K=+1)}\cdot\mathbf{ji}$ (**3D** Plane and Surface Complex Analysis);

Where: {0} is the conjugate center point in the 3D Cartesian coordinate system; {±1} is the boundary point in the 3D Cartesian coordinate system; they form the eight quadrants of the **3D** physical space.

[Digital Example 5.3.5], a cubic periodic calculation:

（A）、known number :(S=3); B=21(or $\mathbf{D_0}$=7), $\mathbf{D_{0[jik]}}^{(3)}=343=(7)^{(3)}$; $\mathbf{D}=3646=3430+({}^{(3)}\sqrt{216_{[jik]}})^{(3)}$;

logarithmic discriminant of circle: $(1-\eta^2)^K=3646/343\geq1$,periodic function of complex analysis

Choices: $\mathbf{D}=3646=3430+({}^{(3)}\sqrt{216_{[jik]}})^{(3)}$;

Calculate periodic function by convergence function.

(5.3.27) $X^{(3)}+BX^{(2)}+CX^{(1)}+\mathbf{D}=X^{(3)}+3\{\mathbf{D_0}\}^{(1)}X^{(2)}+3\{\mathbf{D_0}\}^{(2)}X^{(1)}+\mathbf{D}$
$=(1-\eta^2)^K\cdot[X_0+\{\mathbf{D_0}\}]^{(3)}$
$=(1-\eta^2)^K\cdot[(2)\cdot\{\mathbf{D_0}\}]^{(3)}$;
$(1-\eta^2)^{(K=+1)}=\{0 \text{ or } (0 \text{ to } 1/2 \text{ to } 1) \text{ or } 1\}$;

Here, D=3646 denotes the periodic characteristic modulus $\mathbf{D}_{0[jik]}^{(3)}$, which shares a fundamental complex number $216_{[jik]}=({}^{(3)}\sqrt{216_{[jik]}})^{(3)}$

Obtained: Periodic boundary conditions: $\mathbf{D}=10\cdot343+({}^{(3)}\sqrt{216_{[jik]}})^{(3)}=3430+216_{[jik]}$;

In other words, true complex number computation ultimately depends on numerical values.$\{216_{[jik]}\}$。

or: $(\mathbf{10\cdot343}+216)/343)^{(K=-1))}\geq2$, $\mathbf{D}=({}^{3}\sqrt{216})^{(K=-1)(3)}$**3D** complex periodic calculation.

（B）、Circular logarithm of complex number calculation:

logarithmic complex number rule: $(1-\eta^2)^{(K=-1)}=(1+\eta_{[jik]}^2)^{(K=+1)}=(1-\eta_{[jik]}^2)^{(K=+1)}$

(5.3.28) $(\mathbf{D}-\mathbf{D}_{[jik]})/\mathbf{D_0}=\{[3430+({}^{3}\sqrt{216})]/343)\}^{(K=-1)}$
$=\{[10+(1-\eta_{[jik]}^2)^{(K=+1)}]\cdot\mathbf{D}_{0[jik]}^{(3)}\}^{(K=+1)}$
$=\{[10+0.62973]\cdot343_{[jik]}\}^{(K=+1)}$;

Characteristic mode of the complex (negative power mean function):

$\{X_{[jik]}\}^{(K=-1)(3)}=(1-\eta_{[jik]}^2)^{(K=+1)}\mathbf{D_{0[jik]}}^{(K=-1)(3)}$

$\mathbf{D_{0[jik]}}^{(K=-1)(1)}=X_{0[jik]}^{(K=-1)(3)}=(1/3)^{(-1)}[(x_1^{(-1)}+x_2^{(-1)}+x_3^{(-1)})]^{(K=-1)}$; （K=-1），

$\mathbf{D_{0[jik]}}^{(K=-1)(2)}=X_{0[jik]}^{(K=-1)(3)}=(1/3)^{(-1)}[(x_1x_2^{(-1)}+x_2x_3^{(-1)}+x_3x_1^{(-1)})]^{(K=-1)}$; （K=-1），Apply known conditions$D_{0[jik]}^{(3)}$, $3430_{[jik]}+({}^{(3)}\sqrt{216_{[jik]}})^{(3)}$,

It is easy to obtain three root solutions $\{X_1X_2X_3\}$ through 216.

In particular, the values of three-dimensional coordinates cannot be exchanged directly; they must first be converted to circular logarithms and then exchanged through the zero-point symmetry of bit values.

（C）**Cubic complex equation operations:**

Discriminant: Eliminate 10 feature modes $\{\mathbf{D_0=343}\}$, satisfying$\Delta=\mathbf{216/343=0.6297}\leq 1$;

(5.3.29)
$$(X\pm\sqrt{\mathbf{D}})^{(3)}=x^{(3)}\pm Bx^{(2)}+Cx+\mathbf{D}$$
$$=x^{(3)}\pm 3(7)x^{(2)}+3(7)^{(2)}x\pm({}^{(3)}\sqrt{216})^{(3)}$$
$$=(1-\eta^2)^{(K=-1)}\cdot[x_0^{(3)}\pm 2(7)x_0^{(2)}+2(7)^{(2)}x_0\pm(7)^{(3)}]^{(K=-1)}$$
$$=[(1-\eta^2)^{(K=-1)}\cdot(X_0\pm\mathbf{D}_0)^{(K=-1)(3)}$$
$$=(1-\eta^2)^{(K=-1)}\cdot[(0,2)\cdot\{7.0\}]^{(K=-1)(3)}$$
$$=\{0\leftrightarrow 8\cdot(\mathbf{3430}+216_{[jik]})\}^{(K=-1)}$$

In the formula, 3430 denotes the characteristic modulus invariance D=216 shared complex fundamental roots for 10-periods ($\mathbf{D_0=343}$).

（1）、Probability Line (Axis)

(5.3.30)
$$(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[jik]}{}^2)^{(K=+1)}$$
$$=\boldsymbol{J}[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}]^{(K=+1)}$$
$$+\boldsymbol{i}\,[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}]^{(K=+1)}$$
$$+\boldsymbol{k}[(1-\eta^2)^{(Kw=+1)}+(1-\eta^2)^{(Kw=-1)}]^{(K=+1)};$$

（2）、Topological line (surface or plane projection).

(5.3.31)
$$(1-\eta^2)^{(K=--1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[jik]}{}^2)^{(K=+1)}$$
$$=[(1-\eta_{[jk]}{}^2)^{(Kw=+1)}+(1-\eta_{[jk]}{}^2)^{(Kw=-1)}]^{(K=+1)}\cdot X$$
$$+[(1-\eta_{[kj]}{}^2)^{(Kw=+1)}+(1-\eta_{[kj]}{}^2)^{(Kw=-1)}]^{(K=+1)}\cdot Y$$
$$+[(1-\eta_{[ji]}{}^2)^{(Kw=+1)}+(1-\eta_{[ji]}{}^2)^{(Kw=-1)}]^{(K=+1)}\cdot Z;$$

For example, formula (5.3.30) , (5.3.31)represents the first quadrant.

（3）、Complex Number Calculation Rules：

(5.3.32)
$$(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[jik]}{}^2)^{(K=+1)}$$

The corresponding shared basic boundary condition is D=216[jik].

（4）、The Zero Point of the Center of the Circular Logarithm in Three Dimension：

(5.3.33)
$$(1-\eta_{[jik]}{}^2)^{(K=-1)}=\{0 \text{ or } [0 \text{ to } \ (1/2) \text{ to } 1] \text{ or} 1\}^{(K=-1)};$$

The center zero point symmetry (1/2) indicates the starting and ending points of periodic cycles or the point of positive and negative conversion.

（D）、root analysis：

（1）、logarithm of central zero point symmetric topological circle：

Circular logarithm calculation：$(1-\eta^2)=216/343=0.62793$;

zero of symmetry center$(1-\eta_C{}^2)=0$; (x_1,x_2) and (x_3)between;

$$\eta_{[jik]}{}^2(B/2)=0.62793\cdot 10.50=7/21;$$

circle logarithmic symmetry：

$$(1-4/7)+(1-1/7)=(1+5/7)$$

（2）、complex probability value：

$$\boldsymbol{J}x_1+\boldsymbol{i}x_2+\boldsymbol{k}x_3=\boldsymbol{J}3+\boldsymbol{i}6+\boldsymbol{k12};\ \text{centered at zero}\{\mathbf{D_0}\}^{(1)}=\{\mathbf{7}\}^{(1)};$$

(5.3.34)
$\boldsymbol{j}x_1=(1-\eta_{[j]})\mathbf{D}_0=(1-4/7)\cdot(7)=\boldsymbol{j}3$; Corresponding to the X-axis;

$\mathbf{i}x_2=(1-\eta_{[i]})\mathbf{D}_0=(1-1/7)\cdot(7)=\boldsymbol{i}6$; Corresponding to the Y-axis;

$\mathbf{I}x_3=(1-\eta_{[i]})\mathbf{D}_0=(1+5/7)\cdot(7)=\boldsymbol{k}12$; Align with the Z-axis;

Proving[1]: $\{\mathbf{J}3\cdot\mathbf{i}6\cdot\mathbf{k}12\}=216_{[jik]}$, complex probability root satisfies the requirement。

（3）、complex topological number：

$$\boldsymbol{J}X_{[23]}{}^{(2)}+\boldsymbol{i}X_{[31]}{}^{(2)}+\boldsymbol{k}X_{[12]}{}^{(2)}=\boldsymbol{J}72+\boldsymbol{i}36+\boldsymbol{k}18;\ \text{centered at zero}\{\mathbf{D_0}\}^{(2)}=\{7\}^{(2)};$$

The three roots of formula (3.20) are complex numbers. Through plane mapping and zero-centered angle transformation, the combination of plane values changes accordingly. Specifically: the XOZ plane normal line corresponds to the X-axis; the ZOX plane normal line corresponds to the Y-axis; the XOY plane normal line corresponds to the Z-axis;

(5.3.35) $\boldsymbol{iK}X_{[23]}=(1-\eta_{[jk]})\mathbf{D}_0=(1-1/7)\cdot(1+5/7)\cdot(7)^{(2)}=6\cdot 12=\boldsymbol{j}(72)$; Corresponding to the YOZ plane or X-axis;

$\boldsymbol{Kj}X_{[31]}=(1-\eta_{[i]})\mathbf{D}_0 = (1-4/7)\cdot(1+5/7)\cdot(7)^{(2)}=3\cdot 12=\boldsymbol{i}(36)$; Corresponding to the ZOX plane or Y-axis line;

$\boldsymbol{Ji}\ X_{[12]}=(1-\eta_{[i]})\mathbf{D}_0 = (1-4/7)\cdot(1- 1/7)\cdot(7)^{(2)}=3\cdot 6=\boldsymbol{k}(18)$; Corresponding to the XOY plane or Z-axis line;

Proving[2]:

（a）， $X^{(3)}=(3430)+[\boldsymbol{j}72+\boldsymbol{i}367+\boldsymbol{k}18]=3430+(3\cdot 6\cdot 12)=3430+216=3646$；

（b）， $X^{(3)}\pm Bx^{(2)}+Cx\pm 216=216\pm 3\cdot 216+3\cdot 216\pm 216=\{0 \text{ or } 8\cdot(216)\}$，The complex number 10 [343] is balanced with a shared [216] basic periodicity.

There are four kinds of results for cubic equations

(5.3.36) $(X-{}^{(3)}\sqrt{\mathbf{D}})^{(3)}=[(1-\eta^2)\cdot\{0\}\cdot\mathbf{D}_0]^{(3)}=\{0\}^{(3)}$; （zero balance, rotation, subtraction）；

(5.3.37) $(X+{}^{(3)}\sqrt{\mathbf{D}})^{(3)}=[(1-\eta^2)\cdot\{2\}\cdot\mathbf{D}_0]^{(3)}=\{2\}^{(3)}\cdot\mathbf{D}$; （equilibrium, precession, addition）；.

(5.3.38) $(X\pm{}^{(3)}\sqrt{\mathbf{D}})^{(3)}=[(1-\eta^2)\cdot[\{0\leftrightarrow 2\}\mathbf{D}_0]^{(3)}=\{0\leftrightarrow\{2\}^{(3)}\}\cdot\mathbf{D}$; （vortex space unfolding）；

(5.3.39) $(X\pm{}^{(3)}\sqrt{\mathbf{D}})^{(K=\pm 0)(3)}=[(1-\eta^2)\cdot[\{0\leftrightarrow 2\}\mathbf{D}_0]^{(3)}=\{0\leftrightarrow\{2\}^{(3)}\}\cdot\mathbf{D}$; （The Balance and Transformation of Vortex Space）；

Solving a cubic equation:

(1) ,The ternary number is used to control the symmetry and asymmetry by the circular logarithm "double logic (value/ bit value) code", and to establish the complex analysis of ternary number and the three-dimensional neural network and information network analysis, which fills the gap in the direct field of three-dimensional complex analysis. (2), Application in number theory: The logarithm of circle method solves the "symmetry and asymmetry inverse conversion relationship" in ternary numbers, and crack the "strong Goldbach conjecture: (the sum of any two prime numbers is even function, even number)" and "weak Goldbach conjecture: (the sum of any three prime numbers is odd function, odd number)". For example, the "Peano sequence" (A+B=C), where the subsequent value equals the sum of the first two, can be generalized to establish triplet generator equations. Examples include electromagnetic equations, gravitational equations, and neutrino equations, which are composed of "two asymmetric triplet equations" to form three-dimensional computational problems. (3) ,Application to physics: The numerical center point balance asymmetry $(x_1x_2),(0),(x_3)$ and the bit value center zero symmetry $(-\eta_1\eta_2)=(+\eta_3)$ explain the wave-particle duality phenomenon. (4) ,The general analytical method for cubic equations can be extended from this unique solution approach to high-dimensional equations with arbitrary asymmetric distributions. The mathematical calculation range progresses from $\{2\}^{\wedge 2n}$ qubits to $\{3\}^{\wedge 2n}$ (n=0,1,2,3,... integers) qubits. This precisely demonstrates how ancient Chinese mathematics transitions from the "two generates three" threshold to the "three generates all things" state.

4、The Quadratic Equation of One Variable (Four Color Theorem) and the Circular Logarithm

Background information, background material ： A quartic equation is an algebraic equation with one unknown variable (variable) and a maximum degree of 4. Ferrari's method involves dividing both sides by the highest-degree term's coefficient, yielding $\mathbf{x^{\wedge 4} + bx^{\wedge 3} + cx^{\wedge 2} + dx + D = 0}$. By completing the square on both sides, we obtain two quadratic equations in x. Solving these leads to the original equation's four roots. This demonstrates that traditional quartic equations remain trapped in the special case of' symmetric computation, 'where' four-element asymmetry 'cannot be resolved. Consequently, the' Four-Color Theorem' has no mathematical proof beyond computer verification.

In the fourth-order complex number system with analytic degree 2, the numerical center point decomposes into four combinations: '[1-3], [2-2], [3-1], and [0-4]'. Here, the [0] in '[0-4]' and '[4-0]' represents the intersection points of four elements, which serve as boundary lines for either 4-element unit cells or 16-element block layers. By converting these to the equilibrium exchange decomposition of the logarithmic center zero point, we obtain the radical solution, thereby resolving the general solution of a monic quartic equation.

Circular logarithmic method: Under the conditions of invariant total elements and characteristic mode, a monic quartic equation with four elements at the center point of resolution 2 is decomposed into a balanced asymmetric distribution, which is transformed into a dimensionless logical circular logarithm. The corresponding "radical" solution is decomposed through the balanced exchange combination of the zero point of the circular logarithm. Corresponding to the "Four-Color Theorem," four color block units and four units form a hierarchy, corresponding to the root analysis of the four elements. The characteristic mode is composed of "unit blocks and hierarchical blocks," allowing the calculation of the number of each hierarchical block.

The analytical and computational characteristics of quadratic equations: Under constant total element count, calculus merely represents different element multiplication combinations. Specifically, the second term (first-order calculus) and third term (second-order calculus) of polynomials. Thus, calculus computation differs minimally from polynomial (zero-order) conversion to logarithmic calculations. Notably, under constant total elements, the analytic invariance of roots remains unchanged across neural networks, information networks, and data networks. When the characteristic modulus remains constant, logarithmic changes correspond to variations in boundary functions.

[Example 4.1]Analytic Solution of a Quadratic Equation in One Variable

Convert a quadratic equation (zero order) operation to logarithm

(If D is known, D0 may not require mathematical modeling)

(5.4.1) $X^{(4)}±BX^{(3)}+CX^{(2)}±DX^{(1)}+\mathbf{D}=X^{(4)}±(4\mathbf{D}_0)X^{(3)}+(6\mathbf{D}_0^{(2)})X^{(2)}±(4\mathbf{D}_0^{(3)})X^{(1)}+\mathbf{D}$
$=(1-\eta^2)^K[X_0^{(4)}±(4\mathbf{D}_0)X_0^{(3)}+(6\mathbf{D}_0^{(2)})X_0^{(2)}±(4\mathbf{D}_0^{(3)})X_0^{(1)}+\mathbf{D}]$
$=(1-\eta^2)^K[X_0±\mathbf{D}_0]^{(4)}$
$=(1-\eta^2)^K[(0,2)\{\mathbf{D}_0\}]^{(4)}$;

(5.4.2) $(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^K$;

or： $(1-\eta^2)^K=\{-1 \text{ or } (-1 \text{ to } (0) \text{ to } +1)\text{or}+1\}^K$;

Here, 'or' denotes the discrete jumps of circular logarithm, while 'to' indicates the continuous entanglement of circular logarithm. This demonstrates that circular logarithm can accommodate both discrete and continuous characteristics (residual homology).

Statistical Analysis of Tetrahedral Unit Blocks Based on Eigenmodulus$[\{\mathbf{D}_0\}]^{(4)}$;

(5.4.3) $X^{(4)}=(1-\eta^2)^K[\{\mathbf{D}_0\}]^{(4)}$;

The hierarchy of four-unit body: Hierarchical statistics based on characteristic mode$[\{\mathbf{D}_0\}]^{(16)}$;

(5.4.4) $X^{(16)}=(1-\eta^2)^K[\{\mathbf{D}_0\}]^{(16)}$;

Quadratic equation (first order) operation

(5.4.5) $\partial^{(1)}[X_0±\mathbf{D}_0]^{(4)}=[X_0±\mathbf{D}_0]^{(S=4)(N=-1)}$
$=\underline{X^{(4)}}±BX^{(3)}+CX^{(2)}±DX^{(1)}+\mathbf{D}=X^{(4)}±(4\mathbf{D}_0)X^{(3)}+(6\mathbf{D}_0^{(2)})X^{(2)}±(4\mathbf{D}_0^{(3)})X^{(1)}+\mathbf{D}$
$=(1-\eta^2)^K[X_0^{(4)}±(4\mathbf{D}_0)X_0^{(3)}+(6\mathbf{D}_0^{(2)})X_0^{(2)}±(4\mathbf{D}_0^{(3)})X_0^{(1)}+\mathbf{D}]$
$=(1-\eta^2)^K[X_0±\mathbf{D}_0]^{(S=4)(N=-1)}$
$=(1-\eta^2)^K[(0,2)\{\mathbf{D}_0\}]^{(S=4)(N=-1)}=0$;

(5.4.6） $(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^K$;

or： $(1-\eta^2)^K=\{-1 \text{ or } (-1 \text{ to } (0) \text{ to } +1)\text{or}+1\}^K$;

Where: $\underline{X(4)}$ indicates the first item is temporarily missing and will be restored during integration, without affecting the calculation of the four root elements.

Quadratic equation (second order) operation

(5.4.7) $\partial^{(2)}[X_0±\mathbf{D}_0]^{(4)}=[X_0±\mathbf{D}_0]^{(S=4)(N=-2)}$
$=\underline{X^{(4)}±BX^{(3)}}+CX^{(2)}±DX^{(1)}+\mathbf{D}=X^{(4)}±(4\mathbf{D}_0)X^{(3)}+(6\mathbf{D}_0^{(2)})X^{(2)}±(4\mathbf{D}_0^{(3)})X^{(1)}+\mathbf{D}$
$=(1-\eta^2)^K[X_0^{(4)}±(4\mathbf{D}_0)X_0^{(3)}+(6\mathbf{D}_0^{(2)})X_0^{(2)}±(4\mathbf{D}_0^{(3)})X_0^{(1)}+\mathbf{D}]$
$=(1-\eta^2)^K[X_0±\mathbf{D}_0]^{(S=4)(N=-2)}$
$=(1-\eta^2)^K[(0,2)\{\mathbf{D}_0\}^{(S=4)(N=-2)}$;

(5.4.8) $(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}^K$;

or： $(1-\eta^2)^K=\{-1 \text{ or } (-1 \text{ to } (0) \text{ to } +1)\text{or}+1\}^K$;

Here, $\underline{X^{(4)} ± BX^{(3)}}$ denotes the first two terms, which are temporarily omitted and restored during integration. The notation (N=+1, +2) indicates integration operations without affecting the calculation of the four root elements. Since $(1-\eta^2)^K$, $(\eta^2)^K$, and $(\eta)^K$ exhibit homogeneity, coordinate shifts do not affect the values in the logarithmic field of the corresponding circle. The "or" symbol represents discrete transitions (e.g., between blocks or external layers), w h i l e t h e "to" symbol denotes smooth transitions (e.g., within blocks or layers).

This approach not only resolved the asymmetry in solving quartic equations but also advanced the proof of the "Four-Color Theorem." The mathematical proof of the "Four-Color Theorem" was published in the American Journal of Science (JAS) in 2018.

There are four kinds of results for the calculation of a quartic equation in one variable

(5.4.9) $(X-{}^{(4)}\sqrt{\mathbf{D}})^{(4)}=[(1-\eta^2)\cdot\{0\}\cdot\mathbf{D}_0]^{(4)}=\{0\}^{(4)}$; （零平衡、旋转、相减）；

(5.4.10) $(X+{}^{(4)}\sqrt{\mathbf{D}})^4=[(1-\eta^2)\cdot\{2\}\cdot\mathbf{D}_0]^{(4)}=\{2\}^{(4)}\cdot\mathbf{D}$; （偶平衡、进动、相加）；.

(5.4.11) $(X±{}^{(4)}\sqrt{\mathbf{D}})^{(4)}=[(1-\eta^2)\cdot[\{0\leftrightarrow2\}\mathbf{D}_0]^{(4)}=\{0\leftrightarrow\{2\}^{(4)}\}\cdot\mathbf{D}$; （涡旋空间展开）；

(5.4.12) $(X±{}^{(4)}\sqrt{\mathbf{D}})^{(K=0)(4)}=[(1-\eta^2)\cdot[\{0\leftrightarrow2\}\mathbf{D}_0]^{(4)}=\{0\leftrightarrow\{2\}^{(4)}\}\cdot\mathbf{D}$; （涡旋空间的平衡与转换）；

The analytic roots of the quartic equation of one variable lead to the analytic roots of the four-color theorem.

The formulas ((5.4.1, (5.4.5, (5.4.7) represent the comprehensive operations of group combination roots, which include the relationship between the characteristic module center point and the surrounding four elements. The analytical roots are derived after obtaining the circular logarithm, through the probability-topological circular logarithm and the central zero point, to obtain the symmetry expansion of the circular logarithm's central zero point:

The "Four-Color Theorem" expresses each color element as$(x_1x_2x_3x_4)$ corresponding to each logical factor $(\eta_1\eta_2\eta_3\eta_4)$ forming a four-color block pattern.

$$\{(x_1)\neq(x_2x_3x_4)\};\quad \{(x_2x_3x_4)\neq(x_1)\};\quad \{(x_1x_2)\neq(x_3x_4)\};$$
$$\{(x_1x_3)\neq(x_2x_4)\};\quad \{(0)\neq(x_1x_2x_3x_4)\};\quad \{(x_1x_2x_3x_4)\neq(0)\};$$

in the form of "three blocks containing one block" and "one block containing three blocks

"$\{(\eta_2\eta_3\eta_4)\neq(\eta_1)\}$ and $\{(\eta_1)\neq(\eta_2\eta_3\eta_4)\}$

The four-color block formation consists of two types of "two blocks paired with two blocks".

$\{(\eta_1\eta_2)\neq(\eta_3\eta_4)\}$ and $\{(\eta_1\eta_3)\neq(\eta_2\eta_4)\}$

The four-color block unit is formed by "a block boundary enclosing a four-color block" and "a four-color block enclosing a point as a unit." As a block hierarchy, it consists of "four units," corresponding to the feature module.$\{\mathbf{D_0}^{(4)}\}$。

$\{(0)\neq(\eta_1\eta_2\eta_3\eta_4)\}$ and $\{(\eta_1\eta_2\eta_3\eta_4)\neq(0)\}$

The block feature module specifies that "16 blocks constitute a standard level." If fewer than 16 blocks form a level, they can be grouped into standard blocks using a logarithmic grouping method. This facilitates the statistical analysis of any finite subset within an infinite block set. The remaining "non-standard blocks" are counted separately.

One might ask: If color blocks correspond one-to-one to dimensionless logical factors $(\eta_1\eta_2\eta_3\eta_4)$ through numerical elements $(x_1x_2x_3x_4)$, why can't we directly use $(_{x1x2x3x4})$ to prove it?

The 'Infinite Axiom' Random Mutual Inversion Self-Proof Mechanism: Based on the 'Infinite Axiom' and the Random Self-Proof Mechanism, the external integrity exchange or (layer) movement of quaternion (four-color blocks, layers) exhibits mutual inversion:

(5.4.13) $$D^{(K=\pm1)(Z\pm S)\mathbf{(q=0,1,2,3,4)}}=(1-\eta_{abcd}{}^2)^{(K=\pm1)}D_0{}^{\mathbf{(4n)}}=\mathbf{\{0,1\}},$$

(5.4.14) $$abcd^{(K=+1)}=(1-\eta_{abc}{}^2)^{(K=+1)}D_0{}^{\mathbf{(4)}}$$
$$\leftrightarrow\{(1-\eta_{abcd}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{abcd}{}^2)^{(K=-1)}\}D_0{}^{\mathbf{(4)}}$$
$$\leftrightarrow(1-\eta_{abcd}{}^2)^{(K=-1)}D_0{}^{\mathbf{(3)}}=abcd^{(K=-1)};$$

Decomposition, combination, movement, and exchange of quaternion (quaternions) within (blocks, layers): any finite block $\{\mathbf{D_0}^{(4)}\}$ or layer $\{\mathbf{D_0}^{(4)}\}^{\mathbf{(4n)}}$ (where n=0,1,2,3,4, etc.) in an infinite block set. n=0Show block boundary or point。

$$D^{(Kw=\pm1)(Z\pm S)\mathbf{(q=0,1,2,3,4)}}=(1-\eta_{abcd}{}^2)^{(K=+1)}\ \{\mathbf{D_0}^{(4)}\}^{\mathbf{(4n)}}=\mathbf{\{0,1\}},$$

(1) Move and swap one block color with three block color elements:

(5.4.15) $$a^{(Kw=+1)}=(1-\eta_a{}^2)^{(Kw=+1)}D_0{}^{\mathbf{(1)}}$$
$$\leftrightarrow\{(1-\eta_a{}^2)^{(Kw=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}\leftrightarrow(1-\eta_{bcd}{}^2)^{(Kw=-1)}\}D_0{}^{\mathbf{(4)}}$$
$$\leftrightarrow(1-\eta_{bcd}{}^2)^{(Kw=-1)}D_0{}^{\mathbf{(3)}}$$
$$\leftrightarrow[(1-\eta_b{}^2)^{(Kw=-1)}+(1-\eta_c{}^2)^{(Kw=-1)}+(1-\eta_d{}^2)^{(Kw=-1)}]D_0{}^{\mathbf{(1)}}=bcd^{(Kw=-1)};$$

(2) Move and swap two block colors and their color elements:

(5.4.16) $$ab^{(Kw=+1)}=(1-\eta_{ab}{}^2)^{(Kw=+1)}D_0{}^{\mathbf{(2)}}$$
$$\leftrightarrow\{(1-\eta_{ab}{}^2)^{(Kw=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(Kw=\pm0)}\leftrightarrow(1-\eta_{cd}{}^2)^{(Kw=-1)}\}D_0{}^{\mathbf{(4)}}$$
$$\leftrightarrow(1-\eta_{bc}{}^2)^{(Kw=-1)}D_0{}^{\mathbf{(2)}}$$
$$\leftrightarrow[(1-\eta_c{}^2)^{(Kw=-1)}+(1-\eta_d{}^2)^{(Kw=-1)}]D_0{}^{\mathbf{(1)}}=cd^{(Kw=-1)};$$

For example, the circular logarithm function drives the movement of blocks and layers, enabling them to be standardized, which ensures the accuracy of statistical analysis.

Get the roots of a cubic equation (corresponding to four standard colors of the block) analytically:

(5.4.17) $$abc=(1-\eta_{abc}{}^2)^{(K=+1)}D_0{}^{\mathbf{(3)}};\ \ldots\ldots;$$
$$ab=(1-\eta_{ab}{}^2)^{(K=+1)}D_0{}^{\mathbf{(2)}};\ bc=(1-\eta_{bc}{}^2)^{(K=+1)}D_0{}^{\mathbf{(2)}};\ \ldots\ldots;$$
$$a=(1-\eta_a{}^2)^{(K=+1)}D_0{}^{\mathbf{(1)}};\ b=(1-\eta_b{}^2)^{(K=+1)}D_0{}^{\mathbf{(1)}};\ c=(1-\eta_c)^{(K=+1)}D_0{}^{\mathbf{(1)}};\ d=(1-\eta_d)^{(K=+1)}D_0{}^{\mathbf{(1)}};\ \ldots\ldots;$$

[**Root Analysis 1**]

In the four elements of the general solution {abcd}, the center point decomposition has the form "1-3" and "2-2":

The logarithmic center of the circle is zero point symmetry.

(5.4.18) $$\{(\eta_a)=(\eta_b\eta_c\eta_d)\};\quad \{(\eta_a\eta_b)=(\eta_c\eta_d)\};$$

Center Zero Balance Symmetry of Circular Logarithmic Factor:

(5.4.19) $$(-\eta_a{}^2)+(-\eta_b{}^2)+(-\eta_c{}^2)+(+\eta_d{}^2)=0;\quad (-\eta_a{}^2)+(-\eta_b{}^2)+(+\eta_c{}^2)+(+\eta_d{}^2)=0;$$

Get a root analysis of a type: (the numerical center point is between two consecutive elements)

$$\{(+\eta_a+\eta_b)=(\eta_c\eta_d)\}$$

(5.4.20) $$a=(1-\eta_1{}^2)\mathbf{D_0};\quad b=(1-\eta_2{}^2)\mathbf{D_0};\quad c=(1+\eta_3{}^2)\mathbf{D_0};\quad d=(1+\eta_4{}^2)\mathbf{D_0};$$

Get $\{(+\eta_a)=(+\eta_b\eta_c\eta_d)\}$a two-type root solution: (the numerical center is between one and three multiplied elements)

(5.4.21） $a=(1-\eta_1^2)\mathbf{D_0}$; $b=(1+\eta_2^2)\mathbf{D_0}$; $c=(1+\eta_3^2)\mathbf{D_0}$; $d=(1+\eta_4^2)\mathbf{D_0}$;

The first type (4.1.15) is classified as asymmetric resolution, which remains unresolved and is currently a blank. The logarithmic circle method has been successfully resolved.

Brief summary

The difficulty of the four-color theorem lies in

(1) ,The axiomatization of incompleteness applies to infinite numerical elements (infinite four-color blocks) and set-theoretic logical symbols, lacking a mutually inverse mechanism for random self-validation of truth or falsehood. These elements cannot be directly exchanged, decomposed, combined, or moved. Through numerical conversion (elements, blocks, layers) into isomorphism-consistent logarithmic time computations, operations are performed within {0,1} without mathematical content or specific (color, mass) element content.,

(2) ，The infinite four-color graph block meets the combination of (standard graph block) incompleteness, through the adjustment of the circle logarithm corresponding graph block, satisfies that the circle logarithm of (standard graph block) integrity is "not changing the true (infinite) proposition", not changing the characteristic module and isomorphism circle logarithm and random can be reciprocal self-proving mechanism, has "completeness".

(3) ，By transforming true (infinite) propositions into false (infinite) propositions through property attribute changes (elements, blocks, layers) or spatial movements, this approach circumvents the "infinite difficulty" and resolves the "incompleteness" challenge inherent in traditional axiomatic systems. The notation (K=+1) and (K=-1) respectively denote external additions or removals of blocks/layers, while (Kw=+1) and (Kw=-1) indicate internal transfers from A (block/layer) to B (block/layer), with these movements supplementing standard block/layer positions. Through the circular logarithm$(1-\eta_{abcd}^2)^{(Kw=-\pm1)}\{\mathbf{D_0}\}^{(4n)}and(1-\eta_{abcd}^2)^{(K=-\pm1)}\{\mathbf{D_0}^{(4)}\}^{(4n)}$, abcd can be decomposed into four dimensionless circular logarithmic factor element forms $(1_a+1_b+1_c+1_d)^{\wedge(4n)}$, which combine four distinct colors to form "standard blocks" and n layers corresponding to infinite block distributions and types. The "four-element characteristic modulus" facilitates precise statistical analysis. This establishes a complete and rigorous mathematical proof of the "Four-Color Theorem".

5、The connection between the equation of one element and the logarithm of circle

Mathematical background：In the early 19th century, Norwegian mathematician Abel-Ruflini's theorem proved that quintic equations in one variable had no universal algebraic solutions. In 1832, French mathematician Galois developed Galois theory (Groupe de Galois), revealing a profound connection between equation solutions and their coefficients. By associating equation solutions with a Galois group, the solvability of equations could be determined. If a Galois group of an equation is unsolvable, then the equation has no root-finding formula. Galois groups are groups associated with certain types of field extensions, which originate from polynomials. Galois theory proved that Galois groups of quintic and higher equations are solvable. Additionally, Galois theory effortlessly resolved the compass-and-straightedge construction problems of regular n-gons, proving the impossibility of constructing angle trisectors, cube roots, and squaring circles (the latter relying on the proof that π is a transcendental number).

Today, Galois 'theory has evolved into a specialized branch of mathematics known as "modern algebra" (or abstract algebra), with applications extending to cutting-edge research fields such as topology, differential geometry, chaos theory, and even numerous scientific disciplines including physics and chemistry. It has become a crucial foundational tool in modern scientific research. In 1994, British mathematician Andrew Wiles primarily applied Galois' theory to prove the famous "Fermat's Last Theorem." In computer applications of artificial intelligence, Turing machine logic was established under the "discrete-symmetric" assumption. This solution, termed "logical analysis," is constrained by the incompleteness of set theory axiomatics. Traditional solutions to first, second, and third-degree equations, referred to as classical analysis, are similarly constrained by the incompleteness of Poincare axiomatics. These limitations have significantly impacted the progress and development of algebra.

However, the real world is not entirely composed of regular polygons and geometric tools. Unconventional curves, curved surfaces, and the inherent 'uniformity versus non-uniformity' and 'symmetry versus asymmetry' within group structures remain unresolved. Scholars persistently pursue general numerical solutions for quintic equations, striving to integrate 'discrete-continuous' and 'symmetric-asymmetric' concepts while developing operations free from traditional axiomatic limitations. This leads to the question: Could there exist multiple analytical approaches bridging classical analysis and logical analysis?

The theory of circular logarithm introduces the "dimensionless logical circle" method, which extracts numerical characteristic modulus and dimensionless logical circle from arbitrary polynomials respectively. This establishes a "dual logic (numerical/bit value) code," along with three-dimensional complex analysis rules and an "infinite axiom" random self-validation mechanism. Under regularization conditions, the asymmetry of numerically center-point balance and mobility cannot be directly exchanged. Instead, it is transformed into bit-value center zero-point symmetry for balanced exchange, yielding general solutions for monomials of the fifth (higher) degree.

[Example 5.1] Fundamental Principles of Solving Monomial Quintic Equations (Including Calculus)

Given: (S=5), boundary function: boundary function (multiplicative combination) **D∈∏(a,b,c,d,e)**;

The corresponding complex analysis space (j,i,k+uv) is referred to as the five-dimensional vortex space with three-dimensional precession and two-dimensional rotation; characteristic mode (additive combination)$\mathbf{D}_0\in\sum(C_n^m)$(a,b,c,d,e)；

First-order differential calculus (multiplication combination) unit body：

$$dx=\prod\{\sqrt[5]{(a,b,c,d,e)}\}^{(1)(N=-1)}:\quad dx^{(2)}=\prod\{\sqrt[5]{(a,b,c,d,e)}\}^{(1)(N=-1)};;$$

First-order differential calculus (with combinations) unit cell:

$$dx_0=\sum\{(1/5)(a,b,c,d,e)\}^{(1)(N=-1)}:\ dx_0^{(2)}=\sum\{(1/10)(ab,bc,cd\ldots)\}^{(1)(N=-1)};$$

Second- order differential calculus (multiplication combination) unit body：

$$d^{(2)}x=\prod\{\sqrt[5]{(a,b,c,d,e)}\}^{(2)(N=-2)};:\quad dx^{(2)}=\prod\{\sqrt[5]{(a,b,c,d,e)}\}^{(2)(N=-2)};$$

Second-order differential calculus (with combinations) unit cell:

$$d^{(2)}x_0=\sum\{(1/5)(a,b,c,d,e)\}^{(2)(N=-2)};:\ dx_0^{(2)}=\sum\{(1/10)(ab,bc,cd\ldots)\}^{(2)(N=-2)};$$

logarithmic discriminant of circle：$\Delta=(\eta^2)^K=[\sqrt[5]{\mathbf{D}/\mathbf{D}_0}]^{K[q=(0\text{-}5)]}$；

circle logarithmic calculus：$\Delta=(\eta^2)^K=[\sqrt[5]{\mathbf{D}/\mathbf{D}_0}]^{K[q=(0\text{-}5)(N=-1)或(N=-2)}$

$(1-\eta^2)^K=\{dx/dx_0\}^{(N=-1)或(N=-2)}=\{dx^{(2)}/dx_0^{(2)}\}^{(N=-1)或(N=-2)}=\{\int f(x)dx_0\}^{(N=-1)或(N=-2)}=\{\int^{(2)}f(x)dx_0^{(2)}\}^{(N=-1)或(N=-2)}$；

power function ：$K(5)/t=K(Z\pm(S=5)\pm(N=-1)或(N=-2)\pm(q=0\leftrightarrow5))/t$；

combination coefficient ：1：5：10：10：5：1；总和$\{2\}^5=32$；

Discrimination result：

$(1-\eta^2)\le1$, K=+1 (convergent solution);

$(1-\eta^2)\ge1$, K=-1 (expansive solution, either complex or periodic);

$(1-\eta^2)=1$, K=±1 (convergent solution).

Calculus equations (±N=0,1,2): The analytical solutions for roots of zero-order, first-order, and second-order calculus equations are identical when expressed in power functions under the condition of constant total elements. In calculations, writing (±N=0,1,2) indicates that the solutions are consistent with calculus and share the same root analysis (no separate calculation required).

(A)、The Relationship between the Equation of One Variable and Five Degrees (Including Calculus Dynamics) and the Circular Logarithm

(5.5.1) $\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=Ax^{(5)}+Bx^{(4)}+Cx^{(3)}+Dx^{(2)}+Ex^{(1)}+\mathbf{D}$

$=x^{(5)}\pm5\mathbf{D}_0^{(1)}x^{(4)}+10\mathbf{D}_0^{(2)}x^{(3)}\pm10\mathbf{D}_0^{(3)}x^{(2)}+5\mathbf{D}_0^{(4}x^{(1)}\pm{}^{(5)}\sqrt{\mathbf{D}}$

$=(1-\eta^2)^K[x^{(5)}\pm5\mathbf{D}_0^{(1)}x^{(4)}+10\mathbf{D}_0^{(2)}x^{(3)}\pm10\mathbf{D}_0^{(3)}x^{(2)}+5\mathbf{D}_0^{(4}x^{(1)}\pm\mathbf{D}_0^{(5)}$

$=[(1-\eta^2)\cdot\{x_0\pm\mathbf{D}_0\}]^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm\pm(q=0\leftrightarrow5)]/t}$

$=[(1-\eta^2)\cdot\{0,2\}\cdot\{\mathbf{D}_0\}]^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

first derivative：

(5.5.2) $\partial\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)}=[(1-\eta^2)\cdot\{(0,2)\cdot\{\mathbf{D}_0\}]^{\mathbf{K}[(S=5)\pm(N=-1)\pm(q=1\leftrightarrow5)]/t}$;

Here, (q=1↔5) denotes the absence of the first term in the polynomial, which is restored during integration.

second order differential：

(5.5.3) $\partial^2\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)}=[(1-\eta^2)\cdot\{(0,2\}\cdot\{\mathbf{D}_0\}]^{\mathbf{K}[(S=5)\pm(N=-2)\pm(q=2\leftrightarrow5)]/t}$;

Here, (q=2↔5) denotes the absence of the first and second terms of the polynomial, which are restored during integration.first order integral：

(5.5.4) $\int\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=-1)}dx=[(1-\eta^2)\cdot\{(0,2)\cdot\{\mathbf{D}_0\}]^{\mathbf{K}[(S=5)\pm(N=+1)\pm(q=0\leftrightarrow5)]/t}$;

second order integral：

(5.5.5) $\int^2\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=-2)}dx^2=[(1-\eta^2)\cdot\{(0,2)\cdot\{\mathbf{D}_0\}]^{\mathbf{K}[(S=5)\pm(N=+2)\pm(q=0\leftrightarrow5)]/t}$;

Specifically: (5) In √D, the term (5) denotes the various "combinations" of polynomial terms, distinct from "self-multiplication". The first, second, and third terms of the polynomial correspond to the zeroth, first, and second orders of calculus, respectively. The calculus comparison function remains synchronized with the calculus order.

(B)、Result of solving a quintic equation

（1）、balance, 3D axis precession and 2D axis rotation, ring, vector subtraction；

(5.5.6) $\{x-{}^{(5)}\sqrt{\mathbf{D}}\}^{(\mathbf{K}=+1)(Kw=-1)(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=(1-\eta^2)\cdot[(0)\cdot\{\mathbf{D}_0\}]^{\mathbf{K}[(S=5)\pm(q=0\leftrightarrow5)]/t}$;

（2）、balance, 3D axis precession and radiation, sphere, vector addition;

(5.5.7) $\{x+{}^{(5)}\sqrt{\mathbf{D}}\}^{(\mathbf{K}=+1)(Kw=+1)[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=(1-\eta^2)\cdot[(2)\cdot\{\mathbf{D}_0\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

（3）、The radiation and motion of the balanced and neutral light quantum in the five-dimensional space of periodic vortex;

(5.5.4) $\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)(Kw=\pm1)[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=(1-\eta^2)\cdot[(0\leftrightarrow2)\cdot\{\mathbf{D}_0\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

（5）、The balance, the logaritmic center, the zero point, the symmetry point, the peripheral expansion.

(5.5.5) $\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)(Kw=\pm1)[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=(1-\eta^2)\cdot[(0\leftrightarrow2)\cdot\{\mathbf{D}_0\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t(q=0\leftrightarrow5)]/t}$;

（4）、The Symmetry Transformation of Zero Point of z Center;

(5.5.6) $\{x-^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)(Kw=\pm0)[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=(1-\eta_{00}^2)\cdot[(0)\cdot\{7\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

Where: $(1-\eta^2)=(1-\eta_\Delta^2)$ corresponds to the eccentric circle $\mathbf{D_0}^{(1)}$, and $(1-\eta_{00}^2)$ corresponds to the central circle $\mathbf{D_{00}}^{(1)}$. The values of $\mathbf{D_0}^{(1)}$ and $\mathbf{D_{00}}^{(1)}$ are identical, but their center points do not coincide with the zero center point. This is termed the eccentricity gap of the zero center point.

(5.5.7) $\{^{(5)}\sqrt{(\mathbf{X})}\}^{(1)}=(1-\eta_\Delta^2)\mathbf{D}_0^{(1)}=(1-\eta_{00}^2)\mathbf{D}_{00}^{(1)}$;

The formula $(1-\eta^2)=(1-\eta_\Delta^2)$ applies to $\mathbf{D_0}^{(1)(N=0,1,2)}$, $\mathbf{D_0}^{(1)(N=0,1,2)}$, which corresponds to the multiplicative combination, geometric center ellipse, eccentric circle, and non-uniformly distributed circle. $D_{00}^{(1)}$ corresponds to the additive combination, geometric center circle, and uniformly distributed circle. $\mathbf{D_0}^{(1)(N=0,1,2)}$ and $\mathbf{D_{00}}^{(1)(N=0,1,2)}$ share the same numerical value, but their center points and zero points do not coincide, resulting in a zero point deviation that requires additional calculation.

(C)、Roots of a quintic equation in one variable:

(1), The zero-point deviation bit value of the calculation center: Based on the circular logarithm under the condition of a perfect circle, (η^2-1), (η^2+1), $(2\eta^2)$ or $(2\eta^2)$ forms a right-angled triangle. The vertex of this triangle, located on the circle's circumference, becomes the numerical center point. The projection of the hypotenuse elements onto the circle's diameter $\{2D_{00}\}$ or $\{2D_{00}^2\}$ reveals numerical center point asymmetry if the hypotenuse elements are numerical.

This asymmetry is converted into circular logarithm symmetry by zero-point symmetry. At this stage, the zero-point symmetry can be balanced, exchanged, combined, and decomposed.

Relative deviation bit value of center zero symmetry:

(5.5.8) $(\eta_\Delta)=(1-\eta^2)/(1-\eta_{00}^2)=(\eta-\eta_{00})=\{2\cdot(\eta)\cdot\mathbf{D}_0^{(1)}\}$; （probability calculation ）

Or: $(\eta_\Delta^2)=(1-\eta^2)/(1-\eta_{00}^2)=(\eta^2-\eta_{00}^2)=\{2\cdot(\eta^2)\cdot\mathbf{D}_0^{(1)}\}$; （topological computation）

Among them: probability-based calculations are generally more convenient for computer operation. The relative deviation bit value of center zero symmetry can be obtained through computer memory introduction using "dual logic (numerical/bit value) code" or manual table calculation for root analysis.

(2),Calculate the zero-point symmetry of the bit value center:

For cubic equations and higher, no direct formula exists for root analysis. By analyzing the dimensionless logic circle $(1-\eta^2)$, (η^2), (η) (equivalence and isomorphism) and their corresponding characteristic modulus (numerical/bit value), we can determine the bit value center point $(1-\eta_{\Delta C}^2)^{(K=+1)}=1$ and the central zero point $(1-\eta_{[C]}^2)^{(K=+1)}=0$. The "dual logic numerical/bit value code" facilitates manual calculations, memory storage, automatic learning, and root element combinations.

The numerical center point solves the problem of balance asymmetry, which is restricted by axiom and cannot be exchanged directly. The bit value center zero point satisfies the balance symmetry to balance exchange decomposition combination, and has the 'infinite axiom' random self-prove true or false and error correction, which satisfies completeness and completeness to obtain zero error operation.(5.1.9)

(5.5.9) $(1-\eta_{\Delta[C]}^2)^{(K=+1)}=\sum(1-\eta^2)^{(K=+1)}+\sum(1-\eta^2)^{(K=-1)}=\{0,1\}$; （center critical linecenter critical line）

(5.1.10) $(\pm\eta_{[C]}^2)=\sum(-\eta_\Delta^2)+\sum(+\eta_\Delta^2)=\{0\}$; or $(\pm\eta_{[C]})=\sum(-\eta_\Delta)+\sum(+\eta_\Delta)=\{0\}$; （central critical point）

For the balance of elements on both sides of the center point and zero decomposition, manual exploration and calculation can be performed. For three-element cases, refer to the "Circular Logarithm 999 Multiplication Table". For multi-element cases, (2) calculate the bit value zero symmetry using the "Dual Logic (Numerical/Bit Value) Code" for adjustments. Obtain the root balance bit value corresponding to multi-elements:

$$\sum(-\eta_\Delta)\leftrightarrow(\pm\eta_{[C]})\leftrightarrow\sum(+\eta_\Delta);\quad \text{or: } \sum(1-\eta_\Delta)^{(K=+1)}\leftrightarrow(\pm\eta_{[C]})\leftrightarrow\sum(1-\eta_\Delta)^{(K=-1)};$$

(E)、The Infinite Axiom Logic Circle Exchange Mechanism

The truth proposition is not changed, the characteristic mode is not changed, the property of the corresponding logarithm of isomorphic circle is changed, the truth proposition is changed into the inverse proposition.

(1),The External Integral Exchange of Group Combination Five Elements:

(5.5.11)
$$abcde^{(K=-+1)}=(1-\eta_{abcde}^2)^{(K=-+1)}D_0^{(5)}$$
$$\leftrightarrow\{(1-\eta_{abcde}^2)^{(K=-+1)}\leftrightarrow(1-\eta_{[C]]}^2)^{(K=-\pm0)}\leftrightarrow(1-\eta_{abcde}^2)^{(K=--1)}\}D_0^{(5)}$$
$$\leftrightarrow(1-\eta_{abcde}^2)^{(K=--1)}D_0^{(5)}=abcde^{(K=--1)};$$

(2),The decomposition and combination exchange of the five elements in a group: For example, the central point is decomposed into the "3-2" form.

(5.5.12) $$abc^{(K=-+1)}=(1-\eta_{abc}^2)^{(K=-+1)}D_0^{(3)}$$
$$\leftrightarrow\{(1-\eta_{abc}^2)^{(K=-+1)}\leftrightarrow(1-\eta_{[C]}^2)^{(K=-\pm0)}\leftrightarrow(1-\eta_{de}^2)^{(K=--1)}\}D_0^{(5)}$$
$$\leftrightarrow(1-\eta_{de}^2)^{(K=--1)}D_0^{(2)}\leftrightarrow[(1-\eta_d^2)^{(K=--1)}D_0^{(1)}+(1-\eta_e^2)^{(K=--1)}]D_0^{(1)}=bc^{(K=--1)};$$

(F)、Roots of a quintic equation in one variable of a group:

The numerical center point solves the balance asymmetry, which is restricted by axiom and cannot be exchanged directly. The bit value center zero point satisfies the balance symmetry to perform the balance exchange decomposition and combination, and has the 'infinite axiom' to randomly self-prove the truth and error correction.

(5.5.13) $$abc=(1-\eta_{abc}^2)^{(K=-+1)}D_0^{(3)}\leftrightarrow de=(1-\eta_{de}^2)^{(K=-+1)}D_0^{(2)};$$

Root balance bit value for multi-element bit value factor:

(5.5.14) $$\sum(-\eta_\Delta)=(\eta_a,\eta_b,\eta_c)^{(K=-+1)}\leftrightarrow(\pm\eta_{[C]})\leftrightarrow\sum(+\eta_\Delta)=(\eta_d,\eta_e);$$

Acquire：

(5.5.15) $$a=(1-\eta_a^2)\mathbf{D_0}^{(1)};\quad b=(1-\eta_b^2)\mathbf{D_0}^{(1)};\quad c=(1-\eta_c)\mathbf{D_0}^{(1)};$$
$$d=(1+\eta_d^2)\mathbf{D_0}^{(1)};\quad e=(1+\eta_e)\mathbf{D_0}^{(1)};$$

Validate：（1）， $\mathbf{D_0}^{(1)}=(1/5)(a+b+c+d+e)$;（2）， $\mathbf{D}=(a\cdot b\cdot c\cdot d\cdot e)$;（Meet the question requirements）

For low-power dimension equations, the balance of elements on both sides of the center point and zero point decomposition can be manually calculated. For three-element cases, refer to the "Circular Logarithm 999 Multiplication Table." Low-power dimension equations utilizing "Dual Logic (Numerical/Bit Value) Codes" compute logical bit value factors through bit value center zero point symmetry, returning logical numerical factors that drive numerical analysis.

(G)、Five-dimensional vortex space of three-dimensional complex space with circular logarithm

The five-dimensional vortex space based on three-dimensional complex space consists of three-dimensional (jik) precession and two-dimensional (uv) rotation. The three-dimensional (jik+uv) precession occurs either along the axes (j+uv, i+uv, k+uv) or on the plane projection (ik+uv, kjuv, ji+uv).

(5.5.16) $$(1-\eta^2)^{(K=-1)}=(1+\eta^2)^{(K=+1)}=(1-\eta_{[jik+uv]}^2)^{(K=+1)}$$
$$=(1-\eta_{[j+uv]}^2)^{(K=+1)}\cdot\mathbf{X}+(1-\eta_{[i+uv]}^2)^{(K=+1)}\cdot\mathbf{Y}+(1-\eta_{[k+uv]}^2)^{(K=+1)}\cdot\mathbf{Z}$$ (complex analysis of three dimensional axis)；
$$=(1-\eta_{[ik+uv]}^2)^{(K=+1)}\cdot\mathbf{YZ}+(1-\eta_{[kj+uv]}^2)^{(K=+1)}\cdot\mathbf{ZX}+(1-\eta_{[ji+uv]}^2)^{(K=+1)}\cdot\mathbf{XY}$$(3D Plane and Surface Complex Analysis)；

(H)、Symmetry of Complex Analysis of Circular Logarithm：

JIK={0，±1}；IK={0，±1}；KJ={0，±1}；JI={0，±1}}；

In this system: the 3D Cartesian coordinate system {0} serves as the conjugate center point; {±1} represents boundary lines or points, forming the eight quadrants of three-dimensional physical space. The letter symbols follow the "left-hand rule" convention, where the four fingers rotate clockwise, and the direction indicated by the thumb is "+", while the opposite direction is "-".

(5.5.17) $$(1-\eta_{[j]}^2)^{(K=+1)}=(1-\eta_{[ik]}^2)^{(K=+1)};\ (1-\eta_{[i]}^2)^{(K=+1)}=(1-\eta_{[kj]}^2)^{(K=+1)};\ (1-\eta_{[k]}^2)^{(K=+1)}=(1-\eta_{[ji]}^2)^{(K=+1)};$$
(5.5.18) $$(1-\eta_{[j]}^2)^{(K=+1)}=(1-\eta_{[ki]}^2)^{(K=-1)};\ (1-\eta_{[i]}^2)^{(K=+1)}=(1-\eta_{[jk]}^2)^{(K=-1)};\ (1-\eta_{[k]}^2)^{(K=+1)}=(1-\eta_{[ij]}^2)^{(K=-1)};$$

Brief summary：This quintic equation method serves as a paradigmatic example of "single-variable higher-order equations" and can also be implemented as a "logical numerical code" operation. It integrates the advantages of "classical analysis and logical analysis fusion," successfully resolving mathematical challenges involving "uniformity and non-uniformity, symmetry and asymmetry" within group combinations, as well as all problems composed of "multiplicative combinations and additive combinations." By introducing the low-density information transmission of computer logic gates {0,1} through "one-to-one correspondence (one logical information drives one information character)" into the high-density "one-to-many correspondence (one logical information drives multiple information characters or bytes)" format {1000↔0000↔0111}, it fundamentally enhances mathematical-ai algorithms, computational power, and data processing methods through the "logical numerical code" of single-variable higher-order equations. In fact, within current big data and large-scale models, any true polynomial can be fundamentally improved using this approach.

[Example 5.2] Convergent Quintic Equations

known number ：(S=5)：$\mathbf{D}=7650=({}^{(5)}\sqrt{97650})^{\cdot K[(S=5)\pm(q=0\leftrightarrow5)]}$；$\mathbf{D}_0=7$；$\mathbf{D}_0^5=16807$；

power function ：$K(5)/t=K(Z\pm(S=5)\pm(q=0\leftrightarrow5))/t$；

logarithmic discriminant of circle：$\Delta=(\eta^2)^K=[{}^5\sqrt{\mathbf{D}/\mathbf{D}_0}]^{K[S=1,2,3,4,5)]}=\{7650/16807\}^{K[q=1,2,3,4,5)]}=0.455\leq1$；

Discrimination result：K=+1；This is a convergent equation. The numerical center point may be of the

[2↔1↔2] type.

Calculus equations (±N=0,1,2): The analytical solutions for roots of zero-order, first-order, and second-order calculus equations are identical when expressed in power functions under the condition of constant total elements. In calculations, writing (±N=0,1,2) indicates that the solutions are consistent with calculus and share the same root analysis (no separate calculation required).

Since: given $\Delta=(\eta^2)^K=[{}^{(5)}\sqrt{D/D_0}]^{K[q=(0\ to\ 5)]}$, direct calculation without mathematical modeling may be unnecessary. This serves as a demonstrative example.

(A)、fifth power of one

(5.5.19) $\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=Ax^{(q=5)}+Bx^{(q=4)}+Cx^{(q=3)}+Dx^{(q=2)}+Ex^{(q=1)}+\mathbf{D}$

$=x^{(5)}\pm35x^{(4)}+490x^{(3)}\pm4340x^{(q===2)}+12005x^{(1)}\pm({}^{5}\sqrt{9504})^{(5)}$

$=(1-\eta^2)^K\,[x^5\pm5\cdot7\cdot x^4+10\cdot7^2\cdot x^3\pm10\cdot7^3\cdot x^2+5\cdot7^4\cdot x^1\pm\mathbf{7}^{(5)}]$

$=[(1-\eta^2)\cdot\{x_0\pm7\}]^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm\pm(q=0\leftrightarrow5)]/t}$

$=[(1-\eta^2)\cdot\{(0\ or\ 2)\cdot\{7\}]^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

In (5) of √D, the power function represents different "combination" forms of polynomial terms, distinct from the "self-multiplication" form. The first, second, and third terms correspond to the zeroth, first, and second-order derivatives in calculus, respectively.

(B)、Result of a 5th-degree equation (the calculation method for subsequent illustrative examples is the same, omitted)

（1）、balance, 3D axis precession and 2D axis rotation, circle, vector subtraction；

(5.5.20) $\{x-{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot[(0)\cdot\{7\}]^{\mathbf{K}[(S=5)\pm(q=0\leftrightarrow5)]/t}$;

（2）、balance, 3D axis precession and radiation, sphere, vector addition;

(5.5.21) $\{x+{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot[(2)\cdot7]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

（3）、The radiation and motion of the balanced and neutral light quantum in the five-dimensional space of periodic vortex;

(5.5.22) $\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot[(0\leftrightarrow2)\cdot\{7\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

（4）、balance, center point symmetry expansion, balance transformation;

(5.5.23) $\{x-{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot[(0)\cdot\{7\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$;

（5）、The balance, the logaritmic center, the zero point, the symmetry point, the peripheral expansion.

(5.5.24) $\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot[(0\leftrightarrow2)\cdot\{7\}]^{\mathbf{K}[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t(q=0\leftrightarrow5)]/t}$;

（6）、first derivative

(5.5.25) $\partial\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=-1)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{(0,2)\cdot\{7\}]^{\mathbf{K}[(S=5)\pm(N=-1)\pm(q=1\leftrightarrow5)]/t}$;

（7）、second order differential

(5.5.26) $\partial^{(2)}\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=-2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{(0,2)\cdot\{7\}]^{\mathbf{K}[(S=5)\pm(N=-2)\pm(q=2\leftrightarrow5)]/t}$;

（8）、first order integral：

(5.5.27) $\int\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=+1)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{(0,2)\cdot\{7\}]^{\mathbf{K}[(S=5)\pm(N=+1)\pm(q=0\leftrightarrow5)]/t}$;

（9）、Second-order integral:

(5.5.28) $\int^{(2)}\{x\pm{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=5)\pm(N=+,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{(0,2)\cdot\{7\}]^{\mathbf{K}[(S=5)\pm(N=+2)\pm(q=0\leftrightarrow5)]/t}$;

(5.5.29) $(1-\eta^2)^K=\{0\ or\ (0\ to\ (1/2)\ to\ 1)\ or\ 1\}$;

(C), analytic solution of a quintic equation：

Under the condition of a circle's logarithm, (η^2-1), (η^2+1), $(2\eta^2)$, or $(2\eta^2)$ form a right-angled triangle. The vertex of this triangle, located on the circle's circumference, becomes the numerical center point. When the hypotenuse elements are projected onto the circle's relative diameter (or relative area), if the hypotenuse elements are numerical values on either side of the center point, an asymmetric balance of numerical center points is achieved. This balance is transformed into zero-centered symmetry through the circle's logarithm. At this stage, the balance symmetry of numerical/bit-value circle logarithms, or the balance exchange of the 'Dual Logic (Numerical/Bit Value) Code Grid' and the 'Infinite Axiom' random self-validation mechanism, drives numerical analysis to obtain root solutions.

Manual calculation: discriminant of logarithm of circle：$\Delta=(\eta^2)^K=\{9504/16807\}^{K[q=(0\text{-}5)]}=0.565\leq1$；Determine the center point position

logarithmic center zero deviation bit value：

(5.5.30) $(\pm\eta_\Delta)=2\cdot(\eta)\cdot\mathbf{D}_0/\{\mathbf{D}_0\}=2\times0.565\times7=7.9/\{\mathbf{D}_0\}$,Select [7. or 8]/$\{\mathbf{D}_0\}$ probe，

Selection: (±7), with (7×0.565≈3 or 4), deviation is (±2, ±, 5)/5 for testing

bit value balance symmetry：$(-\eta_{\Delta a},-\eta_{\Delta b})$；$(\eta_{\Delta[C]}=0)$；

$(+\eta_{\Delta c}+\eta_{\Delta d},+\eta_{\Delta e})/5=(-4,-3)(+1,+2,+4)/5=0$,

Root values (real numbers, complex numbers, calculus, etc., all follow the same algorithm, differing only in symbol notation):

balance asymmetry of numerical center point：(ab)≠(cde)=(12)≠(792)；

bit value center zero point balance symmetry：$(\eta_a\eta_b)+(\eta_c\eta_{d\eta e})=(-3+-4)/7+(1+2+4)/7=0$；

root analysis：

(5.5.31) $a=(1-\eta_a)\mathbf{D}_0=(1-4/7)\cdot 7=3$； $b=(1-\eta_b)\mathbf{D}_0=(1-3/7)\cdot 7=4$； $c=(1-\eta_c)\mathbf{D}_0=(1+1/7)\cdot 7=8$；
$d=(1-\eta_d)\mathbf{D}_0=(1+2/7)\cdot 7=9$； $e=(1-\eta_e)\mathbf{D}_0=(1+4/7)\cdot 7=11$；

The root analysis element is dynamically corresponding to the calculus of each dynamic.

Validate：(1)， $\mathbf{D}_0=(1/5)(2+5+7+9+12)=5$；

(2)， $\mathbf{D}=(3\times 4\times 8\times 9\times 11)=9504$;(Meet the question requirements）。

In this context, the distribution patterns of the five roots of a cubic equation are determined by the numerical center point identified through the circular logarithmic discriminant, which is governed by the circular logarithmic bit value. For general solutions, the root positions are determined by the center point's location, exhibiting numerical asymmetry between [1 and 4], [2 and 3], and [2, 1, and 2], which governs the relationships between different boundary functions and characteristic modes. In this illustrative example, the center point is approximately 0.5, demonstrating bilateral symmetry where [2, 1, and 2] coincides with an intermediate value. This symmetry is transformed into a bit-value center-zero symmetry, facilitating the analytical derivation of numerical roots.

[Digital Example 5.3] Convergent Complex Analysis of Quintic Equations

known number ：(S=5),$\mathbf{D}_{[JIK+UV]}=({}^{5}\sqrt{247401})^{\cdot K[(S=5)\pm(q=0\leftrightarrow 5)]}$； $\mathbf{D}_0=13$； $\mathbf{D}_0{}^5=13^5=371293$；

The center point is of the type [2-3] (indicating that the center point is between two elements and three elements), and the complex analysis element is [JIK+UV], corresponding to$(1-\eta_{[JIK+UV]}{}^2)^K$. This is referred to as the five-dimensional vortex space.

power function ：$K(5)/t=K(Z\pm(S=5)\pm(q=0\leftrightarrow 5))/t$；

Discriminant, criterion ：$\Delta=(\eta^2)^{K(\pm 0,\pm 1)}=[{}^5\sqrt{\mathbf{D}/\mathbf{D}_0}]^{K[q=(0-5)]}=\{247401/371293\}^{K[q=(0-5)]}=0.67$；

Discrimination result：$(1-\eta_{[JIK+UV]}{}^2)^K=\{0.67\}$； convergent complex analysis computation。

(A)、fifth power of one

Given: $[5\sqrt{\mathbf{D}}$ and $\mathbf{D_0}]^{K[q=(0\text{ to }5)]}$, direct mathematical modeling is not necessarily required. This serves as a demonstrative example.

(5.3.1) $\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K[}(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow 5)]/t}=Ax^{(q=5)}+Bx^{(q=4)}+Cx^{(q=3)}+Dx^{(q=2)}+Ex^{(q=1)}+\mathbf{D}$
$=x^{(5)}\pm 65x^{(4)}+1690x^{(3)}\pm 21970x^{(2)}+142850x^{(1)}\pm({}^5\sqrt{247401})^{(5)}$
$=(1-\eta^2)^K[x^{(5)}\pm 5\cdot 13^{(1)}\cdot x^{(4)}+10\cdot 13^{(2)}\cdot x^{(3)}\pm 10\cdot 13^{(3)}\cdot x^{(2)}+5\cdot 13^{(4)}\cdot x^{(1)}\pm 13^{(5)}]$
$=[(1-\eta_{[JIK+UV]}{}^2)\cdot\{x_0\pm 13\}]^{\mathbf{K[}(S=5)\pm(N=0,1,2)\pm\pm(q=0\leftrightarrow 5)]/t}$
$=[(1-\eta_{[JIK+UV]}{}^2)\cdot\{0,2\}\cdot\{13\}]^{\mathbf{K[}(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow 5)]/t}$；

first derivative：

(5.3.2) $\partial\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K[}(S=5)\pm(N=-1)\pm(q=0\leftrightarrow 5)]/t}=[(1-\eta_{[JIK+UV]}{}^2)\cdot\{(0,2)\cdot\{13\}]^{\mathbf{K[}(S=5)\pm(N=-1)\pm(q=1\leftrightarrow 5)]/t}$；

second order differential：

(5.3.3) $\partial^{(2)}\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K[}(S=5)\pm(N=-,2)\pm(q=0\leftrightarrow 5)]/t}=[(1-\eta_{[JIK+UV]}{}^2)\cdot\{(0,2)\cdot\{13\}]^{\mathbf{K[}(S=5)\pm(N=-2)\pm(q=2\leftrightarrow 5)]/t}$；

first order integral：

(5.3.4) $\int\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K[}(S=5)\pm(N=-1)\pm(q=0\leftrightarrow 5)]/t}=[(1-\eta_{[JIK+UV]}{}^2)\cdot\{(0,2)\cdot\{13\}]^{\mathbf{K[}(S=5)\pm(N=-1)\pm(q=0\leftrightarrow 5)]/t}$；

second order integral：

(5.3.5) $\int^{(2)}\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K[}(S=5)\pm(N=-,2)\pm(q=0\leftrightarrow 5)]/t}=[(1-\eta_{[JIK+UV]}{}^2)\cdot\{(0,2)\cdot\{13\}]^{\mathbf{K[}(S=5)\pm(N=-2)\pm(q=0\leftrightarrow 5)]/t}$；

(5.3.6) $(1-\eta^2)^K=\{0\text{ or }(0\text{ to }(1/2)\text{ to }1)\text{ or }1\}$；

(B)、analytic solution of a quintic equation

Under the condition of a circle's logarithm, when (η^2-1), (η^2+1), $(2\eta^2)$ or (2η) form a right triangle, the vertex of this triangle on the circle's circumference becomes the numerical center point. The projection of the hypotenuse elements onto the circle's diameter reveals numerical values on either side of the center point, resulting in an asymmetric balance. By converting this to the circle's logarithm, the zero-centered symmetry is achieved. At this stage, the zero-centered symmetry can be balanced, exchanged, and decomposed to obtain the root analysis.

logarithmic discriminant of circle：$\Delta=(\eta^2)^K=\{247401/371293\}^{K[q=(0-5)]}=0.666\approx$（2/3）；

logarithmic center zero deviation bit value：

(5.3.7) $(\pm\eta_\Delta{}^2)^K=2\cdot(\eta^2)^K\cdot\mathbf{D}_0/\{\mathbf{D}_0\}=2\times 0.67^2\times 13=11.67/\{\mathbf{D}_0\}$,deviation value selection12；

bit value balance symmetry：

(5.3.8) $(-\eta_a,-\eta_b-\eta_b)(\eta_{[C]}=0)(+\eta_d,+\eta_e)/5=(-7,-5,-1)(0)(+4,+8)/13=0$,

The balance exchange based on the positional balance symmetry drives the numerical analysis. Calculus equations (±N=0,1,2): Zero-order, first-order, and second-order calculus equations are expressed in power functions, as the analytical results of roots under the condition of total element constancy are identical.

The numerical center point balance asymmetry: (abc)(0)(de) = (693)(0)(357) = 247401; demonstrates the asymmetric transformation of (abc) and (de) into bit value logarithmic center zero point symmetry bit value center zero point symmetry (-η1η2η3) = (+η4η5), which becomes the η3's (three-dimensional precession and two-dimensional rotation) random displacement duality physical phenomenon.

(5.3.9) $\boldsymbol{J}a=(1-\eta_a)\mathbf{D}_0=(1-7/13)\cdot 13=\boldsymbol{J}7$； $\boldsymbol{i}b=(1-\eta_b)\mathbf{D}_0=(1-5/13)\cdot 13=\boldsymbol{i}\,9$；

$\boldsymbol{k}c=(1-\eta_c)\mathbf{D}_0=(1-1/13)\cdot 13=\boldsymbol{k}11$； $\boldsymbol{u}d=(1+\eta_d)\mathbf{D}_0=(1+4/13)\cdot 13=\boldsymbol{u}17$；

$\boldsymbol{v}e=(1+\eta_e)\mathbf{D}_0=(1+8/13)\cdot 13=\boldsymbol{v}21$；

Validate

（1），$\mathbf{D}_0=(1/5)(7+9+11+17+21)=13$；（2），$\mathbf{D}=(7\times 9\times 11\times 17\times 21)=247401$；(Meet the question requirements）。

[Example 5.4] Non-integer quintic equation (Example by Wei Dongyi)

A numerical example of a non-integral polynomial quintic equation: A middle school mathematics competition problem published online, with multiple methods such as 'factorization' and 'substitution method' for analysis. Example by Wei Dongyi:

$$X^5+10X^3+20X-4=0;$$

The condition "analytic general root element for two-variable functions of known equations" established by Hilbert in 1900 equally applies to quintic equations. This means that for any boundary function of "multiplicative combinations," the equation's expansion must satisfy the regularization distribution of coefficients; otherwise, it constitutes a special case solution or no solution. Therefore, an incomplete equation with "regularization" satisfies solvability conditions. By decomposing it into characteristic modules of combined coefficient terms, we can revert to the complete equation.

This equation reveals: boundary function 4 (multiplication combination) and eigenmode (4) √4, along with their corresponding variations, are compared. Simultaneously, the universality of circular logarithmic processing in such examples is verified.

（1），analytic method of circle logarithm

Given: The product of the combined boundary value D=4, the unit cell: $^{(5)}\sqrt{D}={}^{(5)}\sqrt{4}=1.32$;

Characteristic mode：$\mathbf{D_0}^{(1)}={}^{(4)}\sqrt{4}=1.414$；$\mathbf{D_0}^{(4)}=1.414^{(4)}=4$；$\mathbf{BD_0}^{(5)}=5\times 1.414=7.07$；

logarithmic discriminant of circle：$(1-\eta^2)=\{({}^{(5)}\sqrt{\mathbf{D}})/\mathbf{D}_0\}^{(5)}=4/7.07=0.7072$;

(a), Cubic equation: (mathematical modeling is not required)

(5.4.1) $\{x-{}^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow 5)]/t}}=Ax^{(q=5)}-Bx^{(q=4)}+Cx^{(q=3)}-Dx^{(q=2)}+Ex^{(q=1)}-\mathbf{D}$

$=x^{(5)}-5\mathbf{D_0}^{(1)}x^{(4)}+10\mathbf{D_0}^{(2)}x^{(3)}-10\mathbf{D_0}^{(3)}x^{(2)}+5\mathbf{D_0}^{(4)}x^{(1)}-4$

$=(1-\eta^2)^K[x^{(5)}-5\cdot(1.414)^{(1)}\cdot x^{(4)}+10\cdot(1.414)^{(2)}\cdot x^{(3)}-10\cdot(1.414)^{(3)}\cdot x^{(2)}+5\cdot(1.414)^{(4)}\cdot x^{(1)}-(1.414)^{(5)}]$

$=(1-\eta^2)^K\cdot\{x_0-(1.414)\}^{\mathbf{K[(S=5)\pm(N=0,1,2)\pm\pm(q=0\leftrightarrow 5)]/t}}$

$=(1-\eta^2)^K\cdot\{(0)\cdot(1.414)\}^{\mathbf{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow 5)]/t}}$;

(5.4.2) $(1-\eta^2)^K=\{0 \text{ or } (0 \text{ to } (1/2) \text{ to } 1) \text{ or } 1\}$;

(b), Calculation of zero deviation of center：

(5.4.3) $(\eta_\Delta{}^2)^K=2\cdot(\eta_\Delta{}^2)\cdot\mathbf{D_0}/\mathbf{D_0}=2\times 0.707^2\times 1.414/D_0=1.40$； select Choices:14；

or select 0.7072, then check the 'Dual Logic (Numeric/Bit) Code' grid, which records:

$$\mathbf{D}=537824;\ D_0{}^5=14^5=537824;\ (\eta_\Delta{}^2)^K=(0.7152);$$

Calculation of zero-point symmetry: The logical value factor corresponding to the logarithmic discriminant of the circle (0.7072) can be used.(-7，-3，0，+3，+7)/14=0，corresponding logic bit value factor，

Logical circle logarithm numeric code: balance asymmetry:

(5.4.4) $(\eta_1{}^2)$，$(\eta_2{}^2)$，$(\eta_3=\eta_\Delta{}^2)$，$(\eta_4{}^2)$，$(\eta_5{}^2)$;

Logical circle to digit value code: Balanced symmetry:

(5.4.5) $(-\eta_2)$，$(-\eta_1)$，$(\pm\eta_{[C]}=0)$，$(+\eta_1)$，$(+\eta_2)$;

Comparison of propositions and code for calculating logarithm of a number:Ω=0.7072/0.7152=0.9908;

(c), root analysis：

Apply formula：$x_s=\Omega(1-\eta_s{}^2/D_0)^K\cdot D_0$;

(5.4.6) $x_1=\Omega(1-\eta_1{}^2)^K\cdot D_0=(1-0.7/1.414)\times\Omega\times 1.414=0.5000\times 0.9908\times 1.414=0.7055$；

$x_2=\Omega(1-\eta_2^2)^K\cdot D_0=(1-0.3/1.414)\times\Omega\times1.414=0.7857\times0.9908\times1.414=1.1086$;
$x_3=\Omega(1-\eta_3^2)^K\cdot D_0=(1-0.0/1.414)\times\Omega\times1.414=1.0000\times0.9908\times1.414=1.4140$;
$x_4=\Omega(1-\eta_4^2)^K\cdot D_0=(1+0.3/1.414)\times\Omega\times1.414=1.2142\times0.9908\times1.414=1.7320$;
$x_5=\Omega(1-\eta_5^2)^K\cdot D_0=(1+0.7/1.414)\times\Omega\times1.4=1.5000\times0.9908\times1.414=2.1165$;

Validate：

（1）， $\mathbf{D_0}$=0.7055+1.1086+1.4142+1.7320+2.1165=7.0768；(5×1.414=0.7072)
(item three ; Event 3)：$5\times\sqrt[4]{4}=5\times4=20$（Match the question）；

（2），(The first item)：$\mathbf{D}$=0.7055×1.1086×1.4140×1.7320×2.1165=3.9998=4； （Match the question）；

This dual-logic (digital/bit) code grid not only facilitates manual calculations but also enables computer computations with precision requirements. By integrating the entire grid into computer memory, it significantly reduces operational procedures, simplifies integrated circuits and electronic components, and resolves memory challenges through code-based solutions.

（2），Factorization method (algorithm published online):

$$f(x)=x^5+10x^3+20x^1-4=0;$$

Take the first derivative: $f'(x)=5x^4+30x^2+20x=0$;

Surname：$(x_1-a)=0$; $5x^4+30x^2+20x=(Ax^2+Bx+C)\ (Dx^2+Ex+F)=0$;

For two quadratic equations:

Set up: $(x_1x_6)=[t\pm1/(\sqrt[5]{t^5})]=(1\pm1/t)t$; $(x_2x_4)=[t\pm1/(\sqrt[5]{t^5})]=(1\pm2/t)t$;

The balanced symmetry of the root of factorization is [2-1-2].

【(+1)-(0.66+0.33)=0】≈【(+1)-(0.7+0.3)=0】；

In other words: suppose a root: $(x_3=t)$, $t=\sqrt[4]{4}=1.414$;

$$(Ax+Bx+C)\ (Dx^2+Ex+F)=0;$$

Roots of the symmetry of the second pair (not published online):Roots of the symmetry of the second pair (not published online):

The network commentary can only be interpreted as 'one root is below the' 1 ', and four roots are above the' 1'.：

$x_3=(1-0/1.4)\times1.414=1.41$；

$x_1=(1-0.66/1.4)\times1.414=0.75$； $x_5=(1+0.66/1.4)\times1.414=2.07$；

$x_2=(1-0.33/1.4)\times1.414=1.08$； $x_4=(1+0.33/1.4)\times1.414=1.73$；

Validate,：

（1），0.707+2.120+1.414+1.109+1.716=7.066；
(item three ; Event 3)：$5\times\sqrt[4]{4}=5\times4=20$（Match the question）；

（2）， (The first item)： 0.75×2.07×1.41×1.08×1.73=4.08； （Match the question）；

Two comparisons: The calculation of the logarithm of the circle using the "dual logic (numerical/bit value) code" is essentially the same as the one published online.

The attached five-ary "Dual-Logic (Numeric/Bit) Code" supports both manual and computer calculations (Figure 6). This code can be stored in memory, making it suitable for manual calculations with low precision requirements using simple calculators. The table currently lacks the numerical center point of the five-ary [2-1-2] type corresponding to different characteristic modes, which can be added later.

Conclusion： Factorization and the quintic equation differ in form, yet their analytical approaches for solving five roots are fundamentally identical. When introducing the five roots into the equation, factorization cannot fully satisfy the equation, whereas the quintic equation can. This demonstrates that factorization is only applicable to symmetric equations of the [2-1-2] form, indicating its limited applicability.

In this context, the distribution patterns of five roots for a quintic equation are governed by the numerical center point determined through the circular logarithmic discriminant, which is controlled by the circular logarithmic bit value. For general solutions, the root distribution is determined by the position of the center point, exhibiting numerical asymmetry between [1 and 4], [2 and 3], and [2, 1, and 2], which drives distinct boundary function-characteristic mode relationships. In this illustrative example, the center point is approximately 0.5, demonstrating bilateral symmetry where [2, 1, and 2] coincides with an intermediate value. This transformation into bit-value center-zero symmetry facilitates the analytical solution of numerical roots. Quintic equations encompass both symmetric and asymmetric root distributions, demonstrating universal applicability.

[Example 5.5] Discrete Numerical Example of a Quintic Equation

$$X^{(5)}\pm BX^{(4)}+CX^{(3)}\pm DX^{(2)}+EX\pm\mathbf{D}=0;$$

known number ：

边界函数：$\mathbf{D}=\prod_{[S=5]}\{X_5,X_4,X_3,X_2,X_1\}^K=\{^{(5)}\sqrt{0.0567}\}^{(5)}=0.5632$,

特征模：$\{\mathbf{D_0}\}=(1/5)(X_5+X_4+X_3+X_2+X_1)=0.5632$；

Here, the five roots of the power law are(X_5，X_4，X_3，X_2，X_1)，

discriminant, criterion ：

$$(1-\eta^2)^K=\{(^{(5)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{K(5)}=\ldots=\{^{(5)}\sqrt{0.0567}\}^{(5)}/(0.5632)\}^{K(5)}=1；$$

classified as discrete calculation problem。

Property: (K=±1) The root of the square is positive。

Analysis: Under the condition of discrete, the corresponding roots of multiplication and addition can not be the same.

$$\prod_{[S=5]}\{X_5,X_4,X_3,X_2,X_1\}=\sum_{[S=5]}(1/5)(X_5+X_4+X_3+X_2+X_1),$$

Among, $^{(5)}\sqrt{0.0567}\}^{(5)}/(0.5632)\}^{K(5)}$in the event of, supposing that, in the event.

If the same result is generated, the following three scenarios may occur:

（1），$\prod_{[S=5]}\{X_5,X_4,X_3,X_2,X_1\}=\prod_{[S=5]}\{X_5,X_4,X_3,X_2,X_1\}$；

（2），$\sum_{[S=5]}(1/5)(X_5+X_4+X_3+X_2+X_1)=\sum_{[S=5]}(1/5)(X_5+X_4+X_3+X_2+X_1)$；

（3），$\prod_{[S=5]}\{X_5,X_4,X_3,X_2,X_1\}$与$\sum_{[S=5]}\{X_5,X_4,X_3,X_2,X_1\}$All equal to a single element, termed "equivalent quantum (element)"All equal to a single element, termed "equivalent quantum (element)""”。

Under known boundary functions, audio, video, speech, text, 2D images, and more can be processed. By improving data processing or data combination methods, the system has evolved from EAST's' 100 million degrees per second 'to Deepseek-R1's 'AI resurgence,' now rivaling ChatGPT.

urrently, computer logic gates still operate in binary low-density information transmission mode without controlling numerical center points or bit value zero points, resulting in unstable computation and high error rates. Therefore, the circular logic (1-η2)K={0, (0 to (1/2) to 1), or 1} can accommodate both discrete {0, (1/2), or 1} and continuous {0 to (1/2) to 1} operations, while maintaining control over the critical line and point of the bit value zero point (1/2). This prevents pattern collapse or confusion.

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Currently, computer logic gates still operate in binary low-density information transmission mode without controlling numerical center points or bit value zero points, resulting in unstable computation and high error rates. Therefore, the circular logic (1-η2)K={0, (0 to (1/2) to 1), or 1} can accommodate both discrete {0, (1/2), or 1} and continuous {0 to (1/2) to 1} operations, while maintaining control over the critical line and point of the bit value zero point (1/2). This prevents pattern collapse or confusion.

[Digital Example 5.6] Non-Complete Quintic Equation with Integral Solutions (Including Fractions) (K=±1)

$$X^{K(5)}+78125X^{K(4)}+250X^{K(3)}+1250X^{K(2)}-864^K=0；\quad \text{(Missing item 5)}$$

known number ：$\{X\}^{K(5)}=\prod_{[S=5]}\{X_5,X_4,X_3,X_2,X_1\}^K$，$\mathbf{D}^K=\{^{(5)}\sqrt{\mathbf{864}}\}^{K(5)}$,

Characteristic mode： $\{\mathbf{D_0}\}^K=(1/5)^K(X_5^K+X_4^K+X_3^K+X_2^K+X_1^K)$, $\{\mathbf{D_0}\}^{K(5)}=3125^K$

Circular logarithm： $(1-\eta^2)^K=\{(^{(5)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{K(5)}=\ldots=\{(^{(5)}\sqrt{\mathbf{864}}\}/(\mathbf{5}\})^{K(5(1)}=0.27648^K<1$；

Discriminant: Determining the Type of Entangled Calculation。

Property: K=+1 indicates a positive root; K=-1 indicates a fractional root.

Analysis of the problem: The second term $78125=\{\mathbf{5}\}^{(5)}$ can be expressed as the second term $5\times\{\mathbf{5}\}^{(1)}$ the fifth term $5\times\{\mathbf{5}\}^{(4)}$

$$78125=5^{(2)}\cdot5^{(5)}=25\cdot3125=5\cdot\{\mathbf{D_0}\}^{K(1)}+5\cdot\{\mathbf{D_0}\}^{K(4)},$$

（A）、(Combination as boundary function D) Solving a quintic equation：

Under the circular logarithmic control, the rule of item sequence conversion is: 1. "Combination coefficient characteristic mode (addition method)" = "Combination coefficient characteristic mode (multiplication method)". 2. Group combination (multiplication) and group combination (addition) are verified and edited by the circular logarithmic conversion.

(5.6.1) $X^{K(5)}-78125X^{K(4)}+250X^{K(3)}-1250X^{K(2)}-864^K$（Missing item 5）

$$=X^{K(5)}-25X^{K(4)}+250X^{K(3)}-1250X^{K(2)}+3125X^{K(1)}-864^K$$

$$=(1-\eta^2)^K[X^{K(5)}-5\{\mathbf{5}\}X^{K(4)}+10\{\mathbf{25}\}X^{K(3)}-10\{\mathbf{125}\}X^{K(2)}+5\{\mathbf{625}\}X^{K(1)}-\{\mathbf{5}\}^{K(5)}]^K;$$

$$=(1-\eta^2)^K[X_0^{K(5)}-5\{\mathbf{5}\}^{(1)}X_0^{K(4)}+10\{\mathbf{5}\}^{(2)}X_0^{K(3)}-10\{\mathbf{5}\}^{(3)}X_0^{K(2)}+5\{\mathbf{5}\}^{(4)}X_0^{K(1)}-\{\mathbf{5}\}^{K(5)}$$

$$=(1-\eta^2)^K\{X_0-\mathbf{D_0}\}^{K(5)}=0;$$

（2）The analytical roots of the quintic equation are derived from the characteristic mode {**5**} corresponding to $(1-\eta^2)\approx 0.3$. The numerical center points are located between two and three elements of the five root elements, $\{X_5,X_4\}\neq\{X_3,X_2,X_1\}$.

The logarithmic center zero point of the circle is $(1-\eta_C^2)=0$ with the characteristic mode $\{\mathbf{5}\}^K$.

To achieve symmetry, the five roots must correspond to the characteristic mode center points.

The center zero point (1-ηC2) = {η5+η4} + {η3+η2+η1}=0, the probability circle logarithm:$(1-\eta_C^2)=\{\eta_5+\eta_4\}+\{\eta_3+\eta_2+\eta_1\}=0$,

$(1-\eta_C^2)=\{\eta_5+\eta_4+\eta_3+\eta_2+\eta_1\}=1$, circle logarithm symmetry and balance:

The numerical center point of the five roots of the equation is between two and three elements of the five roots. The zero point of the logarithm of the circle is the characteristic mode.

The center zero probability circle logarithm:, circle logarithm symmetry and balance:

(5.6.2) $$[(1-\eta_1^2)=(5-X_1)/5]+[(1-\eta_2^2)=(5-X_2)/5]+[(1-\eta_3^2)=(5-X_3)/5]+[(1-\eta_4^2)=(5-X_4)/5]+[(1-\eta_5)=(5-X_5)/5]=0;$$

Prediction: (1-ηC2)=0.3=7.5/25. Choose the integer 7 for testing. If it fails, try 8. Continue until symmetry is achieved $(1-\eta_C^2)=0$.

Test with 7: [(5-4)+(5-2)+(5-1)]+[(5+3)+(5+4)]/25=(15-7)+(10+7)/25=1；

Or: logaritmic factor ：(-7)=(+7);

Five roots are obtained, each representing: based on the boundary function as "multiplication combination", the five roots are the roots of the "multiplication method".

(5.6.3) $$X_1^K=(1-\eta_1^2)\{\mathbf{5}\}^K=(5-4)^K=1^K;\quad X_2^K=(1-\eta_2^2)\{\mathbf{5}\}^K=(5-2)^K=3^K;$$
$$X_3^K=(1-\eta_3^2)\{\mathbf{5}\}^K=(5-1)^K=4^K;\quad X_4^K=(1-\eta_4^2)\{\mathbf{5}\}^K=(5+3)^K=8^K;$$
$$X_5^K=(1-\eta_5^2)\{\mathbf{5}\}^K=(5+4)^K=9^K;$$

Validate：（1），Multiply values：$\{\mathbf{D}\}^{K(5)}=\{1,3,4,8,9\}^K=864^K$;
$\{\mathbf{D_0}\}^{K(1)}=(1/5)^K\{1^K+3^K+4^K+8^K+9^K\}^K=5^K$;

（2），Equation ：$(1-\eta^2)[X_0^{(5)}-5\{\mathbf{5}\}^{(1)}X_0^{(4)}+10\{\mathbf{5}\}^{(2)}X_0^{(3)}-10\{\mathbf{5}\}^{(3)}X_0^{(2)}+5\{\mathbf{5}\}^{(4)}X_0^{(1)}-\{\mathbf{5}\}^{(5)}]=0$;

The operation proof: According to the symmetry of the reciprocity theorem, the properties and attributes do not affect the operation results of the equation.

The formula is a classic incomplete equation with missing terms. To ensure the balance of the equation, under the condition that the combination coefficients and unknown group variables remain unchanged, the terms with the same combination coefficients can be merged or split, and the characteristic modules can be combined or split. For a quintic equation, the characteristic modules {**D₀**} of the second, fifth, third, and fourth terms with the same combination coefficients can be split.

（3），Root of the Combination：$\{\mathbf{D}\}^{K(5)}=\{1\times3\times4\times\times8\times\times9\}^K=864^K$ the product equals 864^K。

（B）、Fifth-degree equation (with combination as boundary function D):

$$X^{K(5)}+78125X^{K(4)}+250X^{K(3)}+1250X^{K(2)}-3125^K=0;\quad \text{（Missing item 5）}$$

Characteristic mode of addition method：$({}^{(5)}\sqrt{\mathbf{864}})$，Boundary function ：$(\mathbf{5})^{(5)}=3125^K$

logarithmic discriminant of circle：

$$(1-\eta^2)^{(K=-1)}=[(\mathbf{5})/({}^{(5)}\sqrt{\mathbf{864}})]^{(K=-1)(5)}=[({}^{(5)}\sqrt{\mathbf{864}})/(\mathbf{5})]^{(5)}=\ldots=[({}^{(5)}\sqrt{\mathbf{864}})/(\mathbf{5})]^{(K=-1)(1)}=0.27649^{(K=-1)}$$

(5.6.4) $$X^{K(5)}-BX^{K(4)}+CX^{K(3)}-DX^{K(2)}-3125^K \text{（Missing item 5）}$$
$$=X^{K(5)}-5({}^{(5)}\sqrt{\mathbf{864}})^{(1)}X^{K(4)}+10({}^{(5)}\sqrt{\mathbf{864}})^{(2)}X^{K(3)}-10({}^{(5)}\sqrt{\mathbf{864}})^{(3)}X^{K(2)}$$
$$+5({}^{(5)}\sqrt{\mathbf{864}})^{(4)}X^{K(1)}+3125$$
$$=(1-\eta^2)^{(K=-1)}[X^{K(5)}-5\{\mathbf{5}\}X^{K(4)}+10\{\mathbf{25}\}X^{K(3)}-10\{\mathbf{125}\}X^{K(2)}+5\{\mathbf{625}\}X^{K(1)}-\{\mathbf{5}\}^{K(5)}]^K;$$
$$=(1-\eta^2)^{(K=-1)}[X_0^{K(5)}-5\{\mathbf{5}\}^{(1)}X_0^{K(4)}+10\{\mathbf{5}\}^{(2)}X_0^{K(3)}-10\{\mathbf{5}\}^{(3)}X_0^{K(2)}+5\{\mathbf{5}\}^{(4)}X_0^{K(1)}-\{\mathbf{5}\}^{K(5)}$$
$$=(1-\eta^2)^{(K=-1)}\{X_0-\mathbf{D}_0\}^{K(5)}=0;$$

The boundary function of the addition method is converted through the circular logarithm transformation. Specifically, the root of the "multiplication method" $\{\mathbf{D}\}^{\mathbf{K(5)}}=\{1\times3\times4\times\times8\times\times9\}^K=864^K$ is transformed into the root of the addition method" via circular logarithm transformation.

$\{\mathbf{D}\}^{K(5)}=(1-\eta^2)^{(K=-1)}\{\mathbf{D}_0\}^{K(5)}=(1/5)\{1+3+4+8+9\}/0.27648^K=25/0.27648=90.4225$; (Decimal point error),

Add method Root value:

(5.6.5) $$X_1^K=(1-\eta_1^2)\{\mathbf{5}\}/0.27648^K=(5-4)/0.27648^K=3.6169^K;$$
$$X_2^K=(1-\eta_2^2)\{\mathbf{5}\}/0.27648^K=(5-2)/0.27648^K=10.8507^K;$$
$$X_3^K=(1-\eta_3^2)\{\mathbf{5}\}/0.27648^K=(5-1)/0.27648^K=14.4676^K;$$

$X_4^K=(1-\eta_4^2)\{\mathbf{5}\}/0.27648^K=(5+3)/0.27648^K=28.9352^K$;

$X_5^K=(1-\eta_5^2)\{\mathbf{5}\}/0.27648^K=(5+4)/0.27648^K=32.5520^K$;

验证乘方法与加方法的转换关系,

（加方法）根数值;

$5\times\{\mathbf{D}\}^K=\{3.6169+10.8507+14.4676+28.9352+32.5520\}^K=90.4224^K=25/0.27648$; （$B=25=5\cdot\{\mathbf{D_0}\}$）

additive root of a unit: $\mathbf{D}=864/0.27648=3125=\{\mathbf{5}\}^{(5)}$;

Summary of key points in calculating by multiplication and addition:

The calculation of any integer or non-integer polynomial coefficients in a monomomial fifth (high) power equation:

(1) Group combination operations must meet the requirements of the circular logarithm algorithm, involving three elements **{D₀}**, **{D₀}**, and two elements from $(1-\eta^2)^K$, which can be used for reverse analysis or forward combination.

(2) The coefficients of non-integer polynomial must satisfy Yang Hui-Pascal regular distribution, the calculation type is determined by the circle logarithm discriminant, and the integral equation is obtained by the rule of term order conversion, so the calculation can be carried out smoothly.

Thus, the "addition method" derived from the root of the "multiplication method" can be computed by computer program. Conversely, the root of the addition method can also be transformed into the root of the multiplication method.

[Example 5.7] The same eigenmode of quintic equation has different boundary conditions

The same eigenmode of quintic equation has different boundary conditionsGiven: The number of power-dimensional elements S=5 remains constant; the average value $\mathbf{D_0}=12$ includes polynomial coefficients; it forms an invariant group; the boundary function **D** has combination coefficients: 1:5:10:10:5:1, with a total coefficient sum of $\{2\}^{\wedge 5}=32$ (where m denotes the upper and lower bounds of element combinations).

This example proves that:

(1)、The traditional calculus of single variable (X) and multi-variable mean function $\{X_0\}^K$ become the invariant group of the closed combination.

(2)、**{D₀}** features multiple deterministic element combinations, where the circular logarithm $(1-\eta^2)^K$ defines the boundary function **D**, and conversely, the boundary function **D** determines the circular logarithm$(1-\eta^2)^K$ state.

(3)、 The traditional calculus cannot handle the problem of **{D₀}** and **D** relationship, which is solved here. The power function $K(5)/t=K(Z\pm(S=5)\pm(N=0,1,2)\pm(m)\pm(q=5))\ /t$ controls the depth and breadth of the five-dimensional fundamental group.

The numerical example shows that the characteristic mode is constant, the boundary value is different, and the calculation result is different.

The cubic equation has the same characteristic mode, and different logarithmic circle corresponds to different boundary conditions.

The characteristic mode remains unchanged ($\mathbf{D_0}=\{12\}$), while the boundary values **(D_1, D_2, D_3)** undergo different operations.

[Example 1]: (A) Boundary function: $\mathbf{D_1=\{\sqrt[5]{248832}\}^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=0\leftrightarrow5)]}}$;

[Example 2]: (B) Boundary function: $\mathbf{D_2=\{\sqrt[K(5)]{79002}\}^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=0\leftrightarrow5)]}}$;

[Example 3]: (C) Boundary function: $\mathbf{D_3=\{\{\sqrt[(5)]{7962624}\}\}^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=0\leftrightarrow5)]}}$;

In other words, if the group-circle logarithm has any two of the three elements, it can control and obtain the third element.

（A）、Discrete quintic equation:$\mathbf{(1-\eta^2)^{(K=-1)}=1}$;

Characteristics: (A) Boundary function values$\mathbf{D_1}$, $(1-\eta^2)^{(K=0)}=1$;（±N=0,1,2）(dynamic control) ;

（1）、discrete number model of one element and five order:

Boundary condition : $\mathbf{D=(\sqrt[5]{248832})^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=0\leftrightarrow5)]}}$;

Characteristic mode: $\mathbf{D_0=\{12\}}$; $\mathbf{12^5=\{12\}^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=0\leftrightarrow5)]}=248832}$;

The five elements form a three-dimensional vortex space (jik+uv), with the three-dimensional precession being (jik) and the two-dimensional plane (uv) rotation boundary function sharing the (j) coordinate.

Discriminant, criterion :

$$\Delta=(\eta^2)^{K(\pm0,\pm1)}=[\sqrt[5]{\mathbf{D}/\mathbf{D_0}}]^{(\pm1,\pm0)}=\{248832/248832\}^{(\pm1,\pm0)}=\{\sqrt[K5]{248832}/12\}^{(+5)}=1;$$

Discrimination result: $(1-\eta^2)^{K(\pm1,\pm0)}=\{1\text{ or }0\}$; Discrete neutral (or forward and reverse power function transition point)。

Combination coefficient ：(1：5：10：10：5：1)，The polynomial coefficients (A, B, C, D, E) contain the combination
coefficients respectively.：

Sum of combination coefficients：$\{2\}^5=32$；

Power function ：K(Z±5)/t=K(Z±(S=5)±(N=0,1,2)±(jik+uv)±(m)±(q=0↔5))/t；

(N=0,1,2)/t denotes the calculus order level, referred to as the dynamic control function; m represents the upper and lower bounds of element variation; (q=0↔5)/t indicates the five distinct combinations of elements.

In particular, the discrete operation is similar to the artificial intelligence natural language program statistics, if it is the correlation, then it will produce the vortex space.

（2）、discrete quintic equation operation：

(5.6.6) $\{X\pm^{K(5)}\sqrt{\mathbf{D}}\}^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]}$
$=AX^{(q=5)}+BX^{(q=4)}+CX^{(q=3)}+DX^{(q=2)}+EX^{(q=1)}+\mathbf{D}$
$=X^{(q=5)}\pm60X^{(q=4)}+1440X^{(q=3)}\pm17280X^{(q=2)}+103680X^{(q=1)}\pm({}^5\sqrt{248832})^{(q=5)}$
$=(1-\eta^2)\cdot[X^{(5)}\pm\mathbf{5}\cdot12^{(1)}\cdot X^{(4)}+\mathbf{10}\cdot12^{(2)}\cdot X^{(3)}\pm\mathbf{10}\cdot12^{(3)}\cdot X^{(2)}+\mathbf{5}\cdot12^{(4)}\cdot X^{(1)}\pm12^{(5)}]$
$=[(1-\eta^2)\cdot\{X_0\pm12\}]^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]}$
$=[(1-\eta^2)\cdot\{(0,2)\cdot\{12\}]^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]}$；

In this formula, (jik+uv) denotes a five-dimensional space dynamic (N=0,1,2)/t, which is composed of three-dimensional precession (jik) and two-dimensional rotation (uv).

（3）、Results of Discrete 5th Order Polynomial Equation

（1）、$(1-\eta^2)=1$、(K=±1,±0) The vector subtraction of the five-dimensional discrete sphere-ring space;

(5.6.7) $\{x-{}^5\sqrt{\mathbf{D}}\}^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{0\}\cdot\{12\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$；

（2）、$(1-\eta^2)=1$、Five dimensional center zero point vortex space precession (radiation) vector addition;

(5.6.8) $\{X+{}^5\sqrt{\mathbf{D}}\}^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{2\}\cdot\{12\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$；

（3）、$(1-\eta^2)=1$、The combination radiation and motion of the periodic vortex space in the five-dimensional basic space of neutral light quantum;

(5.6.9) $\{X\pm{}^5\sqrt{\mathbf{D}}\}^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{0\leftrightarrow2\}\cdot\{12\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$；

（4）、$(1-\eta^2)^K=0$、(K=±0)The zero point symmetry of the center is developed and the balance transformation is carried out.

(5.6.10) $\{X-{}^5\sqrt{\mathbf{D}}\}^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{0\}\cdot\{12\}]^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}$；

（5）、$(1-\eta^2)=0$、(K=±1)，The zero point of the center is the symmetry point and the decomposition point of the tree code.

(5.6.11) $\{X\pm{}^5\sqrt{\mathbf{D}}\}^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t}=\{(1-\eta^2)\cdot0\}^{K[(S=5)\pm(N=0,1,2)\pm(q=0\leftrightarrow5)]/t(q=0\leftrightarrow5)]/t}$；

The discrete symmetry is specially adapted to the existing computer big data statistics theory and neutral optomechanics principle. When: information network calculation (1-η2)=1 and (K=±0). The discrete calculation includes the asymmetry and non-uniformity of the discrete calculation.

（B）、The convergence of the numerical example of the monomial quintic equation: (1-η2)(K=-1)≤1;

Characteristic：boundary function value$\mathbf{D}_2$, astringency, stypticity $\mathbf{(1-\eta^2)^{(K=+1)}\leq1}$;

Fifth-degree equations and first-and second-order differential equations:

characteristic of equation：(±N=0,1,2)They respectively represent the zero-order, first-order, and second-order dynamic control of calculus.

logarithmic discriminant of circle：$(1-\eta^2)^{(K=+1)}\leq1$,

Combination coefficient ：(1：5：10：10：5：1)，sum：$\{2\}^5=32$；

Boundary condition ：$\mathbf{D}=({}^{K(5)}\sqrt{79002})^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]}$；

Characteristic mode：(S=5), $\mathbf{D}_0=12$；$\{12\}^5=248832$；

Discriminant, criterion ：$(1-\eta^2)^{(K=+1)}=[{}^{(5)}\sqrt{\mathbf{D}/\mathbf{D}_0}]^{(K=+1)}=\{79002/248832\}^{(+1)}=\{{}^{K5}\sqrt{79002}/12\}^{(+1)}=0.31749\leq1$；

Discrimination result：$\mathbf{(1-\eta^2)^{(K=+1)}\leq1}$, is a function of entanglement-type convergence, (called forward, convergent, decaying, degenerating, or declining)Power function ：

K(5)/t=K(Z±(S=5)±(N=0,1,2)±(jik+uv)±(m)±(q=1↔5))/t；Property：(K=+1)；

The dynamic equations of calculus: The total number of closed group combinations (S=5) remains constant, while the form of group combinations varies (which can be either physical group combinations {q=0,1,2,3,4,5}/t or virtual group combinations {q=0,1,2,3,4,5}/t).

Center zero point value：$\{q_A=X_1,X_2,X_3\}$(three dimensional precession)≠$\{q=X_4,X_5\}$(2D rotation}， Symmetry Satisfying of Zero Point of Bit Value Circle Logarithm Center：{η ₍jik₎ =η1+η2+η3}(three dimensional precession)={η ₍uv₎ =η4+η5}(2D rotation}The logarithmic balance and random permutability between the two are often found in physics.

first-order differential equation ：

(5.6.12) $d^{(N=1,2)}\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)[(S=5)\pm(N)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}=\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)[(S=5)\pm(N=-0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

First-order integral equation:

(5.6.13) $\int^{(N=1,2)}\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)[(S=5)\pm(N=-0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}dx=\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)[(S=5)\pm(N)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

Fifth-order convergent operations:

(5.6.14) $\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{(K=+1)[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$

$=\underline{Ax}^{(q=5)}[\pm Bx^{(q=4)}+Cx^{(q=3)}\pm Dx^{(q=2)}+(Ex^{(q=1)}=^{(5)}\sqrt{\mathbf{D}}^{(q=4)})]^{\mathbf{K}}\pm\underline{\mathbf{D}}$

$=x^{(q=5)}\pm60x^{(q=4)}+1440x^{(q=3)}\pm17280x^{(q=2)}+(^{(5)}\sqrt{79002})^{K(q=4)}\pm\underline{\mathbf{D}}$

$=[(1-\eta^2)\cdot\{x_0\pm12\}\}^{(K=+1)[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$

$=[(1-\eta^2)\cdot\{0\text{ or }2\}\cdot\{12\}\}^{(K=+1)[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

(5.6.15) $(1-\eta^2)^{(K=+1)}=\{0,1/2,1\}^{(K=+1)[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

Specifically, in the comparison of differential equations, changing the order of the two terms Ax (q=5) and D reduces the differential while increasing the integral, thereby restoring the original function.

（C） Calculation results of the dynamic equation of a fifth-power equation (±N=0,1,2)

（1）、It represents balance, two-dimensional rotation, transformation, vector subtraction.

(5.6.16) $\{x-^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}((S=+5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{0\}\cdot\{12\}]^{\mathbf{(K=+1)}((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}=0$;

（2）、It represents the balance, three-dimensional axis precession, radiation, vector addition.

(5.6.17) $\{x+^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}((S=+5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}=(1-\eta^2)^{K}\cdot[\{2\}\cdot\{12\}]^{\mathbf{(K=+1)}((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}$;

（3）、It shows the periodic convergence of the five-dimensional basic vortex space.

(5.6.18) $\{x\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{K}((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}=(1-\eta^2)^{K}\cdot[0\leftarrow(32\cdot12^5)\rightarrow0]^{\mathbf{K}((S=5)\pm(N=0,1,2)\pm(q=1\leftrightarrow5)]/t}$;

（C）、unidirectional fifth order diffusion：$\mathbf{(1-\eta^2)^{(K=-1)}\geq1}$；

Characteristic: Boundary function D3, single variable fifth-order calculus zero-order, first-order, second-order (±N=0,1,2) dynamic equation;

（1）、one-dimensional five order diffusion type number model:

known number ： **(S=5), D**=$\{^{(5)}\sqrt{7962624}\}^{K[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=2\leftrightarrow5)]}$;

Characteristic mode：$\mathbf{D_0=12}$；$\mathbf{\{12\}^5=248832}$；

Power function ： K(5)/t=K(Z±(S=5)±(N=0,1)±(m)±(q=2↔5))/t；(m 表示元素变化上下限)。

Discriminant, criterion ： $\Delta=(\eta^2)^K=[^5\sqrt{\mathbf{D/D_0}}]^K=\{7962624/248832\}^K=\{32\}^K\leq1$;

Discrimination result：$\mathbf{(1-\eta^2)^{(K=-1)}\leq1}$,

Property region: (K=-1), which belongs to the diffusion-type entanglement, referred to as reverse, expansion, growth, evolution, and development. If: complex analysis, then (1-η(jik+uv)2) (K=+1) ≤ 1, property region: (K=-1).

（2）、Analyse

The notation ± (N=0,1,2) denotes the zeroth, first, and second-order dynamic equations, respectively.

first-order differential equation ：

(5.6.19) $d^{(N=1,2)}\{X\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{(K=-1)}[(S=5)\pm(N)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}=\{X\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{(K=-1)}[(S=5)\pm(N=-0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

First-order integral equation:

(5.6.20) $\int^{(N=1,2)}\{X\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{(K=-1)}[(S=5)\pm(N=-0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}dX=\{X\pm^{(5)}\sqrt{\mathbf{D}}\}^{\mathbf{(K=-1)}[(S=5)\pm(N)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

（3）、Fifth-order diffusion operation:

(5.6.21) $\{X\pm^5\sqrt{\mathbf{D}}\}^{K[(S=5)-(N=0,1,2)\pm(q=0\leftrightarrow5)]}=\underline{A}X^{(5)}\underline{+BX^{(4)}}+CX^{(3)}+DX^{(2)}\underline{+E}X^{(1)}\underline{+\mathbf{D}}$

$=X^5\pm60X^4+1440X^3\pm17280X^2+103680X^1\pm7962624$

$=(1-\eta^2)^{(5)}[X^{(5)}\pm5\cdot12^{(1)}\cdot X^{(4)}+10\cdot12^{(2)}\cdot X^{(3)}\pm10\cdot12^{(3)}\cdot X^{(2)}+5\cdot12^{(4)}\cdot X^{(1)}\pm12^{(5)}]^{\mathbf{(K=-1)}}$

$=[(1-\eta^2)\cdot\{X_0\pm12\}]^{\mathbf{(K=-1)}[(S=5)\pm(N=+0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

$=[(1-\eta^2)\cdot\{0,2\}\cdot\{12\}]^{\mathbf{(K=-1)}[(S=5)\pm(N=+0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

(5.6.22) $(1-\eta^2)^{\mathbf{(K=-1)}}=\{0,1/2,1\}^{\mathbf{(K=+1)}[(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=1\leftrightarrow5)]/t}$;

Specifically, compared with the zero-order equation, the first and second-order dynamic changes are manifested as the group combination coefficient changes $Ax^{(5)}+B^{x(4)}$ and $+Ex^{(1)}+D^{(5)}$ four terms corresponding to the corresponding order values, the differential then reduces the combination elements, the integral then increases, until the original (zero-order) function is restored.

（4）、Results of the diffusion-type calculation for a fifth-power equation:

（1）、indicates diffusion balance, two-dimensional rotation, transformation, and vector subtraction.

(5.6.23) $\{X-^{(5)}\sqrt{\mathbf{D}}\}^{(\mathbf{K=-1})(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=2\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{0\}\cdot\{12\}]^{(\mathbf{K=-1})(-5)/t}=0$;

（2）、indicates diffusion balance, three-dimensional precession, radiation, and vector addition.

(5.6.24) $\{X+^{(5)}\sqrt{\mathbf{D}}\}^{(\mathbf{K=-1})(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=2\leftrightarrow5)]/t}=[(1-\eta^2)\cdot\{2\}\cdot\{12\}]^{(\mathbf{K=-1})(-5)/t}$;

$=(1-\eta^2)^{(\mathbf{K=-1})(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=2\leftrightarrow5)]/t}\cdot 7962624$;

（3）、It indicates the periodic diffusion expansion of the five-dimensional fundamental vortex space.

(5.6.25) $\{X\pm^{(5)}\sqrt{\mathbf{D}}\}^{(\mathbf{K=-1})(S=5)\pm(N=0,1,2)\pm(jik+uv)\pm(q=2\leftrightarrow5)]/t}=[(1-\eta^2)\cdot[0\leftarrow(32\cdot12^5)\rightarrow0]^{(\mathbf{K=-1})((N=0,1,2)\pm(jik+uv)\pm(q=0\leftrightarrow5)]/t}$

$=\{0\leftrightarrow(7962624)\leftrightarrow1\}^{(\mathbf{K=-1})((N=0,1,2)\pm(jik+uv)\pm(q=0\leftrightarrow5)]/t}$;

In particular, the diffusion entanglement model is equivalent to the existing electromagnetic mechanics equations and the biological force growth equations.

Convergence of entanglement type computation is equivalent to existing gravitational equation, energy equation, biomechanics decay equation, etc.

The neutral discrete type calculation is equivalent to the existing photon equation, energy equation, physical phase transition, biomechanics conversion equation, etc.

（5）、The Analysis and Combination of the Roots of the Quintic Equation of One

The aforementioned "univariate quintic equation" selects elements with identical cluster counts (S=5) and mean functions (positive, neutral, and inverse characteristic modulus) $\{\mathbf{D_0}\}^K$: B=S$\{\mathbf{D_0}\}$=60; $\{\mathbf{D_0}\}^5=\{12\}^5=248832$, which defines the deterministic invariant group characteristic modulus. Based on different boundary functions D=79002 instances, it forms a deterministic controllable system $(1-\eta^2)^K\leq1$.

According to the principle of circular logarithmic isomorphism and the central zero point, the second term coefficient of the zero-order polynomial is most convenient to select (selecting the concept of circular logarithm).

$$Bx^{(Z\pm[S]\pm N\pm(jik+uv)\pm(q=-1)}=\{X\cdot D_0\}^{(Z\pm[S=5]\pm N\pm(jik+uv)\pm(q=1)}=60;$$

Center zero point: D0=12, B=60; the estimated center zero point lies between $\{x_1x_2x_3\}$ and $\{x_4x_5\}$.

(η^2) = (79002/248832) × 60 = 0.317491, where 60/60 = 19/60. The η2 formed by the center zero point is 19/60. If the initial trial (η2=19/60) fails to satisfy symmetry, proceed with another trial near the central zero point

$(\eta^2$=17/60)

until equilibrium symmetry is achieved. Alternatively, decompose into two asymmetric functions using resolution 2 until two numerical elements emerge (asymmetric tree hierarchy).

Left and right symmetry based on the circular logarithm factor: getting

(5.6.26) $(1-\eta^2)B=[(1-\eta_1^2)+(1-\eta_2^2)+(1-\eta_3^2)]-[(1-\eta_4^2)+(1-\eta_5^2)]\cdot60$

$=[(1-9/12)+(1-5/12)+(1-3/12)]-[(1+7/12)+(1+10/12)]\cdot60$

=<u>(17/60)-(17/60)</u>=0;(satisfies left and right symmetry of the logarithm of the pair factor)。

Get: Calculus Equation Element-Cluster Root Element Analysis:

(5.6.27) $x_1=(1-\eta_1^2)\mathbf{D_0}=(1-9/12)12=3$; $x_2=(1-\eta_2^2)\mathbf{D_0}=(1-5/12)12=7$;

$x_3=(1-\eta_3^2)\mathbf{D_0}=(1-3/12)12=9$; $x_4=(1+\eta_4^2)\mathbf{D_0}=(1+7/12)12=19$;

$x_5=(1+\eta_5^2)\mathbf{D_0}=(1+10/12)12=22$;

The results show that the multi-parameter and heterogeneous analysis of pattern recognition clustering set and automatic supervised learning are achieved.$(x)=(x_\omega)=(x_j\omega_iR_k)=(1-\eta_\omega^2)=(1-\eta_{\omega i}^2)(1-\eta_{xj}^2)(1-\eta_{Rk}^2)$,

(5.6.28) $x_1=(1-\eta_1^2)(1-\eta_{\omega1}^2)\mathbf{D_0}=3_{\omega1}$; $x_2=(1-\eta_2^2)(1-\eta_{\omega2}^2)\mathbf{D_0}=7_{\omega2}$;

$x_3=(1-\eta_3^2)(1-\eta_{\omega3}^2)\mathbf{D_0}=9_{\omega3}$; $x_4=(1+\eta_4^2)(1-\eta_{\omega4}^2)\mathbf{D_0}=19_{\omega4}$;

$x_5=(1+\eta_5^2)(1-\eta_{\omega5}^2)\mathbf{D_0}=22_{\omega5}$;

validate:

(1)、 **D**=(3×7×9×19×22)=79002(Title requirements);

(2)、 $\{x-\sqrt{\mathbf{D}}\}^5=[(1-\eta^2)\{0\}\{x_0\pm12\}]^5$

$=(1-\eta^2)[12^5-5\cdot12^5+10\cdot12^5-10\cdot12^5+5\cdot12^5-79002]=0$; (Balance and symmetry)

(3)、 $X_A=(1-\eta_{[jik]})\mathbf{D_0^3}$; $X_B=(1+\eta_{[uv]})\mathbf{D_0^3}$; $\{X_A\cdot X_B\}^{\mathbf{5}}=(1-\eta^2)\mathbf{D_0^5}$;

The center zero point of the relative symmetry of two uncertain elements can be located between two root combinations, which satisfies the symmetry of the logarithm factor {1/2} of the circle.$\{X_{A[jik]}=(x_1x_2x_3)$; $X_{B[uv]}=(x_4x_5)\}$;

Other configurations:

$\{x_A=(x_1x_2x_3x_4)$; $x_B=(x_5)\}$: $\{x_A=(x_1x_2)$; $x_B=(x_4x_5)$; $x_c=x_3\}$: $\{x_A=(x_1x_3)$;$x_B=(x_4x_5)$; $x_c=x_2\}$ {xA=(x1x2x3x4); these four combinations must satisfy the asymmetry of the two functions. Through circular logarithmic processing, they become symmetric circular logarithmic factors. In five-dimensional space, the asymmetric distribution of root elements is specific, such as in gravitational mechanics '"precession (orbital) + rotation (self-rotation)" or quantum mechanics' "radiation (orbital) + rotation (spin)." Currently, the "proton spin crisis" in quantum mechanics remains unresolved. Circular logarithmic adopts "irrelevant mathematical models without specific mass content," which may be resolved smoothly.

This allows all quintic equations to be combined or analyzed using "dual logic (numerical/bit value) code"（图11）：

Based on different boundary functions **D**, a deterministic controllable system $(1-\eta^2)^K \le 1$ is formed. However, the computation operates as a group-wide operation, involving synchronized computations of each root and the group's center point. The analytical objective of the roots is to derive the "quadratic function-logarithm" relationship between the characteristic modulus center point and multiple surrounding elements.

（6）、General solution of the Equation of One Yuan and Five Times

（1）、The root element of the decomposition of the central zero point symmetry: The central zero point for the relative symmetry of two uncertain elements, satisfies the circular logarithm factor {1/2} symmetry can have the central zero point between the two root combinations:

(5.6.29) $\{x_A=(x_1x_2x_3x_4);x_B=(x_5)\}$； $\{x_A=(x_1x_2x_3);x_B=(x_4x_5)\}$：

$\{x_A=(x_1x_2);x_B=(x_4x_5)$； $\{x_c=x_3\}$： $\{x_A=(x_1x_3);x_B=(x_4x_5)$； $x_c=x_2\}$：

（2）、Multiple forms, such as five-dimensional vortex space, must satisfy the zero-point symmetry of the logarithm of the circle:

(5.6.30) $X_A=(1-\eta)$ $\mathbf{D_0}$ (three-dimensional precession); $X_B = (1+\eta)\mathbf{D_0}$ (two-dimensional rotation).

The product of x_A and x_B exhibit reciprocity, covariance, and equivalent permutability, transforming geometric space into an ellipse function with long and short axes, $AB = (1-\eta^2)^K\mathbf{D_0}^2$, demonstrating the difference between elliptic and circular functions as $(1-\eta^2)^K$. Alternatively, through logarithmic circle processing, two asymmetric functions are converted into a shared relative symmetry function, with the logarithmic circle factor synchronously expanding from {0 to 1/2 to 1} around the center point {1/2} (in any axis form) toward the boundary.

All these forms must satisfy the zero-point symmetry of the logarithm of the circle.

(5.6.30) $x_A=(1-\eta)\mathbf{D_0}$（three dimensional precession）； $x_B=(1+\eta)\mathbf{D_0}$；（2D rotation）；

Notably, under the zero-centered symmetry condition of the circular logarithm, the energies corresponding to (three-dimensional precession) and (two-dimensional rotation) can achieve equilibrium and exchange between random and deterministic states.

Here, the zero-centered circular logarithm generates identical "η"-correspondences

$$(+\eta)=(-\eta): (1-\eta^2)^{(K=+1)}=(1-\eta^2)^{(K=-1)},$$

representing two deterministic values that satisfy stability and symmetry. These circular logarithm factors undergo covariant transformation.

(Figure 11) Schematic diagram of the integrated storage and computation of five-element dual-logic (numerical/bit value) codes

（7）、The Relation between the Circular Logarithm Equation and Physics

The aforementioned characteristic mode remains invariant $\mathbf{D_0}$={12}. When applied to physics, the boundary

五元数逻辑数值中心点的对称与不对称分布转换逻辑位值中心零点对称性分布

	A纵横向对应特征模中心点对称性				B斜线向对应共同特征模中心零对称性	
	$(1-\eta_{[jk\pm x]}^2)^K$		$(1-\eta_{[jk\pm x]}^2)^K$		$(1-\eta_{[jk\pm x]}^2)^K$	
1	A1=43,225	$(1-\eta_1^2)^K$=0.116	A5=22,167	$(1-\eta_5^2)^K$=0.006	B1=55,440	$(1-\eta_1^2)^K$=0.149
2	A2=129,168	$(1-\eta_2^2)^K$=0.347	A6=62,832	$(1-\eta_6^2)^K$=0.169	B2=78,660	$(1-\eta_2^2)^K$=0.212
3	A3=208,845	$(1-\eta_3^2)^K$=0.562	A7=229,824	$(1-\eta_7^2)^K$=0.319	B3=110,880	$(1-\eta_3^2)^K$=0.300
4	A4=360,360	$(1-\eta_4^2)^K$=0.970	A8=382,500	$(1-\eta_8^2)^K$=1.030	B4=153,600	$(1-\eta_4^2)^K$=0.414
5			A9=120	$(1-\eta_9^2)^K$=0.000	B5=155,520	$(1-\eta_5^2)^K$=0.419
6			A10=30,240	$(1-\eta_{10}^2)^K$=0.081	B6=172,040	$(1-\eta_6^2)^K$=0.463
7			A11=1,860,480	$(1-\eta_{11}^2)^K$=5.010	B7=142,560	$(1-\eta_7^2)^K$=0.384
8			A12=6,375,600	$(1-\eta_{12}^2)^K$=17.171	B8=94,080	$(1-\eta_8^2)^K$=0.253

说明：逻辑数值为五元数连乘 $(1-\eta_{[jk\pm x]}^2)^K$=逻辑位值为逻辑数值五元数连乘/逻辑五数值算术平均值

conditions $\{\mathbf{D_1D_2D_3}\}$ manifest as "different energies," yielding distinct computational outcomes. Extensive experiments have demonstrated that most physical motion occurs in five-dimensional vortex (three-dimensional precession + two-dimensional rotation) space. For instance, the "optical vortex motion" model developed by the U.S.-Spanish optical measurement team, published in Nature in December 2018, reveals that light, as a neutral quantum state, influences the quantum motion and properties of ion states. This study substantiates the vortex motion of quantum particles.

The circular logarithm, in the form of a dimensionless logical circle, can explain the "neutrino" changes of three-dimensional elements. Computational characteristics: maintaining the invariance of physical propositions, describing the dynamics of neutrinos through the conversion of the circular logarithm's properties from positive to negative. See the December 2024 issue of the American Journal of Science (JAS).

The numerical (energy) asymmetry of **3D** precession and **2D** rotation is a combination of two groups of functions. The generation of the logarithm center of circle satisfies the symmetry, which makes the representation of **3D** space on the axis: the representation of **3D** precession is the particle and the representation of **2D** rotation is the wave, and the equivalent displacement of the wave-particle duality can appear randomly.

The logarithmic center of the circle generates symmetry with the same '**η**' (called the logarithmic circle factor).：

$$(+\eta)=(-\eta), \text{ or: } (1-\eta^2)^{(K=+1)}=(1-\eta^2)^{(K=-1)}, \text{ or: } (1-\eta^2)^{(K=+1)}=(1+\eta^2)^{(K=+1)},$$

"**η**"is a deterministic value that satisfies stability, covariance, and equivalent displacement. It applies to:

（1）The macroscopic gravitation mechanics corresponds to the gravitation curved surface space.

(5.6.31) $(1-\eta^2)^{(K=+1)(Kw=\pm1)}=(1-\eta^2)^{(K=+1)(Kw=+1)}$(positive pull)
$+(1-\eta^2)^{(K=+1)(Kw=-1)}$(antigravity, counterattraction, counterpull)
$+(1-\eta^2)^{(K=+1)(Kw=\pm0)}$(neutral gravity space),

The gravitational parameter $\mathbf{G_{uv}}$ is incorporated into the macroscopic mass (jik+uv), which includes both orbital and rotational components.

（2）Microscopic quantum mechanics: corresponds to quantum curved space.

(5.6.32) $(1-\eta^2)^{(K=-1)(Kw=\pm1)}=(1-\eta^2)^{(K=-1)(Kw=+1)}$(strong nuclear force)
$+(1-\eta^2)^{(K=+1)(Kw=-1)}$(antigravity, antinuclear force, weak force)
$+(1-\eta^2)^{(K=+1)(Kw=\pm0))}$(neutral nuclear force, light, proton nucleus),

The proton parameter $\mathbf{K_{uv}}$ is incorporated into the microscopic mass (jik+uv) which includes both radiation and spin.

In the five-dimensional space of mathematics, $\mathbf{X_A}$ (representing three-dimensional precession) and $\mathbf{X_B}$ (representing two-dimensional rotation) form two mutually inverse covariant and equivalent permutative mechanical functions. The average value of $\mathbf{(X_A+X_B)}$ constitutes the invariant numerical characteristic mode.

The combination of macroscopic and microscopic precession (radiation, sphere) with rotation (spin, ring) forms the elliptic function (orbit):

(5.6.33) $\mathbf{D}=(X_A\cdot X_B)=(1-\eta^2)^K\{\mathbf{D_0}^5\}=(1-\eta^2)^K\{\mathbf{D_0}^5\}+(1+\eta^2)^K\{\mathbf{D_0}^5\}$;

(5.6.34) $(1-\eta^2)^K\{\mathbf{D_0}^5\}^{(K=\pm1,\pm0)(Kw=\pm1)}=(1-\eta)\{\mathbf{D_0}^5\}^{(K=\pm1)(Kw=-1)}+(1+\eta_{[jik+uv]})\{\mathbf{D_0}^5\}^{(K=\pm1)(Kw=+1)}$,

Computational results: The divergence between elliptic functions and circular functions demonstrates self-consistent convergence (referred to as the circular logarithm geometric space model). Specifically, circular logarithmic processing transforms two asymmetric reciprocal functions into a shared numerical function. The bit-value circular logarithm and its factor range between {0 or [0 to (1/2) to 1] or 1}, with {1/2} as the central zero point. This process achieves synchronous relative symmetry (forward convergence, transformation, and backward diffusion) toward the boundary (or central point) through a transition between discontinuous and continuous forms.

5.7、The Relationship Between the Equation of One Yuan Seven Times and the Circular Logarithm

5.7.1、 Mathematical background： At the 1900 International Congress of Mathematicians, Hilbert posed the 14th of his 23 mathematical problems: Solving general seventh-order equations with functions of two variables. The original problem required that the roots of the seventh-order equation depended on three parameters a, b, and c, i.e. or X∈X (a，b，c) or X ∈ $X^{\wedge(a,b,c)}$.

The question was whether such functions could be expressed using the binary function $\{2\}^{\wedge 2n}$. Soviet mathematician Arnold solved the case for continuous functions in 1957, and Visskin later extended it to differentiable continuous functions in 1964. However, the problem remains unsolved for analytic functions.

Since the 18th century, when Cardan's formula was derived using the method of symmetric root solutions, no further progress has been made. Subsequent attempts to find general solutions for single-variable quintic and heptonic equations have not yielded satisfactory results. The root of the problem lies in the difficulty of resolving the 2nd-order analytical decomposition into "even-order terms asymmetry." Due to unresolved control factors concerning the central point and central zero point, a general root analysis remains unattainable.

Based on the monic polynomial equation, there are still three inevitable combined roots that can only be solved through the complex analysis of the first three elements, which can be directly or hierarchically calculated by utilizing the circular logarithmic symmetry. In the process of solving the roots, the following methods are adopted respectively:

(1)，The complex analysis of the seven-element decomposition into "two" (adbe) (cfd) root series is termed the "3-4 combination"

(2), while the decomposition into "two" (acdef), (bg) root series is referred to as the "2-5 combination".

(3) The seven-element number is decomposed into three root series complex analyses (ac), (def), (bg), known as the "2-3-2 combination".

According to Hilbert's "analytic general root of two variables" condition, in the analytic process of the three-dimensional network monomomial seventh-order equation {0, (1/2),1} with analytic group combination-logarithm of circle: as long as there are three elements: boundary condition **D**={$x_1x_2x_3x_4x_5x_6x_7$}, characteristic module: $\mathbf{D_0}$, any two elements in logarithm of circle $(1-\eta_{[jik]}{}^2)^K$, the third element can be obtained.

In solving logarithmic equations, the analytical function for roots of a seventh-order equation depends on three parameters a, b, and c from the complex analysis of the three-dimensional network {Q=3=jik+uv}, i.e., x=x(a,b,c). Can this function be expressed using ternary functions $\{3\}^{\wedge 2n}$ for the exchange of three-dimensional quaternions? This approach enables the solution of general seventh-order equations involving two variables to have broader three-dimensional application potential.

5.7.2、The Equation of One Element and the Complex Analysis of Three Dimension {a,b,c}

The mathematicians have thought of the complex analysis of ternary number, but they have met the difficulty of the irreversibility of the multiplication permutation. Abel and other mathematicians have said that there is no "ternary number" and there is no "ternary number complex analysis", so that the general solution of the cubic, quintic and heptic equations cannot be solved, which has become a blank problem in mathematics.

The ternary complex analysis in analytic functions remains unresolved, with Zheng Zhijie's 2021 work *Theoretical Foundations and Applications of Variable Value Systems* by Science Press representing the most significant progress. Professor Zheng Zhijie, a world-renowned mathematician, began his research in 1980 on parallel classification of n-ary integer vectors. Through the transformation of n-ary {0,1} variables into {2}2n state space, he innovatively proposed the "(2D-quaternions) conjugate vector transformation," bridging local logical computations with holistic Hamiltonian quaternionic dynamics. This demonstrates that Zheng Zhijie's synthesis reveals traditional mathematics' entire deductive scope revolves around operations centered on {2}2n.

Invented by British mathematician W. R. Hamilton in 1843, quaternion matrices have been in use for over a century and a half. However, their applications remained limited for decades. Recent developments in rigid-body mechanics, quantum mechanics, control theory, and gyro technology have prompted a reevaluation of Hamiltonian binary numbers (A, B), two-dimensional complex analysis (ja+ib), and the conjugate inverse symmetry of quaternions (+j, +i, -j, -i).

The difficulty of solving the general solution of a monic polynomial equation of degree 7 is that the root elements appear in "two or three combinations such as (A,B) or (A,B,C)". The traditional mathematics is influenced by the symmetry analysis of Cardan formula (radical solution), and the symmetric root can not solve the asymmetric analysis.

The group-circle logarithmic approach redefines computational paradigms by introducing "dual-logic (numerical/bit value) codes" that resolve the asymmetry between numerical center points and bit value zero-point symmetry. This framework explicitly addresses the axiomatic limitations of logical numerical codes, which exhibit unbalanced center points that cannot be interchanged. In contrast, the dimensionless bit value code achieves zero-point symmetry, enabling balanced exchange between combinatorial decomposition and randomized self-validation error correction mechanisms.

Consequently, the bit-value circle logarithmic method effectively resolves ternary number computation asymmetry,
establishes a three-dimensional network space, and facilitates the integration of artificial intelligence applications.

The general solution of a monic seventh-power equation is applied in solving the asymmetric distribution of roots, which inevitably introduces the ternary number series (A, B, C) in complex analysis: the existence of analytic probability (***j***A+***i***B+***k***C); topology (ikBC+kjCA+jiAB) and the exchange of conjugate reciprocal symmetry. Establishing the
octagonal quadrants of quaternions.

jik=*(±0,±1)*；***ik***=*(±0,±1)*；***kj***=*(±0,±1)*；***ji***=*(±0,±1)*；

The zero-point control form of the three-dimensional conjugate symmetry exchange is given.

The ternary number (a, b, c) series complex analysis center point decomposes the center point into three asymmetric values, while the center zero point is decomposed into three symmetric bit values. This demonstrates the non-commutability of multiplication values. By converting to bit-value circular logarithm complex analysis, it achieves the commutability of conjugate symmetric addition values, thereby solving the feasibility, reliability, and controllability of multiplication value displacement. The three-dimensional complex space challenges the "ternary number" restricted zone.

Through this approach, leveraging classical algebra-logic principles, the analytic function variables were extended from binary complex analysis {2}2n to ternary complex analysis space {3}2n. This pioneering work introduced the "3D-Quaternions" conjugate vector transformation, enabling zero-error logical arithmetic computations. It also demonstrated the holistic and complete three-dimensional group combination-circular logarithm dynamics applications for 3D complex analysis involving (4, 5, 7, 9...) polynomials. Notably, this algorithm incorporates artificial intelligence to achieve high-density (0/1) information transmission, fundamentally revealing the inherent nature and function of computer (0/1) K-invariant properties.

In Hilbert's 13th mathematical problem, the seven consecutive multiplication elements (abcdefg) exhibit distinct root distribution patterns. Provided that the characteristic modulus and boundary conditions remain unaffected, the root distributions may be classified into three types: (A=a, d), (B=be), and (C=cfg). Furthermore, as a "product function" or "sum function", other combinations can be determined by numerical center points and positional zero points.

In the three-dimensional network analysis, the seven elements (abcdefg) are decomposed into three root series elements (A, B, C) of ternary number complex analysis, which are used to analyze and combine the dynamic equations of quaternions. The combination forms include "1-1, 2-2, 3-3".

Trinary number complex analysis is "a (multiplication combination) root series decomposition three combinations of algebraic cluster", in three-dimensional space right angle coordinate system analytic function, each dimension has high power dynamic (including three-dimensional precession + two-dimensional rotation dynamic equation. There is a coordinate center point, three-dimensional axis and two-dimensional plane, surface display.

5.7.3, **[Example 7.1]**, a monomial equation of the seventh degree

The distribution of roots is: (A=a, d), (B=be), (C=cfg). For this purpose, a ternary series (A), (B), (C) complex analysis of seven roots is performed.

set up ： X=((A),(B),(C)), A series=$[(x_{a1},x_{a2},\dots x_{as})(x_{d1},x_{d2},\dots x_{ds})]$； B series=$[(x_{b1},x_{b2},\dots x_{bs}),(x_{e1},x_{e2},\dots x_{es})]$； C series=$[(x_{c1},x_{c2},\dots x_{cs}),(x_{f1},x_{f2},\dots x_{fs})(x_{g1},x_{g2},\dots x_{gs})]$；

Here is an example of the elaboration.

[prove]

Given: The group combination function of two variables in infinite group combinations: There exists a one-variable seventh-power equation with two variables.

boundary function ： $D=({}^{(7)}\sqrt{D})^{K(Z\pm(Q=3)\pm(S=7)\pm(q=0,1,2,3\dots7)/t}$， S=7;Q=3;

boundary numerical function distribution rule： $\mathbf{D}=\{{}^{(7)}\sqrt{(ad\cdot be\cdot cfd)}\}^{K(Z\pm[Q=jik]\pm S\pm N\pm(q=0)))/t}$；

Power function ： K(Z±S)=K(Z±(Q=3=***jik***)±(S=7)±(q=0,1,2,3…infinity；

Combination coefficient ： {1： 7： 21： 35： 35： 21： 7： 1}； sum of coefficients： $\{2\}^7=128$；

Characteristic mode：

$D_0^{(0,7)}=({}^{(7)}\sqrt{(a\cdot b\cdot c\cdot d\cdot e\cdot f\cdot g)})$；

$D_0^{(1)}=(1/7)(a+b+c+d+e+f+g)$；

$D_0^{(2)}=(1/21)(ab+bc+\dots+fg)$ ；

$D_0^{(3)}=(1/35)(abc+dbc+\dots+efg)$；

Regularized combination coefficient symmetry：

$$\mathbf{D_0^{(3)}=D_0^{(4)};\quad D_0^{(5)}=D_0^{(5)}=D_0^{(3)};\quad D_0^{(1)}=D_0^{(6)};\quad D_0^{(0)}=D_0^{(7)};}$$

Discriminant, criterion ： $\Delta=(\eta_{[jik+uv]}{}^2)^K=({}^{(7)}\sqrt{(abcdefg)})/D_0\le1$；

The system employs a three-dimensional [jik] as the primary coordinate system, supplemented by a two-dimensional [uv] rotation coordinate for precise analysis. Specifically, in complex analysis, the three-dimensional coordinates (a, b, c) and (c=cfg) are decomposed into [uv] components corresponding to (a=ad) and (b=be), enabling distributed computational processing.

Method: Given $\mathbf{D}=({}^{(7)}\sqrt{D})^{(q=7)}$, the general analytical solution for a two-variable function is derived. The three-dimensional network follows the same computational approach as a cubic equation, where the set (a, b, c, d, e, f, g) yields three roots forming the {A, B, C} series. These roots appear in combinations of "1-1, 2-2, 3-3".

Similarly, given **D** and $\{\mathbf{D_0^{(7)}}\}$, mathematical modeling is unnecessary.

(5.7.1) $$\{\mathbf{X}\pm({}^{(7)}\sqrt{\mathbf{D}})\}^{K(7)/t}=(1-\eta^2)^K[\mathbf{(0,2)\cdot D_0}]^{K(7)/t}$$

(5.7.2) $(1-\eta_{[jik+uv]}{}^2)^K=[({}^{(7)}\sqrt{\mathbf{D}})/\{\mathbf{D}_0\}]^{K(7)/t}\leq 1$;

5.7.4，Seventarian and Three-dimensional Network

The formulas (5.7.1)-(5.7.2) demonstrate how to perform logarithmic operations on circular numbers after extracting feature modules from ternary numbers in a three-dimensional network.

The ternary number complex analysis [Q=jik] circle logarithm corresponds to the one-dimensional linear axis probability of the three-dimensional network, the two-dimensional surface topology (including the three-dimensional network [Q=jik]), the numerical characteristic mode and the bit value circle logarithm and the shared time series expansion.

The ternary number mathematical space: the node represents the numerical characteristic mode, which has the asymmetry; the connection between the nodes is the bit value circular logarithm, which has the relative symmetry of information transmission.

(a), 3**D** network linear mapping of linear: in 3**D** space there are: {**±X；±Y；±Z**}6 axis directions;

(b), 3**D** network quadratic plane mapping: in 3**D** space there are:

(**YOZ**) corresponds to **±X**-axis; (**ZOX**) to **±Y**-axis; (**XOY**) to **±Z**-axis} 8 quadrants;

(c), 3**D** network 3rd-order space: In 3**D** space, [***jik***]{(**YOZ**) corresponds to ±**X**-axis; (**ZOX**) to ±**Y**-axis; (**XOY**) to **±Z**-axis} 24 orientations;

(d), 3**D** network 5th-order space: In 5**D** space, [***jik***]{(**YOZ**) corresponds to **±X**-axis; (**ZOX**) to **±Y-axis**; (**XOY**) to **±Z-axis**} 48 orientations;

(e), 3**D** network circular logarithm: $(1-\eta_{[jik]}{}^2)^K$; [***jik***]=(±1, ±0) except at the 3**D** coordinate origin "one central point"; using quaternion 8 quadrants ***jik***=±1, ***ik***=±1, ***kj***=±1, ***ji***=±1, solving multiplication commutativity reversibility, becomes 3**D** complex space, 3**D** network 3**D** , 1**D** space:

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

3D network 2D plane, surface:

(5.7.4) $\mathbf{(1-\eta_{[jik]}{}^2)^K=(1-\eta_{[ik]}{}^2)^K+(1-\eta_{[kj]}{}^2)^K+(1-\eta_{[ji]}{}^2)^K}$;

5.7.5，Three-dimensional Network Logarithmic Complex Analysis

The ternary number series complex number, with the origin O as the center, is divided into eight quadrants {***JiK*=±1; *iK*=±1; *KJ*=±1; *Ji*=±1**} according to the left-hand rule. This establishes an eight-quadrant three-dimensional space.

(1), Trinary complex analysis and linear numerical values:

(5.7.5) $jx_a=(1-\eta_{[j]})\mathbf{D}_{0(Q=j)}{}^K$ Corresponding to the **X**-axis;

$ix_b=(1-\eta_{[i]})\mathbf{D}_{0(Q=i)}{}^K$ Corresponding to the **Y**-axis;

$kx_c=(1-\eta_{[i]})\mathbf{D}_0{}^{(Q=k)}$ Corresponding to theZ-axis;

(2),Trinary Complex Analysis Complex Plane Numerical:

(7.3.6) $\boldsymbol{jk}X_{[ac]}=(1-\eta_{[jk]})\mathbf{D}_{0(Q=ik)}{}^K$ The (XOZ) plane's normal line corresponds to the Y-axis line.

$\boldsymbol{ki}X_{[cb]}=(1-\eta_{[i]})\mathbf{D}_{0(Q=kj)}{}^K$ The (ZOY) plane's normal line corresponds to the X-axis line.

$\boldsymbol{ij}\ X_{[ba]}=(1-\eta_{[ij]})\mathbf{D}_{0(Q=ij)}{}^K$ The (XOY)plane's normal line corresponds to the Z-axis line.

5.7.6，Dynamic Analysis of Differential Order(±N=0,1,2) of 3D Networks

known ： X=(a,b,c), a series=$(x_{a1},x_{a2},\ldots x_{as})$; b series=$(x_{b1},x_{b2},\ldots x_{bs})$; c series=$(x_{c1},x_{c2},\ldots x_{cs})$;

It can generate a five-dimensional vortex space for one-dimensional linear, two-dimensional plane, and surface analysis (i.e., three-dimensional precession ***(jik)*** + two-dimensional rotation ***(uv)***).

The ternary number (5th power dynamic equation) complex analysis [Q=jik+uv]: Considering the common action of rotation [uv], it becomes a 5-dimensional rotation space.

In this context: 1D (linear/curved) linear equations (where j-directions may coincide or diverge) [**Q=*jik*+*juv*** corresponds to {***Jik, uv***}], 2**D** (planar/surface) nonlinear equations with plane projections {***YOZ, ZOX, XOY***} and three-dimensional vector quantities of plane normal lines in 3**D** Cartesian coordinates {***X, Y, Z***}. The rotation function (***uv***) aligns with (***jik***), where parallel uv directions form a 5**D** vortex space, while divergent uv directions constitute a 6D vortex space (e.g., Calabi-Yau space).

[Prove]:

Given: the three-dimensional network ternary number series K(Z±S); the monomorphism seven-dimensional power equation is generally used for the vortex dynamic space (three-dimensional precession + two two-dimensional rotations) or other dynamic spaces:

Characteristic mode 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+…+fga) ;

Boundary function value: $\mathbf{D}^{(Q=3)}=\mathbf{(^{(7)}\sqrt{D})}^{K[Z\pm[Q=3=jik+uv]\pm(S=7)\pm(N=0,1,2)}$

[Q=3=jik+uv]The seven root elements are decomposed into three element series and move in the five-dimensional space of the three-dimensional network.

The three-dimensional network corresponds to the first-order, second-order, and third-order differential equations (±N=0,1,2), with corresponding boundary values.

(**1**) , One-dimensional linear (N=±0, ±1) dynamic equation (j-direction coincident), corresponding to three-dimensional sequence {**(J,i,k)+(uv)**}

(5.7.7) $\{X\pm(^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=3]\pm(S=7)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot\{\pm Bx+\mathbf{D}\}^{K(Z\pm[Q=3]\pm(S=1)\pm(N=\pm0,\pm1)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[X_0\pm(\mathbf{D_0}]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=\pm0,\pm1)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[(0,2)\,(\mathbf{D_0})]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=\pm0,\pm1)\pm(q=0,1,2,\ldots7)/t}$;

(5.7.8) $(1-\eta_{[jik+uv]}^2)^K=[(^{(7)}\sqrt{\mathbf{D}})/D_0]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$

$=(1-\eta_{[jik+uv]}^2)^K\mathbf{X}+(1-\eta_{[i+uv]}^2)^K\mathbf{Y}+(1-\eta_{[k+uv]}^2)^K\mathbf{Z}$

$=\{0\text{ or }[0\text{ to }(1/2)\text{ to }1]\text{ or }1\}^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$;

(2), Two-dimensional topological (N=±0, ±1) dynamic equations corresponding to three-dimensional sequences

{**(Jk=±i;ki=±i;iJ=±i)+(J(uv);i(uv);k(uv))**}+{**jik=±1**(边界)**,±0**（中心点）}

(5.7.9) $\{X\pm(^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=3]\pm(S=2)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot\{\pm Bx+(^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=3]\pm(S=2)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[X_0\pm(\mathbf{D_0}]^{K(Z\pm[Q=3]\pm(S=2)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[(0,2)\,(\mathbf{D_0})]^{K(Z\pm[Q=3]\pm(S=2)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$;

(5.7.10) $(1-\eta_{[jik+uv]}^2)^K=[(^{(7)}\sqrt{\mathbf{D}}))/D_0]^{K(Z\pm[Q3]\pm(S=2)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$

$=(1-\eta_{[jk+uv]}^2)^K\mathbf{X}+(1-\eta_{[ki+uv]}^2)^K\mathbf{Y}+(1-\eta_{[ij+uv]}^2)^K\mathbf{Z}$

$=\{0\text{ or }[0\text{ to }(1/2)\text{ to }1]\text{ or }1\}^{K(Z\pm[Q=jik+uv]\pm(S=2)\pm(N=-0,1,2)\pm(q=0,1,2,\ldots7)/t}$;

In the formula, $(1-\eta_{[jik+uv]}^2)^K$={0 or (1/2) or 1} indicates a jumping transition pattern centered at the zero point {1/2} within the range {0,1}. $(1-\eta_{[jik+uv]}^2)^K$={0 to (1/2) to 1} represents a continuous transition pattern centered at the zero point {1/2} within the range {0,1}.

5.7.7、The Dynamic Equation of the N=1 Order Differential Equation of the Complex Analysis of the Septuple Number

Given: ternary number K (Z±S); (seven-dimensional space (precession + rotation)):

characteristic modal function:

$\mathbf{D_0}^{(1)}$=(1/7)(a+b+c+d+e+f+g); $\mathbf{D_0}^{(2)}$=(1/21)(ab+bc+…+fg) ; $\mathbf{D_0}^{(3)}$=(1/35)(abc+bcd+…+fga) ;

The boundary condition value corresponds to the first-order differential boundary condition:

$\mathbf{D}^{(Q=3)}=(^{(7)}\sqrt{\mathbf{D}})^{K[Z\pm[Q=jik+uv]\pm(S=1)\pm(N=\pm1)\pm(q=0,1,2,\ldots7)/t}$;

The complex analysis of ternary number (seven-dimensional dynamic equation) ***[Q=jik+uv]***: The dynamic equations of differential calculus are combined into ± (N=-0,1,2), including (zero-order (original function), first-order differential calculus, second-order differential calculus).

Feature: One element in the 3D series undergoes precession, while six elements rotate.***Jik+ juv+ iuv+ kuv,*** As atomic structure

(1), Dynamical Equation of 7-Dimensional Network Differential Equation with (N=-1)

(5.7.11) $\partial\{X\pm(^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-1)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot\{\pm Bx+\mathbf{D}\}^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-1)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[X_0\pm(\mathbf{D_0})]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-1)\pm(q=0,1,2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[(0,2)\,(\mathbf{D_0})]^{K(Z\pm[Q=3v]\pm(S=1)\pm(N=-1)\pm\pm(q=0,1,2,\ldots7)/t}$;

(5.7.12) $(1-\eta^2)^K=[(^{K(3)}\sqrt{\mathbf{D}})/D_0]^{K(Z\pm[Q=3]\pm(S=1)\pm(N=-1)\pm(q=0,1,2,\ldots7)/t}$

$=(1-\eta_{[j+uv]}^2)^K\mathbf{X}+(1-\eta_{[i+uv]}^2)^K\mathbf{Y}+(1-\eta_{[k+uv]}^2)^K\mathbf{Z}$

$=\{0\text{ or }[0\text{ to }(1/2)\text{ to }1]\text{ or }1\}$;

(2) ,The dynamic equation of 7-ary 3D network differential (N=-2)

(5.7.13) $\partial\{X\pm(^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=jik+uv]\pm(S=7)\pm(N=-2)\pm(q=\underline{0,1},2,\ldots7)/t}$

$=3\cdot\{\pm Bx+\mathbf{D}\}^{K(Z\pm[Q=jik+uv]\pm(S=7)\pm(N=-2)\pm(q=\underline{0,1},2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[X_0\pm(\mathbf{D_0})]^{K(Z\pm[Q=jik+uv]\pm(S=7)\pm(N=-2)\pm(q=\underline{0,1},2,\ldots7)/t}$

$=3\cdot(1-\eta^2)^K\cdot[(0,2)\,(\mathbf{D_0})]^{K(Z\pm[Q=jik+uv]\pm(S=7)\pm(N=-2)\pm(q=\underline{0,1},2,\ldots7)/t}$;

(5.7.14) $(1-\eta^2)^K=[(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}]^{K(Z\pm[Q=jik+uv]\pm(S=7)\pm(N=-2)\pm(q=\underline{0,1},2,\ldots7)/t}$

$=(1-\eta_{[jk+uv]}^2)^K\mathbf{X}+(1-\eta_{[ki+uv]}^2)^K\mathbf{Y}+(1-\eta_{[ij+uv]}^2)^K\mathbf{Z}$
$=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}$;

5.7.8、The Dynamic Equation of the（N=-2）Order Differential Equation of the Complex Analysis of the Septuple Number

Given: ternary number series K (Z±S); (five-dimensional subspace (precession + rotation)): ternary number series (seven-dimensional subspace dynamic equations) complex analysis ***[Q=jik+uv]:***

characteristic modal function：

$\mathbf{D_0}^{(1)}=(1/7)(a+b+c+d+e+f+g)$; $\mathbf{D_0}^{(2)}=(1/21)(ab+bc+…+fg)$;$\mathbf{D_0}^{(3)}=(1/35)(abc+bcd+…+fga)$;

[Q=3=jik+uv]; $\mathbf{D}=({}^{(Q=3)}\sqrt{\mathbf{D}})^{K[Z\pm Q=jik+uv]\pm(S=3)\pm(q)/t}$Corresponding to the numerical solution of second-order differential boundary code. For two-dimensional (plane or curved surface) nonlinear equations in ternary complex numbers (with j-direction repositioning) [***Q=jik+juv*** corresponding to ***{J, i, k, uv}]***, two-dimensional plane ***{YOZ, ZOX, XOY}***, and three-dimensional Cartesian coordinates of the plane normal line ***{X, Y, Z}***

.(1)，The linear second-order dynamic complex analysis equation of ternary number on one-dimensional axis (N=-2) (where the j-direction can be aligned as a five-dimensional subspace or misaligned as a six-dimensional subspace), corresponding to the three-dimensional sequence {***(J, i, k)*** (one-dimensional precession) + (uv) (six-dimensional rotation)}

(5.7.15) $\partial\{X\pm({}^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-2)\pm q)/t}$
$=3\cdot\{\pm Bx+\mathbf{D}\}^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-2)\pm(q))/t}$
$=3\cdot(1-\eta^2)^{K}\cdot[X_0\pm(\mathbf{D_0})]^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-2)\pm(q=[0],1,2,3))/t}$
$=3\cdot(1-\eta^2)^{K}\cdot[(0,2)(\mathbf{D_0})]^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-2)\pm(q=[0],1,2,3))/t}$;

(5.7.16) $(1-\eta^2)^K=[({}^{K(3)}\sqrt{\mathbf{D}})/\mathbf{D_0}]^{K(Z\pm[Q=jik+uv]\pm(S=1)\pm(N=-0,1,2)\pm(q=[0],1,2,3))/t}$
$=(1-\eta_{[j]}^2)^K\mathbf{X}+(1-\eta_{[i]}^2)^K\mathbf{Y}+(1-\eta_{[k]}^2)^K\mathbf{Z}$
$=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}$;

(2) Two-dimensional topological dynamics (N=-2) equation, corresponding to the three-dimensional series ***{(Jk, ki, iJ) + (J(U, V); i(U, V); k(U, V))}***

(5.7.17) $\partial^2\{X\pm({}^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=jik+uv]\pm(S=2)\pm(N=-2)\pm q)/t}$
$=3\cdot\{\pm Bx+({}^{(7)}\sqrt{\mathbf{D}})\}^{K(Z\pm[Q=jik+uv]\pm(S=2)\pm(N=-2)\pm(q))/t}$
$=3\cdot(1-\eta^2)^{K}\cdot[X_0\pm(\mathbf{D_0}]^{K(Z\pm[Q=jik+uv]\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3))/t}$
$=3\cdot(1-\eta^2)^{K}\cdot[(0,2)(\mathbf{D_0})]^{K(Z\pm[Q=jik+uv]\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3))/t}$;

(5.7.18) $(1-\eta_{[jik+uv]}^2)^K=[({}^{K(3)}\sqrt{\mathbf{D}})/\mathbf{D}_0]^{K(Z\pm[Q=jik+uv]\pm(S=2)\pm(N=-2)\pm(q=[0],1,2,3))/t}$
$=(1-\eta_{[jk+uv]}^2)^K\mathbf{X}+(1-\eta_{[ki+uv]}^2)^K\mathbf{Y}+(1-\eta_{[ij+uv]}^2)^K\mathbf{Z}$
$=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}$;

In this context: The first and second terms of the polynomial derived from first-order ±(q=0,1,2,...7)/t and second-order ±(q=0,1,2,...7)/t differential calculations are absent, but are restored during integration. Moreover, the power of (S) remains constant throughout the calculus process, manifesting as a group-combination form of jump changes that correspond to the boundary numerical function conditions of first-and second-order calculus. With the invariant characteristic modulus, analytical roots can still be obtained through the circular logarithm.

In the formula: the calculus is consolidated into ± (N=-0,1), encompassing the zero-order original function and first-order calculus function. The eight-quadrant positive/negative signs of the three-dimensional network adhere to t h e "left-hand rule" stipulation.

(3) ，Logarithm of a circle (real number) and (complex number) conversion rules:

(5.7.19) $(1-\eta^2)^{(K=+1)}$(real); $(1-\eta^2)^{(K=-1)}$(complex)$=(1+\eta^2)^{(K=-1)}=(1-\eta_{[ji]k+uv]}^2)^{(K=-1)}$;

Results of the Three-dimensional Network Septet Dynamic Equation

(5.7.20) $(X-({}^{(7)}\sqrt{\mathbf{D}}))^{K(S)}=(1-\eta_{[jik+uv]}^2)^{K(Kw=-1)}[\{0\}\cdot\mathbf{D}_0]^{K(S)}=0$; Conjugate rotation, subtraction, ring;

(7.3.21) $(X+({}^{(7)}\sqrt{\mathbf{D}}))^{K(S)}=(1-\eta_{[jik+uv]}^2)^{K(Kw=+1)}[\{2\}^{K}\cdot\mathbf{D}_0]^{K(2)}=48$; conjugate precession,addition,sphere;.

(5.7.22) $(X\pm({}^{(7)}\sqrt{\mathbf{D}}))^{K(S)}=(1-\eta_{[jik+uv]}^2)^{K(Kw=\pm1)}[\{0\leftrightarrow2\}\mathbf{D}_0]^{K(2)}$; The conjugate vortex is developed in space.

(5.7.23) $(X\pm({}^{(7)}\sqrt{\mathbf{D}}))^{K(Kw=\pm1)(S)}=(1-\eta_{[jik+uv]}^2)^{K(Kw=\pm1)}\cdot[\{0\leftrightarrow2\}\mathbf{D}_0]^{K(Kw=\pm1)(S)}$; conjugate forward and backward function-space-numerical-group combination transformation

5.7.9、The probability logarithm of the 3D network of analytic function seven-element number:

characteristic modal function：

$\mathbf{D_0}^{(1)}=(1/7)(a+b+c+d+e+f+g)$;
$\mathbf{D_0}^{(2)}=(1/21)(ab+bc+…+fg)$;

$\mathbf{D_0}^{(3)}$=(1/35)(abc+bcd+…+fga) ;

Let (a, b, c) represent the ternary number series of a three-dimensional network.

Boundary numerical function corresponding to calculus order value： $\{\mathbf{D}\}^{(1)}=\{^{(7)}\sqrt{\mathbf{D}}\}^{K(7)\pm(N=1)/t}$

(5.7.24) $\{^{(7)}\sqrt{\mathbf{D}}\}^{K(7)/t}=(1-\eta_{[jik]}^2)^K\{D_0\}^{(1)}$

$=[J(1-\eta_{[a]}^2)^{K(Z\pm S\pm(Q=3)\pm(N=1)\pm(q=\underline{0},1,2,3,4,5,6,7))/t}\cdot X$

$+i(1-\eta_{[b]}^2)^{K(Z\pm S\pm(Q=3)\pm(N=1)\pm(q=\underline{0},1,2,3,4,5,6,7))/t}\cdot Y$

$+K(1-\eta_{[c]}^2)^{K(Z\pm S\pm(Q=3)\pm(N=1)\pm(q=\underline{0},1,2,3,4,5,6,7))/t}\cdot Z]\cdot\{\mathbf{D_0}\}^{(1)}$;

（A），The Binary Topological Circle Logarithm of the 3D Network Septet of Analytic Function

characteristic modal function： $\{\mathbf{D_0}\}^{(2)}=\{(1/21)(bc+ca+ab+…)\}^{K(Z\pm[Q=jik+uv]\pm S\pm(N=2)\pm(q=\underline{0,1},2,3,4,5,6,7))/t}$;

boundary numerical function： $\{\mathbf{D}\}^{(2)}=\{^{(7)}\sqrt{\mathbf{D}}\}^{K(Z\pm(S=7)\pm(N=2)\pm(q=7))/t}$corresponding to the order of calculus

(7.3.25) $\{^{(7)}\sqrt{\mathbf{D}}\}^{K(7)/t}=(1-\eta_{[jik]}^2)^K\{\mathbf{D_0}\}^{(2)}$

$=[J(1-\eta_{[bc]}^2)^{K(Z\pm S\pm(Q=3)\pm(N=2)\pm(q=\underline{0,1},2,3,4,5,6,7))/t}\cdot X$

$+i(1-\eta_{[ca]}^2)^{K(Z\pm S\pm(Q=3)\pm(N=2)\pm(q=\underline{0,1},2,3,4,5,6,7))/t}\cdot Y$

$+K(1-\eta_{[ab]}^2)^{K(Z\pm S\pm(Q=3)\pm(N=2)\pm(q=\underline{0,1},2,3,4,5,6,7))/t}\cdot Z]\cdot\{\mathbf{D_0}\}^{(2)}$;

（B），General Solution of the Roots of the Equation of the Seventh Power with Three Complex Numbers

Series Complex Analysis of the Distribution of Roots of the Seventh Order Equation Based on the First Type：**(a=ad),(b=be),(c=cfg)**。

（1）、numerical center point：ab≠c

logarithm of probability circle：$(a+b+c+…+g)/\{\sum D\}^{(1)}=(1-\eta_{Ha}^2)^K+(1-\eta_{Hb}^2)^K+(1-\eta_{Hc}^2)^K=1$；

logarithm of topological circle：$(ab+bc+…+fg)/\{\sum D\}^{(2)}=(1-\eta_{Tab}^2)^K+(1-\eta_{Tbc}^2)^K+(1-\eta_{Tca}^2)^K=1$；

（2）、bitwise center zero symmetry

logarithm of probability circle：$(a+b+c+…+g)/\{D_0\}=(1-\eta_{Ha}^2)^K+(1-\eta_{Hb}^2)^K+(1-\eta_{Hc}^2)^K=0$；

logarithm of topological circle：$(ab+bc+…+fg)/\{D_0\}^{(2)}=(1-\eta_{Tab}^2)^K+(1-\eta_{Tbc}^2)^K+(1-\eta_{Tca}^2)^K=0$；

Among these, the probabilistic analysis of the three root elements proves most convenient (currently, computers employ identical probabilistic methods, with interpretability ensured here).

（3）、parse root element

$a=(1-\eta_{Ha}^2)^K\{\mathbf{D_0}\}$； Hierarchical decomposition (a=ad) belongs to the second hierarchical decomposition a, d;

$b=(1-\eta_{Ha}^2)^K\{D_0\}$； The b-level decomposition (b=be) belongs to the second level b, e.

$c=(1-\eta_{Ha}^2)^K\{D_0\}$； Hierarchical decomposition (c=cfg) involves direct decomposition at the second level, including c, f, and g.

5.7.10、The general form of roots for a monomial equation of degree 7

（1）,The general analysis is a series of multiple analyses with "two groups, three groups" design.

The first type: The distribution of roots of the seven-element number "two (3:4); (2:5)" is [(acde), (bfg)], [(ad)(cegbf)]. Perform two-dimensional complex analysis of the seven-element number and the entire root analysis.

The second type: The distribution of roots for the seven-element number "three (2:3:2), (1:4:2)" is [(ad), (bfe), (cg)] and [(a), (dceg) bf]. Perform three-dimensional complex analysis and root analysis for the seven-element number.

The seven-element number point center, positioned at the core of the "two or three" root series, forms a distribution pattern with two asymmetric root values, though other configurations may exist. Under the symmetry condition of the circular logarithm center zero, this zero corresponds to the characteristic mode center point, enabling bilateral symmetry expansion with equivalent permutation functions for mutual conversion between bilateral values. In other words, the various combinations of seven-element number groups—while maintaining the same number of group elements, characteristic modes, and boundary functions—do not affect the general analytical properties of the roots.

（2）,Derivation and Operation

The analytical roots of a monic polynomial equation with two variables, where a ternary number (three-dimensional network) complex analysis exists: Boundary numerical function: $\mathbf{D}=\{^{(7)}\sqrt{(acde)(bfg)}\}^{K(Z\pm[Q=3]\pm S\pm N\pm(q)))/t}$; Combination coefficients: {1:7:21:35:35:21:7:1}; Total coefficient sum: {2}7=128;

（a），Linear Combination of Characteristic Modes with 1-1 Combination Probability

$$\{\mathbf{D_0}\}^{(1)}=\{(1/7)((x_{1a}+x_{2a}+x_{3a}+x_{4a}+x_{5a}+x_{6a}+x_{7a})\}^{K(Z\pm[Q=3]\pm S\pm N\pm(q=1))/t};$$

（b），The Topology of Characteristic Mode "2-2 Combination" and the Form of Surface Combination

$$\{D_0\}^{(2)}=\{(1/21)(x_{1a}x_{2a}+x_{3a}x_{4a}+…+x_{7a}x_{1a})\}^{K(Z\pm[Q=3]\pm S\pm N\pm(q=2))/t};$$

（c），The Topology of Characteristic Mode "3-3 Combination" and the Form of Curved Body Combination

$$\{\mathbf{D_0}\}^{(3)}=\{(1/35)(x_{1a}x_{2a}x_{3a}+x_{3a}x_{4a}x_{5a}+\dots+x_{6a}x_{7a}x_{1a})\}^{K(Z\pm[Q=3]\pm S\pm N\pm(q=3))/t};$$

（d），Similarly: Symmetry Distribution of Combination Coefficient Regularization，

$$\{\mathbf{D_0}\}^{(4)}=\{\mathbf{D_0}\}^{(3)};\ \{\mathbf{D_0}\}^{(5)}=\{\mathbf{D_0}\}^{(2)};\ \{\mathbf{D_0}\}^{(6)}=\{\mathbf{D_0}\}^{(1)};\ \{\mathbf{D_0}\}^{(7)}=\{\mathbf{D_0}\}^{(0)};$$

Complex analysis of circle logarithm：

(5.7.26) $$(1-\eta_{[jik+uv]}{}^2)^K=\{^{K(7)}\sqrt{(\mathbf{D})}/\{\mathbf{D_0}\}\}^{K(Z\pm[Q=3]\pm S\pm N\pm(q=0,1,2,3,4,5,6,7))/t}\leq\{1\};$$

Logarithmic discriminant of circle：

(5.7.27) $$\Delta=(\eta^2)=\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(q=0,1,2,3,4,5,6,7)}$$
$$=\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(0)}+\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(1)}+\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(2)}+\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(3)}$$
$$+\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(4)}+\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(5)}+\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(6)}+\{(^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(7)}$$
$$=(1-\eta_1{}^2)+(1-\eta_2{}^2)+(1-\eta_3{}^2)+(1-\eta_4{}^2)+(1-\eta_5{}^2)+(1-\eta_6{}^2)+(1-\eta_7{}^2)\leq\mathbf{1};$$

Characteristic function expansion：

(5.7.28) $$\{\mathbf{D_0}\}^{(q=0,1,2,3,4,5,6,7)}=\{\mathbf{D_0}\}^{(q=0)}+7\cdot\{\mathbf{D_0}\}^{(q=1)}+21\cdot\{\mathbf{D_0}\}^{(q=2)}+35\cdot\{\mathbf{D_0}\}^{(q=3)}$$
$$+35\cdot\{\mathbf{D_0}\}^{(q=4,)}+21\cdot\{\mathbf{D_0}\}^{(q=5)}+7\cdot\{\mathbf{D_0}\}^{(q=6)}+\{\mathbf{D_0}\}^{(q=7)}$$
$$=\{2\}^7\cdot\{\mathbf{D_0}\}^7=128\cdot\{\mathbf{D_0}\}^7;$$

For example: the group combinatorial power function is abbreviated as $(^{(7)}\sqrt{X})^{(7)}$, which differs from self-multiplication. Regarding the operation of a monomial seventh-power equation: the symmetry of the regularization coefficient.$D_0{}^{(3)}=D_0{}^{(4)}$； $D_0{}^{(5)}=D_0{}^{(5)}=D_0{}^{(3)}$； $D_0{}^{(1)}=D_0{}^{(6)}$； $D_0{}^{(0)}=D_0{}^{(7)}$，

Circular logarithm：$(1-\eta_{[jik+uv]}{}^2)^K=[(^{(7)}\sqrt{(abcdefg)})/D_0]^{K(Z\pm[Q=3]\pm S\pm N\pm(q=0,1,2,3,4,5,6,7))/t}$；

Where: (q=0,1,2,3,4,5,6,7)/t respectively denote the 1-1, 2-2, 3-3... element combinations of the group of 7 elements. The combination coefficients satisfy the regularized symmetry distribution.

The circular logarithm transforms the root series (a+fg)***j*** ，(c+fg)***i*** ，(d+fg)***k***) into a three-dimensional space ***{X, Y, Z}*** in the Cartesian coordinate system, forming a five-dimensional vortex complex analysis in the analytic function's three-dimensional network. The (abcde) can either compute all five roots directly or calculate them separately across two rotational spaces [(d)***u*** (e)]***v*** and [(f)***u*** (g)]***v***, which correspond to the three-dimensional space ***{X, Y}*** in the Cartesian coordinate system, resulting in a seven-element complex analysis in the analytic function.(c).

(D)，Trinary complex analysis operation for a 7th power equation:

Given: The general analytical roots of a bivariate polynomial equation of the seventh degree:

boundary numerical function：$D=\{^{(7)}\sqrt{(abcd)(efg)}\}^{K(7)/t}=\{^{(7)}\sqrt{\mathbf{D}}\}^{K(7)/t}$；

characteristic modal function：

$$\mathbf{D_0}^{(1)}=(1/7)(a+b+c+d+e+f+g);$$
$$\mathbf{D_0}^{(2)}=(1/21)(ab+bc+\dots+fg);$$
$$\mathbf{D_0}^{(3)}=(1/35)(abc+bcd+\dots+fga);$$

Circular logarithm： $\Delta=(\eta_{[jik+uv]}{}^2)^K=(^{(5)}\sqrt{(abcd)(efg)})/D_0$

It can be composed of three-dimensional ***[jik]*** as the basic coordinate and two-dimensional [uv] rotation coordinate, forming a five-dimensional vortex space.

(5.7.29) $$\{X\pm\{^{(7)}\sqrt{\mathbf{D}}\}\}^{K(7)/t}=(1-\eta_{[jik+uv]}{}^2)^K\cdot\{X_0\pm D_0\}^{K(7)/t}$$
$$=(1-\eta_{[jik+uv]}{}^2)^K[(0,2)\cdot D_0]^{K(7)/t};$$

(5.7.30) $(1-\eta_{[jik+uv]}{}^2)^K=\{0\text{ or }[0\text{ to }(1/2)\text{ to }1]\text{ or }1\}$； corresponding characteristic mode$\{\mathbf{D_0}^{(7)}\}$

axis projection representation：

(5.7.31) $$(1-\eta_{[jik]}{}^2)=(1-\eta_{[j+u]}{}^2)\cdot\mathbf{X}+(1-\eta_{[i+v]}{}^2)\cdot\mathbf{Y}+(1-\eta_{[k]}{}^2)\cdot\mathbf{Z}=\{0,(1/2),1\};$$

Surface and plane projection representation:

(5.7.32) $$(1-\eta_{[jik]}{}^2)=(1-\eta_{[ik+uv]}{}^2)\cdot\mathbf{X}+(1-\eta_{[kj+uv]}{}^2)\cdot\mathbf{Y}+(1-\eta_{[ji]}{}^2)\cdot\mathbf{Z}=\{0,(1/2),1\};$$

The root element series can be transformed into relative symmetry by the round logarithm center zero point, and the root element combination can be equivalent transformation. Therefore, the root element combination form must be designed first

.(3)，Multiple Methods for Solving Roots of Octal Numbers

[Type 1]:

The root distribution of the seventh-order equation is: A=(abcd), B=(efg), representing two asymmetry values corresponding to the zero point of the circular logarithm center. The characteristic modulus is the average value selected between two subgroup combinations, thereby obtaining the circular logarithmic symmetry distribution.$(\sum+\eta_A)=(\sum-\eta_B)$;

（1）、straight forward calculation ：

Feature: A hierarchical method directly calculates based on the zero point of the circular logarithm center. By leveraging the symmetry of the circular logarithm center zero point, select $\mathbf{(1-\eta_{[C]})=0}$, corresponding to the characteristic modulus $\{\mathbf{D_0}\}$, to directly obtain the circular logarithm factor value:

(5.7.33) $$(\eta_C-\eta_a)+(\eta_C-\eta_b)+(\eta_C-\eta_c)+(\eta_C-\eta_d)=(\eta_C-\eta_e)+(\eta_C-\eta_f)+(\eta_C-\eta_g);$$

Get root element：

(5.7.34) $$a=(1-\eta_a)\{D_0\};\quad b=(1-\eta_b)\{D_0\};\quad c=(1-\eta_c)\{D_0\};\quad d=(1-\eta_d)\{D_0\};$$
$$e=(1+\eta_e)\{D_0\};\quad f=(1+\eta_f)\{D_0\};\quad g=(1+\eta_g)\{D_0\};$$

（2），decomposition hierarchy

(1)，The Zero Point of the First Level Center $\mathbf{(D_0)=(D_{01})}$: The Logarithmic Factor Group of Two Symmetry Circles AB

$$A=(abcd)=[(1-\eta_{[1]}{}^2)]^{(K=+1)}\mathbf{(D_{01})}^{(A)},$$
$$B=(efg)=(1-\eta_{[1]}{}^2)^{(K=-1}\mathbf{(D_{01})}^{(B)}。$$

or： $$(A\cdot B)=(1-\eta_{[1]}{}^2)\mathbf{(D_{01})}^{(A)},$$
$$\mathbf{(D_{01})}^{(B)}=[(1-\eta_{[1]})+(1+\eta_{[1]})]\mathbf{(D_{01})}^{(A)(B)}。$$

(2), Secondary center zero point:

(abcd)Decomposition: (with two combinations of 2-2 and 1-3 respectively), $\mathbf{(D_{01})}^{(A)}\rightarrow\mathbf{(D_{02})}^{(Aa}\mathbf{(D_{02})}^{(Ab)}$

$$A=(abcd)=[(1-\eta_{[1]}{}^2)]^{(K=+1)(Kw=+1)}\mathbf{(D_{01})}^{(A)}=[(1-\eta_{[1]}{}^2)]^{(K=-1)(w=-1)}\mathbf{(D_{01})}^{(B)}$$
$$=(1-\eta_{[2]}{}^2)\mathbf{(D_{02})}^{(A)}=[(1-\eta_{[2]})+(1+\eta_{[2]})]\mathbf{(D_{02})}^{(Aab)};$$

(efg)Decomposition：(1-0-1 and 1-2 combinations respectively), $\mathbf{(D_{01})}^{(B)}\rightarrow\mathbf{(D_{02})}^{(Ba)}\mathbf{(D_{02})}^{(Bb)}$

$$B=(efg)=(1-\eta_{[1]}{}^2)^{(K=-1)(Kw=+1)}\mathbf{(D_{01})}^{(B)}=(1-\eta_{[1]}{}^2)^{(K=-1)(Kw=-1)}\mathbf{(D_{01})}^{(B)}$$
$$=(1-\eta_{[2]}{}^2)\mathbf{(D_{02})}^{(B)}=[(1-\eta_{[2]})\mathbf{(D_{01})}^{(Bc)}+(1+\eta_{[2]})\mathbf{(D_{02})}^{(Bd)};$$

(3), zero of third order center：

(abcd)Decomposition：(There are two combinations: 2-2 and 1-3)$\mathbf{(D_{01})}^{(A))}\rightarrow\mathbf{(D_{02})}^{(Aa)}\mathbf{(D_{02})}^{(Ab)}$

$$A=(abcd)=[(1-\eta_{[1]}{}^2)]^{(K=+1)(Kw=+1)}\mathbf{(D_{01})}^{(A)}=[(1-\eta_{[1]}{}^2)]^{(K=-1)(w=-1)}\mathbf{(D_{01})}^{(B)}$$
$$=(1-\eta_{[2]}{}^2)\mathbf{(D_{02})}^{(A)}=[(1-\eta_{[2]})+(1+\eta_{[2]})]\mathbf{(D_{02})}^{(Aab)};$$

Then, by the center zero of the circular logarithm, we can deduce $(1-\eta_{[3]}{}^2)(D_0{}^2)(Aab)$ from $(1-\eta_{[2]}{}^2)(\mathbf{D}_0{}^2)^{(A)}$. (efg)Decomposition：(1-0-1 and 1-2 combinations respectively)$\mathbf{(D_{01})}^{(B))}\rightarrow\mathbf{(D_{02})}^{(Ba)}\mathbf{(D_{02})}^{(Bb)}$

$$B=(efg)=(1-\eta_{[1]}{}^2)^{(K=-1)(Kw=+1)}\mathbf{(D_{01})}^{(B)}=(1-\eta_{[1]}{}^2)^{(K=-1)(Kw=-1)}\mathbf{(D_{01})}^{(B)}$$
$$=(1-\eta_{[2]}{}^2)(D_{02})^{(B)}=[(1-\eta_{[2]})\mathbf{(D_{01})}^{(Bc)}+(1+\eta_{[2]})^{(Bd)}]\mathbf{(D_{02})}^{(Bcd)};$$

Analogous to the hierarchical sequence: the power function in the upper right corner represents the hierarchical sequence of elements. This continues until each single root is resolved.

（4）、 validate： $\{\mathbf{D_0}\}^{(1)}=(1/7)(a+b+c+e+f+g)$;
$\mathbf{D}=\{^{(7)}\sqrt{D^{(7)}}\}^{(7)}=(a\cdot b\cdot c\cdot e\cdot f\cdot g)$;

（5）、If the seven-element generator is decomposed into two or three levels, there are still combination roots, and the decomposition is carried out in sequence until only two circular logarithmic factors remain to form the symmetry, and then all the single-variable elements are obtained.

The mathematical foundation of the seven-element number {abc} lies in resolving the asymmetry analysis of ternary numbers (general solution of cubic equations) and establishing the equilibrium transformation rules of the center point, thereby constructing ternary numbers or three-dimensional complex analysis, which fills the gap in the field of "seven-element number" mathematics. Similarly, this can be extended to the analytical solutions of arbitrary higher-order dynamic equations.

This hierarchical or composite hierarchical approach to the center-zero point generates "tree codes" or "time series", breaking through the traditional limitation of only being decomposed into two subgroups combinations-function, and can be performed for three or more root analyses. It ensures high-speed, high-computational-power, time-saving, and cost-saving analyses, as well as zero-error computations.

[Example 7.11] A numerical example of a monomial seventh-power equation:

In three-dimensional network complex analysis, consider the ternary number sequence {a, b, c} and its complex analysis. Taking $\{x_1ax_2ax_3ax_4ax_5ax_6ax_7a \in a\}$ as an example, the general solution of a monic seventh-degree equation is termed the seven-element generator. These elements can form a high-dimensional power vortex space [jik+uv], representing three-dimensional precession and two-dimensional rotation. The general analytical expression for roots is derived using two-variable functions.

Given: (first variable function) boundary function：$\mathbf{D}=\prod(D_{1a}D_{2a}D_{3a}D_{4a}D_{5a}D_{6a}D_{7a})=5184000$，

Haplont ：$(^{(7)}\sqrt{D})^{K(Z\pm[Q=jik+uv]\pm S\pm N\pm(q=1)}$;

Numerical characteristic function: $\{D_0\}1^{K(1))}=11$; $\{D_0\}^{K(7))}=19487171$;

Combination coefficient :（1：7：21：35：35：21：7：1）, sum of coefficients: $\{2\}^7=128$;

logarithmic discriminant of circle: $\Delta=(\eta^2)^K=5184000/19487171=0.266021$; $(\eta)^K=0.515772$;

Group operations of monomials in a field

(5.7.35) $X^{(7)}\pm BX^{(6)}+CX^{(5)}\pm CX^{(5)}+\ldots+DX^{(1)}\pm \mathbf{D}$

$=X^{(7)}\pm 7\cdot \mathbf{D}_0{}^{(1)}X^{(6)}+21\cdot \mathbf{D}_0{}^{(2)}X^{(5)}\pm 35\cdot \mathbf{D}_0{}^{(3)}X^{(4)}+\ldots\pm \mathbf{D}$

$= (1-\eta_{[jik+uv]}{}^2)^K\cdot[X_0{}^{(7)}\pm 7\cdot \mathbf{D}_0{}^{(1)}X_0{}^{(6)}+21\cdot \mathbf{D}_0{}^{(2)})X_0{}^{(5)}\pm 35\cdot \mathbf{D}_0{}^{(3)})X_0{}^{(4)}+\ldots\pm \mathbf{D}]$

$= (1-\eta_{[jik+uv]}{}^2)^K\cdot[X_0\pm \mathbf{D}_0]^{(7)}$

$=(1-\eta_{[jik+uv]}{}^2)^K\cdot[(0or2)\cdot\{\mathbf{D}_0\}]^{(7)}=0$;

(5.7.36) $(1-\eta_{[jik+uv]}{}^2)^K==\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}$;

Differential operation :

(5.7.37) $X^{(7)}\pm BX^{(6)}+CX^{(5)}\pm CX^{(5)}+\ldots+DX^{(1)}\pm \mathbf{D}$

$=X^{(7)}\pm 7\cdot \mathbf{D}_0{}^{(1)}X^{(6)}+21\cdot \mathbf{D}_0{}^{(2)}X^{(5)}\pm 35\cdot \mathbf{D}_0{}^{(3)}X^{(4)}+\ldots\pm \mathbf{D}$

$= (1-\eta_{[jik+uv]}{}^2)^K[X_0{}^{(7)}\pm 7\cdot \mathbf{D}_0{}^{(1)}X_0{}^{(6)}+21\cdot \mathbf{D}_0{}^{(2)})X_0{}^{(5)}\pm 35\cdot \mathbf{D}_0{}^{(3)})X_0{}^{(4)}+\ldots\pm \mathbf{D}]$

$= (1-\eta_{[jik+uv]}{}^2)^K\cdot[X_0\pm \mathbf{D}_0]^{(7)}$

$=(1-\eta_{[jik+uv]}{}^2)^K\cdot[(0,2)\{\mathbf{D}_0\}]^{(7)}=0$;

(5.7.38) $(1-\eta_{[jik+uv]}{}^2)^K==\{0 \text{ or } [0 \text{ to } (1/2) \text{ to } 1] \text{ or } 1\}$;

Infinitesimal calculus :

(5.7.39) $X^{(7)}\pm BX^{(6)}+CX^{(5)}\pm CX^{(5)}+\ldots+DX^{(1)}\pm \mathbf{D}$

$=X^{(7)}\pm 7\cdot \mathbf{D}_0{}^{(1)}X^{(6)}+21\cdot \mathbf{D}_0{}^{(2)}X^{(5)}\pm 35\cdot \mathbf{D}_0{}^{(3)}X^{(4)}+\ldots\pm \mathbf{D}$

$= (1-\eta_{[jik+uv]}{}^2)^K\cdot[X_0{}^{(7)}\pm 7\cdot \mathbf{D}_0{}^{(1)}X_0{}^{(6)}+21\cdot \mathbf{D}_0{}^{(2)})X_0{}^{(5)}\pm 35\cdot \mathbf{D}_0{}^{(3)})X_0{}^{(4)}+\ldots\pm \mathbf{D}]$

$= (1-\eta_{[jik+uv]}{}^2)^K\cdot[X_0\pm \mathbf{D}_0]^{(7)}$

$=(1-\eta_{[jik+uv]}{}^2)^K\cdot[(0,2)\{\mathbf{D}_0\}]^{(7)}=0$;

(5.7.40) $(1-\eta_{[jik+uv]}{}^2)^K=\{0or(0 \text{ to } (1/2) \text{ to } 1)or1\}$;

In the formula: $(1-\eta^2)=\{0 \text{ or } (1/2) \text{ or } 1\}$ indicates a probability-topological circle logarithm jumping transition between the center zero point (1/2); $(1-\eta^2)=(0 \text{ to } 1)$ indicates a probability-topological circle logarithm continuous smooth transition between the center zero point (1/2).

Result of solving a 7th power equation:

(5.7.41) $(X-{}^{(7)}\sqrt{\mathbf{D}})^{(7)}=(1-\eta_{[jik+uv]}{}^2)^K\cdot[\{0\}\cdot \mathbf{D}_0]^{(7)}=0$; （Balance, Rotation, Subtraction）;

(5.7.42) $(X+{}^{(7)}\sqrt{\mathbf{D}})^{(7)}=(1-\eta_{[jik+uv]}{}^2)^K\cdot[\{2\}\cdot \mathbf{D}_0]^{(7))}=8\cdot \mathbf{D}$; （precession, superposition, addition）; .

(5.7.43) $(X_0\pm{}^{(7)}\sqrt{\mathbf{D}_0})^{(7)}=(1-\eta_{[jik+uv]}{}^2)^K\cdot[\{0\leftrightarrow 2\}\cdot \mathbf{D}_0]^{(7)}=\{0\leftrightarrow(2)^7\mathbf{D}\}$（vortex space unfolding）;

(5.7.44) $(X_0\pm{}^{(7)}\sqrt{\mathbf{D}_0})^{(K=\pm 0)}=(1-\eta_{[jik+uv]}{}^2)^K\cdot[[\mathbf{D}_0]^{(K=+1)}$与$[\mathbf{D}_0]^{(K=-1)}\}$forward and reverse conversion between;

General analytic solution of the analytic root of the equation of one element seventh power

（**1**）, Direct Calculation of Center Zero Point Symmetry by Using Circular Logarithm

The center point should exist based on the known root distribution.: (abcd): (0): (def); (abcd)≠(def),

The group characteristic mode D=11 unit body consists of 7 units.B=7×11=77,

Select the center point (1/2) [77×(4/7) + 77×(3/7)] = 3.5, at the (3.5) bit value after the 4th-5th bit value:

The logarithmic center point factor ηC= (∑±η)=0. The symmetry decomposition value of (∑±η)=77/3.5≈18 (rounded to the nearest integer).

Get: the numerical center point is at

$\eta_C=(+18/77)$ and $\eta_C=(-18/77)$;

Test the logarithmic factor value of the circle:

[(11-8)+(11-6)+(11-3)+(11-1): (11=0): ((11+4)+(11+6)+(11+8)]/77

=[(-18)+(+18)]/77=0;

Get root value:

(11-8)=3; (11-6)=5; (11-3)=8; (11-1)=10;

(11+4)=15; (11+6)=17; (11+8)=19;

Verification: (3×5×8×10)×(15×17×19)=1200 4845=5814000; this matches the question's requirements.

Determine the root elements:

a=3; b=5; c=8; d=10; e=15; f=16; g=17;

When: If there are few root elements, the root can be parsed directly. If there are many root elements, the root can be parsed hierarchically using the zero point of the hierarchy center, or it can be computed hierarchically by a computer.

（2），Application of logaritmic center zero point symmetry stratified calculation

Step 1: Find the numerical center of the function (using empirical formulas) when

known： $^{(2)}\sqrt{\Delta^K}=(\eta)^K=\sqrt{(5814000/19487171)}=\sqrt{0.266}=0.5156$；

$(1-\eta^2)^K=(1-5814000/19487171)$

$=(1-0.5156^{(2)})$

$=(1-0.26602)=0.734$；

$\{\sqrt{\mathbf{D_0}}\}=\{\sqrt{19487171}\}=4414$；

$\{\sqrt{\mathbf{D}}\}=\{\sqrt{5187000}\}=2276$；

From the given problem, the square root is transformed into a quadratic equation {xA xB} for root analysis.

$(1-\eta^2)^K=(1-\sqrt{\Delta^{(2)}})^K=(1-\eta)^K\{^{(7)}\sqrt{\mathbf{D_0}}\}^{(4)}\cdot(1+\eta)^K\{^{(7)}\sqrt{\mathbf{D_0}}\}^{(3)}$

$=(1-0.5156)^K\cdot(1+0.5156)^K\cdot\{\mathbf{D_0}\}^{(7)}$

$=(1-0.5156)^K\cdot(1+0.5156)^K\cdot\{19487171\}$

$=(1-0.734)\cdot 19487171=5814000$；

This value cannot be used to determine the zero point of the circular logarithm center, as the numerical center exhibits an asymmetric distribution and is non-commutative. Therefore, the corresponding value for the zero point of the circular logarithm center must be converted: (bit value concept) (1-18/77) = 0.766, $(\boldsymbol{\eta}_{[C]})^K = 0.234$, which shows a discrepancy from 0.266.

known number：$\Delta^K=(\eta)^K=0.6029=(4845-1200)/(4845+1200)=3645/6045$；

mean of two groups: $\mathbf{D_0}=(1/2)(4845+1200)=3022$;

$\mathbf{D}=(4845\cdot 1200)=5814000$;

$(1-\eta^2)^K=(1-\sqrt{\Delta^{(2)}})^K=(1-\eta)^K\{^{(7)}\sqrt{\mathbf{D_0}}\}^{(4)}\cdot(1+\eta)^K\{^{(7)}\sqrt{\mathbf{D_0}}\}^{(3)}$

$=(1-0.6029)^K\cdot(1+0.6029)^K\cdot\{\mathbf{D_0}\}^{(7)}$

$=(1-0.6029)^K\{\mathbf{D_0}\}^{(4)}\times(1+0.6029)^K\{\mathbf{D_0}\}^{(4)}4$

$=(1-0.734)\times 19487171$

$=5814000$；

$x_A=1137\approx 1200$；

$x_B=5814000/1200=4845$；

$AB=(1-\eta^2)^K\mathbf{D_0}^2$，$\mathbf{D}_0=4414$，$\sqrt{\Delta^K}=0.5156$, $a=(3.5/7)\times 0.5156\times 4414=1137$

heve： $A=1137\approx 1200$；

$B=5814000/1200=4845$；

Verification: $(1-\eta^2)^K=[1-(4845\times 1200)/19487171]=0.26602$; (which is consistent with the problem).

Step 2: Find the numerical center point of the hierarchical function (empirical formula)

Based on A B=1200×4845, the hierarchical ratio is {3:2:2}.

For example: {efg}=4845 **3D** complex analysis can solve roots; {ab,cd}=1200; **2D** complex analysis can solve roots; or {efg}=4845 **2D** complex analysis can solve roots;

（**3**），Summary of root analysis method：

Formula (7.3.39) is a comprehensive operation for solving roots of a seventh-order equation, involving two variable functions: the boundary value $(^{(7)}\sqrt{\mathbf{D}})^{(7)})=5814000$, the characteristic modulus $\{\mathbf{D_0}\}^{(7)}=19487171$, and the circular logarithm $(1-\eta_{[jik+uv]}{}^2)^K$. The analytical solution is derived by solving the equation $(1-\eta_{[jik+uv]}{}^2)^K=0$. This method incorporates the circular logarithm to analyze the quadratic function relationship between the characteristic modulus center point and the surrounding four elements.

In the seven elements of the general solution's roots, D={abcdefg}, the numerical decomposition of the center point (limited to between two consecutive multiplication functions) yields three types of asymmetric root multiplication values:

(1：6)type root distribution$\{(x_1)\neq(x_2x_3x_4x_5x_6x_7)\}$；

(2：5)type root distribution$\{(x_1x_2)\neq(x_3x_4x_5x_6x_7)\}$；

(3：4)type root distribution$\{(x_1x_2x_3)\neq(x_4x_5x_6x_7)\}$；

The root analyticity of three kinds of circular logarithm symmetries can be obtained by using the probability-topological circular logarithm and the zero point of the center of circular logarithm, which satisfies the complex analyticity of the root.

(1：6)type root distribution $\{(\eta_1)=(\eta_2\eta_3\eta_4\eta_5\eta_6\eta_7)\}$；

(2：5)type root distribution$\{(\eta_1\eta_2)=(\eta_3\eta_4\eta_5\eta_6\eta_7)\}$；

(3：4)type root distribution$\{(\eta_1\eta_2\eta_3)=(\eta_4\eta_5\eta_6\eta_7)\}$；

（1）first type analysis(**3：4**)ype root distribution： $\{(\eta_1 \eta_2 \eta_3)=(\eta_4 \eta_5 \eta_6 \eta_7)\}$

(5.7.45) $x_1=(1+\eta_1^2)\mathbf{D_0}$； $x_2=(1+\eta_2^2)\mathbf{D_0}$； $x_3=(1+\eta_3^2)\mathbf{D_0}$； $x_4=(1+\eta_4^2)\mathbf{D_0}$；
$x_5=(1-\eta_5^2)\mathbf{D_0}$； $x_6=(1-\eta_6^2)\mathbf{D_0}$； $x_7=(1-\eta_7^2)\mathbf{D_0}$；

（2）Second type resolution（**1：6**）ype root distribution： $\{(\eta_1)=(\eta_2 \eta_3 \eta_4 \eta_5 \eta_6 \eta_7)\}$

(5.7.46) $x_1=(1+\eta_1^2)\mathbf{D_0}$；
$x_2=(1-\eta_2^2)\mathbf{D_0}$； $x_3=(1-\eta_3^2)\mathbf{D_0}$； $x_4=(1-\eta_4^2)\mathbf{D_0}$；
$x_5=(1-\eta_5^2)\mathbf{D_0}$； $x_6=(1-\eta_6^2)\mathbf{D_0}$； $x_7=(1-\eta_7^2)\mathbf{D_0}$；

（3）Third type resolution（**2：5=3+2**）ype root distribution： $\{(\eta_1\eta_2)=(\eta_3 \eta_4 \eta_5 \eta_6 \eta_7)\}$

(5.7.47) $x_1=(1+\eta_1^2)\mathbf{D_0}$； $x_2=(1+\eta_2^2)\mathbf{D_0}$； $x_3=(1-\eta_3^2)\mathbf{D_0}$；
$x_4=(1-\eta_4^2)\mathbf{D_0}$； $x_5=(1-\eta_5^2)\mathbf{D_0}$； $x_6=(1-\eta_6^2)\mathbf{D_0}$； $x_7=(1-\eta_7^2)\mathbf{D_0}$；

The first type is classified as asymmetric analysis. The third type is asymmetric analysis, where (x_1 x_2) represents a rotation or wave state, and (x_3 x_4 x_5 x_6 x_7) represents a vortex state.

In particular, any function can be analytically determined if two of the three given elements **D, D₀**, and $(1+\eta^2)$ are known. Hierarchical calculations are typically used for verification and can also be decomposed. However, each level requires different sets of elements **D, D₀,** and $(1+\eta^2)$ for analysis.

[Example 7.9] A numerical example of a monomial seventh-power equation:

Known Two-Variable Function Calculation

Boundary function **D**；**D=5814000;** Seven order element：$({}^{(7)}\sqrt{\mathbf{D}})={}^{(7)}\sqrt{\mathbf{5814000}}$;

Calculus-dynamic control, the unit body combination of the order combination under the total element

Unchanged.Under the equation conditions：$({}^{(7)}\sqrt{\mathbf{X}})=\{{}^{(7)}\sqrt{\mathbf{D}}\}$

characteristic modal function：$\{\mathbf{D_0}\}^{(q=0,1,2,3,4,5,6,7)}=\{\mathbf{11}\}^{(q=0,1,2,3,4,5,6,7)}$,

characteristic function expansion：(The combination can satisfy the regularization distribution）

$$\{\mathbf{11}\}^{(q=0,1,2,3,4,5,6,7)}=\{\mathbf{11}\}^{(q=0)}+7\cdot\{\mathbf{11}\}^{(q=1)}+21\cdot\{\mathbf{11}\}^{(q=2)}+35\cdot\{\mathbf{11}\}^{(q=3)}$$
$$+35\cdot\{\mathbf{11}\}^{(q=4,)}+21\cdot\{\mathbf{11}\}^{(q=5)}+7\cdot\{\mathbf{11}\}^{(q=6)}+\{\mathbf{11}\}^{(q=7)}$$
$$=\{2\}^{(7)}\cdot\{\mathbf{11}\}^{(7)}=128\cdot\{\mathbf{11}\}^{(7)};$$

logarithm of discriminant of isomorphic circles：

$$(1-\eta^2)=\{({}^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(q=0,1,2,3,4,5,6,7)}$$
$$=[({}^{(7)}\sqrt{5814000})/11]^{(q=0,1,2,3,4,5,6,7)}$$
$$=\{({}^{(7)}\sqrt{5814000})/11\}^{(0)}+7\cdot\{({}^{(7)}\sqrt{5814000})/11\}^{(1)}$$
$$+21\cdot\{({}^{(7)}\sqrt{5814000})/11\}^{(2)}+35\cdot\{({}^{(7)}\sqrt{5814000})/11\}^{(3)}$$
$$+35\cdot\{({}^{(7)}\sqrt{5814000})/11\}^{(4,)}+21\cdot\{({}^{(7)}\sqrt{5814000})/11\}^{(5)}$$
$$+7\cdot\{({}^{(7)}\sqrt{5814000})/11\}^{(q6)}+\{({}^{(7)}\sqrt{5814000})/11\}^{(7)}\le\mathbf{1};$$

In the formula, the group combination form power function is abbreviated as $({}^{(7)}\sqrt{X})^{(7)}$, which differs from self-multiplication.

$({}^{(7)}\sqrt{\mathbf{X}})=({}^{(7)}\sqrt{\mathbf{D}})=(1-\eta^2)^K\{\mathbf{D_0}\}=(1-\eta^2)^K\{\mathbf{11}\}$,Import polynomial terms；

(5.7.48)
$$\{X\pm{}^{(7)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=7)\pm(N)\pm(q=7)}$$
$$=AX^{(q=7)}\pm BX^{(q=6)}+CX^{(q=5)}\pm\ldots\pm PX^{(q=2)}+EX^{(q=1)}+({}^{K(7)}\sqrt{\mathbf{D}})^{(q=7)}\pm\mathbf{D}$$
$$=[({}^{(7)}\sqrt{5814000})^{(7)}\cdot 11^{(0)}+7\cdot({}^{(7)}\sqrt{5814000})^{(6)}\cdot 11^{(1)}$$
$$+21\cdot({}^{(7)}\sqrt{5814000})^{(5)}\cdot 11^{(2)}+35\cdot({}^{(7)}\sqrt{5814000})^{(4)}\cdot 11^{(3)}$$
$$+35\cdot({}^{(7)}\sqrt{5814000})^{(3)}\cdot 11^{(4)}+21\cdot({}^{(7)}\sqrt{5814000})^{(2)}\cdot 11\}^{(5)}$$
$$+7\cdot({}^{(7)}\sqrt{5814000})^{(1)}\cdot 11^{(6)}+5814000$$
$$=(1-\eta^2)^K[(\mathbf{X_0}^{(7)}\cdot 11^{(0)}+7\cdot\mathbf{X_0}^{(6)}\cdot 11^{(1)}+21\cdot\mathbf{X_0}^{(5)}\cdot 11^{(2)}+35\cdot\mathbf{X_0}^{(4)}\cdot 11^{(3)}$$
$$+35\cdot\mathbf{X_0}^{(3)}\cdot 11^{(4)}+21\cdot\mathbf{X_0}^{(2)}\cdot 11\}^{(5)}+7\cdot\mathbf{X_0}^{(1)}\cdot 11^{(6)}+11^{(7)}$$
$$=[(1-\eta^2)^K\cdot\{X_0\pm\mathbf{11}\}]^{\mathbf{K}((S=7)\pm(N)\pm(q=0,1,2,3,4,5,6,7)}$$
$$=[(1-\eta^2)^K\cdot\{0,2\}\cdot\{\mathbf{11}\}]^{\mathbf{K}((S=7)\pm(N)\pm(q=0,1,2,3,4,5,6,7)};$$

(5.7.49) $0\le(1-\eta^2)^{K(Z\pm(S=11)\pm(N=0,1,2)\pm(q))}=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to}1] \text{ or } 1\}$；

7.9.2、Network 3D Complex Analysis: (**3D** Network and Physical 3D Space Have Distinctive Features)

Known A=120，B=150，C=323，

Two variable function：**D**=A,B,C=abcdefg=5814000；

Seven order element：$({}^{(7)}\sqrt{\mathbf{D}})={}^{(7)}\sqrt{\mathbf{5814000}}$;

The unit body is combined to form a series of combinations under the condition of the total element is unchanged, and the dynamic control is carried out by calculus.

Characteristic modal function：$\{\mathbf{D_0}\}^{(q=0,1,2,3,4,5,6,7)}=\{\mathbf{11}\}^{(q=0,1,2,3,4,5,6,7)}$, Characteristic function expansion：

$$\{\mathbf{11}\}^{(q=0,1,2,3,4,5,6,7)}=\{\mathbf{11}\}^{(q=0)}+7\cdot\{\mathbf{11}\}^{(q=1)}+21\cdot\{\mathbf{11}\}^{(q=2)}+35\cdot\{\mathbf{11}\}^{(q=3)}$$
$$+35\cdot\{\mathbf{11}\}^{(q=4,)}+21\cdot\{\mathbf{11}\}^{(q=5)}+7\cdot\{\mathbf{11}\}^{(q=6)}+\{\mathbf{11}\}^{(q=7)}$$
$$=\{2\}^{7}\cdot\{\mathbf{11}\}^{7}=128\cdot\{\mathbf{11}\}^{7};$$

logarithm of discriminant of isomorphic circles：

(5.7.50) $$\Delta=(\eta^2)=\{({}^{(7)}\sqrt{\mathbf{D}})/\mathbf{D_0}\}^{(q=0,1,2,3,4,5,6,7)}$$
$$=[({}^{(7)}\sqrt{5814000})/11]^{(q=0,1,2,3,4,5,6,7)}\leq\mathbf{1};$$

$({}^{(7)}\sqrt{\mathbf{X}})=({}^{(7)}\sqrt{\mathbf{D}})=(1-\eta^2)^K\{\mathbf{D_0}\}=(1-\eta^2)^K\{\mathbf{11}\}$,Import polynomial terms;

(5.7.51) $$\{X\pm{}^{(7)}\sqrt{\mathbf{D}}\}^{\mathbf{K}[(S=7)\pm(N)\pm(q=7)}$$
$$=AX^{(q=7)}\pm BX^{(q=6)}+CX^{(q=5)}\pm\ldots\pm PX^{(q=2)}+EX^{(q=1)}+({}^{K(7)}\sqrt{\mathbf{D}})^{(q=7)}\pm\mathbf{D}$$
$$=[({}^{(7)}\sqrt{5814000})^{(7)}\cdot 11^{(0)}+7\cdot({}^{(7)}\sqrt{5814000})^{(6)}\cdot 11^{(1)}$$
$$+21\cdot({}^{(7)}\sqrt{5814000})^{(5)}\cdot 11^{(2)}+35\cdot({}^{(7)}\sqrt{5814000})^{(4)}\cdot 11^{(3)}$$
$$+35\cdot({}^{(7)}\sqrt{5814000})^{(3)}\cdot 11^{(4)}+21\cdot({}^{(7)}\sqrt{5814000})^{(2)}\cdot 11\}^{(5)}$$
$$+7\cdot({}^{(7)}\sqrt{5814000})^{(1)}\cdot 11^{(6)}+5814000$$
$$=(1-\eta^2)^K[(\mathbf{X_0}^{(7)}+7\cdot\mathbf{X_0}^{(6)}\cdot 11^{(1)}+21\cdot\mathbf{X_0}^{(5)}\cdot 11^{(2)}+35\cdot\mathbf{X_0}^{(4)}\cdot 11^{(3)}$$
$$+35\cdot\mathbf{X_0}^{(3)}\cdot 11^{(4)}+21\cdot\mathbf{X_0}^{(2)}\cdot 11\}^{(5)}+7\cdot\mathbf{X_0}^{(1)}\cdot 11^{(6)}+11^{(7)}$$
$$=[(1-\eta^2)^{K}\cdot\{X_0\pm\mathbf{11}\}]^{\mathbf{K}((S=7)\pm(N)\pm(q=0,1,2,3,4,5,6,7)}$$
$$=[(1-\eta^2)^{K}\cdot\{0,2\}\cdot\{\mathbf{11}\}]^{\mathbf{K}((S=7)\pm(N)\pm(q=0,1,2,3,4,5,6,7)};$$

(5.7.52) $$0\leq(1-\eta^2)^{K(Z\pm(S=11)\pm(N=0,1,2)\pm(q))}=\{0 \text{ or } [0 \text{ to } (1/2) \text{ to} 1] \text{ or } 1\};$$

5.7.12、The calculation produces four results (calculus-hierarchy) and dynamic calculation results

Canalysis of circle logarithm：

$(1-\eta^2)^K=(1-\eta_{[\mathbf{jik+uv}]}{}^2)^{K(N=0,1,2)}$（Three-dimensional precession and two two-dimensional rotations occur randomly under equivalent energy replacement）。

（1）、 $\{X+{}^{(7)}\sqrt{\mathbf{D}}\}^{\mathbf{K}}=(1-\eta_{[\mathbf{jik+uv}]}{}^2)^K[(2)\cdot\{\mathbf{D_0=11}\}]^{K(Z\pm(S=7)\pm(N=0,1,2)\pm(q=0,1,2,3,4,5,6,7)}$； Jaw, add calculation, sphere。

（2）、 $\{X-{}^{(7)}\sqrt{\mathbf{D}}\}^{\mathbf{K}}=(1-\eta_{[\mathbf{jik+uv}]}{}^2)^K[(0)\cdot\{\mathbf{D_0=11}\}]^{K(Z\pm(S=7)\pm(N=0,1,2)\pm(qjik))}$； Rotate, reduce, ring。

（3）、 $\{X\pm{}^{(7)}\sqrt{\mathbf{D}}\}^{\mathbf{K}}=(1-\eta_{[\mathbf{jik+uv}]}{}^2)[(0\leftrightarrow 2)\cdot\{\mathbf{D_{07}=11}\}]^{K(Z\pm(S=7)\pm(N=0,1,2)\pm(q=0,1,2,3,4,5,6,7)}$； The vortex in the seven-dimensional power space.

（4）、 $\{X\pm{}^{(7)}\sqrt{\mathbf{D}}\}^{\mathbf{(K=0)}}=(1-\eta_{[\mathbf{jik+uv}]}{}^2)[(0\leftrightarrow 2)\cdot\{\mathbf{D_0=11}\}]^{K(Z\pm(S=7)\pm(N=0,1,2)\pm(q=0,1,2,3,4,5,6,7)}$； equilibrium, transformation, equivalent substitution。

Similarly, the central zero point can also adapt to the "2-2,3-3,... combination" of the "topological circle logarithm", that is, "q=0,1,2,3... integer ≤S" can be missing items. Based on the isomorphism consistency of the circle logarithm of the polynomial, it can be reduced to the convenient calculation of the "1-1 combination" probability, which overcomes the difficulty of calculating incomplete or missing polynomial coefficients.

（5）、The tree-like three-dimensional network based on probability B=77 is directly unfolded, with the central zero point controlling the stability of the network-function, preventing pattern collapse and pattern confusion drawbacks, ensuring zero-error calculation:

The zero point of the center(Check the grid or table)

$$(0)/77\leftrightarrow \text{probability symmetry}\{+18,(0),-18\}/77\leftrightarrow$$
$$\leftrightarrow(-1,-6,-3,-1)\}/77\leftrightarrow(+4,+6,+8)/77$$
corresponding bit value factor $(+\eta^2)$;

This method directly maps circular logarithmic values to specific numerical values, enabling immediate root element retrieval. It overcomes the traditional AI's tree-like network symmetry distribution that splits into two branches, as well as the computational limitation of requiring multiple iterations for approximation.

（6）、root element analysis

(5.7.53) $x_1=(1-\eta_1{}^2)\mathbf{D_0}=(1-1/11)11=3$； $x_2=(1-\eta_2{}^2)\mathbf{D_0}=(1-6/11)11=5$；
$x_3=(1-\eta_3{}^2)\mathbf{D_0}=(1-3/11)11=8$； $x_4=(1-\eta_4{}^2)\mathbf{D_0}=(1-1/11)11=10$；
$x_5=(1+\eta_5{}^2)\mathbf{D_0}=(1+4/11)11=15$； $x_6=(1+\eta_4{}^2)\mathbf{D_0}=(1+6/11)11=17$；
$x_7=(1+\eta_5{}^2)\mathbf{D_0}=(1+8/11)11=19$；

Verification 1:

The expression $[(1-\eta_1{}^2)+(1-\eta_2{}^2)+(1-\eta_3{}^2)+[(1-\eta_4{}^2)]$ yields the product $\prod\{3\times5\times8\times10\}=1200$, which satisfies the numerical condition {A}.

The expression $[(1-\eta_5{}^2)+(1-\eta_6{}^2)+(1-\eta_7{}^2)]$ corresponds to the value $\prod\{15\times17\times19\}=4845$, which satisfies the condition {B}.

Satisfies: {A} {B}=4845 1200=5814000; (Boundary function satisfied)

Verification 2：

The expression $(1-\eta^2)=(1-18/77)=(1-0.234)=0.766$; (Note: This differs from the original $(1-\eta^2)=(1-0.266)=0.734$. Therefore, selecting the center zero point requires multiple trials, with the logarithmic symmetry of the probability circle serving as the starting point.)

（2）、 Grid Calculation

The analysis features are as follows: According to the sequence multi-level center zero point decomposition into two or more symmetry circle logarithm factor groups, the deduction method is used to verify and find the circle logarithm tree distribution and transformation rules.

Thus, the transformation relationship between the circular logarithm calculation at each level and the direct circular logarithm calculation is established. In other words, the connection between the probability calculation of circular logarithm and the continuous circular logarithm calculation at each level is clarified.

(1) Decompose hierarchically by analogy until all root elements are fully resolved. This method is suitable for deep machine learning in pattern recognition of "perfect circle patterns".

(2) For the multi-element generating elements, if there are additional levels until the last two or three circular logarithmic factors form symmetry, all single-variable elements can be analytically derived. Conversely, the group combination operation for all single-variable elements is termed the "positive circular pattern".

The zero point is used to generate the "tree code" or "time sequence", which determines the speed and acceleration of the analytic or composite function, and the depth and breadth of the zero error calculation.

First-level feature mode: $\mathbf{D_{01}}=(1/2)(4845+1200)=3022$，$(1-\eta_{[1]}^2)=0.60$，Boundary function boundary function ：1200；

Decomposed into：

$\{X_{A[1]}\}=\prod(x_1 \cdot x_2 \cdot x_3 \cdot x_4)=(1-\eta_{A[1]}^2)\ (\mathbf{D_0})=0.4\cdot 3022=1200$；

$\{X_{B[1]}\}=\prod(x_5 \cdot x_6 \cdot x_7)=(1+\eta_{B[1]}^2)\ (\mathbf{D_0})=1.6\cdot 3022=4845$；

The second level feature module: $(\mathbf{D_{02}})=17$，$(1-\eta_{[1]}^2)=0.60$, Boundary function ：4845；

(3)、Probability Distribution of the Two Levels of One and Two

Characteristic mode $(\mathbf{D_0})=11$，$(1-\eta_{[1]}^2)^K=0.0.233$，Boundary function ：5814000；

$\{[(1-\eta_{H1}^2)=(3)]+[(1-\eta_{H2}^2)=(5)]+[(1-\eta_{H3}^2)=(8)]+[(1-\eta_{H4}^2)=(10)]$

$+[(1-\eta_{H5}^2)=(15)]+[(1-\eta_{H6}^2)=(17)]+[(1-\eta_{H7}^2)=(19)]\}\cdot(\mathbf{D_0})=77$；

Using the general solution of a "one-dimensional seventh-power equation" as an example (including the unification of discrete and entangled computations), The central point processing method:

The central point is located in the element gap:

⑦(O)⑥⑤④③②①；⑦⑥(O)⑤④③②①；⑦⑥⑤(O)④③②①;

Center point coincides with the element:

⑦(O=⑥)⑤④③②①；⑦⑥(O=⑤)④③②①；⑦⑥⑤(O=④)③②①;

The zero point of the circular logarithm $(1-\eta_{[C]}^2)$ corresponds to the characteristic mode, forming the symmetry：

$$\sum(-\eta^2)+\sum(+\eta^2)=0;$$

The individual root element of the general solution is obtained by analyzing the relationship between the center point of the characteristic mode and the surrounding elements through the circular logarithmic symmetry, and then the three-dimensional complex analysis is carried out by the individual root element. If the individual root element has its own dynamic calculus (including multi-parameter), then the second calculus is carried out according to the characteristics of the individual element.

The circular logarithm factor ensures that two values can be randomly or non-randomly exchanged through circular logarithmic transformation. This method performs three-dimensional network analysis on asymmetric distributions by expanding them into integer symmetries along three dimensions (probability-topology) with the conjugate center point O in the Cartesian coordinate system. It achieves interpretable, verifiable, reliable, concise, and error-free computations. By overcoming the traditional computer-based iterative "approximation calculation" framework, it guarantees a simple and unified computational program. The circular logarithmic isomorphism can be extended to prove the calculation of equations of any higher order and the dynamic control principles of neural networks and calculus for any system with multiple bodies.

5.8，Application of 3D Complex Analysis and Artificial Intelligence Turing Machine

5.8.1、 Data model compression and autonomous code for 3D complex analysis:

Firstly, the computer computation requires the conversion of any big data model into a three-dimensional logical numerical code complex analysis, which can ensure the stability of the central zero point in the computation, prevent the pattern collapse and pattern confusion, satisfy the probability operation corresponding to the bit value, and still perform the high-power calculation in each dimension direction.

[Digital Example 3]: The segmented (hierarchical) approach for autonomous code of ternary numbers compressed by geometric progression with base 3:

$$\mathbf{D=(xxx)^{[S]}}\ ,\ \ldots,\ \mathbf{447,\ 396,\ 837,\ 753,\ 255;}$$

Segment the data into groups of three bytes and number them as the power of the base code (from front to back): [S]...[5], [4], [3], [2], [1].

For example: **: (jx+ix+kx)**$^{[S]}$ … corresponds to

$$(447)\times10^{[5]}\ ;\ (396)\times10^{[4]}\ ;\ (873)\times10^{[3]}\ ;\ (753)\times10^{[2]}\ ;\ (255)\times10^{[1]};$$

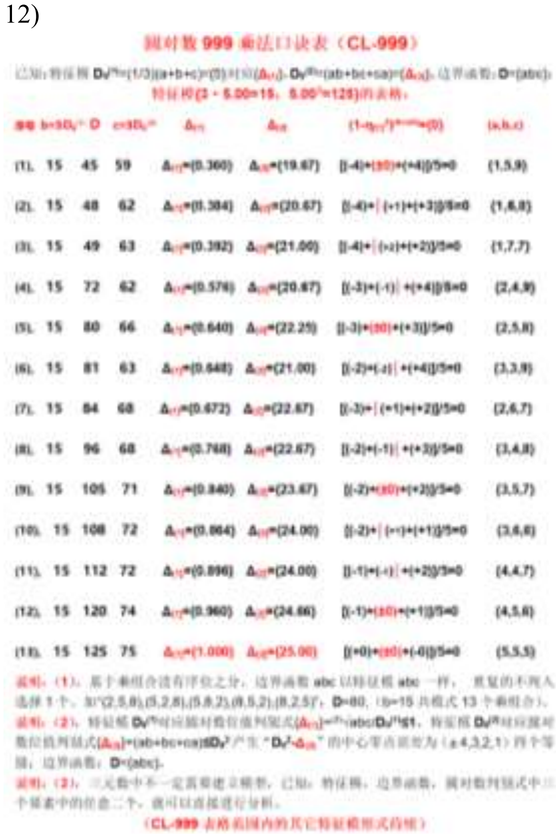
$$(j4+\boldsymbol{i}4+\boldsymbol{k}7)\times10^{[5]}\ ;\ (j3+\boldsymbol{i}9+\boldsymbol{k}6)\times10^{[4]}\ ;\ (j8+\boldsymbol{i}7+\boldsymbol{k}3)\times10^{[3]}\ ;\ (j7+\boldsymbol{i}5+\boldsymbol{k}3)\times10^{[2]}\ ;\ (j2+\boldsymbol{i}5+\boldsymbol{k}5)\times10^{[1]};$$

The geometric progression compression form with "3 numbers as the base":

$\{3\}^1=3$, $\{3\}^2=9$, $\{3\}^3=27$, $\{3\}^4=81$, $\{3\}^5=243$, $\{3\}^6=729$, $\{3\}^7=2187$, $\{3\}^8=6561$, $\{3\}^9=19683$, $\{3\}^{10}=59049$

It means that the number of numerical processing is 59049, and it is compressed into 3 numerical complex analysis after 10 times. The beginning output is the symbol "**{D₀}**" and "**{D}**" and the sequence number, and the terminal input is "**{D₀}**" and "{**D**}" and the sequence number to solve the cipher by the circular logarithm algorithm.

The method involves: designing a new chip architecture based on the "Circular Logarithm 999 Multiplication Table," where the digital encoding uses ternary numbers as the output and input of the autonomous code. Machine learning automatically converts: feature mode $\{\mathbf{D_0}^{(1)}\}$, boundary function D, with three symbols for transmitting logical density information. (Figure 12)



(图 12) **Partial logaritmic multiplication table for 999.**

The terminal input is {**D₀**} and {**D**} and the sequence number, and the terminal output is {**D₀**} and {**D**} and the sequence number.

The method involves: designing a new chip architecture based on the "Circular Logarithm 999 Multiplication table," where the digital encoding utilizes ternary numbers as the output and input of autonomous code. Machine learning automatically converts: feature mode $\{\mathbf{D_0}^{(1)}\}$, boundary function **D**, using three symbols for logical density information transmission.

5.8.2. For any model employing 3D dual-logic (numerical/bit value) code grid AI systems,

The process begins with ternary complex analysis of circular logarithms to establish the four-valued logic gate

{10 01 00 11}. This corresponds to the {1000↔0000↔0111} pattern in ternary numbers $\{3\}^{\wedge 2n}$ (obtained through reciprocal conversion between multiplication and addition combinations). The "logic gate" functions to input circular logarithm data, outputting three complex analyses and "high-density information" termed "even-numbered terms 2n" – dimensionless circular logarithm quantum bits with base 3. This framework can be extended to $\{S\}^{\wedge 2n}$ (where S=1,2,3,4,... infinite) for the {1000↔0111} pattern, achieved via reciprocal conversion between multiplication combination [0×1=0] and addition combination [0+1].

Demonstration example: The ternary number series (ABC) forms a 3×9=27-value "dual-code" three-dimensional matrix with characteristic modulus {5} or [ηC=5(3)]. The binary AB product combination exhibits balanced symmetry: binary C center zero symmetry [η[C]=0] (K=±0) for balanced exchange and random self-validation. The ternary logic "dual-code" values (1-9) (±η1_±η4) form a grid network (values/bits) that converts to four-logic values (Figure 13):

Logical code value:

$$\{159_{A1},258_{A2},357_{A3},456_{A4},168_{B1},249_{B2},348_{B3},267_{B4}\}/[\eta_C=5^3]$$

Logic code bit value:Logic code bit value:

$$\{\sum(\eta_1,\eta_2,\eta_3,\eta_4)^{(K=+1)},[\eta_{[C]}=0]^{(K=\pm0)},\sum(\eta_1,\eta_2,\eta_3,\eta_4)^{(K=-1)}\}: \{\sum(\eta_{\Delta1},\eta_{\Delta2},\eta_{\Delta3},\eta_{\Delta4})^{(K=\pm1)}$$

$$(1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)}=\{(1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)},\ (1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)},\ (1-\eta_{[jik]}{}^2)^{(K=\pm1,\pm0)}\},$$

Decomposition of axes and planes (analytical, reverse interpretable):

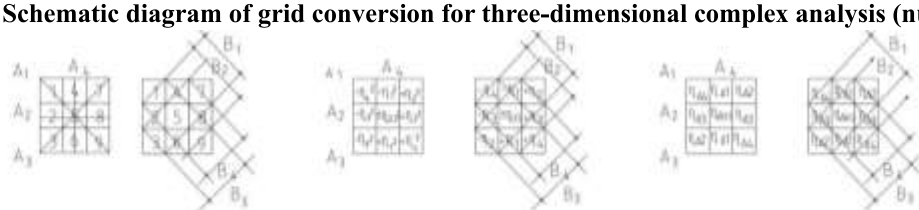
$$(J):\ (1-\eta_{[j]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[ik]}{}^2)^{(K=-1)},$$

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

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

If the ternary number grid remains unchanged, the object is a ternary number matrix, and the grid matrix with bit value center zero points [1,2,3,4,5,6,7,8,9.0] obtained a numerical element code combination of 729+81=810 from the "Circular Logarithm 999+99 Multiplication Table".

(Figure 13) Schematic diagram of grid conversion for three-dimensional complex analysis (numerical/bit



value)

5.8.3， Theoretical Relationship between Artificial Intelligence Septuple Number and Circular Logarithm

Artificial intelligence corresponds to the interpretability of the seven-element neural network, representing the numerical sequence codes of the seven arrays in a 7×7 grid (totaling 49 cells) within a three-dimensional physical space complex analysis. These codes correspond to feature modules, including the four logical combinations of the "numerical/bit value grid": A (four combinations in both vertical and horizontal directions) and B (four combinations in diagonal directions).

{1,2,3,4,5,6,7,8,9,10,…,[25],…,41,42,43,44,45,46,47,48,49}

Based on the principle of relativity, the three-dimensional ***(JiK)*** bit value sequence character is converted, and the transistor working density represents the four logical values of the three-dimensional numerical/bit value sequence, which enters the transistor matrix corresponding to the system chip.

{abcdefg**1**,abcdefg**2**,abcdefg**3**,abcdefg**4**,abcdefg**5**,abcdefg6,abcdefg7,abcdefg**8**,…,abcdefg**12,**}/**[257]**

$$=\{(-\eta_1{}^2,-\eta_2{}^2,\ldots,-\eta_6{}^2)^{(K=+1)},[\eta^2{}_{[C]=0}],(+\eta_1{}^2,+\eta_2{}^2,\ldots,+\eta_6{}^2)^{(K=-1)}\}:$$

For example, consider a seven-element number system in a three-dimensional system where the product of three numbers, $\mathbf{D}_{[jik]}$ = (abccdef), and the numerical characteristic modulus **Do** exhibit an asymmetry. The two variables and the numerical center point are balanced within the range [**4-3**], reflecting the imbalance between the product of four numbers and the product of three numbers.

Step 1： First, perform a three-dimensional complex analysis. Through machine learning using the "(ternary number) grid network" memory, obtain the three-dimensional decomposition of the three ternary number series.

$\mathbf{D}_{[jik]}$=(abccdef)=***J*** (abccdef)+***i*** (baccdef)+***K*** (cabcdef)

Step 2： The machine learning of the (seven-element number) grid memory to form the AB four logical value sequence, and to obtain the two balanced asymmetry subterms of the diagonal decomposition of the numerical center point of the grid in

[4-3].“4,12,20,24,[0],29,37,45”

Step 3：The logical value sequence is converted into a bit value sequence, as shown in the example, to obtain two asymmetric series with the center point at **[4-3]**. The symmetry of the bit value center zero point is satisfied, where $\Sigma(-\eta) + \Sigma(+\eta) = 0$, achieving balanced exchange combination decomposition and self-validation mechanism.

$$\{-\eta_{21},-\eta_{15},-\eta_5\}\leftrightarrow[\pm\eta_{[C]=0}]\leftrightarrow\{+\eta_3,+\eta_4,+\eta_{12},+\eta_{20}\},$$

The first and second logic bit values $\|A\|^{(K=\pm1)}$ and $\|B\|^{(K=\pm1)}$ are shown in the circuit diagram of the four logic values sequence, with the corresponding chip designed to implement the circuit.

5.9. The Connection Between Circular Logarithm Theory and Artificial Intelligence Logic Gates

5.9.1 [Digital Example 5] Application of Univariate Ninth-Order Equations and Artificial Intelligence Logic Gates

Given: A nine-element number is formed by any nine prime numbers (not limited to primes, it can be other natural numbers) from an infinite set. The numerical center point of the nine-element number is located between [3↔6] and maintains a balanced asymmetry.

Boundary function of true proposition：$\mathbf{D}=138373200=138\times10^6$；Characteristic mode：$\mathbf{Do}=11$；$11^9=2357\times10^6$；

logical numeric code：$\mathbf{D=16.014\times10^{12}}$；Characteristic mode：$\mathbf{Do}=41$；$41^9=327\times10^{12}$；

(5.9.1)
$$\{X\pm{}^{(9)}\sqrt{\mathbf{D}}\}^{(S=9)}=\{X\pm{}^{(9)}\sqrt{\mathbf{226540800}}\}^{(S=9)}$$
$$=X^{(S-0)}\pm BX^{(S-1)}+CX^{(S-2)}\pm DX^{(S-3)}+EX^{(S-4)}$$
$$\pm FX^{(S-5)}+GX^{(S-6)}\pm HX^{(S-7)}+LX^{(S-8)}\pm\mathbf{D}$$
$$=X^{(S-0)]}\pm9\{\mathbf{D_0}\}^{(S+1)}X^{(S-1)}+36\{\mathbf{D_0}\}^{(S+2)}X^{(S-2)}\pm84\{\mathbf{D_0}\}^{(S+3)}X^{(S-3)]}+126\{\mathbf{D_0}\}^{(S+4)}X^{(S-4)}$$
$$\pm126\{\mathbf{D_0}\}^{(S+5)}X^{(S-5)]}+84\{\mathbf{D_0}\}^{(S+6)}X^{(S-6)]}\pm36\{\mathbf{D_0}\}^{(S+7)}X^{(S-7)]}+9\{\mathbf{D_0}\}^{(S+8)}X^{(S-8)]}\pm\{\mathbf{D_0}\}^{(S+9)}$$
$$=(1-\eta^2)^K\{X_0\pm\mathbf{D}_0\}^{(S=9)}$$
$$=(1-\eta^2)^K\{(0,2)\cdot\mathbf{D}_0\}^{(S=9)};$$

Get: Dimensionless logarithm of the circle：$\mathbf{(1-\eta_D{}^2)}=126977760/11^9=0.0535$;

Offset range of zero point symmetryOffset range of zero point symmetry$\mathbf{(\pm\eta_{\Delta C}=?)}$

Check Sheets: Dimensionless Logical Bit Values：$\mathbf{(1-\eta_D{}^2)}=(\eta_{B3}=0.0488)$;

zero point symmetry range：$(\pm\eta_{\Delta C}=95)$;

$$B_3=\{(3,11,19)(\eta_{[\Delta C]}=41),\ (36,44,52,60,68,76)\}$$

asymmetry centerasymmetry center：

$$\eta_{B3}=\{(-\eta_{38},-\eta_{30},-\eta_{22})(\eta_{[C=0]}=\mathbf{0})(-\eta_5,+\eta_3,+\eta_{11},+\eta_{19},+\eta_{27},+\eta_{35})\}=\pm90;$$

zero of symmetry center：

$$\eta_{B3}=\{(-\eta_{38},-\eta_{30},-\eta_{22},-\eta_5)(\eta_{[C=0]}=\mathbf{0})(+\eta_3,+\eta_{11},+\eta_{19},+\eta_{27},+\eta_{35})\}=\pm95;$$

Mmachine learning （指令）：

（1），Dimensionless logic conversion factor：

$$\mathbf{\Omega=[}(\pm\eta_{\Delta C})/(\pm\eta_{\Delta C})]\cdot[\mathbf{(1-\eta_D{}^2)/(1-\eta_D{}^2)}]\cdot\mathbf{[Do/Do]};$$

（2），Bit value center zero point symmetry offset range

$$(\pm\eta_{\Delta C})=95\times(11/41)\times(0.0488/0.0535)=23.2;$$

（3），Select the integer values 23 and 24 for testing; the symmetry center zero point

$$(24/95)=(0.252);$$

（4），(0.252)leading-in ：

$$[\{(-\eta_{38},-\eta_{30},-\eta_{22})(\eta_{[C=0]}=\mathbf{0})(-\eta_5+\eta_3,+\eta_{11},+\eta_{19},+\eta_{27},+\eta_{35})\}]\times0.252$$
$$=\{(-\eta_{9.58},-\eta_{7.56},-\eta_{5.44})(\eta_{[C=0]}=\mathbf{0})(,-\eta_{1.2}+\eta_{0.76},+\eta_{2.8},+\eta_{4.8},+\eta_{6.8},+\eta_{8.8})\};\text{对应}(\pm\boldsymbol{\eta}_{23});$$

（5），Adjust: Select logic factor24，achieve balance symmetry：$\Sigma(-\eta_{\Delta C})+\Sigma(+\eta_{\Delta C})=0$；

$(-\boldsymbol{\eta}_{10},\ -\boldsymbol{\eta}_9,\ -\boldsymbol{\eta}_5),[\boldsymbol{\eta}_{[C]}],\ (+\boldsymbol{\eta}_1,+\boldsymbol{\eta}_2,+\boldsymbol{\eta}_3,+\boldsymbol{\eta}_4,+\boldsymbol{\eta}_6,+\boldsymbol{\eta}_8)=(-\boldsymbol{\eta}_{24})+(+\boldsymbol{\eta}_{24})=0$：corresponding,$(\pm\boldsymbol{\eta}_{24})$;

（6），Verification 1: It belongs to the "critical line equilibrium" category, satisfying the numerical center point equilibrium asymmetry [3↔6].

$$(1-\boldsymbol{\eta}_{[C]})=(-\boldsymbol{\eta}_{10},-\boldsymbol{\eta}_8,-\boldsymbol{\eta}_5),[0],(-\boldsymbol{\eta}_1+\boldsymbol{\eta}_2,+\boldsymbol{\eta}_3,+\boldsymbol{\eta}_4,+\boldsymbol{\eta}_6+\boldsymbol{\eta}_9)=(-\boldsymbol{\eta}_{23})+(+\boldsymbol{\eta}_{23})=0;$$

,（7），Verification 2: It belongs to "critical point symmetry" and satisfies the bit-value center zero-point balance symmetry [3↔6].

$$(1-\boldsymbol{\eta}_{[C]})=(-\boldsymbol{\eta}_{10},-\boldsymbol{\eta}_9,-\boldsymbol{\eta}_5),[0],(+\boldsymbol{\eta}_1+\boldsymbol{\eta}_2,+\boldsymbol{\eta}_3,+\boldsymbol{\eta}_4,+\boldsymbol{\eta}_6,+\boldsymbol{\eta}_8)=(-\boldsymbol{\eta}_{24})+(+\boldsymbol{\eta}_{24})=0;$$

（8），Infinite Axiom Balanced Exchange Combinatorial Decomposition and Random Self-Correcting Mechanism

$$(1-\boldsymbol{\eta}_{[10+9+5]}{}^2)^{(K=+1)}\{\mathbf{Do}\}^{(3)}\leftrightarrow(1-\boldsymbol{\eta}_{[C]}{}^2)^{(K=\pm0)}\{\mathbf{Do}\}^{(9)}\leftrightarrow(1-\boldsymbol{\eta}_{[1+2+3+4+6+8]}{}^2)^{(K=-1)}\{\mathbf{Do}\}^{(6)}\text{对应}(\pm\boldsymbol{\eta}_{24});$$

（9），Get: root element：

$a=(1-\eta_{\Delta Ca})\mathbf{Do}=(11-10)=\mathbf{1}$; $b=(1-\eta_{\Delta Cb})\mathbf{Do}=(11-9)=\mathbf{2}$; $c=(1-\eta_{\Delta Cc})\mathbf{Do}=(11-5)=\mathbf{6}$;
$d=(1-\eta_{\Delta Cd})\mathbf{Do}=(11+1)=\mathbf{12}$; $e=(1-\eta_{\Delta Ce})\mathbf{Do}=(11+2)=\mathbf{13}$; $f=(1-\eta_{\Delta Cf})\mathbf{Do}=(11+3)=\mathbf{14}$,
$g=(1-\eta_{\Delta Cg})\mathbf{Do}=(11+4)=\mathbf{15}$; $h=(1-\eta_{\Delta Ch})\mathbf{Do}=(11+6)=\mathbf{17}$; $l=(1-\eta_{\Delta Cl})\mathbf{Do}=(11+8)=\mathbf{19}$;

（10）, Verification 3: $\mathbf{D}=\mathbf{(1\times2\times6)\times(12\times13\times14\times15\times17\times19)}=(12)\times(10581480)=138373200$;(Match the question);
$\mathbf{Do}=(1/9)[\mathbf{(1+2+6)+(12+13+14+15+17+19)}]=11$;(Match the question);

Among them: Based on simple instructions, the table data processing is stored in memory, enabling automatic encoding. When elements increase, the number of computational probes will rise. Under the control of central zero symmetry, deep learning is employed to replace the human brain in performing the analytical or interpretable tasks of neural networks corresponding to quantum computing.

5.9.2、[Digital Example 2] Monomial Ninth-Order Zero-Order Equation-Deep Learning in Artificial Intelligence

Similarly, the solution can be computed manually or through machine learning auto-encoding. Given: a monic non-zero polynomial equation of degree 9 (S=9) with N=0; boundary function **D** corresponding $\{^{(9)}\sqrt{\mathbf{D}/\mathbf{D_0}}\}$; eigenvalues (original proposition): $\{\mathbf{D_0}\}=11$; $\mathbf{D_0}^{(9)}=2357947691$; eigenvalue of the 9-element lattice matrix $\{\mathbf{D_0}\}=41$. The center point is determined to be between [4-5]. Due to the asymmetric distribution of multi-element center points, different numerical analysis results are produced.

The nine-element combination coefficient form: 1：9：36：84：126：126：84：36：9：1;

Total combination coefficient value: $\{2\}^{(9)} = 512$ (see Figure 2).

Analysis: General solution for roots of a monomial cubic equation-Artificial Intelligence and Neurons (similar to Quantum Computing).

Dimensionless logical code circle logarithmic discriminant:

$$\Delta=(1-\eta_\Delta^2)=\{^{(9)}\sqrt{\mathbf{D}/\mathbf{D_0}}\}=(\mathbf{226540800/2357947691})=\mathbf{0.096};$$

Zero-order operation of a 9th-degree equation (original proposition) (usually no mathematical modeling required; use the logarithmic discriminant to look up tables or extract stored data):

(A) Equation – (or Machine Learning)

（1）logarithmic discriminant of circle：$\Delta=(1-\eta_\Delta^2)=\{^{(9)}\sqrt{\mathbf{D}/\mathbf{D_0}}\}=\{^{(9)}\sqrt{X/\mathbf{D_0}}\}=\{0,1\}$;

$$\{X\pm(^{(9)}\sqrt{\mathbf{D}}\}^{(S=9)}=\{X\pm(^{(9)}\sqrt{\mathbf{226540800}})\}^{(S=9)}$$
$$=X^{(S-0)}\pm BX^{(S-1)}+CX^{(S-2)}\pm DX^{(S-3)}+EX^{(S-4)}$$
$$\pm FX^{(S-5)}+GX^{(S-6)}\pm HX^{(S-7)}+LX^{(S-8)}\pm\mathbf{D}$$
$$=X^{(S-0)]}\pm9\{\mathbf{D_0}\}^{(S+1)}X^{(S-1)}+36\{\mathbf{D_0}\}^{(S+2)}X^{(S-2)}\pm84\{\mathbf{D_0}\}^{(S+3)}X^{(S-3)]}+126\{\mathbf{D_0}\}^{(S+4)}X^{(S-4)}$$
$$\pm126\{\mathbf{D_0}\}^{(S+5)}X^{(S-5)]}+84\{\mathbf{D_0}\}^{(S+6)}X^{(S-6)]}\pm36\{\mathbf{D_0}\}^{(S+7)}X^{(S-7)]}+9\{\mathbf{D_0}\}^{(S+8)}X^{(S-8)]}\pm\{\mathbf{D_0}\}^{(S+9)}$$
$$=(1-\eta^2)^K\{X_0\pm\mathbf{D}_0\}^{(S=9)}$$
$$=(1-\eta^2)^K\{(0,2)\cdot\mathbf{D}_0\}^{(S=9)};$$

（2）The 9th Power Equation of One Yuan-Quantum Computing Deep Learning Operation

$\{X-^{(9)}\sqrt{\mathbf{D}}\}^{(9)}=(1-\eta^2)^K\{(0)\cdot(^{(9)}\sqrt{\mathbf{226540800}})\}^{(9)}$; （Reduce combination, conversion point）
$\{X+^{(9)}\sqrt{\mathbf{D}}\}^{(9)}=(1-\eta^2)^K\{(2)\cdot(^{(9)}\sqrt{\mathbf{226540800}})\}^{(9)}$; （Add even items）
$\{X\pm^{(9)}\sqrt{\mathbf{D}}\}^{(9)}=(1-\eta^2)^K\{(0)\cdot(^{(9)}\sqrt{\mathbf{226540800}})\}^{(9)}$; （Periodic motion）

（3）Zero-point symmetry of logarithmic center of dimensionless circle：

$(1-\eta^2)^K=\Sigma(1-\eta^2)^{(K=+1)}+\Sigma(1-\eta^2)^{(K=-1)}=\{0,1\}$; corresponding characteristic mode $\{\mathbf{D}_0^{(1)}\}=\{\mathbf{11}\}^{(1)}$

（4）Root analysis of monomorphisms of higher-order polynomials and quantum computations for multivariate functions (abcde...s), with analytical solutions for both central points and central zeros:

$$(1-\eta_{[a]}^2)^K\mathbf{Do}\}^{K(S\pm(\pm(N=-2)(\pm q=1)}; (1-\eta_{[b]}^2)^K\mathbf{Do}\}^{K(S\pm(\pm(N=-2)(\pm q=1)}; \ldots\ldots; (1-\eta_{[s]}^2)^K\mathbf{Do}\}^{K(S\pm(\pm(N=-2)(\pm q=1)};$$

（B）In artificial intelligence, the high functional advantages of applied physical tools are utilized, employing the nine-element 'dual logic code' grid network (numerical/bit value) and (memory or lookup table) (refer to Figure 2).

（1）actual proposition：$(1-\eta^2)^K=\{^{(9)}\sqrt{\mathbf{D}/\mathbf{D_0}}\}^{(9)}=0.117$，characteristic mode of actual proposition $\mathbf{Do}^{(1)}=11$, logical code feature module $\{\mathbf{D_0}\}=\mathbf{41}$;

（2）The asymmetric logic numerical code of the numerical center point is obtained as $(1-\eta^2)^K=0.096$, which is close to 0.117 (derived through deep learning comparison).

（3）Dimensionless logic conversion factor：

$$\mathbf{\Omega}=\mathbf{Do}^{(1)}/\mathbf{Do}=(11/\mathbf{41})=0.25;\ (\pm\eta)^K=95\times(11/\mathbf{41})=25.5=26$$

（4）Deep learning corresponds to logical values B_{13}：

$$B_{13}=\mathbf{D}=\prod\{5\times15\times25\times35\times45\times46\times56\times86\times96\}=38.158\times10^{12}。$$

（5）Deep learning corresponding logic bit value：

$$B_{13}=\{(-\eta_{38}-\eta_{30}-\eta_{22})(\eta_{[C=0]}=41)(-\eta_5+\eta_3+\eta_{11}+\eta_{19}+\eta_{27}+\eta_{35})\}; (\pm\eta_3=95);$$

（6）Deep learning based on the logic code : $\Sigma(\pm\eta)^K=26$:

（7）The zero-point symmetry of the deep learning center satisfies

$$(\pm\eta)^K=\pm 26; \quad \Sigma(-\eta)^K+\Sigma(+\eta)^K=(-26)+(+26)=0;$$

（8）Deep Learning Random Self-Verification Mechanism: Implemented in Four-Logic Gates

$$\{(11\text{-}9),(11\text{-}8),(11\text{-}6),(11\text{-}2),(11\text{-}1)\}^{(K=+1)},[0]^{(K=\pm0)},\{(11+1),(11+5),(11+8),(11+12)\}^{(K=-1)}=\{0\};$$

（9）Deep learning root element parsing (automatically selected by logic code: integer)

$$\{5,15,25,35,4546,56,86,96\}\cdot(11/\mathbf{41})\leftrightarrow\{2,3,5,9,10,12,16,19,23\};$$

（10）Number of roots a=2；b=3；c=5；d=9；e=10；f=12；g=16；h=19；l=23；

（11）Validation:

$$\mathbf{D}=\{2\times3\times5\times9\times10\times12\times16\times19\times23\}=226540800; \quad D_0^{(1)}=11;$$ （Match the question）；

5.9.3、[Example 3] A first-order, ninth-degree, second-order differential equation (energy and function) (A), with the following mathematical operation method:

Similarly, the calculation can be performed manually or through machine learning auto-encoding. Given: the power of the equation dimension (S=9); calculus (S+N=-2) represents the combination coefficient of the third term sub-term in the polynomial: $[2!/(S-0)(S-1)]^{(-1)}$;

Boundary function ：$\mathbf{D=226540800}^{(S+N=-2)}=({}^{(9)}\sqrt{\mathbf{226540800}})^{(2)}$; For comparison, the numerical value from Example (4.3) is still used.。

characteristic mode：$\{\mathbf{D_0}\}=\mathbf{11}$; $\mathbf{D_0^{(9)}=2357947691}$;

The center point must be between [4-5] (this is a mandatory condition, as different center point positions result in different root element distribution structures).

The nine-element combination coefficient is: 1：9：36：84：126：126：84：36：9：1.

The total combination coefficient is: $\{2\}^{(9)}=512$.

Analysis: General solution for a monic non-zero polynomial equation-Artificial Intelligence Deep Learning.

Dimensionless logical code circle logarithmic discriminant:

$$\Delta=(1-\eta_\Delta^2)=\{{}^{(9)}\sqrt{\mathbf{D/D_0}}\}=(226540800/2357947691)=0.096;$$

Zero-order operations for a cubic equation (original proposition) (typically no mathematical modeling required, applying the discriminant of the circular logarithm suffices):

Equation-Deep Learning Import: $\Delta=(1-\eta_\Delta^2)=\{{}^{(9)}\sqrt{\mathbf{D/D_0}}\}=\{{}^{(9)}\sqrt{X/\mathbf{D_0}}\}=\{0,1\}$;

$$\{X\pm({}^{(9)}\sqrt{\mathbf{D}}\}^{(S+N=-2)}=\{X\pm({}^{(9)}\sqrt{\mathbf{226540800}})\}^{(S+N=-2)}$$
$$=\underline{X^{(S-0)}\pm BX^{(S-1)}}+CX^{(S-2)(S+N=-2)}\pm DX^{(S-3)(S+N=-2)}+EX^{(S-4)(S+N=-2)}$$
$$\pm FX^{(S-5)(S+N=-2)}+GX^{(S-6)(S+N=-2)}\pm HX^{(S-7)(S+N=-2)}+\underline{LX^{(S-8)(S+N=-2)}\pm\mathbf{D}^{(S+N=-2)}}$$
$$=+36\{\mathbf{D_0}\}^{(S+2)(S+N=-2)}X^{(S-2)(S+N=-2)}\pm84\{\mathbf{D_0}\}^{(S+3)(S+N=-2)}X^{(S-3)(S+N=-2)}$$
$$+126\{\mathbf{D_0}\}^{(S+4)(S+N=-2)}X^{(S-4)(S+N=-2)}\pm126\{\mathbf{D_0}\}^{(S+5)(S+N=-2)}X^{(S-5)(S+N=-2)}$$
$$+84\{\mathbf{D_0}\}^{(S+6)(S+N=-2)}X^{(S-6)(S+N=-2)}\pm36\{\mathbf{D_0}\}^{(S+7)(S+N=-2)}X^{(S-7)](S+N=-2)}\pm\{\mathbf{D_0}\}^{(S+9)(S+N=-2)}$$
$$=(1-\eta^2)^K\cdot\{X_0\pm\mathbf{D_0}\}^{(S=9)(S+N=-2)}$$
$$=(1-\eta^2)^K\cdot\{(0,2)\cdot\mathbf{D_0}\}^{(S=9)};$$

Results of deep learning computation for a 9th power equation

$\{X-{}^{(9)}\sqrt{\mathbf{D}}\}^{(9)(S+N=-2)}=(1-\eta^2)^K\{(0)\cdot({}^{(9)}\sqrt{\mathbf{226540800}})\}^{(9)(S+N=-2)}$; （Reduce combination, conversion point）

$\{X+{}^{(9)}\sqrt{\mathbf{D}}\}^{(9)(S+N=-2)}=(1-\eta^2)^K\{(2)\cdot({}^{(9)}\sqrt{\mathbf{226540800}})\}^{(9)(S+N=-2)}$; （Add even items）

$\{X\pm{}^{(9)}\sqrt{\mathbf{D}}\}^{(9)(S+N=-2)}=(1-\eta^2)^K\{(0,2)\cdot({}^{(9)}\sqrt{\mathbf{226540800}})\}^{(9)(S+N=-2)}$; （Periodic motion）

Zero-point symmetry of dimensionless circle logarithm (deep learning random self-validation)：

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

corresponding characteristic mode $\{\mathbf{D_0^{(9)}}\}=\{11\}^{(9)}$

where: when the calculus order changes, it does not affect the combination form of all elements, but only manifests as: "first order (-N=1) missing the first term (q=0)"; "second order (-N=2) missing the first and second terms (q=0,1)"; during integration, it is restored according to the order (+N=1,2).

（1）、The calculation method for the second-order dynamic root element count follows the same principle as that for zero-order equations: the root element ∂2a is expressed as a (where N=±2).

$$a^{(N=\pm2)}=2;\ b^{(N=\pm2)}=3;\ c^{(N=\pm2)}=5;\ d^{(N=\pm2)}=9;\ e^{(N=\pm2)}=10,$$
$$f^{(N=\pm2)}=12;\ g^{(N=\pm2)}=16;\ h^{(N=\pm2)}=19;\ l^{(N=\pm2)}=23;$$

（2）、Second-order dynamic (energy, kinetic energy) exchange rule of calculus:

The infinite axiom of [-9↔+9] is balanced exchange and random self-proving mechanism without changing the true proposition of the monic 9th power equation, characteristic mode, isomorphism circle logarithm and the symmetry of the zero point of the circle logarithm.

$$\partial^{(2)}\boldsymbol{JiK}\, X_{[jik+...]}{}^{(9)(S+N=-2)}=\partial^{(2)}\boldsymbol{JiK}(x_1x_2x_3)=(1-\eta_{[jik+...]})^{(K=+1)}\{\mathbf{D_0}^{(3)}\}^{K(S\pm(N=-2)\pm(q=3)/t}$$
$$\leftrightarrow[(1-\eta_{[jik+...]})^{(K=+1)}\leftrightarrow(1-\eta_{[C][jik+...]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik+...]})^{(K=-1)}]\cdot\{\mathbf{D_0}^{(9)}\}^{(K=\pm1)K(S\pm(N=-2)\pm(q=9)/t}$$
$$\leftrightarrow[(1-\eta_{[jik+...]})^{(K=-1)}]\cdot\{\mathbf{D_0}^{(9)}\}^{(K=-1)(S\pm(N=-2)\pm(q=9)/t};$$

（3）、The 'Infinite Axiom' equilibrium exchange mechanism for stochastic self-validation of truth and falsehood achieves dynamic equilibrium between the central zero point and its two sides (demonstratively set as a nine-element central point 'five elements↔four elements') with [5↔4]. This mechanism demonstrates the numerical central point's equilibrium asymmetry and the zero point's balance exchange with dimensionless logical bit values.

$$\partial^{(2)}(X_A)^{(K=+1)(S\pm(q=5)/t}=(1-\eta^2)^{(K=+1)}\{\mathbf{11}^{(5)}\}^{(K=+1)(S\pm(N=-2)\pm(q=5)/t}$$
$$\leftrightarrow[(1-\eta_A{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_B{}^2)^{(K=-1)}]\cdot\{\mathbf{11}^{(9)}\}^{(K=\pm1)(S\pm(N=-2)\pm(q=9)/t}$$
$$\leftrightarrow(1-\eta_B{}^2)^K]\cdot\{\mathbf{11}^{(4)}\}^{(K=-1)(S\pm(q=4)/t}=\partial^{(2)}(X_B)^{(K=+1)(S\pm(q=4)/t};$$

Specifically, the operation [+5↔+4] represents a same-side exchange that preserves the properties, while [+5↔-4]
denotes a different-side exchange that alters the properties. Both types of exchanges require the central zero point ($1-\boldsymbol{\eta}_{[C]}{}^2$) (where K=±0) to be achieved through projections, mappings, or morphisms.

The dynamic equilibrium exchange mechanism between the three-dimensional rotational space and the 'infinite axiom' achieves a balance through random self-validation. This process involves asymmetric distribution of nine-element numbers around the central point, with interactions analyzed through the central point's position. Specifically, it represents the equilibrium exchange between the first element and the other eight elements (A, B). Notably, this exchange is strictly controlled within the four-logical-value (A, B, second-order) variation that maintains the total characteristic modulus unchanged.

（B）、Artificial Intelligence Turing Machine Computation and Automatic Coding

Under the same conditions as in the example above, the center point of the nine-element number (abcdefghl) is balanced between the elements (abcde, [0], fghl) [4-5]. The characteristic modulus $\{11^{(9)}\}$ remains unchanged.

(a) Region A-B of the four-state value: [5↔4] where different attributes (A-abcde) $^{(K=+1)}$ and (B-fghl) $^{(K=-1)}$ are exchanged

$$\partial^{(2)}(x_{[A\text{-}abcde]})^{(K=+1)}=(1-\eta_{[A]}{}^2)^{(K=+1)}\{\mathbf{11}^{(1)}\}^{(K=+1)(S\pm(N=-2)\pm(q=abcde)/t}$$
$$\leftrightarrow[(1-\eta_{[A]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]abcdefghl}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[B]}{}^2)^{(K=-1)}]\cdot\{\mathbf{11}^{(9)}\}^{(K=\pm1)(K=\pm1)(S\pm(N=-2)\pm(q=abcdefghl)/t}$$
$$\leftrightarrow(1-\eta_{[B]}{}^2)^K]\cdot\{\mathbf{11}^{(4)}\}^{(K=-1)}=\partial^{(2)}(x_{[B\text{-}fghl]})^{(K=-1)(S\pm(q=fghl)/t};$$

In this context, both the different attributes $(1-\eta_{[a\text{-}bcde]}{}^2)^{(K=+1)}$ and $(1-\eta_{[f\text{-}ghl]}{}^2)^{(K=-1)}$ require equilibrium exchange through $(1-\eta_{[C]abcdefghl}{}^2)^{(K=\pm0)}$).

(b)，The A region of the four-loops value: Same side: (A-a) $^{(K=+1)}$ and (A-bcde) $^{(K=+1)}$ balance internal (1 and 4) (K=+1) exchange

$$\partial^{(2)}(x_{Aa})^{(K=+1)}=(1-\eta_{[Aa]}{}^2)^{(K=+1)}\{\mathbf{11}^{(1)}\}^{(K=+1)(S\pm(N=-2)\pm(q=1)/t}$$
$$\leftrightarrow[(1-\eta_{Aa}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]abcdefghl}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[A\text{-}bcde]}{}^2)^{(K=-1)}]\cdot\{\mathbf{11}^{(9)}\}^{(K=\pm1)(K=\pm1)(S\pm(N=-2)\pm(q=abcde)/t}$$
$$\leftrightarrow(1-\eta_{[A\text{-}bcde]}{}^2)^K]\cdot\{\mathbf{11}^{(4)}\}^{(K=-1)}=\partial^{(2)}(x_{[A\text{-}bcde]})^{(K=-1)(K=\pm1)(S\pm(q=4)/t};$$

(c)，B region of the four-logic values: Same side: (B-f) and (B-ghl) logical bit values balanced internally (1 and 3) exchange

$$\partial^{(2)}(x_{[Bf]})^{(K=-1)}=(1-\eta_{[Bf]}{}^2)^{(K=-1)}\{\mathbf{11}^{(1)}\}^{(K=-1)(S\pm(N=-2)\pm(q=f)/t}$$
$$\leftrightarrow[(1-\eta_{[Bf]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[C]abcdefghl}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[B\text{-}ghl]}{}^2)^{(K=-1)}]\cdot\{\mathbf{11}^{(9)}\}^{(K=-1)(S\pm(N=-2)\pm(q=fghl)/t}$$
$$\leftrightarrow(1-\eta_{[B\text{-}ghl]}{}^2)^K]\cdot\{\mathbf{11}^{(3)}\}^{(K=-1)(S\pm(N=-2)\pm(q=3)/t}=\partial^{(2)}(x_{[B\text{-}ghl]})^{(K=-1)(S\pm(q=ghl)/t};$$

$(1-\eta_{[a\text{-}bcde]}{}^2)^{(K=+1}$ and $(1-\eta_{[f\text{-}ghl]}{}^2)^{(K=-1)}$ both require $(1-\eta_{[C]abcdefghl}{}^2)^{(K=\pm0)}$.

Within the same region, the property sign remains unchanged, and equilibrium exchange still occurs under the same characteristic mode condition.

(Figure 14.1) Analog-to-digital conversion in virtual world

The general solution of the monic polynomial equation, with the same characteristic mode and boundary function, can produce different root values (multiplication combination) with the balance asymmetry of the numerical center point moving, and the "double logic grid" can quickly calculate different root elements.

The traditional physical world simulates digital quantities, converting them into (0/1) low-density information transmission: 4×8=32 or 8×8=64 virtual worlds.

(Figures 14.2 and 14.3) Analog-to-digital conversion to logical circle representation

(Figure 14.2-1) The sinusoidal curve of logical bit value code represents the transition from a digitalized world to a imensionless logical circle system. Information symbols are transmitted or output as (1/0) high-density symbols.

(Figure 14.2-2) The sinusoidal curve of four-valued logic codes, where the numerical matrix represents the symmetry $(0/0)^{(K=\pm1)}$ of the four-valued logic code matrix during internal memory transmission.

(Figure 14.2-3) The internal memory transmits the corresponding "dual logic (numerical/bit) codes" for processing (AND/OR operations) and mutual inversion conversion between logic numerical codes and bit values. Notably, the symmetry $(0/1)^{(K=\pm1)}$ of the four-valued logic code sinusoidal curve incorporates $(0/1)^{(K=\pm0)}$ to form a "NOT gate," featuring balanced exchange and random self-validation error correction mechanisms to ensure zero-error deduction.

Dual logic code tables can be stored in memory, achieving integrated storage-computation. In big data search environments, these codes are converted into high-density circular logarithmic (0/1) information transmission symbols.

The logarithm of a circle is derived by solving the "linear equations of the 2nd, 3rd, 4th, 5th, 7th, and 9th powers" as described above. If the elements of the equation correspond to the natural numbers

{1,2,3}, {1,2,3,4,5}, {1,2,3,4,5,6,7}, {1,2,4,5,6,7,8,9}

as logical value codes, they are converted into the corresponding logical bit value codes.

$\{\eta_1,\eta_2,\eta_3\}$、$\{\{\eta_1,\eta_2,\eta_3,,\eta_4,\eta_5\}$、$\{\eta_1,\eta_2,\eta_3,,\eta_4,\eta_5,\}$、$\{\eta_1,\eta_2,\eta_3,,\eta_4,\eta_5,\eta_6,\eta_7,\eta_8,\eta_9\}$,

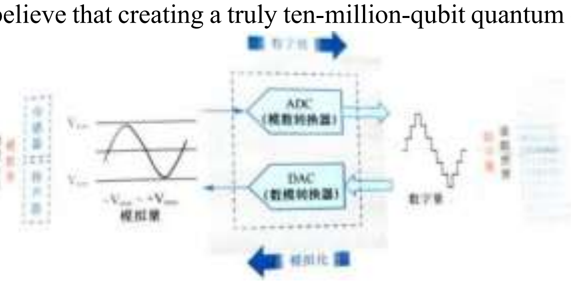
The three-dimensional chip architectures are respectively defined as "3×3×3=27", "5×5×5=125", "7×7×7=343", and "9×9×9=729", collectively termed as three-dimensional "dual logic (digital/bit) codes".

These codes are applied in artificial intelligence to achieve high-density information transmission (1/0)↔(0/0)↔(0/1), which will fundamentally enhance computational power

6. Dual-Logic (Numeric/Bit) Codes and Memory

6.1: Historical Background of Memory

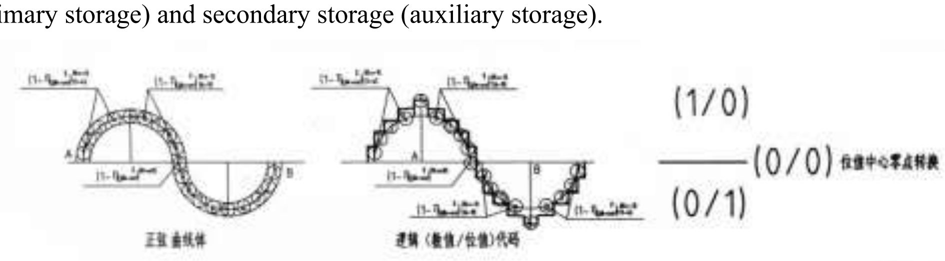
To meet the demands of scientific development, many technology departments are striving to improve the cost-effectiveness of quantum bit computing power, storage, and transmission in the face of massive data. The "93" progress of Academician Pan Jianwei's team in China has reached "285" bits. The next model aims to achieve "1000" bits. Many experts at home and abroad believe that creating a truly ten-million-qubit quantum computer requires more than



one million qubits. It is challenging to achieve this target according to the current operating modes of computers.

In computer systems, memory serves as the core component for storing data and programs. RAM (Random Access Memory) utilizes CMOS transistors or magnetic materials as memory cells, where each cell can hold a binary code. Multiple memory cells form a storage unit, and each bit value is assigned a unique number—known as an address, typically expressed in hexadecimal. This method parallels the previously demonstrated "one-element quartic equation and four-color theorem."

Memory is generally classified into two categories based on factors such as access speed, cost, and capacity: main memory (primary storage) and secondary storage (auxiliary storage).



Memory, also known as Random Access Memory (RAM), is the most direct and fastest storage device in computers. It is characterized by fast read/write speeds but higher costs, and data is lost when power is cut off. This means memory is ideal for storing currently used data and programs, ensuring the efficient operation of computer systems.

External storage, also known as auxiliary memory, includes hard disk drives (HDD), solid-state drives (SSD), optical discs, and USB flash drives. Its key features include large capacity, relatively low cost, and data retention even after power loss. These characteristics make external storage an ideal choice for long-term data storage, where operating systems, applications, and user files can all be located. Modern RAM optimization technologies include: Multi-channel architecture (e.g., dual-channel DDR) to enhance bandwidth; prefetching mechanisms that read multiple consecutive data blocks at once (e.g., DDR4's 8n prefetch); and Error Correction Codes (ECC) used in server RAM to detect and correct bit errors. Many AI experts believe that the first bottleneck in AI computing power explosion lies in data transmission functionality and efficiency. Current computer logic gate-based {00 11 10 01} systems, which establish "one-to-one" correspondence $\{2\}^{\wedge 2n}$ through each unit storing 1 bit (0 or 1), represent low-density information transmission. Chip designs have reached the "1-nanometer" technical limit, covering intricate networks of interwoven lines and discrete components to cool and control tiny chips hidden beneath low-temperature thermostats. This has entered a phase where circuit complexity far exceeds the complexity of quantum devices themselves.

Current computer systems face several critical challenges, with algorithmic issues being a primary concern. Traditional computers' "discrete-symmetric" assumption makes it difficult to control central points and zero points, often resulting in "pattern collapse and confusion," which highlights fundamental flaws in the algorithm. To address this, the application of circular logarithm manifests as a "discrete symmetry and asymmetry" type "$(1-\eta_{[C]abcdefghl]}{}^{2})$ $(K=\pm 0)=\{0,1\}$," resolving the mutual conversion between central point balance asymmetry and zero point balance symmetry. In other words, computer algorithms require a complete overhaul.

Computational power challenges: Current computer logic gates employ a 'one-to-one' approach for low-density data transmission, which limits computational efficiency. To overcome this limitation, the application of logarithmic circuits enables 'one-to-many' logic gate configurations for high-density data transmission, fundamentally enhancing computational power. This indicates that a complete overhaul of computer data transmission methods is imperative.

(3) Data processing issues: Many research institutions are employing "distillation" techniques for data processing, which merely involves procedural improvements without addressing the fundamental nature of data processing—its inherent invariance. In other words, computer-based data processing methods require a complete overhaul.

The renowned American analyst Ma Lin stated: "To date, they are prone to errors." He pointed out that "the latest advancements in error rate, scalability, and classical integration suggest that the next five years may redefine the boundaries of computational capabilities, with quantum computing approaching a critical turning point."

Numerous mathematicians and AI experts worldwide are asking this question.

Where is the critical turning point of quantum computing?

When will the third generation of artificial intelligence trend appear?

The third-generation artificial intelligence should possess its own unique "knowledge, data processing, algorithms, computational power, and new AI technologies." In other words, if the dimensionless logical circle (logarithm of circles) resolves the aforementioned "several critical issues in computer existence" and establishes a novel mathematical-AI knowledge system, it would signify the "critical turning point of quantum computing," the advent of the "third-generation artificial intelligence," the "universal quantum computer," and the era of the "logarithm of circles theory."

6.2. Integration of Computer Technology with the Latest Scientific Advances

6.2.1， According to the plan in Chapter 6 of the article, the application of logarithmic connection artificial intelligence computers is to be realized. Coincidentally, on December 27,2025, China Huawei announced to the world: the "6th Olympian Award Global Solicitation" has been launched, focusing on the storage challenges in the AI era, proposing two directions and five problems. These forward-looking issues are common to artificial intelligence in various countries around the world, and are precisely the root cause of the inherent difficulties in computers' "memory and data foundation." They are also the fundamental problems that need to be urgently addressed for the miniaturization, intelligence, zero error, and energy efficiency of third-generation artificial intelligence.

However, most experts have approached the third-generation reform of artificial intelligence from a physical perspective, such as superconducting materials and chip parallelism. Has it been effective? Yes! This is an undeniable achievement. It is widely acknowledged that machine learning, driven by high-order iterative methods in big data, achieves zero error despite the increasing scale of data.

The result of this method is:

(1) only large enterprises can achieve it, and small enterprises have no such ability and conditions.

(2) It requires a large amount of electricity, costs, investments, physical electronic circuits and accessories, leading to a series of problems such as resource waste and environmental protection. Some experts have proposed innovative algorithms, attempting to drive computer reform through mathematical calculations. However, the reality of mathematics is that "(Cardan) general solution of cubic equations" has not been solved. The former Soviet Union, Japan, Huawei, and others have actively explored computer processing of "ternary numbers and three-dimensional space," with some achieving satisfactory results and others failing.

（1）No one had anticipated that the binary (0/1) code used in computer data transmission actually embodies a profound natural law: while maintaining its fundamental binary nature, it enables high-density information transfer. This breakthrough stems from the mathematical concept of dimensionless logarithmic logic circles, which revolutionized the solution of polynomial equations.

（2）The questions solicited by the Huawei Olympus Award globally guided the author to propose a unified solution for the global AI reform algorithm and computing power—the third-generation AI's inherent challenge of "memory and data infrastructure": the first proposal of a logarithmic "dimensionless logic and unique' infinite axiom' balanced exchange random self-validation mechanism".

（3）、Encoder (DAC): The system integrates three-dimensional physical data retrieval and compression. Traditional virtual world characters (e.g., '4×8=32' or '8×8=64' in binary format) are transformed into a logical circular world (1/0), enabling high-density information transmission.

The forward dual logic (digital/bit code) {1000} (1/0) generates a balanced conversion output ↔ (0/0) for random self-validation error correction ↔ (0/1) ↔. The decoder (ADC) receives high-density information transmission symbols from logic gates (0/1) and converts them back to the three-dimensional physical world through the reverse dual logic (digital/bit code) {0111} logical circle.

It fundamentally addresses the 'slimming down' of memory, achieving simplicity, high speed, and compactness, while revolutionizing the integration of mathematical-ai knowledge, data processing, algorithms, and computational power.

6.2.2. The Integration of Circular Logarithm Theory with the Latest Scientific and Technological Progress

Currently, artificial intelligence (AI) has been widely applied globally, permeating reforms and applications across every scientific field, as well as influencing national affairs from daily life to economic development and national defense security. However, humanity has not yet reached its full potential. Numerous countries, enterprises, and scientific institutions are investing substantial funds, human resources, and material resources to continuously explore new avenues for development.

Internationally, AI countries represented by China and the United States, as well as numerous scientific and technological departments worldwide, have engaged in fierce competition. Rational competition can mutually promote the development of mathematics-artificial intelligence, which is conducive to human progress and development.

The United States pioneered the development of artificial intelligence programs and operational frameworks. Building upon AI models like Transformer and Diffusion architectures, it mastered programming languages including Python, C++, and Java, along with their syntax, data structures, and algorithms. These technologies have become a cornerstone of global programming practices, while AI systems demonstrate the practical advantages of quantum computing in solving real-world problems.

China started artificial intelligence relatively late. Huawei's ASIC dedicated chips combined with the Zhi Autonomous Architecture approach completely bypassed NVIDIA's technological barriers. Now, Baidu's Wenxin Yiyang and Alibaba's Tongyi Qianwen have all switched to Ascend chips. Even more impressive is their DUV multiple exposure technology, which achieved "7nm" level without EUV. From chip design by Huawei to manufacturing by SMIC and Yangtze Memory Technologies, China has established an independently controllable semiconductor system. The Spanish Academy of Sciences has observed that a three-layer graphene (MATTG) structure exhibits superconductivity when twisted at specific angles, flattening electrons and enabling remarkable quantum behavior—a phenomenon termed "twisted electronics." This marks the dawn of a new physics discipline, soon to break free from energy constraints. The method of enhancing material technology through "three-layer graphene twisting" is likely linked to the three-dimensional complex analysis of logarithmic circles in terms of knowledge.

A research team led by Kim Yeon-min at the Korea Advanced Institute of Science and Technology has developed a self-learning and self-adjusting chip with functions identical to real neurons. Previous neuromorphic chips attempting to mimic brain operations could only simulate inter-neuronal communication, failing to achieve autonomous learning by individual neurons. This device, named "frequency-switching" neural transistors, can independently realize both "memory" and "response," making it more akin to neural cells than previous devices. For instance, when a large number of artificial neurons are "disabled or damaged," the remaining neurons compensate for the lost functionality by adjusting their sensitivity, thanks to the inherent plasticity of the core feature of "self-learning." This indicates that physical failures can still allow continued operation, marking the evolution of "learning machines" into a new phase. The "memory" and "response" functions of this "frequency" device resemble a dual-logic (numerical/bit value) code with circular logarithmic patterns. The asymmetry of the central point in the logical numerical matrix (memory) and the zero-symmetry of the central bit value matrix (response) enable balanced exchange, combination, and decomposition.

China has not lagged behind, pioneering a new approach by proposing a "silicon photonics module" corresponding to a photonic chip, which transforms "electronic flow of information" into "photons traveling at the speed of light." In June 2025, the first 6-inch thin-film niobium photonic chip production line was officially announced to begin mass production. In other words, the traditional "optical module" is being penetrated by a beam of "silicon light," creating a "light source" for the optical module, which will significantly enhance high-density information transmission.

6.2.3，Circular Logarithm Theory and the Integration of Mathematics and Artificial Intelligence

Today, the expansion of artificial intelligence into neural networks and intelligent systems has forced the close integration of mathematics and artificial intelligence. However, the existing "discrete-symmetry algorithms" and memory structures in computers have encountered insurmountable inherent difficulties.

(1) Mathematical requirements: The difficulty in solving analytic problems of monomial higher-degree equations lies in the existence of "symmetry and asymmetry" in algebraic 簇群 combinations. For instance, Hilbert proposed 23 mathematical problems in 1900, and to this day, the simplest monomial higher-degree equation has not been satisfactorily resolved.

(2) Computational requirements: The data model compression problem is challenging because only the "one-to-one" symmetric determinant (0/1) is computationally feasible. However, in big data scenarios, compressing diverse determinants (including symmetric and asymmetric) into neural networks, and subsequently distinguishing between neural networks, data networks, and information networks at various levels and nodes, presents significant challenges.

(3) Mathematics-AI requirements: Computer workflow: Output end:

Big data model compression "symbol (0/1)" ↔ "information transmission as" symbol (0/0) " ↔ Reception end: "symbol (0/1)" structure decomposition. To date, no satisfactory solution has been achieved.

The circular logarithmic theory demonstrates the integration of classical and logical analysis in third-generation artificial intelligence (AI) knowledge systems. By introducing the concept of "mathematics-AI," it proposes a unique dimensionless logical circle framework featuring "mathematical models without specific data elements" and "an infinite axiom-based equilibrium exchange mechanism with random self-validation and error correction." To optimize existing computer systems, it develops "dual-logic (numerical/bit-level) codes" and "**2D/3D** chip design principles," along with an intelligent agent architecture combining logical circles with parallel and serial operations. This approach fundamentally enhances transmission speed, achieves zero-error algorithms, and delivers infinite computational power, laying a solid foundation for quantum practical applications.

6.3 Circular logarithm data processing and memory

6.3.1 Circular logarithm and memory

Huawei initiated the Huawei Olympus Awards in 2019, aiming to promote fundamental theoretical research in the global data storage field, break through key technological bottlenecks, accelerate the industrialization of scientific research achievements, and solicit innovative solutions from researchers worldwide. The Huawei 2024 Olympus Awards focus on two major challenges in the AI era, featuring a global call for progress in artificial intelligence, with an emphasis on addressing storage challenges in the AI era. It openly invites solutions from researchers worldwide. Data storage challenges—storage technologies with extreme cost-effectiveness per bit and new data foundations for the AI era.

Today, China has achieved domestic production of components such as CPUs, memory, and solid-state drives (SSDs), with the only component that remains undomesticated being hard disk drives (HDDs). To address the domestic production of "memory".

Specifically, hard disk drives (HDDs) utilize magnetic storage technology, relying on high-speed rotating disks and magnetic heads for data read/write operations, while solid-state drives (SSDs) store data using NAND Flash memory chips. The choice between HDDs and SSDs depends on users' specific requirements and budget. For faster system response and higher performance, SSDs are recommended; for larger storage capacity and lower cost, HDDs are preferable. For applications requiring both performance and storage capacity, a dual-logic (numerical/bit value) code using the circular logarithmic scheme {1000↔(0/1)↔0111} can be implemented to integrate HDDs and SSDs. This approach embodies miniaturization, intelligence, high speed, and zero error, enhancing efficiency and functionality while promoting domestic production. Physical solutions are not discussed in this proposal.

On December 27,2025, Huawei's 6th Olympus Awards officially kicked off.

Here, regarding the establishment of the Huawei Olympus Award in two directions and five aspects, the rationale and application of the circular logarithm solution are proposed:

(1) The basis for proposing the circular logarithm solution:

The rationale behind the circular logarithm proposal: This framework establishes a theoretical and practical integration of classical analysis and logical analysis in mathematical-artificial intelligence systems. Grounded in dimensionless logical circles (circular logarithms), it introduces isomorphic dual-logical codes (numerical/bit value) and three-dimensional complex analysis rules, along with a unique infinite axiom-based mechanism for balanced exchange, combination decomposition, and randomized self-validation error correction. The system incorporates traditional computer program execution algorithms and data storage units, while optimizing conventional binary (0/1) memory structures for streamlined performance. The "data storage + processor" architecture advances from low-density {00 11 01 10} one-to-one data transmission to high-density {**1000 ↔0000↔0111**} transmission.

To achieve the replacement of the entire chaotic control research system with a single integrated chip. Improve the transmission capability and computing power of the chip. Fundamentally leverage the advantages of artificial intelligence: high efficiency, low consumption, low energy, high computing power, and robustness. It has the highest open-source nature and the highest privacy. A novel, independent, reliable, and secure artificial intelligence computer with China characteristics has been established.

The circular logarithm addresses three key challenges:

First, it enables generative encoding and intelligent task processing. By 2025, large language models will evolve from basic Q&A systems to advanced tools and navigation systems. The analytical and combinatorial methods for solving higher-order linear equations—such as the arithmetic mean $\{\mathbf{D_0^{(S)}}\}$—can operate with known boundary functions **D**, eliminating the need for "mathematical modeling." Leveraging simple high-density information transmission that preserves $\mathbf{(0/1)^{(K=\pm1)}}$ invariance, automatic encoding removes the barrier of "learning grammar first," allowing users to clearly articulate their needs.

Secondly: Establishing mechanical interpretability through circular logarithm. In 2026, Deepseek will focus on mapping the response spectra of large language models, which essentially involves analyzing and synthesizing multi-quantum states (symmetry and asymmetry). This requires circular logarithm to efficiently resolve the roots of univariate higher-order equations with bidirectional reversibility and general quantum solutions. Future market demands: Each computing entity must develop or select response spectra of varying scales for large language models based on Corporate or market needs, ensuring privacy protection.

Thirdly, current mathematical and artificial intelligence approaches have yet to satisfactorily address the mutual reversibility of roots and general quantum solutions for monic polynomial equations. In 2026, mechanical interpretability became an urgent task: "Mechanical interpretability seeks to reverse-engineer neural networks," analogous to how compilers maintain $\mathbf{(0/1)^{(K=\pm1)}}$ invariance for binary computer programs. In the context of logarithmic representation, open-source "dual logic (numerical/bitwise) code" has successfully achieved zero-error computation at each step. Matthias, the 2025 Nobel Prize in Physics laureate, proposed that a single integrated chip should replace the entire complex control research system. He suggested focusing on physical experiments as the starting point. He proposed that efforts should be made to ensure "computers do not alter the (0/1) nature of information, while enhancing the chip's transmission capacity and computational power through high-density information transfer."

[Direction 1]: Innovative Media Technology for the AI Era
——Focusing on CPU/GPU(Central Processing Unit) Reform

6.3.2 Storage and Computing Fusion and Efficient Indexing Technology Based on SSD

（1），Memory background： Memory serves as the AI brain in artificial intelligence, functioning as a combination of data storage and processing units. In modern information technology, it refers to memory devices that store information. The concept is broad and multi-layered, encompassing any binary data storage device in digital systems. The processing units can be GPUs or NPUs. Traditional algorithms and computational approaches remain constrained by a binary$\mathbf{(0/1)^{(K=\pm1)}}$ structure, resulting in high computational overhead, complex protocol stacks, challenges in knowledge base construction, conflicts between inference efficiency and accuracy, and skyrocketing storage costs.

A solid-state drive (SSD) is a type of hard drive composed of an array of solid-state electronic storage chips, primarily consisting of a control unit and storage units (such as FLASH chips and DRAM chips). It shares the same appearance and dimensions as a conventional hard drive, with identical interface specifications and usage methods.

Solid-state drives (SSD) are categorized into two types: flash memory (FLASH chips) and DRAM. Flash-based SSDs are more prevalent and ideal for personal users, offering portability and power-independent data protection. In contrast, DRAM-based SSDs deliver superior performance and extended lifespan, though their application scope is more limited as they require dedicated power supplies for data security.

FLASH chips are a type of memory chip that can be programmed to modify stored data. Also known as flash memory, it combines the strengths of both ROM and RAM. It features EEPROM capabilities and NVRAM's fast data readout, ensuring data retention even during power outages.

DRAM is a semiconductor memory that operates on the principle of storing binary data (1 or 0) by varying capacitance levels. However, real-world transistors exhibit leakage current, causing insufficient charge to reliably represent data and potentially leading to data corruption. This necessitates periodic recharging, a fundamental characteristic that defines DRAM as a dynamic memory. In contrast, static memory (SRAM) retains stored data indefinitely without refresh cycles.

With the development of technology, the storage units of solid-state drives have continuously evolved, from single-level cells (SLC) to multi-level cells (MLC), triple-level cells (TLC), quad-level cells (QLC), quintuple-level cells (PLC), and even phase-change memory chips. Each generation brings higher storage density and faster read/write speeds. Based on the same principles of computer integrated circuits, this illustrative example explains the issues raised by Huawei, providing new solutions that drive reforms in computer performance, algorithms, and computing power. This will leave tremendous value and market potential for "third-generation artificial intelligence" and the "storage" industry in China and the global AI field.

6.3.3，Circular logarithmic scheme (1): The chip must be "slimmed down"

The memory chip serves as a critical component for temporary data and program storage. In traditional computers, qubits are represented by$\mathbf{(0/1)^{(K=\pm1)}}$binary matrices, with memory chips capable of processing characters through $\mathbf{\{2\}^{\wedge 2n}}$ "one-to-one" low-density information transmission. However, asymmetric phenomena emerge when data patterns consist of identical and differing determinants, or when higher-order equation groups contain elements with distinct root components, posing challenges to information transmission and storage.

The foundation of Huawei ASIC chips is still based on **FLASH** chips and **DRAM** dynamic random access memory, both of which are based on symmetric binary bits $\mathbf{(0/1)^{(K=\pm1)}}$, with each bit providing "one information symbol". Under big data, the memory requires large storage space, resulting in a bulky structure and many inconveniences. It needs to be "slimmed down".

（A）,Mathematical Interpretability of "Weight Loss"

Reform the traditional data search mode: transform the three-dimensional physical world into two-dimensional sine curve analog quantity and equivalent one-dimensional axis analog digital quantity.

↔(ADC)↔logical value code count↔$\mathbf{(0/0)^{(K=\pm0)}}$↔logical bit value code quantity↔(DAC)↔ **3D** sine curve simulation returns to the 3D physical world.

Reform traditional memory: Introduce "dual logic (digital bit value) code" internally for processing

$$\mathbf{(1000)^{(K=+1)}\leftrightarrow(0000)^{(K=\pm0)}\leftrightarrow(0111)^{(K=-1)};}$$

Reform the traditional external introduction of "dual logic (digital value) code" processing

$$(1/0)^{(K=+1)}\leftrightarrow(0/0)^{(K=\pm0)}\leftrightarrow(0/1)^{(K=-1)};$$

The inverse conversion between combination and additive operations preserves the inherent asymmetry of logical values in the traditional (01 10 11 00) matrix corresponding to "$\{0,1\}^{(K=\pm1)}$" matrices, while converting it into a symmetric logical bit value distribution. This method enables low-density information transmission through the "$\{0/1\}^{(K=\pm1)}$" matrix. However, its application in three-dimensional physical environments faces certain limitations, and extensive iterative algorithms not only consume substantial memory capacity but also require significant power consumption.

The physical world's sine wave analog signal is converted by (ADC)$\{\mathbf{1,2,3,4}\}^{(K=+1)}$ to a digital signal $\{\mathbf{5=\eta_\Delta=0}\}^{(K=\pm0)}$, which enters the virtual world's binary matrix (0/1). The signal is then returned via (DAC)$\{\mathbf{6,7,8,9}\}^{(K=-1)}$.

This process represents: （1）、The physical world is simulated through three-dimensional search data, compressed into a "serial + parallel" format. The digital output from the sensor (ADC) is converted via forward "dual logic (numerical/bit value) code" (10000, AND combination) ↔ (0111, OR combination), resulting in a dimensionless logical output $(1-\eta_{[C]abcdefghl]}{}^2)^{(K=+1)}$of one byte $\mathbf{(0/0)}^{(K=+1)}$. The receiving segment enters the DAC, where the corresponding ↔ $\mathbf{(0/0)}^{(K=-1)}$ reverse "dual logic (numerical/bit value) code" performs infinite axiom bit value zero-point balance exchange combination decomposition, driving digital switching back to the physical world (mathematical analysis, video, audio, language, cryptography).

（2）、The dimensionless logical circle $(1-\eta_{[C]abcdefghl]}{}^2)\}^{(K=\pm1)}$ operates through the dimensionless logical circle $(0/1)^{(K=\pm0)}=\{S\}^{\wedge 2n}$ corresponding to $\{\mathbf{D_0}\}^{(K=\pm1))(Z\pm S)}$. This mechanism incorporates balanced and random self-validation error correction, enabling high-density information transmission while preserving the inherent properties of information symbols (0/1).

（B）,computer transmission flow：

Coder The ADC (Analog-to-Digital Converter) searches the big data model in physical three-dimensional space, simulating it as a matrix of logical numerical codes. It compresses the data into a single logical code using the "four-logical values" (multiplicative combination) method. The information symbol $(0/1)^{(K=\pm1)}$ corresponding to the dimensionless logical circle logarithm is presented in the form of (high-density information) "dual logical numerical/bit value code" (0/1).

D**decompiler**（The DAC receives positive input $(0/1)^{(K=\pm1)}$ and transmits high-density information in the form of positive output (0/1) (K=±1) through a dimensionless logical circular logarithm (reverse) "dual logic bit value numerical code".

Circular log storage mode：The **2D/3D** physical world simulates symmetrical and asymmetrical **2D/3D** sine wave analog quantities. These quantities are converted to digital quantities via ADC (Analog-to-Digital Converter) and transformed into dimensionless logical circle equations, replacing the traditional {0,1} matrix. Subsequently, DAC (Digital-to-Analog Converter) converts these digital quantities back into **2D/3D** sine wave analog quantities, which are then returned to the physical world. Key advantages: The dimensionless logical circle equations replace the {0,1} matrix, accommodating both symmetrical and asymmetrical **2D/3D** physical environments and sine wave analog quantities. The information symbols are converted from dimensionless logical circle equations to $\{0/1\}^{(K=\pm1)}$ corresponding to $\{\mathbf{D_0}\}$ (K=±0) (Z±S) equations, enabling high-density information transmission.

The traditional virtual world matrix reduces a storage unit from 32 bytes (4×8) or 64 bytes (8×8) of information characters to a dimensionless logical circle (1) with a single character. Specifically, traditional computers' binary (0/1) data undergoes circular logarithmic conversion to a dimensionless logical circle $(1-\eta^2)^K=(0/1)^K$（K=+1,±0,-1,±1）for data transmission. All corresponding multi-parameter, multi-directional, multi-level, and multi-state configurations are stored in external memory, with internal memory instructions extracting the integrated "dual logic (numerical/bit value)" code "1000↔0000↔0111" for zero-error deduction.

In this way, all high-density information transmission methods of computer chips and corresponding memory-related accessories can be effectively "slimmed down". This includes the $\mathbf{(0/1)^K}$ symbol corresponding to Huawei ASIC chips being "slimmed down".

In other words, the same computer achieves unchanged performance with $\mathbf{(0/1)^K}$ symbols, but its function is transformed from low-density information transmission (one-to-one, parallel, $\{2\}^{\wedge 2n}$) to high-density information transmission (one-to-many, $\{S\}^{\wedge 2n}$\{S=3,4,5,...infinite\}2n, serial). This not only effectively overcomes memory limitations but also fundamentally improves the cost-performance ratio of memory.

6.3.4，Circular logarithmic scheme(2): Method change and data processing of three-dimensional data acquisition

（1），3D Data Collector and Data Compression

（A）,Traditional search targets are two-dimensional images. These are converted into big data formats (including weights/parameters, directions/angles, and distances), stored or transmitted using binary byte values (0/1).A character is 4×8=32 or 8×8=64 bytes（dimension）.

$$(0/1)^{(}:\ \ldots|x_1,x_1|,|x_2,x_2|,|x_3,x_3|,|x_4,x_4|,x_5,x_5|,|x_6,x_6|,|x_7,x_7|,|x_8,x_8|,|x_9,x_9|,|x_0,x_0,|\ldots;$$

（B）, The search object of the dimensionless logical circle computer is three-dimensional stereoscopic image (two-dimensional plane image, one-dimensional axis numerical value including weight), which is converted into big data digit, and stored or transmitted by byte corresponding to the dimension "S base" (S=0,1,2,3,4,5,6,7,8,9... self-determined) $\mathbf{(1-\eta^2)^K=(0/1)^K}$.

(1) Based on the computer-adaptive three-dimensional complex analysis "addition operation" rule, the first step requires performing three-dimensional (jik) complex analysis (refer to the attached "Circular Logarithm 999 Multiplication Table" for direct reference).

$$(0/1)^K:\ \ldots|x_j,x_i,x_k|,|x_j,x_i,x_k|,|x_j,x_i,x_k|,|x_j,x_i,xk|,|x_j,x_i,x_k|,|x_j,x_i,x_k|,|x_j,x_i,x_k|,\ldots;$$

(2) After three-dimensional (jik) complex analysis, the high-power dimensional information transmission corresponding to each axis (jik) and plane is conducted: through logical matrices, the "four logical values" are extracted and combined via "multiplication" to form a "logical numerical code"Corresponds to a byte (dimension).

$$(jik)\ (0/1)^{(K=\pm1)}:\ \ldots|\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(jik)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(jik)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(jik)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(jik)};$$
$$(j)\ (0/1)^{(K=\pm1)}:\ \ldots|\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(j)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(j)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(j)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(j)};$$
$$(i)\ (0/1)^{(K=\pm1)}:\ \ldots|\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(i)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(i)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(i)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(i)};$$
$$(k)\ (0/1)^{(K=\pm1)}:\ \ldots|\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(k)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(k)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(k)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(k)};$$
$$(ik)\ (0/1)^{(K=\pm1)}:\ \ldots|\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ik)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ik)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ik)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ik)};$$
$$(kj)\ (0/1)^{(K=\pm1)}:\ \ldots|\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(kj)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(kj)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(kj)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(kj)};$$
$$(ji)\ (0/1)^{(K=\pm1)}:\ \ldots|\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ji)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ji)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ji)};\ |\mathbf{x}_1,\mathbf{x}_2,\ldots\mathbf{x}_S|_{(ji)};$$

The "logical value code" is obtained by applying the "four-logic values" to the "product of combinations $(x_1, x_2,..., x_S) / \{x_0^{(S)}\}$ multiplied by the element average of the characteristic modulus squared (S)".

$$(jik)\ (0/1)^{(K=\pm1)}:\ \ldots|\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(jik)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(jik)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(jik)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(jik)};$$
$$(j)\ (0/1)^{(K=\pm1)}:\ \ldots|\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(j)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(j)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(j)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(j)};$$
$$(i)\ (0/1)^{(K=\pm1)}:\ \ldots|\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(i)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(i)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(i)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(i)};$$
$$(k)\ (0/1)^{(K=\pm1)}:\ \ldots|\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(k)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(k)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(k)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(k)};$$
$$(ik)\ (0/1)^{(K=\pm1)}:\ \ldots|\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ik)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ik)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ik)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ik)};$$
$$(kj)\ (0/1)^{(K=\pm1)}:\ \ldots|\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(kj)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(kj)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(kj)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(kj)};$$
$$(ji)\ (0/1)^{(K=\pm1)}:\ \ldots|\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ji)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ji)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ji)};\ |\boldsymbol{\eta}_1,\boldsymbol{\eta}_2,\ldots\boldsymbol{\eta}_S|_{(ji)};$$

Specifically, the numerical center point of the "four-logic values" exhibits balanced asymmetry and cannot be mutually substituted. Only by converting it into a zero-centered symmetric logic bit value code can balanced exchange, combination decomposition, and a random self-validation error correction mechanism be achieved. This is referred to as the "four-logic values" or "dual logic (numerical/bit value) code."

（2），Process text data

Currently, various algorithms and frameworks have been developed to generate data (or word) "embeddings." Through neural network architectures, these embeddings can be constructed by combining sequential data arrangements, transforming discrete objects (such as data, images, or documents) into continuous spatial points represented as 3D vectors. This approach reduces the symbolic amount of information transmission and eliminates sequence constraints in data compression. However, when converting to additive combinations, strict sequence requirements apply. For instance, in 3D complex analysis, six distinct scenarios exist: ***jik≠jik≠ikj≠ijk≠kij≠kij***. How to differentiate these cases? Currently, multiple algorithms and frameworks have been developed, utilizing 3D sliding windows for data sampling to generate embeddings and models, while neural networks employ encoding attention mechanisms.

Example of text data processing method: 3D data search. The first step of computer analysis is 3D complex analysis, and then it is expanded on each axis or plane.

Assume: A simulated 3D sine wave pattern exists in space, with the following data search:

Three-dimensional space ： $(jik)^K=\{111\ldots999\}$; $(ji)^K$，$(ik)^K$，$(kj)^K=\{11\ldots99\}$; $(j)^K$，$(i)^K$，$(k)^K=\{1\ldots9\}$;

Plane,：$(ji)^K=(1-\eta_{[ji]}{}^2)^K$，$(ik)=(1-\eta_{ik]}{}^2)^K$，$(kj)=(1-\eta_{[kj]}{}^2)^K$； → ***(±XOY)***，***(±YOZ)***，***(±ZOX)；***

Axis：$(j)=(1-\eta_{[j]}{}^2)^K$，$(i)=(1-\eta_{[i]}{}^2)^K$，$(k)=(1-\eta_{[k]}{}^2)^K$； → ***(±X)***，***(±Y)***，***(±Z)；***

Convert logical digital values into logical (numerical/bit) codes, compressed into a three-dimensional logical circle

representing four logical values (A), (B), (C), and (AB).

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

In other words, a circular logarithmic symbol replaces the traditional high-density information symbol transmission with 4×8=32 or 8×8=64. The data processing achieves maximum efficiency, and the subsequent information circular logarithmic symbol is represented as $\{0/1\}^{K}$.

Mathematical proof：***(XOY)，(YOZ)，(ZOX)*** Corresponding ***(X)，(Y)，(Z)***conjugate reciprocity of data。

dimensionless logic circle expansion：

Plane,： $(1-\eta_{[jik]}{}^{2})^{K}=(1-\eta_{[ji]}{}^{2})^{K}+(1-\eta_{ik]}{}^{2})^{K}+(1-\eta_{[kj]}{}^{2})^{K}=\{0,1\}$；

Axis： $(1-\eta_{[jik]}{}^{2})^{K}=(1-\eta_{[j]}{}^{2})^{K}+(1-\eta_{i]}{}^{2})^{K}+(1-\eta_{[k]}{}^{2})^{K}=\{0,1\}$；

Since the multiplication combination lacks sequence control, the addition combination requires strict sequence control operations. Therefore, the following rules are established: in ternary numbers, j=A (minimum value), i=B (intermediate value), and k=C (maximum value), or ji=AB (minimum value), ik=BC (intermediate value), and kj=CA (maximum value). For example, the combination abc=bac=cab=acb=bca=cba demonstrates that data processing can be compressed without sequence constraints.

Conversely, the combination abc≠bac≠cab≠acb≠bca≠cba indicates that in three-dimensional complex analysis, sequence control is applied, placing the data in different quadrants.

The sequence of input data is automatically (embedded) adjusted. This method (e.g., word2vec) is known as machine learning or pre-trained models. When the embedded data is properly transformed into a three-dimensional space and visualized, we can observe that data with the same meaning and relevance are arranged in chronological order. This process also involves the adjustment function of the "attention mechanism" software.

The Replacement Rule and the Symmetry of the Central Zero Point in the Three-dimensional Complex Analysis

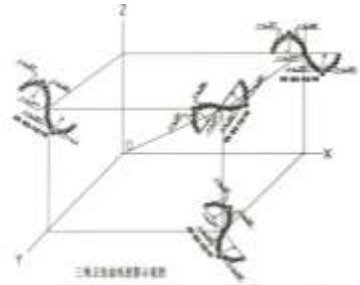
[*(jik)↔(kij)*]*={0,±1}*；[*(j)↔(ik)*]*={0,±1}*；[*(j)↔(ik)*]*={0,±1}*；[*(j)↔(ik)zim*]*={0,±1}*；

The three-dimensional complex analysis of the letter substitution rule: The arrangement of letters: "Left-hand rule" four fingers close together point to the palm in a clockwise direction, extending the thumb points to "+" and the opposite to "-", (called: Hamilton-Wang Yiping three-dimensional substitution rule).

The three-dimensional physical space is composed of "eight quadrants", and each information symbol is driven by (j) = (ik), with the (jik) symbol corresponding to a logical circle world (0/1)K, achieving high-density information transmission.

The data search is conducted on three series of data with axes labeled (ABC).（Figure 15.1, 15.2）

(Figure 15.1) Schematic diagram of 3D spatial data search



虚拟数字化与无量纲逻辑对应关系

虚拟数字化	无量纲逻辑	虚拟数字化	无量纲逻辑	对应特征模
0、00000000	$(1-\eta_{[\ldots]}^2)^{(K=\pm0)(Z\pm0)}$	5、11111111	$(1-\eta_{[\ldots]}^2)^{(K=\pm0)(AB)}$	$(D_0)^{(K=\pm0)(Z\pm0)}$
1、10101010	$(1-\eta_{[\ldots]}^2)^{(K=+1)(A)}$	6、11111101	$(1-\eta_{[\ldots]}^2)^{(K=-1)(B)}$	$(D_0)^{(K=\pm1)(Z\pm0)}$
2、11111110	$(1-\eta_{[\ldots]}^2)^{(K=+1)(A)}$	7、10101011	$(1-\eta_{[\ldots]}^2)^{(K=-1)(B)}$	$(D_0)^{(K=\pm1)(Z\pm0)}$
3、10101111	$(1-\eta_{[\ldots]}^2)^{(K=+1)(A)}$	8、01010111	$(1-\eta_{[\ldots]}^2)^{(K=-1)(B)}$	$(D_0)^{(K=\pm1)(Z\pm0)}$
4、01010110	$(1-\eta_{[\ldots]}^2)^{(K=+1)(AB)}$	9、11111111	$(1-\eta_{[\ldots]}^2)^{(K=+1)(Z\pm0)}$	$(D_0)^{(K=\pm1)(Z\pm S+1)}$
		10、00000000	$(1-\eta_{[\ldots]}^2)^{(K=+1)(Z\pm S+1)}$	$(D_0)^{(K=\pm1)(Z\pm S+1)}$

（0/1）信息符号对应一个无量纲逻辑符号；$(1-\eta_{[jk]}^2)^{(K=\pm1)(AB)}=\sum(1-\eta_{[\ldots]}^2)^{(K=\pm1)(AB)}$

同一个（0/1）信息符号二种处理能力的比较；

（1）、传统(0/1)信息符号以对应的虚拟化数字 4×8=32 字节为一个层次传输。目前为 128-256 层次进入存储器，处理能力为 4096-8192。

（2）、圆对数(0/1)信息符号以对应的无量纲逻辑压缩为一个 $(1-\eta_{[jk]}^2)^{(K=\pm1)(AB)}$ 信息符号（可以包含 4×8=32 字节）为一个层次传输，可以提高到(4096-8192)×8 的层次进入存储器。处理能力为 32768-65536。于无形中处理能力提高 8 倍。现有存储器空间扩大了，处理速度加快，多出来原来的的 8 倍字节则可以进入软硬盘。

(Figure 15.2) Schematic diagram of three-dimensional virtual digitization and logical circle relationship

6.3.5,Reform memory function

（A）Encoder and (0/1) (K=+1) transmission function

Encoder Function: This mechanism converts search data into a natural number sequence logic code. It compresses multi-level numerical data into a single (multiplicative combination) boundary function $\mathbf{D=(0/1)_1^K}$ and (additive combination) average characteristic modulus $\mathbf{D_0=(0/1)_2^K}$, forming a logical circular code transmission symbol within the (0/1)K system. Each level contains (multiplicative combination) and (additive combination) elements along with byte count (dimensionality), creating a "dual logic code" transmission without specific numerical values. The logic code can be independently configured and authenticated, achieving "top-tier privacy protection".

For example, the encoder (ADC) converts **4×8=32 or 8×8=64** bytes of digital virtual world **(0/1)** into a set of '1-byte **(0/1)** ^{k}' through forward 'dual logic (numerical/bit value) code' conversion, combined with instruction extraction of external memory dual logic code and related parameters, tables, etc.

$$\leftrightarrow(1/0)^{(K=+1)}\leftrightarrow(0/0)^{(K=\pm0)}\leftrightarrow(0/1)^{(K=+1)}\leftrightarrow$$

The corresponding mathematical explanation is that the true proposition is not changed, but the inverse proposition is transformed from the true proposition through the conversion of the properties of the inverse proposition.

$$\leftrightarrow(1-\eta_{[jik+\ldots\mathbf{infinite}]})^{(K=+1)}\leftrightarrow(1-\eta_{[C]})^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik+\ldots\mathbf{infinite}]})^{(K=-1)}\leftrightarrow \boldsymbol{D} \text{ or } \boldsymbol{D}_0^{(S)}$$

The essence of encoder is to compress data into serial data, which can effectively process data and reduce memory space.

In the information transmission process, the boundary function $\mathbf{(0/1)_1^k}=\boldsymbol{D}$ is publicly disclosed, while the key is specified as $\mathbf{(0/1)_2^k}=\boldsymbol{D}_0^{(S)}$. Here, $(0/1)=(1-\eta_{[jik+\ldots\mathbf{infinite}]})^{(K=\pm1)}$denotes a byte-level transmission format that converts multidimensional complex analysis data across axes and planes into dimensionless logical circular character information. Alternatively, $\mathbf{(0/1)_2^k}=\boldsymbol{D}_0^{(S)}$ may be publicly disclosed, with the key being the logarithm of the circle, enabling root element analysis or obtaining the boundary function through multiplication combinations.

（B），Decoder and (0/1) $^{(K=-1)}$ transmission function

Demodifier ： The DAC (Digital-to-Analog Converter) decomposes an information transmission symbol $(0/1)^{(K=-1)}$ into multi-element functions.

The ADC output: byte (0/1) contains $\mathbf{(1/0)_1}$ corresponding to **D**={1000} (AND gate). The input: byte (0/1) contains $\mathbf{(0/1)_2}=\boldsymbol{D}_0^{(S)}$corresponding to {0111} (AND gate) ; $\mathbf{(0/1)_3}=(1-\eta_{[jikf]}^2)^{(K=\pm0)}$={0000}, $\mathbf{(0/1)_4}=(1-\eta_{[jikf]}^2)^{(K=\pm1)}$={1111} indicating the location level.

$$\leftrightarrow(1/0)=(1-\eta_{[jik+\ldots\mathbf{infinite}]})^{(K=+1)}\leftrightarrow(1-\eta_{[C]})^{(K=\pm0)}\leftrightarrow(1-\eta_{[jik+\ldots\mathbf{infinite}]})^{(K=\pm0)}\leftrightarrow$$

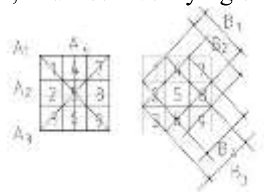
The formula $(0/1)_3=(1-\eta^2_{[jik+\ldots infinite]})^{(K=+1)}$ (not AND gate, random self-proving balance mechanism), $(0/1)_3=(1-\eta_{[jik+\ldots 无穷]})^{(K=-1)}$ (OR gate, random self-proving balance mechanism), $(0/1)_4=(\Omega_1,\Omega_2,\Omega_3,\Omega_4,\Omega_5,\ldots)$ indicates the hierarchy of the location.

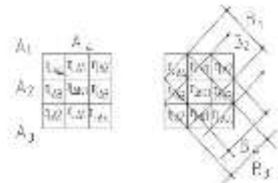
The encoder and decoder form a "dual logic (digital/bit) code", abbreviated as "logic code", which possesses:

(1) Open-source: interpretable and reversible conversion.

(2) Flexibility corresponds to the privacy of different true propositions.

Notably, the "Dual-Logic (Numeric/Bit) Code" preserves the inherent properties of "information symbols (0/1)" and "homomorphic circular logarithms$(1-\eta^2_{[jik+\ldots infinite]})^{(K=\pm1)}$" during data transmission. It establishes relationships of "homology, homotopy, and isomorphism," converting positive symbols into negative ones through modifications to the logical code's "property attributes." Utilizing its unique "infinite axiom," the code achieves balanced exchange, combination, decomposition, and a self-verifying error-correction mechanism for logical code "factors." This ensures





the stability of numerical center points and bit-value zero points, as well as error-free deduction.

Compare： The traditional binary $(0/1)^K$ information character achieves "one-to-one" low-density data transmission, while the base-10 $(0/1)^k$ information character elevates to "one-to-many" high-density data transmission. This significantly reduces memory space, transistor count, and electronic components, streamlines congested electronic circuits, and minimizes leakage phenomena.

It is evident that the genuine and effective enhancement of computing power hinges on the pivotal role of high-density information transmission capabilities, which are sufficiently adequate for everyday civilian-use chips (with exceptions for specialized requirements). Furthermore, there is encouragement for the improvement and advancement of physical material properties.

The dimensionless logical circle (logarithmic circle) establishes a connection between "logical discrete numerical factors" and "continuous logical bit value factors". Within this framework: logical values (including Piéton's axioms and set theory axioms) are constrained by Gödel's incompleteness theorem. The numerical center point factor (ηΔ), which balances asymmetry and is non-commutative, is transformed into a dimensionless logical numerical factor (η[C]). This new factor maintains center point symmetry through the equation $\sum(+\eta\Delta) = \sum(-\eta\Delta)$, enabling commutative decomposition. The resulting combination variations of logical numerical factors drive the numerical conversion process.

The circle logarithm in artificial intelligence embodies the fusion of classical analysis and logic (set theory) analysis, achieving interpretable, robust, and zero-error computations for computers, thereby solving the third-generation AI's need for stable and reliable mathematical knowledge.

6.3.6， Mathematical Explanation of Search Compression

Demonstration example: ternary numbers and three-dimensional complex analysis. Mathematical principles: Data processing method: Data search is compressed into a single numerical value and a logical circle through multiplication and combination, with information symbol transmission.

The three-dimensional data search is divided into two-dimensional plane data and one-dimensional axis data. The random self-balancing is used to extract the axis elements and compress them into a boundary function $\{\mathbf{D}_{[jik]}\}$ or a characteristic mode $\{\mathbf{D}_0{}^{(3)}\}$ in the form of multiplication combination, and the logarithmic relationship between them and the circle is established.

The complex analysis or the general solution of a cubic equation (with three elements containing the (***jik***) series data model) as an example (including the unified discrete-type and entangled-type),

$$\{X+{}^{(3)}\sqrt{\mathbf{D}}\}^{k(3)}=(1-\eta_{[jikf]}{}^2)^{(K=\pm1)}\{(2)\cdot \boldsymbol{D}_0\}^{(3)};$$

$$(1-\eta_{[jikf]}{}^2)^{(K=\pm1)}=\boldsymbol{D}/\boldsymbol{D}_0{}^{(3)}=\{0,1\};$$

$(1-\eta_{[jik]}2)^{(K=\pm1)}$ contains the logarithm of the eight quadrant values of the plane and axis in three-dimensional space.

The logical value code form of ternary (three-valued) numbers: A ternary matrix composed of (1,2,3,4,5,6,7,8,9), where the matrix is organized in "horizontal, vertical, and diagonal" directions to form "four-valued logic" (combinations of the majority values of four items).

Step 1: The bytes of each three-dimensional (axis) dimension are respectively composed into a logical numerical code matrix (Figure 6.3), entering the forward "dual logical (numerical) code". According to the formula: $(1-\eta_{[jikf]}{}^2)^{(K=\pm1)}=\boldsymbol{D}/\boldsymbol{D}_0{}^{(S)}$ (Figure 16.1).

Step 2: Convert from "logical value code (η_Δ) corresponding to (1,2,3...9) code" (Figure 16.1) to "logical bit value code (η[C]) corresponding to **（$-\eta_4,-\eta_3$, $\eta_{[C=0]},+\eta_1...+\eta_4$）**"(Figure 16.2)。

Convert the data search symbols from 3D complex analysis into natural number sequences (or other codes) to form logical/bit value codes:

(Figure 16.1) Schematic diagram of logical values (Figure 16.2) Conversion diagram of (η_Δ)/($\eta_{[C]}$)

The unified dual-logic code is (1000)↔(0000)↔(0111), used for processing the inverse conversion between multiplication combinational and addition combinational operations, abbreviated as:（**(η_Δ)-($\eta_{[C]}$)**）

$$(1/0)^{(K=+1)}\leftrightarrow(0/0)^{(K=\pm0)}\leftrightarrow(0/1)^{(K=-1)};$$

Step 3: The matrix form is processed through vertical, horizontal, and diagonal data readings to generate corresponding logical values or bit value codes for the "four logic values".

Logical numeric codes: {1,5,9; 2,5,8; 3,5,7; 1,6,9; 2,4,9; 2,6,7; 3,4,8} Logical numeric codes:

$\{\eta_1,\eta_5,\eta_9;\ \eta_2,\eta_5,\eta_8;\ \eta_3,\eta_5,\eta_7;\ \eta_1,\eta_6,\eta_9;\ \eta_2,\eta_4,\eta_9;\ \eta_2,\eta_6,\eta_7;\ \eta_3,\eta_4,\eta_8\}$

Step 4: Process the logical bit value codes and their zero-centered symmetry:

$\{-\eta_4,\eta_{5=[C]},+\eta_4;\ -\eta_3,\eta_{5=[C]},3\eta_3;\ -\eta_2,\eta_{5=[C]},+\eta_2\};$

$\{-\eta_4\eta_{5=[C]}+\eta_{1,}+\eta_3;\ \eta_2,\eta_4,\eta_{5=[C]}\eta_9;\ \eta_2,\eta_{5=[C]}\eta_6,\eta_7;\ \eta_3,\eta_4,\eta_{5=[C]}\eta_8\}$

Step 5:Number center point processing method: The center point is located in the element gap (asymmetry), for example: byte 168 is ① (O) ② ③; ② ① (O) ③;

$(\eta_1\ \eta_{[\Delta]}\ \eta_6\ \eta_8)=(-\eta_1\ \eta_{[C=2]}+\eta_1)$

Step 6:The center point coincides with the element (symmetry), as in byte 369① (O=②)③.

$(\eta_3\ \eta_{[\Delta=6]}\ \eta_7)\leftrightarrow(-\eta_3\ \eta_{[C]}+\eta_3);$

The zero-point balance symmetry of the circular logarithm center $(1-\eta_C^2)$ corresponds to the characteristic mode $D_0^{(S)}$:

$$\sum(-\eta)+\sum(+\eta)=0;$$

The first computer derived is the three-dimensional complex analysis, and then the arbitrary high power analysis is carried out on each axis level.

Step 7: Analyze the four logical values sharing the same characteristic modulus ($D_0^{(S)}=5$). The sequence is sorted by numerical value and determined by the ***(J,I,K)*** sequence.

For example, extract the four logical values (multiplication combination) from the matrix, which are:

（1）Symmetric distribution: byte{159；258；357；456}；

{1×5×9；2×5×8；3×5×7；4×5×6}={45；80；105；120}；

（2）Asymmetric distribution: bytes{168；249；267；348}；

{1×6×8；2×4×9；2×6×7；3×4×8}={48；72；84；96}；

（3）Different characteristic mode distributions: byte{123；147；369；789}；

{1×2×3；1×4×7；3×6×9；7×8×9}={6；28；162；504}；

（4）The cubic value of the characteristic mode in ternary complex analysis:

$[\{5^3=125\}]$，$[\{2^3=8\}$，$\{4^3=64\}$，$\{6^3=216\}$，$\{8^3=512\}]$

（5）The logarithm of a circle is obtained by dividing the product of ternary numbers by the cube of the characteristic modulus.

$\{45；80；105；120\}/5^3=\{0.36；0.64；0.86；0.96\}$；

$\{48；72；84；96\}/5^3=\{0.384；0.576；672；0.768\}$；

$\{6/2^3；28/4^3；162/6^3；504/8^3\}=\{0.75；0.438；0.75；0.984\}$

Step 8: Convert the logical numeric code $\{\eta_\Delta\}$ into the logical bit value code matrix $\{\eta_{[C]}\}$ (Figure 16.2):

{168；249；267；348}

$159\leftrightarrow(\eta_1\ \eta_\Delta\ \eta_9)\leftrightarrow(-\eta_4\ \eta_{[C=0]}+\eta_4)$；$258\leftrightarrow(\eta_2\ \eta_\Delta\ \eta_8)\leftrightarrow(-\eta_{3\ [C=0]]}+\eta_3)$；

$357\leftrightarrow(\eta_3\ \eta_\Delta\ \eta_7)\leftrightarrow(-\eta_{2\ [C=0]]}+\eta_2)$；$456\leftrightarrow(\eta_1\ \eta_\Delta\ \eta_9)\leftrightarrow(-\eta_{1[C=0]C]}+\eta_1)$；

{168；249；267；348}

$168\leftrightarrow(\eta_1\ \eta_{[\Delta]}\ \eta_6\ \eta_8)\leftrightarrow(-\eta_{[4+1]}\ \eta_{[C=0]}+\eta_3)$；$249\leftrightarrow(\eta_2\ \eta_4\ \eta_{[\Delta]}\ \eta_9)\leftrightarrow(-\eta_{[3+1]}\eta_{\ [C=0]}+\eta_4)$；

$267\leftrightarrow(\eta_2\ \eta_{[\Delta]}\ \eta_6\eta_7)\leftrightarrow(-\eta_3\ \eta_{[C=0]}+\eta_{[1+2]})$；$348\leftrightarrow(\eta_3\ \eta_4\eta_{[\Delta]}\ \eta_8)\leftrightarrow(-\eta_{[2+1}\eta_{][C=0]}+\eta_3)$；

{123；147；369；789}

$123\leftrightarrow(\eta_1\ \eta_{[\Delta=2]}\eta_3)\leftrightarrow(-\eta_1\ \eta_{[C=2]}+\eta_1)$；$147\leftrightarrow(\eta_1\ \eta_{[\Delta=4]}\eta_7)\leftrightarrow(-\eta_{[3-2]}\ \eta_{[C]}+\eta_2)$；

$369\leftrightarrow(\eta_3\ \eta_{[\Delta=6]}\ \eta_7)\leftrightarrow(-\eta_3\ \eta_{[C]}+\eta_3)$；$789\leftrightarrow(-\eta_1\ \eta_{[\Delta=8]}+\eta_3)\leftrightarrow(-\eta_1\eta_{[C]}+\eta_1)$；

Step 9: Process the logic bit value code matrix $\{\eta_{[C]}\}$ and the root element of the reverse "dual logic (bit value/number) code" parsing. (Figure 16.2):

（1）Specifically, all $(\eta_{[jik]})$ and $(1-\eta_{[jik]}^2)^K=(0/1)^K$ undergo high-density information transmission:，$(\eta_{[jik]})$ and

$(1-\eta_{[jik]}^2)^K$ logical factor equivalence。

（2），$(\eta_{[jik]})$-$(1-\eta_{[jik]}^2)^K$Difference: $(\eta_{[jik]})$ starts from the boundary line, while $(1-\eta_{[jik]}^2)^K$ begins at the central zero point. The coordinates shift from the boundary to the central zero point. This coordinate movement does not affect the logical factor values, expanding the active space (including one-dimensional, two-dimensional, and three-dimensional) and adding higher-power dimension elements.

（3），The function $(\eta_{[jik]})$ - $(1-\eta_{[jik]}{}^2)^K$ operates as follows: $(\eta_{[jik]})$ handles the specific distribution of numerical values (analysis, combination, decomposition), while $(1-\eta_{[jik]}{}^2)^K=(0/1)^K$ manages holistic processes involving multi-information element transmission, balanced exchange, combination, decomposition, and stochastic self-validation mechanisms.

Where: $(\eta_{[\Delta]})$ denotes the logical value center point, which cannot be directly exchanged for balance. $(\eta_{[C]})$ represents the logical bit value center zero point, which can be directly exchanged for balance and is equipped with a random self-validation mechanism.

The individual root element of the general solution is obtained by analyzing the relationship between the center point of the characteristic mode and the surrounding elements through the circular logarithmic symmetry, and then the three-dimensional complex analysis is carried out by the individual root element.

If the root element of individual has its own dynamic calculus (including multi-parameter), then the multi-level calculus can be carried out according to the characteristics of individual element.

The numerical center point $\{\eta_{[\Delta]}\}$ has the balance asymmetry and cannot be exchanged; the positional center zero point $\{\eta_{[C]}\}$ has the symmetry and can be balanced exchange combination decomposition and random self-verification mechanism of error correction.

$$-\eta_{[3+1]}=-(\eta_3+\eta_{1]}; \quad +\eta_{[3+1]}=+(\eta_3+\eta_{1]};$$

When the zero symmetry of the bit value center $\eta_{[C=0]}$ is balanced by the exchange of random self-verification error

correction after the 'infinite axiom', the zero error transmission of information $(0/1)^K$ is ensured, and the traditional axiom dilemma is eliminated.

6.3.7，Interpretability of embedded data or data movement

The dimensionless logical circle computer's multiplication-combination logic value code has no sequence constraints, but converting it to a logic bit value code introduces such limitations. Specifically: when numerical values like abc are converted from bca in three-dimensional complex analysis, the computer can embed, move, or adjust data through an "attention" mechanism. This occurs because artificial intelligence is constrained by:

(1) the inherent incompleteness of traditional axiomatic systems, which prevents direct data exchange.

(2) The embedding and moving of the values are not interpretable.

According to the complex analysis rule: a=ja↔***ik***bc; b=***ib***↔***kj***ca; c=kc↔***ji***ab;

Here, based on the proof results from the previous "Three-Dimensional Complex Analysis", the explanation is as follows: (a) According to mathematical principles: Traditional numerical elements (including set theory logical symbols) operate within a system grounded in Peano axioms and set theory, which is constrained by the "Gödel Incompleteness Theorem". This means that in deep learning models, both data symbols and set theory logical symbols lack "interpretability and robustness". The deduction process in big data is often influenced by internal and external factors, resulting in high error rates and significant resource waste.

(b) The conversion of logical numerical codes into bit-value codes (dual logic: numerical/positional) plays a pivotal role. This process transforms numerical values into dimensionless logical circular logarithms, fulfilling the criteria of "mathematical model independence, absence of specific element content," and the "infinite axiom" bit-value zero-center control mechanism. The zero-center symmetry of bit values enables balanced exchange and decomposition, including free movement, thereby explaining the "movement" principle and the robustness rules required for mathematical proofs. Through the dual nature of numerical center points and bit-value zero centers, the system controls robustness and stability, ensuring error-free deduction at every step.

6.4，Circular Logarithm Scheme(3):Three-dimensional Chip Design and Memory Process Flow

（1）Encoder （ADC）:

3D Directional Data Search: (Images with numerical weights) Through the multi-byte (multi-ary) dimension, the system outputs complex analysis using forward dual-logical numerical/bit value codes in the format [(1000) ={1/0}].

Forward Data Search: (Physical **3D** Space) Comprises two components: **2D** plane data (**3D** complex analysis rule) and**1D** axis data, with the latter being composed of:

$(0/1)_1=\{1000\}\leftrightarrow(0/1)_2=\{0111\}\leftrightarrow(0/1)_3=(1-\eta_{[jikf]}{}^2)^{(K=\pm0)}=\{0000\}$, corresponding $D_0{}^{(S)}$,

$(0/1)_4=(1-\eta_{[jikf]}{}^2)^{(K=\pm1)}=\{1111\}$Corresponding to the location level (address)。

（2）Decoder （DAC）:

Accept {1/0} "3D direction" search (images, weighted values with numerical components): Dimensions and multi-precision byte [(1000) ={0/1}] input. Applied to high-dimensional directional analysis; Reverse data search: (physical three-dimensional space) includes "**2D** plane data = (**3D** complex analysis rules) = 1D axis data", with mathematical proof.

The one-dimensional axis data $\mathbf{(0/1)_1}$ corresponds to **D**={1000} (AND gate) and is converted to $\mathbf{(0/1)_2}$=D0(S) corresponding to {0111} (AND gate).

Reverse attachment:

$$\mathbf{(0/1)_3}=(1-\eta_{\Delta}{}^2)^{(K=\pm1)}=\{0000\},\ \mathbf{(0/1)_3}=(1-\eta_{[c]}{}^2)^{(K=\pm0)}=\{0000\},\ \text{corresponding } \boldsymbol{D_0}^{(S)},$$

$$\mathbf{(0/1)_4}=(1-\eta_{[jikf]}{}^2)^{(K=\pm1)}=\{1111\}\text{Corresponding to the location level (address)。}$$

The formula: "=" indicates (correspondence), $\mathbf{(0/1)_3}$ (C=Δ) is the center point value of the logical value code matrix; (0/1)3 (C=[C]) is the zero point value of the logical bit value code matrix;

(3), Principle of 3D Chip Fabrication:

The fabrication of 3D chips is based on a rigorous mathematical framework. The data search composition of 3D chips (one-dimensional, two-dimensional, three-dimensional) selects three (S) series characters to form a byte: the introduction of "dual logic (numerical/bit value) code" enables the transformation of true propositions into inverse propositions through property attribute conversion.

Three-dimensional chip mathematical transmission formula:

$$\{(1-\eta_{[jikf]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[Cf]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jikf]}{}^2)^{(K=-1)}\}\cdot \boldsymbol{D}_0{}^{(S)};$$

$$(1-\eta_{[jikf]}{}^2)^{K}=\boldsymbol{D}/\boldsymbol{D}_0{}^{(S)}=\{0,1\};$$

Three-dimensional chip can explain neural network to reverse engineering: multi-element compression into a "multiplication combination" or addition combination element information symbol does not change the computer (0/1) function;**(Figure 17)**

三维芯片制作模式：

三维数据搜索组成一维数据，选择三个(S)数字组成一个字节：组成数字代码矩阵，获得“四逻值”对应的 $\boldsymbol{D}=\{1000\}^{AB}$ 进入“双逻辑数值/位值代码矩阵”转换出来为 $(0/1)_2=\boldsymbol{D}_0{}^{(S)}$ 对应{0111}，

计算机演绎模式：

$$(1000)\leftrightarrow(0/1)_2\leftrightarrow(0111)\}^{AB};\quad (1000)\leftrightarrow(0/1)_2\leftrightarrow(0111)\}^{AB};$$

存储器工艺流程：

$$\{1000\}^{AB}\to\{(1000)^{A}\to(0000)_3{}^{(C=\Delta)}\to(1000)^{B}\}\to(0/1)\to\{(0111)^{A}\to(0000)_3{}^{[C=[C]]}\to(0111)^{B}\}$$

$$\to\{(1-\eta_{[jikf]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[jikf]}{}^2)^{(K=-1)}\leftrightarrow(1-\eta_{[jikf]}{}^2)^{(K=-1)}\}\cdot \boldsymbol{D}_0{}^{(S)}\to(0/1)_2=\boldsymbol{D}_0{}^{(S)}\to\{0111\}^{AB}\to$$

$$\to\{(0111)^{AB}\to(0000)_3{}^{[C=[C]]}\to(0111)^{B}\}\to(0/1)\to\{1000\}^{AB}\to\{(1000)^{A}\to(0000)_3{}^{(C=\Delta)}\to(1000)^{B}\}$$

$$\to(\text{显示数值分解})(0/1)_4=\{1111\}^{AB}$$

（**1**）、三维物理立体空间的数据搜索有平面数值组成特征模：

$$\boldsymbol{D}_0{}^{(1)}=(1/3)(a+b+c)=(Ja+ib+kc);$$

$$\boldsymbol{D}_0{}^{(2)}=(1/3)(ab+bc+ca)=(Jiab+ikbc+kJca);$$

$$\mathbf{D}_{(jik)}=\mathbf{abc}_{(jik)}=(1-\eta_{\Delta}{}^2)^{(K=\pm0)};$$

$$\boldsymbol{D}_0{}^{(1)}=)(\eta_a+\eta_b+\eta_c);\ \boldsymbol{D}_0{}^{(2)}=(\eta_{ab}+\eta_{bc}+\eta_{ca});\ \mathbf{D}_{(jik)}=(1-\eta_{[C]}{}^2)^{(K=\pm0)};$$

其中：三维共同轭位值中心零点对称性可以交换组合分解

如：第一象限：**ikbc=Ja**；**kJca=ib**；**Jiab=kc**；（共有 8 个象限：按照三维复分析（哈密顿-汪一平的三维左手法则的顺序排列决定正负向）。

（**2**）、$\{(1-\eta_{[jikf]}{}^2)^{(K=+1)}\leftrightarrow(1-\eta_{[C]}{}^2)^{(K=\pm0)}\leftrightarrow(1-\eta_{[jikf]}{}^2)^{(K=-1)}\}\cdot \boldsymbol{D}_0{}^{(S)}$ 具有存算一体化优越性。统一称“双逻辑数值/位值代码矩阵”。适应群组合内外部。

(Figure 17) Principles of 3D Chip Design

Based on this mathematical principle, 3D chip design fulfills the open-source "dual logic numerical/bit value code matrix storage/computation integration" advantage and complex analysis rules, enabling the architectural design and fabrication of "3D chips". Due to the flexibility of logical code, it can autonomously correspond to a wide range of true propositions, offering top-tier privacy while revolutionizing traditional low-density information transmission into high-density, cost-effective storage. This fundamentally transforms the generative space of 3D chips and intelligent agent task processing.

（4），Comparison of Different Computing Power Resulted from Different Data Combinations in Memory

Maintain (0/1) invariance, select different bytes to achieve high-density information transmission, fundamentally reform the algorithm, and enhance computational power. Comparison: Traditional computers employ conventional planar data processing (binary) with byte-level search for data processing.

Circumference logarithmic computer: This system employs multi-dimensional byte search for data processing in three-dimensional data processing (multi-ary byte). It utilizes different dimensional byte transmissions, expands optical disk storage quantum through transistor circuit integration in existing computers, and achieves varying quantum bit computational power.

Binary system **$\{2\}^{\wedge 10}=1.0\times10^{\wedge 3}$** The character processing capability is "1". match$2^{\wedge n}$ qubitsbit;

Ternary **$\{3\}^{\wedge 10}=5.9\times10^{\wedge 4}$** Processing capacity increased by 5.9 times, match$\{3\}^{\wedge 2n}$ qubitsbit;

Quinary **$\{5\}^{\wedge 10}=9.76\times10^{\wedge 6}$** Processing capacity increased by 953 times, match$\{5\}^{\wedge 2n}$ qubitsbit;

Septenary, **$\{7\}^{\wedge 10}=2.82\times10^{\wedge 8}$** Processing capacity increased by 27,500 times, match$\{7\}^{\wedge 2n}$ qubitsbit;

Novenary **$\{9\}^{\wedge 10}=33.4\times10^{\wedge 9}$** Processing capacity has increased by 334,000 times. match$\{9\}^{\wedge 2n}$ quantum bit; …;

With the emergence of high-density information transmission, the performance of computers varies greatly. The calculation based on "multi-ary" bytes is no longer a single "binary" byte. The computing power has undergone a fundamental reform (excluding the performance of physical materials), effectively expanding the artificial intelligence market, adapting to more new professions and industries, and bringing broad prospects for the development of artificial intelligence.

The global consensus acknowledges that achieving one million qubits remains a formidable challenge. Traditional binary low-density information transmission not only faces power constraints but also results in substantial resource wastage across the global community.

If the logarithmic three-dimensional chip achieves a computing power of $\{3,5,7,9\}^{128\text{-}256}$, it would fundamentally reduce the consumption of various resources in the global village. Coupled with advancements and reforms in physics and materials science, this could effectively 'protect' these resources.

Currently, (binary characters) have a maximum of 255 bits. This includes the "Jiuzhang" and "Zuchongzhi" developed by the team of Pan Jianwei from China. The "Jiuzhang-3" has been launched, with the number of photons increased from 76 to 255, and the speed of processing specific problems has already surpassed traditional supercomputers by 1000 quadrillion times = $1\times10^{\wedge 23}$.

To achieve $\{2\}^{\wedge 255}$, a logical circular computer (nine-ary characters) can be implemented using

$$\{9\}^{\wedge 23}=3.34\times3.34\times10^{\wedge 23+}=1.115\times10^{\wedge 23+}\approx10^{\wedge 23} \text{ bits.}$$

The compression from 255 to 23-bit levels alone reduces circuit layers, transistors, and supporting components by 90%, along with other auxiliary elements. Without altering the existing $(0/1)^K$ chip architecture, the current 128-256 level already demonstrates sufficient potential (with minor modifications) to handle logical circular computer operations for $\{9\}^{\wedge K(23)} = 1.115\times10^{\wedge K(23)}$ bits. This validates the dimensionless logical circular world as a robust solution.

The dimensionless logical circle method offers a vivid analogy: information transmission operates on a density basis, much like fishing in a river. Traditional computers (binary) use rods to cast their lines. Even after 'distilling' numerous algorithms with varied rod designs, they still rely on low-density, one-to-one information transmission.

The dual-logic circular code system in the circular logarithm computer (multi-ary) functions like a fish net, allowing users to select configurations with adjustable mesh sizes (performance) and product codes (xxxx). Each mesh can capture multiple bit-computing power units of varying specifications, ensuring stable high-density information transmission in the computer's one-to-many architecture.

The traditional big data dimension byte was transmitted using traditional binary two-dimensional high-power byte, which has been upgraded to multi-byte multi-ary multi-dimensional high-power byte information transmission. This achieves data processing compression, reduces transmission programs and storage space, effectively "slimming down," and significantly expands the application space of artificial intelligence.

The high computational power and advanced algorithms are exciting, but this raises a question: How can we ensure interpretability in the relationship between computing power and information transmission?

The task processing and the interpretability of the inverse process of the **3D** neural network for this agent are expressed as follows:

First: Understanding Bit Computing. Bit computing refers to data processing and computation in computer science and information processing using bits as the fundamental unit. It represents binary digits (0,1). With a standard byte size of $\{2\}^{\wedge 2n}$ (n=10), smaller units are (4×8=32) and larger units are (8×8=64). The information symbol of a logarithmically circular unit is not limited to "two characters" but encompasses "any number of characters or bytes" composed of bytes, all forming a "logical circular world" $(0/0)^{(K=\pm0)} = (1-\eta_{[C]}{}^2)^{(K=\pm0)}$. This maintains the inherent nature of quantum bit information transmission: it shows that the base value increases depending on the level of "high-density information transmission," exhibiting exponential growth in power terms. This expresses the relationship between computational power and information transmission without altering the nature of information.

Second: Analyzing Quantum Computing. Quantum bits can exist in multiple states simultaneously, utilizing properties like quantum superposition and entanglement for computation. Mathematically, this manifests as a "multiplicative combination and additive combination" relationship. Specifically, through "dual logic (numerical/bit value) codes" and the relationship between true propositions and logical code propositions, it achieves "fusion of classical analysis and logical analysis," offering
solutions nearly more efficient than classical computing.

Third: The current quantum theory is based on the assumption that quantum systems enable one-to-one low-density information transfer through discrete, symmetric, and uniform states. However, nature either lacks such ideal conditions or exists in a continuous, asymmetric, and inhomogeneous state, where high-density information transfer occurs in one-to-many scenarios. Examples include different determinants of matrices and group combinations of high-power equations. Therefore, the original "assumption" must be expanded and supplemented.

(a) For different determinant matrices, each determinant introduces "parameters", and the big data corresponds to massive parameters, which makes the workload of discrete symmetry calculation very large.

(b) To compress matrices of different determinants (including parameters) into "determinant multiplication or convolution functions", the method for calculating quantum superposition states or entangled states is employed, provided that the discrete determinant conditions are known.

(c) In neural networks, neurons vary in size and exist in entangled states (i.e., combinations of different determinants). A change in one element affects the entire or partial region. For neural networks: if the boundary function **D** (combination) and the feature modulus $\mathbf{D_0}^{(S)}$ are known as two-variable functions, while other parameters remain unknown, how can quantum computing (or classical analysis) be performed? This remains an unsolved problem in current mathematical-artificial intelligence research. The "dual logic (numerical/bit-level) code" approach using the logical circle method now provides a viable solution.

Specifically, data transmission: Bitrate (Bit Per Second) refers to the number of bits transmitted per second, used to measure data transfer speed. Audio and video processing: Bitrate indicates the binary data volume per second of compressed or decompressed audio, video, and speech, serving as a quality metric for audio and video.

Quantum computing: The qubit, the fundamental unit of quantum computation, operates similarly to classical computing's "one-of-a-kind high-order equations" and the computer's "1000↔0000↔0111" or "1/0↔0/0↔0/1" states. It features "multiplicative/additive combinations" that enable reversible transformations between corresponding "superposition states" and "probabilistic states," along with self-validation mechanisms. Notably, the zero-centered symmetry of the "infinite axiom" facilitates balanced exchange combinations, decomposition, and random self-validation error correction mechanisms, thereby achieving zero-error computations for more complex operations.

In conclusion, bit computation is a broad concept whose specific meaning depends on the application context. In classical computing, it primarily involves the processing of binary data; whereas in quantum computing, it encompasses the manipulation and computation of quantum states, as well as the pivotal role of attention mechanisms.

Discuss:

The development of mathematics and artificial intelligence has encountered a bottleneck. This has prompted computer experts to deeply reflect on and address the issues arising from data acquisition and compression methods.

Traditional computers employ an (infinite) "iterative method" to progressively reduce dimensions, ultimately achieving one-dimensional discrete computation. However, this dimension-reduction approach often fails to accurately compute multiple factors. For instance, decomposing "asymmetric and non-uniform determinant multiplication combinations" in real-world computing systems proves exceptionally challenging, requiring techniques like "fuzzy mathematics" or "approximate computation" to achieve satisfactory results. Such computational methods demand extensive computational resources, complex configurations, and substantial energy consumption.

On the other hand, in big data, discrete data contains asymmetry, and the computation (center point and zero point) cannot be grasped, which easily leads to "pattern collapse and pattern confusion". It means that binary computer not only has high error rate, but also the algorithm has reached the limit, and the space for further improvement is limited.

The current rush to adopt 'distillation' is a 'low-efficiency, slow, and costly' approach that leads to significant waste. In the face of confusion, computer industry reforms should not focus solely on improving 'physical components.' Even if certain chip architectures, computing power, or manufacturing methods achieve so-called 'cutting-edge' efficiency, attempting to hinder other companies' progress in computer development is futile.

There is no need to blindly adhere to the notion of 'maintaining binary low-density information transmission' (which does not mean abandoning combinatorial, parallel algorithms, or architectures), nor to regard computers as mere 'physical components' (which does not imply rejecting the reform and discovery of 'physical components'). The key lies in fully leveraging the advantages of logarithmic circular logic, which can significantly outpace and eventually obsolesce current binary methods. Conversely, this approach fundamentally transforms computer functionality at the mathematical-artificial intelligence level, aiming to reduce physical hardware and software, lower costs, and enhance efficiency.

From a computational architecture perspective, the fundamental transmission mechanism of binary symbols $(0/1)^K$ remains unchanged regardless of data types or processing scales. The core issue stems from mathematics 'inadequate resolution of "high-power function analysis," which has become a bottleneck for mathematical-ai integration across scientific domains including physics and biology. This has resulted in suboptimal mathematical-ai performance, excessive resource consumption, significant environmental degradation, and the need for high-end infrastructure components—all of which have been "wasted" at the global scale, depleting human resources, material assets, and financial capital while compromising our living environment. Conversely, by adopting advanced algorithms and rational chip architectures to drastically reduce resource waste, we can effectively safeguard the Earth's ecological balance.

In other words, the radical transformation of mathematics and artificial intelligence must be driven by mathematical reforms to achieve significant improvements in high-density information transmission in computers. The importance of mathematics has now reached a "decisive" threshold. Simultaneously, it is essential to encourage reforms in other physical and material properties of computers, as well as the development of new methodologies.

The China logarithm team calls for: the high algorithm and high computing power of the logarithmic logic circle demonstrate the advanced nature of the logic circle computer reform, effectively preventing blindness and wasting global village resources, and jointly caring for and protecting the human living environment. The computer reform first returns to the issue of memory and the native data foundation.

6.5，Circular logarithmic scheme(4):CPU/GPU slimming down

6.5.1 CPU "Slimming Down"

The CPU (Central Processing Unit) and GPU (Graphics Processing Unit) are two critical components in computer systems, each performing distinct tasks with significant differences in design and functionality. The CPU primarily consists of an arithmetic logic unit (ALU), cache memory, and a bus that manages data, control, and state between them. It operates under the von Neumann architecture, where programs are executed sequentially. The execution process involves fetching instructions from memory, decoding, performing operations, processing data, and returning results to memory. The CPU features multiple functional modules, making it suitable for complex computational environments. Most transistors are allocated to control circuits and cache, while a smaller portion handles actual computations.

The CPU/GPU now receives the information symbol of logical circles $(0/1)^K$. In the 'one-to-many' configuration, each logical circle $(0/1)^K$ contains multiple information symbols, which are decoded to decompose and recombine quantum computations.

Especially, the current mathematics can not satisfactorily solve the high power equation, the traditional algorithm is "iterative method", a large number of programs can not achieve zero error by layer by layer dimension reduction.

The circular logarithmic computer's encoder (forward) processes the "dual logic (bit value/numeric) code" output as (1/0). The decoder receives input symbols $(0/1)^K$ and employs the reverse "dual logic (bit value/numeric) code" for balanced exchange and random self-validation. This mechanism reverses logical bit values to generate "logical data codes," which then drive the representation of true proposition data (including three-dimensional values, audio, video, language, text, passwords, object motion trajectories, etc.).

CPU and GPU serve distinct functions in computer systems. The circular logarithm unifies them through dimensionless logic, forming a new chip architecture. Throughout computational programs, dual-logic (numerical/bit) code operates, preserving the inherent nature of $(0/1)^{(K=\pm1)}$ information symbols to ensure error-free deduction at every step.

Logical circuit code computer formula:

$$\{X+{}^{(S)}\sqrt{\boldsymbol{D}}\}^{(S)}=(1-\eta_{[jik+\dots s]})^K\{(2)\cdot\boldsymbol{D}_0{}^{(1)}\}^{(S)}=\boldsymbol{(0/1)}^{(S)}; \quad (S=0,1,2,3,4,\dots\text{infinite});$$

$$(1-\eta_{[jik+\dots s]})^{(K=\pm1)}=\{0,1\};\ (1-\eta_{[C]})^{(\boldsymbol{K=\pm0})}=\{0\};$$

By leveraging the formula's simplicity, the iterative method is abandoned to streamline operations. Memory conversion into "instructions" is implemented, with most data (including parameters) stored in "external memory" and retrieved through these instructions. The encoder compresses multi-element data into a single character using forward "dual logic (numerical (multiplication combination)/bit value (addition combination) code," forming a logical information byte $(0/1)=(1-\eta^2)^{(K=\pm1)}$ for output.

Decoder: Input a byte $(1-\eta^2)^{(K=\pm1)}$, parsed into multi-character sequences through (reverse) "dual logic bit value (addition combination) code/ (number (multiplication combination)" parsing, with circular logarithmic transformation in memory, demonstrating effective data compression and memory "slimming" optimization.

Notably, dynamic calculus in mathematics preserves the inherent properties of mathematical **(0,1)** = $(1-\eta^2)^{(K=\pm1)}$ and information transmission symbols **(0/1)** $^{(K=\pm1)}$, while enabling ultra-fast data processing to convert into transmission of invariant (0/1) high-information-density symbols. This corresponds to dimensionless logic $(1-\eta^2)^{(K=\pm1)}$ and $\{\mathbf{D_0}\}^{(K=\pm1)}$ (Z±S±Q±N±[q=0,1,2,...infinite)/t and (q=5,6,7,8,9,10)/t] power function properties, which encompass any finite element within infinity, three-dimensional space, dynamic calculus, and multi-element combinations.

6.5.2，NPU "slimming down"

NPU is the feature of neural network. At present, the data processing of neural network adopts complex iterative method. Many people are exploring the memory of CPU/GPU/NPU trying to "three in one". Without reliable mathematical foundation, it is difficult to get ideal success.

（1）Neural information transmission content in the human brain:

（1），Synaptic transmission process of neurons: Synaptic transmission is the core mechanism for information exchange and transfer between neurons in the nervous system, and its process mainly includes the following steps:

（a）、Action potential propagates to the presynaptic membrane: When an excitatory nerve impulse travels along the axon to the presynaptic membrane, it induces changes in membrane potential. Neurotransmitter release: The influx of Ca2+ promotes the fusion of synaptic vesicles with the presynaptic membrane, thereby releasing the stored neurotransmitters into the synaptic cleft.

（b）、Neurotransmitter-receptor binding: Neurotransmitters released into the synaptic cleft diffuse and bind to specific receptors on the postsynaptic membrane, which are typically ion channel-type receptors. This binding induces the opening or closing of ion channels.

（c）、Ion flow induces changes in membrane potential: When neurotransmitters bind to receptors, they trigger the movement of specific ions (e.g., Na^+, K^+, Cl^-) across the target cell membrane, resulting in alterations in membrane potential. Excitatory synapses cause depolarization, while inhibitory synapses induce polarization.

（d）、Generation of excitatory or inhibitory potentials: Changes in membrane potential can induce excitatory postsynaptic potentials (EPSPs) or inhibitory postsynaptic potentials (IPSPs) in target cells. These potential changes may lead to the generation of action potentials in target cells or alter their sensitivity to other neural signals.

（e）、The signal is transmitted in the neural network: through the information exchange between a large number of synapses, the neural signal can be transmitted and processed in the neural network, thus realizing the complex perception, cognition and behavior functions.

（f）、The release of neurotransmitter in synaptic transmission is a complex and precise process, which is regulated by many factors, the most important of which is the calcium ion influx induced by action potential and its subsequent effects. Furthermore, synaptic transmission is influenced by physical factors such as terahertz waves and modulated by mechanisms like synaptic plasticity24. Abnormalities in synaptic transmission are associated with various neurodegenerative diseases and psychiatric disorders.

（2）Neuron structure diagram

So, in what form do these neuronal 'multipotent potentials' transmit information?

A neuron is a mathematical function corresponding to a neuronal cell, which serves as the most fundamental structural and functional unit of the central nervous system. It consists of two parts: the cell body and the processes. The cell body is composed of cytoplasm, plasma membrane, and nucleus, and functions to connect and integrate information while transmitting signals. The processes include dendrites and axons.

The dendrites are short and highly branched, immediately extending from the cell body to form a reticular structure. Their function is to receive impulses transmitted by the axons of other neurons and relay them to the cell body.

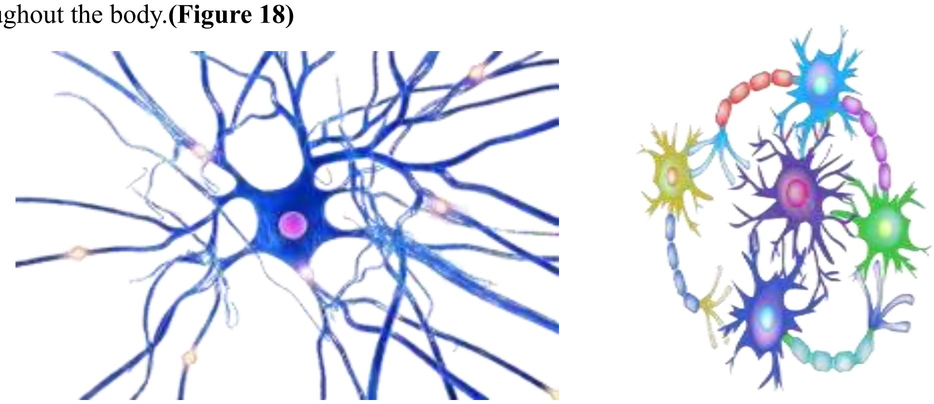
The axon is long with few branches, forming uniformly sized elongated protrusions that often originate from the axon hilum. Its function is to receive external stimuli, which are then transmitted by the cell body. Apart from branching out, the axon produces dendritic-like terminal nerves at its distal end. These terminal nerves are distributed throughout various tissueThe human body's nerves and organs form diverse terminal nerve structures .

(1) Nerve cell bodies are oval-shaped (spike-shaped), with their surfaces densely packed with nodes corresponding to individual dendrites and axons. For instance, peripheral nerves and their control areas govern functions including sensation, taste, hearing, vision, calculation, language, movement, thinking, reasoning, judgment, decision-making, analysis, behavior, and sleep. These structures also undergo growth phases and degenerative processes.

Based on the three-dimensional geometric spatial patterns of neurons with various sizes and shapes, which undergo random and continuous morphological and dynamic changes, artificial intelligence computers aim to mimic brain functions by addressing neural network computations, diagnostics, training, and learning. Consequently, many enterprises have developed two-dimensional neuronal chips.

Neural chips currently feature three binary 8-bit byte processors capable of communication and application processing. Manufacturers only need to provide application code running on these chips and I/O devices connecting them. Thus, a single chip serves dual functions as both a network communication processor and an application processor. This means that for most chip development, it is possible to simulate human brain activity to replace human labor/thought processes, making it a crucial component of artificial intelligence.

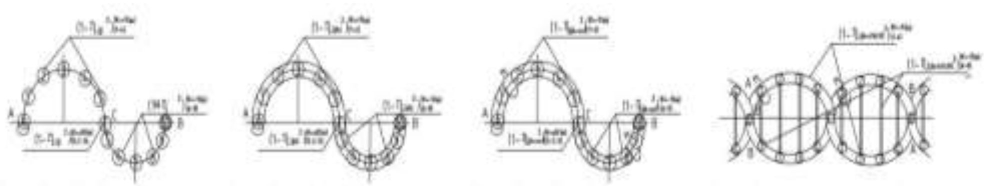
Notably, scientists have determined the transmission mechanisms of peripheral nerves. For instance, information transmission relies on the analog structure of peripheral nerves within neurons, which exhibits a 7-dimensional "double-helical DNA" architecture: the basic number of neurons ranges from $10^{\wedge 10}$ to $10^{\wedge 15}$ (at the peta-level), and the peripheral nerves of neurons receive specific stimuli from specialized somatic cells or tissues, distributed throughout the body.**(Figure 18)**



(Figure 18) Schematic diagram of peripheral nerve information transmission

(3) The dual-logic structure of neurons and the information transmission diagram of the logic circle. The DNA dual-logic structure is highly stable and can be divided into three levels: "Level 1 (the sequence of nucleotides), Level 2 (the double helix structure formed by two single DNA strands), and Level 3 (the superhelical structure formed by further twisting and coiling of the double helix)." The "four base pairs" between molecules and the "two single strands" rotate **(Figure 19)**

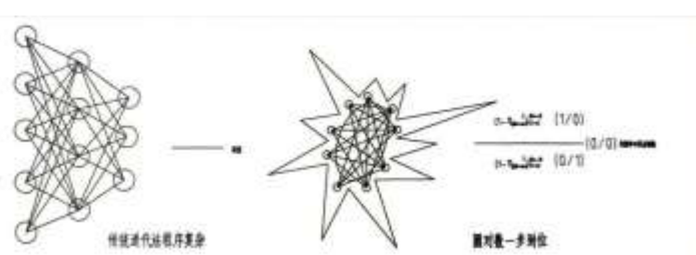
(a) Traditional approach: employs an "iterative method" program for processing, using a "binary 8-bit" byte processor (Figure 20.1).



(Figure 19) Schematic diagram of peripheral nerve conversion to logical numerical code

(b) Circular logarithmic computation method: Abandoning the iterative approach, it achieves a one-step solution by

introducing a mathematical-artificial intelligence $(0/1)^K$ high-density information transmission "seven-to-one" byte processor (Figure 20.2).（图 20.2）。



(Figure 20.1) Iterative method compresses multi-level data into a single byte

(Figure 20.2) Circular logarithmic data processing directly compresses into a single character

（c）The mathematical foundation of neural network interpretability: Based on neuronal cells and their activities, it is possible to construct a high-power (7) calculus dynamic equation composed of "7-dimensional double-helical DNA/RNA". In this framework, four "base pairs" correspond to "two DNA single strands" that collectively twist and rotate, forming the seven-character sequence abcd-efg, with the central point representing the equilibrium asymmetry between [4-3].

The logical circle employs a three-dimensional ***(jik)*** high-power sine curve body to simulate the physical world, with each dimension featuring neurons in a seven-dimensional byte transmission (i.e., one byte contains seven numerical values or characters). This process enters a seven-mechanism "dual logic (numerical/bit value) code" value grid network.

Among them: (DNA, RNA) share a characteristic mode (arithmetic mean); they can be processed together in a seven-element lattice matrix.

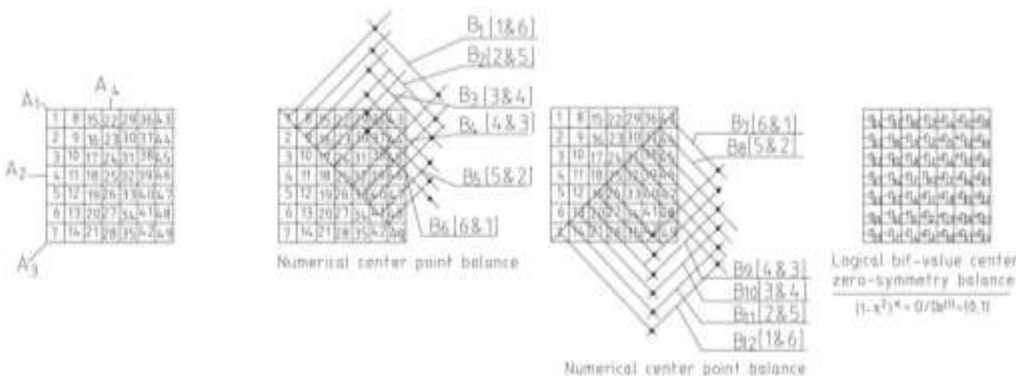


Figure 21.1 Schematic diagram of converting a heptagonal matrix into logical code

$(1-\eta_{DNA}^2)=D_{DNA}/\{\mathbf{D_o}\}^{(7)}$; $(1-\eta_{RNA}^2)=D_{RNA}/\{\mathbf{D_o}\}^{(7)}$;

Schematic diagram of the seven-element matrix simulation of "logical (numerical/bit) codes" for biological double helices (DNA, RNA) (Figure 21.1)

（3），Example 7: Quadruple-Valued Neural Network

Based on the complex analysis of three-dimensional physical space, each axis generates a double-helix DNA-RNA engineering corresponding to seven arrays forming a binary logic code matrix. The logical code matrix composed of "seven characters" is selected. The numerical value ranges from (1 to 49), resulting in a 7×49=343 information character matrix grid, with the central point's numerical characteristic modulus **Do**=25.

$\{1,2,3,4,5,6,7,8,9,10,\ldots,[25],\ldots,41,42,43,44,45,46,47,48,49\}$

The four-logic A (longitudinal and transverse four-logic) and B (diagonal four-logic) are converted into seven code sequence information characters corresponding to the logic gates (Figure 21.1).

The symmetry and asymmetry of the center point of the four-logic values, the balance cannot be directly reversed exchange: $A_{[1-16]}$

(16 corresponding to different feature modes)；$B_{[1-12]}$(There are 12 corresponding common feature modes.）;

$\eta_{A1}=\{(\eta_1,\eta_2,\ldots,-\eta_6,[\eta_\Delta=25],(\eta_7,\eta_8,\ldots,\eta_{49})^{(K=-1)}\}$:

The symmetry of the zero point of the logical bit value of the four-logic values can be directly exchanged:

(the symmetry corresponds to the common feature module with 28 common features),

(the symmetry of the common feature module is 16);

$\eta_{A1}=\{(-\eta_1,-\eta_2,\ldots,-\eta_6)^{(K=+1)},[\eta_{[C]}=0],(+\eta_1,+\eta_2,\ldots,+\eta_6)^{(K=-1)}\}$:

Convert dual-code values/bit values to four-bit dimensionless logical circular quantum tables (for storage in NPU/GPU) (Figure 21.2)

（Figure 21.2 Schematic diagram of the matrix memory table for logical values/bit values of septuple numbers

For instance, traditional digital virtual {01011101} information characters form a 2D 8×8=64 matrix that cannot distinguish "asymmetry"; while dimensionless logic, composed of "7-character sequences" {1,2,...[25]...48,49} and dual-code logic forming a 3D 9×49=243 matrix, clearly differentiates "symmetry and asymmetry". Both can be converted into four logical values $\{A_1A_2A_3A_4\}$ and $\{B_1B_2B_3B_4\}$ corresponding to logic gates {1000↔0000↔0111}, thereby constituting the machine learning approach of **3D** chip architecture.

Based on the logic gate invariance, the circuit can be adapted to the existing integrated circuit, photonic circuit, and other professional circuits.

（4），(Example) The neural network is a monomial seventh-order equation:

Key parameters: The biological double helix seven-element number system (comprising logical codes with characters abcdefg) features $D_{DNA}=D_{RNA}$ numerical variables and identical characteristic modulus $\mathbf{D_0}$=25 (arithmetic mean). The biological double logic exhibits central symmetry within the [4-3] range (where '4' represents DNA's four nucleotides A/G/C/T and RNA's A/G/C/U, while '3' denotes the helix's three-dimensional motion with energy imbalance at its core). This generates' dimensionless logical code values/bit values, 'enabling machine learning to extract four-logic value logic gates (1000 0001) for high-density transmission of' one-to-seven' information characters.

Step 1: Three-dimensional data search, forming (ABC) three series of information character density containing DNA and RNA in one byte information symbol (0/1), using "three-dimensional grid [seven-element number] series individual information code character" machine learning:

$$\mathbf{D_{[jik]}}=jik(\mathbf{ABC}) =J\,(abc)+i\,(\mathbf{abc})+K(\mathbf{abc})=(\mathbf{0/1});$$

Step 2: 3D Complex Analysis: A byte-level information symbol (0/1) and the known key (characteristic modulus) are used to derive the 3D directional decomposition logic gate, which contains three series of information character densities (A,B,C). Each dimension (A), (B), and (C) consists of 7 characters.

$$\mathbf{D_{[jik]}}=jik(\mathbf{ABC}) =J\,(\mathbf{A})+i\,(\mathbf{B})+K(\mathbf{C});$$

	A纵横向对应特征模中心点对称性				B斜线向对应类同特征模中心零对称性	
	$[1-\eta_{(jik\cdot\cdot\cdot)}^2]^k$		$(1-\eta_{(jik\cdot\cdot\cdot)}^2)^k$		$[1-\eta_{(jik\cdot\cdot\cdot)}^2]^k$	
1	A_1=253,586,125	A_5=118,514,880	$(1-\eta_1^2)^k$=0.042	$(1-\eta_5)^k$=0.019	389,509,120	$(1-\eta_1)^k$=0.216
2	A_2=1,136,678,400	A_6=323,516,160	$(1-\eta_2)^k$=0.186	$(1-\eta_6)^k$=0.053	525,404,880	$(1-\eta_2)^k$=0.270
3	A_3=2,131,900,225	A_7=648,862,400	$(1-\eta_3)^k$=0.349	$(1-\eta_7)^k$=0.106	709,430,400	$(1-\eta_3)^k$=0.258
4	A_4=5,967,561,600	A_8=1,297,684,800	$(1-\eta_4)^k$=0.978	$(1-\eta_8)^k$=0.213	949,625,600	$(1-\eta_4)^k$=0.213
5		A_9=2,818,333,440		$(1-\eta_9)^k$=0.461	1,257,268,320	$(1-\eta_5)^k$=0.154
6		A_{10}=4,150,656,720		$(1-\eta_{10})^k$=0.680	1,646,023,680	$(1-\eta_6)^k$=0.094
7		A_{11}=5040		$(1-\eta_{11})^k$=0.000	574,741,440	$(1-\eta_7)^k$=0.270
8		A_{12}=17,297,280		$(1-\eta_{12})^k$=0.002	935,563,760	$(1-\eta_8)^k$=0.206
9		A_{13}=586,051,200		$(1-\eta_{13})^k$=0.096	1,297,900,800	$(1-\eta_9)^k$=0.156
10		A_{14}=33,891,580,800		$(1-\eta_{14})^k$=5.552	1,574,773,200	$(1-\eta_{10})^k$=0.116
11		A_{15}=135,970,773,120		$(1-\eta_{15})^k$=22.277	1,646,730,540	$(1-\eta_{11})^k$=0.086
12		A_{16}=432,937,943,360		$(1-\eta_{16})^k$=70.933	1,321,205,760	$(1-\eta_{12})^k$=0.064

说明：逻辑数值为七元数连乘　　$(1-\eta_{(jik\cdot\cdot\cdot)}^2)^k$= 逻辑位值为逻辑数值七元数乘数值/逻辑七数值算术平均值

Get: Logical circle to value ：

$$(1-\eta_{DNA}^2)=D_{DNA}/\{D_o\}^{(7)};\quad (1-\eta_{RNA}^2)=D_{RNA}/\{D_o\}^{(7)};\quad \text{(reserve)}$$

Step 3: Extract the "(7-ary) dual logic (numerical/bit value) grid network". Machine learning processes the logical numerical balance asymmetry based on $(1-\eta_{DNA}^2)=D_{DNA}/\{D_o\}^{(7)}$ and $(1-\eta_{RNA}^2)=D_{RNA}/\{D_o\}^{(7)}$ as illustrated in the following example:

DNA-D[(abcdefg)$_{DNA}$]; **RNA-**D[(abcdefg)$_{RNA}$];

DNA: B_{10}={4,10,16,22,[0],35,41,47}，Get logic code (multiply combination value)$D_{DNA}=0.949625\times10^{(9)}$

RNA: B_4={4,12,20,28,[0],29,37,45}，Get logic code (multiply combination value) $D_{RNA}=1.297900\times10^{(9)}$

characteristic modulus： $\{\mathbf{D_0}^{(7)}\}=[25^{(7)}]=6.103515\times10^{(9)}\times10^{(9)}$

obtain the dimensionless logical circle factor： $(1-\eta_{DNA}^2)=D_{DNA}/D_{0DNA}^{(7)}$; $(1-\eta_{RNA}^2)=D_{RNA}/D_{0RNA}^{(7)}$;

The numerical center point [0] is not balanced and the two sides of the asymmetry energy are the same, so the direct exchange is not possible. The equivalent replacement is realized by the bit value center zero point symmetry.

Step 4: The machine learning process processes symmetric logical bit values through logarithmic balance symmetric points, which can be inversely exchanged.

DNA: $B_{10}=\{-\eta_{21}-\eta_{13}-\eta_5+\eta_3\}\leftrightarrow[\pm\eta_{[C]}=0]\leftrightarrow\{+\eta_4,+\eta_{12},+\eta_{20}\}$, $\Sigma(-\eta_{38})+\Sigma(+\eta_{38})=0$；corresponding$(\pm\eta_{38})$；

RNA: $B_4=\{-\eta_{21}-\eta_{15}-\eta_9-\eta_3\}\leftrightarrow[\pm\eta_{[C]}=0]\leftrightarrow\{+\eta_{10}+\eta_{16}+\eta_{22}\}$； $\Sigma(-\eta_{48})+\Sigma(+\eta_{48})=0$；corresponding$(\pm\eta_{48})$；

Step 5: Machine learning processing, using a dual-code logic sequence matrix to reconstruct or analyze the root elements of DNA$_{(DNA)}$ and D$_{(RNA)}$;

According to the actual double helix numerical D (DNA) corresponding to DDNA=0.949625×10^9 and D

(RNA) corresponding to DRNA=1.297900×10^9 relationship;

Get: Feature mode comparison coefficient:

$$\{\alpha\}=D_{0DNA}/\{25\}，\{\beta\}=D_{0RNA}/\{25\}，$$

Step 6: Machine learning achieves seven root elements through the analysis (and conversely, the combination) of the ternary chip septyadic architecture.

DNA:{α}×{4,10,16,22,[0],35,41,47}={abcdefg}$_{DNA}$（Analysis of the original proposition），

RNA:{β}×{4,12,20,28,[0],29,37,45}={abcdefg}$_{RNA}$（Analysis of the original proposition），

Step 7: After machine learning obtains the seven root elements: {abcdefg}$_{DNA}$ and {abcdefg}$_{RNA}$ original proposition analysis, it further analyzes the dynamic parameters of seven points, which consist of three-dimensional precession and two-dimensional rotation, forming a five-dimensional vortex space. This indicates that each {abcdefg} has five parameters (***jik+uv***). According to the mathematical "univariate quintic equation," the analysis continues:

Under the condition of invariant characteristic modulus of the total element {abcdefg}（$D_{0DNA}= D_{0DNA}$）corresponding to the "(seven-element) dual logic code" grid network

{abcdefg}First derivatives of each element：

$$(1-\eta_{[v]DNA}^2)\rightarrow\partial D_{0DNA}=D_{0DNA}^{K(S\pm(N=-1))t};(1-\eta_{[v]DRNA}^2)\rightarrow\partial D_{0DRNA}=D_{0RNA}^{K(S\pm(N=-1))t};$$

{abcdefg}Second derivatives of each element:

$$(1-\eta_{[a]DNA}^2)\rightarrow\partial D_{0DNA}=D_{0DNA}^{K(S\pm(N=-2))t};(1-\eta_{a]DRNA}^2)\rightarrow\partial D_{0DRNA}=D_{0RNA}^{K(S\pm(N=-12))t};$$

Where: $(1-\eta_{[V]DNA}^2)$ represents the logarithmic change rate of circles; $(1-\eta_{[a]DNA}^2)$ represents the logarithmic change acceleration of circles; they correspond to the three-dimensional neuronal model displayed in the video for each neuron's dynamic response, providing research and diagnostic support.

The aforementioned neurons utilize a single byte to provide a reliable general solution for implementing interpretable inverse processes in neural networks, transitioning to an integrated CPU/GPU/NPU architecture. At this stage, all parameters of the sevensystem (first level: [***(jik)***-(7)=21, (***ji,ik,kj***)-(14), ***(j,i,k)***-(7)]=84 parameters), (second level: 2×84×5=840 parameters), totaling 924 parameters across both levels, are planned for CPU implementation. Meanwhile, a single byte enables high-density information transmission of 7 characters per GPU/NPU unit, thoroughly transforming and resolving memory constraints.

[Direction 2]: The Native Data Foundation

——Taking the Reform of Data Prime as the Starting Point to Establish the Mathematical Foundation

6.6， Circular logarithmic scheme (5): Native data base

6.6.1, Native data base background:

The native data infrastructure of Agent AI typically refers to specialized foundational architecture designed for data management. It encompasses a comprehensive suite of processes including data collection, storage, processing, management, and analysis, providing enterprises and individuals with a stable and reliable data environment. This infrastructure supports autonomous decision-making, dynamic interactions, and collaborative operations, while integrating AI systems centered around the CPU, GPU, and NPU. With the advancement of AI technology, traditional CPUs and GPUs face challenges such as low efficiency and high power consumption when handling large-scale parallel AI computations.

Therefore, the native data infrastructure of Agent AI adopts CPU-NPU integration (computing-storage fusion) as its core innovation.

The reform involves converting the "monomial higher-order equation" in mathematics into a dimensionless logical circle. The entire logical circle is equivalently transformed through the mutual reversibility of $(1-\eta_{[jik+...s]})^K=(1/0)^{(K=+1)}\leftrightarrow(0/0)^{(K=\pm1)}\leftrightarrow(0/1)^{(K=-1)}$. It introduces a "dual logic (numerical/bit value) code" and implements computations (including both combinational and analytical operations) through "instructions".

NPU (Neural Processing Unit) is a specialized chip optimized for deep learning algorithms. Mimicking the operation of human neurons, it replaces traditional matrix multiplication and convolutional computations with logical circuit operations, eliminating iterative methods to achieve one-step "one-to-many" algorithms. As a linear-topological processor, it finds extensive applications in image filtering, signal processing, probability theory, and statistics.

The agent-based AI's native data infrastructure compresses **3D** data into **1D/2D** formats, deriving the marginal boundary function **D** and feature mode $\mathbf{D_0^{(S)}}$. This converts data into dual-logic $(0/1)^K$ code for CPU/GPU processing. The system revolutionizes traditional 1:1 low-density data transmission with 1:many high-density transmission, while integrating storage and computation.

6.6.2，The Primary Data Base and Process Flow

The original data foundation involves **3D** data search, converting multi-character (byte) sequences into a single logical circular character (byte), as previously described (Figure 20). Now, based on neuronal cells and their activities, which may form a "7-dimensional double-helical DNA/RNA" structure, a high-power (7) differential equation can be established. Through the general solution of the seventh-order equation, artificial intelligence neural networks can be introduced to implement interpretable reverse engineering. This represents an urgent challenge in current computer engineering.

（A）,Mathematical Analysis of Explainability：

A circular logarithmic analytical equation can be computed with any two of the following three elements: boundary function D, characteristic modulus (arithmetic mean), or logical circular logarithm (numerical/bit value) $(1-\eta_{[jik+...s]}{}^2)^K$. It does not require mathematical modeling and accommodates diverse needs across enterprises and user scales.

In the analysis of the first-order polynomial equation of mathematics (true proposition), it is expressed as follows: Given that the boundary function D of a certain level (multiplicative group logic) and the characteristic modulus $\mathbf{D_0}^{(S)}$ are the numerical arithmetic averages of the number of bytes (S) at each level, a general analysis is conducted.

The formula of the monomomial high power equation and the logarithm of the circle are used to transmit the arbitrary high density information symbol $(0/1)^K$;

$$\{X+{}^{(S)}\sqrt{D}\}^{K(S)}=(1-\eta_{[jik+...s]})^K\{(2)\cdot D_0{}^{(1)}\}^{K(S)}=(0/1)^{K(S)};\quad (S=0,1,2,3,4,\ldots \text{infinite});$$

$$(1-\eta_{[jik+...s]})^K=\{0,1\}^K;\quad (1-\eta_{[C]})^K=\{0\};$$

The encoder outputs $(0/1)_1$ for **D**, $(0/1)_2$ for $\mathbf{D0^{(S)}}$, $(0/1)_.$ for $(1-\eta_{[jik+...s]}{}^2)^{(K=\pm0)}$, and $(0/1)^K$ 4 for the hierarchy $(1-\eta_{[jik+...infinite]})^{(K=\pm1)}$, indicating the operational level. The decoder processes each information symbol $(0/1)^K$ at every hierarchy level, resolving mathematical equations of arbitrary order and explaining multi-qubit computations.

The memory (**ADC**) and (**DAC)** perform balanced switching of dual logic (digital/bit) codes in the mid-reverse configuration, driving digital switching back to the physical world (including mathematical analysis, video, audio, language, and cryptography).

（B）,Relationship between true propositions and logical code propositions:

True proposition: Given two variables **D** and $\mathbf{D_0}$ obtain the truth proposition's seven-element number logic value code: $(1-\eta_{[\Delta]}{}^2)^K=(1)$; $(1-\eta_{[C]}{}^2)^K=(1)$;

The logic code: Given two variables **D** and $\mathbf{D_0}$ the logic value codes are: $\mathbf{(1-\eta_{[\Delta]}{}^2)^K}=(1)$; $\mathbf{(1-\eta_{[C]}{}^2)^K}=(1)$;

When: $(1-\eta_{[\Delta]}{}^2)^K=\mathbf{(1-\eta_{[\Delta]}{}^2)^K}$ $(1-\eta_{[C]}{}^2)^K=\mathbf{(1-\eta_{[C]}{}^2)^K}$ Then:

$$\mathbf{(1-\eta_{[\Delta]}{}^2)^K=D/D=D_0/D_0}\ ;\ 或：(1-\eta_{[\Delta]}{}^2)^K=\mathbf{D/D=D_0/D_0};$$

Thus, without altering the inherent nature of mathematics and artificial intelligence, any true proposition's computation can be achieved through the conversion relationship of "dual logic (numerical/bit value) code," yielding either an analytical or combinatorial solution. This represents the integration of mathematical storage and computation. Notably, traditional virtual worlds with capacities of 32,64,128,256,512,1024... can all operate within a circular logarithmic logic framework. This approach not only fundamentally redefines open-source memory space but also delivers unparalleled flexibility and privacy.

It is proved that the dimensionless logic circle logarithm has "two sets of secret code program and random self-proving mechanism of error correction", the highest level of security and robustness.

Notably, the emergence of a new method inherently presents dual aspects. The "Dual-Logic (Numeric/Bit) Code" introduces "Dual-Logic Information Symbols **(1/0)-(0/0)-(0/1)**" for control, which benefits "normal users." However, it may also expose "abnormal users" to attacks on core data and programs. Therefore, "normal users" must strengthen both internal and external confidentiality measures.

Consider integrated circuits as an example: By adapting instructions and programs using conventional computer memory, the **3D** chip with circular connections preserves existing memory functionality. The same binary $(0/1)^K$ information transmission symbol is upgraded from a flat binary system to a three-dimensional multi-ary system. The traditional CPU/GPU/NPU triad, after being streamlined and optimized, achieves high efficiency, powerful computing, low energy consumption, and error-free data transmission.

Outlet end：The true proposition is compressed into a logical value code, which enters the "(forward) dual logic code" as $\{\mathbf{1000}\}^{(K=+1)}$ (multiplicative combination) for the "AND gate", containing numerical center point asymmetry) and is converted into $\{\mathbf{0111}\}^{(K=-1)}$ (additive combination) "OR gate" ↔ "NOT gate" {0000} with a random self-proofing error correction mechanism↔.

Midpoint： The output is a high-density dimensionless logical information symbol $\{0000\}^{(K=\pm0)}$ (plus combination), which represents the transmission of "one-to-many" $\mathbf{(0/1)^K}$ information symbols.

Receiving terminal：Accept message $\{0000\}^{(K=\pm0)}$ ↔ $\{0111\}^{(K=-1)}$ (AND combination) ↔ 'NAND gate' random auto-verification ↔ '(Reverse) dual logic code' $\{0111\}^{(K=-1)}$ 'OR gate' auto-conversion to {1000} (AND combination) auto-conversion $\{0111\}^{(K=-1)}$ (AND combination), balanced exchange decomposition of bit value center zero point with random auto-verification as error correction mechanism ↔ inverse proposition (analysis).

The integrated computing and storage process can be simply expressed as:

【$(1-\eta_{[jik]]}{}^2)^{(K=+1)}$={0/1}】**outlet end↔**【(1000) ↔$(1-\eta_{[C]]}{}^2)^{(K=\pm 0)}$={0/1}】↔(0001)↔**receiving terminal,**【$(1-\eta_{[jik]}{}^2)^{(K=-1)}$={0/1}】;

The symbol "↔" indicates the mutual inversion transformation and the balance exchange of the infinite axiom with the random self-verification mechanism.

This design preserves the inherent transmission characteristics of computer logic gates $(0/1)^K$, while generating varying degrees of high-density information characters through dual logic (numerical/bit value) codes. The logic codes can also incorporate multiple authentication mechanisms, achieving both top-tier open-source compatibility and maximum privacy. Not only does this enhance efficiency, but it also addresses memory challenges by streamlining the mathematical-ai foundation.

Therefore, any operation of true proposition can be transformed into the analysis or combination of true proposition by the conversion relation of "dual logic (value/ bit value) code", which fundamentally reform the memory space.

6.6.3，Circular Logarithm Reformation and Optimization of Memory

The aforementioned explainability can overcome memory limitations. For graphics cards based on existing GPU/NPU core architectures, their memory capacity is extremely limited. When processing large models, pushing model parameters upward often leads to memory overflow, as the graphics card cannot handle the load. Previously, training a model with 10^11-15 parameters required stacking dozens of A100 GPU together—a scale most enterprise users cannot achieve. The memory constraints of GPU/NPU act like an invisible wall, effectively limiting large models. Additionally, their development faces monopolistic restrictions and suppression.

The circular logarithmic correspondence CPU/GPU/NPU integrated memory mode: one character corresponds to one byte $(0/1)^K$, which improves transmission efficiency and enables parameter expansion. Relevant parameters are stored in the CPU memory with high capacity. It also includes a "random self-authentication error correction mechanism" to ensure zero-error applications.

The circular logarithmic processing approach is expressed as follows: 1. Without altering the (0/1) function, it transforms binary low-density information transmission into multi-mechanism high-density information transmission.

2. The traditional "iterative method" of information transmission is abandoned, and the multi-data processing is compressed into one-step information transmission.

3. The reduced parameters are stored as "value-containing multi-element cluster sets" and extracted separately through CPU instructions.

The existing memory system has been fundamentally reformed in both **2D** and **3D** dimensions, achieving a streamlined solution through the integration of CPU, GPU, and NPU.

In computer, the memory can be divided into main memory and auxiliary memory, or external memory and internal memory.

External storage is usually magnetic media or optical discs, which can store information for a long time.

Memory refers to the storage components on the motherboard that hold data and programs currently in use. However, it only temporarily stores these elements, and the data will be lost if the power is turned off or the system is powered down.

(1) The internal memory with a "**3D** chip" includes "dual logic (digital/bit value) code", which stores the instructions and data of the currently running program and exchanges information directly with the CPU.

(2) External storage devices equipped with "**3D** chips" incorporate "dual logic (digital/bit-level) code," also referred to as auxiliary memory. These constitute storage units in computer systems beyond internal memory (main memory). Primarily designed for long-term data and program preservation, they typically feature high storage capacity and cost-effectiveness, though with comparatively slower access speeds.

According to different classification standards, such as the computer information density transmission type, there are "$\{\mathbf{2}\}^{\wedge 2n}$ (binary), $\{\mathbf{3}\}^{\wedge 2n}$ (ternary), $\{\mathbf{5}\}^{\wedge 2n}$ (quinary), $\{\mathbf{7}\}^{\wedge 2n}$ (septimal), $\{\mathbf{9}\}^{\wedge 2n}$ (nonary)".

External storage devices come in various types, but the most common classification is based on storage media and technology. The primary method of categorizing external storage is by the storage medium used.

According to the scale of enterprise user requirements, the chip design circuit can rely on the logarithmic circle algorithm to adjust "voltage, current, capacitance, resistance, and inductor" to establish multiple series of three-dimensional chip architectures for direct computation. This approach offers advantages such as low cost, high efficiency, short processing time, zero error, and green energy optimization

.6.7，Circular Logarithm Scheme(6):

6.7.1，Extracting Four-Logarithm Values from Matrix Grid

(1) The earlier application of the circular logarithm method demonstrated that the "monomial quartic equation

and four-color theorem" forms a chip architecture capable of modifying existing RAM. Using CMOS transistors or magnetic materials as memory elements, each element stores a binary code $(0/1)^K$logic symbol. Multiple memory elements combine to form storage units, where each bit value is assigned a unique identifier—akin to blocks or layers in a four-color theorem diagram—simplifying the understanding of conventional hexadecimal. The hexadecimal information transmission symbol (0/1) remains unchanged, while the dimensionless logical circle (circular logarithm) corresponds to the "dual logic value/bit value" factor.

(2) The compression conversion of arbitrary multi-element data into a "logical value code matrix" is achieved through vertical and diagonal connections to form four logical values. These logical values correspond to binary $(0/1)^K$ matrices, which in turn form the "four logical values." The four logical values are decomposed at the central point into positive and negative directions: $A^{(K=+1)}$ and $B^{(K=-1)}$, corresponding to {1/0}↔(0/0)↔{0/1}.,

(1)，The Four-Logical Values "AND Gate" Composition(1×1,0×1,1×0,0×0)↔$A^{(K=+1)}$,$B^{(K=-1)}$Corresponding logarithm$\mathbf{(1-\eta^2)^{(K=\pm1)}}$corresponding{**1000**}，

(2), The Composition of Four-Logical Values "OR Gate"(1+1,0+1,1+0,0+0)↔$A^{(K=+1)}$,$B^{(K=-1)}$Corresponding logarithm$\mathbf{(1-\eta^2)^{(K=\pm1)}}$corresponding{**0111**}，

(3), The Composition of Four-Logical Values "Non-Gate"(1+1,0+1,1+0,0+0)↔$C^{(K=\pm1)}\in A^{(K=+1)}$,$B^{(K=-1)}$Corresponding logarithm$\mathbf{(1-\eta^2)^{(K=\pm0)}}$↔{**0000**}，The paper includes the balance exchange combination decomposition of infinite axiom and the random self-verification mechanism of error correction.

(4), The paper includes the balance exchange combination decomposition of infinite axiom and the random self-verification mechanism of error correction.

The "1" here is a "one-to-one" information symbol matrix for traditional computers, while for multi-quantum elements, it forms a "one-to-many" information symbol matrix through the multiplication and combination of natural numbers (or other custom codes), ultimately constituting a "logical value/bit value code" matrix.

（A），Storage and Computing Integration of SSD

Data models are compressed or parsed through root multiplication combinations, converting into 'monomials of higher-order equations' for high-density information transmission in AI systems (0/1 binary states, corresponding to general solutions for multi-quantum computing).

The big data ensemble model generates distinct root elements through polynomial operations while maintaining the total number of elements (boundary functions and eigenvalues). For calculus (zero-order, first-order, second-order, and higher-order neural network hierarchies and nodes) and various complex problems, the analytical computations exhibit isomorphic consistency with minimal differences. The variations occur solely in the power function changes corresponding to the dimensionless logical code at each order level and shifts in the central zero point position. These phenomena can be documented in the "dual logic (numerical/bit value) code grid network," which still satisfies the requirements of the 'infinite axiom' random self-validation mechanism. This clearly demonstrates that traditional mathematical calculus and computer data processing concepts—along with algorithms and computational power—face rigorous challenges and necessitate reform.

In the big data group model, when the logical value code center point moves through the symmetry of the logical bit value center zero point $(1-\eta_{[C]}^2)^{(K=\pm0)}$ corresponding to {0000}= $(0/1)^K$, the polynomial generates different quantum root elements of the neural network.Dual logic code transmission: (external)

$$\mathbf{(1-\eta_\Delta^2)^{(K=+1)}(0/1)\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}=(0/1)\leftrightarrow(1-\eta_C^2)^{(K=-1)}\}=(0/1)^K};$$

Dual logic code transmission: (internal)

$$\mathbf{(1-\eta_\Delta^2)^{(K=+1)}=\{1000\}\leftrightarrow(1-\eta_{[C]}^2)^{(K=\pm0)}=\{0000\})\leftrightarrow(1-\eta_C^2)^{(K=-1)}=\text{应}\{0111\}=(0/1)^K}$$

The data model is discrete, with a circular logarithm of $\mathbf{(1-\eta_\Delta^2)^{(K=+1)}}=1$. Traditional calculations involve symmetric transmission, which has flaws such as the absence of a circular logarithm control center point, leading to model collapse, pattern confusion, and high error rates. Numerous error correction procedures are required, resulting in significant resource waste. The introduction of a 'dual logic (numerical/bit value) code grid' effectively ensures operational stability by utilizing the circular logarithm bit value center zero point, facilitating the analytical determination of quantum root elements.

The data model is continuous, with a circular logarithm of $\mathbf{(1-\eta_\Delta^2)^{(K=+1)}}\neq1$. The introduction of a 'dual logic (numerical/bit) code grid' effectively ensures operational stability. By centering the bit values on the zero point of the circular logarithm, it simplifies the analysis of quantum root elements.

The data model operates under a balanced transformation principle, where the circular logarithm $\mathbf{(1-\eta_{[C]}^2)^{(K=\pm0)}}=0$.

It employs a dual-logic (digital/bit) code grid system that balances symmetry and asymmetry through a 'digital center point,' while the 'bit center zero point' facilitates seamless exchange and a robust error-correction mechanism. This dual-logic (digital/bit) code mechanism ensures high-density transmission of computer information $(0/1)^K$ and guarantees zero-error, high-performance computation at every step.

（B），SSD's storage-computing integration employs a "dual logic (numerical/bit value) code" example:

Transfer flow：outside: {1/0}↔{0/0}↔{0/1}; interior: $\{1000\}^{(K=+1)}$↔$\{0000\}^{(K=\pm0)}$↔$\{0111\}^{(K=-1)}$;

outlet end： Any data (e.g., 3D directional data processed as natural number sequences or custom values based on hierarchy, chapters, paragraphs, phrases, etc.) is logically encoded and compressed into a single value (S bytes, where S=1,2,3,5,7,9...) through multiplication and combination. Two keys (content: "boundary function" and "feature modulus") are then used to generate output information defined as {1000}.

receiving terminal： Received the output message from the recipient: {1000} second set (key content: "boundary function", "characteristic mode"). The computer first performs **3D** complex analysis.

For example, the first set includes: "boundary function" {96}, eigenmode {5}. The computer retrieves the three-dimensional directional series "***J***3, ***i***4, ***k***5" from memory (or the "Circular Logarithm 999 Table" in machine learning) or directly.

For example, the second set: a specific dimension, such as a nine-element array, forms a "boundary function **D**" {multiplication combination} and a "feature modulus $\mathbf{D_0}$" {addition combination average value}. The computer processes this data according to the memory, following the "(nine-element number) dual logic (numerical/bit value) code grid network" structure.

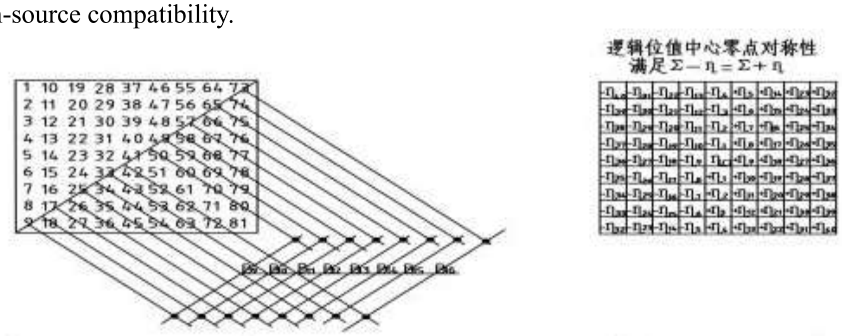
The memory operates through a 'dual-logic (numerical/bit value) code grid' computational process. For instance, the nine-element numerical marginal function D(abcdefghs) converts the first logical value code {1,2,3,4,5,6,7,8,9} into a 9×9=81 two-dimensional logical code matrix, or alternatively a 9×81=729 three-dimensional matrix, with the numerical center point averaging [41].

The memory's grid code matrix: Composed of 9 numerical values and 9 bit values arranged in vertical, horizontal, or diagonal patterns to form four logical $AB^{(K=\pm1)}$, each four-valued combination contains 9 (numerical/bit) elements. Multiplying 9 numerical values (combinatorial multiplication) yields (1000) corresponding to the "AND gate", while adding 9 bit values (combinatorial addition) produces (0111) corresponding to the "OR gate" $(1-\eta^2)^{(K=\pm1)}$. The four-valued combinations internally balance numerical center points (symmetrical/asymmetrical distribution) and bit center zero points (symmetrical exchange combination decomposition with random self-validation mechanisms), where the center point (41) corresponds to "1" and the center zero point $(\eta_{[\Delta]})$ and $(\eta_{[C]})$corresponds to "0", forming $\{0,1\}^K=\{0,\eta\}$ corresponding to the "NOT gate" $(1-\eta_{[C]}{}^2)^{(K=\pm0)}$ corresponding to $\{0000\}=(0/1)^K$ Each information character is converted into a circular logarithmic information symbol $(0/1)^K$ for high-density transmission of "one-to-nine" pairs.

The memory is improved from the traditional $\{2\}^{\wedge 2n}$ qubits to {9}^2n qubits without changing the information symbol (0/1).

（c）The storage-computing integration process of SSD：

Demonstration example: The nine-element matrix extracts four logical values, converting them from logical value codes to bit value codes. The zero-centered symmetry of bit values enables balanced exchange, combination decomposition, and a random self-validation error correction mechanism. The logical code form ensures the highest privacy and top-tier open-source compatibility.



(Figure 22): A 9-byte symbol (0/1) in the circular logarithmic information transmission system

For example, in the open-source dimensionless analog logic system, the logical circle corresponds to the characteristic mode $\{\mathbf{D_0}\}^{K\,(Z\pm S\pm(Q)\pm(N=0,1,2,\ldots \text{ neural network})\pm(q=0,1,2,3,4,5\ldots \text{ infinite integer})/t:}$ This system is decomposed into 9 circular pairs of logarithmic information characters.

$$(1-\eta^2)^{(K=\pm1)}=[(1-\eta_{[1]}{}^2)=\ldots=(1-\eta_{[4]}{}^2)]^{(K=+1)}\leftrightarrow(1-\eta_{[C=5]}{}^2)^{(K=\pm0)}\leftrightarrow[(1-\eta_{[6]}{}^2)=\ldots=(1-\eta_{[9]}{}^2)]^{(K=-1)};$$

For example, the open-source dimensionless $\{3\}^{\wedge 2n}$ qubit logic world, ternary number characteristic module

$\{\mathbf{D_0}\}^{K\ (Z\pm S\pm\ (Q=JIK)\pm\ (N=0,1,2,...\ neural\ network)\pm\ (q=0,1,...\ infinite\ integer)/t}$:

$$(1-\eta_{[jik]}{}^2)^{(K=\pm1)}=\sum_{K(Z\pm S)}[(1-\eta_{[1-4][jik]}{}^2)]^{(K=+1)}\leftrightarrow(1-\eta_{[C=5][jik]}{}^2)^{(K=\pm0)}\leftrightarrow[((1-\eta_{[6-9][jik]}{}^2)]^{(K=-1)};$$

For example, the open-source dimensionless {5}For example, the open-source dimensionless $\{5\}^{\wedge 2n}$ qubit logic world, the quinary characteristic module {D0}K (Z±S± (Q=JIK+uv)± (N=0,1,2,... neural network)± (q=0,1... infinite integer)/t: a random self-validation authenticity error correction mechanism composed of 9 circular logarithmic information characters. qubit logic world, the quinary characteristic module $\{\mathbf{D_0}\}^{K\ (Z\pm S\pm\ (Q=JIK+uv)\pm\ (N=0,1,2,...\ neural\ network)\pm\ (q=0,1...\ infinite\ integer)/t}$: a random self-validation authenticity error correction mechanism composed of 9 circular logarithmic information characters.Decomposing into 9 circular logarithmic information characters random self-authenticity error correction mechanism:

$$[(1-\eta_{[1-4][jik]}{}^2)]^{(K=+1)}\leftrightarrow(1-\eta_{[C=4][jik]}{}^2)^{(K=\pm0)}\leftrightarrow[((1-\eta_{[6-9][jik]}{}^2)]^{(K=-1)}\leftrightarrow(0/1)^K;$$

For example, privacy: the dimensionless logical circle logarithm is a symbolic deduction of "irrelevant mathematical models without specific (mass) element content" (symmetry and asymmetry), possessing the most extensive, simplest, randomly convertible, self-verifying, and most cryptic autonomous code privacy.

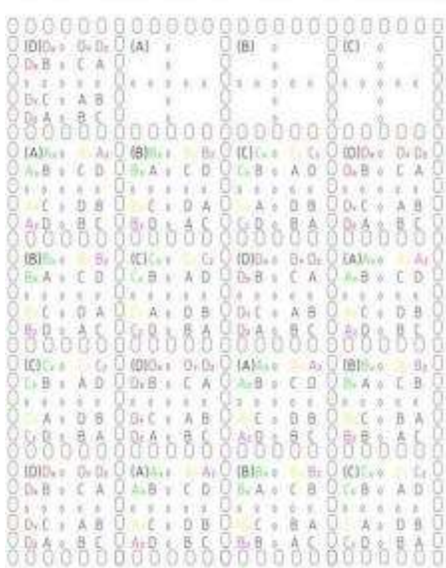
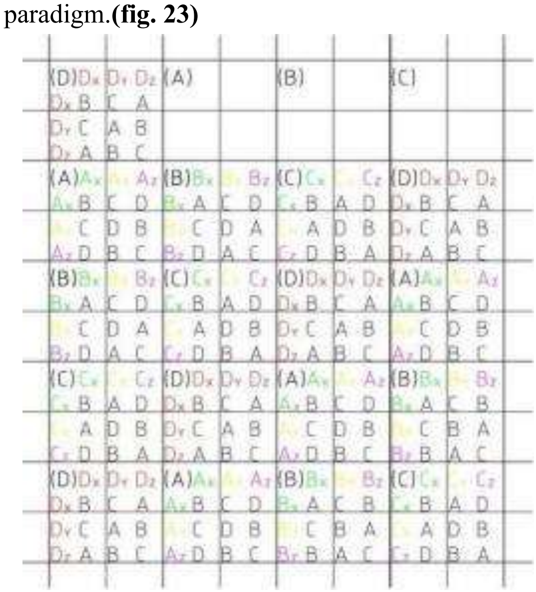
Comparison: $\{2\}^{\wedge10}$ processes 1024 characters, $\{3\}^{\wedge10}$ processes 59049 characters, $\{5\}^{\wedge10}$ processes 9765625 characters... Clearly, (0/1) information transmission and different high-density information transmission generate distinct computational power, with its superiority consistently surpassing the current "splicing algorithm" in effectiveness.

The integration of storage and computation in dual-logic (digital/bit) code, along with high-density information symbol transmission, will revolutionize traditional computer architecture, paving the way for third-generation artificial intelligence.

The dimensionless logic for the five-ary storage and the ten-ary arithmetic program storage method, the "storage and arithmetic integration" still maintains the nature of the transmission symbol $(0/1)^K$.

Conclusion: By preserving the inherent $(0/1)^K$nature, the design achieves invariance in integrated circuits. The $(0/1)^K$ symbol is implemented through a grid matrix in "dual logic (numerical/bit value) code" format, realizing "storage-computation integration". This approach addresses the asymmetry of numerical center points in multi-variable logic codes and the zero-symmetry characteristic of bit value centers. Through zero-symmetry, it resolves the balance exchange combination decomposition of multi-variable numbers and establishes a random self-validation mechanism for authenticity verification, ultimately achieving zero-error root element analysis.

Traditional computer units (digitally driven) require 12×9×3=324 transistors for one-dimensional or two-dimensional (four-valued logic) parallel analysis. In contrast, dimensionless logic-driven computer units need only 12×1×4=48 transistors to directly handle three-dimensional neural networks, data networks, and information networks, with random self-checking error correction. This advancement enables the digital virtual world to evolve into a dimensionless logic world through a circular logarithmic paradigm.**(fig. 23)**

(fig. 23.1) Schematic diagram of a five-ary three-dimensional network memory chip

(fig. 23.2) Schematic diagram of a decimal three-dimensional network program computing chip

6.7.3，The Working Principle of 3D Chip Memory

Three-dimensional chips utilize "dual logic codes" to correspond to different storage requirements in "3,5,7,9... base systems"; they are primarily categorized into two types: random access memory (RAM) and read-only memory (ROM). Different programs are programmed with distinct "instructions" for each type.

The circular logarithmic method starts with ROM/RAM memory as the entry point, proposing that "dual logic (numerical/bit value) codes" are introduced into RAM/ROM respectively.

RAM is characterized by data loss upon power failure, making it ideal for storing temporary programs and data. It is categorized into static random access memory (SRAM) and dynamic random access memory (DRAM).

The ROM is mainly used to store the firmware, such as the boot program loaded when the computer starts, and the information will not be lost even if the power is cut off.

The so-called "dual logic (digital/bit) code" is a new algorithm and new operation procedure, which does not affect the current memory function, integrated circuit, and optical path of photons, but only uses the original reserved connectors of RAM/ROM to connect an additional three-dimensional chip in parallel.

According to the memory attached "three-dimensional chip" there are two basic mathematical models: "discrete type" and "entanglement type".

(A) "Discrete type", characterized by: $(1-\eta_{\Delta}{}^2)^K=\{1\}$; $(1-\eta_{[C]}{}^2)^K=\{0\}$ (mathematically termed the critical line), corresponding to the computer "NOT gate";

(B) (B) "Entangled type", characterized by: $(1-\eta_{\Delta}{}^2)^K\leq\{1\}$; $(1-\eta_{[C]}{}^2)^K=\{0\}$ (mathematically termed the critical point), corresponding to the computer "NOT gate". Here, $(1-\eta_{[C]}{}^2)^K=\{0\}$ indicates the zero-point symmetry of bit values, where the "infinite axiom" balances exchange combination decomposition with random self-validation.

(2) Mathematical Knowledge Reform for Artificial Intelligence Computing Power

The computational power of subcomputers is based on logical gates {01 00 01 10}, which encode each character as (0/1) for low-density character information transmission. Given the inherent nature of (0/1) transmission, the dimensionless logical quantum computing power is established through the "monomorphism high-power (1:S) equation," utilizing dimensionless logical circular analytic general roots. The reverse operation compresses big data processing by encoding each character as (1:S) for high-density character information transmission, fundamentally leveraging Turing machine performance to enhance algorithms and computational power.

Fundamentally, the novel analytical approach of circular logarithm empowers enterprises, users, and research institutions to gain profound insights into the distinct internal and external mechanisms of neural networks. Built upon rigorous mathematical foundations, this methodology will revolutionize AI-powered advanced applications, fundamentally transform the development of language models and neural network architectures, and redefine research paradigms across scientific disciplines.

7、数学-人工智能的发展与前景

7.1. Application prospects of quantum computer for circle matching:

Currently, artificial intelligence lacks a unified theoretical framework, relying solely on specialized models and algorithms constrained by mathematical limitations. The computational power of $\{2\}^{\wedge 2n}$(quantum bits with base 2) has reached its theoretical ceiling. Experts in mathematics and AI worldwide advocate for "mathematical unification" and "AI revolution." The "third-generation AI" should possess robust language generation capabilities, advanced natural language dialogue skills, strong inferential reasoning abilities, and the capacity for automated verification and error correction.

（1）Building upon the foundation of linear higher-order equations, the solution to "even-term asymmetry" has been extended, achieving computational power of $\{S\}^{\wedge 2n}$ (where S=3,5,7,9...(2n+1)). This advancement enables computers to function as "quantum computers with circular pair numbers," where the "arbitrary high-density information transmission network" for logical gates achieves zero-error computation with infinite precision. The theory of circular pair numbers demonstrates that traditional computers exhibit unparalleled compressibility, interpretability, controllability, and trustworthiness for models and big data, significantly reducing investment and energy consumption.

Moreover, existing computing methods remain compatible, with the addition of a "dual-logic code storage system" that provides reliable "circular pair number theory knowledge" for the next phase of developing true "universal computers."

Notably, dual-logic (numerical/bit) code exhibits top-tier open-source characteristics. Given its ability to correspond to diverse truth propositions and self-validation mechanisms, it achieves unparalleled privacy. This will drive diversified development trends in future AI computer and chip architectures.

（2）Reform of Mathematical Knowledge and Artificial Intelligence Computing Power.

Traditional quantum computers operate on low-density character information transmission, where each character corresponds to logical gates {01 00 01 10} with $(0/1)^K$ transmission properties. The fundamental nature of this $(0/1)^K$ transmission remains unaltered, and the dimensionless quantum computing power is established through the "monomorphism high-power (1:S) equation," utilizing dimensionless logical circular analytic general roots. Conversely, the compression for big data processing involves logical gates {1000 ↔0000 ↔ 0111}, where each character corresponds to (1:S) high-density character information transmission, fundamentally leveraging Turing machine performance to enhance algorithms and computational power.

（3）Chip architecture and fabrication may employ conventional methods or specialized materials tailored to specific requirements. The only difference lies in the algorithms and circuit designs involved, with the latter potentially involving three-dimensional chip circuit design. The contact points on unit chips are configured as 8×8=64 and 8×8×8=512 respectively. This fundamentally enhances computational power, achieving a revolutionary leap in computer performance.

The number of artificial intelligence (including **3D** chips and electronic devices) with equivalent computing power is less than 20-15% of traditional computers, while energy consumption is reduced by over 85-90%. It possesses superior advantages in informatization, miniaturization, intelligence, and environmental friendliness, fundamentally enhancing the existing data, algorithms, and computing power of artificial intelligence.

AGI systems designed for specialized applications including finance, statistics, scientific research, military operations, and cryptography can freely convert circular logarithm-based "dual-logic (numerical/bit-level) codes" into corresponding feature models. These systems utilize specialized memory chips and electronic components, leveraging isomorphic circular logarithm computation programs to significantly reduce electronic components. This enables the development of compact, intelligent AGIs, robots, and brain-computer interfaces that integrate discrete-continuous processing and unified memory-computing architectures. The system establishes arbitrary high-order $\{S\}^{\wedge 2n}$ quantum bits (where {S} represents base) for circular logarithms. Through dimensionless circular logarithm balancing mechanisms and "infinite axiom" verification protocols, it ensures error-free computational accuracy across all model types—whether large-small or large-large, small-large combinations—achieving zero-error high-performance algorithms with infinite computational capacity.

7.2 Application Prospects of Circular Logarithm Agent

The foundational principles of circular logarithm: evolving from Einstein's relativity to Bayesian theory, and ultimately Wang Yiping's circular logarithm. Its mathematical hallmark lies in describing the world through a "one-inch formula." Notably, circular logarithm pioneers the integration of classical analysis and logical analysis (set theory), using this concise framework to model the mathematical-artificial intelligence domain. This innovation creates a knowledge-rich, robust, and error-free deductive space for developing AI agents, while establishing a reliable foundation for advancing AI's next phase—miniaturization, intelligence enhancement, knowledge integration, universal applicability, and green energy adoption.

Currently, the global AI industry is experiencing rapid development and fierce competition, with all players advancing toward the development of "intelligent agents." Alibaba's AI chips have completely surpassed NVIDIA's A800 and domestic GPUs, matching the performance of NVIDIA's flagship H20. NVIDIA currently generates $4.5 trillion in annual revenue. Has virtually monopolized the global market. However, these chip architectures are currently based on "(0/1) (binary) low-density information transfer symbols." Without proactive modifications to chip architectures, these binary low-density information transfer symbols will soon be phased out of the market.

The logarithm of the circle establishes "$(0/1)^K$ high-density information transmission symbols" through mathematical knowledge. This breakthrough not only fundamentally enhances computational power but also brings a series of advantages, such as abandoning traditional iterative methods, reducing circuitry, time, power consumption, and economic costs. Simplified operational procedures enable automatic encoding, while the top-tier open-source and privacy features of "dual logic (numerical/bit value) codes" facilitate the development of diverse global "intelligent agents".

7.2.1，The "automatic encoding" of artificial intelligence's circular logarithm ensures agents can execute tasks with "zero-error" deductive reliability.

(1),From "single-step automation" to "multi-step automation", i.e., multi-step workflows and cross-occupational mobility.

(2) Dual-logic (digital/bit) code encoding has evolved into a near-universal standard for intelligent applications across all enterprise scales and diverse environments, now reaching production-grade maturity.

(3) Productivity enhancement should not be limited to 'code replacement', but rather encompass the entire R&D process.

(4) The mainstream approach moving forward is "hybrid": a solution that combines off-the-shelf components, logical circular code, and customization capabilities to accommodate various scales.

(5) The mathematical model is no longer a barrier, as it mainly requires any two of the following three elements: known boundary functions, characteristic mode (arithmetic mean), or circular logarithm, for computation.

(6) The circular logarithm system unifies "discrete-continuous", "symmetry and asymmetry", "storage-computation integration", and has the maximum "autonomy" and "flexibility" of code two ends through "standard dual logic code", and ensures the security, reliability and feasibility of operation by random self-proving and error correction mechanism.

7.2.2， The next ROI growth point for AI's logarithmic adaptation:

ROI(Return on Investment)，ROI (Return on Investment) is a key financial metric for evaluating investment performance. Specifically, it measures the ratio of investment returns to investment costs over a given period, with its basic calculation formula being

(Revenue minus investment cost) divided by investment cost, or (annual profit or average annual profit divided by total investment) multiplied by 100%.

In the e-commerce sector, Return on Investment (ROI) serves as a key metric for evaluating marketing campaigns, including advertising placements and promotional initiatives. In practice, ROI calculations can be customized for different scenarios—such as advertising campaigns, operational activities, or product development—where specific revenue and cost structures may vary127. Furthermore, ROI is widely applied across various investment types, encompassing both industrial and financial investments, as a comprehensive indicator of corporate profitability, operational effectiveness, and efficiency. The logarithmic analysis ensures the reliability of the following analyses:

(1) Expanding from engineering and AI to enterprise-level foundational frontiers.

(2) Apart from coding, data analysis/reporting and workflow automation demonstrate the highest levels of "conciseness and adaptability".

(3) ROI will be realized across multiple functions simultaneously, rather than being confined to a single scenario.

(4) The 'profit-making' phenomenon is not uncommon, with 80% of organizations demonstrating measurable economic value.

AI agents are liberating humans from routine tasks, redirecting time toward higher-value pursuits. While mathematical-ai integration has reached unprecedented heights, the real bottleneck will emerge in contextual integration. The future world will feature open-source yet private dimensionless logical circular logarithmic computers, simplified chip manufacturing processes, and universal AI technology mastery. Monopolies like NVIDIA are unlikely to reappear.

7.3，The Historical Inevitability of the Development of Mathematics-AI

Currently, the Langlands Program has garnered significant attention in mathematics. This ambitious systematic initiative precisely predicts potential connections between seemingly unrelated mathematical fields, holding profound significance. By extending this linguistic disconnect phenomenon to other disciplines—including astronomy, geology, biology, mathematics, physics, chemistry, and economics—it reveals analogous language barriers across these domains. In 2025, American mathematicians unveiled the "Geometric Langlands Program," representing the latest achievement in this field.

In artificial intelligence, many are fervently advocating for reforms based on "binary" low-density information transmission, including physical architectures and superconducting materials. While these innovations represent undeniable directions, quantum computing pioneers like DeepSeek and NVIDIA have demonstrated quantum devices that harness quantum mechanics to achieve computational capabilities far surpassing classical computers. Through sophisticated iterative algorithms, they solve problems unattainable by classical systems, showcasing quantum computers' fundamental advantages in simulation, mathematical optimization, and algebraic operations across scientific domains. This seems ideal, yet reality reveals: none of these approaches address the core of mathematical-AI reform. Why is this so?

Both mathematics and artificial intelligence have ignored the "two big problems left to be solved in the development of mathematics" that Klein said, which is "the fusion of classical analysis and logical analysis".

However, the "integration of classical analysis and logical analysis" emerged as early as Einstein's formula in 1905-1915; Godel's incompleteness theorem in 1930; and "Bayesianism" in 1980. People failed to notice. Klein particularly pointed out that "after 1930, mathematics did not achieve substantial progress." The exploration of "China's circular logarithm" in the "integration of classical analysis and logical analysis" initially focused on "Einstein's formula" and "Bayesian theory." Now, it is another simple one-inch-long formula that forms the mathematical-artificial intelligence circular logarithm formula, demonstrating strong vitality. It is expected to become a grand unified theory of the world. Circular logarithm is currently the most dominant scientific perspective in humanity, providing the most fundamental logical framework for science.

Mathematical logarithmic theory: By preserving the inherent nature of the mathematical-artificial intelligence-physical world (infinite true propositions), the system employs dual-logic (numerical/bit value) code and infinite axioms as central points to achieve balanced symmetry and asymmetric inversion through zero-point equilibrium exchange. This approach successfully overcomes challenges including infinite/irrational numbers, axiomatization, symmetry/asymmetry transformations, and random self-validation. It seamlessly integrates modern advanced mathematics with classical elementary mathematics, as well as macroscopic and microscopic worlds. The algorithm advances from finite approximation calculations to zero-error infinite computation, while mathematical analysis expands from $\{2\}^{\wedge 2n}$ to $\{S\}^{\wedge 2n}$ (where S=1,2,3,4,... infinitely).

artificial intelligence computing theory：Preserving the inherent nature of artificial intelligence information transmission (0/1), this system employs a "dual logic code (1/0)↔(0/0)↔(0/1)" mechanism to achieve high-density information transmission, storage, computation, and a randomized self-validation error-correction mechanism. It discards traditional binary information transmission and "iterative methods," establishing a three-dimensional data search, processing, and storage system with "integrated storage-computation" capabilities for deep learning. The quantum bit density is upgraded from the traditional $\{2\}^{\wedge 2n}$ to $\{S\}^{\wedge 2n}$ (where S=3,4,5,...,7,9, etc.), representing high-density information transmission. This advancement embodies high-speed, intelligent, miniaturized, and eco-friendly features, fully unleashing the unprecedented vitality of artificial intelligence.

From the perspective of the history of mathematics: Classical analysis is the first generation of mathematics, logical analysis (set theory) is the second generation of mathematics, and circular logic is the third generation of mathematics, which reshapes and reorganizes the second generation of mathematics that western countries have been proud of for 400 years..

From the perspective of the history of artificial intelligence： Computer theory, as the foundational framework of first and second-generation artificial intelligence (AI), centers on set theory. It establishes a robust mathematical basis for explainability and zero-error through dual-logic (numerical/bit) codes and randomized self-validation mechanisms. This paradigm shift has restructured the century-long technological monopoly of Western nations in second-generation AI, ushering in the third-generation AI era.

Yuan Log submitted articles on May 21,1982 (rejected), and by the end of December 2025, nearly 200+ articles had been submitted to domestic and international journals. Publication status: 70% rejected (China journals almost "zero publication"), 30% published.

Someone asked: Why is this the case?

This phenomenon is easily explained: Domestic and international journals consistently demand "innovative" submissions. Having grown accustomed to classical analysis (Western mathematical theory) and logical analysis (set theory), the innovative circular logarithm has emerged as a hybrid that appears "neither classical nor logical, ambiguous, incomprehensible, and non-traditional..." Editors criticize it as "non-compliant with our journal's publication standards" and "unqualified for review," with some stating "our journal publishes world-leading, influential articles." Unbeknownst to many, the circular logarithm represents the world's first discovery of a "third infinite construct set" —an independent, self-consistent, logically rigorous third mathematical feature. It exemplifies the "fusion of classical and logical mathematics." Its formulas, writing style, and expression methods are unprecedented in traditional mathematics, inevitably leading to unfair treatment and rejection.

In fact, while editors emphasize "innovation," they still mentally adapt to the old theoretical models. They do not believe there will be a breakthrough "in the last Poincare capacity." The circular logarithm, with its "fusion of classical analysis and logical analysis," "dual logic (numerical/bit value) code," and "random self-validation mechanism," has precisely solved a large number of century-old "mathematics and artificial intelligence" problems, covering many scientific, interdisciplinary fields, and scientific engineering, achieving widely accepted applications. The dimensionless logical circle (circular logarithm) encompasses scientific content that has reached a realm "unprecedented and unparalleled." It inherits the ancient Chinese mathematical text "Dao De Jing," which states, "The Dao gives birth to one, one gives birth to two, two gives birth to three, and three gives birth to all things." Current mathematics and artificial intelligence cannot break through the threshold of "two gives birth to three." Especially after 1930, mathematics has made no breakthrough progress (as Klein noted).

The European Journal of Applied Science (EJAS) has evaluated that: Regarding your paper "Professor Wang Yiping from China discovered the cyclic logarithm theorem (circular logarithm theory), proving that Fermat-Weil's theorem does not hold," we saw your research online and found it worthy of praise. I shared its observations and results with our community of scholars and scientists. In fact, some great research is underway in this field, and your innovative approach has the potential to inspire researchers and scientists.

Many readers, experts, and group members have asked with curiosity: How to prove that the logarithm of the circle is the 'reorganization, reshaping, and recombination' of the mathematical foundation of Western countries over 400 years and the artificial intelligence system over 100 years?

Answer：Due to historical reasons, ancient China's mathematics reached the pinnacle of the world during the 13th to 17th centuries, attracting Western missionaries who came to China for exchange and study. At the same time, they brought back China's advanced mathematical ideas, which spurred or influenced the rise of European mathematical science in the 18th and 19th centuries. For instance, many European mathematicians emerged during this period, becoming the pride of mathematics for 400 years and the foundation of artificial intelligence computers for the next 100 years. Due to its isolation and self-restraint, China's doors were forced open by Western powers in the 19th century with cannons, causing Chinese mathematics to stagnate for 400 years.

In the new China era, the logarithm circle team, primarily composed of retirees, faithfully inherits mathematical ideas from ancient and modern times, both domestic and foreign. They are diligent without superstition, adhering to scientific confidence and innovation. They identify the inherent flaws in traditional mathematics that artificial intelligence struggles to overcome, remaining at the threshold of "the integration of classical analysis and logical analysis." Through rigorous proofs, they proposed the theory of "Wang Yiping's Logarithm Circle."

Some people like to comment on "academic level" and ask with dissatisfaction: China's mathematics has always lagged behind, so how high can the level of logarithmic circles reach?

I proudly remarked, "Internationally, some people only recognize the iconic peaks like Mont Sainte-Christ, Mount Fuji, and Mount Elbrus, all exceeding 5,000+ meters in height. They neither anticipate nor acknowledge that Mount Everest surpasses 8,848 meters, with numerous surrounding peaks of 5,000+ meters or more, all supported by the Tibetan Plateau." The peak of the circle logarithm has been independently verified in many scientific fields and solved a series of century mathematical problems.

Based on the successful resolution of the 'two final and greatest problems in mathematical development,' it realizes Einstein's dying words:' The world will ultimately return to relativity.'

This makes it clear that the logarithm of pi has reached the pinnacle of current mathematical and artificial intelligence, and will remain unsurpassed for at least a century.

The logarithm of the circle reflects the strong scientific foundation of China. It is time for the world to restore the powerful mathematical status left by ancient China.

8、 Conclusion

一 A simple logarithmic formula for circles encompasses nearly all mathematical and artificial intelligence theories. Mathematics has evolved from $\{2\}^{\wedge 2n}$ to $\{3\}^{\wedge 2n}$, while computers have progressed from binary transmission $\{2\}^{\wedge 2n}$ qubits to infinite computational power through multi-quantum bit transmission $\{S\}^{\wedge 2n}$ (where S=3,4,5, etc.).

The unified formula of circle logarithm theory

$$\mathbf{W=(1-\eta_{[jik]}{}^2)^K W_0;\quad (1-\eta_{[jik]}{}^2)^K=\{0\,,1\};\quad (1-\eta_{[C]}{}^2)^K=\{0\};}$$

The unified formula of the logical circle computer in artificial intelligence:

$$\mathbf{\{1000\leftrightarrow(0000)\leftrightarrow 0111\};\quad (0000)=(0/1)^K\in(1-\eta_{[jik]}{}^2)^K=\{0\,,1\};}$$

The system comprises: W and {1000} represent the compressed representation of any random event through (AND gate with permutation); W0 and {0111} denote the characteristic modulus of the mean function for random events via (OR gate with permutation); $(1-\eta_{[jik]}{}^2)K$ and (0/1) constitute the dimensionless logical probability-topological information transmission, data processing, storage, and computation pathway; $((1-\eta_{[C]}{}^2)K=0$ and (0/1) NOT gate) represents the numerical code center point and zero center symmetry of "dual logic numerical/bit value code" or "dual logic information symbol (0/1)-(1/0)" with its random self-validation mechanism. The logical symbol "↔" indicates balanced inverse conversion and the random self-validation error correction mechanism.

We extend our gratitude to all members of the Circular Logarithm community for their long-term dedication and support. We also thank media networks (such as People's Daily Online, Sina, Google, etc.) for their assistance, as well as numerous named and unnamed contributors who have provided valuable knowledge and support for the advancement of Circular Logarithm.

We are grateful to the American Journal of Science, Mathematics and Statistics, and Ge Wu for their long-term support of the development of logarithmic theory since 2012.

Among them, the American Journal of Science published the paper as a front-page headline three times (with cover photos of academic activities included).

Special thanks to American mathematician Morris Klein and translators including Deng Dongjie (1972 edition) and Zhang Lijing (2014 edition) for their work. The publication of *Ancient and Modern Mathematical Thoughts* (Shanghai Scientific and Technical Publishers) followed their contributions, with a 1972 edition previously published. The author had long borrowed and studied this work repeatedly from Quzhou City Library in accordance with library

regulations. The text identifies the two most significant unresolved challenges in mathematical development, guiding the author and team's sustained exploration. Their research uncovered the "third infinite construction set and stochastic self-validation mechanism," authentically fulfilling the principle of "mathematical logic and logical mathematics," while preserving the inherent nature of "mathematics and artificial intelligence (digital and information symbols)" in their deductive approach.

The China Circle Logarithm team warmly welcomes domestic and international enthusiasts to join the exploration of circle logarithm, collaborate together, achieve win-win cooperation, and jointly promote the expansion and application of world mathematics, artificial intelligence, and various scientific fields! A novel, independent, China-characteristic, and epoch-making "Circle Logarithm Theory" has attracted attention, hailed as the "third-generation mathematics" and "third-generation artificial intelligence." With the highest level of open-source and the highest level of privacy, it may lead a new wave of reform in the fields of world mathematics-artificial intelligence and related scientific disciplines. Thank you! (End)

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[5] Wang Yiping, *Presenting a New Infinite Constructive Set: Dimensionless Circular Logarithms—' Infinity Axioms' Reveal Random Equilibrium, Exchange Combinations, and Self-Proof Mechanisms in Mathematical-Physical Universes*, *Journal of American Science*, P1-233,2024.

To Editors and Readers

Dear Mr.Ma, Editor-in-Chief, and all editorial staff,

Wishing you a Happy New Year 2026!

In his seminal work *Ancient and Modern Mathematical Thoughts*, the renowned American mathematician Morris Klein noted that "mathematics' entire development has left two unsolved major problems," with the circle logarithm theory being one of the fortunate solutions. This article focuses on demonstrating and applying the integration of classical analysis and logical analysis (set theory). Notably, the circle logarithm theorem resolves a series of century-old mathematical challenges, propels the development of next-generation AI knowledge, fundamentally transforms traditional algorithms, computing power, data processing, and chip manufacturing methods, and expands the foundation of "mathematics-AI."

Specifically, it addresses critical challenges in artificial intelligence:

(1) Maintaining computational invariance (0/1) while advancing information transmission from "low-density: {2}^2n (one logical unit per character)" to "high-density: {S}^2n (multiple characters per unit)", thereby resolving computational efficiency issues, reducing energy consumption and resource waste, and lowering corporate economic costs.

(2) Based on the mathematical correspondence between numbers and their logarithms, the "dual logic (numerical/bit value) code" is proposed to address the challenge of "mechanical interpretable reverse engineering of neural networks," ensuring zero error, safety, and robustness.

(3) Circular logarithm employs a simple formula to solve 3D data search and simplify operational procedures, enabling generative encoding and intelligent agent task processing. It boasts top-tier open-source compatibility, top-tier privacy protection, and flexible adaptability.

Based on the three theories of Bayesian theory, Einstein theory and circular logarithm theory, which are the same, they can be described by a simple formula and become a coherent mathematical theory system.

Request: Mr.Ma Hongbao, former 2026 New York State gubernatorial candidate, postdoctoral fellow, and editor-in-chief, is requested to recommend the reprint of the logarithmic circle article in top international journals. He should lead the International Einstein Research Institute, the International Bayesian Research Institute, and invite internationally renowned experts and scholars to review, comment, and authenticate the article. The China logarithmic circle team sincerely welcomes world mathematics-artificial intelligence experts, teachers, and researchers to continue exploring the logarithmic circle, collaborate, and achieve mutual success.

Recommendation: Prioritize the placement of the (Einstein + Bayesian + Moklein) photo on the first journal cover, with my academic activity photo on the second cover. This reflects the principle: "Science knows

no borders, but science has a homeland."

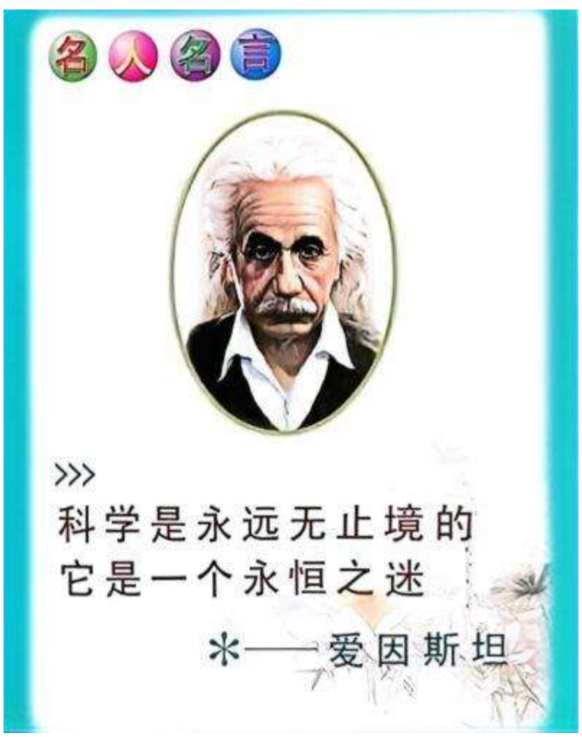
Is this acceptable? Kindly have Editor-in-Chief Ma make the selection and arrangement. Thank you!

Wang Yiping respectfully presents 2026.2.9.

(以中文稿件为主题，中文翻译英文为翻译软件所为）

Wang Yiping, founder of Yuan Duoshu, in an academic activity

Klein photo (if a better one is available, it can replace the one below).



作者简介

莫里斯·克莱因（Morris Kline，1908—1992），美国著名应用数学家、数学史家、数学教育家、数学哲学家和应用物理学家。纽约大学库朗数学研究所教授和荣誉退休教授。他曾在该所主持一个电磁学研究部门达20年之久。克莱因的著作很多，本书是他的代表作。

爱因斯坦名言：

克莱因名言：

世界最终要回到相对论来 **数学的发展还有二个最大的问题没有解决**

贝叶斯（**1702-1763**）在数学方面主要研究概率论.他首先将归纳推理法用于概率论基础理论，创立了贝叶斯统计理论，对于统计决策函数、统计推断、统计的估算等做出了贡献.

Explain：

Wang Yiping first discovered the new infinite construction set-dimensionless circle logarithm. He proved the "fusion of classical analysis and logical analysis (set theory)", and proposed "dual logic (numerical/bit value) code" and "infinite axiom balance exchange combination analysis and random self-proving true or false error correction mechanism".

Solutions: "Analytical solution of higher-order equations in mathematics" and "Implementation of neural network reverse engineering for physical and mechanical interpretability".

Extension: Einstein's relativistic "speed/light speed" corresponds to the dimensionless logarithmic circle's "boundary function/characteristic mode";

Extension: Bayesian "inductive reasoning method in numerical probability theory" aligns with the dimensionless logarithmic circle's "infinite axiom's positional probability-topology theory";

Extension: Artificial intelligence's (0/1) logic gates transition from "low-density information transmission" to "high-density information transmission", fundamentally enhancing computational power.