Retraction

Retracted: Model Value of Taiji Curve Algorithm in Economic Geographic and Natural Game Management Information System

Journal of Mathematics

This article has been retracted by Hindawi following an investigation undertaken by the publisher [1]. This investigation has uncovered evidence of one or more of the following indicators of systematic manipulation of the publication process:

(1) Discrepancies in scope

(2) Discrepancies in the description of the research reported

(3) Discrepancies between the availability of data and the research described

(4) Inappropriate citations

(5) Incoherent, meaningless and/or irrelevant content included in the article

(6) Manipulated or compromised peer review

The presence of these indicators undermines our confidence in the integrity of the article's content and we cannot, therefore, vouch for its reliability. Please note that this notice is intended solely to alert readers that the content of this article is unreliable. We have not investigated whether authors were aware of or involved in the systematic manipulation of the publication process.

Wiley and Hindawi regrets that the usual quality checks did not identify these issues before publication and have since put additional measures in place to safeguard research integrity.

We wish to credit our own Research Integrity and Research Publishing teams and anonymous and named external researchers and research integrity experts for contributing to this investigation.

The corresponding author, as the representative of all authors, has been given the opportunity to register their agreement or disagreement to this retraction. We have kept a record of any response received.

References

[1] C. Xu and K. Chen, "Model Value of Taiji Curve Algorithm in Economic Geographic and Natural Game Management Information System," *Journal of Mathematics*, vol. 2022, Article ID 8526428, 6 pages, 2022.

Research Article

Model Value of Taiji Curve Algorithm in Economic Geographic and Natural Game Management Information System

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In order to study the role of tai chi curve algorithm in economic geography and natural ecological management and explore the application value of tai chi curve algorithm and its model, this study discusses the principle of Chinese tai chi diagram, using mathematical model construction method by the previous tai chi map and Pythagoras theorem clever results, produced the tai chi graph *s* curve algorithm, and discusses the application value of tai chi curve algorithm and its model from different angles; this study takes Zhangye geography as an example, which provides an applied research direction for the future scientific research of Chinese economic geography and also provides a clever connection with ecological correlation and nature; finally, it is found that the Taiji graph *s* curve algorithm can calculate the corresponding Yin and Yang values according to the balance point and relative deviation amount of the attribute state, and the results have an extraordinary influence in economic geography, information management system, natural ecology, and other aspects.

1. Introduction

Tai chi is the category of ancient Chinese philosophy used to analyze the movement laws of celestial bodies and to explain the origin of the world.

Since ancient times, tai chi was studied and applied by scholars, said that in early research, it was found that Tai Chi graphics expounded the law of life two, two and three, which is an important graphic expression of yin-yang theory and explained [1]. Chen Shijun (2021) also said that since Zhou Dunyi wrote the Tai Chi diagram in the Song Dynasty, the Tai Chi diagram has a unique significance in the interpretation history of the book of changes. The Tai Chi diagram vividly contains the basic contents of the book of changes, such as Yin and Yang, three talents, four images, five elements, eight trigrams, and nine palaces, reflects the unity of many elements such as image, number, reason, and occupation, and reflects the essence of the book of changes. The "unity" principle exists in the theory and the corresponding quantum field principle [2]. The "correlation principle" emphasizes "mutual exclusion and complementarity," which happens to be the principle of antagonistic unity revealed in "one Yin and one Yang." Chen and Ma studied how to deconstruct the tai chi figure [3] mathematically. Through the inner circle of the unit square, applying the lever balance principle of Archimedes theorem and the core idea of fuzzy mathematics, the *s* curve of tai chi diagram can be accurately expressed with a primary function. This argument suggests that tai chi maps can be expressed in mathematical language, rather than without standard geometric maps, expressing the basis for tai chi maps reflecting the existence and development of things. In the study of Chen and Wang, taking the classic symbol "Taiji diagram" as an example, this paper analyzes its morphological characteristics and aesthetic artistic conception and explores its expression and design methods in modern architectural landscape design combined with specific cases [4]. Yu elaborated the application of congenital tai chi diagram (Yin-Yang fish diagram) in opera facial makeup from three aspects: the application of tai chi graphics and colors in opera facial makeup, the position of tai

chi diagram in facial makeup, and the relationship between tai chi diagram and background color in facial makeup [5].

The form of tai chi mode itself has a good guide to the current economic geography, and the *s* curve of tai chi map runs through the mathematical wisdom based on Pythagoras in ancient Chinese theorem. The intention of this study is to find tai chi Yin and Yang map in fuzzy mathematics to accurately describe the model value in the information management system of economic geography and natural game and to combine tai chi curve algorithm with economic geography, so as to study the influence of tai chi curve algorithm on social and economic development.

2. Mathematical Model of the *s* Curves of Tai Chi Figure

2.1. Quantitative Model of Tai Chi Figure. We establish a right-angle coordinate system to make a unit circle centered on the coordinate origin. The vertical axis represents the relative offset of the state and is set to A, and the two points $N(0, \delta)$; B and B' are the horizontal lines of the over-N point and the two intersections of the circle, respectively. Make the bisector line OC over the origin O of AOB, as shown in Figure 1.

In Figure 1, the coordinates of the relative offset are N point, let $\cos\angle AOB = \delta$, when the relative offset of the state is δ. As shown in formulas (1) and (2),

$$\text{the Yang value is } \cos^2\frac{\angle AOB}{2} = \frac{1+\delta}{2}, \tag{1}$$

$$\text{the Yin value is } \sin^2\frac{\angle AOB}{2} = \frac{1-\delta}{2}. \tag{2}$$

Here, the Yin-Yang assignment at this time is also known as the Yin-Yang assignment of point B or B' on the circle O. Notably, the Yang assignment is the square of the relative offset corresponding to the projection OM of the OC on the longitudinal axis. We can obtain a schematic tai chi diagram model under this mathematical model, as shown in Figure 2.

In Figure 2, the coordinates correspond to Figure 1; black block: Yin value; red block: Yang value;

We establish $x = \angle AOB$ and record the Yang function. As shown in formula,

$$P(x) = \frac{1+\cos x}{2}, \quad x \in (-\infty, +\infty). \tag{3}$$

We record the Yin function, as shown in formula:

$$N(x) = \frac{1-\cos x}{2}, \quad x \in (-\infty, +\infty). \tag{4}$$

Here, the $P(x)$, $N(x)$ all are periodic functions and periodic at 2π. The Yang and Yin function is shown in Figure 3.

2.2. The Internal Connection between Tai Chi Diagram and the Pythagorean Theorem. For the Pythagorean theorem, the mathematical model is shown in formula:
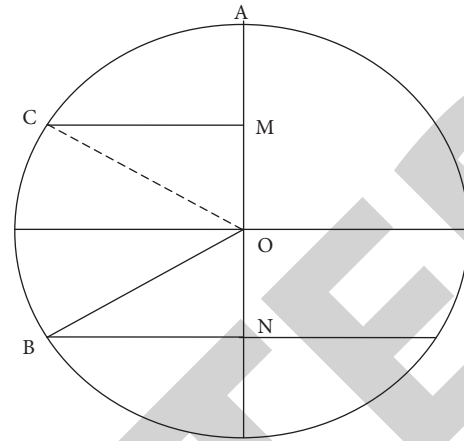
$$a^2 + b^2 = c^2. \tag{5}$$

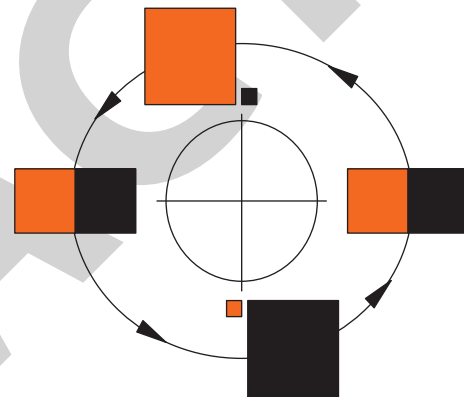Figure 1: Positive value of point B is the line segment 2.

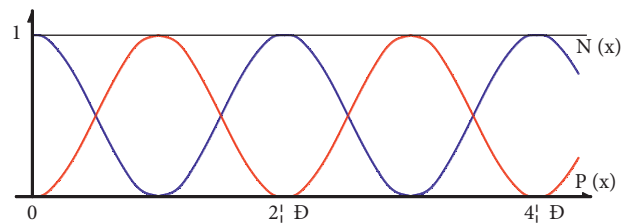Figure 2: Schematic diagram of the tai chi diagram model under the new mathematical model.

Figure 3: Yang function and negative function curves.

Here, *a*, *b*, *c* are the two right and oblique edges of the right triangle, respectively. Starting with the Pythagorean theorem, through the inner cut circle of the unit square, Chen had said that it applies the lever balance principle of Archimedes' theorem and the core idea of fuzzy mathematics; the *s* curve of the tai chi diagram can be accurately expressed with a primary function. The definition of a circle can also be obtained by the Pythagorean theorem; when the oblique edge is a certain length, the set of two right angular edges is the trajectory of the circle. In the end of the Eastern Han Dynasty, Zhao Shuang, a mathematician in China, created "the geometric graph on a circle (Figure 4)" [6], as shown in Figure 4.
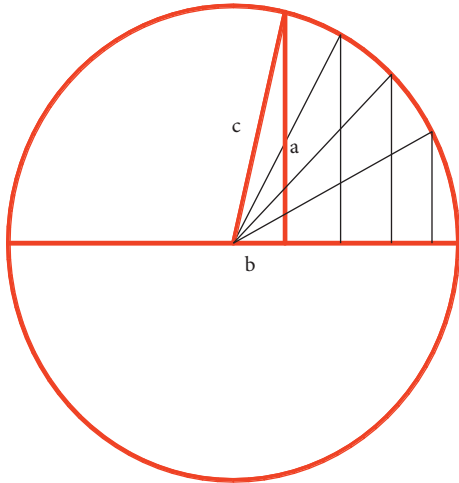
Figure 4: The geometric graph on a circle.

Figure 5: Relationship between Yang value and Yin value in the right-angle triangle.

In Figure 4, if x and y represent the quotient value of the two right-angle edges' square and oblique edges' square, respectively, and this quotient value is defined as the Yang and Yin values of this triangle, respectively. We can get the relationship between Yang value and Yin value in the right-angle triangle in Figure 5.

In Figure 5, let $x = a^2/c^2$, $y = b^2/c^2$, as shown in formula:

$$x + y = \frac{a^2}{c^2} + \frac{b^2}{c^2} = 1. \tag{6}$$

Here, because $a, b \in (0, c)$, so $x, y \in (0, 1)$. With the triangle function, x, y can also be expressed as in the formula:

$$x = \frac{a^2}{c^2} = \frac{c^2 - b^2}{c^2} = \sin^2 \alpha = \frac{1 - \cos 2\alpha}{2} = P(\alpha),$$

$$y = \frac{b^2}{c^2} = \frac{c^2 - a^2}{c^2} = \cos^2 \alpha = \frac{1 + \cos 2\alpha}{2} = N(\alpha). \tag{7}$$

Here, $\alpha \in (-\infty, +\infty)$; its geometric representation diagram is shown in Figure 6.

In Figure 6, α is the diagonal of a. This is perfectly consistent with the Yin-Yang theory and is a perfect combination of algebra and geometry. Connecting the formulas 5 and (6), we can know its essential connotation is that the area of the square corresponding to the oblique edge of the unit right-angle triangle is equal to the sum of the two square areas corresponding to the two right-angle edges. Chen had said that it can be illustrated by the oasis and the area relationship of the desert. Take Zhangye, Gansu Province, China [6], as shown in Figure 7.

In Figure 7, if the total area of Zhangye city is regarded as "1" per unit area, then the sum of oasis and desert area is always equal to "1" (because in the city, the water is an oasis, and the area wi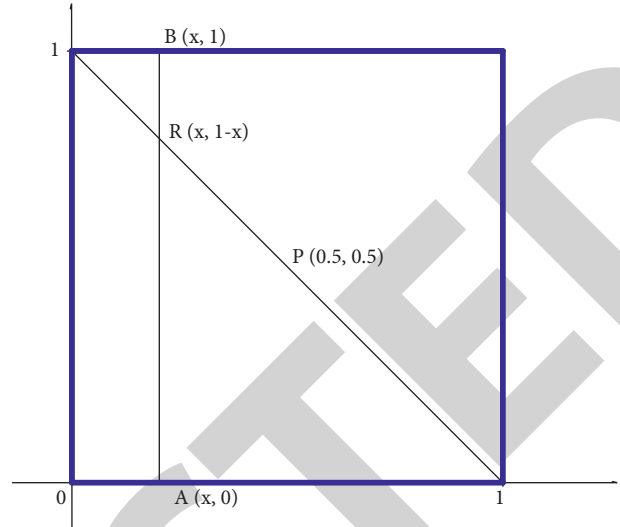th no water is a desert, and the sum remains the same). When one of the areas increases, the product decreases on the other hand, and vice versa, and the set of this change process is a circular trajectory. As shown in formula (6),

$$y = 1 - x,$$
$$x = 1 - y. \tag{8}$$

Here, therefore, the Yin and Yang function remains in dual equilibrium, entangled each other and superposition, just like quantum entanglement, its total value is fixed to "1." The area of each other is their deviation value, and the sum of the deviation value is fixed to "1." In most areas of Zhangye, it is not an oasis which is not a desert, but out of the "Schrodinger state" of oasis and desert, it is impossible to know which attribute is stronger; oasis and desert are in the $x + y = 1$, line section, and are in the [0, 1] range. For any set, there can be two completely opposite set discussions on an attribute, and the economic operation state can also be discussed here and divided into two completely opposite concepts of accumulation and consumption. All objective things that exist can be divided into two opposite sets with subjective attitude. However, the real state of affairs is not black or white, but out of the black and white interval, which is also Marx's dialectical "divided in two" of materialism.

2.3. The Tai Chi Theorem.
For the establishment of the mathematical model of the s curve, see Figure 8.

In Figure 8, we establish a circle of diameter 1 with O as the center, cross the horizontal circle O of crossing O points at A and B, take a single point P on OA, let $a = x$, $a + b = 1$, make CP perpendicular to AB, connect AC, BC, and OC, and make PD perpendicular to OC, as shown in Figure 8.
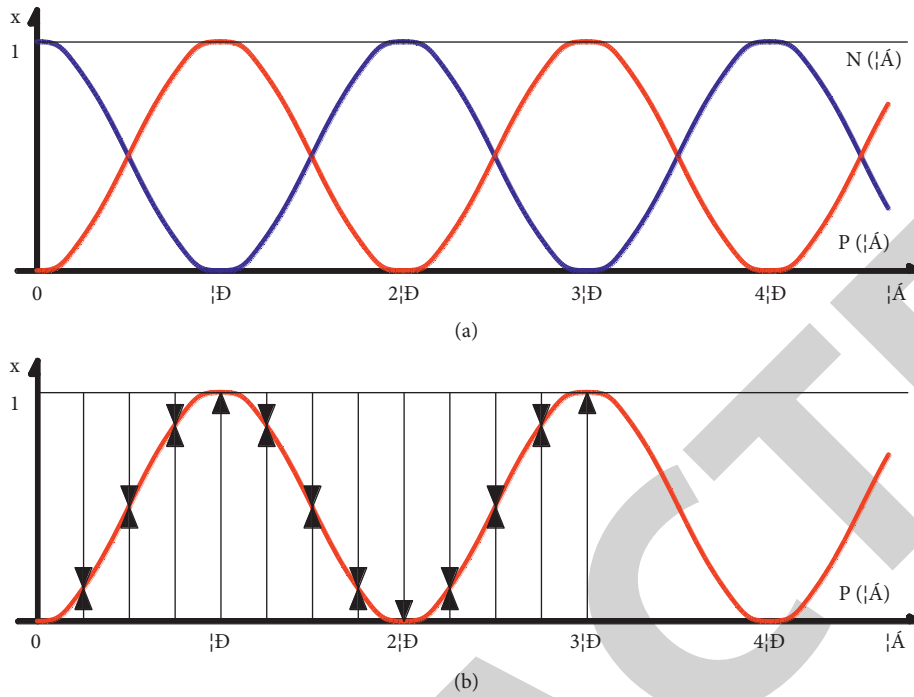
We can get the tai chi theorem:

(a)

(b)

Figure 6: Yang and Yin values in the form of the triangle function. (a) Yangzhi and Yinzhi; (b) Yangzhi result.
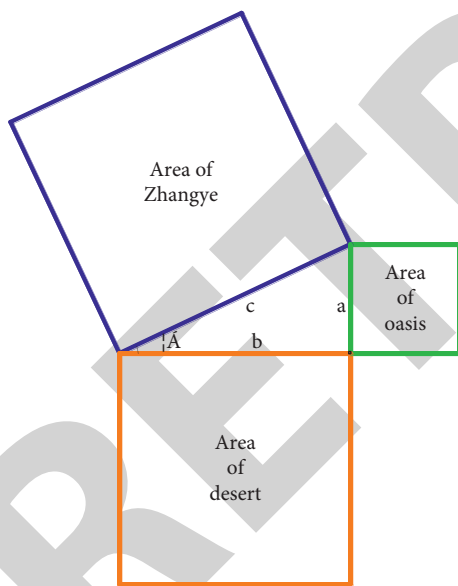
Figure 7: Area relationship diagram of Zhangye Oasis Desert.

Figure 8: Schematic diagram of the tai chi theorem deduction.

$$\frac{S}{h} = \frac{OP}{OC} = \frac{b-a}{a+b},$$

$$S = \frac{b-a}{a+b} \cdot \sqrt{ab}. \tag{9}$$

This can be launched:

$$CD = \frac{h^2}{OC} = \frac{ab}{a+b/2} = \frac{2ab}{a+b} = \frac{2}{(1/a)+(1/b)}. \tag{10}$$
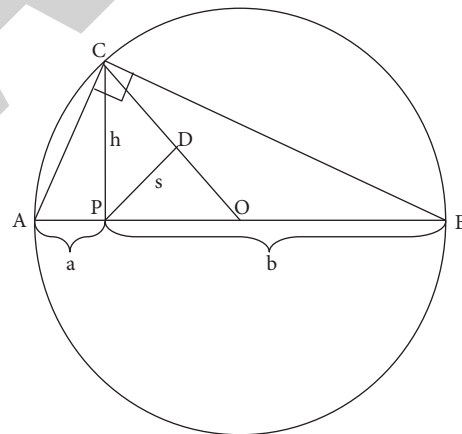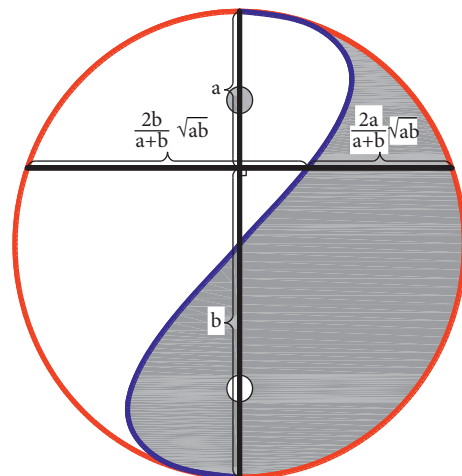

Figure 9: Mathematical model of the Taiji theorem.

Here, $S = b - a/a + b \cdot \sqrt{ab}$ is the tai chi theorem; its trajectory curve is the China tai chi figure s curve. The s curve is rotated 90 degrees clockwise, and the tai chi theorem is shown in Figure 9.

3. Application of Tai Chi's Curve Model in Ecological Environment

Natural ecology has been closely related to tai chi since ancient times. Nature has been growing everywhere. The ecological chain also reproduces and breeds according to this law, and the natural environment also plays a game between living beings. When a population's growth rate has exceeded what the environment can accommodate, the natural environment imposes its growth restrictions, such as sudden food reduction, insufficient land resources, and more natural enemies. Ideally, when the growth amount of the population tribe reaches just half the environmental capacity, the biological growth rate is the fastest, and the distribution amount of food and the environment can just be balanced, which is the most favorable growth value conducive to biological survival.

In Table 1, K is the maximum number of populations that can be maintained in a certain space range when the environmental conditions are not damaged; x is the growth rate of the population in this spatial range (all growth rates in the table are compared to the proliferation rate at 1/2 of the environmental capacity).

As shown in Table 1, the environmental capacity is the whole circle, and biological proliferation rate of an environment is the s curve. When the biological growth rate rises rapidly and peaks, the curve decreases, indicating that the growth rate of the environment has reached saturation, due to food shortage, spouse shortage, and habitat pressure, the number of the organisms will decline sharply, and the number of resources, natural enemies, and the other factors will inhibit it. When the number drops sharply to a certain range, the amount of biological growth increases again. Let the ambient capacity be the K value, and the negative and positive values calculated from the equilibrium value of the relative deviation amount will be the $K/2$.

If it fails to develop according to its natural laws, the result will flood like the Australian hare, lack of competition from natural enemies, sufficient food, serious damage to the natural environment to limit its growth, and eventually lead to uncontrollable human results.

4. Application of Tai Chi Curve Algorithm in Economic Geography

Taiji curve model can also be applied in economic geography, and its model can generally describe the law of industrial layout and the technical and economic scientific development concept of the research objects. The combination of natural technology, science, and economy separated and integrated in the model is indispensable. The three achieve a wonderful balance in urban planning, human activities, and natural ecology.

TABLE 1: Relationship between the total biomass change and growth rate in an area.

Total biomass	$x > K/2$	$x = K/2$	$x < K/2$
Biological growth rate in this population	Reduce	Normal growth	Accelerate

Data source: the study was designed by itself.

TABLE 2: The amount use and allocation of urban infrastructure construction and ecological planning between the two cities.

	A city allocated economic use (ten thousand yuan)	B city allocated economic use (ten thousand yuan)
Total state appropriation (ten thousand yuan)	n	n
Urban foundation construction (ten thousand yuan)	a	b
Urban ecological development (ten thousand yuan)	c	d

Data source: the study was designed by itself.

The significance of the model is different between the regions of different scales, and the magic of the s curve model diagram is that it can clearly and thoroughly express the correlation of the variables between various complex systems and draw it in the ancient Chinese tai chi figure.

For example, the state allocates n 0.000 yuan to both A and B cities for the development and construction of its cities. A city, because of the urban economic development, is not as developed as B city, so most of the allocated funds are used on urban infrastructure construction, and the remaining small part for urban ecological development; B city is economically developed city, while the natural resources are far inferior to A city, so B city has invested a lot of money in urban ecological planning, the rest is used in urban economic construction. Table 2 is drawn as described above.

In Table 2, n is the amount allocated by the state to the two cities; a is the amount used for urban foundation construction in A city; b is the amount used for urban foundation construction in B city; c is the amount used in A urban ecological development; d is the amount used for urban ecological development of B city:

$$n^2 = a^2 + c^2 = b^2 + d^2. \quad (11)$$

Here, the formula notes are shown in Table 2. According to Table 2, combined with the tai chi s curve model algorithm used, the total national approval fund is set as the circle constructed, and then the funds used in urban ecological development planning and the funds used in urban economic development and construction will be negative and positive values. According to the balance value of the relative deviation value, the funds invested in all parties can be calculated through the s curve model. According to the hook theorem, the total value square remains unchanged, the

negative value and positive value balance, the funds used in urban ecological development planning increase, the funds used in urban economic development and construction decrease, and the point collection is the track of the total value circle.

Similarly, the use planning of the land area can also be expressed in the model. The land area used in urban use is the fixed value, while the infrastructure facilities of urban development and the land resources needed for urban ecological development are variables, which make the Yin and Yang assignments and use the core idea of fuzzy mathematics to analyze the primary function. Moreover, the construction facilities of urban development are also divided into energy system, communication system, etc. At this time, it needs to be modeling in the urban infrastructure facilities, with the infrastructure is the circular track, while the energy communication system is the variable as the function.

5. Conclusion

This paper carried out a thorough study on tai chi *s* curve and the analysis of its combination with Pythagoras theorem, natural ecology, economic geography, and other aspects. As a result, this paper calculated the impacts of the increase and decrease of organisms in natural ecology on the natural environment. In addition, the practical application of economic geography is calculated. Using the relevant knowledge of mathematical modeling, the tai chi theorem and its curve modeling are constructed. Combining game theory and chaos theory, tai chi and Marx's dialectical materialism are discussed.

Data Availability

The data underlying the results presented in the study are available within the article.

Conflicts of Interest

The authors declare that there are no potential conflicts of interest in this paper.

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