

Acupuncture Treating Heart Diseases Based on Sixty JiaZi and Eight Palaces

—Mathematical Reasoning of Treatment Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine (V)

Yingshan Zhang^{1*}, Yan Li², Chunyun Guo³

¹School of Statistics, Faculty of Economics and Management, East China Normal University, Shanghai, China

²College of Acupuncture and Massage, Henan University of Traditional Chinese Medicine, Zhengzhou, China

³Traditional Chinese Medicine Acupuncture and Moxibustion Clinic, Zhengzhou, China

Email: *yszhang@stat.ecnu.edu.cn

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Abstract

Theory of Sixty JiaZi (60 甲子) is useful in understanding a human body disease. By using mathematical reasoning based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine (TCM), this paper demonstrates the treatment principle: “seize the momentum of development, hasten lucky avoids disaster” (顺势而为, 趋吉避凶). Sixty JiaZi is hidden behind eight palaces. The first or second transfer law of human body energies of Sixty JiaZi changes according to the different blood pH values of a human body whether in the normal range or not, respectively, assuming that the range of blood pH values of a human body is divided into four parts from small to large. Both second and third are for a healthy human body. Both the root-cause and symptoms come from the first transfer law of human body energies. And both first and fourth are for an unhealthy human body. Both the root-cause and symptoms come from the second transfer law of human body energies. The treating disease of a human body should protect and maintain the balance of two incompatibility relations: the loving relationship and the killing relationship. As an application, acupuncture is used to treat atrial premature beats as congenital heart disease.

Keywords

Traditional Chinese Medicine (TCM), Yin Yang Wu Xing Theory, Steady Multilateral Systems, Incompatibility Relations, Side Effects, Medical and Drug Resistance Problem

1. Introduction

Theory of Sixty JiaZi (60 甲子) is useful in understanding a human body disease. By using mathematical reasoning based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine (TCM), this paper demonstrates the treatment principle: “seize the momentum of development, hasten lucky avoids disaster” (顺势而为, 趋吉避凶). It means that for a human body, there is the mathematical structure of Sixty JiaZi as the second physiological system of a steady multilateral system. It is used to predict the momentum of development for the corresponding sick subsystem based on Sixty JiaZi numbers. Sixty JiaZi is hidden behind Eight palaces. So, it is base to find Eight palaces from six fu-organs.

Sixty JiaZi is the largest and earliest invention or discovery of the Chinese nation. JiaZi 60 calendar is the purpose of the oldest, ji-year, ji-month, ji-day and ji-two-hours. A cycle calendar of ji-year is for 60 years. One period of ji-month is for 5 years. A cycle of ji-day is for 60 days. A cycle of ji-two-hour is for five days. In the ancient Chinese calendar, the set of Jia (甲), Yi (乙), Bing (丙), Ding (丁), Wu (戊), Ji (己), Geng (庚), Xin (辛), Ren (壬), Gui (癸) referred to as “the ten heavenly stems”, the set of Zi (子), Chou (丑), Yin (寅), Mao (卯), Chen (辰), Si (巳), Wu (午), Wei (未), Shen (申), You (酉), Xu (戌), Hai (亥) is called “the twelve earthly branches”. By using “the ten heavenly stems” and “the twelve earthly branches”, the ancients expressed in Chinese era to year, month, day, and two-hour, like four pillars hold up the building of “time”, so-called the four pillars.

The ten heavenly stems loop combination and the twelve earthly branches: JiaZi, YiChou, BingYin, ..., until the Gui-Hai, received 60 combinations, known as Sixty JiaZi, so the cycle, endless. Each cycle of year, month, day, and two-hour is 60. In the field of time is a wonderful digital 60. Ancient Chinese use 60 as a cycle, not only in western timing method, a minute is 60 seconds, a hour is 60 minutes. Don't just coincidence? Likewise, in 24 hours a day, and the Chinese traditional 12 two-hour periods of the day (two hours is a big hour, called a ShiChen (时辰)) corresponding to China for five days as a ShiChen of circulation, the so-called “5 a syndrome”, is a total of 60 ShiChens. Moralists believe that there are 60 gods in the sky. These 60 gods correspond to 60 days. Each god is on duty for a day, in turn, to infinity. These 60 gods also match the heavenly stem and earthly branches. These 60 divine cycles correspond to the cycles of the heavenly trunk and earthly branches.

Eight-hexagram is one of the basic philosophical concepts, the ancient Chinese nationality is an ancient theory of Yin and Yang, the so-called Eight-hexagram is the eight diagrams. Eight-hexagram is by taeho bokhi (太昊伏羲氏) surname, namely fuxi (伏羲) painted. Eight-hexagram is one of the earliest texts, text symbols. Eight-hexagram on behalf of the Yi-Jing (周易) culture penetrates or impacts in the areas of east Asian cultures. According to the Chinese nationality folk legend, eight-hexagram originated in the first of three sovereigns of the fuxi (伏羲), fuxi (伏羲) in tianshui (天水) taishan (台山) starting painting Eight-hexagram, a heaven. Changing system of Yin and Yang Eight-hexagram

said thing itself, with “1” or “+” on behalf of Yang, with “-1” or “-” represents Yin, with two such symbols, according to the change of Yin and Yang of parallel combination of nature, composed of eight different forms, is called the Eight-hexagram. The Eight-hexagram doesn’t have too much mystery. It in the Chinese nationality culture like Yin and Yang, is used to exercise the world space time. In other words, it is the tool of imitating all kinds of things. Each of bodies represents a certain number of things. On behalf of the heaven, Qian (乾) represents, Kun (坤) on behalf the earth, Xun (巽) on behalf of the wind, Zhen (震) on behalf of the thunder, Kan (坎) on behalf of the water, Li (离) on behalf of the fire, Gen (艮) on behalf of the mountain, Dui (兑) on behalf of the marsh, the representative. Eight-hexagram like eight infinite invisible big pocket, put everything in the universe, and went in, Eight-hexagram match each other again into sixty-four hexagrams. The 64 hexagrams clustering get **eight palaces** according to the same disposition, used to symbolize various natural phenomena and human phenomenon, based on various things in today’s society people. Eight-hexagram in the traditional Chinese medicine refers to the surrounding palm around the floorboard of the eight parts.

Eight Palaces is a general mathematical structure as the second physiological system of a steady multilateral system. It is to determine the major or basic sick subsystems that may be to fall ill based on the six energy indexes of comprehensive judgment.

The six indexes are the energies of six subsystems wood (X) = {liver, bravery}, xiang-fire (X_S^x) = {pericardium, triple energizer}, earth (X_K) = {spleen, stomach}, metal (K_X) = {lung, large intestine}, water (S_X) = {kidney, bladder} and jun-fire (X_S^j) = {heart, small intestine}, simple namely the model of Jingluo or six fu-organs. The six indexes can be used to diagnose the major or basic sick subsystems that may be to fall ill.

The main purpose of observing the six energy indexes is in measuring all kinds of changes in energies for different subsystems of a human body.

Let x^i be one of the six indexes of the subsystem energies of the steady multilateral system for any $i (1 \leq i \leq 6)$. Denoted any one corresponding parameter of normal range (lower bound, upper bound, center) as follows respectively

$$(a^i, b^i, t_0^i), i = 1, 2, 3, 4, 5, 6.$$

Consider one of the six sign functions respectively

$$f_i = \text{sign}(x^i - t_0^i) + (x^i = t_0^i), i = 1, 2, 3, 4, 5, 6.$$

If $f_i = 1$, or “+”, the energy of the corresponding subsystem is Yang. Its state is intended to be real or real-normal.

If $f_i = -1$ or “-”, the energy of the corresponding subsystem is Yin. Its state is intended to be virtual or virtual-normal.

The Hexagram-image of the eight palaces or eight veins is as follows:

$$f = (f_1, f_2, f_3, f_4, f_5, f_6).$$

There is a total of 64 Hexagram-images. There is also a total of eight palaces. Each of eight palaces has eight Hexagram-images.

There is a rule: for each of eight palaces, its all Hexagram-images have the same as nature, namely, “Even if all changed, it is hard to change one’s nature” (江山易改, 本性难移).

By using the treatment principle, the way of judging what palace does a hexagram-image belong to can be used to diagnose the major or basic subsystems that may be to fall ill.

The number of Sixty JiaZi hidden behind each of Hexagram-images for each of eight palaces can be obtained by Definition 3.2 below.

There is a rule: for each of eight palaces, its all Sixty JiaZi numbers for Hexagram-images have the same as the momentum of development, namely, “seize the momentum of development, hasten lucky avoids disaster” (顺势而为, 趋吉避凶).

By using the treatment principle, the way of judging what palace’s the momentum of development a hexagram image’s 60 JiaZi numbers belong to can be used to predict the development of the corresponding subsystem based on 60 JiaZi numbers, in order to promote good luck, or to avoid bad luck.

A human body blood pH value of Sixty JiaZi numbers hidden behind Eight Palaces is a general parameter linking together the complexity of relations between organ pairs, the organ itself, the capabilities for intervention reaction and self-protection of the body and mind as a whole, related to the environment, food, health and personal history, air, water, earth, climate, season, etc. By using the human body blood pH value of Sixty JiaZi numbers or hidden behind Eight Palaces, the way can be to determine the human body whether healthy or unhealthy.

The studies of Prof. Macro Pianesi, President of the International Association UN PUNTO MACROBIOTICO, began as a pioneer work continuing the work of Japanese Nyoiti Sakurazawa, known in the West as Georges Ohsawa, the founding father of Macrobiotics. For example, thanks to these studies and macrobiotic cooking, over 25,000 disease patients have been cured in the last 8 years in the state of Africa alone, even with understandable and interesting economic implications.

Macrobiotic diet therapy trials have started in other parts of the world as well, including China. Prof. Wang Bin (Director of the Department of Medical Matters, Tibetan and Ethnic Medicine Hospital, University of Traditional Chinese Medicine, Beijing), Dr. Weiguo Ma and Dr. Bing Xu (also from the University of Traditional Chinese Medicine, Beijing), and Dr. Yujing Quian (Doctor in Traditional Chinese Medicine at Capital Normal University), who reported their experiences in a conference held in Italy on October 18, 2010.

Mario Pianesi never ceases to thank the Ancient Chinese for the depth of their thinking, and for the value they give to food in their reflections and observations. Among others, Prof. Mario Pianesi identifies an important indicator for

human health: the value of blood pH, which, under normal conditions, ranges from 7.35 to 7.45, and the center is 7.4. Outside this range (Acid: Yin condition; alkaline: Yang condition), disease appears. Almost always, when there is disease, the condition of blood is a Yin condition, little is a Yang condition.

There are a lot of evidences (e.g., experimental identification for probability and real applications) to support this viewpoint, such as, Shirakabe *et al.* [1], Kaur *et al.* [2], Aly *et al.* [3], Intven *et al.* [4], Patel *et al.* [5], Handman *et al.* [6], Natalia *et al.* [7], Barfod *et al.* [8], Zhu *et al.* [9], Zhu *et al.* [10], Robert *et al.* [11], Mona *et al.* [12], Saritas *et al.* [13], Stevens *et al.* [14], and so on.

The body begins to activate the necessary mechanisms to restore this parameter to its appropriate range. If the body is unable to restore optimal pH levels, the disease may become chronic and lead to dire consequences.

Zhang *et al.* [15]-[25] have started a great interest and admired works for Traditional Chinese Medicine (TCM), where, through mathematical reasoning, they demonstrate the presence of incompatibility relations, which are predominant in daily life, yet absent in traditional Aristotelian Western true-false logic.

Many people as Western person are beyond all doubt that the Yin Yang Wu Xing theory is superior to the traditional true-false logic, which does not contemplate incompatibility relations, which Zhang and Shao [20] have expertly explained from a mathematical standpoint.

The work Zhang [15] [16] has started, allows many people like Western person to think of a true re-foundation of mathematical language, to make it a better suited tool for the needs of mankind and the environment. Even so, Zhang and Shao [20] also bring to light the difficulty of establishing the values of both the intervention reaction coefficients ρ_1, ρ_2 and the self-protection coefficient ρ_3 as parameters with due accuracy.

In this paper, the introduction of sixty parameters such as the Sixty JiaZi numbers from the six indexes of subsystem energies of a human body will be suggested, in order to predict the momentum of development for the corresponding subsystem based on 60 JiaZi numbers. Sixty JiaZi is hidden behind eight palaces. The data of eight palaces is used to diagnose the major or basic subsystems that may be to fall ill.

On the other hand, the introduction of a parameter such as a human body blood pH value will be suggested, in order to determine the human body whether healthy or unhealthy, by facilitating the understanding and the calculation of the values of both the intervention reaction coefficients ρ_1, ρ_2 and the self-protection coefficient ρ_3 . This paper ventures to suggest this with all due to respect, because it is believed that the path Zhang [15] [16] has started, in such an understandable way from the mathematical point of view, will be very useful for all mankind searching for tools to understand the mechanisms of human body system.

Zhang *et al.* [23] [24] suggest that the parameter $\rho_1 = \rho(x) \geq \rho_0 = 0.5897545123$ or the range $x \in [7.34539, 7.45461]$ is the healthy running condition of both the killing relationship and the loving relation

at the same time in TCM. The human blood pH value must be precise calculation to keep at least 5 decimal places can ensure correct because of its sensitivity to the diagnosis of disease.

Latest works discovered the academic relationships between Leibnitz and Jesuit priest J. Bouvet, linking the deduction of the Trigrams to German binary system, situation that coincidentally appears in quoted paper. This will clearly realize the scientific-mathematical fundamentals of TCM (see Contributions).

There are some publications [26]-[31], devoted to demonstrate in Occident the exact basis of Chinese Medicine, *i.e.* as Chinese Five Elements find precise consistency with Euclid's Five Regular Polyhedra, as well as the trigrammatic order of the I-Ching hexagrams.

The article proceeds as follows. Section 2 contains a parameter model and basic theorems, in order to explain both the intervention reaction coefficients ρ_1, ρ_2 and the self-protection coefficient ρ_3 through the introduction of a parameter model to study the normal range of human body blood pH value, while the first or second transfer law of human body energies is demonstrated in Section 3, through the concept of both relation costs and a relationship analysis of the Sixty JiaZi and Eight Palaces. Furthermore, it will be done to predict the development of the corresponding subsystem based on 60 JiaZi numbers. At this time, the major or basic subsystems that may be to fall ill will be diagnosed with the Hexagram-images of the six energy indexes as Sixty JiaZi and Eight Palaces. If the range of the human body blood pH value is divided into four parts, for the human body in every part, the prevention or treatment method of human body diseases as the treatment principle of TCM is given in Section 4. As an application, acupuncture is used to treat atrial premature beats as congenital heart disease in Section 5 and conclusions are drawn in Section 6.

2. Parameter Model and Basic Theorems

The concepts and notations in Zhang [18] are used start and still.

Let $\varphi = (\sqrt{5} - 1)/2 = 0.61803399$ be the **gold number**. Suppose that the note $\rho_0 = 0.5897545123$ is namely **healthy number**. It is because the healthy number ρ_0 can make the healthy balance conditions that $\rho_1 = \rho_3, \rho_2 = \rho_1\rho_3$ and $1 - \rho_2\rho_3 = \rho_1 + \rho_2\rho_3$ hold if $\rho_1 = \rho_0, \rho_2 = \rho_0^2$ and $\rho_3 = \rho_0$. Assume that the note $\rho'_0 = 0.68232780$ is namely **unhealthy number**. It is because under the poor self-protection ability, the unhealthy number ρ'_0 can make the following unhealthy balance conditions hold:

$$\begin{aligned}\rho_1 - \rho_3 &= \rho_3 = \rho'_0/2 = 0.34116390, \\ \rho_2 - \rho_1\rho_3 &= \rho_1\rho_3 = (\rho'_0)^2/2 = 0.23278561 \\ 1 - \rho_2\rho_3 &= \rho_1 + \rho_2\rho_3\end{aligned}$$

if $\rho_1 = \rho'_0, \rho_2 = (\rho'_0)^2 = 0.46557123$ and $\rho_3 = \rho'_0/2$. Thus $\rho_0 < \varphi < \rho'_0$.

A parameter model of a human blood pH value in a mathematical sense based on Yin Yang Wu Xing Theory of TCM is reintroduced by using the functions $\lambda(x)$ and $\rho(x)$ of the human blood pH value x described as follows.

Let $x \in (7, 7.8)$ be a human blood pH value, where the values 7 and 7.8 are the minimum and maximum acceptable the blood pH value. The center value 7.4 is the target as the expectation of the human blood pH value. Define a function $\lambda(x)$ of the blood pH value x in below:

$$\lambda(x) = \frac{|x-7.4|}{(7.8-x)(x-7)}, \forall x \in (7, 7.8)$$

$$= \begin{cases} \frac{x-7.4}{(7.8-x)(x-7)}, & 7.8 > x \geq 7.4; \\ \frac{7.4-x}{(7.8-x)(x-7)}, & 7 < x < 7.4. \end{cases} \quad (1)$$

A parameter model is considered as

$$\rho(x) = \frac{1/2}{\lambda(x) + 1/2}, \forall x \in (7, 7.8). \quad (2)$$

Theorem 2.1. [23] [24] Under model (2), the following statements hold.

1) The one that $0 < \rho(x) = \frac{1/2}{\lambda(x) + 1/2} \leq 1$ is equivalent to the other that $0 \leq \lambda(x) = \frac{1-\rho(x)}{2\rho(x)} < +\infty$, where $\lambda(x)$ is a monotone decreasing function of x if $x \in (7, 7.4]$ or a monotone increasing function of x if $x \in [7.4, 7.8)$; and $\rho(x)$ is a monotone decreasing function of $\lambda(x)$ if $\lambda(x) \in [0, +\infty)$; and $\lambda(x)$ is a monotone decreasing function of $\rho(x)$ if $\rho(x) \in (0, 1]$.

2) If $1 \geq \rho(x) \geq \rho_0$, then

$$\lambda(x) = \frac{1-\rho(x)}{2\rho(x)} \leq \frac{1-\rho_0}{2\rho_0} = \rho_0^2 \leq \rho(x)^2 \leq 1;$$

$$\frac{\lambda(x)}{\rho(x)} = \frac{1-\rho(x)}{2\rho(x)^2} \leq \frac{1-\rho_0}{2\rho_0^2} = \rho_0 \leq \rho(x) \leq 1;$$

and

$$\frac{\lambda(x)}{\rho(x)^2} = \frac{1-\rho(x)}{2\rho(x)^3} \leq \frac{1-\rho_0}{2\rho_0^3} = 1.$$

3) If $0 < \rho(x) < \rho_0$, then

$$\lambda(x) = \frac{1-\rho(x)}{2\rho(x)} > \frac{1-\rho_0}{2\rho_0} = \rho_0^2 > \rho(x)^2 > 0;$$

$$\frac{\lambda(x)}{\rho(x)} = \frac{1-\rho(x)}{2\rho(x)^2} > \frac{1-\rho_0}{2\rho_0^2} = \rho_0 > \rho(x) > 0;$$

and

$$\frac{\lambda(x)}{\rho(x)^2} = \frac{1-\rho(x)}{2\rho(x)^3} > \frac{1-\rho_0}{2\rho_0^3} = 1.$$

4) Taking $0 < \rho_1 = \rho(x) < \rho_0$, $\rho_2 = \rho(x)^2$ and $\rho_3 = c\rho(x)$ where $0 \leq c \leq 1$, there are

$$\rho_1 - \rho_3 = \rho(x)(1-c) \geq 0, \rho_2 - \rho_1\rho_3 = \rho(x)^2(1-c) \geq 0,$$

and

$$(\rho_1 + \rho_2 \rho_3) = \rho(x) + c\rho(x)^3 < 1 - \rho_2 \rho_3 = 1 - c\rho(x)^3,$$

where $|(\rho_1 + \rho_2 \rho_3) - (1 - \rho_2 \rho_3)| > 2(1 - c)\rho_0^3 = (1 - c)0.41024$.

5) Taking $1 \geq \rho_1 = \rho(x) \geq \rho_0$, $\rho_2 = \rho(x)^2$ and $\rho_3 = c\rho(x)$ where $0 \leq c \leq 1$, there are

Firstly,

$$\rho_1 - \rho_3 = \rho(x)(1 - c) \geq 0, \rho_2 - \rho_1 \rho_3 = \rho(x)^2(1 - c) \geq 0$$

and

$$(\rho_1 + \rho_2 \rho_3) = \rho(x) + c\rho(x)^3 \geq 1 - \rho_2 \rho_3 = 1 - c\rho(x)^3$$

$$\text{If } 1 \geq c \geq \frac{1 - \rho(x)}{2\rho(x)^3} = \frac{\lambda(x)}{\rho(x)^2} \geq 0;$$

Secondly,

$$\rho_1 - \rho_3 = \rho(x)(1 - c) > \rho(x)/2, \rho_2 - \rho_1 \rho_3 = \rho(x)^2(1 - c) > \rho(x)^2/2$$

and

$$(\rho_1 + \rho_2 \rho_3) = \rho(x) + c\rho(x)^3 < 1 - \rho_2 \rho_3 = 1 - c\rho(x)^3$$

where $|(\rho_1 + \rho_2 \rho_3) - (1 - \rho_2 \rho_3)| \leq (\rho_0')^3 = 0.31767$.

$$\text{If } 0 \leq c < \frac{1 - \rho(x)}{2\rho(x)^3} = \frac{\lambda(x)}{\rho(x)^2} \leq \frac{1}{2} \text{ in which } 1 > \rho(x) \geq \rho_0';$$

Thirdly,

$$\rho_1 - \rho_3 = \rho(x)(1 - c) \geq \rho(x)/2, \rho_2 - \rho_1 \rho_3 = \rho(x)^2(1 - c) \geq \rho(x)^2/2$$

and

$$(\rho_1 + \rho_2 \rho_3) = \rho(x) + c\rho(x)^3 < 1 - \rho_2 \rho_3 = 1 - c\rho(x)^3$$

where $|(\rho_1 + \rho_2 \rho_3) - (1 - \rho_2 \rho_3)| \leq 2\rho_0^3 = 0.41024$.

$$\text{If } 0 \leq c \leq \frac{1}{2} < \frac{1 - \rho(x)}{2\rho(x)^3} = \frac{\lambda(x)}{\rho(x)^2} \leq 1 \text{ in which } \rho_0 \leq \rho(x) < \rho_0';$$

Finally,

$$\rho_1 - \rho_3 = \rho(x)(1 - c) < \rho(x)/2, \rho_2 - \rho_1 \rho_3 = \rho(x)^2(1 - c) < \rho(x)^2/2$$

and

$$(\rho_1 + \rho_2 \rho_3) = \rho(x) + c\rho(x)^3 < 1 - \rho_2 \rho_3 = 1 - c\rho(x)^3$$

where $|(\rho_1 + \rho_2 \rho_3) - (1 - \rho_2 \rho_3)| < (\rho_0')^3 = 0.31767$.

$$\text{If } \frac{1}{2} < c < \frac{1 - \rho(x)}{2\rho(x)^3} = \frac{\lambda(x)}{\rho(x)^2} \leq 1 \text{ in which } \rho_0 \leq \rho(x) < \rho_0'.$$

In particular, when c is nearly to $1/2$, there are

$$\rho_1 - \rho_3 = \rho(x)(1 - c) \rightarrow \rho(x)/2, \rho_2 - \rho_1 \rho_3 = \rho(x)^2(1 - c) \rightarrow \rho(x)^2/2$$

and the following statements hold.

- a) The absolute value $\left|(\rho_1 + \rho_2 \rho_3) - (1 - \rho_2 \rho_3)\right|$ is nearly to 0 if $0 < c < \frac{1 - \rho(x)}{2\rho(x)^3} = \frac{\lambda(x)}{\rho(x)^2} \leq \frac{1}{2}$ in which $1 > \rho(x) \geq \rho'_0$.
- b) The value $\left[(\rho_1 + \rho_2 \rho_3) - (1 - \rho_2 \rho_3)\right]$ is included in the interval $[-\rho_0^3 = -0.20512, 0)$ if $0 < c \leq \frac{1}{2} < \frac{1 - \rho(x)}{2\rho(x)^3} = \frac{\lambda(x)}{\rho(x)^2} \leq 1$ in which $\rho_0 \leq \rho(x) < \rho'_0$.
- c) The value $\left[(\rho_1 + \rho_2 \rho_3) - (1 - \rho_2 \rho_3)\right]$ is included in the interval $[-\rho_0^3 = -0.20512, 0)$ if $\frac{1}{2} < c < \frac{1 - \rho(x)}{2\rho(x)^3} = \frac{\lambda(x)}{\rho(x)^2} \leq 1$ in which $\rho_0 \leq \rho(x) < \rho'_0$. #

Corollary 2.1. [23] [24] Under model (2), the following statements hold.

1) For any $0 < d < 1$, there is a unique solution $u \in (7, 7.4)$ and there is also a unique solution $v \in (7.4, 7.8)$, such that

$$\lambda(7.4) = 0 \leq \lambda(x) = \frac{1 - \rho(x)}{2\rho(x)} \leq \lambda(u) = \lambda(v) = (1 - d)/(2d),$$

$$\rho(u) = \rho(v) = d \leq \rho(x) = \frac{1/2}{\lambda(x) + 1/2} \leq 1 = \rho(7.4).$$

2) The condition $x \in [7.35, 7.45]$ is equivalent to each of the following conditions:

$$\lambda(7.4) = 0 \leq \lambda(x) = \frac{1 - \rho(x)}{2\rho(x)} \leq \lambda(7.35) = \lambda(7.45) = 0.31743,$$

$$\rho(7.35) = \rho(7.45) = 0.61167 \leq \rho(x) = \frac{1/2}{\lambda(x) + 1/2} \leq 1 = \rho(7.4).$$

3) The condition $x \in [7.35129, 7.44871]$ is equivalent to each of the following conditions:

$$\lambda(7.4) = 0 \leq \lambda(x) = \frac{1 - \rho(x)}{2\rho(x)} \leq \lambda(7.35129) = \lambda(7.44871) = 0.30902,$$

$$\rho(7.35129) = \rho(7.44871) = \varphi \leq \rho(x) = \frac{1/2}{\lambda(x) + 1/2} \leq 1 = \rho(7.4).$$

4) The condition $x \in [7.34539, 7.45461]$ is equivalent to each of the following conditions:

$$\lambda(7.4) = 0 \leq \lambda(x) \leq \lambda(7.34539) = \lambda(7.45461) = \rho_0^2 = 0.34781,$$

$$\rho(7.34539) = \rho(7.45461) = \rho_0 \leq \rho(x) = \frac{1/2}{\lambda(x) + 1/2} \leq 1 = \rho(7.4).$$

5) The condition $x \in [7.36307, 7.43693]$ is equivalent to each of the following conditions:

$$\lambda(7.4) = 0 \leq \lambda(x) \leq \lambda(7.36307) = \lambda(7.43693) = (\rho'_0)^2 / 2 = 0.23279,$$

$$\rho(7.36307) = \rho(7.43693) = \rho'_0 \leq \rho(x) = \frac{1/2}{\lambda(x)+1/2} \leq 1 = \rho(7.4). \quad \#$$

In west, through experiment or through practice observation, many researchers [1]-[14] have obtained the normal range of human blood pH value as $x \in [7.35, 7.45]$. But in TCM, from Yin Yang Wu Xing Theory, Zhang [17] has already determined: $\rho_0 \leq \rho_1 \leq 1$ for the normal range of a healthy body. Taking $\rho_1 = \rho(x)$, $\rho_2 = \rho(x)^2$ and $\rho_3 = c\rho(x)$ where $0 \leq c \leq 1$ for a human body which has the capabilities of both intervention reaction and self-protection. From Corollary 2.1, the condition $\rho_0 \leq \rho_1 = \rho(x) \leq 1$ is equivalent to $x \in [7.34539, 7.45461]$. In other words, in Theory of TCM, the normal range of human blood pH value is considered as $x \in [7.34539, 7.45461]$, nearly to $x \in [7.35, 7.45]$. Of course, little difference of the two intervals which makes the diagnosis of disease as a result, there may be no much difference as a suspect. In fact, TCM uses the rule $\rho_0 \leq \rho_1 \leq 1$ from the Yin Yang Wu Xing Theory instead of the normal range of human blood pH value. The equivalence of Corollary 2.1 shows that TCM is the scientific.

Zhang [17] has already determined: a body is said healthy when the intervention reaction coefficient ρ_1 satisfies $1 \geq \rho_1 \geq \rho_0$. In logic and practice, it's reasonable that $\rho_1 + \rho_2$ is near to 1 if the input and output in a human body are balanced, since an output organ is absolutely necessary other organs of all consumption. In case: $\rho_1 + \rho_2 = 1$, all the energy for intervening organ can transmit to other organs which have neighboring relations or alternate relations with the intervening organ. The condition $1 \geq \rho_1 \geq \rho_0$ can be satisfied when $\rho_2 = \rho_1\rho_3$ and $\rho_3 = \rho_1$ for an organ since $\rho_1 + \rho_2 = 1$ implies $\rho_1 = \varphi \approx 0.61803 \geq \rho_0$. In this case, $\rho_2 = \varphi^2 \approx 0.38197$. If this assumptions are set up, then the intervening principle: "Real disease with a healthy body is to rush down its son and virtual disease with a healthy body is to fill its mother" based on the Yin Yang Wu Xing theory in image mathematics by Zhang and Shao [20], is quite reasonable. But, in general, the ability of self-protection is often insufficient for a usual human body, i.e., ρ_3 is small. A common standard is $\rho_3 = (1 - \rho_1)/(2\rho_2) \approx 1/2$ which comes from the balance condition $(1 - \rho_2\rho_3) = (\rho_1 + \rho_2\rho_3)$ of the loving relationship if $\rho_1 + \rho_2 \approx 1$. In other words, there is a principle which all losses are bear in a human body. Thus the general condition is often $\rho_1 \approx 0.61803 \geq \rho_3 \approx 0.5 \geq \rho_2 \approx 0.38197$. Interestingly, they are all near to the golden numbers. It is the idea to consider the unhealthy number $\rho'_0 = 0.68232780$ since the poor condition of self-protection ability $\rho_3 = \rho'_0/2 = 0.34116390$ can make the unhealthy balance conditions hold

$$\rho_1 - \rho_3 = \rho_3 = \rho'_0/2 = 0.34116390,$$

$$\rho_2 - \rho_1\rho_3 = \rho_1\rho_3 = (\rho'_0)^2/2 = 0.23278561$$

$$1 - \rho_2\rho_3 = \rho_1 + \rho_2\rho_3$$

if $\rho_1 = \rho'_0$ and $\rho_2 = (\rho'_0)^2 = 0.46557123$.

By Theorem 2.1 and Corollary 2.1, $x \in [7.35, 7.45]$ implies $1 \geq \rho_1 = \rho(x) \geq 0.61167 = \rho(7.35) = \rho(7.45)$.

And $x \in [7.35129, 7.44871]$ implies

$$1 \geq \rho_1 = \rho(x) \geq \varphi = \rho(7.35129) = \rho(7.44871).$$

And $x \in [7.34539, 7.45461]$ implies

$$1 \geq \rho_1 = \rho(x) \geq \rho_0 = \rho(7.34539) = \rho(7.45461),$$

$$\text{where } \lambda(7.34539) = \lambda(7.45461) = \frac{1-\rho_0}{2\rho_0} = \rho_0^2.$$

$$\text{Since } (1-\rho_0^3) = (\rho_0 + \rho_0^3).$$

And $x \in [7.36307, 7.43693]$ implies

$$1 \geq \rho_1 = \rho(x) \geq \rho'_0 = \rho(7.36307) = \rho(7.43693),$$

$$\text{where } \lambda(7.36307) = \lambda(7.43693) = \frac{1-\rho'_0}{2\rho'_0} = \frac{(\rho'_0)^2}{2}.$$

$$\text{Since } (1-\rho'_0) = (\rho'_0)^3.$$

The last one is the healthy interval in a person's self-protection ability poor conditions. The interval range is relative to the normal human body's health requirements too strict. Only the first three interval ranges are considered as a normal human body's health. If keep two decimal places, then the first three intervals are the same as $x \in [7.35, 7.45]$. This shows that range $x \in [7.35, 7.45]$ is stable. The interval as the normal range of human blood pH value may be also appropriate. To conservative estimates, the interval of the largest length of the first three range intervals is used, i.e., $x \in [7.34539, 7.45461]$, as the theoretical analysis of the normal range. In fact, the range $x \in [7.34539, 7.45461]$ is better than the range $x \in [7.35, 7.45]$. It is because the range $x \in [7.34539, 7.45461]$ satisfies the healthy balance conditions $\rho_1 = \rho_3, \rho_2 = \rho_1\rho_3$ and $(1-\rho_2\rho_3) \leq (\rho_1 + \rho_2\rho_3)$ if $\rho_1 = \rho(x), \rho_2 = \rho(x)^2$ and $\rho_3 = c\rho(x) \rightarrow \rho_1$. In other words, the parameter $\rho_1 = \rho(x) \geq \rho_0$ or the range $x \in [7.34539, 7.45461]$ is the healthy running condition of both the killing relationship and the loving relation at the same time. But neither are the others. The human blood pH value must be precise calculation to keep at least 5 decimal places can ensure correct because of its sensitivity to the diagnosis of disease.

3. Relations of Steady Multilateral Systems

3.1. Energy Changes of a Steady Multilateral System

In order to apply the reasoning to other fields rather than human body's health, Zhang [18] has started a steady multilateral system imitating a human body. A most basic steady multilateral system is as follows.

Theorem 3.1. Zhang and Shao [20] *For each element x in a steady multilateral system V with two incompatibility relations, there exist five equivalence classes below:*

$$X = \{y \in V \mid y \sim x\}, X_S = \{y \in V \mid x \rightarrow y\}, X_K = \{y \in V \mid x \Rightarrow y\},$$

$$K_X = \{y \in V \mid y \Rightarrow x\}, S_X = \{y \in V \mid y \rightarrow x\},$$

which the five equivalence classes have relations in **Figure 1**. #

The Yin Yang Wu Xing model can be written as follows: Define

$$V_0 = X, V_1 = X_S, V_2 = X_K, V_3 = K_X, V_4 = S_X,$$

corresponding to wood, fire, earth, metal, water, respectively, and assume

$$V = V_0 + V_1 + V_2 + V_3 + V_4 \text{ where } V_i \cap V_j = \emptyset, \forall i \neq j.$$

And take $\mathfrak{R} = \{R_0, R_1, \dots, R_4\}$ satisfying

$$R_r = \sum_{i=0}^4 V_i \times V_{\text{mod}(i+r,5)}, \forall r \in \{0, 1, \dots, 4\}, R_i * R_j \subseteq R_{\text{mod}(i+j,5)},$$

where $V_i \times V_j = \{(x, y) : x \in V_i, y \in V_j\}$ is the Descartes product in set theory and the following note $R_i * R_j = \{(x, y) : \exists u \in V \text{ such that } (x, u) \in R_i, (u, y) \in R_j\}$ is the **relation multiplication operation**. The relation multiplication of $*$ is isomorphic to the addition of module A. Then V^5 is a steady multilateral system with one equivalent relation R_0 and two incompatibility relations $R_1 = R_4^{-1}$ and $R_2 = R_3^{-1}$ where the note $R_i^{-1} = \{(x, y) : (y, x) \in R_i\}$ is the **relation inverse operation**.

The Yin and Yang mean the two incompatibility relations and the Wu Xing means the collection of five disjoint classification of $V^5 = V_0^5 + V_1^5 + V_2^5 + V_3^5 + V_4^5$. The model is called Yin Yang Wu Xing model, denoted simply by $V^5 = \{0, 1, 2, 3, 4\}$.

It can be proved that the steady multilateral system in Theorem 3.1 is the reasoning model of Yin Yang Wu Xing in TCM if there is an energy function $\varphi(*)$ satisfying

$$\begin{aligned} \frac{\Delta\varphi(X)}{\Delta} &\rightarrow \frac{d\varphi(X)}{dX} = (1 - \rho_2\rho_3) = (1 - c\rho(x)^3) > 0; \\ \frac{\Delta\varphi(X_S)}{\Delta} &\rightarrow \frac{d\varphi(X_S)}{dX} = (\rho_1 + \rho_2\rho_3) = \rho(x)(1 + c\rho(x)^2) > 0; \\ \frac{\Delta\varphi(X_K)}{\Delta} &\rightarrow \frac{d\varphi(X_K)}{dX} = -(\rho_1 - \rho_3) = -\rho(x)(1 - c) < 0; \\ \frac{\Delta\varphi(K_X)}{\Delta} &\rightarrow \frac{d\varphi(K_X)}{dX} = -(\rho_2 - \rho_1\rho_3) = -\rho(x)^2(1 - c) < 0; \\ \frac{\Delta\varphi(S_X)}{\Delta} &\rightarrow \frac{d\varphi(S_X)}{dX} = (\rho_2 - \rho_1\rho_3) = \rho(x)^2(1 - c) > 0, \end{aligned}$$

if increase the energy of X ($\forall \Delta\varphi(X) = \Delta > 0$), where

$$\rho_1 = \rho(x), \rho_2 = \rho(x)^2, \rho_3 = c\rho(x), 0 < \rho(x) < 1, 0 \leq c \leq 1.$$

The parameter $\rho_v = \rho_1 + \rho_2\rho_3$ is called the coefficient of the **vital** or righteous energy. The parameter $\rho_e = 1 - \rho_2\rho_3$ is called the coefficient of the **evil** energy. A Human Body complex system is called **healthy** if the vital or righteousness coefficient $\rho_v = \rho_1 + \rho_2\rho_3$ is greater than or equal to the evil coefficient $\rho_e = 1 - \rho_2\rho_3$. Otherwise, the Human Body complex system is called **unhealthy**. For a healthy Human Body complex system, the transfer law of the Yang vital or righteousness energy in the Yin Yang Wu Xing Model is

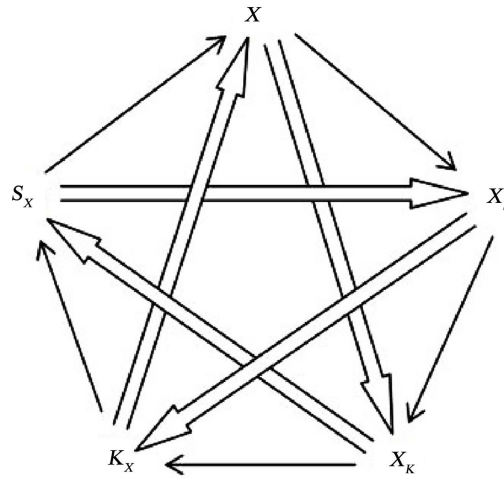


Figure 1. Finding Yin Yang Wu Xing model.

$$\begin{aligned} \text{Wood}(X) &\rightarrow \text{Fire}(X_s) \rightarrow \text{Earth}(X_k) \rightarrow \text{Metal}(K_x) \\ &\rightarrow \text{Water}(S_x) \rightarrow \text{Wood}(X) \rightarrow \dots \end{aligned}$$

Figure 1 in Theorem 3.1 is the figure of Yin Yang Wu Xing theory in Ancient China. The steady multilateral system V with two incompatibility relations is equivalent to the logic architecture of reasoning model of Yin Yang Wu Xing theory in Ancient China. What describes the general method of the steady multilateral system V with two incompatibility relations can be used in the Human Body complex systems.

By non-authigenic logic of TCM, *i.e.*, a logic which is similar to a group has nothing to do with the research object in Zhang and Shao [20], in order to ensure the reproducibility such that the analysis conclusion can be applicable to any complex system, a logical analysis model can be chosen which has nothing to do with the object of study. The *Tao* model of Yin and Yang is a generalized one which means that two is basic. But the *Tao* model of Yin Yang is simple in which there is not incompatibility relation. The analysis conclusion of *Tao* model of Yin Yang cannot be applied to an incompatibility relation model. Thus the Yin Yang Wu Xing model with two incompatibility relations of Theorem 3.1 will be selected as the logic analysis model in this paper.

On the other hand, the steady multilateral system $(V^2, \mathfrak{R}^2) = (V_0^2 + V_1^2, \{R_0^2, R_1^2\})$ is called the *Tao* model, denoted simply by $V^2 = \{0, 1\}$, if it satisfies the following conditions:

$$\begin{aligned} R_r^2 &= \sum_{i=0}^1 V_i^2 \times V_{\text{mod}(i+r,2)}^2, \forall r \in \{0, 1\}, R_i^2 * R_j^2 = R_{\text{mod}(i+j,2)}^2, \\ R_0^2 &= \{(0, 0), (1, 1)\}, R_1^2 = \{(0, 1), (1, 0)\}. \end{aligned}$$

The relation multiplication of $*$ is isomorphic to the addition of module 2. The element 1 or 0 is called a **Yang** force or a **Yin** force respectively. For a healthy human body, the transfer law of the *Tao* force in the *Tao* model is from Yang to Yin.

In TCM, any material can be found, not Yang is Yin. No matter of Yin and

Yang are unable to see, known as **dark matter**, or **nonphysical**. Therefore, the *Tao* force is often exist in the physical world. Any a steady multilateral system only force under the action of the *Tao*, may be to be perceived.

In TCM, it is believed that any a Yin Yang Wu Xing complex system is made up of three types of talent or material to combined changes. The three types come from the Yin energy in it's a layer Yin Yang Wu Xing system. It is because a lot of complex systems can be seen as a Yin Yang Wu Xing system. However, any a Yin Yang Wu Xing system is a human body observation of the objective object in one logic level, it will be a layer of the Yin Yang Wu Xing system of restriction and generation. In the Yin Yang Wu Xing system, both wood and fire are Yang; three types including earth, metal and water are Yin. So any Yin Yang Wu Xing system is generated by the three talents (earth, gold and water) at the upper logical level. The three types are generated from an upper layer of the Yin Yang Wu Xing system. For example, an upper layer of controlling on the Yin Yang Wu Xing system of human body is the nature, *Tao*, heaven, earth and people system, so the formation of the human body three materials are heaven (1), earth (2) and people (3).

The three *Tao* model can combine forming a steady multilateral system

$$(\mathbf{V}^8, \mathfrak{R}^8) = (\mathbf{V}_1^8 + \dots + \mathbf{V}_8^8, \{\mathbf{R}_1^8, \dots, \mathbf{R}_8^8\})$$

is called the **Eight-Hexagram** (八卦) model, denoted simply by

$\mathbf{V}^8 = \{(1,1,1), (0,1,1), (1,0,1), (0,0,1), (1,1,0), (0,1,0), (1,0,0), (0,0,0)\}$ which satisfies the following conditions:

$$\mathbf{R}_r^8 = \sum_{i=1}^8 \mathbf{V}_i^8 \times \mathbf{V}_{i^*r}^8, \forall r \in \{1, 2, \dots, 8\},$$

$$\mathbf{R}_i^8 * \mathbf{R}_j^8 = \mathbf{R}_{i^*j}^8, \forall i, j \in \{1, 2, \dots, 8\},$$

i^*r	1 = (111)	2 = (011)	3 = (101)	4 = (001)	5 = (110)	6 = (010)	7 = (100)	8 = (000)
1 = (111)	8 = (000)	7 = (100)	6 = (010)	5 = (110)	4 = (001)	3 = (101)	2 = (011)	1 = (111)
2 = (011)	7 = (100)	8 = (000)	5 = (110)	6 = (010)	3 = (101)	4 = (001)	1 = (111)	2 = (011)
3 = (101)	6 = (010)	5 = (110)	8 = (000)	7 = (100)	2 = (011)	1 = (111)	4 = (001)	3 = (101)
4 = (001)	5 = (110)	6 = (010)	7 = (100)	8 = (000)	1 = (111)	2 = (011)	3 = (101)	4 = (001)
5 = (110)	4 = (001)	3 = (101)	2 = (011)	1 = (111)	8 = (000)	7 = (100)	6 = (010)	5 = (110)
6 = (010)	3 = (101)	4 = (001)	1 = (111)	2 = (011)	7 = (100)	8 = (000)	5 = (110)	6 = (010)
7 = (100)	2 = (011)	1 = (111)	4 = (001)	3 = (101)	6 = (010)	5 = (110)	8 = (000)	7 = (100)
8 = (000)	1 = (111)	2 = (011)	3 = (101)	4 = (001)	5 = (110)	6 = (010)	7 = (100)	8 = (000)

The number 1, 2, 3, 4, 5, 6, 7, 8 is called the Qian (乾), Dui (兑), Li (离), Zhen (震), Xun (巽), Kan (坎), Gen (艮), Kun (坤) respectively. The set of $\{1, 2, 3, 4, 5, 6, 7, 8\}$ is called the **Eight-Hexagram** (八卦) system.

On the other hand, the three types heaven (1), earth (2) and people (3) to any change combine forming the **Telluric effluvium** model as follows:

The steady multilateral system

$$(V^6, R^6) = (V_1^6 + \dots + V_6^6, \{R_1^6, \dots, R_6^6\})$$

is called the **Telluric effluvium** model, denoted simply by

$V^6 = \{e, (12), (13), (23), (123), (132)\}$, if it satisfies the following conditions:

$$R_r^6 = \sum_{i=1}^6 V_i^6 \times V_{i^*r}^6, \forall r \in \{1, 2, \dots, 6\},$$

$$R_i^6 * R_j^6 = R_{i^*j}^6, \forall i, j \in \{1, 2, \dots, 6\},$$

i^*r	$1=e$	$2=(12)$	$3=(13)$	$4=(23)$	$5=(123)$	$6=(132)$
$1=e$	$1=e$	$2=(12)$	$3=(13)$	$4=(23)$	$5=(123)$	$6=(132)$
$2=(12)$	$2=(12)$	$1=e$	$5=(123)$	$6=(132)$	$3=(13)$	$4=(23)$
$3=(13)$	$3=(13)$	$6=(132)$	$1=e$	$5=(123)$	$4=(23)$	$2=(12)$
$4=(23)$	$4=(23)$	$5=(123)$	$6=(132)$	$1=e$	$2=(12)$	$3=(13)$
$5=(123)$	$5=(123)$	$4=(23)$	$2=(12)$	$3=(13)$	$6=(132)$	$1=e$
$6=(132)$	$6=(132)$	$3=(13)$	$4=(23)$	$2=(12)$	$1=e$	$5=(123)$

The number 1 or 2 or 3 is called the tengen (天元), the earth material (地元), the people ability (人元), respectively. The set of $\{1, 2, 3\}$ is called three types of talent or material. It is with elements, $e, (12), (13), (23), (123), (132)$. The each of elements, $e, (12), (13), (23), (123), (132)$ is called the primordial energy (元气), essence derived from food (谷气), defensive energy (卫气), essential substance circulating in the Meridians and blood Meridians (营气), genuine energy (真气), pectoral energy (宗气), respectively. Another name is respectively

shaoyang(e)(少阳), yangming($((12))$)(阳明), taiyang($((13))$)(太阳),

jueyin($((23))$)(厥阴), shaoyin($((123))$)(少阴), taiyin($((132))$)(太阴).

Generally positive or Yang material, they are able to be perceived, but few can see the material itself, can only use signs. Therefore, the Yang energy symptoms of the set $M_1 = \{e, (12), (13)\}$ is called the marrow energy (髓); The Yin energy of the set $M_2 = \{(123)\}$ is called the blood energy (血); The Yin energy of the set $M_3 = \{(132)\}$ is called the saliva energy (津); The Yin energy of the set $M_4 = \{(23)\}$ is called the essence of water and grain (水谷精微).

Growth and conveyance in the six energies $e, (12), (13), (23), (123), (132)$ known as the **six roots** (根); As the fruit of these six energies $e, (12), (13), (23), (123), (132)$ known as the **six fruits** (结); Storage of these four energies M_1, M_2, M_3, M_4 known as the **four seas** (四海); Energy exchange of the four kinds of M_1, M_2, M_3, M_4 known as the **four streets** (四街). Of course, for a healthy human body, the transfer law of each of the six energies $e, (12), (13), (23), (123), (132)$ is from its **root** (root-causes) (根) to its **fruit**

(symptoms) (结).

Western Medicine is different from TCM because the TCM has a concept of *Chi* or *Qi* (气) as a form of energy of steady multilateral systems. It is believed that this energy exists in all things of steady multilateral systems (living and non-living) including air, water, food and sunlight. *Chi* is said to be the unseen vital force that nourishes steady multilateral systems' body and sustains the life of a steady multilateral systems imitating the human body complex system. It is also believed that an individual is born with an original amount of *Chi* at the beginning of life of a steady multilateral system imitating the human body complex system and as a steady multilateral system grows and lives, the steady multilateral system acquires or attains *Chi* or energy from "eating" and "drinking", from "breathing" the surrounding "air" and also from living in its environment. The steady multilateral system having an energy function is called **the anatomy system** or **the first physiological system**. And the first physiological system also affords *Chi* or energy for the steady multilateral system's meridian system (Zangxiang (藏象) and Jingluo (经络)) which forms a parasitic system of the steady multilateral system, called **the second physiological system** of the steady multilateral system. The second physiological system of the steady multilateral system controls the first physiological system of the steady multilateral system. A steady multilateral system would become ill or dies if the *Chi* or energy in the steady multilateral system is imbalanced or exhausted, which means that $\rho_1 = \rho(x) \rightarrow 0, \rho_2 = \rho(x)^2 \rightarrow 0$ and $\rho_3 = c\rho(x) \rightarrow 0$.

For example, in TCM, a human body as the first physiological system of the steady multilateral system following the Yin Yang Wu Xing theory was classified into five equivalence classes as follows:

Wood (X) = {liver, bravery, soul, ribs, sour, east, spring, birth};

Xiang-fire (X_S^x) = {pericardium, the triple energizer, nerve, blood vessel, bitter taste, the south, summer, growth};

Earth (X_K) = {spleen, stomach, willing, meat, sweetness, center, long summer, combined};

Metal (X_X) = {lung, large intestine, boldness, fur, spicy, west, autumn, accept};

Water (S_X) = {kidney, bladder, ambition, bone, salty, the north, winter, hiding};

Jun-fire (X_S^j) = {heart, small intestine, nerve, making blood, bitter taste, whole body, whole direction, throughout the year, overall growth}.

Fire (X_S) = xiang-fire (X_S^x) \cup jun-fire (X_S^j).

The five equivalence classes also are called as five Zang-Organs or five subsystems of a steady complex system imitating a Human Body complex system. Each of five Zang-Organs is called as Liver Zang-organ as wood (X), Heart Zang-organ as fire (X_S), Spleen Zang-organ as earth (X_K), Lung Zang-organ as metal (X_X) and Kidney Zang-organ as water (S_X), respectively. There is only one of both the loving relation and killing relation between every two classes or organs. General close is loving, alternate is killing.

Suppose that the class fire (X_S) is divided into two classes xiang-fire (X_S^x) and jun-fire (X_S^j). These six equivalence classes are also called six fu-organs or six hollow organs. Each of six fu-organs is called as Liver Fu-organ as wood (X), Pericardium Fu-organ or mutually Fu-organ or Xiang (相) Fu-organ as xiang-fire (X_S^x), Spleen Fu-organ as earth (X_K), Lung Fu-organ as metal (K_X), Kidney Fu-organ as water (S_X), and Heart Fu-organ or Js mammy Fu-organ or Jun (君) Fu-organ as jun-fire (X_S^j), respectively.

Although the energy of Jun (君) Fu-organ as jun-fire (X_S^j) is similar to or likes the energy of Xiang (相) Fu-organ as xiang-fire (X_S^x) in logic, the energy of the six fu-organs can be observed, but the energy of the five zang-organs (especially the energy of the heart Zang-organ) cannot be observed, only can be inferred.

In every category of internal, think that they are with an equivalent relationship, between each two of their elements there is a force of similar material accumulation of each other. It is because their pursuit of the goal is the same, *i.e.*, follows the same “Axiom system”. It can increase the energy of the class at low cost near to zero if they accumulate together. Any nature material activity follows the principle of maximizing so energy or minimizing the cost. In other words, the same energy attracts each other (同气相招).

In general, the size of the force of similar material accumulation of each other is smaller than the size of the loving force or the killing force in a stable Human Body complex system. The stability of any a Human Body complex system first needs to maintain the equilibrium of the killing force and the loving force. The key is the killing force. For a stable Human Body complex system, if the killing force is large, *i.e.*, the self-protection coefficient $\rho_3 = c\rho(x)$ becomes larger, in which needs a positive **exercise**, then the loving force is also large such that the force of similar material accumulation of each other is also large. They can make the Human Body complex system more stable. If the killing force is small, *i.e.*, the self-protection coefficient $\rho_3 = c\rho(x)$ becomes smaller, which means little **exercise**, then the loving force is also small such that the force of similar material accumulation of each other is also small. They can make the Human Body complex system becoming unstable.

The *Chi* or energy is also called the food hereafter for simply. In order to get the food, by Attaining Rule below, the second physiologic system must make the first physiologic system done an intervention of it, namely **exercise**. It is because only by intervention on the first physiologic system, the second physiologic system can be to get food.

The second physiologic system of the steady multilateral system controls the first physiologic system of the steady multilateral system imitating a Human Body complex system, abiding by the following rule.

Intervention Rule: In the case of virtual disease, the treatment method of intervention is to increase the energy. If the treatment has been done on X , the energy increment (or, increase degree) $|\Delta\varphi(X_S)|$ of the son X_S of X is

greater than the energy increment (or, increase degree) $|\Delta\varphi(S_X)|$ of the mother S_X of X , i.e., the best benefit is the son X_S of X . But the energy decrease degree $|\Delta\varphi(X_K)|$ of the prisoner X_K of X is greater than the energy decrease degree $|\Delta\varphi(K_X)|$ of the bane K_X of X , i.e., the worst victim is the prisoner X_K of X .

In the case of real disease, the treatment method of intervention is to decrease the energy. If the treatment has been done on X , the energy decrease degree $|\Delta\varphi(S_X)|$ of the mother S_X of X is greater than the energy decrease degree $|\Delta\varphi(X_S)|$ of the son X_S of X , i.e., the best benefit is the mother S_X of X . But the energy increment (or, increase degree) $|\Delta\varphi(K_X)|$ of the bane K_X of X is greater than the energy increment (or, increase degree) $|\Delta\varphi(X_K)|$ of the prisoner X_K of X , i.e., the worst victim is the bane K_X of X .

In mathematics, the changing laws are as follows.

- 1) If $\Delta\varphi(X) = \Delta > 0$, then $\Delta\varphi(X_S) = \rho_1\Delta$, $\Delta\varphi(X_K) = -\rho_2\Delta$, $\Delta\varphi(S_X) = \rho_2\Delta$;
 2) If $\Delta\varphi(X) = -\Delta < 0$, then $\Delta\varphi(X_S) = -\rho_1\Delta$, $\Delta\varphi(X_K) = \rho_2\Delta$, $\Delta\varphi(S_X) = -\rho_2\Delta$;
 Where $1 \geq \rho_1 \geq \rho_2 \geq 0$.

Both ρ_1 and ρ_2 are called intervention reaction coefficients, which are used to represent the capability of intervention reaction. The larger the intervention reaction coefficient ρ_1 is, the better the capability of intervention reaction is. The state $\rho_1 = 1$ is the best state but the state $\rho_1 = 0$ is the worst state.

The Intervention rule can be explained as: In general, the intervention rule is similar to force and reaction in Physics. In other words, if a subsystem of a multilateral system V has been done an intervention of it, then the energy of subsystem which has a neighboring relation (or beneficiary) changes in the same direction of the force, and the energy of subsystem which has an alternate relation (or victim) changes in the opposite direction of the force. The size of the energy changed is equal, but the direction opposite.

Self-protection Rule: In the case of virtual disease, the treatment method of intervention is to increase the energy. If the treatment has been done on X , the worst victim is the prisoner X_K of X . Thus, the treatment of self-protection is to restore the prisoner X_K of X and the restoring method of self-protection is to increase the energy $\varphi(X_K)$ of the prisoner X_K of X by using the intervention force on X according to the intervention rule.

In the case of real disease, the treatment method of intervention is to decrease the energy. If the treatment has been done on X , the worst victim is the bane K_X of X . Thus, the treatment of self-protection is to restore the bane K_X of X and the restoring method of self-protection is to decrease the energy $\varphi(K_X)$ of the bane K_X of X by using the same intervention force on X according to the intervention rule.

In mathematics, the following self-protection laws hold.

- 1) If $\Delta\varphi(X) = \Delta > 0$, then the energy of subsystem X_K will decrease the

increment $(-\rho_1\Delta)$, which is the worst victim. So the capability of self-protection increases the energy of subsystem X_K by increment $(\rho_3\Delta)(0 \leq \rho_3 \leq \rho_1)$ in order to restore the worst victim X_K by according to the intervention rule.

2) If $\Delta\varphi(X) = -\Delta < 0$, then the energy of subsystem K_X will increase the increment $(\rho_1\Delta)$, which is the worst victim. So the capability of self-protection decreases the energy $\varphi(K_X)$ of subsystem K_X by increment $(-\rho_3\Delta)(0 \leq \rho_3 \leq \rho_1)$ in order to restore the worst victim K_X by according to the intervention rule.

The self-protection rule can be explained as: the general principle of a self-protection subsystem is that the worst victim is protected firstly, the protection method is in the same way to the intervention force but any beneficiary should be not protected.

Attaining Rule: The second physiologic system of the steady multilateral system will work by using Attaining Rule, if the first physiologic system of the steady multilateral system runs normally. The work is in order to attain the *Chi* or energy from the first physiologic system of the steady multilateral system by mainly utilizing the balance of the loving relationship of the first physiologic system.

In mathematics, suppose that the steady multilateral system imitating the Human Body complex system of X is healthy. If X is done an intervention of it, then the second physiologic system will attain the *Chi* or energy from X directly.

Suppose that the steady multilateral system imitating the Human Body complex system of X is unhealthy. If X is done an intervention of it, then the second physiologic system will attain the *Chi* or energy from X indirectly. If virtual X is done an intervention of it, it will attain the *Chi* or energy (Yang energy) from the son X_S of X . If real X is done an intervention of it, it will attain the *Chi* or energy (Yin energy) from the mother S_X of X .

Affording Rule: The second physiologic system of the steady multilateral system will work by using Affording Rule, if the first physiologic system of the steady multilateral system runs hardly. The work is in order to afford the *Chi* or energy for the first physiologic system of the steady multilateral system, by mainly protecting or maintaining the balance of the killing relationship of the steady multilateral system, to drive the first physiologic systems will begin to run normally.

In mathematics, suppose that the steady multilateral system imitating the Human Body complex system of X is healthy. The second physiologic system doesn't afford any *Chi* or energy for the first physiologic system.

Suppose that the steady multilateral system imitating the Human Body complex system of X is unhealthy and the capability of self-protection is lack, i.e., $\rho_3 = c\rho(x) \geq 0$ and $0 < \rho_1 < \rho_0$. The second physiologic system will afford the *Chi* or energy for X directly, at the same time, affording the *Chi* or energy for other subsystems, in order to protect or maintain the balance of the killing relationship, abiding by the intervening principle of "Strong inhibition of the same

time, support the weak”, such that the capability of self-protection is restored, *i.e.*, $\rho_3 = c\rho(x) > 0$ and $1 \geq \rho_1 = \rho(x) > \rho_0$, to drive the first physiologic system beginning to work. #

The *Chi* or energy is also called the food hereafter for simply. In order to get the food, by Attaining Rule, the second physiologic system must make the first physiologic system done an intervention of it, namely **exercise**. It is because only by intervention in the first physiologic system, the second physiologic system can be to get food.

The laws of **Five Zang-organs, Six fu-organs, Ten heavenly stems hidden behind Twelve earthly branches, Ten heavenly stems and Twelve earthly branches hidden behind eight palaces or eight veins** are summarized in **Figures 2-5**. #

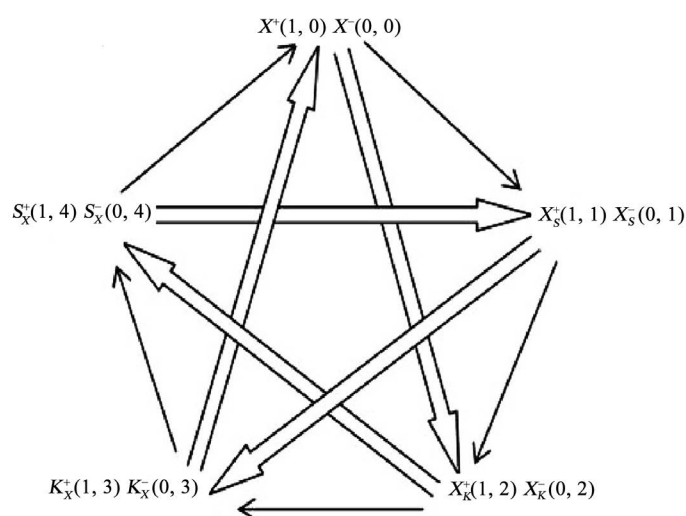


Figure 2. Relations of ten heavenly stems.

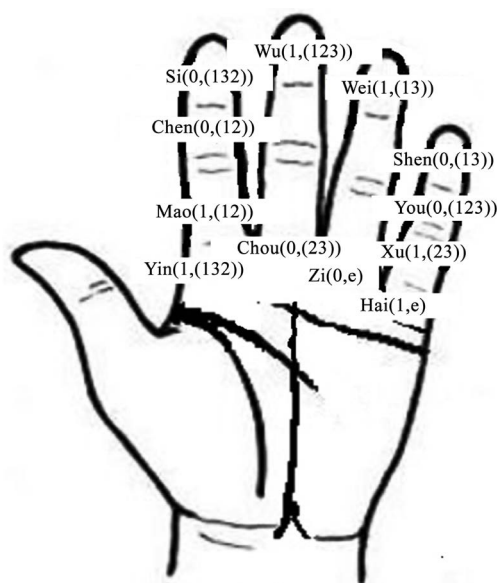


Figure 3. Relations of twelve earthly branches.

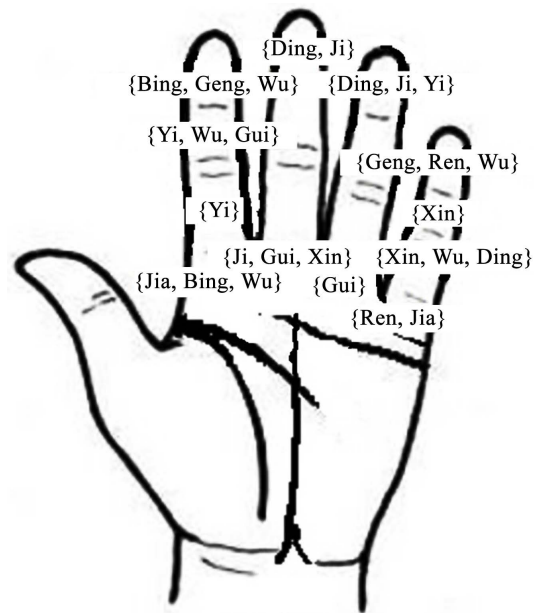


Figure 4. Ten heavenly stems hidden behind twelve earthly branches.

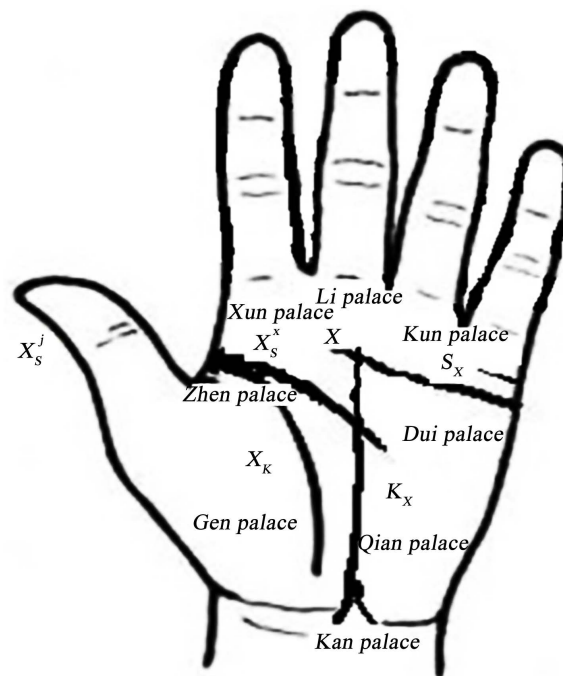


Figure 5. Relations between Eight Palaces and Six Fu-organs.

In particular, the Sixty JiaZi system is defined in mathematically as follows:

Definition 3.1. (Sixty JiaZi) Suppose that the ten heavenly stems model and the twelve earthly branches model are respectively

$$V^2 \times V^5 = \{(i, j) \mid i \in V^2, j \in V^5\},$$

$$V^2 \times V^6 = \{(i, j) \mid i \in V^2, j \in V^6\}.$$

Then the following model in **Table 1** is called **the sixty JiaZi model**.

Table 1. Sixty JiaZi for name, ten heavenly stems, twelve earthly branches and Yin Yang attribute.

Name of Sixty JiaZi	Ten heavenly stems	Twelve earthly branches	Yang attribute	Name of Sixty JiaZi	Ten heavenly stems	Twelve earthly branches	Yin attribute
1JiaZi (甲子)	(1, 0)	(0, e)	Yang	2YiChou (乙丑)	(0, 0)	(0, (23))	Yin
3BingYin (丙寅)	(1, 1)	(1, (132))	Yang	4DingMao (丁卯)	(0, 1)	(1, (12))	Yin
5WuChen (戊辰)	(1, 2)	(0, (12))	Yang	6JiSi (己巳)	(0, 2)	(0, (132))	Yin
7GengWu (庚午)	(1, 3)	(1, (123))	Yang	8XinWei (辛未)	(0, 3)	(1, (13))	Yin
9RenShen (壬申)	(1, 4)	(0, (13))	Yang	10GuiYou (癸酉)	(0, 4)	(0, (123))	Yin
11JiaXu (甲戌)	(1, 0)	(1, (23))	Yang	12YiHai (乙亥)	(0, 0)	(1, e)	Yin
13BingZi (丙子)	(1, 1)	(0, e)	Yang	14DingChou (丁丑)	(0, 1)	(0, (23))	Yin
15WuYin (戊寅)	(1, 2)	(1, (132))	Yang	16JiMao (己卯)	(0, 2)	(1, (12))	Yin
17GengChen (庚辰)	(1, 3)	(0, (12))	Yang	18XinSi (辛巳)	(0, 3)	(0, (132))	Yin
19RenWu (壬午)	(1, 4)	(1, (123))	Yang	20GuiWei (癸未)	(0, 4)	(1, (13))	Yin
21JiaShen (甲申)	(1, 0)	(0, (13))	Yang	22YiYou (乙酉)	(0, 0)	(0, (123))	Yin
23BingXu (丙戌)	(1, 1)	(1, (23))	Yang	24DingHai (丁亥)	(0, 1)	(1, e)	Yin
25WuZi (戊子)	(1, 2)	(0, e)	Yang	26JiChou (己丑)	(0, 2)	(0, (23))	Yin
27GengYin (庚寅)	(1, 3)	((1, (132))	Yang	28XinMao (辛卯)	(0, 3)	(1, (12))	Yin
29RenChen (壬辰)	(1, 4)	((0, (12))	Yang	30GuiSi (癸巳)	(0, 4)	(0, (132))	Yin
31JiaWu (甲午)	(1, 0)	((1, (123))	Yang	32YiWei (乙未)	(0, 0)	(1, (13))	Yin
33BingShen (丙申)	(1, 1)	((0, (13))	Yang	34DingYou (丁酉)	(0, 1)	(0, (123))	Yin
35WuXu (戊戌)	(1, 2)	((1, (23))	Yang	36JiHai (己亥)	(0, 2)	(1, e)	Yin
37GengZi (庚子)	(1, 3)	(0, e)	Yang	38XinChou (辛丑)	(0, 3)	(0, (23))	Yin
39RenYin (壬寅)	(1, 4)	(1, (132))	Yang	40GuiMao (癸卯)	(0, 4)	(1, (12))	Yin
41JiaChen (甲辰)	(1, 0)	(0, (12))	Yang	42YiSi (乙巳)	(0, 0)	(0, (132)))	Yin

Continued

43BingWu (丙午)	(1, 1)	(1, (123))	Yang	44DingWei (丁未)	(0, 1)	(1, (13))	Yin
45WuShen (戊申)	(1, 2)	(0, (13))	Yang	46JiYou (己酉)	(0, 2)	(0, (123))	Yin
47GengXu (庚戌)	(1, 3)	(1, (23))	Yang	48XinHai (辛亥)	(0, 3)	(1, e)	Yin
49RenZi (壬子)	(1, 4)	(0, e)	Yang	50GuiChou (癸丑)	(0, 4)	(0, (23))	Yin
51JiaYin (甲寅)	(1, 0)	(1, (132))	Yang	52YiMao (乙卯)	(0, 0)	(1, (12))	Yin
53BingChen (丙辰)	(1, 1)	(0, (12))	Yang	54DingSi (丁巳)	(0, 1)	(0, (132))	Yin
55WuWu (戊午)	(1, 2)	(1, (123))	Yang	56JiWei (己未)	(0, 2)	(1, (13))	Yin
57GengShen (庚申)	(1, 3)	(0, (13))	Yang	58XinYou (辛酉)	(0, 3)	(0, (123))	Yin
59RenXu (壬戌)	(1, 4)	(1, (23))	Yang	60GuiHai (癸亥)	(0, 4)	(1, e)	Yin

In **Table 1**, each of the elements $(1, 0), (0, 0), \dots, (0, 4)$ is that of group $V^2 \times V^5 = \{(i, j) | i \in V^2, j \in V^5\}$, as the ten heavenly stems model or Zangxiang Model in **Figure 2**.

In **Table 1**, each of the elements $(0, e), (0, (23)), \dots, (1, e)$ is that of group $V^2 \times V^6 = \{(i, j) | i \in V^2, j \in V^6\}$, as the twelve earthly branches model or Jingluo Model **Figure 3**.

In **Table 1**, each of the elements of the set $V^2 \times V^5 \times V^6 = \{(i, j, k) | i \in V^2, j \in V^5, k \in V^6\}$ is called the number of Sixty Jia-Zi.#

Definition 3.2. (Logic relation between Six JiaZi and the eight palaces)
Logic relations of **Six JiaZi** hidden behind the **eight palaces** must follow the relationship between the symmetry of the Eight-Hexagram elements.

All logic relations of that the **Six JiaZi** are hidden behind the Eight-Hexagram elements are summarized in **Table 2**.

See **Table 2**, all pure Yang: Ren-Jia, Wu, Bing, Geng of Ten Heavenly Stems are hidden behind all pure Yang: Qian, Kan, Gen, Zhen of the Eight-Hexagram; all pure Yin: Gui-Yi, Ji, Ding, Xin of Ten Heavenly Stems are hidden behind clockwise all pure Yin: Qun, Li, Gui, Xun of the Eight-Hexagram.

All pure Yang: Wu-Zi, Xu-Chen, Shen-Yin, Wu-Zi of twelve earthly branches are hidden behind all pure Yang: Qian, Kan, Gen, Zhen of the Eight-Hexagram; all pure Yin: Chou-Wei, Hai-Si, You-Mao, Wei-Chou of twelve earthly branches are hidden behind counterclockwise all pure Yin: Qun, Li, Gui, Xun of the Eight-Hexagram.#

Example 3.1. The name of the primordial spirit of Qian Palace is

Table 2. Sixty JiaZi hidden behind Eight Palaces for making names.

Palace sequence	Yang palace	Ten heavenly stems	Twelve earthly branches	Yin palace	Ten heavenly stems	Twelve earthly branches
outside	Qian (乾) (father)	Ren (壬)	Xu (戌)	Kun (坤) (mother)	Gui (癸)	You (酉)
outside	Qian (乾) (father)	Ren (壬)	Shen (申)	Kun (坤) (mother)	Gui (癸)	Hai (亥)
outside	Qian (乾) (father)	Ren (壬)	Wu (午)	Kun (坤) (mother)	Gui (癸)	Chou (丑)
inside	Qian (乾) (father)	Jia (甲)	Chen (辰)	Kun (坤) (mother)	Yi (乙)	Mao (卯)
inside	Qian (乾) (father)	Jia (甲)	Yin (寅)	Kun (坤) (mother)	Yi (乙)	Si (巳)
inside	Qian (乾) (father)	Jia (甲)	Zi (子)	Kun (坤) (mother)	Yi (乙)	Wei (未)
outside	Kan (坎) (middle son)	Wu (戊)	Yin (寅)	Li (离) (middle daughter)	Ji (己)	Wei (未)
outside	Kan (坎) (middle son)	Wu (戊)	Zi (子)	Li (离) (middle daughter)	Ji (己)	You (酉)
outside	Kan (坎) (middle son)	Wu (戊)	Xu (戌)	Li (离) (middle daughter)	Ji (己)	Hai (亥)
inside	Kan (坎) (middle son)	Wu (戊)	Shen (申)	Li (离) (middle daughter)	Ji (己)	Chou (丑)
inside	Kan (坎) (middle son)	Wu (戊)	Wu (午)	Li (离) (middle daughter)	Ji (己)	Mao (卯)
inside	Kan (坎) (middle son)	Wu (戊)	Chen (辰)	Li (离) (middle daughter)	Ji (己)	Si (巳)
outside	Gen (艮) (young son)	Bing (丙)	Zi (子)	Dui (兑) (young daughter)	Ding (丁)	Si (巳)
outside	Gen (艮) (young son)	Bing (丙)	Xu (戌)	Dui (兑) (young daughter)	Ding (丁)	Wei (未)
outside	Gen (艮) (young son)	Bing (丙)	Shen (申)	Dui (兑) (young daughter)	Ding (丁)	You (酉)
inside	Gen (艮) (young son)	Bing (丙)	Wu (午)	Dui (兑) (young daughter)	Ding (丁)	Hai (亥)
inside	Gen (艮) (young son)	Bing (丙)	Chen (辰)	Dui (兑) (young daughter)	Ding (丁)	Chou (丑)
inside	Gen (艮) (young son)	Bing (丙)	Yin (寅)	Dui (兑) (young daughter)	Ding (丁)	Mao (卯)
outside	Zhen (震) (older son)	Geng (庚)	Xu (戌)	Xun (巽) (older daughter)	Xin (辛)	Mao (卯)
outside	Zhen (震) (older son)	Geng (庚)	Shen (申)	Xun (巽) (older daughter)	Xin (辛)	Si (巳)
outside	Zhen (震) (older son)	Geng (庚)	Wu (午)	Xun (巽) (older daughter)	Xin (辛)	Wei (未)

Continued

inside	Zhen (震) (older son)	Geng (庚)	Chen (辰)	Xun (巽) (older daughter)	Xin (辛)	You (酉)
inside	Zhen (震) (older son)	Geng (庚)	Yin (寅)	Xun (巽) (older daughter)	Xin (辛)	Hai (亥)
inside	Zhen (震) (older son)	Geng (庚)	Zi (子)	Xun (巽) (older daughter)	Xin (辛)	Chou (丑)

$$\begin{aligned} K_X^+(1,1) &= K_X^+ (\text{Outside of Qian, Inside of Qian}) \\ &= (\text{Qian Ren Xu, Qian Ren Shen, Qian Ren Wu;} \\ &\quad \text{Qian Jia Chen, Qian Jia Yin, Qian Jia Zi}). \end{aligned}$$

The name of the two generations of Dui Palace is

$$\begin{aligned} K_X^-(2,8) &= K_X^- (\text{Outside of Dui, Inside of Qun}) \\ &= (\text{Dui Ding Si, Dui Ding Wei, Dui Ding You;} \\ &\quad \text{Qun Yi Mao, Qun Yi Si, Qun Yi Wei}). \end{aligned}$$

All eight palace elements for naming can use the following formula.

Eight-Hexagram + Ten Stems + Twelve Branches. #

Property 3.1. 1) *Sixty JiaZi meaning of ten heavenly stems of grow - strong - die - extinction state, good of lucky, general of flat and bad of fierce, and comprehensive name are stated in Table 3.*

2) *Sixty JiaZi meaning of Philosophy, good of lucky, general of flat and bad of fierce, and comprehensive name are stated in Table 4. #*

Energy concept is an important concept in Physics. Zhang [17] introduce this concept to the steady multilateral systems. And image mathematics in Zhang and Shao [20] uses these concepts to deal with the steady multilateral system diseases (human body index too high or too low). In mathematics, a steady multilateral system is said to have **Energy** (or **Dynamic**) if there is a non-negative function φ^* which makes every subsystem meaningful of the steady multilateral system. Similarly to Zhang [17], unless stated otherwise, any equivalence relation is the liking relation, any neighboring relation is the loving relation, and any alternate relation is the killing relationship.

Suppose that V is a steady multilateral system having an energy function, then V in the steady multilateral system during a normal operation, its energy function for any subsystem of the steady multilateral system has an **average** (or **expected value** in Statistics), this state is called as **normal** when the energy function is nearly to the average. Normal state is the better state.

That a subsystem of the steady multilateral system is **not running properly** (or **disease, abnormal**) is that the energy deviation from the average of the subsystems is too large, the high (**real disease**) or the low (**virtual disease**).

In addition to study these real or virtual diseases, TCM is often not only considered the energy change (Attaining or Affording in Zhang [23]) of each element in the corresponding group, but also studied a kind of **relation costs**.

Table 3. Sixty JiaZi for name, state of ten heavenly stems, good or bad lucky and comprehensive name.

Name of Sixty JiaZi	State of ten heavenly Stems	good or bad	Name of Sixty JiaZi	State of ten heavenly Stems	good or bad	comprehensive name
1JiaZi (甲子)	bath (沐)	lucky (吉)	2YiChou (乙丑)	decay (衰)	fierce (凶)	Gold_in_the_sea (海中金)
3BingYin (丙寅)	grow (长)	lucky (吉)	4DingMao (丁卯)	disease (病)	fierce (凶)	Fire_in_the_stove (炉中火)
5WuChen (戊辰)	crown (冠)	lucky (吉)	6JiSi (己巳)	emperor (帝)	lucky (吉)	Wood_in_the_big_tree (大林木)
7GengWu (庚午)	bath (沐)	lucky (吉)	8XinWei (辛未)	decay (衰)	lucky (吉)	Soil_in_the_roadside (路旁土)
9RenShen (壬申)	grow (长)	fierce (凶)	10GuiYou (癸酉)	disease (病)	fierce (凶)	Metal_of_blade (剑锋金)
11JiaXu (甲戌)	raise (养)	lucky (吉)	12YiHai (乙亥)	death (死)	fierce (凶)	Fire_on_the_hill (山头火)
13BingZi (丙子)	child (胎)	lucky (吉)	14DingChou (丁丑)	tomb (墓)	fierce (凶)	Water_in_the_mountain_ravine (涧下水)
15WuYin (戊寅)	grow (长)	lucky (吉)	16JiMao (己卯)	disease (病)	lucky (吉)	Soil_in_the_city_wall (城牆土)
17GengChen (庚辰)	raise (养)	lucky (吉)	18XinSi (辛巳)	death (死)	lucky (吉)	Gold_in_the_ash (白腊金)
19RenWu (壬午)	child (胎)	fierce (凶)	20GuiWei (癸未)	tomb (墓)	fierce (凶)	Wood_in_the_willow_tree (杨柳木)
21JiaShen (甲申)	extinction (绝)	lucky (吉)	22YiYou (乙酉)	extinction (绝)	fierce (凶)	Water_in_the_spring (泉中水)
23BingXu (丙戌)	tomb (墓)	lucky (吉)	24DingHai (丁亥)	child (胎)	lucky (吉)	Soil_on_the_house (屋上土)
25WuZi (戊子)	child (胎)	lucky (吉)	26JiChou (己丑)	tomb (墓)	fierce (凶)	Fire_from_the_blue_fire (霹雳火)
27GengYin (庚寅)	extinction (绝)	flat (平)	28XinMao (辛卯)	extinction (绝)	fierce (凶)	Wood_in_the_pine_tree (松柏木)
29RenChen (壬辰)	tomb (墓)	lucky (吉)	30GuiSi (癸巳)	child (胎)	flat (平)	Water_in_the_usual_running (常流水)
31JiaWu (甲午)	death (死)	lucky (吉)	32YiWei (乙未)	raise (养)	lucky (吉)	Gold_in_the_sand (沙中金)
33BingShen (丙申)	disease (病)	lucky (吉)	34DingYou (丁酉)	grow (长)	fierce (凶)	Fire_under_the_mountain (山下火)
35WuXu (戊戌)	tomb (墓)	lucky (吉)	36JiHai (己亥)	child (胎)	fierce (凶)	Wood_in_the_ground (平地木)
37GengZi (庚子)	death (死)	lucky (吉)	38XinChou (辛丑)	raise (养)	flat (平)	Soil_in_a_small_wall (壁上土)
39RenYin (壬寅)	disease (病)	lucky (吉)	40GuiMao (癸卯)	grow (长)	fierce (凶)	Gold_in_the_gold_foil (金箔金)
41JiaChen (甲辰)	decay (衰)	lucky (吉)	42YiSi (乙巳)	bath (沐)	flat (平)	Fire_in_Buddha's_lights (佛灯火)
43BingWu (丙午)	emperor (帝)	fierce (凶)	44DingWei (丁未)	crown (冠)	fierce (凶)	Water_in_the_sky_of_river (天河水)
45WuShen (戊申)	disease (病)	lucky (吉)	46JiYou (己酉)	grow (长)	fierce (凶)	Soil_in_the_great_post (大驿土)
47GengXu (庚戌)	decay (衰)	lucky (吉)	48XinHai (辛亥)	bath (沐)	lucky (吉)	Gold_in_the_jewelry_of_women (钗钏金)
49RenZi (壬子)	emperor (帝)	flat (平)	50GuiChou (癸丑)	crown (冠)	flat (平)	Wood_in_the_sang_cudrania_tricuspidata (桑柘木)
51JiaYin (甲寅)	officer (官)	flat (平)	52YiMao (乙卯)	officer (官)	lucky (吉)	Water_in_the_large_streams (大溪水)
53BingChen (丙辰)	crown (冠)	fierce (凶)	54DingSi (丁巳)	officer (官)	fierce (凶)	Earth_in_the_sand (沙中土)
55WuWu (戊午)	emperor (帝)	flat (平)	56JiWei (己未)	crown (冠)	fierce (凶)	Fire_in_the_sky (天上火)
57GengShen (庚申)	officer (官)	lucky (吉)	58XinYou (辛酉)	officer (官)	flat (平)	Wood_in_the_pomegranate (石榴木)
59RenXu (壬戌)	crown (冠)	fierce (凶)	60GuiHai (癸亥)	emperor (帝)	fierce (凶)	Water_in_the_ocean (大洋水)

Table 4. Sixty JiaZi for name, philosophy meaning, good or bad lucky and comprehensive name.

Name of Sixty JiaZi	philosophical meaning	good or bad	Name of Sixty JiaZi	philosophical meaning	good or bad	comprehensive name
1JiaZi (甲子)	growing (生长数)	lucky (吉)	2YiChou (乙丑)	chaos (混沌数)	fierce (凶)	Gold_in_the_sea (海中金)

Continued

3BingYin (丙寅)	karma (善缘数)	lucky (吉)	4DingMao (丁卯)	tired (劳累数)	fierce (凶)	Fire_in_the_stove (炉中火)
5WuChen (戊辰)	smoothly (顺利数)	lucky (吉)	6JiSi (己巳)	help (得助数)	lucky (吉)	Wood_in_the_big_tree (大林木)
7GengWu (庚午)	rouse (奋发数)	lucky (吉)	8XinWei (辛未)	geely (吉发数)	lucky (吉)	Soil_in_the_roadside (路旁土)
9RenShen (壬申)	lazy (懒惰数)	fierce (凶)	10GuiYou (癸酉)	fade (消褪数)	fierce (凶)	Metal_of_blade (剑锋金)
11JiaXu (甲戌)	vigor (振作数)	lucky (吉)	12YiHai (乙亥)	negative (消极数)	fierce (凶)	Fire_on_the_hill (山头火)
13BingZi (丙子)	superior (超群数)	lucky (吉)	14DingChou (丁丑)	wander (漂泊数)	fierce (凶)	Water_in_the_mountain_ravine (涧下水)
15WuYin (戊寅)	prosper (兴荣数)	lucky (吉)	16JiMao (己卯)	rising (上昇数)	lucky (吉)	Soil_in_the_city_wall (城墙土)
17GengChen (庚辰)	strong (刚强数)	lucky (吉)	18XinSi (辛巳)	reform (改革数)	lucky (吉)	Gold_in_the_ash (白腊金)
19RenWu (壬午)	varied (多变数)	fierce (凶)	20GuiWei (癸未)	feminine (阴柔数)	fierce (凶)	Wood_in_the_willow_tree (杨柳木)
21JiaShen (甲申)	breeze (春风数)	lucky (吉)	22YiYou (乙酉)	hibernation (冬眠数)	fierce (凶)	Water_in_the_spring (泉中水)
23BingXu (丙戌)	innovation (革新数)	lucky (吉)	24DingHai (丁亥)	chang_rong (昌荣数)	lucky (吉)	Soil_on_the_house (屋上土)
25WuZi (戊子)	hope (希望数)	lucky (吉)	26JiChou (己丑)	wizards (奇才数)	fierce (凶)	Fire_from_the_blue_fire (霹雳火)
27GengYin (庚寅)	rest_lessness (躁动数)	flat (平)	28XinMao (辛卯)	patience (忍耐数)	fierce (凶)	Wood_in_the_pine_tree (松柏木)
29RenChen (壬辰)	counsel (谋略数)	lucky (吉)	30GuiSi (癸巳)	suddenly (豁然数)	flat (平)	Water_in_the_usual_running (常流水)
31JiaWu (甲午)	resonance (共鸣数)	lucky (吉)	32YiWei (乙未)	victory (胜利数)	lucky (吉)	Gold_in_the_sand (沙中金)
33BingShen (丙申)	exuberant (旺盛数)	lucky (吉)	34DingYou (丁酉)	luxus (过盛数)	fierce (凶)	Fire_under_the_mountain (山下火)
35WuXu (戊戌)	civilization (文明数)	lucky (吉)	36JiHai (己亥)	storm (风浪数)	fierce (凶)	Wood_in_the_ground (平地木)
37GengZi (庚子)	power (掌权数)	lucky (吉)	38XinChou (辛丑)	talent (才华数)	flat (平)	Soil_in_a_small_wall (壁上土)
39RenYin (壬寅)	glory (荣华数)	lucky (吉)	40GuiMao (癸卯)	arrogance (傲慢数)	fierce (凶)	Gold_in_the_gold_foil (金箔金)
41JiaChen (甲辰)	morality (才德数)	lucky (吉)	42YiSi (乙巳)	emotion (情感数)	flat (平)	Fire_in_Buddha's_lights (佛灯火)
43BingWu (丙午)	vanity (虚华数)	fierce (凶)	44DingWei (丁未)	consumption (消耗数)	fierce (凶)	Water_in_the_sky_of_river (天河水)
45WuShen (戊申)	tailwind (顺风数)	lucky (吉)	46JiYou (己酉)	independent (独立数)	fierce (凶)	Soil_in_the_great_post (大驿土)

Continued

47GengXu (庚戌)	enjoy (享受数)	lucky (吉)	48XinHai (辛亥)	intelligence (智高数)	lucky (吉)	Gold_in_the_jewelry_of_women (钗钏金)
49RenZi (壬子)	stubborn (固执数)	flat (平)	50GuiChou (癸丑)	unstable (不稳数)	flat (平)	Wood_in_the_sang_cudrania_tricuspidata (桑柘木)
51JiaYin (甲寅)	drifted (渐褪数)	flat (平)	52YiMao (乙卯)	deep (高瞻数)	lucky (吉)	Water_in_the_large_streams (大溪水)
53BingChen (丙辰)	virtual (内虚数)	fierce (凶)	54DingSi (丁巳)	confused (迷惑数)	fierce (凶)	Earth_in_the_sand (沙中土)
55WuWu (戊午)	sorrow (内愁数)	flat (平)	56JiWei (己未)	meaning_less (意弱数)	fierce (凶)	Fire_in_the_sky (天上火)
57GengShen (庚申)	xu_rose (旭升数)	lucky (吉)	58XinYou (辛酉)	gradually_better (渐佳数)	flat (平)	Wood_in_the_pomegranate (石榴木)
59RenXu (壬戌)	blankly (茫然数)	fierce (凶)	60GuiHai (癸亥)	hesitate (犹豫数)	fierce (凶)	Water_in_the_ocean (大洋水)

There are three kinds of relationship between each two elements of **the eight palaces or eight veins** system, namely the **merged**, **synthesized** and **combined**.

The **merged** relationship between two the same elements x and y is the joining operation in a set, *i.e.*, $\{x\} \cup \{y\} = \{z\}$. The element z is the result of two the same energy elements x and y merging. The purpose of merging is in order to get the large result energy of element z through inputting two of the same elements x and y .

The **synthesized** relationship between two elements x and y is the multiply operation in the corresponding group system with a multiplication $*$, *i.e.*, $x * y = z$. The element z is the result of two elements x and y synthesized. The purpose of synthesized is in order to get the result energy of element z through inputting two elements x and y .

The **combined** relationship between two elements x and y is the division operation in the corresponding group system with a multiplication $*$, *i.e.*, $x^{-1} * y = z$. The element z is the cost of two elements x and y combined. The purpose of combined is in order to maintain or strengthen the relation between x and y through inputting the cost element z . But in **the eight palaces or eight veins** system, the **synthesized** and **combined** operations are the same since $x^{-1} = x$.

In general, a relationship cost is low if the cost element in the corresponding group is easy to get. A relationship cost is high, on the other hand, if the cost element in the corresponding is hard to come by.

In this case, in general, the human body blood pH value $x \in [a, b]$ which means $\rho_0 \leq \rho_1 = \rho(x) \leq 1$. This relation cost is low because this relation cost element is easy to get. The low relation cost can make the intervention increasing the sizes of both the intervention reaction coefficients ρ_1, ρ_2 and the self-protection coefficient ρ_3 .

But in general, the human body blood pH value $x \notin [a, b]$ which means

$0 < \rho_1 = \rho(x) < \rho_0$. This relation cost is high because the relation cost element is hard to come by. The high relation cost can make the sizes of both the intervention reaction coefficients ρ_1, ρ_2 and the self-protection coefficient ρ_3 decreasing response to intervention.

The purpose of intervention is to make the steady multilateral system return to normal state. The method of intervention is to increase or decrease the energy of a subsystem.

What kind of intervening should follow the principle to treat it? Western human bodys emphasize directly human body treatments on a disease subsystem after the disease of subsystem has occurred, but the indirect intervening of oriental human bodys is required before the disease of subsystem will occur. In mathematics, which is more reasonable?

Based on this idea, many issues are worth further discussion. For example, if an intervening has been implemented to a disease subsystem before the disease of subsystem will occur, what relation disease will be low cost which does not need to be done an intervention of it? What relation disease will be high cost which needs to be done an intervention of it?

3.2. Kinds of Relationship Costs of Steady Multilateral Systems

For a steady multilateral system V imitating a human body with two incompatibility relations, suppose that the subsystems X, X_s, X_k, K_x, S_x are the same as those defined in Theorem 3.1. Then the relation diseases can be decomposed into the following classes:

Definition 3.4. (merged (合并), synthesized (合化或者合成) and combined (化合)) Suppose that both x and y are two elements of systems of *the eight palaces or eight veins*.

The **merged** relationship between two the same elements x and y is the joining operation in a set, i.e., $\{x\} \cup \{y\} = \{z\}$. The element z is the result of two the same energy elements x and y merging. The purpose of merging is in order to get the large result energy of element z through inputting two of the same elements x and y .

The **synthesized** relationship between two elements x and y is the multiply operation in the corresponding group system with a multiplication $*$, i.e., $x * y = z$. The element z is the result of two elements x and y synthesized. The purpose of synthesized is in order to get the result energy of element z through inputting two elements x and y .

The **combined** relationship between two elements x and y is the division operation in the corresponding group system with a multiplication $*$, i.e., $x^{-1} * y = z$. The element z is the cost of two elements x and y combined. The purpose of combined is in order to maintain or strengthen the relation between x and y through inputting the cost element z .

The **synthesized** and **combined** operations in the system of *eight palaces or eight veins* are the same since $x^{-1} = x \cdot \#$

Property 3.2. *Sixty JiaZi for meaning of ten heavenly stems, twelve earthly branches to hide stems, synthesized attribute of twelve earthly branches, and integration attribute are in Table 5.#*

Whatching Table 5, the rule of twelve earthly branches to hide the ten heavenly stems is in Figure 4.

Table 5. Sixty JiaZi for name, meaning of Ten Heavenly stems, branches to hide stems, synthesized attribute and integration attribute.

Name of Sixty JiaZi	Ten heavenly stems	branches to hide stems	synthesized attribute	Name of Sixty JiaZi	Ten heavenly stems	branches to hide stems	synthesized attribute	integration attribute
1JiaZi (甲子)	(1, 0)	(0, 4)	(0, 4)	2YiChou (乙丑)	(0, 0)	(0, 2), (0, 4), (0, 3)	(0, 4)	(1, 3)
3BingYin (丙寅)	(1, 1)	(1, 0), (1, 1), (1, 2)	(1, 3)	4DingMao (丁卯)	(0, 1)	(0, 0)	(0, 0)	(1, 1)
5WuChen (戊辰)	(1, 2)	(0, 0), (1, 2), (0, 4)	(1, 1)	6JiSi (己巳)	(0, 2)	(1, 1), (1, 3), (1, 2)	(1, 1)	(1, 0)
7GengWu (庚午)	(1, 3)	(0, 1), (0, 2)	(0, 3)	8XinWei (辛未)	(0, 3)	(0, 1), (0, 2), (0, 0)	(0, 3)	(1, 2)
9RenShen (壬申)	(1, 4)	(1, 3), (1, 4), (1, 2)	(1, 4)	10GuiYou (癸酉)	(0, 4)	(0, 3)	(0, 3)	(1, 3)
11JiaXu (甲戌)	(1, 0)	(0, 3), (1, 2), (0, 1)	(1, 1)	12YiHai (乙亥)	(0, 0)	(1, 4), (1, 0)	(0, 4)	(1, 1)
13BingZi (丙子)	(1, 1)	(0, 4)	(0, 4)	14DingChou (丁丑)	(0, 1)	(0, 2), (0, 4), (0, 3)	(0, 4)	(0, 4)
15WuYin (戊寅)	(1, 2)	(1, 0), (1, 1), (1, 2)	(1, 3)	16JiMao (己卯)	(0, 2)	(0, 0)	(0, 0)	(0, 2)
17GengChen (庚辰)	(1, 3)	(0, 0), (1, 2), (0, 4)	(1, 1)	18XinSi (辛巳)	(0, 3)	(1, 1), (1, 3), (1, 2)	(1, 1)	(1, 3)
19RenWu (壬午)	(1, 4)	(0, 1), (0, 2)	(0, 3)	20GuiWei (癸未)	(0, 4)	(0, 1), (0, 2), (0, 0)	(0, 3)	(1, 0)
21JiaShen (甲申)	(1, 0)	(1, 3), (1, 4), (1, 2)	(1, 4)	22YiYou (乙酉)	(0, 0)	(0, 3)	(0, 3)	(0, 4)
23BingXu (丙戌)	(1, 1)	(0, 3), (1, 2), (0, 1)	(1, 1)	24DingHai (丁亥)	(0, 1)	(1, 4), (1, 0)	(0, 4)	(0, 2)
25WuZi (戊子)	(1, 2)	(0, 4)	(0, 4)	26JiChou (己丑)	(0, 2)	(0, 2), (0, 4), (0, 3)	(0, 4)	(1, 1)
27GengYin (庚寅)	(1, 3)	(1, 0), (1, 1), (1, 2)	(1, 3)	28XinMao (辛卯)	(0, 3)	(0, 0)	(0, 0)	(1, 0)
29RenChen (壬辰)	(1, 4)	(0, 0), (1, 2), (0, 4)	(1, 1)	30GuiSi (癸巳)	(0, 4)	(1, 1), (1, 3), (1, 2)	(1, 1)	(0, 4)
31JiaWu (甲午)	(1, 0)	(0, 1), (0, 2)	(0, 3)	32YiWei (乙未)	(0, 0)	(0, 1), (0, 2), (0, 0)	(0, 3)	(1, 3)
33BingShen (丙申)	(1, 1)	(1, 3), (1, 4), (1, 2)	(1, 4)	34DingYou (丁酉)	(0, 1)	(0, 3)	(0, 3)	(0, 1)
35WuXu (戊戌)	(1, 2)	(0, 3), (1, 2), (0, 1)	(1, 1)	36JiHai (己亥)	(0, 2)	(1, 4), (1, 0)	(0, 4)	(0, 0)
37GengZi (庚子)	(1, 3)	(0, 4)	(0, 4)	38XinChou (辛丑)	(0, 3)	(0, 2), (0, 4), (0, 3)	(0, 4)	(1, 2)
39RenYin (壬寅)	(1, 4)	(1, 0), (1, 1), (1, 2)	(1, 3)	40GuiMao (癸卯)	(0, 4)	(0, 0)	(0, 0)	(1, 3)
41JiaChen (甲辰)	(1, 0)	(0, 0), (1, 2), (0, 4)	(1, 1)	42YiSi (乙巳)	(0, 0)	(1, 1), (1, 3), (1, 2)	(1, 1)	(0, 1)
43BingWu (丙午)	(1, 1)	(0, 1), (0, 2)	(0, 3)	44DingWei (丁未)	(0, 1)	(0, 1), (0, 2), (0, 0)	(0, 3)	(0, 4)
45WuShen (戊申)	(1, 2)	(1, 3), (1, 4), (1, 2)	(1, 4)	46JiYou (己酉)	(0, 2)	(0, 3)	(0, 3)	(1, 2)
47GengXu (庚戌)	(1, 3)	(0, 3), (1, 2), (0, 1)	(1, 1)	48XinHai (辛亥)	(0, 3)	(1, 4), (1, 0)	(0, 4)	(0, 3)
49RenZi (壬子)	(1, 4)	(0, 4)	(0, 4)	50GuiChou (癸丑)	(0, 4)	(0, 2), (0, 4), (0, 3)	(0, 4)	(1, 0)
51JiaYin (甲寅)	(1, 0)	(1, 0), (1, 1), (1, 2)	(1, 3)	52YiMao (乙卯)	(0, 0)	(0, 0)	(0, 0)	(0, 4)
53BingChen (丙辰)	(1, 1)	(0, 0), (1, 2), (0, 4)	(1, 1)	54DingSi (丁巳)	(0, 1)	(1, 1), (1, 3), (1, 2)	(1, 1)	(1, 2)
55WuWu (戊午)	(1, 2)	(0, 1), (0, 2)	(0, 3)	56JiWei (己未)	(0, 2)	(0, 1), (0, 2), (0, 0)	(0, 3)	(1, 1)
57GengShen (庚申)	(1, 3)	(1, 3), (1, 4), (1, 2)	(1, 4)	58XinYou (辛酉)	(0, 3)	(0, 3)	(0, 3)	(1, 0)
59RenXu (壬戌)	(1, 4)	(0, 3), (1, 2), (0, 1)	(0, 1)	60GuiHai (癸亥)	(0, 4)	(1, 4), (1, 0)	(0, 4)	(1, 4)

3.3. First Transfer Laws of a Human Body's Energies of Steady Multilateral Systems with a Healthy Body

Theorem 3.2 (First transfer law of energies of the ten Heavenly Stems with a healthy body) [24] Suppose that a subsystem X of a steady multilateral system V is healthy. Let the human blood pH value $x \in [7.34539, 7.45461]$ which is equivalent to the conditions $\rho_0 \leq \rho_1 = \rho(x) \leq 1$ and $0 < c \leq 1$.

The transfer law of each of the 10 kinds of energy in the **Zangxiang** system or the **ten Heavenly Stems model** is from its **root-causes** (本) to its **symptoms** (标).

Furthermore, for the healthy body, the first transfer law of the **Yang** vital or righteousness energies of the ten heavenly stems is transferring **along** the loving or liking order of the ten heavenly stems as follows:

$$\begin{aligned}
 & \xrightarrow{\text{less}} \text{real Jia } (1,0) X^+ \leftrightarrow \xrightarrow{\text{less}} \text{real Yi } (0,0) X^- \\
 & \xrightarrow{\text{less}} \text{real Bing } (1,1) X_S^+ \leftrightarrow \xrightarrow{\text{less}} \text{real Ding } (0,1) X_S^- \\
 & \xrightarrow{\text{rare}} \text{virtual Wu } (1,2) X_K^+ \leftrightarrow \xrightarrow{\text{less}} \text{virtual Ji } (0,2) X_K^- \\
 & \xrightarrow{\text{more}} \text{virtual Geng } (1,3) X_X^+ \leftrightarrow \xrightarrow{\text{less}} \text{virtual Xin } (0,3) X_X^- \\
 & \xrightarrow{\text{rare}} \text{real Ren } (1,4) S_X^+ \leftrightarrow \text{real Gui } (0,4) S_X^- \\
 & \xrightarrow{\text{less}} \text{real Jia } (1,0) X^+ \leftrightarrow \xrightarrow{\text{less}} \text{real Yi } (0,0) X^- \rightarrow \dots
 \end{aligned}$$

And the first transfer law of the **Yin** vital or righteousness energies of the ten heavenly stems is transferring **against** the loving or liking order of the ten heavenly stems as follows:

$$\begin{aligned}
 & \dots \xleftarrow{\text{less}} \text{virtual Yi } (0,0) X^- \leftrightarrow \xleftarrow{\text{less}} \text{virtual Jia } (1,0) X^+ \\
 & \xleftarrow{\text{less}} \text{virtual Gui } (0,4) S_X^- \leftrightarrow \xleftarrow{\text{less}} \text{virtual Ren } (1,4) S_X^+ \\
 & \xleftarrow{\text{rare}} \text{real Xin } (0,3) X_X^- \leftrightarrow \xleftarrow{\text{less}} \text{real Geng } (1,3) X_X^+ \\
 & \xleftarrow{\text{more}} \text{real Ji } (0,2) X_K^- \leftrightarrow \xleftarrow{\text{less}} \text{real Wu } (1,2) X_K^+ \\
 & \xleftarrow{\text{rare}} \text{virtual Ding } (0,1) X_S^- \leftrightarrow \xleftarrow{\text{less}} \text{virtual Bing } (1,1) X_S^+ \\
 & \xleftarrow{\text{less}} \text{virtual Yi } (0,0) X^- \leftrightarrow \xleftarrow{\text{less}} \text{virtual Jia } (1,0) X^+ \leftarrow \dots
 \end{aligned}$$

All transfer laws of the **Zangxiang** system or the **ten Heavenly Stems model for a healthy body** are summarized in **Figure 2**. It means that only both the liking relation and the loving relation have the first transfer law of the **Yang** or **Yin** vital or righteousness energies of the ten heavenly stems. **Yang** is transferring **along** the loving or liking order of the ten heavenly stems. **Yin** is transferring **against** the loving or liking order of the ten heavenly stems. #

Theorem 3.3. (First transfer law of energies of the twelve Earthly Branches with a healthy body) Suppose that a subsystem X of a steady multilateral system V is healthy. Let the human blood pH value $x \in [7.34539, 7.45461]$ which is equivalent to the conditions $\rho_0 \leq \rho_1 = \rho(x) \leq 1$ and $0 < c \leq 1$.

The transfer law of each of the 12 kinds of energy in the **Jingluo** system or the **twelve Earthly Branches model** is from its **root-causes** (本) to its **symptoms** (标).

Furthermore, for the healthy body, the first transfer law of the **Yang** vital energies of the twelve earthly branches is transferring **along** the loving or liking order of the twelve earthly branches as follows:

$$\begin{aligned}
 & \text{real Chou } X^- (0, (23)) \xleftrightarrow{\text{less}} \text{real Zi } X^+ (0, e) \\
 & \xrightarrow{\text{less}} \text{real Hai } X_S^{x+} (1, e) \xleftrightarrow{\text{less}} \text{real Xu } X_S^{x-} (1, (23)) \\
 & \xleftarrow{\text{rare}} \text{real You } S_X^- (0, (123)) \xleftrightarrow{\text{less}} \text{real Shen } S_X^+ (0, (13)) \\
 & \xRightarrow{\text{rare}} \text{real Wei } X_S^{j+} (1, (13)) \xleftrightarrow{\text{less}} \text{real Wu } X_S^{j-} (1, (123)) \\
 & \xrightarrow{\text{rare}} \text{virtual Si } X_K^- (0, (132)) \xleftrightarrow{\text{less}} \text{virtual Chen } X_K^+ (0, (12)) \\
 & \xrightarrow{\text{less}} \text{virtual Mao } K_X^+ (1, (12)) \xleftrightarrow{\text{less}} \text{virtual Yin } K_X^- (1, (132)).
 \end{aligned}$$

The first transfer law of the **Yin** vital energies of the twelve earthly branches is transferring **against** the loving or liking order of the ten heavenly stems as follows:

$$\begin{aligned}
 & \xleftarrow{\text{less}} \text{real Yin } K_X^- (1, (132)) \xleftrightarrow{\text{less}} \text{real Mao } K_X^+ (1, (12)) \\
 & \xleftarrow{\text{more}} \text{real Chen } X_K^+ (0, (12)) \xleftrightarrow{\text{less}} \text{real Si } X_K^- (0, (132)) \\
 & \xleftarrow{\text{rare}} \text{virtual Wu } X_S^{j-} (1, (123)) \xleftrightarrow{\text{less}} \text{virtual Wei } X_S^{j+} (1, (13)) \\
 & \xleftarrow{\text{rare}} \text{virtual Shen } S_X^+ (0, (13)) \xleftrightarrow{\text{less}} \text{virtual You } S_X^- (0, (123)) \\
 & \xRightarrow{\text{rare}} \text{virtual Xu } X_S^{x-} (1, (23)) \xleftrightarrow{\text{less}} \text{virtual Hai } X_S^{x+} (1, e) \\
 & \xleftarrow{\text{less}} \text{virtual Zi } X^+ (0, e) \xleftrightarrow{\text{less}} \text{virtual Chou } X^- (0, (23)).
 \end{aligned}$$

All first transfer laws of the **Jingluo** system or the **twelve Earthly Branches model for a healthy body** are summarized in **Figure 3**.

It means that only both the liking relation and the adjacent relation have the first transfer law of the **Yang** or **Yin** vital or righteousness energies of the twelve earthly branches. **Yang** is transferring **along** the loving or liking order of the twelve earthly branches. **Yin** is transferring **against** the loving or liking order of the twelve earthly branches. #

For a healthy body falling a real disease, the relation note

real Xu $X_S^{x-} \xleftrightarrow{\text{less}} \text{real Hai } X_S^{x+}$ can be considered as the mother of the relation note real Wu $X_S^{j-} \xleftrightarrow{\text{less}} \text{real Wei } X_S^{j+}$. It is because the relationship note

$$\begin{aligned}
 & \text{real Hai } X_S^{x+} \xleftrightarrow{\text{less}} \text{real Xu } X_S^{x-} \\
 & \xleftarrow{\text{rare}} \text{real You } S_X^- \xleftrightarrow{\text{less}} \text{real Shen } S_X^+ \\
 & \xRightarrow{\text{rare}} \text{real Wei } X_S^{j+} \xleftrightarrow{\text{less}} \text{real Wu } X_S^{j-}
 \end{aligned}$$

can be abbreviated as

$$\begin{aligned} \text{real Hai } X_S^{x+} &\overset{\text{less}}{\leftrightarrow} \text{real Xu } X_S^{x-} \\ &\overset{\text{less}}{\rightarrow} \text{real Wei } X_S^{j+} \overset{\text{less}}{\leftrightarrow} \text{real Wu } X_S^{j-}. \end{aligned}$$

The idea is that the subsystem xiang-fire (X_S^x) can substitute for the subsystem jun-fire (X_S^j) under fault for a healthy body falling a real disease.

On the other hand, for a healthy body falling a virtual disease, the relation note

$$\text{virtual Xu } X_S^{x-} \overset{\text{less}}{\leftrightarrow} \text{virtual Hai } X_S^{x+}$$

can be considered as the mother of the relation note

virtual Wu $X_S^{j-} \overset{\text{less}}{\leftrightarrow}$ virtual Wei X_S^{j+} . It is because the relationship note

$$\begin{aligned} \text{virtual Wu } X_S^{j-} &\overset{\text{less}}{\leftrightarrow} \text{virtual Wei } X_S^{j+} \\ \overset{\text{rare}}{\leftarrow} \text{virtual Shen } S_X^+ &\overset{\text{less}}{\leftrightarrow} \text{virtual You } S_X^- \\ \overset{\text{rare}}{\Rightarrow} \text{virtual Xu } X_S^{x-} &\overset{\text{less}}{\leftrightarrow} \text{virtual Hai } X_S^{x+} \end{aligned}$$

can be abbreviated as

$$\begin{aligned} \text{virtual Wu } X_S^{j-} &\overset{\text{less}}{\leftrightarrow} \text{virtual Wei } X_S^{j+} \\ \overset{\text{less}}{\leftarrow} \text{virtual Xu } X_S^{x-} &\overset{\text{less}}{\leftrightarrow} \text{virtual Hai } X_S^{x+}. \end{aligned}$$

The idea is that the subsystem xiang-fire (X_S^x) can substitute for the subsystem jun-fire (X_S^j) under fault for a healthy body falling a virtual disease.

Side effects of medical problems were the question: in the medical process, destroyed the balance of the normal subsystems which are not sick or done an intervention of them. The energy change of the intervenetion system is not the true side effects issue. The energy change is called the pseudo or non-true side effects issue since it is just the food of the second physiological system of the steady multilateral system for a healthy body by Attaining Rule. The conditions for the absence of side effects are that the value $(\rho_1 + \rho_2 \rho_3) = (\rho(x) + c\rho(x)^3)$ tends to be large and that the value $(1 - \rho_2 \rho_3) = (1 - c\rho(x)^3)$ tends to be small, at the same time, such that $(\rho_1 + \rho_2 \rho_3) \geq (1 - \rho_2 \rho_3)$ and $\rho_3 = c\rho(x) > 0$. The best state of the self-protection coefficient, *i.e.*, $\rho_3 = c\rho(x) \rightarrow \rho(x) = \rho_1$, where $c \rightarrow 1$, implies the non-existence of any side effects issue if the treatment principle of TCM is used. Therefore any disease that causes side effects issue occurrence in the first place dues to the non-best state of self-protection ability, *i.e.*, $\rho_3 = c\rho(x) < \rho(x) = \rho_1$. To follow or utilize the running of the first transfer law can make both $\rho(x) \rightarrow 1$ and $0 < c \rightarrow 1$. At this point, the paper advocates to follow or to utilize the first transfer law. It is in order to avoid the side effects issue occurrence for a healthy body. #

3.4. Second Transfer Laws of a Human Body's Energies of Steady Multilateral Systems with an Unhealthy Body

Theorem 3.4. (Second transfer law of the ten Heavenly Stems with an un-

healthy body) [24] Suppose that a subsystem X of a steady multilateral system V is unhealthy. Let the human blood pH value $x \notin [7.34539, 7.45461]$ which is equivalent to the conditions $\rho_0 > \rho_1 = \rho(x) > 0$ and $0 \leq c \leq 1$.

The transfer law of each of the 10 kinds of energy in the **Zangxiang** system or the **ten Heavenly Stems model for an unhealthy body** is from its **root-causes** to its **symptoms**.

Furthermore, for the unhealthy body, if a subsystem X of a steady multilateral system V falls a real disease, then the disease comes from the mother S_X of X . The transfer law of the **Yang** vital or righteousness energies of the ten heavenly stems is transferring **against** the killing or liking order of the ten heavenly stems as follows:

$$\begin{aligned}
 & \text{real Jia}(1,0) X^+ \overset{\text{less}}{\Leftrightarrow} \text{real Yi}(0,0) X^- \\
 & \overset{\text{rare}}{\Leftrightarrow} \text{real Geng}(1,3) K_X^+ \overset{\text{less}}{\Leftrightarrow} \text{real Xin}(0,3) K_X^- \\
 & \overset{\text{rare}}{\Leftrightarrow} \text{real Bing}(1,1) X_S^+ \overset{\text{less}}{\Leftrightarrow} \text{real Ding}(0,1) X_S^- \\
 & \overset{\text{rare}}{\Leftrightarrow} \text{real Ren}(1,4) S_X^+ \overset{\text{less}}{\Leftrightarrow} \text{real Gui}(0,4) S_X^- \\
 & \overset{\text{more}}{\Leftrightarrow} \text{virtual Wu}(1,2) X_K^+ \overset{\text{less}}{\Leftrightarrow} \text{virtual Ji}(0,2) X_K^- \\
 & \overset{\text{less}}{\Leftrightarrow} \text{real Jia}(1,0) X^+ \overset{\text{less}}{\Leftrightarrow} \text{real Yi}(0,0) X^-
 \end{aligned}$$

And if a subsystem X of a steady multilateral system V falls a virtual disease, then the disease comes from the son X_S of X . The transfer law of the **Yin** vital or righteousness energies of the ten heavenly stems is transferring **along** the killing or liking order of the ten heavenly stems as follows:

$$\begin{aligned}
 & \text{virtual Yi}(0,0) X^- \overset{\text{less}}{\Leftrightarrow} \text{virtual Jia}(1,0) X^+ \\
 & \overset{\text{rare}}{\Rightarrow} \text{virtual Ji}(0,2) X_K^- \overset{\text{less}}{\Leftrightarrow} \text{virtual Wu}(1,2) X_K^+ \\
 & \overset{\text{rare}}{\Rightarrow} \text{virtual Gui}(0,4) S_X^- \overset{\text{less}}{\Leftrightarrow} \text{virtual Ren}(1,4) S_X^+ \\
 & \overset{\text{rare}}{\Rightarrow} \text{virtual Ding}(0,1) X_S^- \overset{\text{less}}{\Leftrightarrow} \text{virtual Bing}(1,1) X_S^+ \\
 & \overset{\text{more}}{\Rightarrow} \text{real Xin}(0,3) K_X^- \overset{\text{less}}{\Leftrightarrow} \text{real Geng}(1,3) K_X^+ \\
 & \overset{\text{less}}{\Rightarrow} \text{virtual Yi}(0,0) X^- \overset{\text{less}}{\Leftrightarrow} \text{virtual Jia}(1,0) X^+.
 \end{aligned}$$

All transfer laws of the **Zangxiang** system or the **ten Heavenly Stems model for an unhealthy body** are summarized in **Figure 2**. It means that only both the liking relation and the killing relation have the transfer law of the **Yang** or **Yin** vital or righteousness energies of the ten heavenly stems. **Yang** is transferring **against** the killing or liking order of the ten heavenly stems. **Yin** is transferring **along** the killing or liking order of the ten heavenly stems. #

Theorem 3.5. (Second transfer law of the twelve Earthly Branches with an unhealthy) [24] Suppose that a subsystem X of a steady multilateral system V is unhealthy. Let the human blood pH value $x \notin [7.34539, 7.45461]$ which is equivalent to the conditions $\rho_0 > \rho_1 = \rho(x) > 0$ and $0 \leq c \leq 1$.

The transfer law of each of the 12 kinds of energy in the **Jingluo** system or the **twelve Earthly Branches model for an unhealthy body** is from its **root-causes** to its **symptoms**.

Furthermore, for the unhealthy body, if a subsystem X of a steady multilateral system V falls a real disease, then the disease comes from the mother S_X of X . The second transfer law of the **Yang** vital energies of the twelve earthly branches is transferring **against** the killing or liking order of the twelve earthly branches as follows:

$$\begin{aligned}
 & \overset{\text{rare}}{\Leftarrow} \text{real Yin } K_X^- (1, (132)) \overset{\text{less}}{\Leftrightarrow} \text{real Mao } K_X^+ (1, (12)) \\
 & \overset{\text{rare}}{\Leftarrow} \text{real Hai } X_S^{x+} (1, e) \overset{\text{less}}{\Leftrightarrow} \text{real Xu } X_S^{x-} (1, (23)) \\
 & \overset{\text{less}}{\Leftrightarrow} \text{real Wu } X_S^{j-} (1, (123)) \overset{\text{less}}{\Leftrightarrow} \text{real Wei } X_S^{j+} (1, (13)) \\
 & \overset{\text{rare}}{\Leftarrow} \text{real Shen } S_X^+ (0, (13)) \overset{\text{less}}{\Leftrightarrow} \text{real You } S_X^- (0, (123)) \\
 & \overset{\text{more}}{\Leftarrow} \text{virtual Si } X_K^- (0, (132)) \overset{\text{less}}{\Leftrightarrow} \text{virtual Chen } X_K^+ (0, (12)) \\
 & \overset{\text{less}}{\Leftarrow} \text{real Zi } X^+ (0, e) \overset{\text{less}}{\Leftrightarrow} \text{real Chou } X^- (0, (23)) \\
 & \overset{\text{rare}}{\Leftarrow} \text{real Yin } K_X^- (1, (132)) \overset{\text{less}}{\Leftrightarrow} \text{real Mao } K_X^+ (1, (12)).
 \end{aligned}$$

For the unhealthy body, if a subsystem X of a steady multilateral system V falls a virtual disease, then the disease comes from the son X_S of X . The second transfer law of the **Yin** vital energies of the twelve earthly branches is transferring **along** the killing or liking order of the twelve earthly branches as follows:

$$\begin{aligned}
 & \overset{\text{more}}{\Rightarrow} \text{real Yin } K_X^- (1, (132)) \overset{\text{less}}{\Leftrightarrow} \text{real Mao } K_X^+ (1, (12)) \\
 & \overset{\text{less}}{\Rightarrow} \text{virtual Zi } X^+ (0, e) \overset{\text{less}}{\Leftrightarrow} \text{virtual Chou } X^- (0, (23)) \\
 & \overset{\text{rare}}{\Rightarrow} \text{virtual Si } X_K^- (0, (132)) \overset{\text{less}}{\Leftrightarrow} \text{virtual Chen } X_K^+ (0, (12)) \\
 & \overset{\text{rare}}{\Rightarrow} \text{virtual Shen } S_X^+ (0, (13)) \overset{\text{less}}{\Leftrightarrow} \text{virtual You } S_X^- (0, (123)) \\
 & \overset{\text{less}}{\Rightarrow} \text{virtual Wu } X_S^{j-} (1, (123)) \overset{\text{less}}{\Leftrightarrow} \text{virtual Wei } X_S^{j+} (1, (13)) \\
 & \overset{\text{less}}{\Leftrightarrow} \text{virtual Hai } X_S^{x+} (1, e) \overset{\text{less}}{\Leftrightarrow} \text{virtual Xu } X_S^{x-} (1, (23)) \\
 & \overset{\text{more}}{\Rightarrow} \text{real Yin } K_X^- (1, (132)) \overset{\text{less}}{\Leftrightarrow} \text{real Mao } K_X^+ (1, (12)).
 \end{aligned}$$

All second transfer laws of the **Jingluo** system or the **twelve Earthly Branches model for an unhealthy body** are summarized in **Figure 3**.

It means that only both the liking relation and the alternate relation have the second transfer law of the **Yang or Yin** vital or righteousness energies of the twelve earthly branches. **Yang** is transferring **against** the killing or liking order of the twelve earthly branches. **Yin** is transferring **along** the killing or liking order of the twelve earthly branches. #

For an unhealthy body falling a real disease, the relation note $\text{real Xu } X_S^{x-} \stackrel{\text{less}}{\Leftrightarrow} \text{real Hai } X_S^{x+}$ also can be considered as the prisoner of the relation note $\text{real Wu } X_S^{j-} \stackrel{\text{less}}{\Leftrightarrow} \text{real Wei } X_S^{j+}$. It is because the relationship note

$$\begin{aligned} & \text{real Hai } X_S^{x+} (1, e) \stackrel{\text{less}}{\Leftrightarrow} \text{real Xu } X_S^{x-} (1, (23)) \\ & \stackrel{\text{less}}{\Leftrightarrow} \text{real Wu } X_S^{j-} (1, (123)) \stackrel{\text{less}}{\Leftrightarrow} \text{real Wei } X_S^{j+} (1, (13)) \end{aligned}$$

can be abbreviated as

$$\begin{aligned} & \text{real Hai } X_S^{x+} (1, e) \stackrel{\text{less}}{\Leftrightarrow} \text{real Xu } X_S^{x-} (1, (23)) \\ & \stackrel{\text{less}}{\Leftrightarrow} \text{real Wu } X_S^{j-} (1, (123)) \stackrel{\text{less}}{\Leftrightarrow} \text{real Wei } X_S^{j+} (1, (13)). \end{aligned}$$

The idea is that the subsystem xiang-fire (X_S^x) can substitute for the subsystem jun-fire (X_S^j) under fault for an unhealthy body falling a real disease.

On the other hand, For an unhealthy body falling a virtual disease, the relation note $\text{virtual Xu } X_S^{x-} \stackrel{\text{less}}{\Leftrightarrow} \text{virtual Hai } X_S^{x+}$ also can be considered as the prisoner of the relation note $\text{virtual Wu } X_S^{j-} \stackrel{\text{less}}{\Leftrightarrow} \text{virtual Wei } X_S^{j+}$. It is because the relationship note

$$\begin{aligned} & \text{virtual Wu } X_S^{j-} (1, (123)) \stackrel{\text{less}}{\Leftrightarrow} \text{virtual Wei } X_S^{j+} (1, (13)) \\ & \stackrel{\text{less}}{\Leftrightarrow} \text{virtual Hai } X_S^{x+} (1, e) \stackrel{\text{less}}{\Leftrightarrow} \text{virtual Xu } X_S^{x-} (1, (23)) \end{aligned}$$

can be abbreviated as

$$\begin{aligned} & \text{virtual Wu } X_S^{j-} (1, (123)) \stackrel{\text{less}}{\Leftrightarrow} \text{virtual Wei } X_S^{j+} (1, (13)) \\ & \stackrel{\text{less}}{\Rightarrow} \text{virtual Hai } X_S^{x+} (1, e) \stackrel{\text{less}}{\Leftrightarrow} \text{virtual Xu } X_S^{x-} (1, (23)). \end{aligned}$$

The idea is that the subsystem xiang-fire (X_S^x) can substitute for the subsystem jun-fire (X_S^j) under fault for an unhealthy body falling a virtual disease. #

Medical and drug resistance problem is that such a question, beginning more appropriate medical treatment, but is no longer valid after a period. In the state

$$\rho_1 - \rho_3 = \rho(x)(1-c) \rightarrow 0, \rho_2 - \rho_1\rho_3 = \rho(x)^2(1-c) \rightarrow 0,$$

by Theorems 3.2 and 3.3, any medical and drug resistance problem is non-existence if the treatment principle of TCM is used. But in the state

$$\rho_1 - \rho_3 = \rho(x)(1-c) \rightarrow \rho(x), \rho_2 - \rho_1\rho_3 = \rho(x)^2(1-c) \rightarrow \rho(x)^2,$$

by Theorems 3.4 and 3.5, the medical and drug resistance problem is always existence, even if the treatment principle of TCM has been used. It is because virtual X_K cannot kill real S_X if X is done an intervention of it by increasing its energy. The conditions for resistance are both $\rho_1 - \rho_3 = \rho(x)(1-c)$ and $\rho_2 - \rho_1\rho_3 = \rho(x)^2(1-c)$ tending to be large at the same time, i.e., c tends to be small for a fixed $\rho(x) > 0$ such that $(\rho_1 + \rho_2\rho_3) < (1 - \rho_2\rho_3)$. In other words, the lack of capability of self-protection, i.e., $\rho_3 = c\rho(x) \rightarrow 0$, implies the

possible existence of a medical and drug resistance problem, although the treatment principle of TCM has been used. At this point, the paper advocates to follow or utilize the second transfer law in order to prevent and avoid the medical and drug resistance issue occurrence for the unhealthy body.#

4. Treatment Principle of TCM

In order to explain treatment principle of TCM, the changes in the blood pH value range are divided into four parts. From Zhang and Shao [20], Theorems 2.1 and 3.1-3.5, Properties 3.1-3.4 and Corollary 2.1, it can be easily proved that the following theorem is true.

Theorem 4.1. [24] *Suppose that the subsystem X of a steady multilateral system falls ill. Let x be the blood pH value of a human body as the steady multilateral system. Denoted the parameter x of the normal range (lower bound, upper bound, center) as follows*

$$(a = 7.34539, b = 7.45461, t_0 = 7.4).$$

Then the following statements are true.

1) Suppose that $x < a$ as **virtual**, in which X or X_K falls a virtual disease with an unhealthy body. The subsystem either X or X_K itself is the root-cause of a happened virtual disease. And the son X_S of X is the symptoms of an expected or a happened virtual disease. The primary treatment is to increase the energy of the subsystem either X or X_K directly. And the secondary treatment is to increase the energy of the son X_S of X , and at the same time, to decrease the energy of the prisoner K_X of X_S .

2) Suppose that $x \in [a, t_0)$ as **virtual-normal**, in which either X or S_X will fall an expected virtual disease with a healthy body. The mother S_X of X is the root-cause of an expected virtual disease. And the subsystem either X or S_X is the symptoms of an expected virtual disease. The primary treatment is to increase the energy of the mother subsystem S_X of X which is an indirect treating for X . And the secondary treatment is to increase the energy of X itself, and at the same time, to decrease the energy of the prisoner X_K of X .

3) Suppose that $x \in [t_0, b]$ as **real-normal**, in which either X or X_S will encounter an expected real disease with a healthy body. The son X_S of X is the root-cause of an expected real disease. And the subsystem X itself is the symptoms of an expected real disease. The primary treatment is to decrease the energy of the son subsystem either X_S of X which is an indirect treating for X . And the secondary treatment is to decrease the energy of X itself, and at the same time, to increase the energy of the bane K_X of X .

4) Suppose that $x > b$ as **real**, in which X or K_X encounters a real disease with an unhealthy body. The subsystem either X or K_X itself is the root-cause of an expected or a happened real disease. And the mother S_X of X is the symptoms of an expected real disease. The primary treatment is to decrease the energy of the subsystem either X or K_X directly. And the sec-

ondary treatment is to decrease the energy of the mother S_X of X , and at the same time, to increase the energy of the bane X_K of S_X . #

Theorem 4.2 [24] Suppose that a steady multilateral system has six indexes. Let x^i be one of the six indexes of the subsystem energies of the steady multilateral system for any i ($1 \leq i \leq 6$). Denoted any one corresponding parameter of normal range (lower bound, upper bound, center) as follows respectively

$$(a^i, b^i, t_0^i), \quad i = 1, 2, 3, 4, 5, 6.$$

Consider one of the six sign functions respectively

$$f_i = \text{sign}(x^i - t_0^i) + (x^i = t_0^i), \quad i = 1, 2, 3, 4, 5, 6.$$

If $f_i = 1$, the energy of the corresponding subsystem is Yang. Its state is intended to be real or real-normal.

If $f_i = -1$, the energy of the corresponding subsystem is Yin. Its state is intended to be virtual or virtual-normal.

The Hexagram-image of the eight palaces or eight veins or Eight Extra Meridians is as follows:

$$\mathbf{f} = (f_1, f_2, f_3, f_4, f_5, f_6).$$

Then the following statements are true.

1) If the Hexagram-image belongs the Qian palace K_X^+ continuously, then the root-cause of the falling-ill subsystem may be wood (X).

2) If the Hexagram-image belongs the Dui palace K_X^- continuously, then the root-cause of the falling-ill subsystem may be xiang-fire (X_S^x).

3) If the Hexagram-image belongs the Li palace X_S^- continuously, then the root-cause of the falling-ill subsystem may be metal (K_X).

4) If the Hexagram-image belongs the Zhen palace X^+ continuously, then the root-cause of the falling-ill subsystem may be metal (K_X).

5) If the Hexagram-image belongs the Xun palace X^- continuously, then the root-cause of the falling-ill subsystem may be metal (K_X).

6) If the Hexagram-image belongs the Kan palace S_X^+ continuously, then the root-cause of the falling-ill subsystem may be earth (X_K).

7) If the Hexagram-image belongs the Gen palace X_K^+ continuously, then the root-cause of the falling-ill subsystem may be jun-fire (X_S^j).

8) If the Hexagram-image belongs the Kun palace X_K^- continuously, then the root-cause of the falling-ill subsystem may be water (S_X).

All laws of Eight palaces are summarized in **Figure 5**. #

Theorem 4.3. Suppose that a steady multilateral system has six indexes. Let x^i be one of the six indexes of the subsystem energies of the steady multilateral system for any i ($1 \leq i \leq 6$). Denoted any one corresponding parameter of normal range (lower bound, upper bound, center) as follows respectively

$$(a^i, b^i, t_0^i), \quad i = 1, 2, 3, 4, 5, 6.$$

Consider one of the six sign functions respectively

$$f_i = \text{sign}(x^i - t_0^i) + (x^i = t_0^i), \quad i = 1, 2, 3, 4, 5, 6.$$

If $f_i = 1$, the energy of the corresponding subsystem is Yang. Its state is intended to be real or real-normal.

If $f_i = -1$, the energy of the corresponding subsystem is Yin. Its state is intended to be virtual or virtual-normal.

The Hexagram-image of the eight palaces or eight veins or Eight Extra Meridians is as follows:

$$f = (f_1, f_2, f_3, f_4, f_5, f_6).$$

The number of Six JiaZi can be obtained by Definition 3.2. Then the Following Statements Are True

1) The Yang or Yin attribute of Sixty JiaZi numbers in Table 1 can be used to predict the real disease or the virtual disease in the momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, Yang is real, Yin is virtual.

2) The state of Ten heavenly stems in twelve earthly branches of Sixty JiaZi in Table 3 can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, growing is good, tomb is bad, etc.

3) The comprehensive name of Sixty JiaZi in Table 3 and Table 4 can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, the name as Wood_in_the_big_tree (大林木) is good, the name as Fire_in_the_sky (天上火) is bad, etc.

4) The philosophical meaning of Sixty JiaZi numbers in Table 4 can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, hope is good, lazy is bad, etc.

5) The good or bad lucky of Sixty JiaZi numbers in Table 3 and Table 4 can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, lucky or plat is good, fierce is bad. #

Remark 1. How to confirm mathematical properties based on Yin Yang Wu Xing Theory in TCM? How to test energy of Eight Palaces?

If a person is determined to be mathematically treatable, it is only necessary to determine which palace the person belongs to.

Palmistry in TCM is a good way to determine which palace a person belongs to. See Figure 5.

The six messages in palmistry reflect the corresponding energy of the viscera of the human body.

The first line is the emotional line, called wood (X). Reflects the energy of subsystem wood (X). A normal emotional line is a line located at the top of the palm from the left bottom side of the Kun palace to the bottom of the Li palace,

represented by “ $f_1 = +1$ ”, missing or broken lines are called abnormal lines, represented by “ $f_1 = -1$ ”.

The second line is the long term business line or long term wisdom line, called xiang-fire (X_S^x). Reflects the energy of subsystem xiang-fire (X_S^x). A normal long-term career line is located at the top of the palm from the right side of the Xun palace below the start to the lower end of the Li palace of a line, with “ $f_2 = +1$ ”, the missing line or broken line are called abnormal long-term career line, with “ $f_2 = -1$ ”.

The third line is the lifeline, called earth (X_K). Reflects the energy of subsystem earth (X_K). A normal lifeline is located in the upper part of the palm from the right side of the Xun palace below the beginning, to the Gen palace left side of a line, with “ $f_3 = +1$ ”, lack of line or broken line are called abnormal lifeline, with “ $f_3 = -1$ ”.

The fourth line is the lucky line, called metal (K_X). Reflects the energy of subsystem metal (K_X). A normal lucky line is a line located under the palm of the hand, starting from the upper part of the Kan palace, to the lower part of the Li palace, and is indicated by “ $f_4 = +1$ ”. Missing or broken lines are called abnormal lifelines, and are indicated by “ $f_4 = -1$ ”.

The fifth line, the marriage line, is called water (S_X). Represents the energy of subsystem water (S_X). A normal marriage line is a line located on the top of the palm from the left side of the Kun palace to the right side of the Kun palace, represented by “ $f_5 = +1$ ”. Missing or broken lines are called abnormal marriage lines, represented by “ $f_5 = -1$ ”.

The sixth line is the short-term business line or short-term wisdom line, called jun-fire (X_S^j). Reflects the power of the subsystem jun-fire (X_S^j). A normal short-term business line is located in the palm of the thumb fingernail crescent part, crescent in 5 mm above normal, with “ $f_6 = +1$ ” said, lack of line or broken line is called abnormal short-term business line, with “ $f_6 = -1$ ” said.

If a person's Hexagram-image $f = (f_1, f_2, f_3, f_4, f_5, f_6)$ is known, then it is possible to determine which palace the person belongs to. Once we know which palace a person belongs to, we know the corresponding the average energy and standard deviation for that palace. The energy distribution of all the eight palaces of Yang and Yin is as follows.

Yang palace	average	deviation	Yin palace	average	deviation
Qian	51.00	11.20	Kun	12.00	11.20
Kan	15.50	8.72	Li	47.50	8.72
Gen	44.00	8.93	Dui	19.00	8.93
Zhen	15.50	8.98	Xun	47.50	8.98

Remark 2. Theory of eight palaces (八宫) or eight veins (八脉) could be showed in **Figure 5**. All the figures should be illustrated by figure legends carefully.

In **Figure 5**, the eight palaces or eight veins symmetrically maintain the safety

of the six fu-organs. Such as the Qian palace or Belt vein symmetrically maintain the safety of the wood (X) fu-organ; The Dui palace or Yin link vein symmetrically maintains the safety of the xiang-fire (X_S^x) fu-organ. The Li palace or Governor vein, the Zhen palace or Yang cross vein and the Xun Palace or Yin cross vein symmetrically maintain the safety of the metal (K_X) fu-organ. The Kan palace or Ren vein symmetrically maintains the safety of the earth (X_K) fu-organ. The Gen palace or Yang link vein symmetrically maintains the safety of the jun-fire (X_S^j) fu-organ. The Kun palace or Impact vein symmetrically maintains the safety of the water (S_X) fu-organ. #

TCM emphasizes that for the same disease, if the blood pH value and the status of the six organs are not the same, then the treatment method is not the same. They must not be treated as double-blind.

5. Acupuncture Is Used to Treat Atrial Premature Beats as Congenital Heart Disease

The patient, male, is 46 years old. Due to heart aches, sleepless nights, and nervousness as heart disease, he went to the First Affiliated Hospital of Henan University of Traditional Chinese medicine on June 13, 2018. Testing electrocardiogram, his sinus heart rate was 50 to 132 beats per minute, a marked arrhythmia. Tests showed that he had severe atrial premature beats. Atrial premature beats were 11,668 beats/24 h (1625 in pairs, 136 in two union law and 45 in three union law). Abnormal cardiac beats were 11,670 beats per 24 h. Matrix atrial tachycardia was 930 beats/24 h. The body's blood pH value is higher (7.53211, real, normal range [7.34539, 7.45461] and the center 7.4). Choose western commonly used antiarrhythmic drug treatment, basically no effect. Because the disease runs in the family, hence goes to a Beijing hospital for his genetic testing. Genetic testing results show that a clear diagnosis of atrial premature beats as congenital heart disease. This disease in western medicine, there is no treatment and effective drugs. On July 3, 2018, the patient to Henan province Zhang Bibo institute of TCM acupuncture treatment.

The patient's suffering from the disease is a genetic disease, is relatively rare, and should adhere to TCM thinking. According to the clinical symptoms, atrial premature beats as congenital heart disease in TCM is "Cardiac over-expression or fever syndrome" category. Need to regulate heart and small intestine, adjust *Chi* and blood. The age of patient is middle-old, his capability of self-protection is poor. Its pathogenesis is congenital excessive or fever energy, acquired neurotic, need to adjust the heart and small intestine, adjust excessive or fever.

Atrial premature beats as congenital heart disease in TCM belongs to "cardiac over-expression or fever syndrome" category. The paper of the emperor neijing (《黄帝内经》) discusses the pathogenesis "Heart fever, first feel the heart is not happy, a few days later began to fever, when the heat into Five Zang-organs and Uprightness *Chi* conflict, then suddenly heartache, annoyed, vomiting, headache, face red, no sweat. Meet to RenGui (壬癸) day, because of the fire by water kills and seriously ill. Every BingDing (丙丁) day when the fire flourishing, then

out of the great sweat and heat retreat. If the evil spirit prevails, the sicker patients will die on RenGui (壬癸) day. During treatment of cardiac over-expression or fever syndrome, acupuncture should be performed on the hand ShaoYin (少阴) heart meridian and the hand TaiYang (太阳) small intestine meridian.” Think its pathogenesis is: the heart and the small intestine *Chi* blood too exuberant, *Chi* blood is not clear.

The paper of the emperor neijing (《黄帝内经》) treatment method is put forward as follows: “Summer began to be in season, the heart began to grow. If the pulse shape search small and weak pulse imposing manner, is abundant Yang *Chi* be the spirit flush to the body surface, heat fumigation in meat Cou (肉腠, 肌肉纹理) justified, inward effect on meridians, so acupuncture should be rushed down by points Cou. Acupuncture not too deep, as long as through the skin and disease can be cured. This is because evil spirits reside in superficial places. Alleged exuberant meridian as Cou, it is to point to plump and sufficient Yang vein.” “The cure for the fever is in their transport points (俞穴), adjust its virtual and real condition, harmony with its inverse and smooth. Veins of the same flesh and blood are with its time by months”. Points out that the treatment should take the hand TaiYang small intestine meridian, rush down their transport points (俞穴).

Palmistry can be used to identify the size of energy of six indices in the six subsystems of the human body complex system.

Watch **Figure 5**. The emotional line X is strong. It means that the energy of wood (X) = {liver, bravery} is real or real-normal. This is $f_1 = +1$.

The long term career line or long term wisdom line X_S^x is strong. It means that the energy of xiang-fire (X_S^x) = {pericardium, triple energizers} is real or real-normal. This is $f_2 = +1$.

The lifeline X_K is weak. It means that the energy of earth (X_K^+) = {spleen, stomach} is virtual or virtual-normal. This is $f_3 = -1$.

The lucky line K_X is weak. It means that the energy of metal (K_X) = {lung, large intestine} is virtual or virtual-normal. This is $f_4 = -1$.

The marriage line S_X is strong. It means that the energy of water (S_X) = {kidney, bladder} is real or real-normal. This is $f_5 = +1$.

Short-term business lines or short-term wisdom lines X_S^j are strong. It means that the energy of jun-fire (X_S^j) = {heart, small intestine} is real or real-normal. This is $f_6 = +1$.

The Hexagram-image of the eight palaces or eight veins is respectively as follows: $f = (f_1, f_2, f_3, f_4, f_5, f_6) = (+1, +1, -1, -1, +1, +1)$.

The Hexagram-image is the moderately convincing diagram (Fu (孚) $X_K^+(5, 2)$) of up wind and down marsh. It is also the **Wandering soul** (游魂) of Gen palace (艮宫) = $X_K^+(*, *)$. Other name is 孚 (5, 2) = Fu (5, 2) = $X_K^+(5, 2)$. Gen palace (艮宫) which the Hexagram-image 孚 (5, 2) = Fu (5, 2) = $X_K^+(5, 2)$ belongs to is Yang earth $X_K^+(*, *)$, like a small-aged son. One's Gen Palace nature is Bi (贲), Xu (畜), Sun (损), Gui (睽), Lv (履), Fu (孚), Jian (渐). They mean: The young son works hard and likes to do all the things by the recogni-

tion of Bi (贲) (7, 3), and is good at saving a lot of money of Xu (畜) (7, 1), and do things get damaged income also not care of Sun (损) (7, 2). But he is difficult to get the respect they deserve of Gui (睽) (3, 2), to be honest to fulfill a commitment of Fu (履) (1, 2), and life the pursuit of a smooth transition of Fu (孚) (5, 2). Finally the status of the growth of life often is gradually rising slowly of Jian (渐) (5, 7). Gen palace (艮宫) = $X_K^+(*,*)$ is corresponding to Yang Link Vein (阳维脉): It is mainly in order to absorb the energy of $X_K^+(*,*)$ corresponding to {upper energizer} and to maintain the security of X_S^j .

By Theorem 4.2, the root-cause of the falling-ill subsystem may be jun-fire (X_S^j) = {heart, small intestine}. Thus, in Theorem 4.1, it is needed to suppose that the subsystem jun-fire (X_S^j) of a steady multilateral system falls ill.

The number of Six JiaZi for the Hexagram-image 孚 (5, 2) = Fu (5, 2) = $X_K^+(5,2)$ of the eight palaces $f = (f_1, f_2, f_3, f_4, f_5, f_6) = (+1, +1, -1, -1, +1, +1)$ can be obtained by Definition 3.2 as follows:

(28 18 8 24 14 4). Its philosophy meaning is: patience (忍耐数), reform (改革数), geely (吉发数), chang_rong (昌荣数), wander (漂泊数), tired (劳累数).

The worst number is tired (劳累数). It is corresponding to the subsystem jun-fire (X_S^j) = {heart, small intestine}. It is the same as the judgment of Theorem 4.2.

Because there is a rule: for each of eight palaces, its all Sixty JiaZi numbers for Hexagram-images have the same as the momentum of development, the way of judging what palace's the momentum of development does a palace's 60 JiaZi numbers belong to can be used to predict the development of the corresponding subsystem jun-fire (X_S^j) based on 60 JiaZi numbers, in order to promote good luck, or to avoid bad luck.

All the information of 60 JiaZi about Gen palace is given in **Tables 6-10**.

Watching **Tables 6-10**, the number of sixty JiaZi for the subsystem X_S^j of Gen palace is: 3, 6, 1, 4, 4, 4, 4, 3, for images 0 - 7 of Gen palace 7, respectively.

Its **name** of sixty JiaZi number for the subsystem X_S^j of Gen palace is:

3BingYin (丙寅), 6JiSi (己巳), 1JiaZi (甲子), 4DingMao (丁卯), 4DingMao (丁卯), 4DingMao (丁卯), 4DingMao (丁卯), 3BingYin (丙寅), for images 0 - 7 of Gen palace 7, respectively.

Its **comprehensive** name of sixty JiaZi number for the subsystem X_S^j of Gen palace is:

Fire_in_the_stove (炉中火), Wood_in_the_big_tree (大林木), Gold_in_the_sea (海中金), Fire_in_the_stove (炉中火), Fire_in_the_stove (炉中火), Fire_in_the_stove (炉中火), Fire_in_the_stove (炉中火), Fire_in_the_stove (炉中火), for images 0 - 7 of Gen palace 7, respectively.

Its state of ten heavenly stems for the subsystem X_S^j of Gen palace is:

grow (长), emperor (帝), bath (沐), disease (病), disease (病), disease (病), disease (病), grow (长), for images 0-7 of Gen palace 7, respectively.

Its philosophy meaning is:

karma (善缘数), help (得助数), growing (生长数), tired (劳累数), tired (劳累数), tired (劳累数),

Table 6. Sixty JiaZi hidden behind Eight Palaces for names.

f1	f2	f3	f4	f5	f6	x1	x2	x3	x4	x5	x6	y1	y2	y3	y4	y5	y6	z1	z2	z3	z4	z5	z6
+	-	-	+	-	-	3	3	3	3	3	3	1	11	9	7	5	3	13	23	33	43	53	3
+	-	-	+	-	+	3	3	3	6	6	6	1	11	9	2	4	6	13	23	33	26	16	6
+	-	-	+	+	+	3	3	3	1	1	1	1	11	9	5	3	1	13	23	33	41	51	1
+	-	-	-	+	+	3	3	3	4	4	4	1	11	9	12	2	4	13	23	33	24	14	4
+	-	+	-	+	+	6	6	6	4	4	4	8	10	12	12	2	4	56	46	36	24	14	4
+	+	+	-	+	+	9	9	9	4	4	4	11	9	7	12	2	4	59	9	19	24	14	4
+	+	-	-	+	+	8	8	8	4	4	4	4	6	8	12	2	4	28	18	8	24	14	4
+	+	-	+	-	-	8	8	8	3	3	3	4	6	8	7	5	3	28	18	8	43	53	3

namez1	namez2	namez3	namez4	namez5	namez6	energy	image	palace
13BingZi (丙子)	23BingXu (丙戌)	33BingShen (丙申)	43BingWu (丙午)	53BingChen (丙辰)	3BingYin (丙寅)	36	0	7
13BingZi (丙子)	23BingXu (丙戌)	33BingShen (丙申)	26JiChou (己丑)	16JiMao (己卯)	6JiSi (己巳)	37	1	7
13BingZi (丙子)	23BingXu (丙戌)	33BingShen (丙申)	41JiaChen (甲辰)	51JiaYin (甲寅)	1JiaZi (甲子)	39	2	7
13BingZi (丙子)	23BingXu (丙戌)	33BingShen (丙申)	24DingHai (丁亥)	14DingChou (丁丑)	4DingMao (丁卯)	35	3	7
56JiWei (己未)	46JiYou (己酉)	36JiHai (己亥)	24DingHai (丁亥)	14DingChou (丁丑)	4DingMao (丁卯)	43	4	7
59RenXu (壬戌)	9RenShen (壬申)	19RenWu (壬午)	24DingHai (丁亥)	14DingChou (丁丑)	4DingMao (丁卯)	59	5	7
28XinMao (辛卯)	18XinSi (辛巳)	8XinWei (辛未)	24DingHai (丁亥)	14DingChou (丁丑)	4DingMao (丁卯)	51	6	7
28XinMao (辛卯)	18XinSi (辛巳)	8XinWei (辛未)	43BingWu (丙午)	53BingChen (丙辰)	3BingYin (丙寅)	52	7	7

Table 7. Sixty JiaZi Hidden Behind Eight Palaces for comprehensive names.

f1	f2	f3	f4	f5	f6	x1	x2	x3	x4	x5	x6	y1	y2	y3	y4	y5	y6	z1	z2	z3	z4	z5	z6
+	-	-	+	-	-	3	3	3	3	3	3	1	11	9	7	5	3	13	23	33	43	53	3
+	-	-	+	-	+	3	3	3	6	6	6	1	11	9	2	4	6	13	23	33	26	16	6
+	-	-	+	+	+	3	3	3	1	1	1	1	11	9	5	3	1	13	23	33	41	51	1
+	-	-	-	+	+	3	3	3	4	4	4	1	11	9	12	2	4	13	23	33	24	14	4
+	-	+	-	+	+	6	6	6	4	4	4	8	10	12	12	2	4	56	46	36	24	14	4
+	+	+	-	+	+	9	9	9	4	4	4	11	9	7	12	2	4	59	9	19	24	14	4
+	+	-	-	+	+	8	8	8	4	4	4	4	6	8	12	2	4	28	18	8	24	14	4
+	+	-	+	-	-	8	8	8	3	3	3	4	6	8	7	5	3	28	18	8	43	53	3

namez1	namez2	namez3	namez4	namez5	namez6	energy	image	palace
Water_in_the_mountain_ravine (涧下水)	Soil_on_the_house (屋上土)	Fire_under_the_mountain (山下火)	Water_in_the_sky_of_river (天河水)	Earth_in_the_sand (沙中土)	Fire_in_the_stove (炉中火)	36	0	7
Water_in_the_mountain_ravine (涧下水)	Soil_on_the_house (屋上土)	Fire_under_the_mountain (山下火)	Fire_from_the_blue_fire (霹雳火)	Soil_in_the_city_wall (城墙土)	Wood_in_the_big_tree (大林木)	37	1	7
Water_in_the_mountain_ravine (涧下水)	Soil_on_the_house (屋上土)	Fire_under_the_mountain (山下火)	Fire_in_Buddha's_lights (佛灯火)	Water_in_the_large_streams (大溪水)	Gold_in_the_sea (海中金)	39	2	7
Water_in_the_mountain_ravine (涧下水)	Soil_on_the_house (屋上土)	Fire_under_the_mountain (山下火)	Soil_on_the_house (屋上土)	Water_in_the_mountain_ravine (涧下水)	Fire_in_the_stove (炉中火)	35	3	7
Fire_in_the_sky (天上火)	Soil_in_the_great_post (大驿土)	Wood_in_the_ground (平地木)	Soil_on_the_house (屋上土)	Water_in_the_mountain_ravine (涧下水)	Fire_in_the_stove (炉中火)	43	4	7
Water_in_the_ocean (大洋水)	Metal_of_blade (剑锋金)	Wood_in_the_willow_tree (杨柳木)	Soil_on_the_house (屋上土)	Water_in_the_mountain_ravine (涧下水)	Fire_in_the_stove (炉中火)	59	5	7
Wood_in_the_pine_tree (松柏木)	Gold_in_the_as_h (白腊金)	Soil_in_the_roadside (路旁土)	Soil_on_the_house (屋上土)	Water_in_the_mountain_ravine (涧下水)	Fire_in_the_stove (炉中火)	51	6	7
Wood_in_the_pine_tree (松柏木)	Gold_in_the_as_h (白腊金)	Soil_in_the_roadside (路旁土)	Water_in_the_sky_of_river (天河水)	Earth_in_the_sand (沙中土)	Fire_in_the_stove (炉中火)	52	7	7

Table 8. Sixty JiaZi hidden behind Eight Palaces for state of Ten Heavenly stems.

f1	f2	f3	f4	f5	f6	x1	x2	x3	x4	x5	x6	y1	y2	y3	y4	y5	y6	z1	z2	z3	z4	z5	z6
+	-	-	+	-	-	3	3	3	3	3	3	1	11	9	7	5	3	13	23	33	43	53	3
+	-	-	+	-	+	3	3	3	6	6	6	1	11	9	2	4	6	13	23	33	26	16	6
+	-	-	+	+	+	3	3	3	1	1	1	1	11	9	5	3	1	13	23	33	41	51	1
+	-	-	-	+	+	3	3	3	4	4	4	1	11	9	12	2	4	13	23	33	24	14	4
+	-	+	-	+	+	6	6	6	4	4	4	8	10	12	12	2	4	56	46	36	24	14	4
+	+	+	-	+	+	9	9	9	4	4	4	11	9	7	12	2	4	59	9	19	24	14	4
+	+	-	-	+	+	8	8	8	4	4	4	4	6	8	12	2	4	28	18	8	24	14	4
+	+	-	+	-	-	8	8	8	3	3	3	4	6	8	7	5	3	28	18	8	43	53	3

namez1	namez2	namez3	namez4	namez5	namez6	energy	image	palace
child (胎)	tomb (墓)	disease (病)	emperor(帝)	crown (冠)	grow (长)	36	0	7
child (胎)	tomb (墓)	disease (病)	tomb (墓)	disease (病)	emperor(帝)	37	1	7
child (胎)	tomb (墓)	disease (病)	decay (衰)	officer (官)	bath (沐)	39	2	7
child (胎)	tomb (墓)	disease (病)	child (胎)	tomb (墓)	disease (病)	35	3	7
crown (冠)	grow (长)	child (胎)	child (胎)	tomb (墓)	disease (病)	43	4	7
crown (冠)	grow (长)	child (胎)	child (胎)	tomb (墓)	disease (病)	59	5	7
extinction(绝)	death (死)	decay (衰)	child (胎)	tomb (墓)	disease (病)	51	6	7
extinction(绝)	death (死)	decay (衰)	emperor(帝)	crown (冠)	grow (长)	52	7	7

Table 9. Sixty JiaZi Hidden Behind Eight Palaces for Philosophy meaning.

f1	f2	f3	f4	f5	f6	x1	x2	x3	x4	x5	x6	y1	y2	y3	y4	y5	y6	z1	z2	z3	z4	z5	z6
+	-	-	+	-	-	3	3	3	3	3	3	1	11	9	7	5	3	13	23	33	43	53	3
+	-	-	+	-	+	3	3	3	6	6	6	1	11	9	2	4	6	13	23	33	26	16	6
+	-	-	+	+	+	3	3	3	1	1	1	1	11	9	5	3	1	13	23	33	41	51	1
+	-	-	-	+	+	3	3	3	4	4	4	1	11	9	12	2	4	13	23	33	24	14	4
+	-	+	-	+	+	6	6	6	4	4	4	8	10	12	12	2	4	56	46	36	24	14	4
+	+	+	-	+	+	9	9	9	4	4	4	11	9	7	12	2	4	59	9	19	24	14	4
+	+	-	-	+	+	8	8	8	4	4	4	4	6	8	12	2	4	28	18	8	24	14	4
+	+	-	+	-	-	8	8	8	3	3	3	4	6	8	7	5	3	28	18	8	43	53	3

namez1	namez2	namez3	namez4	namez5	namez6	energy	image	palace
superior (超群数)	innovation (革新数)	exuberant (旺盛数)	vanity (虚华数)	virtual (内虚数)	karma (善缘数)	36	0	7
superior (超群数)	innovation (革新数)	exuberant (旺盛数)	wizards (奇才数)	rising (上昇数)	help (得助数)	37	1	7
superior (超群数)	innovation (革新数)	exuberant (旺盛数)	morality (才德数)	drifted (渐褪数)	growing (生长数)	39	2	7
superior (超群数)	innovation (革新数)	exuberant (旺盛数)	changrong (昌荣数)	wander (漂泊数)	tired (劳累数)	35	3	7
meaningless (意弱数)	independent (独立数)	storm (风浪数)	changrong (昌荣数)	wander (漂泊数)	tired (劳累数)	43	4	7
blankly (茫然数)	lazy (懒惰数)	varied (多变数)	changrong (昌荣数)	wander (漂泊数)	tired (劳累数)	59	5	7
patience (忍耐数)	reform (改革数)	geely (吉发数)	changrong (昌荣数)	wander (漂泊数)	tired (劳累数)	51	6	7
patience (忍耐数)	reform (改革数)	geely (吉发数)	vanity (虚华数)	virtual (内虚数)	karma (善缘数)	52	7	7

Table 10. Sixty JiaZi hidden behind Eight Palaces for good or bad lucky.

f1	f2	f3	f4	f5	f6	x1	x2	x3	x4	x5	x6	y1	y2	y3	y4	y5	y6	z1	z2	z3	z4	z5	z6
+	-	-	+	-	-	3	3	3	3	3	3	1	11	9	7	5	3	13	23	33	43	53	3
+	-	-	+	-	+	3	3	3	6	6	6	1	11	9	2	4	6	13	23	33	26	16	6
+	-	-	+	+	+	3	3	3	1	1	1	1	11	9	5	3	1	13	23	33	41	51	1
+	-	-	-	+	+	3	3	3	4	4	4	1	11	9	12	2	4	13	23	33	24	14	4
+	-	+	-	+	+	6	6	6	4	4	4	8	10	12	12	2	4	56	46	36	24	14	4
+	+	+	-	+	+	9	9	9	4	4	4	11	9	7	12	2	4	59	9	19	24	14	4
+	+	-	-	+	+	8	8	8	4	4	4	4	6	8	12	2	4	28	18	8	24	14	4
+	+	-	+	-	-	8	8	8	3	3	3	4	6	8	7	5	3	28	18	8	43	53	3

namez1	namez2	namez3	namez4	namez5	namez6	energy	image	palace
lucky (吉)	lucky (吉)	lucky (吉)	fierce (凶)	fierce (凶)	lucky (吉)	36	0	7
lucky (吉)	lucky (吉)	lucky (吉)	fierce (凶)	lucky (吉)	lucky (吉)	37	1	7
lucky (吉)	lucky (吉)	lucky (吉)	lucky (吉)	flat (平)	lucky (吉)	39	2	7
lucky (吉)	lucky (吉)	lucky (吉)	lucky (吉)	fierce (凶)	fierce (凶)	35	3	7
fierce (凶)	fierce (凶)	fierce (凶)	lucky (吉)	fierce (凶)	fierce (凶)	43	4	7
fierce (凶)	fierce (凶)	fierce (凶)	lucky (吉)	fierce (凶)	fierce (凶)	59	5	7
fierce (凶)	lucky (吉)	lucky (吉)	lucky (吉)	fierce (凶)	fierce (凶)	51	6	7
fierce (凶)	lucky (吉)	lucky (吉)	fierce (凶)	fierce (凶)	lucky (吉)	52	7	7

tired (劳累数), karma (善缘数),

For images 0 - 7 of Gen palace 7, respectively.

Its good or bad lucky of sixty JiaZi number for the subsystem X_S^j of Gen palace is:

lucky (吉), lucky (吉), lucky (吉), fierce (凶), fierce (凶),

fierce (凶), fierce (凶), lucky (吉),

For images 0 - 7 of Gen palace 7, respectively.

They are the balance of good “lucky (吉)” and evil “fierce (凶)”. The number 4 which is equal to 4DingMao (丁卯) is the main momentum of development. Its philosophy meaning is “tired (劳累数)”. Its comprehensive name is “Fire_in_the_stove (炉中火)”. It is the strong state of fire. Because real wood loves real fire, the state of Ding Yin fire is the state of disease (病). In other words, the Ding Yin fire of ten heavenly stems is in the real disease state under the facilitation of the Mao Yin wood of twelve earthly branches. It shows that the condition of jun-fire (X_S^j) is a very fierce Yang condition. Thus, by Theorem 4.3, the subsystem jun-fire (X_S^j) is a Yang issue.

So, at present the most serious problem is to treat the subsystem jun-fire (X_S^j) falling a real disease. It is the case in (4) of Theorem 4.1 for jun-fire (X_S^j) for an unhealthy body. It conforms to the judgment of Theorem 4.2 by using eight palaces. It also conforms to the judgment of Theorem 4.3 by using Sixty Jiazi.

Thus, in Theorem 4.1, it is needed to suppose that the subsystem jun-fire (X_S^j) of a steady multilateral system falls a real ill for an unhealthy body.

Because the body pH blood value is $x = 7.53211 > b = 7.45461$ or $\rho < \rho_0$, by the (4) of Theorem 4.1, the subsystem jun-fire (X_S^j) = {heart, small intestine} falls a real disease with an unhealthy body. The subsystem jun-fire (X_S^j) = {heart, small intestine} itself is the root-cause of a happened real disease.

The primary treatment is to decrease the energy of the subsystem jun-fire (X_S^j) = {heart, small intestine} directly.

In Theorem 3.5, the mother of jun-fire (X_S^j) = {heart, small intestine} is the xiang-fire (X_S^x) (pericardium and triple energizer) for an unhealthy body of falling real-ills. And the mother xiang-fire (X_S^x) (pericardium and triple ener-

gizer) of jun-fire (X_S^j) = {heart, small intestine} is the symptoms of an expected real disease. And the secondary treatment is to decrease the energy of the mother xiang-fire (X_S^x) (pericardium and triple energizer) of jun-fire (X_S^j) = {heart, small intestine}, and at the same time, to increase the energy of the bane water (S_X) (kidney and bladder) of xiang-fire (X_S^x) (pericardium and triple energizer).

Follow the tips of the emperor's internal canon, for treatment of fever diseases, acupuncture not too deep, as long as through the skin and disease can be cured. In TCM, there is a method of treating diseases of an eight palaces in around the belly button. The eight signs are arranged in the same way as the palms. Treat premature heart disease with the main and secondary methods mentioned above. Acupuncture directions are selected in Li palace, Kan palace, Gen palace and Dui palace.

The primary treatment is to decrease the energy of the subsystem jun-fire (X_S^j) = {heart, small intestine} or Governor Vein (督脉) as Li palace (离宫) $X_S^-(*,*)$ belonging to fire (X_S^j) = {heart, small intestine}, and at the same time, to decrease the energy of the subsystem Yang link Veins (阳维脉) as Gen palace (艮宫) $X_K^+(*,*)$ corresponding to {upper energizer} $\subset X_S^{x+}(1,e)$ (手少阳三焦经) directly.

And the secondary treatment is to decrease the energy of the mother xiang-fire (X_S^x) (pericardium and triple energizer) or Yin link Vein (阴维脉) as Dui palace (兑宫) $K_X^-(*,*)$ corresponding to {lower energizer} $\subset X_S^{x+}(1,e)$ (手少阳三焦经) of jun-fire (X_S^j) = {heart, small intestine}, and at the same time, to increase the energy of the bane water (S_X) (kidney and bladder) or Ren Vein (任脉) as Kan palace (坎宫) $S_X^+(*,*)$ belonging to water (S_X) = {kidney, bladder} of xiang-fire (X_S^x) (pericardium and triple energizer).

Methods: Mild, fire discharge, slightly prickly Yang pulse. For the first four weeks, once a day. Then, once a week.

More context about acupuncture treating heart disease should be showed in the paper. First of all, the direct needle method was used to shallow the puncture around the navel of the Li palace and the Gen palace. The needle should be placed first, and the epidermis can be pierced lightly. Since it is a catharsis method, acupuncture should be quick and very fast, the direction from the inside to the outside.

Secondly, after 5 minutes, the needle was used to suppress the strong and support the weak. The direct needling method was used to shallow the puncture on the Kan palace around the navel, while the drainage needling method was used to shallow the Dui palace around the navel. The filling method for Kan palace should be slow down the needle, the direction from the outside to the inside, shallow puncture skin can be. The catharsis method for Dui palace should be quick under the needle, the direction from the inside to the outside, shallow puncture skin can be.

A session takes about an hour.

Its pathogenesis is congenital excessive or fever energy, acquired neurotic, need to adjust the heart and small intestine, adjust excessive or fever.

After one year of acupuncture therapy, the patient congenital excessive or fever energy of power and neurotic symptoms improved significantly, not to cause heart pain, sleep smoothly at night, a significant stabilization of the nervous system. Review of electrocardiogram on October 22, 2019 at the First Affiliated Hospital of Henan University of Traditional Chinese Medicine, his sinus heart rate was 46 to 120 beats per minute, a normal range of sinus rhythm. Tests showed that he had hardly any atrial premature beats. Atrial premature beats were 21 beats/24h (2 in pairs, 0 in two union law and 0 in three union law). Abnormal cardiac beats were 24 beats per 24 h. Matrix atrial tachycardia was 0 beats/24h. The body's blood pH value is normal (7.43181, real-normal, normal range [7.34539, 7.45461] and the center 7.4). Patient with symptoms improved obviously, and hardly any abnormal cardiac beats. Return no recurrence.

Governor vein (督脉) as Li palace (离宫) $X_S^-(*,*)$ corresponding to fire (X_S^j) = {heart, small intestine}: For Yang meridians, it links the foot ShaoYang Gallbladder meridian $X^+(0,e)$ (足少阳胆经) in ChangQiang (长强, DU1) and DaZhui (大椎, DU14) and BaiHui (百会, DU20), links the hand ShaoYang triple energizer meridian $X_S^{++}(1,e)$ (手少阳三焦经) in DaZhui (大椎, DU14) and BaiHui (百会, DU20), links the foot YangMing stomach meridian $X_K^+(0,(12))$ (足阳明胃经) in DaZhui (大椎, DU14) and BaiHui (百会, DU20) and ShenTing (神庭, DU24) and ShuiGou (水沟, DU26), links the hand YangMing large intestine $K_X^+(1,(12))$ (手阳明大肠经) in DaZhui (大椎, DU14) and BaiHui (百会, DU20) and ShuiGou (水沟, DU26), links the foot TaiYang bladder meridian $S_X^+(0,(13))$ (足太阳膀胱经) in DaZhui (大椎, DU14), BaiHui (百会, DU20), NaoHu (脑户, DU17), ShenTing (神庭, DU24) and TaoDao (陶道, DU13). And links the hand TaiYang small intestine meridian $X_S^{j+}(1,(13))$ (手太阳小肠经) in HouXi (后溪, SI3), DaZhui (大椎, DU14) and BaiHui (百会, DU20).

For Yin meridians, it links the foot JueYin liver meridian $X^-(0,(23))$ (足厥阴肝经) in BaiHui (百会, DU20), links the foot ShaoYin kidney meridian $S_X^-(0,(123))$ (足少阴肾经) in ChangQiang (长强, DU1). Also links the ren vein (任脉) and the impact vein (冲脉) in HuiYin (会阴, RN1). Connects the hand TaiYin lung meridian $K_X^-(1,(132))$ (手太阴肺经) in LieQue (列缺, Lu7) and TaiYuan (太渊, Lu9) through the ren vein (任脉) or directly contacting the hand YangMing large intestine $K_X^+(1,(12))$ (手阳明大肠经). The idea is that veins meet in TaiYuan (太渊, Lu9).

The idea is that HouXi (后溪, SI3) mainly manages the Governor vein (督脉) as Li palace (离宫) $X_S^-(*,*)$. It is mainly in order to absorb the energy of $X_S^-(*,*)$ belonging to jun-fire (X_S^j) = {heart, small intestine} and to maintain the security of K_X .

Therefore, acupuncture direction selected in Li palace (离宫) by using the rushing down method can be to decrease the energy of jun-fire (X_S^j) = {heart, small intestine}.

Yang link Veins (阳维脉) as Gen palace (艮宫) $X_K^+(*,*)$ corresponding to {upper energizer} $\subset X_S^{x+}(1,e)$ (手少阳三焦经): For Yang meridians, it links the foot ShaoYang Gallbladder meridian $X^+(0,e)$ (足少阳胆经) in YangJiao (阳交, GB35) and JianBing (肩井, GB21), links the hand ShaoYang triple energizer meridian $X_S^{x+}(1,e)$ (手少阳三焦经) in TianLiao (天髎, SJ15) and WaiGuan (外关, SJ5), links the foot YangMing stomach meridian $X_K^+(0,(12))$ (足阳明胃经) in TouWei (头维, ST8), links the foot TaiYang bladder meridian $S_X^+(0,(13))$ (足太阳膀胱经) in JinMen (金门, BL63) and links the hand TaiYang small intestine meridian $X_S^{j+}(1,(13))$ (手太阳小肠经) in NaoShu (臑俞, SI10). Also links the governor vein (督脉) in YaMen (哑门, DU15) and FengFu (风府, DU16).

For Yin meridians, it connects the ren vein (任脉) through the governor vein (督脉) in HuiYin (会阴, RN1). It also connects the hand TaiYin lung meridian $K_X^-(1,(132))$ (手太阴肺经) in LieQue (列缺, Lu7) and TaiYuan (太渊, Lu9) through the ren vein (任脉). The idea is that veins meet in TaiYuan (太渊, Lu9).

The idea is that WaiGuan (外关, SJ5) mainly manages the Yang link vein (阳维脉) as Gen palace (艮宫) $X_K^+(*,*)$. It is mainly in order to absorb the energy of $X_K^+(*,*)$ corresponding to {upper energizer} and to maintain the security of X_S^j .

Therefore, acupuncture direction selected in Gen palace (艮宫) by using the rushing down method can be to decrease the energy of jun-fire (X_S^j) = {heart, small intestine}.

Yin link vein (阴维脉) as Dui palace (兑宫) $K_X^-(*,*)$ corresponding to {lower energizer} $\subset X_S^{x+}(1,e)$ (手少阳三焦经): For Yin meridians, it links the foot JueYin liver meridian $X^-(0,(23))$ (足厥阴肝经) in QiMen (旗门, LR14), links the hand JueYin pericardium meridian $X_S^{x-}(1,(23))$ (手厥阴心包经) in NeiGuan (内关, PC6), links the foot ShaoYin kidney meridian $S_X^-(0,(123))$ (足少阴肾经) in ZhuBin (筑宾, KI9), links the foot TaiYin spleen meridian $X_K^-(0,(132))$ (足太阴脾经) in ChongMen (冲门, SP12), FuHui (府会, SP13), DaHeng (大横, SP15) and FuAi (腹哀, SP16).

Also it links the ren vein (任脉) in TianTu (天突, RN22) and LianQuan (廉泉, RN23). Connects the hand TaiYin lung meridian $K_X^-(1,(132))$ (手太阴肺经) in LieQue (列缺, Lu7) and TaiYuan (太渊, Lu9) through the ren vein (任脉). The idea is that veins meet in TaiYuan (太渊, Lu9).

The idea is that NeiGuan (内关, PC6) mainly manages the Yin link vein (阴维脉) as Dui palace (兑宫) $K_X^-(*,*)$. It is mainly in order to absorb the energy of $K_X^-(*,*)$ corresponding to {lower energizer} $\subset X_S^{x+}(1,e)$ (手少阳三焦经) and to maintain the security of X_S^x .

Therefore, acupuncture direction selected in Dui palace (兑宫) by using the rushing down method can be to decrease the energy of xiang-fire (X_S^x) = {pericardium, triple energizer}.

Ren vein (任脉) as Kan palace (坎宫) $S_X^+(*,*)$ corresponding to water (S_X) = {kidney, bladder}: For Yin meridians, it links the foot JueYin liver meridian

$X^-(0, (23))$ (足厥阴肝经) in QuGu (曲骨, RN2) and ZhongJi (中极, RN3) and GuanYuan (关元, RN4), links the foot TaiYin spleen meridian $X_K^-(0, (132))$ (足太阴脾经) in XiaWang (下脘, RN10), ZhongJi (中极, RN3) and GuanYuan (关元, RN4), links the foot ShaoYin kidney meridian $S_X^-(0, (123))$ (足少阴肾经) in ZhongJi (中极, RN3) and GuanYuan (关元, RN4).

And it connects the hand TaiYin lung meridian $K_X^-(1, (132))$ (手太阴肺经) in LieQue (列缺, Lu7) and TaiYuan (太渊, Lu9). The idea is that veins meet in TaiYuan (太渊, Lu9).

For Yang meridians, it links the hand ShaoYang triple energizer meridian $X_S^{++}(1, e)$ (手少阳三焦经) in ZhongWan (中脘, RN12), links the foot YangMing stomach meridian $X_K^+(0, (12))$ (足阳明胃经) in ZhongWan (中脘, RN12) and ShangWan (上脘, RN13), and links the hand TaiYang small intestine meridian $X_S^{j+}(1, (13))$ (手太阳小肠经) in ZhongWan (中脘, RN12) and ShangWan (上脘, RN13).

The idea is that LieQue mainly manages the Ren vein (任脉) as Kan palace (坎宫) $S_X^+(*, *)$. It is mainly in order to absorb the energy of $S_X^+(*, *)$ belonging to water ($S_X = \{\text{kidney, bladder}\}$) and to maintain the security of X_K .

Therefore, acupuncture direction selected in Kan palace (坎宫) by using filling method can be to increase the energy of water ($S_X = \{\text{kidney, bladder}\}$).

The above points are suitable, can adjust the energy function of heart and small intestine, discharging *Chi* and blood, promoting the viscera energy function recovery.

This example with the type of atrial premature beats as congenital heart disease, at present, in the world is a medical problem, no effective drugs and methods of treatment. The author USES “regulate heart and small intestine, *Chi* and blood discharged” thinking of TCM treatment of one year, does have effect and obvious effect. Consulting relevant literature, the writer has not been found by acupuncture treatment of this kind of disease related information, so the topic.

This paper focuses on the mathematical structure of the Sixty JiaZi. How about the real cases? In the real cases, there are a lot of kinds of diseases. In mathematics, first, you must determine the scope of the illness. That is to say: must determine which palace, Zangxiang or meridian disease belongs to. For example, for the purpose of this case, must first determine the disease belongs to the heart Zang organ or the hand ShaoYin heart meridian or the hand TaiYang small intestine meridian. It is equivalent mainly to consider the real diseases of the Li palace and the Gen palace as the Governor Vein and the Yang Link Vein.

How to fit the sixty JiaZi (甲子) into a mathematical model. Regards the sixty JiaZi (甲子) as a mathematical model, which can be mathematically proved that is to predict the development of the corresponding subsystem based on 60 JiaZi numbers, in order to promote good luck, or to avoid bad luck. For example, for the purpose of this case, the development of the corresponding subsystem jun-fire (X_S^j) is to fall a real ill by using Theorem 4.3, although major or basic

subsystems that may be to fall ill should be jun-fire (X_s^j) by using Theorem 4.2. Furthermore, by Theorem 4.1, dealing with the first method is to deal directly with the heart Zang-organ of the disease as the root-cause, *i.e.*, to decrease the energy of the heart Zang. Auxiliary treatment method is to decrease the energy of the pericardium meridian as symptoms, at the same time, increase the energy of the kidney meridian as symptoms. This method of healing must pass the mathematics to prove.

The effect of sixty JiaZi (甲子) on the blood pH value should be evaluated. Measurement of the blood pH value objective is to determine whether the body health, disease of real or virtual illness, and mathematically sure cure method. For example, for the purpose of this case, the blood pH range is the situation of the (4) of Theorem 4.1 as **real**, natural the cure method is determined. So, measuring the blood pH value in the range is a very important work. Because of for different people in different time, the treatment methods are not the same. Must by measuring the blood pH value in the range at any time, to determine the cure method should be used at any time.

For the purpose of this case, it may be not necessary to show the hand JueYin pericardium meridian or the hand ShaoYang triple energizer meridian or Yin Link Vein or Dui palace. But from the perspective of mathematical analysis, it is must be considered. Because the hand ShaoYin heart meridian and the hand JueYin pericardium meridian although belong to the heart Zang organ, but the hand JueYin pericardium meridian can substitute for the hand ShaoYin heart meridian under fault. So to decrease the energy of the heart Zang organ as fire (X_s) must be not only to decrease the energy of the hand ShaoYin heart meridian (手少阴心经) as jun-fire (X_s^j) corresponding to Governor vein (督脉) as Li palace (离宫) and Yang link veins (阳维脉) as Gen palace (艮宫), which is the heart itself, but also to decrease the energy of the hand JueYin pericardium meridian (手厥阴心包经) as xiang-fire (X_s^{x-}) corresponding to Yin link vein (阴维脉) as Dui palace (兑宫), which is the mother of heart, at the same time, to increase the energy of the bane water (S_x) of xiang-fire (X_s^{x-}), corresponding to Ren vein (任脉) as Kan palace (坎宫).#

6. Conclusions

This work shows how to predict the momentum of development for the corresponding sick subsystem based on 60 JiaZi numbers. Sixty JiaZi is hidden behind Eight palaces.

According to the treatment principle of TCM: “seize the momentum of development, hasten lucky avoids disaster” (顺势而为, 趋吉避凶), for the Sixty JiaZi numbers, by using the philosophy meaning, the state of Ten heavenly stems which are hidden behind Twelve earthly branches, good or bud lucky, comprehensive names, etc., the way can be to predict the development of the corresponding subsystem based on 60 JiaZi numbers, in order to promote good luck, or to avoid bad luck.

First, abiding by TCM’s idea: “Even if all changed, it is hard to change one’s

nature” (江山易改, 本性难移), the major or basic sick subsystem X that may be to fall ill can be easily diagnosed. The major or basic sick subsystem X can be used as the basis of analyzing after.

There is the first or second transfer law of human body energies corresponding to a healthy human body or an unhealthy human body respectively. The first or second transfer law of human body energies changes according to the different human body blood pH values whether in the normal range or not. For the normal range, the first transfer law of human body energies in Theorems 3.2 and 3.3 runs; for the abnormal range, the second transfer law of human body energies in Theorems 3.4 and 3.5 runs.

Assume that the range of the human body blood pH value x is divided into four parts from small to large. Both second and third are for a healthy human body with a virtual or real disease respectively. In this case, the root-cause of a virtual or real disease is the mother or son of the falling-ill subsystem X respectively, and the symptom is the subsystem X itself. Abiding by TCM's idea: “Search for a root cause of disease in treatment and cure both the root-cause and symptoms at the same times” (治病求本, 标本兼治), the treating works are first the prevention or the treatment for the mother or son of a virtual or real disease respectively, the second is the prevention or the treatment for a more serious relation disease between virtual X and real X_K or between virtual K_X and real X , respectively. Both the root-cause and the symptoms come from the first transfer law of human body energies in Theorems 3.2 and 3.3.

And both first and fourth are for an unhealthy human body with a virtual or real disease respectively. In this case, the root-cause of a virtual or real disease is the subsystem X itself, and the symptoms are the son or mother of the fall-ill subsystem X respectively. Abiding by TCM's idea: “Search for a root cause of disease in treatment and cure both the root-cause and symptoms at the same times” (治病求本, 标本兼治), the treating works are first the prevention or the treatment for itself of a virtual or real disease respectively, the second is the prevention or the treatment for a more serious relation disease between virtual X_S and real K_X or between virtual X_K and real S_X , respectively. Both the root-cause and the symptoms come from the second transfer law in Theorems 3.4 and 3.5.

A human body disease treatment should protect and maintain the balance or order of two incompatibility relations: the loving or liking relationship and the killing or liking relationship. The method for doing so can make the $\rho_3 = c\rho(x)$ tending to be large, *i.e.*, all of both $\rho(x)$ and c tend to be large, at least, greater than zero for an unhealthy human body; or, the best, equal to 1 for a healthy human body.

The following way can make the capabilities of both intervention reaction and self-protection become in the best state, the non-existence of side effects issue, the non-existence of medical and drug resistance problem, and so on.

1) Suppose that $x < a = 7.34539$, as **virtual**, in which either X or X_K falls a virtual disease with an unhealthy human body. The subsystem either X

or X_K itself is the root-cause of a happened virtual disease. And the son X_S of X is the symptoms of an expected or a happened virtual disease. Abiding by TCM's idea: "Search for a root cause of disease in treatment and cure both the root-cause and symptoms at the same times" (治病求本, 标本兼治), it should be done to do in the following.

In order to protect or maintain the loving relationship, abiding by TCM's idea "Virtual disease with an unhealthy human body is to fill itself" (虚则补之), increase the energy of X or X_K directly.

In order to protect or maintain the killing relationship, abiding by TCM's idea "Don't have disease cure and cure non-ill" (不治已病治未病), do a preventive treatment for the more serious relation disease between virtual X_S and real K_X . Through the intervening principle of "Strong inhibition of the same time, support the weak" (抑强扶弱), increase the energy of the son X_S of X while decreasing the energy of the prisoner K_X of X_S .

2) Suppose that $a = 7.34539 \leq x < t_0 = 7.4$, as **virtual-normal**, in which either X or S_X falls an expected virtual disease with a healthy human body. The mother S_X of the subsystem X is the root-cause of an expected virtual disease. And the subsystem X itself is the symptoms of an expected virtual disease. Abiding by TCM's idea: "Search for a root cause of disease in treatment and cure both the root-cause and symptoms at the same times" (治病求本, 标本兼治), the following works should be done.

In order to protect or maintain the loving relationship, abiding by TCM's idea "Virtual disease with a healthy human body is to fill its mother" (虚则补其母), increase the energy of the mother S_X of X . The treating way is an indirect treating for X .

In order to protect or maintain the killing relationship, abiding by TCM's idea "Don't have disease cure and cure non-ill" (不治已病治未病), do a preventive treatment for the more serious relation disease between virtual X and real X_K . Through the intervening principle of "Strong inhibition of the same time, support the weak" (抑强扶弱), increase the energy of X itself while decreasing the energy of the prisoner X_K of X .

3) Suppose that $t_0 = 7.4 \leq x \leq b = 7.45461$, as **real-normal**, in which either X or X_S falls an expected real disease with a healthy human body. The son X_S of the subsystem X is the root-cause of an expected real disease. And the subsystem X itself is the symptoms of an expected real disease. Abiding by TCM's idea: "Search for a root cause of disease in treatment and cure both the root-cause and symptoms at the same times" (治病求本, 标本兼治), the following works should be done.

In order to protect or maintain the loving relationship, abiding by TCM's idea "Real disease with a healthy human body is to rush down its son" (实则泄其子), decrease the energy of the son X_S of X . The treating way is an indirect treating for X .

In order to protect or maintain the killing relationship, abiding by TCM's idea "Don't have disease cure and cure non-ill" (不治已病治未病), do a preventive

treatment for the more serious relation disease between virtual K_X and real X . Through the intervening principle of “Strong inhibition of the same time, support the weak” (抑强扶弱), decrease the energy of X itself while increasing the energy of the bane K_X of X .

4) Suppose that $x > b = 7.45461$, as **real**, in which either X or K_X falls a real disease with an unhealthy human body. The subsystem either X or K_X itself is the root-cause of a happened real disease. And the mother S_X of X is the symptoms of an expected or a happened real disease. Abiding by TCM’s idea: “Search for a root cause of disease in treatment and cure both the root-cause and symptoms at the same times” (治病求本, 标本兼治), the following works should be done.

In order to protect or maintain the loving relationship, abiding by TCM’s idea “Real disease with an unhealthy human body is to rush down itself” (实则泄之), decrease the energy of X or K_X directly.

In order to protect or maintain the killing relationship, abiding by TCM’s idea “Don’t have disease cure and cure non-ill” (不治己病治未病), do a preventive treatment for the more serious relation disease between virtual X_K and real S_X . Through the intervening principle of “Strong inhibition of the same time, support the weak” (抑强扶弱), decrease the energy of the mother S_X of X while increasing the energy of the bane X_K of S_X .

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Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

References

- [1] Shirakabe, A., Hata, N., Kobayashi, N., Shinada, T., Tomita, K., Tsurumi, M., Matsushita, M., Okazaki, H., Yamamoto, Y., Yokoyama, S., Asai, K. and Mizuno, K. (2012) Clinical Significance of Acid-Base Balance in an Emergency Setting in Patients with Acute Heart Failure. *Journal of Cardiology*, **60**, 288-294. <https://doi.org/10.1016/j.jjcc.2012.06.004>
- [2] Sharandeep, K., Praveen, K., Virendra, K., Kumar, S.S. and Arun, K. (2013) Etiology and Prognostic Factors of Acute Liver Failure in Children. *Indian Pediatrics*, **50**, 677-679. <https://doi.org/10.1007/s13312-013-0189-7>
- [3] Hany, A., Meno, L., Jonathan, W., Elvira, P., Alan, D. and Charles, S. (1997) Partial Liquid Ventilation (PLV) and Lung Injury: Is PLV Able to Modify Pulmonary Vascular Resistance? *Journal of Pediatric Surgery*, **32**, 197-202. [https://doi.org/10.1016/S0022-3468\(97\)90178-0](https://doi.org/10.1016/S0022-3468(97)90178-0)

- [4] Intven, F., Boogaard, M., Pickkers, P., Moviat, M., Voort, P. and Hoeven, H. (2013) Stewart Analysis of Apparently Normal Acid-Base State in the Critically Ill. *Journal of Critical Care*, **28**, 1048-1054. <https://doi.org/10.1016/j.jcrc.2013.06.005>
- [5] Kumar, P.S., Singh, Y.S., Singh, H.P. and Bajaj, N. (2014) To Study PH Disorders in Severe Acute Malnutrition. *Journal of Evolution of Medical and Dental Sciences*, **3**, 12132-12139. <https://doi.org/10.14260/jemds/2014/3602>
- [6] Handman, H., RaisBahrami, K., Rivera, O., Seale, W.R. and Short, B.L. (1997) Use of Intratracheal Pulmonary Ventilation versus Conventional Ventilation in Meconium Aspiration Syndrome in a Newborn Pig Model. *Critical Care Medicine*, **25**, 2025-2030. <https://doi.org/10.1097/00003246-199712000-00020>
- [7] Natalia, B.M. and Steven, W.D. (2015) Amphetamine-Like Analogues in Diabetes: Speeding towards Ketogenesis. *Case Reports in Endocrinology*, **2015**, Article ID: 917869. <https://doi.org/10.1155/2015/917869>
- [8] Barfod, C., Lauritzen, M.M.P., Danker, J.K., Soletormos, G., Berlac, P.A., Lippert, F., Lundstrom, L.H., Antonsen, K. and Lange, K.H.W. (2012) The Formation and Design of the "Acute Admission Database"—A Database Including a Prospective, Observational Cohort of 6279 Patients Triageed in the Emergency Department in a Larger Danish Hospital. *Scandinavian Journal of Trauma, Resuscitation and Emergency Medicine*, **20**, Article No. 29. <https://doi.org/10.1186/1757-7241-20-29>
- [9] Zhu, L.L., Tee, K.L., Roccatano, D., Sonmez, B., Ni, Y., Sun, Z.H. and Schwaneberg, U. (2010) Directed Evolution of an Antitumor Drug (Arginine Deiminase PpADI) for Increased Activity at Physiological pH. *Chembiochem*, **11**, 691-697. <https://doi.org/10.1002/cbic.200900717>
- [10] Zhu, L.L., Verma, R., Roccatano, D., Ni, Y., Sun, Z.H. and Schwaneberg, U. (2010) A Potential Antitumor Drug (Arginine Deiminase) Reengineered for Efficient Operation under Physiological Conditions. *Journal of Toxicology-Clinical Toxicology*, **11**, 2294-2301. <https://doi.org/10.1002/cbic.201000458>
- [11] Robert, K., Rainer, K., Stanislaw, M., Torsten, S. and Detlef, K.M. (2013) Regional Citrate Anticoagulation for High Volume Continuous Venovenous Hemodialysis in Surgical Patients with High Bleeding Risk. *Therapeutic Apheresis and Dialysis*, **17**, 202-212. <https://doi.org/10.1111/j.1744-9987.2012.01101.x>
- [12] Mona, B., Arkady, I., Alexander, T., Mordechai, S., Haim, B., Alexander, I., Peter, S., Shmuel, E., Michael, M. and Tiberiu, E. (2011) Perioperative Metabolic Alkalemia Is More Frequent than Metabolic Acidemia in Major Elective Abdominal Surgery. *Journal of Clinical Monitoring and Computing*, **25**, Article No. 223. <https://doi.org/10.1007/s10877-011-9299-8>
- [13] Saritas, Z.K., Korkmaz, M., Saritas, T.B. and Sivaci, R.G. (2014) Comparison of the Depth of Anesthesia Produced with Dexmedetomidine-Sevoflurane or Medetomidine-Sevoflurane by Using Bispectral Index Monitoring. *Acta Scientiae Veterinariae*, **42**, 1-7.
- [14] Stevens, D.C., Campbell, J.P., Carter, J.E. and Watson, W.A. (1994) Acid-Base Abnormalities Associated with Cocaine Toxicity in Emergency Department Patients. *Journal of Toxicology-Clinical Toxicology*, **32**, 31-39. <https://doi.org/10.3109/15563659409000428>
- [15] Zhang, Y.S. (1993) Multilateral Matrix Theory. Chinese Statistics Press, Beijing.
- [16] Zhang, Y.S. (2007) Multilateral System Theory. <http://www.mlmatrix.com>
- [17] Zhang, Y.S. (2011) Mathematical Reasoning of Treatment Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine. *Chinese Medicine*, **2**, 6-15. <https://doi.org/10.4236/cm.2011.21002>

- [18] Zhang, Y.S. (2011) Mathematical Reasoning of Treatment Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine (II). *Chinese Medicine*, **2**, 158-170. <https://doi.org/10.4236/cm.2011.24026>
- [19] Zhang, Y.S. (2012) Mathematical Reasoning of Treatment Principle Based on the Stable Logic Analysis Model of Complex Systems. *Intelligent Control and Automation*, **3**, 1-15. <https://doi.org/10.4236/ica.2012.31001>
- [20] Zhang, Y.S. and Shao, W.L. (2012) Image Mathematics-Mathematical Intervening Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Mathematics (I). *Applied Mathematics*, **3**, 617-636. <https://doi.org/10.4236/am.2012.36096>
- [21] Zhang, Z.Q. and Zhang, Y.S. (2013) Mathematical Reasoning of Economic Intervening Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Economics (I). *Modern Economics*, **4**, 130-144. <https://doi.org/10.4236/me.2013.42016>
- [22] Feng, N.Q., Qiu, Y.H., Wang, F., Zhang, Y.S. and Yin, S.Q. (2005) A Logic Analysis Model about Complex System's Stability: Enlightenment from Nature. *International Conference on Intelligent Computing*, Hefei, 23-26 August 2005, 828-838. https://doi.org/10.1007/11538059_86
- [23] Zhang, Y.S. (2020) pH 7.35 to 7.45-Mathematical Reasoning of Treatment Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine (II). *International Journal of Chinese Medicine*, **4**, 37-53. <https://doi.org/10.11648/j.ijcm.20200403.11>
- [24] Zhang, Y.S. and Zhang, B.B. (2019) Acupuncture Treating Dystrophy Based on pH. -Mathematical Reasoning of Treatment Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine (III). *Chinese Medicine*, **10**, 39-105. <https://doi.org/10.4236/cm.2019.102005>
- [25] Zhang, Y.S., Li, Y. and Guo, C.Y. (2021) Acupuncture Treating Heart Disease Based on Eight Palaces or Eight Veins-Mathematical Reasoning of Treatment Principle Based on Yin Yang Wu Xing Theory in Traditional Chinese Medicine (IV). *Chinese Medicine*, **2021**, 12.
- [26] Inchauspe, A.A. (2014) "Between Heaven and Earth" Scientific Basis of the Action of Shao Yin: Lightning's Physical-Mathematical Analysis. *Pharmacology & Pharmacy*, **5**, 175-180. <http://www.scirp.org/journal/pp> <https://doi.org/10.4236/pp.2014.52024>
- [27] Inchauspe, A.A. (2017) Is Traditional Chinese Medicine Definitely an Exact Science? *EC Dental Science*, **11**, 255-277.
- [28] Inchauspe, A.A. (2015) Resuscitation on the K-1 Yongquan: Ethical and Methodological Aspects of Its Pilot Study. *Health*, **7**, 809-818. <https://doi.org/10.4236/health.2015.77095>
- [29] Inchauspe, A.A. (2015) Torsadogenic Index for Prevention of Acute Death. *Journal of Acute Disease*, **4**, 266-273. <https://doi.org/10.1016/j.joad.2015.06.002>
- [30] Inchauspe, A.A. and Inchauspe, M. (2019) Yongquan Maneuver's Oddysey: Current Validation of Its Significance of P through the Fisher's Exact Test for Dichotomous Variables. *Acta Scientific Paediatrics*, **2**, 53-60. <https://doi.org/10.31080/ASPE.2019.02.0114>
- [31] Inchauspe, A.A. and Tachini, O.D. (2020) "Resuscitator": Golden Medtech Proposal Introducing a New Era for CPR. *Journal of Acute Disease*, **9**, 137-144. <https://doi.org/10.4103/2221-6189.288590>

Appendix

Proofs of Theorem 2.1 and Corollary 2.1 can be found in Zhang [23].

Proofs of Theorems 3.2 - 3.5 and 4.1 can be found in Zhang and Zhang [24].

Proofs of Theorem 4.2 can be found in Zhang and Zhang [25].

Proof of Property 3.1. In **Table 3**, Sixty JiaZi meaning of ten heavenly stems of state is from ten heavenly stems grow - strong - die - extinction in twelve earthly branches in **Figure 4**.

In **Table 4**, Sixty JiaZi meaning of Philosophy is from the meaning of Philosophy for ten heavenly stems grow - strong - die - extinction in twelve earthly branches in **Figure 4**.

In **Table 3** and **Table 4**, Sixty JiaZi meaning of good of lucky, general of flat and bad of fierce, and comprehensive name is from Sixty JiaZi meaning of ten heavenly stems of state and Philosophy. It completes the proof.#

Proof of Property 3.2. In **Table 5**, the rule of twelve earthly branches to hide the ten heavenly stems is in **Figure 4**.

The operation rules of Sixty JiaZi subgroup elements are: easy to merge, normal for synthesis, abnormal for combination.

For JiaZi and YiChou, the group elements of JiaZi are (1, 0) and the synthesized (0, 4) of (0, 4), and the group elements of YiChou are (0, 0) and the synthesized (0, 4) of (0, 2), (0, 4) and (0, 3). The earthly branches can be merged as (0, 4). Since the element (0, 4) is significant as normal, so the both sides can be synthesized by (0, 4). There is

$$((1, 0) + (0, 4)) + ((0, 0) + (0, 4)) = (1, 3).$$

So the integration of Yang and Yin is (1, 3) as Yang metal, namely **Gold in the sea** (海中金).

For BingYin and DingMao, the group elements of BingYin are (1, 1) and the synthesized (1, 3) of (1, 0), (1, 1) and (1, 2), and the group elements of YiChou are (0, 1) and the synthesized (0, 0) of (0, 0). Since Yang (1, 1) is significant as normal and Yin (0, 0) is also significant as normal, so the weaker element (1, 2) can only be given up and the both sides can be synthesized by the heavenly stems and the earthly branches respectively. There are

$$(1, 1) + (0, 0) = (1, 1), \quad (1, 0) + (0, 1) = (1, 1).$$

On the other hand, if the weaker element (1, 2) can not be given up as abnormal, you must consider to combine it from the heavenly stem Yi (0, 1). There is

$$(1, 2) - (0, 1) = (1, 1).$$

So the integration of Yang and Yin is (1, 1) as Yang fire, namely **Fire in the stove** (炉中火).

For WuChen and JiSi, the group elements of WuChen are (1, 2) and the synthesized (1, 1) of (0, 0), (1, 2) and (0, 4), and the group elements of JiSi are (0, 2) and the synthesized (1, 1) of (1, 1), (1, 3) and (1, 2). Since the synthesized of the group elements of WuChen (1, 2) and (1, 1) is (0, 3) as Yin, and the synthesized of the group elements of JiSi (0, 2) and (1, 1) is (1, 3) as Yang, against their na-

ture as abnormal, so can combine the both sides. There is

$$-((1,2)+(1,1))+((0,2)+(1,1))=(1,0).$$

So the integration of Yin and Yang is (1, 0) as Yang wood, namely **Wood in the big tree** (大林木).

For GengWu and XinWei, the group elements of GengWu are (1, 3) and the synthesized (0, 3) of (0, 1) and (0, 2), and the group elements of XinWei are (0, 3) and the synthesized (0, 3) of (0, 1), (0, 2) and (0, 0). The earthly branches can merged as (0, 3). The group elements of XinWei also can merged as (0, 3). Since the synthesized of (1, 3) and (0, 3) is (1, 1) as Yang, and the synthesized of (0, 3) and (0, 3) is (0, 1) as Yin, conforms to its natural attribute as normal, so the both sides can be synthesized based on (0, 3). There is

$$((1,3)+(0,3))+((0,3)+(0,3))=(1,2).$$

So the integration of Yang and Yin is (1, 2) as Yang earth, namely **Soil in the roadside** (路旁土).

For RenShen and GuiYou, the group elements of RenShen are (1, 4) and the synthesized (1, 4) of (1, 3), (1, 4) and (1, 2), and the group elements of GuiYou are (0, 4) and the synthesized (0, 3) of (0, 3). The group elements of RenShen can be merged as (1, 4). Since (1, 4) and (0, 4) are significant as normal, so they can be synthesized mainly by (1, 4) and (0, 4) and secondly by the other elements. There are

$$(1,4)+(0,4)=(1,3), ((1,3)+(1,2))+(0,3)=(0,3).$$

So the integration of Yang and Yin is (1, 3) or (0, 3) as Yang or Yin metal, namely **Metal of blade** (剑锋金).

For JiaXu and YiHai, the group elements of JiaShen are (1, 0) and the synthesized (1, 1) of (0, 3), (1, 2) and (0, 1), and the group elements of YiYou are (0, 0) and the synthesized (0, 4) of (1, 4) and (1, 0). Since the element (1, 0) is significant and the elements (1, 1), (0, 0) and (0, 4) are balance as abnormal, only a strong joint of freedom, so the both sides can be combined by crossing heaven stem and earth branch respectively. There are

$$(1,1)-(0,0)=(1,1), (1,0)-(0,4)=(1,1).$$

So the integration of Yang and Yin is (1, 1) as Yang fire, namely **Fire on the hill** (山头火).

For BingZi and DingChou, the group elements of BingWu are (1, 1) and the synthesized (0, 4) of (0, 4), and the group elements of DingWei are (0, 1) and the synthesized (0, 4) of (0, 2), (0, 4) and (0, 3). The earthly branches can be merged as (0, 4). Since the element (0, 4) is in Yang Yin significantly on both sides as easy or normal, so can merge both sides strength, also can synthesize both sides based on (0, 4) respectively. There are

$$\{(0,4)\} \cup \frac{1}{3}\{(0,4)\} = \frac{4}{3}\{(0,4)\}, (0,4)+((0,1)+(0,4))=(0,4), \\ ((1,1)+(0,4))+(0,4)=(1,4).$$

So the integration of Yang and Yin is (0, 4) or (1, 4) as Yin or Yang water, namely **Water in the mountain ravine** (涧下水).

For WuYin and JiMao, the group elements of WuYin are (1, 2) and the synthesized (1, 3) of (1, 0), (1, 1) and (1, 2), and the group elements of JiMao are (0, 2) and the synthesized (0, 0) of (0, 0). Since the (1, 2) is significant as normal, so can synthesize both sides based on (1, 2). There is

$$((1, 2) + (1, 3)) + ((0, 2) + (0, 0)) = (0, 2).$$

So the integration of Yin and Yin is (0, 2) as Yin earth, namely **Soil in the city wall** (城墙土).

For GengChen and XinSi, the group elements of GengChen are (1, 3) and the synthesized (1, 1) of (0, 0), (1, 2) and (0, 4), and the group elements of XinSi are (0, 3) and the synthesized (1, 1) of (1, 1), (1, 3) and (1, 2). The earthly branches can be merged as (1, 1). Since the element (1, 3) is in Yang Yin significantly on both sides as easy or normal, so can merge both sides strength, also can synthesize the both sides. There are

$$\{(1, 3)\} \cup \frac{1}{3}\{(1, 3)\} = \frac{4}{3}\{(1, 3)\},$$

$$((1, 3) + (1, 1)) + ((0, 3) + (1, 1)) = (1, 3).$$

So the integration of Yang and Yin is (1, 3) as Yang metal, namely **Gold in the ash** (白腊金).

For RenWu and GuiWei, the group elements of RenWu are (1, 4) and the synthesized (0, 3) of (0, 1) and (0, 2), and the group elements of GuiWei are (0, 4) and the synthesized (0, 3) of (0, 1), (0, 2) and (0, 0). The earthly branches can be merged as (0, 3). Since the same on both sides of the Wu Xing of attributes, attribute balance to zero as abnormal, so can combine both sides. There is

$$((1, 4) + (0, 3)) - ((0, 4) + (0, 3)) = (1, 0).$$

So the integration of Yang and Yin is (1, 0) as Yang wood, namely **Wood in the willow tree** (杨柳木).

For JiaShen and YiYou, the group elements of JiaShen are (1, 0) and the synthesized (1, 4) of (1, 3), (1, 4) and (1, 2) and the group elements of YiYou are (0, 0) and the synthesized (0, 3) of (0, 3). Since all elements (1, 0), (1, 4), (0, 0) and (0, 3) are not significant as abnormal, so can combine both sides respectively. There are

$$((1, 0) + (1, 4)) - (0, 0) = (0, 4), ((1, 0) + (1, 2)) - (0, 3) = (0, 4),$$

$$((1, 3) + (1, 4)) - (0, 3) = (0, 4).$$

So the integration of Yang and Yin is (0, 4) as Yin water, namely **Water in the spring** (泉中水).

For BingXu and DingHai, the group elements of BingXu are (1, 1) and the synthesized (1, 1) of (0, 3), (1, 2) and (0, 1), and the group elements of DingHai are (0, 1) and the synthesized (0, 4) of (1, 4) and (1, 0). The group elements of

BingXu can be merged as (1, 1). Since the element (1, 1) is significant as normal, so can synthesize both sides based on (1, 1). There is

$$((1,1)+(1,1))+((0,1)+(0,4))=(0,2).$$

So the integration of Yang and Yin is (0, 2) as Yin earth, namely **Soil on the house** (屋上土).

For WuZi and JiChou, the group elements of WuZi are (1, 2) and the synthesized (0, 4) of (0, 4), and the group elements of JiChou are (0, 2) and the synthesized (0, 4) of (0, 2), (0, 4) and (0, 3). The earthly branches can be merged as (0, 4). Since the element (0, 4) is significant as normal, so both sides can be synthesized based on (0, 4) by using heavenly stems and earthly branches respectively. There are

$$(1,2)+(0,4)=(1,1), (0,4)+(0,2)=(0,1).$$

So the integration of Yang and Yin is (1, 1) or (1, 0) as Yang or Yin fire, namely **Fire from the blue fire** (霹雳火).

For GengYin and XinMao, the group elements of GengYin are (1, 3) and the synthesized (1, 3) of (1, 0), (1, 1) and (1, 2), and the group elements of XinMao are (0, 3) and the synthesized (0, 0) of (0, 0). The group elements of GengYin can be merged as (1, 3). Since the element (1, 3) of one side GengYin is too significant as abnormal and the element (0, 3) of the other side also be significant by helping of (0, 0), the Wu Xing attributes on both sides are the same, and the same Wu Xing attributes cancel each other out as abnormal, so you can combine both sides. There is

$$(1,3)-((0,3)+(0,0))=(1,0).$$

So the integration of Yang and Yin is (1, 0) as Yang wood, namely **Wood in the pine tree** (松柏木).

For RenChen and GuiSi, the group elements of RenChen are (1, 4) and the synthesized (1, 1) of (0, 0), (1, 2) and (0, 4), and the group elements of GuiSi are (0, 4) and the synthesized (1, 1) of (1, 1), (1, 3) and (1, 2). The earthly branches can be merged as (1, 1). Since the elements (1, 1) and (0, 4) are significant as normal, so both sides can be synthesized based on (1, 1) and (0, 4) respectively. There are

$$((1,4)+(1,1))+(0,4)=(0,4), (1,4)+((0,4)+(1,1))=(0,4).$$

So the integration of Yang and Yin is (0, 4) as Yin water, namely **Water in the usual running** (常流水).

For JiaWu and YiWei, the group elements of JiaWu are (1, 0) and the synthesized (0, 3) of (0, 1) and (0, 2) and the group elements of YiWei are (0, 0) and the synthesized (0, 3) of (0, 1), (0, 2) and (0, 0). The earthly branches can be merged as (0, 3). Since the element (0, 0) is significant as normal, so the both sides can be synthesized based on (0, 0) by crossing earthly branches and heavenly stems respectively. There are

$$((0,1)+(0,2))+(0,0)=(0,3), (1,0)+((0,3)+(0,0))=(1,3).$$

So the integration of Yang and Yin is (0, 3) or (1, 3) as Yin or Yang metal, namely **Gold in the sand** (沙中金).

For BingShen and DingYou, the group elements of BingShen are (1, 1) and the synthesized (1, 4) of (1, 3), (1, 4) and (1, 2), and the group elements of DingYou are (0, 1) and the synthesized (0, 3) of (0, 3). Since all elements (1, 1), (1, 4), (0, 1) and (0, 3) are balance and the synthesized of the group elements of BingShen (1, 1) and (1, 4) is (0, 0) as Yin, against its nature as abnormal, so both sides can be combined. There is

$$((1,1)+(1,4))-((0,1)+(0,3))=(0,1).$$

So the integration of Yang and Yin is (0, 1) as Yin fire, namely **Fire under the mountain** (山下火).

For WuXu and JiHai, the group elements of WuXu are (1, 2) and the synthesized (1, 1) of (0, 3), (1, 2) and (0, 1), and the group elements of JiHai are (0, 2) and the synthesized (0, 4) of (1, 4) and (1, 0). Since (1, 2) is significant as normal, so they can be synthesized mainly by (1, 2) and secondly by the earthly branches. There are

$$((1,2)+(1,1))+(0,2)=(0,0), (1,1)+(0,4)=(1,0).$$

So the integration of Yang and Yin is (0, 0) or (1, 0) as Yin or Yang wood, namely **Wood in the ground** (平地木).

For GengZi and XinChou, the group elements of GengZi are (1, 3) and the synthesized (0, 4) of (0, 4), and the group elements of XinChou are (0, 3) and the synthesized (0, 4) of (0, 2), (0, 4) and (0, 3). The earthly branches can be merged as (0, 4). Since the element (0, 4) is significant as normal, so the both sides can be synthesized by (0, 4) by crossing the heavenly stems and earthly branches respectively. There are

$$(1,3)+(0,4)=(1,2), (0,3)+(0,4)=(0,2).$$

So the integration of Yang and Yin is (1, 2) or (0, 2) as Yang or Yin earth, namely **Soil in a small wall** (壁上土).

For RenYin and GuiMao, the group elements of RenYin are (1, 4) and the synthesized (1, 3) of (1, 0), (1, 1) and (1, 2), and the group elements of GuiMao are (0, 4) and the synthesized (0, 0) of (0, 0). Since all elements (1, 4), (0, 4), (1, 3) and (0, 0) are balance as normal, so the both sides can be synthesized by heavenly stems and earthly branches respectively. There are

$$(1,4)+(0,4)=(1,3), (1,3)+(0,0)=(1,3).$$

So the integration of Yang and Yin is (1, 3) as Yang metal, namely **Gold in the gold foil** (金箔金).

For JiaChen and YiSi, the group elements of JiaChen are (1, 0) and the synthesized (1, 1) of (0, 0), (1, 2) and (0, 4), and the group elements of YiSi (0, 0) and the synthesized (1, 1) of (1, 1), (1, 3) and (1, 2). The earthly branches can be

merged as (1, 1). Since the element (1, 1) is significant as normal, so the both sides can be synthesized based on (1, 1) by crossing the earthly branches and heavenly stems respectively. There are

$$((1,0)+(1,1))+(0,0)=(0,1), (1,0)+(1,1)=(0,1).$$

So the integration of Yang and Yin is (0, 1) as Yin fire, namely **Fire in Buddha's lights** (佛灯火).

For BingWu and DingWei, the group elements of BingWu are (1, 1) and the synthesized (0, 3) of (0, 1) and (0, 2), and the group elements of DingWei (0, 1) and the synthesized (0, 3) of (0, 1), (0, 2) and (0, 0). The earthly branches are merged on both sides as (0, 3). Since (0, 3) is significant as normal, so the both sides can be synthesized based on (0, 3) by the heavenly stems Ding (0, 1) and Bing (1, 1) respectively. There are

$$(0,3)+(0,1)=(0,4), (1,1)+(0,3)=(1,4).$$

So the integration of Yang and Yin is (0, 4) or (1, 4) as Yin or Yang water, namely **Water in the sky of river** (天河水).

For WuShen and JiYou, the group elements of WuShen are (1, 2) and the synthesized (1, 4) of (1, 3), (1, 4) and (1, 2), and the group elements of JiYou (0, 2) and the synthesized (0, 3) of (0, 3). Since the element (1, 2) is significant as normal, so they can be synthesized mainly by (1, 2) and secondly by the earthly branches. There are

$$(1,2)+((0,2)+(0,3))=(1,2), (1,4)+(0,3)=(1,2).$$

So the integration of Yang and Yin is (1, 2) as Yang earth, namely **Soil in the great post** (大驿土).

For GengXu and XinHai, the group elements of GengXu are (1, 3) and the synthesized (1, 1) of (0, 3), (1, 2) and (0, 1), and the group elements of XinHai (0, 3) and the synthesized (0, 4) of (1, 4) and (1, 0). Since the element (0, 3) is significant as easy, so the both sides can be merged by (0, 3) and synthesized by (0, 4). There are

$$\frac{1}{3}\{(0,3)\} \cup \{(0,3)\} = \frac{4}{3}\{(0,3)\}, ((1,3)+(1,1))+(0,4)=(0,3).$$

So the integration of Yang and Yin is (0, 3) as Yin metal, namely **Gold in the jewelry of women** (钗钏金).

For RenZi and GuiChou, the group elements of RenZi are (1, 4) and the synthesized (0, 4) of (0, 4), and the group elements of GuiChou (0, 4) and the synthesized (0, 4) of (0, 2), (0, 4) and (0, 3). The earthly branches can be merged as (0, 4). The group elements of GuiChou can also be merged as (0, 4). Since (0, 4) is too significant, extremes meet the reverse as abnormal, so can combine the both sides. There is

$$((1,4)+(0,4))-((0,4)+(0,4))=(1,0).$$

So the integration of Yang and Yin is (1, 0) as Yang wood, namely **Wood in**

the sang cudrania tricuspidata (桑柘木).

For JiaYin and YiMao, the group elements of JiaYin are (1, 0) and the synthesized (1, 3) of (1, 0), (1, 1) and (1, 2), and the group elements of YiMao (0, 0) and the synthesized (0, 0) of (0, 0). Since (0, 0) is most significantly and (1, 0) is also significant, extremes meet the reverse as abnormal, the weakest element will be stronger. Here, the weakest element is (0, 4), so it will be stronger. So they can be combined. There is

$$-((1,0)+(1,1))+((0,0)+(0,0))=(0,4).$$

So the integration of Yang and Yin is (0, 4) as Yin water, namely **Water in the large streams** (大溪水).

For BingChen and DingSi, the group elements of BingChen are (1, 1) and the synthesized (1, 1) of (0, 0), (1, 2) and (0, 4), and the group elements of DingSi (0, 1) and the synthesized (1, 1) of (1, 1), (1, 3) and (1, 2). The earthly branches can be merged as (1, 1). Since (1, 1) is significant as normal, so the both sides can be synthesized based on (1, 1) by crossing the heavenly stems and earthly branches respectively. There are

$$(1,1)+(0,1)=(1,2), (1,1)+(1,1)=(0,2).$$

So the integration of Yang and Yin is (1, 2) or (0, 2) as Yang or Yin earth, namely **Earth in the sand** (沙中土).

For WuWu and JiWei, the group elements of WuWu are (1, 2) and the synthesized (0, 3) of (0, 1) and (0, 2), and the group elements of JiWei (0, 2) and the synthesized (0, 3) of (0, 1), (0, 2) and (0, 0). The earthly branches are merged as (0, 3). Since the element (0, 2) is too significant, extremes meet the reverse as abnormal, so they can be combined mainly by (0, 2) and secondly by the heavenly stem Wu (1, 2). There are

$$(0,3)-(0,2)=(0,1), (0,3)-(1,2)=(1,1).$$

So the integration of Yang and Yin is (0, 1) or (1, 1) as Yin or Yang fire, namely **Fire in the sky** (天上火).

For GengShen and XinYou, the group elements of GengShen are (1, 3) and the synthesized (1, 4) of (1, 3), (1, 4) and (1, 2), and the group elements of XinYou (0, 3) and the synthesized (0, 3) of (0, 3). The group elements of XinYou can be merged as (0, 3). Since the element (0, 3) is too significant as abnormal and the element (1, 3) is significant as normal, extremes meet the reverse as abnormal, so they can be combined and synthesized by (0, 3) and (1, 3) respectively. There are

$$(1,3)-(0,3)=(1,0), ((1,3)+(1,4))+(0,3)=(0,0).$$

So the integration of Yang and Yin is (1, 0) or (0, 0) as Yang or Yin wood, namely **Wood in the pomegranate** (石榴木).

For RenXu and GuiHai, the group elements of RenXu are (1, 4) and the synthesized (0, 1) of (0, 3), (1, 2) and (0, 1), and the group elements of GuiHai (0, 4) and the synthesized (0, 4) of (1, 4) and (1, 0). The group elements of GuiHai can

be merged as (0, 4). Since (1, 4) is in Yang Yin significantly on both sides as easy and the element (0, 4) is significant as normal, so can merge both sides strength, also can synthesize them based on (0, 4). There are

$$\{(1, 4)\} \cup \frac{1}{3}\{(1, 4)\} = \frac{4}{3}\{(1, 4)\}, ((1, 4) + (0, 1)) + (0, 4) = (1, 4).$$

So the integration of Yang and Yin is (1, 4) as Yang water, namely **Water in the ocean** (大洋水). It completes the proof. #

Proof of Theorem 4.3. By the relations between Sixty JiaZi and eight palaces in Definition 3.2, the numbers of Six JiaZi can be calculated.

By Property 3.2, for the Sixty JiaZi numbers, the mathematical meaning can be obtained by using the philosophy meaning, the state of Ten heavenly stems in Twelve earthly branches, good or bad lucky, comprehensive names, etc..

1) The Yang or Yin attribute of Sixty JiaZi numbers in **Table 1** is an attribute of universality and rationality.,

Whatch **Table 1**, its attribute is the force of the *Tao* in its ten heavenly stems of Sixty JiaZi.

Because the ten heavenly stems in Sixty JiaZi names plays an important role, and because the *Tao* force in mathematical names of ten heavenly stems also plays an important role, therefore, the *Tao* force attribute in mathematical names of ten heavenly stems of Sixty JiaZi name should be the attribute of corresponding Sixty JiaZi number. It is an attribute of universality and rationality.

According to the general rules of TCM, attribute Yang is easy to produce real disease, while attribute Yin is easy to produce virtual disease.

Thus, the Yang or Yin attribute of Sixty JiaZi numbers in **Table 1** can be used to predict the real disease or the virtual disease in the momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, Yang is real, Yin is virtual.

2) The state of Ten heavenly stems in twelve earthly branches of Sixty JiaZi in **Table 3** is a state of universality and rationality.

In fact, by Definition 3.3, Property 3.1 and Table 1 and Table 2 in Zhang [23], the state of Ten heavenly stems in twelve earthly branches of Sixty JiaZi is respectively, 1grow (长), 2bath (沐), 3crown (冠), 4officer (官), 5emperor (帝), 6decay (衰), 7disease (病), 8death (死) 9tomb (墓), 10extinction (绝), 11child (胎), 12raise (养).

The logic relationship between Ten heavenly stems and Twelve earthly branches is reasonable and has universality.

Furthermore, whatch **Table A1** and **Table A2**, the rationality of the logic relationship between Ten heavenly stems and Twelve earthly branches can be proved. The proof of these results is similar to that of Property 3.1 in Zhang [23].

Thus, the state of Ten heavenly stems in twelve earthly branches of Sixty JiaZi in **Table 3** can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, growing is good, tomb is bad.

Table A1. Ten heavenly stems grow-strong-die-extinction (I).

	1grow (长)	2bath (沐)	3crown (冠)	4officer (官)	5emperor (帝)	6decay (衰)	7disease (病)	8death (死)	9tomb (墓)	10extinction (绝)	11child (胎)	12raise (养)
1Jia (甲)	12Hai (亥)	1Zi (子)	2Chou (丑)	3Yin (寅)	4Mao (卯)	5Chen (辰)	6Si (巳)	7Wu (午)	8Wei (未)	9Shen (申)	10You (酉)	11Xu (戌)
3Bing (丙)	3Yin (寅)	4Mao (卯)	5Chen (辰)	6Si (巳)	7Wu (午)	8Wei (未)	9Shen (申)	10You (酉)	11Xu (戌)	12Hai (亥)	1Zi (子)	2Chou (丑)
5Wu (戊)	3Yin (寅)	4Mao (卯)	5Chen (辰)	6Si (巳)	7Wu (午)	8Wei (未)	9Shen (申)	10You (酉)	11Xu (戌)	12Hai (亥)	1Zi (子)	2Chou (丑)
7Geng (庚)	6Si (巳)	7Wu (午)	8Wei (未)	9Shen (申)	10You (酉)	11Xu (戌)	12Hai (亥)	1Zi (子)	2Chou (丑)	3Yin (寅)	4Mao (卯)	5Chen (辰)
9Ren (壬)	9Shen (申)	10You (酉)	11Xu (戌)	12Hai (亥)	1Zi (子)	2Chou (丑)	3Yin (寅)	4Mao (卯)	5Chen (辰)	6Si (巳)	7Wu (午)	8Wei (未)
2Yi (乙)	7Wu (午)	6Si (巳)	5Chen (辰)	4Mao (卯)	3Yin (寅)	2Chou (丑)	1Zi (子)	12Hai (亥)	11Xu (戌)	10You (酉)	9Shen (申)	8Wei (未)
4Ding (丁)	10You (酉)	9Shen (申)	8Wei (未)	7Wu (午)	6Si (巳)	5Chen (辰)	4Mao (卯)	3Yin (寅)	2Chou (丑)	1Zi (子)	12Hai (亥)	11Xu (戌)
6Ji (己)	10You (酉)	9Shen (申)	8Wei (未)	7Wu (午)	6Si (巳)	5Chen (辰)	4Mao (卯)	3Yin (寅)	2Chou (丑)	1Zi (子)	12Hai (亥)	11Xu (戌)
8Xin (辛)	1Zi (子)	12Hai (亥)	11Xu (戌)	10You (酉)	9Shen (申)	8Wei (未)	7Wu (午)	6Si (巳)	5Chen (辰)	4Mao (卯)	3Yin (寅)	2Chou (丑)
10Gui (癸)	4Mao (卯)	3Yin (寅)	2Chou (丑)	1Zi (子)	12Hai (亥)	11Xu (戌)	10You (酉)	9Shen (申)	8Wei (未)	7Wu (午)	6Si (巳)	5Chen (辰)

Table A2. Ten heavenly stems grow-strong-die-extinction (II).

	1Zi (子)	2Chou (丑)	3Yin (寅)	4Mao (卯)	5Chen (辰)	6Si (巳)	7Wu (午)	8Wei (未)	9Shen (申)	10You (酉)	11Xu (戌)	12Hai (亥)
1Jia (甲)	2bath (沐)	3crown (冠)	4officer (官)	5emperor (帝)	6decay (衰)	7disease (病)	8death (死)	9tomb (墓)	10extinction (绝)	11child (胎)	12raise (养)	1grow (长)
3Bing (丙)	11child (胎)	12raise (养)	1grow (长)	2bath (沐)	3crown (冠)	4officer (官)	5emperor (帝)	6decay (衰)	7disease (病)	8death (死)	9tomb (墓)	10extinction (绝)
5Wu (戊)	11child (胎)	12raise (养)	1grow (长)	2bath (沐)	3crown (冠)	4officer (官)	5emperor (帝)	6decay (衰)	7disease (病)	8death (死)	9tomb (墓)	10extinction (绝)
7Geng (庚)	8death (死)	9tomb (墓)	10extinction (绝)	11child (胎)	12raise (养)	1grow (长)	2bath (沐)	3crown (冠)	4officer (官)	5emperor (帝)	6decay (衰)	7disease (病)
9Ren (壬)	5emperor (帝)	6decay (衰)	7disease (病)	8death (死)	9tomb (墓)	10extinction (绝)	11child (胎)	12raise (养)	1grow (长)	2bath (沐)	3crown (冠)	4officer (官)
2Yi (乙)	7disease (病)	6decay (衰)	5emperor (帝)	4officer (官)	3crown (冠)	2bath (沐)	1grow (长)	12raise (养)	11child (胎)	10extinction (绝)	9tomb (墓)	8death (死)
4Ding (丁)	10extinction (绝)	9tomb (墓)	8death (死)	7disease (病)	6decay (衰)	5emperor (帝)	4officer (官)	3crown (冠)	2bath (沐)	1grow (长)	12raise (养)	11child (胎)
6Ji (己)	10extinction (绝)	9tomb (墓)	8death (死)	7disease (病)	6decay (衰)	5emperor (帝)	4officer (官)	3crown (冠)	2bath (沐)	1grow (长)	12raise (养)	11child (胎)
8Xin (辛)	1grow (长)	12raise (养)	11child (胎)	10extinction (绝)	9tomb (墓)	8death (死)	7disease (病)	6decay (衰)	5emperor (帝)	4officer (官)	3crown (冠)	2bath (沐)
10Gui (癸)	4officer (官)	3crown (冠)	2bath (沐)	1grow (长)	12raise (养)	11child (胎)	10extinction (绝)	9tomb (墓)	8death (死)	7disease (病)	6decay (衰)	5emperor (帝)

3) The comprehensive name of Sixty JiaZi in **Table 3** and **Table 4** is from the proof of Property 3.2. It comes from the logic operation of all ten heavenly stems (include ten heavenly hidden behind the twelve earthly branches), such as merge, synthesize and combine. It follows the rule of low cost. Any nature material activity follows the principle of maximizing so energy or minimizing the cost. Therefore, the comprehensive name of Sixty JiaZi in **Table 3** and **Table 4** is a name of universality and rationality which conforms the idea of thinking.

Thus, the comprehensive name of Sixty JiaZi in **Table 3** and **Table 4** can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, the name as Wood_in_the_big_tree (大林木) is good, the name as Fire_in_the_sky (天上火) is bad.

4) The philosophical meaning of Sixty JiaZi numbers in **Table 4** is from the comprehensive name of Sixty JiaZi in **Table 3** and **Table 4** and the Yang or Yin attribute of Sixty JiaZi numbers in **Table 1**. Because the comprehensive name and the Yang or Yin attribute are widespread and reasonable, so is the philosophical meaning. Therefore, the philosophical meaning of Sixty JiaZi in **Table 4** is also a name of universality and rationality which conforms the idea of thinking.

Thus, the philosophical meaning of Sixty JiaZi in **Table 4** can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, hope is good, lazy is bad.

5) The good or bad lucky of Sixty JiaZi numbers in **Table 3** and **Table 4** is also from the philosophical meaning of Sixty JiaZi numbers, the comprehensive name of Sixty JiaZi numbers in **Table 3** and **Table 4** and the Yang or Yin attribute of Sixty JiaZi numbers in **Table 1**. Because the philosophical meaning, the comprehensive name and the Yang or Yin attribute are widespread and reasonable, so is the philosophical meaning. Therefore, the good or bad lucky of Sixty JiaZi number in **Table 4** is also a name of universality and rationality which conforms the idea of thinking.

Thus, the good or bad lucky of Sixty JiaZi in **Table 3** and **Table 4** can be used to predict the good or bad momentum of development corresponding to the sick subsystem of a steady multilateral system. In general, lucky or plat is good, fierce is bad. It completes the proof.#