COGNITIVE & EXPERIMENTAL PSYCHOLOGY | RESEARCH ARTICLE

SPACE, TIME and NUMBER as a holistic unity in the Yijing

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Abstract: The holistic view (or systematic thinking) of the Yijing (here Yijing refers to the original text in the ancient Chinese Daoist work The Book of Changes) is representative of the philosophical worldview in ancient China, which can reveal the interactive relationship between space, time and number. This study attempts to analyze and summarize human spatial, temporal and numeral processing from the aspects of the linguistic and cultural quantitative system for the three domains, contributing an original cognitive linguistic perspective on the holistic thinking typifying the worldview in ancient China and laying a foundation for further research. It argues that SPACE, TIME and NUMBER are not separated, but a holistic unity (or wholeness), they can be considered as one single domain. In ancient Chinese culture, the three domains cannot be separate, they should be integrated into the “growth of life experience”, which is based on the MOTION metaphor and LIFE metaphor of the Yijing. The results of the corpus study of the Yijing text indicate that in this particular context of the Yijing, concepts in the domains of SPACE, TIME and NUMBER are schematized on the basis of further metaphorical extensions of concepts from the source of LIFE and MOTION.

Subjects: Language & Linguistics; Translation & Interpretation; Historical & Comparative Linguistics; Linguistic Theory

Keywords: space; time; number; Yijing; holistic unity

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PUBLIC INTEREST STATEMENT

How do different languages and cultures represent and conceptualize space, time and number? This is a common and complex topic in recent research. In the West, linguistics and cognitive science scholars have treated space, time and number as a distinct domain. Maybe this is because of the influence of the discipline of Newtonian Physics (Contemporary physics has no longer hold this view), which has historically considered space and time as separate. This study can maintain people’s focus on the cultural difference among the relationship between space, time and number, which will amplify and justify the contention that the three domains are different aspects of the same one, holistic unity in conception by applying the analytic method to these texts also, and by reading deeply in the modern and ancient commentaries on the sources of Daoism.
1. Introduction

Domains are cognitive entities. SPACE, TIME and NUMBER are three domains in human’s cognition. Temporal, spatial and numeral representation could be closely related to the primate’s cognitive system (e.g., Oliveri et al., 2008). How do different languages and cultures represent and conceptualize space, time and number? This is a common and complex topic in recent research.

In the past there were two main theories proposed in explaining the relationship between spatial, temporal and numeral representations. One is called A Theory of Magnitude (ATOM). The studies in human and nonhuman primates can support for this theory, which shows the different magnitudes like space, time, number, and size are associated (Bueti & Walsh, 2009; Walsh, 2003). The Conceptual Metaphor Theory (CMT) is the other theory (Lakoff & Johnson, 1980a, 1999), which centers on the notion that abstract domains like time or numbers are always considered as target domains, space as source domain is mapped onto more concrete domains. Gallistell and Gelman (2000) noted that the standard laws of arithmetic provide formal operations into very abstract notions like space, time and number from a mathematical point of view. Dehaene and Brannon (2011: 355–361) explored and found the commonalities between representations of space, time and number.

Especially, much of past research supports the idea that “Number (mathematics) can be a tool for time and space measurement”. For example, Jami (1995: 169) showed us time and space measurement appear con-substantial with mathematics. The counting, arithmetic, and the measurement of space and time can be supported by the various number system concepts (Condry & Spelke, 2008: 22).

The concept of time in Chinese culture is different from that of Western culture (e.g., Yu’s study in Yu, 1998, 2012). Yu’s study about the conception of time in (Yu, 1998) is the representative of the Chinese view; Heidegger’s view of time (1962: 1–10) focuses more on the future, on the possibility of the future, and on the inevitable death in the future. In the Yijing, the three domains of space, time and number are always combined together, which can demonstrate the state of the process of cosmic change, thus predicting one’s personal fate, national destiny, agricultural production, and so on. This notion of change is mainly based on metaphors for the experience of growth.

It has been argued that Chinese way of thinking is the collective way of thinking. Chinese people have the habit of integrating everything in terms of ancient Chinese philosophy, which manifests in yin yang thinking (e.g., Wang’s study in R. R. Wang, 2012). This way of thinking stems from a particular concept of space that has profound connotations, which can be identified—The ancient Chinese understanding of time began with the observation of spatially objective things, especially the gestation, growth, proliferation and wilting of plants, and these observations are from the composition and elements of the hexagrams (W. B. Wang, 2019: 66–67). Xu (Xu, 2001: 5–10) believed that the world is considered as a wholeness; that there are multiple events happening in parallel at the same time; and that the relationship between things and events is not clear.

The holistic aspect of Chinese philosophy existed for a long time in ancient China. The origin of the Chinese nation’s overall thinking can be traced back to ancient society. The time concept or philosophy of time inherent to Chinese philosophy should be traced back to the Yijing. Generally speaking, Yijing can be traced back to Western Zhou Dynasty, this book is mainly used as references for the activities of divination in the ancient. When the Yijing appeared and was compiled, its overall observation of the world had become a special way of thinking (W. B. Wang, 2019: 87–88). The Yijing is made up of 64 hexagrams, each hexagram includes gua and yao statement, take the Gen 艮 hexagram, for example:

(1) 艮其背，不获其身，行其庭，不见其人。

Gēn qí bèi, bù huò qí shēn, xíng qí tíng, bù jiàn qí rén.
Gen its back, NEG gain its body, walk its courtyard, NEG see its person.’

When one’s resting is like that of the back, and he loses all consciousness of self; when he walks in his courtyard, and does not see any (of the persons) in it, there will be no error. (The 1 Ching, or Book of Changes—Yi Jing 1. 08. Baynes & Wilhelm, 1997. All the following examples’ translations are from the same source, omitting full citations but specifying the location in the text.)

If you only notice the back of the human body without taking care of the whole body, it is like walking into a courtyard without seeing the host. Normally, for a visitor, meeting the host is the purpose of a visit, and entering the courtyard is just the means or process. This hexagram uses “only noticing the back of the human body without taking care of the whole body”, and “walking into the courtyard without seeing the host” as metaphors for focusing on the part and ignoring the whole.

Understanding and grasping the world as a whole is the basic worldview and methodology of the Han people (He & Wang, 2014). This way of thinking was formed as early as the Yi Jing era, and the Gen hexagram of the Yi Jing reflects the idea of treating the whole as the essence and purpose of things (Liu, 2011: 46). The yao statement of the Gen hexagram also reveals the whole idea—including, for example, some expressions like “fei 腿 (leg calf), xian 腰 (waist), shen 身 (body/chest and abdomen), fu 脸 (face), dun 首 (head, forehead)”. The six yao comprise a wholeness, indicating that all the organs of the human body, especially those parts that are essential for motor function, must be taken care of (Liu, 2011: 46).

The overall view of the universe in the Yi Jing is an important topic. For example, the ancient people had the embodied experience of “taking from the body nearby, and from natural things far away” (Jin qu zhu shen, yuan qu zhu wu. 近取诸身, 远取诸物). Human beings in ancient times informed, imagined and represented the external world in terms of their own cognition of distant, complex, strange and abstract things through their physical bodies. Thus, human’s cognitive activities were rooted in daily physical experience (W. B. Wang, 2019: 172). The physical experiences of different nations are convergent (surely, there is also variation).

The holistic view is a way of thinking that is biased towards spatial speculation. This is consistent with the overall grasp of the natural world expressed in Chinese texts. Western philosophers such as Descartes, Hegel, Kant, Husser, Heidegger, and others all emphasize the temporal nature of things (W. B. Wang, 2019: 307). There is a tendency for Chinese philosophy, that is, taking a holistic perspective is articulated in different conceptions of the “whole”.

In ancient China, there is a particular cognition of SPACE, TIME and NUMBER. That is, SPACE, TIME and NUMBER in classical Chinese thought are three different aspects of an integrated domain. The reason for this is precisely that the Yi Jing is a symbolic cognitive artefact, as well as being a text. It has a use in divination. What we suppose in the Yi Jing is that SPACE, TIME and NUMBER are not the three separate domains, perhaps each domain can be conceptualised via another domain, or they can be considered as a single domain.

In Western logic, as represented by Lakoff & Johnson, 1980a, Lakoff & Johnson, 1999), space is more fundamental than time. However, the concept of time and space in the Yi Jing was against the space-time metaphor. At that time, people’s thinking mode characteristics were characterized by lifelike, time and space as holistic unity, and overall thinking. Since ancient times, scholars had been paying more attention to the holistic view of ancient China.
In ancient Chinese philosophy, the universe is a unity that is based on principles which apply to both the heaven and human beings, society, human body and everything (e.g., Cheng, 1977, 2003). This study has already come up with similar observations in the Yijing in terms of the research questions, which can make it a more significant contribution compared to Cheng (1977), Cheng (2003). This study’s finding is that space, time and number in the Yijing are a single domain and organized by a way of thinking about life and growth experience in certain ways, which can be manifested in living beings, celestial bodies, perhaps in society, too. However, there are still some unsolved questions in the Yijing, and it is attempted to answer the following questions: How do the ancient Chinese languages and cultures represent and conceptualize space, time and number? And are the three areas three aspects of a single domain based on life and growth experience?

The past research (e.g., Bueti’s studies in Bueti & Walsh, 2009) related to space, time and number studies are lack of evidence from ancient Chinese, especially few of them (e.g., Wang’s study in W. B. Wang, 2019) explore the Yijing text. In this paper, it addresses the topic in relation to ancient Chinese thought and language, based upon analysis of the classical Yijing text. To explore the cognition-culture interface, it is better to use the Yijing text as a corpus to investigate the conceptualization and representation of space, time and number, to explore cognitive and cultural construals of real-world experience.

2. Materials and method

2.1. Brief introduction of jing text

The Yijing is the “head” or first of the Five Classics of Confucianism. It can be regarded as the original or classical source of the Chinese culture and philosophy. The themes of the Yijing cover agricultural production, social reform, natural science, ethics, military, business travel, wedding customs and sacrifices. The Yijing is an ancient text which consists of two main parts: the symbolic system (symbols) and the language system (characters). The Yijing includes the ancient core text—jing text and the complete classic with commentaries from later periods.

The Yijing consists of 64 hexagrams with seven lines in each hexagram, except the first two which have eight lines. The total number of lines is 450. The word “hexagram” refers to the famous 64 guaxiang (images of six lines), but it also refers to the 64 verses of seven or eight lines of text that are associated with the lines. The “—” and “-” can be considered as the two basic numeral symbols in the Yijing, they can represent the knowledge of changes in the universe. Bagua (eight trigrams) is made up of three whole horizontal lines (yang yao阴爻) and three broken lines (yin yao阳爻). In this way, eight trigrams are given their names, that is, ☰ Qian, ☰ Kun, ☰ Xin, ☰ Zhen, ☰ Kan, ☰ Li, ☰ Dui, and ☰ Gen. Hexagram is a linguistic symbol, a mathematical language symbol, and the oldest Chinese mathematical language. This is the result of a certain categorization. Space, time and number are not divided in terms of the basic experience of human being. It can be seen that the essence of the Yijing is to describe the life state of people in the order of time and space change, the change of everything, and the amount of calculation and measurement.

Sixty-four hexagrams of the Yijing are all based on a combination of different variations of the simple symbols. The core text of the Yijing is called Hexagram Judgments (gua ci卦辞) and Linear Judgments (yao ci爻辞). The six lines in one hexagram are called six yao, according to yin (the core symbol number is six) and yang (the core symbol number is nine), they can be divided into two kinds in general, one is called yin yao, from the below line to the above line are like the “chuliu first six or six in the first place, liu er second six or six in the second place, liu san third six or six in the third place, liu si fourth six or six in the fourth place, liu wu fifth six or six in the fifth place, shang liu topmost six or six at the top”, while yang yao is like “chu jiu first nine, jiu er second nine, jiu san third nine, jiu si fourth nine, jiu wu fifth nine, shang jiu topmost nine”. The symbolism of the trigrams (three lines figures)
composing each hexagram is the ancient Chinese method of the *Yijing* prediction. From the view of the symbolic structure of *guayao*, there is order, space, and quantity. It is to show the representation of space, time and number as a whole, which is based on the overall view of growth experience.

The changing relationship of numbers and *bagua* overlapped and formed into the 64 hexagrams, all reflect the relationship and changes of objective things. The hexagrams themselves are records of divination and part of divination. The divination things are specific, and the results of divination are the special reference.

The 64 hexagrams of the *Yijing* can be regarded as an infinite loop process that is continuously flipped and transformed by six *yaocis* combinations. Chinese characters and Chinese paintings are also displayed in 64 hexagrams of the *Yijing*. The beginning of each hexagram is *guaxiang*, and the back is *guaci* and *yaoci*. The *guaxiang* is a description of the image, and the *guayao* statements are an abstract expression.

The corpus in this paper is mainly Jing Text (*jingwen*经文), including 450 statements of 64 hexagrams (every hexagram consists of one *guaci* and six *yaoci*, except for seven *yaoci*, e.g., *Qian*乾 and *Kun*坤).

2.2. Method

The Shanghai Museum version of the *Yijing* compiled by Pu (2014) is the earliest one, as the main reference text in Chinese (there are other classical texts), in-depth analysis and research of these numeral words not only help readers to understand the language characteristics of the *Yijing* text, but also help them to trace the language profile of ancient Chinese. This study uses the *Yijing* as a language corpus.

The main method of this study is descriptive qualitative (interpretation of these examples in the Leipzig Glossing Rules), combining with concordance and collocation analysis by using corpus. All chosen examples, in particular the third and fourth lines in them (they can help us see how this glossing contributes to the main argument), are used to do qualitative analysis via the Leipzig Glossing Rules in this study. This study mainly uses BFSU PowerConc to concordance the keywords. Also, in corpus linguistics terms, the nodes/keywords are about the words or phrases related to space, time and number.

3. Result and discussion

The Chinese character *Yi* 屙 refers to the moon and the sun, when people talk about the motion of the moon and the sun (the *Yijing* is taking an anthropocentric perspective), they will naturally mention the time and space. This attribute is represented by the symbolic hexagram of the *Yijing*, the hexagram in the *Yijing* has the features of space and time, which can be considered as the features of Chinese cultural development.

3.1. Linguistic and cultural conceptualization of SPACE in the *Yijing*

3.1.1. Orientational concepts

The original spatial concept in a narrow sense can be treated as the orientational concept. Southwest, northeast, west, south and east (as the nodes that can search and identify their collocates) appear in hexagram judgments (*gua ci*卦辞) and linear judgments (*yaoci*爻辞) in the *Yijing*. When reading hexagram judgments and linear judgments, the orientational concept appear a lot, which can be the node for searching in the corpus. For example, in example (2) the node to search is *xinan*西南.
(2) 《解》卦辞: 利西南。无所往, 其来复, 吉。有攸往, 见吉。

Lì xīnán. Wú suǒ wǎng, qí lái fù, jí. Yǒu yōu wǎng, sù jí.
‘Benefit Southwestern. Nothing SUO go, it comes return, weal.
Have go towards, going soon weal.’

It is beneficial to go towards the southwest, if there is no place, then coming back will be good. When there is a place to go towards, going soon will be good. (The I Ching, or Book of Changes—Yì Jing I. 40)

And there is one explanation whatsoever as to what this study found after (and if) it chose the orientational concept, e.g., xīnán, to search in the corpus. That is, the original spatial concept in the Yijing often appears as the orientational forms.

3.1.2. Conceptualization of SPACE in Yijing culture

Every hexagram has six yao (six lines), and the yao’s position can be considered as a very special spatial concept in the Yijing. The bottom line is called “first” (chū初), the topmost line is “top” (shàng上), and the intervening lines are simply numbered “second” (èr 二), “third” (sān 三), “fourth” (sì 四), and “fifth” (wǔ 五). Why is this special? They are ordinal and cardinal numerals which can represent spatial concepts. “First” (chū初) is ordinal numeral which can express cardinal number “one”, while “top” (shàng上) is a specific positional concept which indicates the numeral notion “six” in terms of the rules of one hexagram. “First” and “top” correspond to the spatial relation of xià下 and shàng上. The divination system is closely related to the directions and numbers in the Yijing. “Second”, “third”, “fourth”, and “fifth” can represent east, west, south and north in terms of the divination system. “Second” and “fourth” are a pair, so if “second” represents east, then “fourth” will represent west in terms of the positional arrangement in the pictures of one hexagram. “Third” and “fifth” are another pair, so if “third” represents south, then “Fifth” will represent north. It can be found that the pair is decided by the odd number and even number.

The Yijing text also contains a lot of directional motion verbs. These often appear in pairs, such as wang lái 往来 (go and come), chu ru 出入 (exit and enter), jin tu 进退 (advance and retreat) and shàng xià 上下 (go up and down). Analysis of these directional motion verbs (from the perspectives of the deictic center, reference points, etc.) can help us probe into the special conceptualization of space in the Yijing. For example, in the Yijing, when an action or event is moving toward the speaker, the directional motion verb used tends to be lái “come”, and the deictic center is the speaker; when the action is moving away from the speaker, the directional motion verb used is wang “go”, and the deictic center is also the speaker. Wang “go” means to leave, there is no fixed connection with the deictic center. In any case, the verb lái is always deictic, while wang is not always deictic. The deictic pattern in which time of utterance is central is a linguistic universal, as far as we know from the Yijing text.

3.2. Linguistic and cultural conceptualization of TIME in the Yijing

The Yijing is a book of symbolic communication, personalized view of time exists (but usually time is not objectively accessible). There were three views concerning time: time is an irreversible succession of events starting from the past, through the present to the future (e.g., Yu, 2012). Time comes out of the future and moves to the past, and time begins in the present where the person is and then moves towards the past and future (Edward et al., 2002: 28, 35). Time and space are also related to the world of the Yijing, for the interplay of the Heaven and Earth manifests the interplay of time and space.

From the selected hexagram judgments (guo) and linear judgments (yao) in the previous chapter, it can be summarized that the time concepts in the Yijing: rì 日 (day), yue 月 (month),
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Six 
Gǔ
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can
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往来
can
represent
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concepts,
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as
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and
future
action,
as
this
chapter
describes.
For
example:

(3) 佝四: 裕父之蛊, 往见吝。
Gù liù sì:yù fù zhǐ gǔ, wàng jiàn lìn.
‘Six four, develop father MOD business, go and meet trouble.’

Fourth six, if you invest [what is actually] harmful ways of your father, you will meet deep regret. (The I Ching, or Book of Changes—Yi Jing I. 18.)

Here, wangjian 往见 (go and meet) represents the future meaning “will meet”. The use of “go” to express the future tense is common in languages worldwide. For some European languages, we can think of “I’m *going* to have a party tonight” in English, “Me *voy* a casar” [literally “I’m *going* to marry”] in Spanish, or “Je *vais* pleurer” [I’m going to cry] in French. They all use “go” to express the future tense. It is therefore worth providing some examples, indicating the exceptionality of Chinese in this sense. For instance, the form appears in Wei Zi 微子 of the Analects.

(4) 往者不可谏，来者犹可追。 《论语·微子》
Wàng zhě bù kě jiǎn, lái zhě yóu kě zhuī.
‘Those who go cannot be embarrassed, and those who come can still chase.’

As to the past, reproof is useless; but the future may still be provided against. (The Analects Wei Zi, English translation by James Legge, 1882/1964)

Here, wang “go” expresses past time, while lai “come” expresses future time. There are some motion verbs or expressions that are used for time. This study attempts to impose the view that there must be something exceptional in the other ancient texts that is not found elsewhere in other languages and cultures.
3.3. Linguistic and cultural conceptualization of NUMBER in the Yijing

Some cardinal numbers (e.g., one to ten, three hundred, yongjiu 用九, and yongliu 用六) and some ordinal numbers (e.g., chu jiù 初九, jiù er 九二, jiù san 九三, jiù si 九四, jiù wu 九五, shang jiù 上九; and chuliu 初六, liu er 六二, liu san 六三, liu si 六四, liu wu 六五, shang liu 上六) can be found in the Yijing. To some extent, the bagua (trigrams) and 64 hexagrams can be considered as a semiotics of counting.

In the Yijing, the yin yao 阴爻 are sequentially ordered as chuliu初六 (the first six), liu er六二 (the second six), liu san六三 (the third six), liu si六四 (the fourth six), liu wu 六五 (the fifth six), and shang liu 上六 (the topmost six), while the 阳爻yang yao are chu jiù初九 (the first nine), jiù er 九二 (the second nine), jiù san 九三 (the third nine), jiù si 九四 (the fourth nine), jiù wu 九五 (the fifth nine), and shang jiù上九 (the topmost nine).

Number system in the Yijing

The numerical notion yì— (one) appears four times in the Yijing. It is expressed through the following linguistic representations: yì che 一车 (one carriage), yì ren 一人 (one person), yì shì 一矢 (one arrow), and yì wò 一握 (one grip or grasp).

(5) 旅·六五: 射雉，一矢亡，终以誉命。
Lǚ·Liùwǔ: shè zhì, yīshǐ wáng, zhōng yǐ yù mìng.
‘Six five, shoot pheasant, one arrow death, ultimately get praise life.’

Fifth six, he shoots a pheasant. It drops with the first arrow. In the end this brings both praise and office. (The I Ching, or Book of Changes—Yi Jing I. 56.)

Er 二 (two) often appears at the beginning of yao ci (yao statements). For example, liu er 六二 and jiù er 九二. There is also one example from the other part of the yao ci:

(6) 贡卦辞: 捐, 有孚, 元吉, 无咎, 可贞, 利有攸往。曷之用二簋, 可用享。
Gòng guà cí: duān, yǒu fú, yuán jí, wú jiù, kě zhēn, lì yǒu yǒu wǎng, hé zhī yòng èr guì, kě yòng xiǎng.
‘Diminution, have enemy, Yuan auspicious, not have blame, could predict, suitable have AUX go towards. What ZHI use two vessel food, could use enjoy.’

Diminution. You captured enemies. It was auspicious from the beginning and no mistakes were made. The future could be predicted; it is suitable to go ahead. What shall we offer to the sacred? Two vessels of food. (The I Ching, or Book of Changes—Yi Jing I. 41.)

San 三 (three) is mainly used before temporal nouns in the Yijing. The linguistic representations are the following: sansui 三岁 (three years old), sannian 三年 (three years), and sanri 三日 (three days). Sansu 三数 (three sides) is a case of san being used before spatial nouns; sanren 三人 (three persons), sanhu 三狐 (three foxes) and sanpin 三品 (three kinds) are cases where it is used before other nouns. When placed before verbs, san mainly expresses times. For example: sanchi 三褫 (deprive three or many times), sanxi 三锡 (bestow three or many times), sanjie 三接 (meet three or many times) and sanjiu 三就 (three or many times can complete). Zai再 (again) and san三 (three) combine together, forming what can be considered a temporal adverb in ancient Chinese. For example, zai san du 再三渎 in the Yijing means “to importune two or three times”. Since the Yijing
era, people have continued to use san “three” to express years, ages and days. We can also identify this trend in the other ancient texts, such as the Shijing.

What is more, this study finds the other cultural number notion like ding鼎(tripod), which can indicate the numeral notion “three”, expressing stability, peaceful and good fortune in terms of tripod’s physical features.

Qi 七 (seven) appears three times, in the form of qiri 七日 (seven days). Ba八 (eight) appears once, in bayue八月 (August). Jiu九 (nine) appears once, in jiuling九陵 (nine hills). Shi 十 (ten) appears five times, in the form of shinián 十年 (ten years) and shipeng 十朋 (ten money units). Bai 百 (hundred) appears twice, in sanbaihu 三百户 (three hundred households), and baiwǔ百里 (a hundred miles). Yi亿 (100 million) appears twice, in yi sang bei亿丧贝 (lose billions of money) and yi wu sang 亿无丧 (not lose billions).

The three domains are closely related. From the above analysis, it can be found that some of the numerals appear with time expressions, while others do not, then it means that NUMBER is the same domain and the same thing as TIME and SPACE. The fact that linguistic proximity means identity is to be supported by literature. As far as we know, it is true that linguistic proximity may well indicate similarity—but not (necessarily) identity. For instance, in the example of shipeng 十朋 (ten money units), TIME and MONEY are linguistically realized via a number of collocations in various languages, but one can't say that TIME and MONEY are the same thing and they are one single domain and thus a holistic unit. Similarly, the expressions from the Yijing like “lose billions of money”, “ten money units”, “nine hills”, “a hundred miles” are similar, we still do not know where is the TIME domain here?

3.4. The relationship between the SPACE, TIME and NUMBER in ancient China

64 hexagrams in the Yi Jing can represent 64 different situations, that is, 64 kinds of temporal conceptualization. This can be named as the Humanistic Time Conception (Cheng, 1974): time representation in the Yi Jing can be seen as a fundamental property of human cognition, and space and number concepts are also represented in time.

In general, the 64 hexagrams represent the unity of SPACE, TIME and NUMBER in the universe. One hexagram consisting of six yao represents the unity of SPACE, TIME and NUMBER in the specific event. The positions of six yao are representations of NUMBER, not only indicating the places of the happening of the event, but the temporality of event development. NUMBER (rules in mathematics) can be a tool for TIME and SPACE measurement in the Yi Jing. For example:

(7) 零九三: 往蹇来反。
Jiàn jiù sān: wǎng jiǎn lái fǎn.
‘Nine three: Go difficulty come opposite.’
The third nine: You’ll meet a lot of difficulties to go there. You’d better come back. (The I Ching, or Book of Changes – Yi Jing I. 39.)

As mentioned above, here jiusán九三 (the third nine) can represent NUMBER, SPACE and TIME concepts. However, the number concept is the basis for itself (linguistic forms), and from the number concept the space concept (i.e., the position of each yao) and time concept (i.e., the sequence of event development) can be identified.

The holistic view holds that the three areas are three aspects of one unified domain or wholeness, rather than separate things. The bagua and the six yao are dynamic and cyclical process.
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From the sequence of the first to the last yao, the six yao represent the motion process of things from beginning to end. When things develop to the state in the top yao (i.e., the end of the process), they then return to the beginning yao and start a new round of motion. TIME and SPACE are unified, with time as the main factor, demonstrating a cyclical process of motion events.

The bagua and six yao contain both spatial and temporal factors. The bagua are made up of three lines, either whole or broken, arranged into different positions. The six yao are unfolded in sequence: the first yao is the origin, the top yao is the end, and the middle four yao are the body, showing a certain spatial structure. The cycle of development from weak to strong is another time process represented by the six yao. Meanwhile, the ancient Chinese used different numeral expressions to represent the six yao's positions and order, which helps us understand the unity of SPACE, TIME and NUMBER in the Yijing.

3.5. Time (shi) and Place (wei) in the Yijing

In searching for the "circle of life," or rather, endless life through the experience of time (Su, 2016: 193), each of the trigrams blends time and space in a complementary fashion, with time being the ultimate element decisive in adjudicating an evil or auspicious omen (Chan, 1963).

3.5.1. Time (shi) in the Yijing

64 hexagrams are included in the Yijing. Each hexagram represents the law of development (law here refers to the reasoning for the change from day to night; behind it is a dialectical reasoning), and "the change of one thing or one phenomenon in a certain background, which supplies an explanation for the meaning of this hexagram, it is called time" (Huang & Zhang, 2007: 463). Time was also mentioned in the appendix of Wilhelm's (R. Wilhelm, 1951: 385) translation. Similar to professor Zhang's, his definition is as follows: "The situation represented by the hexagram as a whole is called the time." The concept of time embodied in the Yijing is not only rooted in the foundation of the Yijing as a divination aid, but also the perception, understanding and thinking about time in the Spring and Autumn and Warring States periods. Wilhelm explains the relation between the concept of timeliness and the original meaning of the term. Time in its meaning was originally related to the consciousness of seasonal changes, creating the focus on timeliness in agricultural activities (Lai, 2008: 226). The core factor of time is event. Without an event, there can be no time. The basic point of view of cognitive linguistics is that time is an abstraction from an event. Time in the Yijing is also the events revealed by each hexagram statement.

According to this definition, we should not conceive of shi as the counterpart of time in English. Evans (2013: 55–78) provides definitions of different meanings in English of the word TIME. The meaning "duration" is relevant to shi here, but not equal. It seems that shi is used to designate a recurrent event relating to the sky and the ground. Shi is not an independent (individual) pure form of time. Shi is based on the careful observation of the changes of the sun, the moon and the stars in the universe, and the changes in the heavens and the earth. Shi is everywhere, inseparable, and universal. That is to say, the essence of all things in the universe is common and general. If there is no shi to participate in it, there will be no rich and varied things. Therefore, the reason why all things are all things is that shi makes them meaningful; shi is inseparable from everything and the movement or motion of everything; this is similar to the view of Lakoff and Johnson (1999).

Shi in the Yijing is different from metric time or time as such (Sinha et al., 2011), in that it is not the spatialization of time. Shi shows that TIME is in a more core position than SPACE. And shi can't be simply understood as pure time, because TIME, SPACE and things (including NUMBER) are all in one. Shi in the Yijing not only has the form of original time; it also encompasses rich and endless time content; it is polysemous.
The last two hexagrams of the *Yijing* are the 63rd hexagram *jiji* (after completion) and the 64th hexagram *weiji* (before completion). In both cases, the “flowing characteristics” of time are continuously extended to successive closures. Lai (Lai, 2008: 224–225) demonstrated that the eight trigrams (*bougua* 八卦) are useful for reckoning the past and knowing the future.

In the Western Zhou Dynasty, people did not have any real cultural activities like in modern times, but depended on the activities of divination. Divination was an important part of agricultural production and life in the Western Zhou. Divination usually emphasizes the future; hence, we can understand why the directional motion verbs in the *Yijing* always have a temporal usage. The concept of time in the *Yijing* is closely related to the concept of position. Because of temporal relationships, ancient people had to learn how to master the future. The future is beyond the present, the past has become the past, and the present is flowing and fleeting (Yu, 2012: 1345). Furthermore, it must be noted that the future has not yet arrived; divination can predict the future, including the experience of time. Time is complicated. The concept of “changing space to get time” (e.g., Lin, 1995: 89–113) was also very popular in ancient China, since the embodied experience of human interaction with the physical or spatial world was more crucial, the temporal concept was always conceptualized by spatial concept. For example, in the *Tai* 泰 hexagram, the trigram *Qian* 乾 is in the “down” position while the trigram *Kun* 坤 is in the “up” position. However, *Qian* usually represents heaven, which should be situated “up”, while *Kun* represents the earth, which should be situated “down”. 小大往来 (small go great come) in this hexagram indicates the change process through the spatial concept, using the directional motion verbs wang 往 (go) and lai 来 (come); the purpose is to enhance the temporal concept in terms of natural rules.

In summary, *shi* in the *Yijing* not only means TIME, but also encompasses the rich and endless content of time. In the *Yijing* TIME consciousness is easily expressed through the concept of SPACE (e.g., the position of the six *yao* can represent the time sequence of an event).

3.5.2. Place (位 wei) in the *Yijing*  
The notion of changing position to generate TIME is very important in the *Yijing*. In one hexagram, there are six places or lines, called *yao*爻. The first or lowest line stands for the beginning, and the last or top line is usually the end. The other four middle lines are more active. Lines are not always found in their usual position, because they must also conform with the situation indicated by the hexagram as a whole (Bai, 2013: 11–12).

Each hexagram has six *yao* (lines), from *chu* 初 (beginning) to *shang* 上 (up). This progression represents not only a rise in position, but also the gradual changing process of the TIME. Each hexagram simultaneously contains the symbolic meanings of TIME and SPACE.

In Chinese history, as well as Chinese philosophy, TIME is never treated as an abstraction, a concept, or a form; instead, it is always considered a property of life activities, creativity, generation, and the transformation of individual things. To observe time is to observe substantial happenings of the world. This also holds for the Chinese view of SPACE. The Chinese lack of concepts for abstract time and space is well compensated for by well-developed theories of the change and transformation of things. These can be found in the *Yijing* and the Daoist writings of Daodejing 道德經 and Zhuangzi 庄子. That time can enact and sustain these transformations only testifies to the fact that, for the Chinese philosopher, time is none other than the ultimate and comprehensive reality of all things in the world of change (Cheng, 1974: 155).

Ancient Chinese philosophy believed in the “dependence on time and space”, as manifest in the word *yuzhou* 宇宙 (universe). The word “universe” was used for the first time in the *Zhuangzi* 庄子 to express the philosophical view of the dynamic and static existence of an entity. It essentially reflects the relationship between space and time. The word is more focused on space, and demonstrates the
projection of the priority characteristics of spatial cognition onto other concepts such as time. Although “universe” was once a mixture of time and space, the two characters comprising it were framed with a “～”，representing space. This is not arbitrariness or coincidence in these ancient man-made characters. Further, in the word shijian 时间 (time), shi 时 is a pictophonetic character and jian 间 is a huiyi 会意 (comprehensible) character, but the word is also inseparable from the position and motion of the object ri 日 (sun) in space. Under the guidance of the philosophical view of “space and time as dependent”, “space over time”, the characteristics and evolution of Chinese Character formation naturally have the color of “showing time with space” (W. B. Wang, 2019: 202). The Mozi 墨子 describes how time and space are united in motion. Space and time are united in the motion of matter.

TIME and SPACE are the two fundamental characteristics of the universe. Numbers portray the quantitative relationships between everything in this universe, including TIME and SPACE. The notion of tianren heyi 天人合一 (the unity of Heaven and man) can be found in the Yijing. There is a spatial-temporal continuum in the Yijing, whereby the doctrine of yaowei 文位 implies the principles of shiwei 时位 (time-position); this is, a unitary conception of TIME and SPACE.

3.6. MOTION metaphor and GROWTH metaphor

Similarity is the basis for the understanding of metaphors. The metaphorical mode of thinking is the intrinsic core. Language is the metaphorical externality expression. The LIFE metaphor is closely related to the development of life and growth. The MOTION metaphor refers to metaphorizing time in terms of changing motion of things or activities. “Things” here refers to everything in the world, including people, animals and plants. MOTION metaphors can be derived into four categories: astronomical, meteorological, physical and human social events.

Each hexagram text includes the hexagram name (guaming 卦名), hexagram judgment (guaci 卦辞), linear title (yaoti 文題), and linear judgment (yaoci 文辭). The bagua and their symbolic meanings are all related to conceptual metaphor. Metaphor only considers the partial disregard of the whole and reflects the idea of treating the whole as the essence and the subject of the matter (Liu, 2011: 46).

Metaphor theory supports the idea that the relationship between time and space is asymmetric, since the representations of time depending on the degree of space are more numerous than the representations of space depending on the degree of time. The cycles of seasonal change are described in terms of a generative metaphor; the opposites “impel each other on” (Lai, 2008: 224).

The original method of recording time is characterized by the fact that most are not recorded by numbers, but the events. For the ancient people, TIME is a combination of events that are happening or have occurred. Although the ancient Chinese used the decimal system, one question remains unanswered: how did they count from one to ten?

The reason why the ancients interpreted the sequence of the six yao from the bottom up is that everything in the world, from the origin of life to growth, always goes from the lowest end to the highest end. This is just like the growth of a plant from under the soil in the ground. This kind of process is often accompanied by changes in motion, which also generates metaphors of motion. Our conceptualization of reality through language depends on motion a lot. Take the hexagram Qian for example:

(8) 《乾》: 元，亨，利，貞。

Yuān, hēng, lì, zhēn.

Qian (represents) what is great and originating, penetrating,
advantageous, correct and firm.

初九：潜龙勿用。
**Chū jiǔ:** Qián lóng wù yòng.
Beginning 9: A dragon at the bottom of the sea can’t be of any use.

**Metaphorical meaning:** Inactivity achieves nothing. Qian 潛

九二：见龙在田，利见大人。
**Jiǔèr:** Jiàn lóng zài tián, lì jiàn dàrén.
Second 9: A dragon is seen in the field. It is of benefit to see a great person.

**Metaphorical meaning:** Grasp possibilities. Jian 见 Zai 在

九三：君子终日乾乾，夕惕若，厉，无咎。
**Jiǔsān:** Jūnzǐ zhōngrì qián qián, xī tì ruò, lì, wú jiù.
Third 9: The wise person is active all day long, and is even on guard in the evening. It would seem this could be harmful but is in this case not a mistake.

**Metaphorical meaning:** At all times, be active. Qian 乾

九四：或跃在渊，无咎。
**Jiǔsì:** Huò yuè zài yuān, wú jiù.
Fourth 9: Some are jumping about in the deep pool. This is not wrong.

**Metaphorical meaning:** A space where you can be creative in your right element. Yue 跃

九五：飞龙在天，利见大人。
**Jiūwǔ:** Fēilóng zài tiān, lì jiàn dàrén.
Fifth 9: A dragon flying in the sky. It will be beneficial to see a great person.

**Metaphorical meaning:** A connection with someone of high status can be helpful. Pei 飛

上九：亢龙有悔。
**Shàng jiǔ:** Kàng lóng yǒu huǐ.
Top 9: A dragon forcing through its will will regret it.

**Metaphorical meaning:** Don’t act too resolutely. Kang 亢

All lines 9: A group of dragons is seen. They have no leader, but that is good.

**Metaphorical meaning:** If all are in accord and all have the same objective, their combined force can be very strong.

用九：见群龙无首，吉。
**Yòng jiǔ:** Jiàn qún lóng wú shǒu, jí.

The use of the number NINE: If the host of dragons (thus) appearing were to divest themselves of their heads, there would be good fortune. (All the translations come from James Legge, 1882/1964, The I Ching: The Book of Changes, 01)

The earliest and most basic human experiences could not have occurred without the perception of motion. The meaning of the Qian Hexagram is that a dragon must feel remorse after flying to a very high position. The movement from the beginning to the topmost position is progressive, indicating that the dragon is flying higher and higher, but when it reaches the highest height, it will inevitably fall.
In this example, qian 觐, jian 见, yue 跃, fei 飞, and kang 亢 are metaphoric extensions. It should deal with certain key issues here: what is the metaphoric meaning here? The dragon is a figure. What is the source domain and what is target domain? What kind of metaphoric conceptualization it represented? This is a metaphor for life, fortune and social position. The development of a country's personnel always goes through a process from weak to strong, and then from prosperity to decline.

In the first yao, the dragon is ready to move, but has not moved yet, while in the second yao, has just taken off; in the third yao it is at the top of the trigram and there are indeterminant factors for everything, so people must be alert; in the fourth yao it is in the upper hexagram, but still in a lower position. In the fifth yao the dragon has taken off and soared into the sky; it is in a good situation, and a “great man” has finally appeared.

The dragon, as a symbol of a “great man”, appears in the yao statements chu jiu 初九 (first nine), jiu er 九二 (second nine), jiu si 九四 (fourth nine), jiu wu 九五 (fifth nine), shang jiu 上九 (top nine) and yong jiu 用九 (The use of the number NINE); it forms a complete series of processes that rise, develop, and then run in a cycle. From the context of the Qian hexagram, we can see that the proper home of the dragon is in the water, the land, and the air.

4. Conclusion
The ancient Chinese languages and cultures represent and conceptualize SPACE, TIME and NUMBER in their own special ways (e.g., section 3.1, 3.2, 3.3). The three areas can be treated as one single domain based on life and growth experience. This study arrives at the present conclusion: SPACE, TIME and NUMBER are considered as a holistic unity in the Yijing, a single domain with three aspects based on the LIFE and MOTION metaphors. This is a concrete manifestation, in the language structure, of the Han people's long-term adherence to the “harmonious coexistence” national thinking pattern. The symbolic structure of the Yijing can simultaneously reflect the integration of SPACE, TIME and NUMBER.

This study proposes that these three domains can be viewed as being integrated into one in the Yijing (three areas in subject one single domain, and they are connected like the Chinese as used in the Yijing). It concludes that in the Yijing SPACE, TIME and NUMBER are not three strictly separate cognitive and linguistic domains. Each domain can be conceptualized through the other domains, or people can perhaps consider them as three aspects of a single domain in which spatial orientation serves as the fundamental grounding for the understanding of TIME and number. The numerous instances of linguistic and cultural expressions that have presented above support the claim.

Of course, there are some unsolved problems in this study. For example, this study imposes the view that the holistic unity of conceptual domains must be everywhere in the Yijing with no exception whatsoever, and thus discuss example and counterexamples accordingly. If need be, in future study, it may consider introducing at least some counterexamples from Western languages that have been previously addressed in literature, so to make this study stronger and demonstrate the unity of the three domains in the Yijing in a more efficient fashion.
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