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Spatiality and temporality: The fundamental difference between Chinese and English

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Abstract

A language represents the unique medium of how people of a nation perceive and understand the world. This study takes a diachronic perspective to trace the evolution of Chinese and English, respectively, and examines the synchronic features of the two languages that most typically demonstrate the underlying principles of linguistic encoding. It attempts to argue that in dissecting the world and in ways of thinking, Chinese seems to focus more on space and English more on time. Therefore, this study proposes that Chinese is a spatiality-dominant language, whereas English a temporality-dominant one. This fundamental difference underlines many particularities in Chinese and English in terms of their syntactic and textual structures. It is proposed that spatiality and temporality be used as overarching typological parameters to account for the enormous differences between Chinese and English. The findings of this study can provide significant insights into the nature of the distinction between the two languages.

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1. Introduction

As a mirror of cultural thoughts, language reflects the particular way the world is observed, understood, and presented (Humboldt, 1999: 81–87). There is extensive literature on the differences between Chinese and English, which are typical of the Sino-Tibetan and Indo-European language family respectively (e.g. Gu, 2005; Link, 2013). In addition, contrastive linguistic perspectives on structural particularities show that Chinese is analytical and English synthetic (Huang, 2010; Lian, 1993), or Chinese is paratactic and English hypotactic (Lian, 1993; Nida, 1982; Wang, 1954). According to the parataxis/hypotaxis account, clauses in Chinese are placed one after another without any connectives to specify their relationships, whereas in English, connectives are typically used to spell out the relationships between different clauses (Tse, 2010). The analytical/synthetic account argues that Chinese uses very few bound morphemes, with most of its words being either free morphemes or compounds of free morphemes. However, as a synthetic language, English has a large number of bound morphemes, which are often combined to form a word (Barber et al., 2009). Although these accounts have identified important contrastive features between the two languages, they are largely descriptive and

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cannot answer the question regarding why such differences occur. Since language is considered the mould of thought (Sapir, 1921: 22), we expect to find differences in thoughts that align with the structural differences between the two languages. However, few attempts have been made to explore the difference in thoughts as an underlying reason for Chinese-English differences.

In this study, we seek to remedy the oversight by arguing that Chinese is a spatiality-dominant language, whereas English is temporality-dominant. We also show that this proposed difference underlies many of the structural differences between the two languages at both the syntactic and textual levels.

We start by describing spatiality and temporality, the two key concepts addressed in the paper, and then explore how spatiality is structurally represented in Chinese and temporality in English at different levels of linguistic encoding.

2. The meaning of spatiality and temporality

As space and time are two basic dimensions that constitute the universe, the way we perceive them is an essential aspect of how we understand the world. In this study, spatiality and temporality are defined as two habitual thought patterns that orient people towards different perceptions and understandings of the world. Spatiality is the way the outside world is understood with a focus on the spatial properties or relations of entities or substances. Temporality represents the way the world is perceived with particular attention on temporal features or relations. Spatiality and temporality are the modes of thinking we formulate when perceiving objects and their movement. Therefore, the perception of space or time is inevitably tinged with subjectivity due to the differences in historical, social, and cultural environments.

How space and time are perceived is susceptible to historical, social, and cultural influences. Thus, by examining differences in the perception of space and time, we can better understand how the world is presented by language. In this study, we propose that Chinese is spatiality-oriented, whereas English is temporality-oriented. In other words, the world is conceptualised with a spatial orientation on entities and substances by Chinese speakers, in contrast to a temporal orientation on events and movement by English speakers.

Note that spatiality and temporality are not mutually exclusive. Rather, they are universal features shared by all languages. Therefore, it is hardly possible for a language to be solely spatial or temporal. In fact, space and time are interdependent and inseparable. Time depends on the existence of space, and spatial entities may also move in space and change their shape, in other words, they also have temporal characteristics. The spatial-temporal orientation constitutes a continuum rather than a categorical binary division, with Chinese occupying a position closer to the spatial pole and English to the temporal pole. By stressing the spatiality of Chinese or temporality of English, we are not excluding other important dimensions. In the next section, by focusing on nouns and verbs, we discuss the origin of spatiality and temporality in these two languages.

3. The origin of spatiality and temporality

Rather than simply being two lexical categories, nouns and verbs represent different ways to understand the world (e.g. Fenollosa and Pound, 1919; Nakamura, 1964; Crepaldi et al., 2011). Therefore, nouns and verbs not only have a privileged status among grammatical classes (Crepaldi et al., 2011), but also hold profound philosophical implications (Link, 2013) that inform our understanding of how different cultures think about the world in diverse ways.

Speakers usually use nouns to designate different kinds of three-dimensional entities or substances and use verbs to refer to different behaviours, motions, or changes of entities or substances that happen in temporal sequence. In his discussion of the typical characteristics of nouns and verbs, Langacker (2008: 104) contended that the noun and verb archetypes constitute polar opposites. Nouns are typically used to denote objects, and verbs are used to designate motions and changes. Represented in space, objects are definable in terms of spatiality. Actions or activities involve motion and change, and can thus be characterised in terms of temporality. As shown below, temporality is expressed by verb-centeredness in English, while spatiality is represented as noun-centeredness in Chinese.

3.1. The origin of temporality in English

As one of the oldest documented languages in the Indo-European family, Sanskrit holds a prominent position in Indo-European language studies and has a far-reaching impact on many linguistic and cultural movements in Europe. A look into Sanskrit may unveil the origin of temporality in English. Finding certain traces of temporality in Sanskrit might explain why English has showcased the characteristics we witness today.

As a fundamental principle in morphology, the notion of verbal dominance is so deeply rooted in Indo-European languages that it persists until now. Noteworthy is that the compound word *Zeitwort* ('verb') in contemporary German literally means 'time word', from which we can infer that verbs are closely related to time. We counted the number of verb-derived

nouns in West's (1953) *A General Service List of English Words*, which lists 1892 of the most common English words. We found 1212 nouns in the list. Of these nouns, 711 (77.7%) are derived from verbal roots. As seen in the following examples, English words such as *flower* and *worm* are all derived from verbal roots in the Proto-Indo-European (PIE) language.

- (1) flower: PIE root *bhel ('to thrive, to bloom')
- worm: PIE root *wer ('to turn, to bend')
- eye: PIE root *okw ('to see')
- mouth: PIE root *men ('to project')

This verbal dominance has long-lasting impact on the evolution of many Indo-European languages such as English, French, German, Greek, Russian, and Italian. For example, the nouns derived from verbs far outnumber the verbs derived from nouns in these languages. Moreover, verbs derived from nouns by means of back-formation, such as *auth* ← *author*, *edit* ← *editor*, *cohes* ← *cohesion*, *aggress* ← *aggression*, are rarely found in ancient English although there are such cases in modern English. Certainly, the roots of many English nominal derivatives are verbs or verbal in nature. For instance, English nouns such as *exportation*, *expression*, *process*, and *exit* are derived respectively from the verbal root *port* ('to carry'), *press* ('to press'), *-cess-* ('to go'), and *-it-* ('to go').

Temporality is also reflected by the emphasis on time in the English language. The concept of *time* seems prioritised in English, but not in Chinese. For example, a striking difference between the two languages is tense and aspect marking. Although such grammatical marking is obligatory in English, it is only optional in Chinese in many cases. To ensure the intelligibility of English sentences, verbs must be marked with tense or aspect, the absence of which renders sentences ungrammatical. According to Comrie (1985: 1–6), tense is the grammaticalisation of location in time, and aspect marks the 'grammaticalisation of expression of internal temporal constituency'. That is, tense and aspect marking are temporal in nature, indicating that temporality is highly emphasised in English. In Chinese, however, aspect markers such as *zhe* 着, *le* 了, or *guo* 过 are often optional, and more important, verbs are usually not marked with tense. This difference can be seen in (2):

- (2) a. He was born here, he has lived here all his life, and he will die here.
- b. 他生在这里, 住在这里, 也会死在这里。
ta sheng zai zheli, zhu zai zheli, ye hui si zai zheli

In (2a), the verbs *be* and *live* carry tense markers, but in (2b), its corresponding expression in Chinese, the verbs are not marked with tense. The stark contrast between the two languages in tense marking is thus obvious. This may reveal the differences in their perception of time.

3.2. The origin of spatiality in Chinese

The Chinese writing system is based on a direct visual representation of the operation of nature. Fenollosa and Pound (1919) provide an often cited example in their gloss on the Chinese sentence 人見馬 *ren jian ma* ('Man sees horse'). In alphabetic languages such as English, the connections between things and signs are fully arbitrary. However, the Chinese way of encoding follows natural representation. From the first character *Ren* (人, 'man'), one finds a man standing on his two legs. The second character portrays his eye moving through his surroundings, represented by two legs ('儿') under an eye ('目'). The third character presents a horse ('馬') on its four legs ('𠂇'). These characters constitute a continuous moving picture that can be split into three visual images: a man, his action, and the target to which his action is directed. Fenollosa and Pound (1919) have highlighted the tendency of Chinese to describe motion and actions by using its pictorial scripts in the same way as the montage technique is applied to the combination of a series of snapshots to depict actions or movements. In this sentence, the flow of time is conceptualised in terms of spatial relations. In other words, the sentence relies on the spatial configuration of its characters to depict how events unfold over time.

In addition, the pictorial feature of the Chinese language inevitably leads to a preference of nouns over verbs. Shen (2010, 2012, 2016) maintained that verbs in Chinese are actually a sub-category of nouns. This perspective highlights the difference between Chinese and English in terms of grammatical categories and emphasises that verbs in Chinese function as nouns to describe entities. As an illustration, in *Erya* (《尔雅》), the oldest known dictionary in China, words were mostly explained and classified with a focus on their spatial features. Most verbs are defined and described with the help of nouns and the things they denote and spatial conceptions they express. As example (3)¹ shows, nouns such as *jin*

¹ In the examples, the definition in Chinese (a) is first provided, followed by the *Pinyin* and its glosses (b). The English translation (c) is added below the glosses.

(金 'gold'), *mu* (木 'wood'), *gu* (骨 'bone'), *xiang* (象 'ivory'), *yu* (玉 'jade'), and *shi* (石 'stone') are used to define and describe the different ways of processing these things for adornments.

- (3) a. 金谓之镂,木谓之刻,骨谓之切,象谓之磋,玉谓之琢,石谓之磨。
b. jin wei zhi lou, mu wei zhi ke, gu wei zhi qie, xiang wei
gold call it engrave, wood call it carve, bone call it cut, ivory call
zhi cuo, yu wei zhi zhuo, shi wei zhi mo.
it burnish, jade call it polish, stone call it grind.
c. 'To process gold is called to *engrave*. To process wood is called to *carve*. To process bone is called to *cut*. To process ivory is called to *burnish*. To process jade is called to *polish*. To process stone is called to *grind*'. (Hu and Fang, 2009: 224)

The fact that space is prioritised in Chinese but not in English can also be seen in the use of classifier structures in both languages. A significant difference between these two languages is that the former has more individual classifiers, whereas the latter possesses more collective ones. As a salient feature of the Chinese language (Li and Thompson, 1981), classifiers typically denote the shape, quantity, or other perceptual features of the referents of nouns (Foley, 1997: 235). As the following examples show, the classifier *zhang* (张 'sheet') is usually used for flat and thin objects such as paper or cloth, *kuai* (块 'lump') for chunky objects, and *pian* (片 'slice') for flat objects. However, they can all be translated indiscriminately into *piece* in English.

- (4) a. yi zhang zhi (一张纸)
a sheet paper
'a piece of paper'
b. yi pian mutou (一片木头)
a slice wood
'a piece of wood'
c. yi kuai zhuan (一块砖)
a lump brick
'a piece of brick'

As classifiers embody the denotation of the nouns into the corporeal properties of shape and discreteness (Foley, 1997: 245), the prevalence of classifiers in Chinese reflects the tendency towards the spatial features of entities such as shape or size more saliently than in the English language. Hence, the differences between the two languages in the use of classifiers can provide additional evidence that Chinese is largely spatiality dominant.

4. Sentential representation of spatiality in Chinese and temporality in English

The peculiarity of spatiality and temporality has found its way into sentential constructions in the two languages. Chinese is a paratactic language that foregrounds implicit coherence of meaning instead of explicit grammatical elements, whereas English is more hypotactic since grammatical elements for indicating structural relationships cannot be left out in most cases. This difference is especially prominent in complex sentences made up of multiple clauses. In English, the main clause is usually preceded or followed by a number of subordinate clauses, which can result in quite long sentences. Such an example is provided in (5).

- (5) ① In Africa I met a boy, ② who was crying as if his heart would break and said, ③ when I spoke to him, ④ that he was hungry, ⑤ because he had had no food for two days.

This sentence is composed of five clauses, with the main clause being 'I met a boy'. The second clause ('who was crying as if his heart would break and said') is an attributive clause modifying the object of the main clause *boy*, and the third clause ('when I spoke to him') functions as an adverbial clause of time modifying the verb *said* in the previous clause. The verb *said* in the second clause is followed by the fourth clause, an object clause ('that he was hungry'), which is in turn modified by the fifth one ('because he had had no food for two days'), explaining why the boy was hungry. The main clause and subordinate clauses are arranged in descending order of importance. Each clause is connected to the previous one with the use of explicit connectives such as *who*, *that*, *when*, or *because*, resulting in a clearly linear chain of successive clauses, resembling the way events are located in time. The linear pattern of the sentence development reflects English speakers' preference for temporality in their way of thinking. This mode of thinking, when mapped out onto the sentence

construction, is represented by a preference for explicit continuousness in sentence structures, which is usually achieved by using connectives and agreement in number, gender, case, or person.

Apparently, it is common in English to see such long sentences with multiple clauses and the use of conjunctives to spell out their relationships. These sentences may be long and complicated, but are still clear enough to understand. In Chinese, however, the situation is strikingly different. As a topic-prominent language, Chinese tends to focus on the topic or meaning rather than on the strict grammatical rules Indo-European grammar requires. Therefore, in Chinese, we usually find short sentences or long sentences split into short phrases often separated by commas. Chinese is also replete with run-on sentences in which two or more independent clauses are joined together without any explicit conjunctives. Some clauses do not even have subjects or predicates, and need to be interpreted through contexts. Such an example is provided in (6).²

- (6) a. ① 他继续设想, ②鸡又生鸡, ③用鸡卖钱, ④钱买母牛, ⑤母牛繁殖, ⑥卖牛得钱, ⑦用钱放债, ⑧这么一连串的发财计划, 当然也不能算是生产的计划。(马南邨《燕山夜话》)
- b. ① *ta* *jixu* *shexiang*, ② *ji* *you* *sheng* *ji*, ③ *yong* *ji* *mai*
he continue imagine chicken again breed chicken use chicken sell
qian, ④ *qian* *mai* *muniu*, ⑤ *muniu* *fanzhi*, ⑥ *mai* *niu* *de* *qian*,
money money buy cow cow breed sell cow earn money
⑦ *yong* *qian* *fang* *zhai*, ⑧ *zheme* *yilianchuan* *de* *facai* *jihua*,
use money provide loan this a link chain DE get rich plan,
dangran *ye* *buneng* *suanshi* *shengchan* *de* *jihua*.
of course also cannot considered as production DE plan.
(From *Evening Talks at Yanshan*《燕山夜话》by Ma Nancun)
- c. 'He went on indulging in wishful thinking. Chickens would breed more chickens. Selling them would bring him money. With this he could buy cows. The cows would breed too, and selling cows would make more money for him. With the money, he could become a money lender. Such a succession of steps of getting rich, of course, had nothing at all to do with production'.

This long run-on sentence is composed of eight syntagms. The first is the main clause and the following six (②–⑦) are coordinate object clauses following the verb *shexiang* (设想 'to imagine'). The last segment is the writer's comments on the ideas mentioned in the previous utterances. Although such fragmented sentences are easy for Chinese speakers to understand, they are likely to be a confusing reading because of the lack of consistency and clarity in the reference of subjects. The explicit subject is *ta* (他 'he') in ①; the implicit subject is also *ta* (他 'he') in ③, ⑥, and ⑦; the explicit subject is *ji* (鸡 'chicken') in ②; the explicit subject is *qian* (钱 'money') in ④; and the explicit subject is *muniu* (母牛 'cow') in ⑤. In ⑧, the subject is completely unspecified.

Therefore, unlike English clauses, which are bound by connectives to form a cohesive and meaningful whole, clauses in a Chinese sentence are simply juxtaposed with the implicit suggestion that there is an underlying semantic relationship between them. Such sentences abound in Chinese. In fact, it is usually desirable in Chinese to leave out the explicit marking whenever the relationships can be inferred from the contexts. The lack of cohesive devices such as connectives between different clauses inevitably makes Chinese sentences structurally fragmentable and discrete. Here fragmentability refers to the greater flexibility in the organisation of linguistic units, and discreteness describes the lack of explicit connectives between different linguistic units. This linguistic phenomenon in Chinese is like a montage, a paste-up made by blending together photographs or illustrations to create a single artistic image. This apparent distinction between Chinese and English cannot simply be regarded as the result of omission as the items omitted from the sentences should always be definite. However, it is difficult to pinpoint the exact connectives left out in Chinese sentences, as there is always more than one possibility.

We argue that the fragmentable and discrete nature of Chinese sentences reflects the tendency of Chinese speakers to perceive the world in terms of entities or substances with spatial properties. The two features are embodied at almost all levels of linguistic encoding in Chinese. In Chinese, clauses in a sentence can be organised in the same flexible way as entities or substances being placed in the physical world. They can be separated or connected, moved to different positions in the sentence, and even reversed in their positions. The following sentence is such an example.

- (7) a. ① 到次日初八, ②一顶轿子, ③四个灯笼, ④妇人换了一身艳色衣服, ⑤王婆送亲, ⑥玳安跟轿, ⑦把妇人抬到家中来!(《金瓶梅》)

² In the following example, the Chinese sentence (a) will be first provided, followed by the *Pinyin* and its glosses (b). English translation (c) will be added below the glosses.

- b. ① *dao* *ciri* *chuba*, ② *yi-ding jiaozi*, ③ *si-ge denglong*, ④ *furen*
 until next day eighth day one-CL sedan four-CL lantern woman
huan-le *yi-shen* *yanse* *yifu*, ⑤ *wangpo*
 change-ASP a-CL bright-colour clothes Wangpo(name)
songqin, ⑥ *dai-an* *genjiao*, ⑦ *ba furen* *tai* *dao* *jia*
 escort wedding Dai-an (name) follow sedan BA woman carry to home
zhong *lai*
 inside come.

(From *The Plum in the Golden Vase*《金瓶梅》)

- c. 'The next day he sent a sedan chair with four lanterns, and Golden Lotus in her best clothes seated herself in it. Old woman Wang went with her as though she represented the bride's family, and Tai An acted as an escort. So Golden Lotus went to her new home'. (Translated by Clement Egerton)
 d. 'The next day, in a single sedan chair, accompanied by four lanterns and escorted by Dame Wang and Tai-an, he had the woman carried off to his home'. (Translated by David Tod Roy)

The sentence (7a) contains seven syntagms, six of which (②–⑦) convey relatively independent meanings. This sentence is structurally fragmentable and discrete in that its components vary from noun phrases (② and ③) to subject + verb structures (④–⑦), with no explicit cohesive devices in between. Moreover, the subject for the last clause is not clearly specified, leaving it to readers to figure out whether it refers to the groom or sedan bearers. The co-occurrence of phrasal syntagms and clausal syntagms, the loose structure, and ambiguity of subject reference are all structural representations of the fragmentability and discreteness of Chinese run-on sentences.

A contrast between the Chinese original (7a) and its English translations (7c) and (7d), further reveals their differences. It is difficult, perhaps even impossible, to translate a Chinese run-on sentence into a single grammatical English sentence, as the syntagms in Chinese sentences are not organised in an equally cohesive way as those in English sentences. As seen in example (7c), the Chinese original is translated into three independent sentences. Although the translator managed to translate it into a single sentence in (7d), a considerable amount of information has been dropped to make it possible. Chinese run-on sentences, with their strong spatial or iconic features, are barely compatible with the linear pattern of combination in English sentences. This difficulty in achieving formal equivalence in translation reflects the proposed contrast between Chinese as a spatiality-dominant language and English as a temporality-dominant language.

Closely related to the aforementioned run-ons is *duyuju* 独语句, the nominal independent sentence, a type of Chinese sentence in which nominal words or phrases are juxtaposed. However, there is neither an explicit grammatical connection between these elements nor a verbal construct in the sentence. A nominal independent sentence can be a noun or noun phrase functioning as an independent sentence, a syntagm in a run-on sentence, or a juxtaposition of nouns or noun phrases separated by commas. Although nominal independent sentences occur occasionally in English, they abound in Chinese. Below, two examples of Chinese nominal independent sentences, which are underlined in (8) and (9), are provided.

- (8) a. 天色微明, 两个远远地见一簇人家, 看来是个村镇。两个投那村镇上来。独木桥边, 一个小小酒店。
 b. *tian se wei ming, liang ge yuan yuan di jian yi zu renjia, kanlai*
 sky colour slight light two CL far far DI see a CL houses evidently
shi ge cunzhen. Liang ge tou na cunzhen shang lai. Dumu
 be CL town two CL come that town up to single-plank
qiao bian, yi-ge xiao xiao jiudian.
 bridge side a-CL small small tavern

(From *Water Margin*《水浒传》)

- c. 'When the sky was turning light they both saw a number of houses in the distance, evidently a small town. Before long, they entered. A single-plank bridge, a little tavern'.
 d. 'When the sky was turning light they saw a number of buildings in the distance, evidently a small town. Before long, they entered. They noticed a little tavern beside a single-plank bridge'. (Translated by J. M. Jackson)

- (9) a. 一瓯清茗, 神能趋入其中, 方可供幽斋之玩。 (《浮生六记》)
 b. *y oui qingming, shen neng qu ru qizhong, fang ke gong*
 a CL tea imagination can go enter inside only can for
youzhai zhi wan.
 private studio ZHI enjoyment

(From *Six Chapters of a Floating Life*《浮生六记》)

- c. 'A pot of tea, one could lose oneself in a world of imagination; and only this kind should be kept in one's private studio for enjoyment'.
- d. 'One should make it so that, with a pot of tea, one could lose oneself in a world of imagination; and only this kind should be kept in one's private studio for enjoyment'.
- (Translated by Lin Yutang 林语堂)

The nominal independent sentence underlined in (8a) consists of two noun phrases placed side by side without an explicit marking of their relationships, which presents two images juxtaposed in spatial relations. The reading of the sentence can bring out a visual scene: *nearby there is a single-plank bridge, and by the bridge stands a small tavern*. It seems as if the writer acted like a cameraman who orientates readers through a series of cinematic shots in the movie. The camera first presents the bridge and then zooms in to focus on the tavern, the place the subjects might head for. In this way, it is not the case that the conjunctions between nouns or noun phrases are omitted in Chinese nominal independent sentences. Rather, there is simply no need for them as the Chinese language seeks aesthetic expressions and tends to describe the world in terms of its spatial features, which is reflected in language as a preference for fragmentable and discrete structures through paratactic juxtaposition.

Gu (2005: 252) argued that juxtaposition is a common technique in Chinese writing, and the absence of clearly marked syntactic relations results in gaps between the juxtaposed images, which can facilitate the activation of readers' imaginations. If (8a) is translated into English without adding connectives, the resulting translation (8c) is merely a combination of two seemingly unrelated particulars, as it cannot meet the structural requirements for continuity and cohesiveness in English sentences. When a conjunction is added to make their relations explicit, as shown in (8d), the sentence may become acceptable for English speakers.

Chinese nominal independent sentences clearly violate the basic rules in English for being continuous and cohesive in sentence construction. In English sentences, different elements need to be linked by connectives or agreement in gender, case, number, or person to maintain a linear sequence of presentation. In Chinese, the linkage between the elements is only optional or even redundant. The fact that nominal independent sentences are prevalent in Chinese, but unacceptable in English, reflects a major divergence between the two languages in their structural preferences and ultimately, in their spatial-temporal orientations.

5. Textual representation of spatiality in Chinese and temporality in English

There are also considerable differences between Chinese and English in textual construction in terms of clause structure, the use of anaphora and conjunctives, and pattern of topic progression. These differences can be accounted for by the divergence between the two languages in their spatial-temporal orientations. In terms of clause structure, Chinese texts are usually composed of clauses with various structures, many of which are structurally incomplete with either their subjects or predicates being absent. More importantly, these clauses are not connected by explicit reference marking. English texts differ drastically from Chinese texts in that they are composed of fewer structurally complete clauses and their clauses are connected by connectives to form a continuous and cohesive unity. As exemplified in (10a),³ the paragraph is comprised of ten clauses including a clause with a subject-verb (SV) structure (①), five verbal phrases (②, ③, ④, ⑨, ⑩), three nominal phrases (⑤, ⑥, ⑦), and an adjective phrase (⑧). Anaphoric markers cannot be found in either of these clauses except for the sentence-initial clause (①), which loosely connects the clauses with each other and renders the entire paragraph structurally fragmentable and discrete. In the English translation, on the other hand, only three clauses are used to express the same meaning. Moreover, these clauses are all structurally complete and glued together by explicit grammatical markers specifying their linkage, making the entire sentence continuous and cohesive.

- (10) a. ①次日, 众猴果去采仙桃, ②摘异果, ③刨山药, ④鬪黄精, ⑤芝兰香蕙, ⑥瑶草奇花, ⑦般般件件, ⑧整整齐齐, ⑨摆开石凳石桌, ⑩排列仙酒仙肴。(《西游记》)
- b. ①*ciri*, *zhong* *hou* *guo* *qu* *cai* *xiantao*, ②*zhai*
next day many monkey really set out pick magic peach gather
yiguo, ③*pao* *shanyao*, ④*zhu* *huangjing*, ⑤*zhilan*
rare fruits dig yam cut Solomon's seal magic fungus
xianghui, ⑥*yaocao* *qihua*, ⑦*ban* *ban* *jian* *jian*,
fragrant orchid fairyland plant rare flower sort sort piece piece

³ In the examples provided below, the Chinese sentences were provided first as (a), followed by the *Pinyin* along with the glosses (b). Translations (c) were added directly under the glosses.

⑧zheng	zheng	qi	qi,	⑨baikai	shideng	shizhuo,	⑩pailie
orderly	orderly	neat	neat	set on	stone bench	stone table	place
xianjiu	xianyao.						
fairy wine	fairy dish						

(From *Journey to the West* 《西游记》)

- c. ①The next day the monkeys set out to pick magic peaches, gather rare fruits, dig out yams, and cut Solomon's seal. ②Magic fungus and fragrant orchid were collected ③ and everything was set on the stone benches and the stone tables, with fairy wine and dishes. (Translated by William John Francis Jenner)

Another palpable difference between Chinese and English is that noun phrases are used extensively as independent clauses in Chinese, but rarely used in this way in English. The use of noun phrases as clauses exhibits the striving for conciseness and economy, as well as the primacy of meaning or content over form in the Chinese language. Given that noun phrases are structurally short and semantically self-sufficient, their extensive use in Chinese reinforces the fragmentability and discreteness in textual construction. As shown in example (10a), the noun phrases ⑤, ⑥, ⑦, and ⑧ all function as clauses in the sentence with relatively independent meanings. With these clauses juxtaposed without any explicit linkage, the paragraph is structurally fragmentable and discrete. In contrast, the nine clauses in (11a) are reduced to three in the English translation (11c), with the four noun phrases (⑤, ⑥, ⑦, ⑧) and the sentence-final clause (⑨) combined into a single logical and structurally complete sentence. Explicit connectives and reference markers are used to link the units within and across clauses, such as *despite*, *his*, *he*, *and*, or *when*, making the entire sentence structurally continuous and cohesive. This is in strong contrast with the loose structure of the original Chinese.

- (11) a. ①刘四爷是虎相, ②快七十了, ③腰板不弯, ④拿起腿还走个十里二十里的, ⑤两只大圆眼, ⑥大鼻头, ⑦方嘴, ⑧一对大虎牙, ⑨一张口就象个老虎。(老舍《骆驼祥子》)

- b. ①liu si ye shi hu xiang, ②kuai qishi le, ③yaoban bu
Liu(name) Fourth Master be tiger look near seventy ASP back not
wan, ④na qi tui hai zou ge shi li ershi li de. ⑤liang-zhi
bend take up leg still walk CL ten li twenty li DE two-CL
da yuan yan, ⑥da bi tou, ⑦fang zui, ⑧ yi-dui da hu ya,
big round eye big nose tip square mouth one pair big tiger teeth
⑨yi zhang kou jiu xiang ge laohu.
once open mouth then like CL tiger.

(From *Rickshaw Boy* 《骆驼祥子》by Lao She)

- c. ①Fourth Master Liu was like a tiger. ②Despite his age, he had a straight back and thought nothing of walking two or three miles. ③He had big, round eyes, a large nose, a square jaw, and a pair of protruding teeth that gave him the look of a tiger when he opened his mouth. (Translated by Howard Goldblatt)

It is important that the difference between Chinese and English can also be observed in the use of zero anaphors in textual structures, a discursive device used to maintain topic or thematic continuity (Schwarz-Friesel et al., 2007: vii) and textual cohesion (Halliday and Hasan, 1976). According to Givón (1983, 1992), topic continuity can be measured in terms of referential distance, potential interference, and thematic persistence. The use of zero anaphora has been associated with low referential distance and few potentially interfering NP referents within the preceding clauses (Givón, 1983: 347–363). In English, anaphora is most likely to be kept minimal (e.g. zero anaphora or pronoun) when the topics are continuous. For instance, when a topic is mentioned continuously in discourse, or when there are few other referents that could be mistaken as the topic, it is relatively easy to retrieve this topic from memory, and thus a less overt coding device (e.g. a zero anaphora as opposed to a full NP) is needed (Tao, 1996: 490). In Chinese, however, zero anaphora is not only used in the topic chain, but also in long-distance cross-topic referential relationships. Zero anaphora is applicable even in sentences involving a long referential distance, multiple interfering referents, or frequent topic shifts, leading to a paratactic juxtaposition of clauses or sentences, which makes the spatial properties of the Chinese language particularly obvious. (12a) demonstrates how a topic chain is maintained in the absence of overt reference marking in Chinese.

- (12) a. ①彼时贾政已看了妹丈之书, ②即忙请入相会。③见雨村相貌魁伟, ④言语不俗, ⑤且这贾政最喜读书人, ⑥礼贤下士, ⑦济弱扶危, ⑧大有祖风; ⑨况又系妹丈致意, ⑩因此优待雨村, ⑪更又不同。(《红楼梦》)

- b. ①bishi jiazheng yi kan le meizhang zhi shu,
that time jiazheng already see-ASP brother-in-law ZHI letter
(name)
②jimang qing ru xianghui. ③jian yucun xiangmao kuiwei,
Hurriedly invite in meet see yucun(name) look imposing

④ <i>yanyu</i> speech	<i>bu</i> not	<i>su</i> , ordinary	⑤ <i>qie</i> and	<i>zhe</i> this	<i>jiazheng</i> <i>jiazheng</i> (name)	<i>zui xi</i> most like	<i>dushuren</i> , scholar		
⑥ <i>li</i> courteous	<i>xian</i> wise	<i>xia</i> condescend	<i>shi</i> , to	⑦ <i>ji</i> scholar	<i>ruo</i> help		<i>fu wei</i> , weak relieve	<i>distress</i>	
⑧ <i>da</i> big	<i>you</i> have	<i>zu</i> forefather	<i>feng</i> ; demeanour	⑨ <i>kuang</i> moreover	<i>you</i> more	<i>xi</i> is	<i>meizhang</i> brother-in-law		
<i>zhiyi</i> , intention	⑩ <i>yinci</i> so	<i>youdai</i> favourably	<i>yucun</i> , treat	⑪ yucun(name)	<i>geng</i> more	<i>you</i> have	<i>butong</i> , difference		

(From *Dream of Red Mansions*《红楼梦》)

- c. 'By this time Jia Zheng had already seen his brother-in-law's letter, and accorded him an interview without delay. Yu-cun's imposing looks and cultivated speech made an excellent impression on Jia Zheng, who was in any case always well disposed towards scholars, and preserved much of his grandfather's affability with men of letters and readiness to help them in any sort of trouble or distress. And since his own inclinations were in this case reinforced by his brother-in-law's strong recommendation, the treatment he extended to Yu-cun was exceptionally favourable'.

(Translated by Yang Xianyi 杨宪益 and Dai Naidie 戴乃迭)

The topic is introduced by a proper name *Jia Zheng* as the subject of the first clause, and then coded twice in the sentence-initial position by zero anaphora in ② and ③. This topic chain, however, is interrupted by the new topic *Yucun* introduced by the next clause (④), again without any overt anaphoric marking, and then resumed by ⑤ through repetition and coded repeatedly by zero anaphora from ⑥ to ⑧. Even when the topic is redirected to an event (*Jia Yucun* asked *Jia Zheng* for help) in ⑨, the anaphora is still not present, making the clause structurally detached from the previous utterance. After the interruption by ⑨, the topic *Jia Zheng* is reactivated by ⑩. Note that when a topic referent is coded, no anaphoric marking is used even if there is a topic shift. Moreover, zero anaphor can occur across sentence or clause boundaries.

This paragraph violates Givón's (1983, 1992) principle of topic continuity as anaphoric markers can be absent in a highly flexible fashion, even when an anaphor refers to a non-local antecedent across clause or sentence boundaries, or when frequent topic shifts occur. The prevalence of zero anaphora in Chinese produces multiple 'gaps' in the texts, making the texts structurally fragmented and discrete. In the English translation (12c), anaphor is clearly specified in every sentence through the use of pronouns, nouns, or connectives such as *and*, which contributes to a close connection between sentences and a strong sense of cohesion and unity in the entire paragraph. At the discourse juncture where one topic is shifted to another, zero anaphora is usually not adequate to bridge the gap, albeit a minor one, and therefore, explicit anaphoric marking is always needed. From these differences between Chinese and English in the occurrence of zero anaphora, we can find the preference of Chinese for fragmentable and discrete sentence patterns and English for explicit continuous and cohesive structures. Of course, this does not mean there is no need and/or showing of continuity and cohesiveness in Chinese speeches and writing. Actually, there is, but structurally, continuity and cohesiveness in Chinese are often not conveyed by explicit surface forms to the extent found in English.

As clauses are usually arranged in parataxis in Chinese and hypotaxis in English, the connectives indispensable for linking sentences in English tend to be superfluous in Chinese. The semantic or structural relationships between joined clauses are understood through the flow of meaning in Chinese and through explicit marking in English. With few explicit linkages, Chinese texts are structurally fragmentable and discrete. This is illustrated in the simple example provided in (13a), where the parentheses in (13b) are used to spell out the hidden textual relations in the sentences. The paragraph consists of three compound sentences, none of which contains any connective devices. Although all the sentences are semantically related to each other, they are structurally diffuse, as if arranged as the ideas occur in a continuous flow of water. The English translation (13c), on the other hand, is tightly packed in a succession of clauses with their relationships clearly specified through the use of the connective *if*.

- (13) a. 不登山,不知天之高也。不临深溪,不知地之厚也。不闻先王之遗言,不知学问之大也。(《荀子·劝学》)

b. (if) *bu deng gao shan, bu zhi tian zhi gao ye;*
not climb high mountain not know sky ZHI high YE
(if) *bu lin shen xi, bu zhi di zhi hou ye;*
not look down deep gorge not know earth ZHI thick YE
(if) *bu wen xiansheng zhi yiyen, bu zhi xue wen*
not hear Ancient Kings ZHI last words not know learning inquiry
zhi da ye.
ZHI great YE

(From *Encouraging Learning*. *Xunzi*《荀子·劝学》)

- c. 'If you do not climb a high mountain, you will be unaware of the height of the sky. If you do not look down into a deep gorge, you will be unaware of the thickness of the earth. If you have not heard the words inherited from the Ancient Kings, you will be unaware of the greatness of learning and inquiry'. (Translated by John Knoblock)

The examples provided above indicate that the textual structure in Chinese is often fragmental and discrete, while English textual structure is typically marked by explicit continuity and cohesiveness.

This study focuses on different thinking modes as the reason underlying the differences between Chinese and English in syntactic and textual structures. Note that the difference in the mode of thinking cannot be considered the only reasonable account for the differences observed between the two languages. Other valid reasons may be behind observed linguistic differences. In terms of possible alternative explanations, Hall's (1989) theory about high-/low-context cultures deserves attention. According to the theory, the meaning of a message relies heavily on contextual factors and is usually embedded deep in the information in high-context cultures (of which the Chinese culture may be considered a prototype), whereas explicit messages are typically expected in low-context cultures (of which Anglo cultures are typical representatives). This theory may help explain why compared with English, Chinese not only makes much rarer use of inflectional markers, connectives, and anaphors, but also allows more extensive use of null subjects/objects. As a language of a high-context culture where messages are often implicit and its speakers heavily rely on contextual information to communicate, Chinese has little need for such grammatical forms, the main function of which is to enhance the explicitness of the grammatical meanings and messages being expressed. In contrast, English, as a language of low-context culture where explicit messages are the norm, has a much higher need for these markers to help make its messages more explicit. Hall's theory of high/low-context cultures may provide an additional explanation for the syntactic and textual differences between Chinese and English, and should be considered in future investigations. However, in this study, we are principally concerned with the noticeable differences observed in the structures of English and Chinese expressions. Here, we attempt to explain these differences in terms of the different ways of thinking between Chinese and English speakers.

The spatiality-temporality distinction may provide important insights into the relationship between language and thought, and may have significant implications for the theorisation of cross-linguistic studies in general. By examining how the structural differences between Chinese and English align with different modes of thinking, this study provides evidence that the idiosyncratic features of languages can offer access to how their speakers think. Our position bears a certain affinity with the Sapir-Whorf hypothesis and Lakoff and Johnson's (1980) theory of metaphor in that also assume a strong connection between language and thought. However, this study does not allow us to draw conclusions regarding the argument over whether thought is governed by language, or vice versa. A difference between our argument and the Linguistic Relativity Hypothesis is that by proposing the concepts of *spatiality* and *temporality*, we extend the notion of *thought* from Sapir's *linguistically based thought* to a broader concept that encompasses both verbal thought and non-linguistically based thought. Spatiality and temporality do not simply represent propositional (or syntactic) thoughts, but also involve non-verbal thoughts including what Sapir dismissed as 'imagery'. The spatiality-temporality distinction involves deep philosophical thinking, which underlies a wide variety of historical, social, and cultural phenomena, extending far beyond the scope of language-related activities. Langacker (1976) indicated that a theory based on a broader definition of *thought* can have more empirical content. With a more inclusively defined concept of *thought*, the proposed theory is likely to present more convincing evidence in support of a strong association between language and thought.

6. Conclusion

Language mirrors the way of thinking. Exploring the different modes of thinking enables us to better understand the underlying reasons for the structural differences between Chinese and English. Based on Humboldt's (1999) idea that there is commensurability between language and thought, and on the contrastive analysis of the sentential and textual structures between Chinese and English, this study has argued that Chinese is largely spatiality-dominant and English is mostly temporality-dominant.

The spatiality of Chinese gives its speakers unusual flexibility in structuring linguistic units, whereas the temporality of English requires its speakers to operate on an intricate set of cohesive devices to help effectively and explicitly combine linguistic units. In Chinese, characters, words, phrases, and sentences are arranged in spatial relation to each other, and might be combined in various ways to form larger linguistic units. Whether it is the combination of morphemes into words, combination of words into phrases, combination of clauses into composite sentences, or combination of sentences into texts, Chinese tends to be structurally fragmentable and discrete in the juxtaposition of its linguistic units, like one piece of artwork created by assembling disparate images. However, English is prone to be structurally linear, continuous, and cohesive. These structural differences reflect two different modes of thinking between spatiality and temporality hidden behind the linguistic differences in Chinese and English.

To sum up, the argument presented in this paper is that languages share similarities, and this is the nature of human languages. However, languages are destined to have differences, which is also the nature of human languages. We cannot neglect the similarities languages share only for the reason of their differences. Likewise, we cannot afford to neglect the differences between languages just because of their similarities. If we want to better understand language individuality, it is significant to probe how a language fundamentally differs from other languages. The crucial difference between Chinese and English we showed here is that the Chinese language is spatiality-dominant with its distinctive features of structural fragmentability and discreteness, while the English language is temporality-dominant with its dominant characteristics of formal continuity and cohesiveness. In addition, the differences in the linguistic structures of the two languages likely parallel the proposed distinctions between the Chinese thinking mode of spatiality and English thinking mode of temporality.

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Conflicts of interest

None declared.

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