Premodifier Order in English and Chinese Nominal Phrases

ZEKUN LI

1. Introduction

Adjectives are a major part of speech in both English and Chinese. Vendler (1968) stated that there are two ways for adjectives to modify nouns: attributive and predicative modifications. In attribute modification, the adjective is placed before the head noun, e.g., the red car. Hence this type is also called a prenominal modification. In predicate modification, the adjective is used after the head noun, e.g., the car is red. As a result, this type is called postnominal modification. The same types can be seen in Chinese. For example, 红色的车 "the red car" is an example of attributive use, while 车是红色的 "the car is red" is an instance of predicative use.

Furthermore, there are preferences in the English modifier order. For example, *the large red car* is more acceptable than *the red large car* (Danks & Schwenk 1972: 183). Likewise, the Chinese modifier order also has a certain preference. For instance, we commonly say 小红雨伞 "little red umbrella," but do not say *红小雨伞 "red little umbrella." Nevertheless, if we change 红 "red" to 红色 "red," as in 红色小雨伞 "red little umbrella," the phrase becomes acceptable.

In addition, Vendler (1968) noted that the modifier order preferences are only valid in attributive use. This point also holds in Chinese, as all of the principles of modifier order are discussed in the attributive context.

As discussed above, although English and Chinese belong to different language families, there are several similarities. Therefore, this study aims to also reveal the factors that bring about the similarities and the differences by comparing the order of English and Chinese premodifiers (adjectives in attributive use) and comprehensively analyzing what influences premodifier orders in both languages.

To determine what influences premodifier orders in both languages, these two languages will be discussed from four viewpoints: semantic, syntactic, phonological, and pragmatic factors, which are categorized based on previous studies. At the same time, corpus data is employed for practical analyses. I propose that English and Chinese have similar premodifier orders, which are determined by semantic factors, especially subjectivity and objectivity, and other additional factors can explain marked orders and the differences between the two languages.

This thesis is composed of six chapters. In Chapter 2, premodifier orders will be discussed from the perspective of semantics. Next, in Chapter 3, the syntactic structures of premodifier orders will be analyzed. Then, the correlation between premodifier orders and phonological factors will be illustrated in Chapter 4. After that, how pragmatic factors affect premodifier orders will be argued in Chapter 5. Finally, the conclusion will be given in Chapter 6.

2. Semantic factors

Semantic factors have been argued to be the most influential factors determining the premodifier order in both English and Chinese. Feist's (2011) zone order is based on semantic structure. Furthermore, the result of Wulff's (2003) experiment also demonstrates that semantic factors have the strongest influence. At the same time, almost all analyses of the premodifier order in Chinese to date are based on semantics.

This chapter is divided into three main sections: 2.1 the absoluteness and number of oppositions, 2.2 subjectivity and objectivity, and 2.3 discussions of other factors. First, Sections 2.1 and 2.2 will detail how these two factors influence premodifier order in English and Chinese. Then, in Section 2.3, other semantic factors will be discussed to demonstrate that all semantic factors can be explained through subjectivity and objectivity.

2.1. Absoluteness and number of oppositions

This section will look at the factor of absoluteness in relation to the English premodifier order and the number of oppositions in relation to the Chinese premodifier order. I argue that these two factors are quite similar. Furthermore, although this factor is highly significant, there are some phenomena it cannot explain.

2.1.1. Absoluteness

Absoluteness is related to the number of comparisons among a class of objects necessary for choosing the adjectives modifying the objects. An adjective with higher absoluteness tends to be placed nearer to the head noun (Martin, 1969). Consider Danks and Schwenk's (1972) example:

"in the phrase *the large red car*, *red* is more absolute than *large* because one would need to make no comparisons between cars to decide if a given one was red but would need to compare at least two cars of different sizes to determine if one was large." (Danks & Schwenk 1972: 184)

Absoluteness was tested to determine whether it played a significant role in determining the premodifier order. Martin (1969) used several experiments to determine the correlation between the premodifier order and six candidate dimensions that were thought to be related. The results demonstrated that absoluteness exhibited almost the same level of influence as the most important correlate of premodifier order and the definiteness of denotation. Moreover, absoluteness, which was called "independence from comparison" in Wulff's (2003) study, took the second most influential place among the eight factors.

2.1.2. The number of oppositions

Yuan (1999) claimed that an adjective with more oppositions tends to be placed closer to the head noun in Chinese:

(1) 中等师范学校 "secondary normal school"
新版袖珍英汉词典 "new pocket-size English–Chinese dictionary"

In the first phrase, *secondary normal school*, *secondary* has two oppositions: *primary* and *tertiary*; *normal* has several oppositions: *chef, engineer, pilot, military, etc.* As a result, secondary precedes normal. Similarly, in *new pocket-size English–Chinese dictionary, new* has one opposition: *old*; *pocket-size* may have about two oppositions, such as *normal-size* and *large-size*, while *English-Chinese* has a large number of oppositions because there are thousands of languages all over the world.

2.1.3. Closeness between the two factors

In my opinion, the number of oppositions can be thought of in a similar way as absoluteness. Therefore, I will use these two recognized orders of premodifiers in English and Chinese to clarify this claim.

(2) a. Evaluative > General property > Age > Color > Provenance > Manufacture > Type (Huddleston & Pullum 2002: 453)
b. 时间(time) > 形体(shape) > 颜色(Color) > 质料和功能(Manufacture and Type) (Lu 1988: 103)

We can see that English and Chinese premodifier orders share a similar distribution. *Manufacture* and *type* are innumerable, so we do not need to compare the modified entity with other objects in selecting the appropriate adjective; indeed, we do not have to because the property in question is specific enough. As for *color,* there are about 10 to 20 colors typically used to describe something. Again, we do not have to determine which color something belongs by comparing it with other objects, but we may have to do so when the color is vague. For *age, general property,* and especially *evaluative,* it is necessary to compare the modified entity with others before choosing the appropriate adjective, for example, *new, large,* and *good.* The issue of the closeness between absoluteness and the number of oppositions emerges from the above discussion.

However, the factors of absoluteness and the number of oppositions fail to shed light on the relative order of premodifiers with comparable degrees of absoluteness and the number of oppositions, such as evaluative (e.g., good and bad) and *general property* (e.g., *long* and *short*). It is challenging to say that *evaluative* precedes *general property* because *evaluative* is less absolute and has fewer oppositions than *general property*. We can find the explanation in Section 2.2.

2.2. Subjectivity and objectivity

Quirk et al. (1985: 1341) indicated that "modifiers relating to properties which are (relatively) inherent in the head of the noun phrase . . . will tend to be placed nearer to the head and be preceded by modifiers concerned with what is relatively a matter of opinion" in seeking to explain why subjective-objective gradience determines premodifier order.

Sweet (1900) stated a significantly similar notion called "closeness to the noun in meaning," which means that adjectives related to intrinsic properties are closer to the noun. Likewise, Biber et al. (2000: 599) also suggested that there is an "overall tendency for the most noun-like modifiers to occur closest to the head noun." Many adjectives are zero-derived from nouns so that their meaning is close to nouns, which is intrinsic.

In my opinion, "subjectivity and objectivity" and "closeness to the noun in meaning" can be combined as one factor because adjectives with intrinsic properties are objective, and adjectives with extrinsic properties are subjective. Therefore, to make this point more precise and comprehensible, my assertion is that subjective, extrinsic, and abstract premodifiers precede objective, intrinsic, and concrete premodifiers.

The factors of subjectivity and objectivity succeed in predicting the premodifier order in Scontras et al.'s (2017) experiment and take the third influential place among the eight factors in Wolff's (2003) experiment. I maintain "subjectivity and objectivity" as the most significant factor because it can explain other semantic factors.

In the following Subsections, 2.2.1 and 2.2.2, I will first use two comprehensive classifications of premodifiers in English and Chinese to prove my point. Then, I will focus on the correlation between "iconicity" and "subjectivity and objectivity" in Section 2.2.3.

2.2.1. Classifications of premodifiers in English

Feist (2011) classified premodifiers into four groups: Classifier, Descriptor, Epithet, and Reinforcer. A Classifier is the closest to the head noun, while a Reinforcer takes the most remote place. The classification is based on five types of meaning: referential, descriptive, expressive, social, and grammatical. The semantic structures of the five zones are listed in Table 1.

	Referential meaning	Descriptive meaning	Expressive meaning	Social meaning	Grammatical meaning
Classifier	○	×	×	×	◯
Descriptor	×	◯	×	△	◯
Epithet	×	◯	◯	◯	◯
Reinforcer	×	×	×	×	◯

Table 1: The semantic structure of the zones

All five zones have grammatical meanings. In addition, the Classifier zone has referential meaning. The Descriptor zone has a non-scalar descriptive meaning (mainly concrete but partly abstract), while the Epithet zone has a scalar descriptive meaning (concrete, abstract, or social). Finally, the Reinforcer zone only has a grammatical meaning.

Grammatical meaning expresses a premodifier's relation with other words. For example, in the phrase *clean water*, *clean*'s grammatical meaning is "being a modifier," as *clean* informs readers to take the concept CLEAN as the referent of the head noun *water* (Feist 2011: 28–29). It is associated with the structure of the whole phrase or sentence. Social meaning refers to the situation in which this premodifier is used (Feist 2011: 28). For example, the social meaning of *unspeakable* is that the situation is literal, while *awful* indicates an informal situation.

Referential, Descriptive, and Expressive meanings are more relevant to the issue of subjectivity and objectivity. Referential meaning classifies an object rather than describing it (Feist 2011: 25), for example, "*baseball* cap" and "*vanilla* ice cream." Evidently, premodifiers with referential meanings (Classifiers) are noun-like and have objective, intrinsic, and concrete meanings. Classifiers are the nearest to the head noun, which agrees with my assertion.

Expressive meaning is used to express a speaker's emotion or attitude. For example, *tight-fisted* and *economical* can describe the same thing but with an entirely contrary attitude (Feist 2011: 27). Expressive meaning is subjective, extrinsic, and abstract, so the Epithet, the only zone with Expressive meaning, is the furthest from the head noun (except for Reinforcer, which only has a grammatical meaning).

Descriptive meaning describes an object, which can be judged as true or false and can be negated and questioned. Descriptive meaning can also be concrete or abstract (Feist 2011: 27). Consequently, a Descriptor is between a Classifier and an Epithet, consistent with my statement.

2.2.2. Classifications of premodifiers in Chinese

Zhu (1982) proposed the most authoritative classifications of premodifiers in Chinese: 性质形容词 (Characteristic adjective), 状态形容词 (State adjective), and 区别词

(Distinguishing word). Characteristic adjectives are analogous to Descriptors, while a State adjective resembles an Epithet, and a Distinguishing word parallels a Classifier. State adjectives precede Characteristic adjectives, and Characteristic adjectives precede Distinguishing words in most cases. This order is also similar to that of English. While State adjectives are too miscellaneous for classification, State adjectives and Distinguishing words can be arranged as follows:

(3) a. Six subtypes of characteristic adjectives (Ma, 1995: 362)
A_1 大小 1 (general size) A_2 质量 (quality) A_3 嗅味 (tastes and odors) A_4 大小 2 (specific size) A_5 颜色 (color) A_6 形状 (shape)
b. Four subtypes of distinguishing words (Ma, 1995: 363)
D_1: 高程度 (high degree) e.g., 巨型 "giant" 大量 "a large number"
D_2: 来源 (source) e.g., 国产 "domestic" 人工 "artificial"
D_3: 特种 (special type) e.g., 有色 "colored" 轻型 "light"
D_4: 关系 (relation) e.g., 英汉 "English-Chinese"

(3a) demonstrates six subtypes of characteristic adjectives. Here, A_1 general size only concerns *big* and *small* in a general meaning, while A_4 specific size has a more specific meaning: *long* and *short*, *thick* and *thin*, etc. (3b) displays four subtypes of distinguishing words. Characteristic adjectives and Distinguishing words seem to share similar meanings in some cases, but they differ in gradeability and behave differently in combination with 不 "not":

(4) 很大 "very big" 不大 "not big"
很传统 "very traditional" 不传统 "not traditional"
*很人工 "very artificial" *不人工 "not artificial"
*很巨型 "very giant" *不巨型 "not giant"

As illustrated in (4), the Characteristic adjectives 大 "big" and 传统 "traditional" are gradable, and they can be used directly after 不 "not"; while Distinguishing words 人工 "artificial" and 巨型 "giant" are ungradable and cannot be used directly after 不 "not."

Returning to the Chinese premodifier order, "状态形容词 (State adjective) > 性质形容词 (Characteristic adjective) > 区别词 (Distinguishing word)" shares the same distribution as (2a) Evaluative > General property > Age > Color > Provenance > Manufacture > Type. Because State adjectives are analogous to *evaluative*, Characteristic adjectives correspond with *general property*, *age*, and *color*; Distinguishing words are similar to *provenance*, *manufacture*, and *type*. From the discussions above, we can conclude that the Chinese premodifier order also follows my contention: subjective, extrinsic, and abstract premodifiers precede objective, intrinsic, and concrete premodifiers.

2.2.3. Iconicity

Iconicity is a property of language form that reflects the conceptualization of the real world. Aitchison (2001: 164) illustrated, "Languages inevitably shadow the world, and try to retain this shadowing, it is sometimes claimed. That is, they weakly copy certain external figures, a phenomenon known as iconicity." There are three iconic linguistic principles: the iconic quantity, iconic proximity, and iconic sequencing principles (Ungerer & Schmid 2013). The

iconic proximity principle is associated with the issue of premodifier order among the three principles. This correlation is briefly illustrated by (5):

(5) *the famous delicious Italian pepperoni pizza
*the Italian delicious famous pepperoni pizza
*the famous pepperoni delicious Italian pizza
*the pepperoni delicious famous Italian pizza

(Ungerer & Schmid 2013: 302)

Ungerer and Schmid (2013) suggested that only the first combination is acceptable. However, apart from the combinations given in (5), "the Italian famous delicious pepperoni pizza" is also acceptable when we want to emphasize the origin. For example, consider there are a "famous delicious *Italian* pepperoni pizza" and a "famous delicious *American* pepperoni pizza"; if you want to make yourself clear, the best choice is to move "*Italian*" forward to highlight it (we look at this pragmatic issue in Chapter 5).

Nevertheless, the first sequence is the most acceptable because *pepperoni* is one of the ingredients of the pizza, so it must be placed closest to the head noun; *Italian* is the origin of the pizza, as the origin is also an intrinsic characteristic of the pizza, so it should be placed in the second place next to the head noun; and *famous* and *delicious* are the evaluation of the pizza, which are closer to the speaker's opinion rather than the pizza itself, so they receive the most remote place.

From the example discussed above, we can safely conclude that iconicity is also in accordance with "subjectivity and objectivity," as objective, intrinsic, and concrete premodifiers (*pepperoni* and *Italian*) are closer to the head noun, while subjective, extrinsic, and abstract premodifiers (*famous* and *delicious*) are further from the head noun. For Chinese, the main aim of Yang's (2006) study was to advocate that the iconic proximity principle affects Chinese premodifier order, yielding the same conclusion for Chinese.

2.3. Discussion of other semantic factors

As mentioned above, "subjectivity and objectivity" is the most influential factor determining premodifier order because it can subsume other semantic factors.

First, we will focus on the correlation between "absoluteness and number of oppositions" and "subjectivity and objectivity." If the property of the object is objective, then we do not have to compare the object with others to decide which premodifier we must use; however, if the property of the object is subjective, then we must compare the object with other objects or at least with the standard we have in our minds. For *a nice plastic plate*, for example, we can directly decide that the plate is made of *plastic* without comparing it with other plates, but we have to compare it with at least our standard to decide whether it is *nice*. We can infer from the discussion above that "absoluteness and number of oppositions" is identical to "subjectivity and objectivity."

Apart from "absoluteness and number of oppositions," there are two factors that need to be discussed: "definiteness of denotation," noted by Sweet (1900), and "semantic congruity and affective load," suggested by Richards (1977).

Therefore, we will look at the "definiteness of denotation." Next, the denotation of a premodifier may change when it modifies different objects. Premodifiers with high definiteness of denotation barely change even when they modify different objects, while premodifiers with low definiteness of denotation change greatly. Premodifiers with low definiteness are said to precede those with high definiteness. Again, in the example of *a nice plastic plate, nice* may

denote pattern, shape, or quality in this phrase; at the same time, it can denote kind-heartedness when a head noun is a person or deliciousness when the head noun is a meal, while *plastic* denotes the same regardless of what it modifies. As a result, *plastic* is closer to the head noun than *nice* because it has a higher definiteness of denotation.

"Definiteness of denotation" and "absoluteness" appear to have almost the same significance in deciding premodifier order in the result of Martin's (1969) experiment ("definiteness of denotation" is most significant and "absoluteness" is the second). Martin (1969: 703) pointed out that "definiteness of denotation" and "absoluteness" are parallel in that "Adjectives which are low in absoluteness will be indefinite in denotation as they are sensitive to comparisons among instances. Adjectives high in absoluteness will be definite in denotation as they are not sensitive to comparisons among instances." Since we have concluded that "absoluteness and number of oppositions" is identical to "subjectivity and objectivity," we can deduce that "definiteness of denotation" also coincides with "subjectivity and objectivity."

Finally, I will focus on "semantic congruity and affective load" suggested by Richards (1977). "Semantic congruity and affective load" has been noted to be the most influential factor in Wulff's (2003) study. However, from my perspective, "semantic congruity and affective load" is not a practical factor in clarifying the premodifier order. I insist that it is impractical because there are too many cases where the premodifiers in the same phrase have the same affective load (2369 out of 3234 examined pairs in Wulff's (2003) experiment). In this case, "semantic congruity and affective load" could not determine the preference for a given order. Although the "semantic congruity and affective load" factor demonstrates a high relevance in the result of Wulff's (2003) test, 2369 out of 3234 pairs were not determined by this factor. In this sense, "semantic congruity and affective load" cannot serve effectively as a factor for unraveling the premodifier order.

In conclusion, "subjectivity and objectivity" is the most crucial factor determining premodifier order because it can explain all other semantic factors. On this basis, I propose that "subjective, extrinsic, and abstract premodifiers precede objective, intrinsic, and concrete ones." Moreover, English and Chinese have similar premodifier orders in line with the proposed principle.

3. Syntactic factors

Before semantic factors were demonstrated to be the most influential factor determining premodifier order, the question of what determines premodifier order was analyzed from the perspective of syntax.

Vendler (1963) attempted to explain premodifier order from a syntactic principle to the effect that premodifiers derived from the same transformation can be classified as a group, and the order of the groups determines the order of premodifiers. This can be illustrated briefly by *the small blue car*: *a blue car* is said to be transformed from *the car is blue*, i.e., N is A; *a small car* is said to be derived from *the car is small for a car*, i.e., N is A for N. The group with the structure "N is A for N" precedes the group with "N is A." As a result, this transformation can explain why *small* precedes *blue* in *the small blue car*.

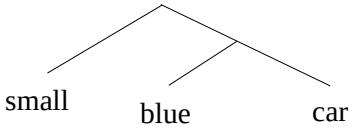
Many writers have vehemently contested the claim that syntactic factors primarily influence premodifier order. For instance, Byrne (1979: 73) pointed out that syntactic factors are completely conventional and simply reflect semantic factors. Feist (2011: 103) also concluded that the premodifier's syntactic performance was rooted in its semantic structure. Regarding the premodifier order, the assessment that semantics rules over syntax has become a consensus.

Nonetheless, syntax still plays a vital role in analyzing the difference between premodifier strings with a comma or conjunction and strings with no separation. The former type is called a broken premodifier string, e.g., *a tall, dark, and handsome man*, while the latter is called an unbroken premodifier string, e.g., *a tall, dark, handsome man* (Vendler 1968). I will deal with the syntactic structures of both broken and unbroken premodifier strings in English and reveal the differences between these two strings in 3.1. Then, the same topic in Chinese will be discussed in Section 3.2, and finally, I will compare English and Chinese in Section 3.3.

3.1. Syntactic structure of premodifier strings in English

3.1.1. Syntactic structure of unbroken strings

(6)



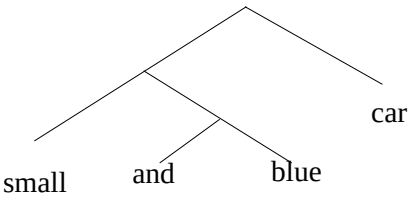
As presented in (6), the syntactic structure for *small blue car* is [small [blue car]]. *Blue* combines with *car* first to generate a subset of cars: the set of *blue cars*, then *small* combines with *blue car*, which connotes that it is modifying the set of *blue cars*. As a result, the most subjective, extrinsic, and abstract premodifier (which contains the tiniest information about the head noun) will be combined last in order to maximize the precision of communication (Simonic 2018: 7). This hierarchical structure has also been stated by Feist (2011: 103), who noted that the syntactic structure of premodifier zones is [Reinforcer [Epithet [Descriptor [Classifier head]]]].

Nevertheless, there are exceptions from my point of view, especially in phrases of color, such as *pale blue eyes*. In my opinion, the syntactic structure of *pale blue eyes* is not [pale [blue eyes]] but [[pale blue] eyes]. Because *pale blue* is recognized as a kind of color, it is not the *blue eyes* that are *pale* but the color *blue*.

3.1.2. Syntactic structure of broken strings

Richards (1977: 78) pointed out that the constraint on premodifier order is only valid in unbroken strings, but it does not seem to hold in broken strings. The reason can be found in the syntactic structure of the broken premodifier order illustrated by Simonic (2018):

(7)



From the syntactic structure in (7), we can see that the broken premodifier string no longer sustains the hierarchical structure assumed by the unbroken string. Instead, premodifiers make a coordinate combination first, and it is the combination that modifies the head noun. Consequently, the order of premodifiers is not very important because the content of the premodifier combination does not change regardless of the order.

Byrne (1979) claimed that a conjunction counteracts constraints on premodifier order. However, I assume premodifier ordering preferences still exist even when the string is broken. Table 2 and Table 3 are presented to confirm my assumption:

		Adj_1Adj_2	Adj_2Adj_1
1	poor (Adj_1) little (Adj_2)	764	8
2	handsome young	481	8
3	poor old	353	7
4	long black	906	11
5	little old	913	70
6	ground black	2178	2
7	large blue	144	1
8	whole wide	386	1
9	big bad	497	5
10	beautiful young	883	18

Table 2: Data of unbroken premodifier strings

		Adj_1, Adj_2	Adj_2, Adj_1
1	poor(Adj_1), little(Adj_2)	10	1
2	handsome, young	14	17
3	poor, old	21	3
4	long, black	151	3
5	little, old	9	2
6	ground, black	5	0
7	large, blue	6	0
8	whole, wide	11	0
9	big, bad	207	5
10	beautiful, young	48	68

Table3: Data of broken premodifier strings

Tables 2 and 3 contain ten randomly selected premodifier strings from the *Corpus of Contemporary American English* (COCA). All the strings have hierarchical syntactic constructions. Table 2 displays the frequencies of both the preferred order (Adj_1Adj_2) and converse order (Adj_2Adj_1) of the unbroken premodifier strings, while Table 3 displays the same frequencies of broken premodifier strings.

By comparing Tables 2 and 3, it is evident that: 1) for strings with the same components, unbroken strings are more commonly used; 2) premodifier order preference is weakened in broken strings because the converse order has a higher frequency than the preferred order in Data No. 2 and No. 10 in Table 3; and 3) the preferred order in unbroken strings is still preferred in broken strings, which indicates that the constraints on premodifier order remain valid even on broken strings. This point is consistent with Rosales and Scontras's (2019: 9) observation: "In English, where multi-adjective strings optionally feature conjunction, we found that with conjunction, subjectivity-based ordering preferences weaken but persist."

3.2. Syntactic structure of premodifier strings in Chinese

Zhu (1982) stated that there are two kinds of nominal modification-center structures in Chinese: 粘合式偏正结构 (agglutinated modification-center structure) and 组合式偏正结构 (combined modification-center structure). The difference between the two structures is that in the agglutinated modification-center structure, premodifiers combine with the head noun directly, while in the combined modification-center structure, premodifiers must use the postposition 的 to combine with the head noun:

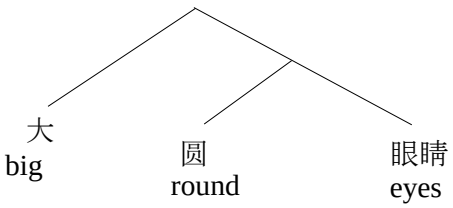
(8) a. 粘合式偏正结构 (agglutinated modification-center structure)
e.g., 薄饼 "pancake," 公共汽车 "bus"
b. 组合式偏正结构 (combined modification-center structure)
e.g., 薄的饼 "thin cake," 公共的汽车 "public car"

As illustrated in (8), the agglutinated modification-center structure tends to construct a subset of the head noun, which implies that the agglutinated modification-center structure is regarded as a noun. Contrariwise, the combined modification-center structure constructs a noun phrase in which premodifiers describe the head noun. In this case, the restriction that creates a subset of the head noun is also observed. However, the key point of the combined modification-center structure is not the subset but highlighting the property of the head noun. Next, I will reveal the syntactic structure of the agglutinated modification-center structure in Section 3.2.1 and the agglutinated modification-center structure in Section 3.2.2.

3.1.2. Syntactic structure of the agglutinated modification-center structure

As mentioned above, the agglutinated modification-center structure constructs a subset of the head noun. As a result, the syntactic structure of the agglutinated modification-center structure is identical to that of unbroken premodifier strings in English. Take 大圆眼睛 "big round eyes," for example:

(9)



In (9), 圆 "round" first combines with 眼睛 "eyes" to form a subset of eyes, 圆眼睛 "round eyes," differing from other types of eye shape; then 大 "big" integrates with it to indicate a subset of 圆眼睛 "round eyes," 大圆眼睛 "big round eyes," in contrast with 小圆眼睛 "small round eyes." The feature that classifies an object rather than describes it is similar to that of a Classifier in English.

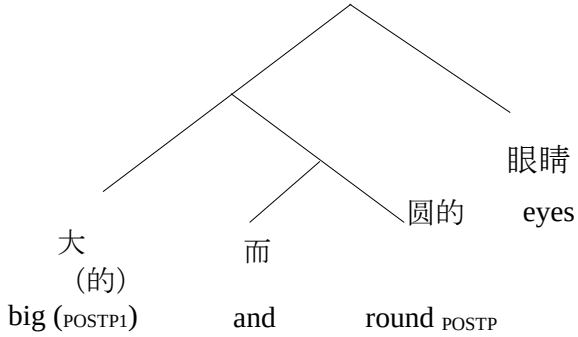
As mentioned in Section 2.2.2, adjectives in Chinese are categorized as 性质形容词 (Characteristic adjectives), 状态形容词 (State adjectives), and 区别词 (Distinguishing words). Unlike State adjectives, which must be used through a combined modification-center structure, both Characteristic adjectives and Distinguishing words can constitute an agglutinated modification-center structure. At the same time, Characteristic adjectives and Distinguishing words can also be used in the combined modification-center structure form by

adding 的. Their categorization label will also change to a State adjective because they no longer classify the head noun but describe it. This matter will be discussed further in the next section.

3.2.2. Syntactic structure of the combined modification-center structure

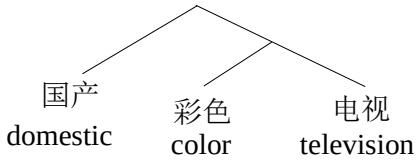
Combined modification-center structures are employed to describe the head noun rather than create a subset. Therefore, the syntactic structure of the combined modification-center structure is in accordance with broken premodifier strings in English. For instance, (10) illustrates the syntactic structure of the combined modification-center structure, 大而圆的眼睛 "big and round eyes."

(10)

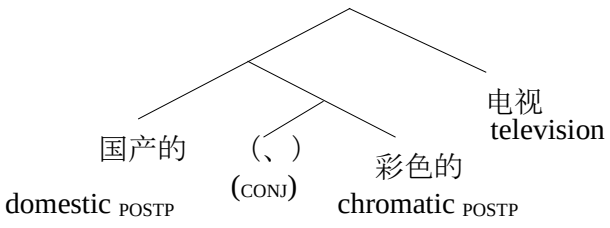


Here, 大 "big" and 圆 "round," which are Characteristic adjectives in (9), shift to State adjectives by adding the postposition 的. Consequently, they no longer emphasize the generation of subsets but describe the features of the eyes. As previously mentioned, both Characteristic adjectives and Distinguishing words can be altered to State adjectives by adding 的. To give an example of Distinguishing words, the syntactic structure of 国产彩色电视 "domestic color television," which is composed of Distinguishing words and the head noun, will be presented in (11); the syntactic structure of the version in which the same Distinguishing words shift to State adjectives: 国产的（、）彩色的电视 "domestic and chromatic television," is displayed in (12):

(11)



(12)



From (11) and (12), it is evident that Distinguishing words also can change to the combined modification-center structure form by adding 的. Furthermore, the distinction between the meanings of the two structures parallels that of Characteristic adjectives. On the one hand, in (11), 彩色 "color" first combines with 电视 "television" to form a subset of television, 彩色电视 "color television," in contrast to 黑白电视 "monochromatic television"; then 国产 "domestic" combines with 彩色电视 "color television" to construct a subset 国产彩色电视 "domestic color television," in contrast to 进口彩色电视 "imported color television." On the other hand, (12) 国产的（、）彩色的电视 "domestic and chromatic television" is used to emphasize the features "domestic and chromatic" of the television.

Nonetheless, there are also differences between the combined modification-center structures transformed from Characteristic adjectives and Distinguishing words. That is, in the combined modification-center structure transformed from Characteristic adjectives, such as 大而圆的眼睛 "big and round eyes," the first adjective's 的 is omitted, but the conjunction 而 "and" cannot be omitted. Conversely, in the combined modification-center structure transformed from Distinguishing words, such as 国产的（、）彩色的电视 "domestic and chromatic television," the first adjective's 的 must remain. In addition, instead of a conjunction word such as 而 (and), a punctuation mark "、" can be used. Moreover, the mark "、" generally appears but can be neglected in informal use. The structure with punctuation "、," namely, "a 的、a 的 n," has a frequency of 49,081,119 in *BLCU Corpus Center* (BCC), while the structure without "、," that is, "a 的 a 的 n," has a frequency of 2,348.

In addition, the combined modification-center structure transformed from Distinguishing words cannot be applied to "a 而 a 的 n," while the combined modification-center structure transformed from Characteristic adjectives can be applied to "a 的(、)a 的 n," but for the most part only for polysyllabic words. In this case, 的 of the first adjective is commonly omitted; that is, "a (的、) a 的 n." We will analyze this point in Chapter 4.

3.3. Contrast between English and Chinese

There are two similarities between English and Chinese premodifier strings from the viewpoint of syntax.

First, premodifier strings in English and Chinese both have two kinds of syntactic structures: hierarchical and non-hierarchical. However, this difference is caused by the presence or absence of a conjunction in English, while in Chinese, it is the postposition 的 that differentiates the two structures.

Second, premodifier order preference is abated but still valid in non-hierarchical structures in both English and Chinese. This was demonstrated for English in Section 3.1.2, and Tables 4 and 5 present the counterparts for Chinese.

		Adj_1Adj_2	Adj_2Adj_1
1	大 (Adj_1) 圆 (Adj_2) 眼睛 "big round eyes"	535	3
2	大 难 题 "big problem"	2086	0
3	小 圆 桌 "small round table"	278	0
4	厚 棉 被 "thick quilt"	49	0
5	老 母 鸡 "old hen"	713	0
6	新 英汉 词典	53	0

	“new English-Chinese dictionary”		
7	人工 放射性 元素 “artificial radioactive element”	14	0
8	高层次 复合型 人才 “high-level inter-disciplinary talent”	36	9
9	一般 疑问 句 “general question”	13	0
10	大规模 集成 电路 “large scale integrated circuit”	694	0

Table 4: Data of agglutinated modification-center structures

		Adj_1Adj_2	Adj_2Adj_1
1	大 (Adj_1) 而 圆的 (Adj_2) “big and round”	37	5
2	大 而 难的 “big and difficult”	24	0
3	小 而 圆的 “small and round”	38	10
4	广泛 而 深刻的 “extensive and profound”	342	23
5	平凡 而 伟大的 “ordinary but great”	143	13
6	亲爱的 美丽的 “beloved and beautiful”	13	2
7	年轻 漂亮的 “young and beautiful”	462	16
8	安全 可靠的 “safe and reliable”	620	6
9	独立 自由的 “independent and free”	95	48
10	严肃 认真的 “serious and earnest”	604	117

Table 5: Data of combined modification-center structures

Table 4 illustrates the frequencies of ten agglutinated modification-center structures, and Table 5 illustrates the frequencies of ten combined modification-center structures in Chinese. Again, the frequency of the preferred order is displayed on the left, while the converse order is on the right. The Chinese data do not illustrate a contrastive relation between the two tables as in the case of English data because although Characteristic adjectives and Distinguishing words can be used in combined modification-center structures and the usages are grammatically valid, they are not attested.

As illustrated in Table 4, the orders of agglutinated modification-center structures are strictly restricted. In contrast, the orders of the combined modification-center structures are constrained, but the constraints are less strict than those on agglutinated modification-center structures. Furthermore, we can see that the orders favored in hierarchical structures in Table 4 still demonstrate priority in non-hierarchical structures in Table 5.

There is, however, a distinction between English and Chinese regarding the conjunction. Richards (1977) pointed out that premodifiers in broken strings can be semantically congruent or incongruent. Semantically congruent premodifiers have similar senses, whereas incongruent premodifiers have contrary senses. (13) and (14) are instances given by Richards (1977: 491):

(13) a. The poor, wretched child begged on the street.
b. The poor and wretched child begged on the street.

(14) a. The poor, happy child begged on the street.
b. The poor but happy child begged on the street.

As illustrated in (13), semantically congruent premodifiers are conjoined by a comma or the conjunction "and," while incongruent premodifiers are conjoined by a comma or the conjunction "but" in (14). The comma can be used in both congruent and incongruent situations. In Chinese, contrariwise, the punctuation mark (、) can only be used in congruent strings. In Chinese, semantically congruent premodifiers in combined modification-center structures are conjoined with punctuation (、) or conjunctions such as 而 "and," or even conjoined directly without any marker; to conjoin incongruent premodifiers, a conjunction such as 而 "but" or 但 "but" is necessary. Specifically, it is customary to say 平凡而伟大的 "ordinary but great," but *平凡（的）伟大的 is unacceptable.

4. Phonological factors

Phonological factors have also been affirmed to influence premodifier order in English and Chinese. The factor that has been discussed the most in this area is the length of the premodifier, and the length factor has a great significance in determining the premodifier order, particularly in Chinese.

This chapter is structured as follows. In Section 4.1, I will argue that although the length factor influences premodifier order, it does not outstrip the semantic factor in English; in Section 4.2, I will demonstrate that the length factor has a higher significance in determining premodifier order in Chinese than in English, especially when considering 性质形容词 (Characteristic adjective). Additionally, a discovery between tones and the premodifier order in Chinese is illustrated in Section 4.3.

4.1. Length factor in English

Grossman et al. (1975) indicated that shorter words commonly precede longer ones in English. Goyvaerts (1968) suggested that this point also works for the premodifier order by presenting the contrast in (15), in that (15a) is more acceptable than (15b):

(15) a. the long intelligent book
b. the intelligent long book (Goyvaerts 1968: 13)

Moreover, Wulff (2003) indicated that the length factor could help predict the premodifier order more accurately, but unfortunately, it cannot be considered a determining factor. This is because the length factor only took the sixth most influential place among the eight factors in Wulff's (2003) experiment. I present the data in Table 6 to confirm this observation.

		Length in letters	Length in syllables
1	extra virgin olive oil		△[1]
2	chronic obstructive pulmonary disease		◯[2]

[1] The premodifier strings with "△" follow the principle of length factor in that shorter premodifiers precede longer ones either in terms of letters or syllables, but they have premodifiers that share the same length in the other term.

[2] The premodifier strings with "◯" totally follow the principle of length factor.

3	national collegiate athletic association		△
4	African Methodist episcopal church	△	△
5	royal Canadian mounted police		
6	double white revised pages		
7	vice presidential running mate		
8	Democratic vice presidential candidate		
9	severe acute respiratory syndrome		△
10	big fat Greek wedding	△	

Table 6: Top ten high-frequency triple premodifier strings in COCA

Table 6 displays ten triple premodifier strings with the highest frequency in COCA. I analyzed the length of each string, both in terms of the number of letters and syllables. Only two out of ten strings follow the principle that shorter premodifiers precede longer ones from the perspective of letters, and five out of ten strings follow the principle from the perspective of syllables. Only No. 2 completely adheres to the principle, while the others have premodifiers with the same length of letters or syllables, which suggests that the length factor cannot determine the order of those strings. Therefore, the result is in accordance with Wulff's (2003) proposal that the length factor helps determine premodifier orders but does not weigh as much as the semantic factor.

4.2. Length factor in Chinese

Chinese premodifier orders are more closely related to the length factor than in the case of English. For example, Ma (1995: 359) maintained that single-syllable Characteristic adjectives follow double-syllable Characteristic adjectives. Moreover, Wang (2017: 160) claimed that the number of syllables is an exceedingly critical factor in determining premodifier orders in Chinese. However, unlike English, this phonological preference appears only in the context of premodifier orders in Chinese. The effect of the length factor on agglutinated modification-center structures will be examined in Section 4.2.1, and the effect on combined modification-center structures is elucidated in Section 4.2.2.

4.2.1. Effect on agglutinated modification-center structure

As mentioned in Section 3.2.1, among the three classifications of Chinese premodifiers, 性质形容词 (Characteristic adjective), 状态形容词 (State adjective), and 区别词 (Distinguishing words), only Characteristic adjectives and Distinguishing words can construct agglutinated modification-center structures. Accordingly, the effect of length should be considered in three situations: all-Characteristic adjective strings, all-Distinguishing word strings, and strings with both Characteristic adjectives and Distinguishing words, which will be discussed separately in Subsections 4.2.1.1, 4.2.1.2, and 4.2.1.

4.2.1.1. Effect on all-Characteristic adjective strings

First, we will examine the effect of length on all-Characteristic adjective strings. In (16), the same items are employed as in (3a) in Section 2.2.2, which presents six subtypes of characteristic adjectives:

(16) Six subtypes of characteristic adjectives (Ma, 1995: 362)
A_1 大小 1 (general size) A_2 质量 (quality) A_3 嗅味 (tastes and odors) A_4 大小 2 (specific size) A_5 颜色 (color) A_6 形状 (shape)

Ma (1995: 359) noted that the basic order within all-Characteristic adjective strings is "$A_1 > A_2 > A_3 > A_4 > A_5 > A_6$". Some examples are illustrated in (17).

(17) a.大圆桌 "big round table":
大 "big" → A_1, 圆 "round" → A_6; $A_1 > A_6$
b.黑直线 "black straight line":
黑 "black" → A_5, 直 "straight" → A_6; $A_5 > A_6$
c.熟咸蛋 "cooked salted egg":
熟 "cooked" → A_2, 咸 "salty" → A_3; $A_2 > A_3$

As illustrated in (17), all strings follow the order "$A_1 > A_2 > A_3 > A_4 > A_5 > A_6$". However, this rule applies only when all Characteristic adjectives concerned are single-syllable premodifiers. This order does not necessarily hold when a single-syllable Characteristic adjective and a double-syllable Characteristic adjective are used together:

(18) a.*大实用字典 "(big) practical dictionary"
大 "big" → A_1, 实用 "practical" → A_2; $A_1 > A_2$
b.实用大字典 "practical (big) dictionary"
实用 "practical" → A_2, 大 "big" → A_1; $A_2 > A_1$

In Chinese, (18b) is the accurate method to express *a practical dictionary*, whereas (18a) is not acceptable. However, (18b), the acceptable one, does not follow the order "$A_1 > A_2 > A_3 > A_4 > A_5 > A_6$". Consequently, for all-Characteristic adjective strings with both single- and double-syllable Characteristic adjectives, the length factor determines the premodifier order. Specifically, the phonological factor has more influence than the semantic factor in this case. More examples are provided in (19) to prove this claim:

(19) a.白色大衣 "white coat"
白色 "white" → A_5, 大 "big" → A_1; $A_5 > A_1$
b.泥泞小路 "muddy path"
泥泞 "muddy" → A_2, 小 "small" → A_1; $A_2 > A_1$

Examples in (19) illustrate that the phonological factor overrides the semantic factor when single-syllable Characteristic adjectives and double-syllable Characteristic adjectives appear simultaneously. Furthermore, this phenomenon mainly occurs when *big* and *small* in A_1 大小 1 (general size) participate in the word combination.

4.2.1.2. Effect on all-Distinguishing word strings

Second, we will focus on the effect of length on all-Distinguishing words. Equation (20) presents the four subtypes of distinguishing words, which is the same as (3b) in Section 2.2.2.

(20) Four subtypes of distinguishing words (Ma, 1995: 363)
D_1: 高程度 (high degree) e.g., 巨型 “giant” 大量 “a large number”
D_2: 来源 (source) e.g., 国产 “domestic” 人工 “artificial”
D_3: 特种 (special type) e.g., 有色 “colored” 轻型 “light”
D_4: 关系 (relation) e.g., 英汉 “English–Chinese”

Ma(1995: 361) indicated that the order within all-Distinguishing word strings is “$D_1 > D_2 > D_3 > D_4$” based on semantics. Some instances are illustrated in (21):

(21) a.高层次复合型人才 “high-level inter-disciplinary talent”
高层次 “high-level” → D_1, 复合型 “inter-disciplinary” → D_3; $D_1 > D_3$
b.人工放射性元素 “artificial radioactive element”
人工 “artificial” → D_2, 放射性 “radioactive” → D_3; $D_2 > D_3$
c.大规模集成电路 (large-scale integrated circuit)
大规模 (large scale) → D_1, 集成 (integrated) → D_3; $D_1 > D_3$
d.简明英汉词典 “concise English-Chinese dictionary”
简明 “concise” → D_3, 英汉 “English-Chinese” → D_4; $D_3 > D_4$

All the examples in (21) follow the semantic principle. Regarding the length factor, (21c) is supportive because the triple-syllable premodifier 大规模 “large scale” precedes the double-syllable premodifier 集成 “integrated.” On the contrary, (21c) fails to adhere to the phonological principle since the triple syllable premodifier 放射性 “radioactive” is placed after the double syllable premodifier 人工 “artificial.” Consequently, we can conclude that the length factor does not influence the order of all-Distinguishing word strings. (22) exhibits additional instances.

(22) a.国产复合式机床 “domestic compound machine tool”
国产 “domestic” → D_2, 复合式 “compound” → D_3; $D_2 > D_3$
b.主要国际性河流 (main multinational river)
主要 “main” → D_1, 国际性 “multinational” → D_3; $D_1 > D_3$

Triple-syllable premodifiers follow double-syllable premodifiers in (22a) and (22b), which concludes that the semantic factor is more important than the phonological factor in determining premodifier orders in all-Distinguishing word strings.

4.2.1.3. Effect on strings with both types

Finally, we focus on the effect of length on strings with both Characteristic adjectives and Distinguishing words. Ma (1995: 361) stated that: i) Characteristic adjectives precede Distinguishing words more often than Distinguishing words precede Characteristic adjectives; and ii) Characteristic adjectives 大 “big” and 小 “small” precede Distinguishing words, which have the meaning of gender, e.g., 大公鸡 “big rooster,” but follow other Distinguishing words, e.g., 俄汉大词典 “Russian–Chinese dictionary.”

However, according to my perspective: i) except for the Characteristic adjective 新 “new,” which always foregoes Distinguishing words, the orders of all the other Characteristic adjectives and Distinguishing words adhere to the length principle; and ii) if the premodifiers share

the same length, the semantic factor determines the order; that is to say, Characteristic adjectives precede Distinguishing words. Some examples are presented in (23) to prove (i).

(23) a.新(A[3])英汉(D)词典 “new English–Chinese dictionary”
b.中外(D)旧(A)约章
“old treaties and agreements between China and foreign powers”
c.无核(D)白(A)葡萄 “seedless white grape”
d.京杭(D)大(A)运河 “Beijing-Hangzhou Grand Canal”

Apart from (23a), where the characteristic adjective 新 “new” appears, all the other examples follow the principle that longer premodifiers precede shorter premodifiers. Characteristic adjectives should precede Distinguishing words in terms of semantic factors, but when Distinguishing words have more syllables than Characteristic adjectives, the phonological factor matters rather than the semantic factor. Conversely, as mentioned in (ii), when Distinguishing words are Characteristic adjectives, Distinguishing words follow Characteristic adjectives. The following are some examples:

(24) a.老(A)母(D)鸡 “old hen”
b.胖(A)女(D)人 “fat woman”
c.重要(A)天然(D)林区 “important natural forest region”
d.一般(A)疑问(D)句 “general question”

From the examples in (24), it is evident that when the Distinguishing word and the Characteristic adjective have the same length, the former is placed closer to the head noun based on semantic factors. Based on the discussions in Sections 4.2.1.1 and 4.2.1.2, we can conclude that when Characteristic adjectives are involved, and the premodifiers differ in length, the phonological factor has a more substantial effect than the semantic factor in determining the premodifier order. However, in other cases, it is still the semantic factor that counts.

I suppose that the reason the length factor only affects when Characteristic adjectives are involved can be revealed from a historical perspective. As we can see in Sections 4.2.1.1 and 4.2.1.2, virtually all Characteristic adjectives are monosyllabic and disyllabic, while Distinguishing words are disyllabic and polysyllabic. Dong (2018: 4) noted that all the words in ancient Chinese were monosyllabic, and disyllables in contemporary Chinese are composed of monosyllables. Accordingly, monosyllabic words are considered more appropriate to generate a new word (the subset in agglutinated modification-center structures) than disyllabic words, so monosyllabic words tend to be placed closer to the head noun. As mentioned above, there are a large number of monosyllabic words in Characteristic adjectives. Therefore, the length factor is only affected when Characteristic adjectives are involved.

4.2.2. Effect on combined modification-center structure

As presented in Table 5 in Section 3.3, the constraints on order preference in combined modification-center structures are looser than those in agglutinated modification-center structures but are nevertheless valid. As far as I can see, the length factor is not a determining factor for the premodifier order in the combined modification-center structures. Some instances are given below:

[3] “A” represents Characteristic adjectives and “D” represents Distinguishing words.

(25) a.新的 伟大的 里程碑 / 伟大的 新的 里程碑
"new and great milestone"
b.好的 温暖的 人际关系 / 温暖的 好的 人际关系
"good and warm interpersonal relationship"
c.剧烈的 大的 事情 / 大的 剧烈的 事情
"big and acute event"
d.慌乱的 无所适从的 夜晚 / 无所适从的 慌乱的 夜晚
"flurried and confused night"

As illustrated in (25), a longer word in the first position and a shorter one in the first position are equally acceptable in this case. However, as mentioned in the last segment of Section 3.2.2, for the most part, only combined modification-center structure transformed from polysyllabic Characteristic adjectives can be applied to the format of "a 的 (、)a 的 n." Monosyllabic Characteristic adjectives need to shift to polysyllabic Characteristic adjectives to be adapted to the schema of "a 的(、)a 的 n" in most cases. Table 7 illustrates the relevant examples.

No.	Polysyllabic form		Monosyllabic form	
1	大大的(、)圆圆的 (big and round)	4	大的(、)圆的	0
2	细细的(、)长长的 (thin and long)	10	细的(、)长的	0
3	淡淡的(、)甜甜的 (subtle and sweet)	5	淡的(、)甜的	0
4	红红的(、)圆圆的 (red and round)	3	红的(、)圆的	0
5	高高的(、)瘦瘦的 (tall and thin)	11	高的(、)瘦的	2

Table 7: Data of monosyllabic Characteristic adjectives in "a 的(、)a 的 n"

Frequencies in BCC of the five pairs of monosyllabic Characteristic adjectives in both polysyllabic and monosyllabic forms are presented in Table 7. We can see that it is more common for monosyllabic Characteristic adjectives to be transformed into polysyllabic forms in the structure of "a 的(、)a 的 n." Conversely, when monosyllabic Characteristic adjectives are used separately, i.e., "a 的 n," there is no need to shift them into polysyllabic forms. For instance, "大的 n" has a frequency of 1,217 times, while "大大的 n" has a frequency of 962 times in BCC, and these frequency numbers are very close to each other.

4.3. Tone factor in Chinese

While analyzing corpus data in Chinese, I discovered that Chinese premodifier orders correlate with tones in Chinese, especially in double adjective strings with combined modification-center structures, that is, "a(的、)a 的 n." In Mandarin Chinese, to differentiate the meaning of the relevant morphemes, the same syllable can be pronounced with different tones, as illustrated in (26).

(26) First tone: ¯ / 1 ā / a1
Second tone: ´/ 2 á / a2
Third tone: ˇ / 3 ǎ / a3
Fourth tone: `/ 4 à / a4
Neutral tone: / 5 a / a5

As illustrated in (26), Mandarin Chinese has four main tones and a neutral tone. The neutral tone is secondary since it is transformed from other tones in specific situations, e.g., 快活 "happy" kuai4 huo2 → kuai4 huo5. To reveal the correlation between Chinese premodifier orders and tones, 30 preferred orders in the format "a(的、)a 的 n" are displayed in Table 8 with their tones (the 的 after the two adjectives are omitted in the table).

1	失望 "disappointed" 痛苦 "painful" shi1 wang4 tong4 ku3
2	天真 "naive" 无知 "ignorant" tian1 zhen1 wu2 zhi1
3	封建 "feudal" 传统 "traditional" feng1 jian4 chuan2 tong3
4	乐观 "positive" 开朗 "cheerful" le4 guan1 kai1 lang3
5	一般 "ordinary" 普通 "common" yi4 ban1 pu3 tong1
6	荒凉 "desolate" 寂寞 "lonely" huang1 liang2 ji4 mo4
7	聪明 "smart" 勇敢 "brave" cong1 ming2 yong2 gan3
8	繁华 "bustling" 热闹 "lively" fan2 hua2 re4 nao5(4)[4]
9	清爽 "refreshing" 宜人 "pleasant" qing1 shuang3 yi2 ren2
10	自由 "free" 民主 "democratic" zi4 you2 min2 zhu3
11	专横 "imperious" 霸道 "overbearing" zhuan1 heng4 ba4 dao4
12	贫困 "poor" 落后 "behind" pin2 kun4 luo4 hou4
13	风流 "dissolute" 快活 "happy" feng1 liu2 kuai4 huo5(2)
14	风流 "romantic" 俊俏 "handsome" feng1 liu2 jun4 qiao4
15	庄严 "solemn" 伟大 "great" zhuang1 yan2 wei3 da4
16	热烈 "passionate" 兴奋 "excited" re4 lie4 xing1 fen4
17	机智 "resourceful" 幽默 "humorous" ji1 zhi4 you1 mo4
18	紧张 "nervous" 忙乱 "busy" jin3 zhang1 mang2 luan4
19	忠诚 "loyal" 老实 "honest" zhong1 cheng2 lao3 shi5(2)
20	美丽 "beautiful" 可爱 "cute" mei3 li4 ke3 ai4
21	个别 "individual" 特殊 "special" ge4 bie3 te4 shu1
22	单纯 "simple" 幼稚 "naive" dan1 chun2 you4 zhi4
23	全面 "comprehensive" 客观 "objective" quan2 mian4 ke4 guan1
24	年轻 "young" 漂亮 "beautiful" nian2 qing1 piao4 liang5(4)
25	温柔 "gentle" 美丽 "beautiful" wen1 rou2 mei3 li4
26	严肃 "serious" 认真 "earnest" yan2 su4 ren4 zhen1
27	友好 "friendly" 团结 "united" you2 hao3 tuan2 jie2
28	正常 "normal" 健康 "healthy" zheng4 chang2 jian4 kang1
29	繁杂 "complicated" 琐碎 "trivial" fan2 za2 suo3 sui4
30	自由 "free" 活泼 "lively" zi4 you2 huo2 po1

Table 8: Tones of preferred orders in the format "a(的、)a 的 n"

[4] 5(4) indicates that in this case, the neutral tone is transformed from the fourth tone.

All the data in Table 8 are composed of four characters. Therefore, I counted the number of tones for each character (except for the neutral tone, which was assigned to each tone before the tone modulation). Table 9 presents the results.

	First char.[5]	Second char.	Third char.	Fourth char.	Total
First tone	14	5	3	7	29
Second tone	7	13	8	4(2)[6]	32(2)
Third tone	2	3	6	5	16
Fourth tone	7	9	13	14(2)	14(2)

Table 9: The number of each tone at each character

Coincidentally, each tone appears most frequently in the word with the same order in the sequence of the string. For example, the third tone appears most often at the third word six out of 16 times. Wang (2007: 500) pointed out that the order of characters in double-character words follows the order of tones in Chinese and that this principle also applies to most four-character words. As the order of the four main tones of Mandarin Chinese is the most familiar and in natural phonological order, it is only reasonable for people to arrange premodifiers for this order.

5. Pragmatic factors

In the domain of pragmatics, there are two factors to be mainly discussed: noun-specific frequency and general frequency. Both Martin's (1969) and Wulff's (2003) experiments proved that these pragmatic factors are the second most influential factor after semantic factors. However, in my opinion, these two factors can be explained from the viewpoint of semantic factors.

Besides, the usage of marked order highlighting the focal point ("the **Italian** famous delicious pepperoni pizza," which was mentioned in Section 2.2.3) will also be discussed in this chapter. In what follows, I will argue the correlation between pragmatic factors and semantic factors in Section 5.1. Then I will focus on the emphatic usage of marked order in both English and Chinese in Section 5.2. Finally, I will introduce some observations of marked orders in English in Section 5.3.

5.1. Correlation between pragmatic factors and semantic factors

First, we will focus on noun-specific frequency. Noun-specific frequency counts the frequency of a premodifier appearing with a specific head noun. Lockhart and Martin's (1969) experiment demonstrated that when speaking of the head noun, the premodifier coming first to one's mind is placed closest to the head noun; that is, the premodifier appearing with the head noun most is the closest element. As far as I am concerned, premodifiers with high noun-specific frequency describe the most crucial feature of the head noun, which is intrinsic and concrete. Therefore, it is semantic factors that determine a premodifier's noun-specific frequency.

Then, as for general frequency, Ney (1983) noted that the premodifier with high frequency precedes the one with low frequency. From my perspective, the semantic factor, the number of oppositions, can unravel this point. For example, in "Evaluative > General property > Age > Color > Provenance > Manufacture > Type," *type* is countless while there are only seven

[5] Char. is the abbreviation for character.

[6] 4(2) illustrates that apart from four second tone words appearing at the fourth word, there are two neutral tone words that are transformed from the second tone appearing at the fourth word.

basic *colors*. If one million objects are modified by type and color simultaneously, the frequency that a specific type is chosen is smaller than that of a specific *color* chosen. As a result, a premodifier's general frequency is also related to semantic factors.

5.2. Emphatic usage of marked order

The marked order is frequently used to emphasize the most critical difference between the head noun and the other objects; that is, despite semantic principles, the most efficient premodifier for identifying the head noun is placed foremost. As mentioned in Section 2.2.3, *the famous delicious Italian pepperoni pizza* is properly ordered. Nevertheless, if all the pizzas are *famous delicious pepperoni pizza* and the one we refer to is from Italy while others are from America, it is appropriate for us to say *the Italian famous delicious pepperoni pizza* to highlight the sole difference, namely, the origin of the pizza.

The experimental result of Oller and Sales (1969) supported this statement. Their subjects were shown small and colored squares. In the unmarked order, *small* precedes the *color*, for example, *the small red square*. However, when only one square was small and red while all the other squares were green and small, the majority of the subjects said *the red small square* to characterize the small red square.

Moreover, Danks and Schwenk's (1972) experiment obtained the same result. When both size and color were necessary, or neither of them was necessary to identify the car, the unmarked order *the large red car* was preferred 85% of the time. On the contrary, when color was the sole difference from other cars, the marked order of *the red large car* was preferred 57% of the time. Finally, when size was the sole difference to other cars, the unmarked order's preference increased to 96%. As a result, people tend to arrange the most efficient premodifier for identifying the head noun before other premodifiers.

In the emphatic usage of marked order, we should pay attention to two requirements: stress and pause. Martin (1970: 382) noted that the stronger the constraint on premodifier order is, the more subjects place a pause in the marked order. In addition, Danks and Schwenk (1972: 184) indicated that laying stress on the first premodifier in marked orders is obligatory.

The emphatic usage of marked order also exists in Chinese. When it comes to combined modification-center structures, the usage is very similar to English. We can directly reverse the order and insert a pause and a stress: 国产的彩色的电视 "domestic and chromatic television" → **彩色的** 国产的电视 "**chromatic** and domestic television." On the other hand, when the premodifier we want to emphasize is used in an agglutinated modification-center structure, in addition to a pause and a stress, we also have to shift it to a combined modification-center structure in order to place the emphasized adjective in the front:小红雨伞 "little red umbrella" → **红色的** 小雨伞 "**red** little umbrella"; 精致的红珊瑚 "delicate red coral" → **红色的** 精致的珊瑚 "**red** delicate coral."

5.3. Some observation of marked orders in English

Feist (2011: 213) noted that the marked order was recently used more frequently than in the past. To verify this statement, I compared the frequency of marked orders in the 1960s and 2010s in *Corpus of Historical American English* (COHA) and obtained an interesting observation. Relevant data are displayed in Tables 10 and 11:

		1960s	2010s
1	poor little (thing)	1/102(0.97%)[7]	0/41(0%)
2	handsome young (man)	1/36(2.70%)	0/39(0%)
3	poor old (man)	1/113(0.88%)	1/22(4.35%)
4	long black (hair)	0/71(0%)	0/108(0%)
5	good old (days)	0/173(0%)	5/455(1.09%)
6	ground black (pepper)	0/2(0%)	0/83(0%)
7	fine young (man)	0/27(0%)	0/24(0%)
8	nice young (man)	0/41(0%)	0/29(0%)
9	dear young (lady)	0/0(0%)	0/1(0%)
10	beautiful young (woman)	0/36(0%)	0/30(0%)
11	large dark (eyes)	0/9(0%)	0/9(0%)
12	little old (man)	4/253(1.56%)	2/33(5.71%)
13	tall young (man)	0/15(0%)	0/4(0%)
14	big bad (wolf)	1/28(3.45%)	0/19(0%)
15	clear blue (eyes)	0/12(0%)	0/40(0%)
16	whole wide (world)	0/16(0%)	0/18(0%)
17	ripe old (age)	0/5(0%)	0/13(0%)
18	large blue (eyes)	0/13(0%)	0/8(0%)
19	big brown (eyes)	0/20(0%)	0/26(0%)
20	good little (girl)	4/40(9.09%)	7/22(24.1%)

Table 10: Data of *evaluative*, *general property*, *age*, and *color* strings

		1960s	2010s
1	national public (radio)	0/1(0%)	4/1085(0.37%)
2	gross domestic (product)	0/0 (0%)	6/512(1.16%)
3	roman catholic (church)	0/228(0%)	0/42(0%)
4	Democratic national (committee)	41/118(25.79%)	103/770(11.80%)
5	American medical (association)	0/94(0%)	0/34(0%)
6	federal reserve (bank)	0/167(0%)	1/825(0.12%)
7	commercial real (estate)	0/1(0%)	3/205(1.44%)
8	American free (trade)	1/3(25%)	9/143(5.92%)
9	Latin American (countries)	0/172(0%)	1/802(0.12%)
10	Republican presidential (candidate)	0/98(0%)	3/1264(0.24%)
11	European central (bank)	18/2(90%)	64/293(17.93%)
12	virgin olive (oil)	0/0(0%)	1/256(0.39%)
13	international criminal (court)	0/1(0%)	1/209(0.48%)
14	international Olympic (committee)	0/5(0%)	1/151(0.66%)

[7] 1/102(0.97%) indicates that there are one marked order (poor little) and 102 unmarked orders (little poor) appearing in the data from the 1960s. And the percentage of the marked order is 0.97%.

15	African national (congress)	0/9(0%)	1/57(1.72%)
16	international monetary (fund)	0/75(0%)	0/32(0%)
17	Democratic presidential (candidate)	0/53(0%)	0/49(0%)
18	chief financial (officer)	0/0(0%)	0/377(0%)
19	American foreign (policy)	0/54(0%)	0/213(0%)
20	federal grand (jury)	0/47(0%)	0/135(0%)

Table 11: Data of *provenance*, *manufacture*, and *type* strings

In Table 10, premodifiers are of the types of *evaluative*, *general property*, *age*, and *color*, while in Table 11, premodifiers are of *provenance*, *manufacture*, and *type.* The gray units show where the marked order was used more frequently in the 2010s than in the 1960s. Overall, in 14 out of 40 cases, marked orders were used more often in the 2010s. In addition, four out of 20 *evaluative*, *general property*, *age*, and *color* strings, and ten out of 20 *provenance*, *manufacture*, and *type* strings have higher frequencies in the marked orders in the 2010s. In other words, *evaluative, general property*, *age*, and *color* strings have stronger constraints on the arrangement of adjectives than *provenance*, *manufacture*, and *type* strings.

However, as shown in the premodifier order in English, namely, "Evaluative > General property > Age > Color > Provenance > Manufacture > Type," *evaluative*, *general property*, *age*, and *color* are further from the head noun than *provenance*, *manufacture*, and *type*. Moreover, groups further from the head noun should have looser constraints than those closer to the head noun in general. My guess is that this point may have something to do with whether the group is an open class or a closed class. In my opinion, *provenance*, *manufacture*, and *type*, especially *manufacture* and *type*, are composed of open-class items. This is because with the development of science and technology, new *manufacture* and *type* are invented every year. Conversely, *evaluative, general property*, *age*, and *color* are composed of closed-class items because their members are stationary and limited. As a result, the strength of the constraint on each group may be influenced by the openness of the word classes.

6. Conclusion

This study analyzed the factors influencing premodifier order in English and Chinese. In conclusion, English and Chinese share similar premodifier orders, and in both languages, the most influential factor is the semantic factor, which states that "subjective, extrinsic, and abstract premodifiers precede objective, intrinsic, and concrete ones." Specifically, there are similarities and differences between English and Chinese premodifier orders in terms of several factors, which will be summarized below.

First, for semantic factors, English and Chinese premodifier orders are determined by the semantic factor. Therefore, English and Chinese have similar premodifier orders in line.

Second, syntactic factors are not determining factors, but the different senses deriving from different structures in both English and Chinese can be explained by illustrating their syntactic structures. Moreover, in both English and Chinese premodifier order, the constraints on hierarchical structures are loosened but still exist in non-hierarchical structures. However, the triggers are different in the two languages. In English, the syntactic structure is triggered by the existence or non-existence of conjunction, while it is the postposition 的 that differentiates the two structures in Chinese. Furthermore, in English, the punctuation mark of a comma "," can be used in conjunction with both semantically congruent premodifiers and incongruent ones. On the contrary, the punctuation mark "、" can only be used when conjoining semantically congruent premodifiers in Chinese.

Third, concerning phonological factors, the length factor does not strongly correlate with English premodifier order. On the other hand, in Chinese premodifier order, the length factor outstrips the semantic factor when Characteristic adjectives are involved due to a historical reason. In addition, the Chinese premodifier order is also related to tones.

Lastly, with regard to pragmatic factors, those which are said to influence the premodifier order in English can be subsumed by semantic factors. Also, the emphatic usage of marked order exists in both English and Chinese, demonstrating a more complicated change regarding agglutinated modification-center structures in Chinese.

In summary, both English and Chinese premodifier orders are most strongly influenced by the semantic principle that "subjective, extrinsic, and abstract premodifiers precede objective, intrinsic, and concrete ones," while the Chinese premodifier order is sometimes determined by phonological factors. Moreover, marked orders in both languages can be explained by pragmatic factors.

This study demonstrates that while English and Chinese belong to different language families, they share similar word order, and the most significant determining factor is the same. Although the reasons behind some phenomena in the two languages remain to be further discussed, this thesis presented a comprehensive cross-linguistic analysis of the premodifier order of adjectives.

References

Aitchison, J. (2001). *Language change: Progress or decay?* Cambridge: Cambridge University Press.

Biber, D., Johansson, S., Leech, G., Conrad, S., & Finegan, E. (2000). *Longman grammar of spoken and written English*. London: Longman.

Byrne, B. (1979). Rules of prenominal adjective order and the interpretation of "incompatible" adjective pairs. *Journal of Verbal Learning and Verbal Behavior, 18(1),* 73-78.

Danks, J. H., & Schwenk, M. A. (1972). Prenominal adjective order and communication context. *Journal of verbal learning and verbal behavior, 11(2),* 183-187.

Dong, S. Z. (2018). Shanggu-Zhonggu Hanyu Fuyinci De Yansheng Ji Qi Fazhan [Derivation and development of the disyllabic vocabulary from ancient to middle Chinese]. *Doctoral dissertation. Nanjing Normal University*.

Feist, J. (2011). *Premodifiers in English: Their structure and significance*. Cambridge: Cambridge University Press.

Goyvaerts, D. L. (1968). An introductory study on the ordering of a string of adjectives in present-day English. *Philologica Pragensia, 11(1),* 12-28.

Grossman, R. E., San, L. J., & Vance, T. J. (Eds.). (1975). Papers from the parasession on functionalism, April 17, 1975. *Chicago Linguistic Society,* 63-111.

Huddleston, R., & Pullum, G. (2002). *The Cambridge grammar of the English language*. Cambridge: Cambridge University Press.

Lockhart, R. S., & Martin, J. E. (1969). Adjective order and the recall of adjective-noun triples. *Journal of Verbal Learning and Verbal Behavior, 8(2),* 272-275.

Lu, B. F. (1988). Dingyu De Waiyanxing, Neihanxing He Chengweixing Ji Qi Shunxu [Denotation, connotation, appellativity and order of attributives]. *Yufa yanjiu he tansuo (4),* Beijing, Peking University Press.

Ma, Q. Z. (1995). Duochong Dingmingjiegou Zhong Xingrongci De Leibie he Cixu [Classification and order of adjectives in multiple attributive-noun structure]. *Zhongguo yuwen, (5),* 357-366.

Martin, J. E. (1969). Semantic determinants of preferred adjective order. *Journal of Verbal Learning and Verbal Behavior, 8(6),* 697-704.

Martin, J. E. (1970). Adjective order and juncture. *Journal of Memory and Language, 9(4),* 379-383.

Ney, J. W. (1983). Optionality and Choice in the Selection of Order of Adjectives in English. *General Linguistics, 23(2),* 94-128.

Oller Jr, J. W., & Sales, B. D. (1969). Conceptual restrictions on English: A psycholinguistic study. *Lingua, 23,* 209-232.

Quirk, R., S. Greenbaum, G. Leech, & J. Svartvik (Eds.) (1985). *A Comprehensive Grammar of the English Language*. London: Longmans.

Richards, M. M. (1977). Ordering preferences for congruent and incongruent English adjectives in attributive and predicative contexts. *Journal of Verbal Learning and Verbal Behavior, 16(4),* 489-503.

Rosales Jr, C. M., & Scontras, G. (2019). On the role of conjunction in adjective ordering preferences. *Proceedings of the Linguistic Society of America, 4(1),* 32-1.

Scontras, G., Degen, J., & Goodman, N. D. (2017). Subjectivity predicts adjective ordering preferences. *Open Mind, 1(1),* 53-66.

Simonic, M. (2018). Functional explanation of adjective ordering preferences using probabilistic programming. *Unpublished master's thesis. University of Tubingen.*

Sweet, H. (1900). *A New English Grammar, Logical and Historical: Introduction, phonology, and accidence*. Clarendon Press.
Ungerer, F., & Schmid, H. J. (2013). *An introduction to cognitive linguistics*. London: Routledge.
Vendler, Z. (1963). *The transformational grammar of English adjectives*. University of Pennsylvania.
Vendler, Z. (1968). *Adjectives and nominalizations* (No. 5). Walter De Gruyter Incorporated.
Wang, R. (2017). Qianyi Xingrongci Yinjie Shuliang Dui Duoxiang Dingyu Shunxu De Yingxiang [A discussion on the influence of the number of syllable on multiple attributive order]. *Qingnian wenxuejia*, *(15)*, 160-161.
Wang, Y. L. (2007). Lun Sishengdiaoxu Yu Fuyinci De Yusu Pailie [A discussion on the order of four tones and the order of morpheme in disyllabic words]. *Hanyushi yanjiu jikan*, *(10)*, 497-519.
Wulff, S. (2003). A multifactorial corpus analysis of adjective order in English. *International Journal of Corpus Linguistics*, *8(2)*, 245-282.
Yang, K. (2006). Juli Xiangsi Dongyin Yu Hanyu Duoxiang Dingyu De Shunxu [Distance iconicity and the order of Chinese multiple attributives]. *Master's thesis*. *Liaoning Normal University*.
Yuan, Y. L. (1999). Dingyu Shunxu De Renzhi Jieshi Ji Qi Lilun Yunhan [A cognitive interpretation and theoretical implication of the attributive order]. *Zhongguo shehui kexue*, *(2)*, 185-201.
Zhu, D. X. (1982). *Yufa Jiangyi [Lectures on grammar]*. The Commercial Press.

Corpus

Corpus of Contemporary American English (COCA)
Corpus of Historical American English (COHA)
BLCU Corpus Center (BCC)

Zekun Li (former MA student)
(lily2033@hotmail.com)