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## **Cognitive Principles and Preverbal Position in Chinese**

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**Abstract** In Chinese, word order is a powerful linguistic device indicating relations between constituents, on a semantic, syntactic and pragmatic level, and has been the focus of linguistic inquiry over the past decades. Particular attention has been given to the preverbal position, with heated debate on the notion of topic and other pragmatic-related phenomena. This study is a first step towards a better understanding of the order of preverbal NPs and verb modifiers, analyzing them in light of relevant cognition-based word order principles investigated within the cognitive-functional approach. Particular attention is given to the notion of 'scope', which pertains both to the discourse and the cognitive level ('topic scope' vs. 'temporal, spatial and semantic scope'), and which seems to better explain the order and the pragmatic role of preverbal NPs. On this basis, this paper suggests a research path towards a deeper cognitive-functional comprehension of the preverbal position that takes into account the interplay of different word order related factors.

**Summary** 1. Introduction. 2. Research Lines on Word Order in Chinese. 3. The Cognition-based Functional Approach: Observations and Assumptions. 4. Research on Conceptual Principles Underlying Chinese Language Patterns. 5. Relevant WO Principles and their Application in Explaining Preverbal Elements and Constructions. 5.1. The Principle of Temporal Sequence (PTS). 5.2. The Whole-Before-Part principle (WBP). 5.3. Principle of Information Center (PIC). 6. Cognitive Principles, Topic Scopes and Preverbal Elements. 7. Conclusions.

### **1 Introduction**

Word order is one of the most fascinating and investigated topics in Chinese linguistics, and has captivated the interest of researchers over the past decades. Among the most studied aspects, there are phenomena connected with the preverbal position, which is strongly associated not only with syntactic and valency roles, but also with information status and cognitive factors. It is widely recognized that Chinese, being an isolating language with little inflectional or derivational morphology, relies heavily on word order to encode linguistic information on a syntactic, semantic and pragmatic level. These features have posed a challenge for existing linguistic theories, generating a long and still controversial debate on the grammatical and functional differences among different sentence positions, especially the preverbal position. Notions like subject, topic and other sentence-initial phenomena have been among the main focuses of linguistic inquiry.

This study attempts to further investigate the characteristics of the preverbal position in light of some relevant cognition-based principles underlying Chinese word order, which were studied by cognitive-functional linguists such as Tai (1985, 1989, 1993 *inter alia*), Hu (1995) and Ho (1993), showing how these principles allow a better functional and cognitive explanation for linguistic elements and constituents occurring in the preverbal position. Particular attention will be given to the notion of 'scope', which pertains both to the discourse and the cognitive level, and which suggests a clearer explanation for the order of preverbal NPs.

The cognition-based functional perspective seems to allow a more logical and effective analysis of preverbal elements and structures, such as adverbials, *ba* constructions, preposed object and so on, in terms of easily identifiable cognitive principles. This approach stresses the influence of cognition processes and factors such as categorization, iconicity and memory on language forms and structures. It takes into account three domains of principles functioning at three different levels, that is, the grammatical domain at the syntactic level, the conceptual domain at the cognitive level and the functional domain at the pragmatic level (Hu 1995); thus, these principles are interconnected with certain functional phenomena, such as topic-comment structures and multiple topics, and seem to allow a clearer understanding of these phenomena in this sense. The cognition-based perspective also seems to provide a coherent basis for the claim of functional linguists such as Tsao (1979, 1990), Chu (1999) and Li (2005), that all preverbal NPs can be analyzed as hierarchically organized topics, including not only subjects and preposed object, but also time, space and manner adverbials and so on, as they are the basis/background information onto which the following part (comment) is constructed.<sup>1</sup>

As it will be later shown, one of the most interesting common features of both the functional analysis of topic-related phenomena and of cognitively motivated word order principles is the notion of 'scope'. In a Chinese sentence, each topic has a different scope, i.e., the part of the utterance on which the topic extends its semantic domain (controlling processes like co-referential NP deletion), with the first topic having a wider scope than the second topic (and so on). Chu (1999, pp. 302-304) effectively represents this idea with a diagram in which all preverbal NPs are topics with a scope that encloses that of the following topic-comment construction. In

1 Li, Thompson (1981) claim that time and locative phrases exhibit all the properties of topics when occurring in sentence initial position and, therefore, should be considered topics. Following this analysis, Tsao (1990) provides a detailed account for the topichood of all preverbal NPs, showing how they do possess most of the properties of topics (namely being nominal, definite or referential, extending its domain-scope to more than one sentence, controlling co-referential NP deletion and bearing no selectional relation with the main verb); in this sense, he holds that the Chinese sentence can be better defined as one or more topics followed by one or more comments (See Tsao 1990, pp. 40-70).

this sense, it will be shown how the scope of topics resembles that of word order principles such as the Principle of Temporal Scope (PTSC) (Tai 1985, p. 60) or the Principle of Whole Before Part (WBP) (Ho 1993, p. 165).

In order to clarify this interconnection and to show how such principles provide an effective explanation for preverbal position-related constructions, research on Chinese word order conducted within the cognition-based functional framework will be presented, highlighting some of its most relevant assumptions and breakthroughs; some major cognition-based word order principles will be illustrated and discussed with examples, including the Principle of Temporal Sequence, the Principle of Temporal Scope, the Whole Before Part Principle and the Principle of Information Center. Since the main concern of this paper is to investigate preverbal position-related phenomena, it suffices to present only those principles that seem more relevant for the present study, without providing a complete account and verification of all principles and sub-principles.

Section 2 briefly reviews previous studies on word order and preverbal position in Chinese, while section 3 describes the characteristics and assumptions of the cognition-based functional approach; sections 4 and 5 are devoted to present research on word order principles, introducing some of the most relevant findings, and demonstrating with examples how they function in governing Chinese word order. Section 6 attempts to apply such principles to investigate the notion of scope, as well as the relationship among cognitive factors and multiple topics analysis. In drawing the conclusions, interesting directions for further research are discussed, in particular the necessity for a deeper investigation of the interplay among pragmatic and cognitive principles, as well as their application in language instruction.

## 2 Research Lines on Word Order in Chinese

It is widely recognized that word order in Chinese plays a particularly important role in the analysis of sentence structure, presenting Chinese «very little morphological complexity» within a word or in grammatical relations (Li, Thompson 1981, p. 11). Moreover, the order of constituents is not only determined by syntactic constraints but also by a complex interplay of semantic, pragmatic and cognitive factors. Thus, Chinese word order has been investigated along several lines of research, both formal and functional, and great attention has been given to the preverbal position.

After the heated debate in the 1950s on the grammatical notion of subject, research on Chinese word order in the 1970s focused on typological universals, following Greensberg's work on basic patterns: the main issue was to determine whether modern Chinese has basic SOV or SVO word

order. Several linguists, such as Chu (1984), Li, Thompson (1974), Light (1979) Mei (1980), Sun, Givon (1985) and Tai (1973) *inter alia*, conducted research and proposed theories; yet many questions remained unanswered, since Chinese seems not to conform to either of the two main alignments proposed by Greensberg (Chappell 2007; Huang 2013).

The formal approach sought to uncover word order principles in terms of parameters and rules within the framework of the Universal Grammar, especially with respect to preverbal phenomena such as topicalization and left raising, with work carried out by Huang (1982) and Li (1990) among others. Nevertheless, several controversial points demand further explanation, particularly in light of a number of studies showing that word order in Chinese is defined to a great extent by informational/communicative considerations. This view is shared by several linguists, such as Hu (1995), LaPolla (1995), Li and Thompson (1976, 1981) and Li (2005). Li and Thompson (1976, 1981) and Tsao (1979, 1990) among others, investigated the properties and function of the notion of topic, arguing that the topic-comment communicative opposition is the determining factor affecting word order. They highlighted how the preverbal position is strongly associated with information status, since preverbal NPs tend to be definite or referential; however, recent corpus-based studies such as Huang (2013) show how this association is weaker than that between word order and valency roles, and that the interplay between different factors is more complex.

Though each of these studies contributed towards a better understanding of the principles underlying word order features, as Hu (1995, p. 15) maintains, they have not reached an exhaustive explanation because their scope is limited to the language-internal system itself, underestimating language-external factors related to human cognition. On the contrary, the cognitive-functional approach seeks the necessary link between language forms and functions, and system-external, functional explanations, since «genuine explanations lie in both the structures of the real world, as conceptualized by the language user, and the linearity of human speech» (Biq et al. 1996, p. 97).

### 3 The Cognition-based Functional Approach: Observations and Assumptions

Observation of Chinese language patterns has led to the hypothesis that, in addition to grammatical and pragmatic factors, conceptualization processes impose constraints on linguistic structures and patterns. This hypothesis has been widely investigated by Tai (1985, 1989, 1993, *inter alia*), who holds that the structures of both the human body and physical reality are reflected in language forms; thus, syntactic structures are viewed

as motivated by perceptual and cognitive structures, processing strategies and conversational principles between speakers and hearers. Certain conceptualization processes are generic, since humans have the same biological structure and live in the same physical reality; other processes, on the other hand, are culture-specific, because they are influenced by different perspectives, experiences and situations, which cause reality to be memorized, categorized and described through different patterns.<sup>2</sup> In Tai's words:

Grammar can be viewed as a complex mapping function from humans' conceptualization of the multiple-dimensional physical world to the one-dimensional linearity of human speech. (Tai 1999, p. 140)

As Tai himself observes, this view is supported by recent research on cognitive development by Elman et al., which investigated human cognition in terms of connectionist network models. From this perspective, language is the conceptualization of a more complex reduction process:

The grammars of natural languages may be thought of as solutions to an even more daunting dimension reduction problem, in which multi-dimensional meanings must be mapped onto a linear (one-dimensional) output channel (the mouth). The fact that these grammars may not always obviously resemble or reflect the underlying content of the message may be irrelevant to the question of where these solutions come from. (Elman, Jeffrey et al. 1996, p. 386)

Such an approach was first explained by Tai in its article *Toward a Cognition-Based Functional Grammar of Chinese* (1989), where he lays the basis for this new line of research. As Biq, Tai and Thompson summarize in *Recent Developments in Functional Approaches to Chinese* (1986, p. 100), this framework is a synthesis of three functional resources, namely the cognitive approach by Lakoff (1987) and Langacker (1987), the semiotic approach by Haiman (1985) and the discourse approach by Hopper and Thompson (1980, 1984). Therefore, Tai's research aims at highlighting cognitively-grounded basic principles underlying Chinese structures and patterns, especially those expressing locations and spatial relations, salience and information structure. Following Tai, other linguists, such as Hu

2 One of the most interesting implications of such assumptions is its view of language disparities and common features. On the one hand, differences among languages are due to different perspectives and processes of conceptualization of the same world experience in different socio-cultural traditions. On the other hand, the so-called *language universals* are associated with humans' common biological make-up, brain structure and cognitive abilities (Hu 1995).

(1995) and Ho (1993) further elaborated these principles' taxonomy and applications, resulting in interesting models of analysis, which will be presented in the following section.

#### 4 Research on Conceptual Principles Underlying Chinese Language Patterns

Research on Chinese word order principles roots itself in the central spirit of the Prague School approach, which views language as consisting of two important aspects, namely structural (systematic) and functional. In particular, Mathesius and Firbas first shared the view that word order is the result of the interplay of different factors, belonging to both the grammatical and the functional level. Mathesius (1939, 1975) was the first linguist to single out five word order principles, including (i) the Principle of Grammatical Function (i.e., syntactic constraints), (ii) the Principle of Functional Sentence Perspective (FSP), expressing the tendency of sentence elements to occur in a theme-transition-rheme sequence and (iii) the Principle of Emphasis, that orders constituents so as to grab the recipient's attention;<sup>3</sup> developing Mathesius analysis, Firbas (1971, 1992), introduced the notion of communicative dynamism (CD) as «relative extent to which the element contributes to the development of the communication, to which, as it were, it 'pushes the communication forward'» (pp. 7-8). In unmarked word order, the element occurring in sentence-initial position (theme) carries the lowest degree of communicative dynamism, while the sentence-final element (rheme) carries the highest.<sup>4</sup>

In the light of the research line of the Prague School and following Haiman's work (1985), Tai observed and investigated the relationship between iconicity and word order, which he describes as «the order of linguistic expressions corresponds to their order in the conceptual world» (Tai 1993, p. 159). Two of the major principles identified by Tai are closely related to order motivation, namely the Principle of Temporal Sequence (PTS) and Principle of Temporal Scope (PTSC), ordering syntactic units according to the temporal sequence or scope of their conceptual state.

3 The taxonomy of word order principles developed by Mathesius actually includes two more principles, namely the Principle of Coherence of Members and the Principle of Sentence Rhythm; such principles were further elaborated by Firbas (1992), who combined the principle of Grammatical Function and that of Coherence of Members into what he called the Grammatical Principle, manifesting itself when the position of an element in the sentence is determined by its syntactic function.

4 Firbas (1992) also persuasively demonstrated that these principles vary in their importance in different languages, which is consistent with the considerations of several linguists believing that Chinese is a discourse-oriented language, where discourse factors are more relevant than syntactic ones in shaping sentences and patterns.

Tai (1985) argues that PTS has great explanatory potential in Chinese grammar, claiming that, «it subsumes under one general principle a large number of word order rules hitherto regarded as unrelated. It governs the word order behaviours of the majority of the syntactic categories definable in this language» (p. 63). Directly connected principles include Whole-Before-Part and Container-Before-Contained, which pertain in turn to the dimension of space. These principles will be illustrated in the following section.

Following Tai's work, Hu devotes his dissertation work to further develop a word order principles taxonomy and to apply them to explain grammatical patterns and structures, including sentential starting points (topics), pseudo passives, presentative sentences, subordinates and inverted sentences. Particular attention is drawn on the interplay among such principles in defining structures. Combining, primarily, Firbas' (1992) word order principles governing Indo-European languages like English and Tai's (1985, 1989, 1993) work on Chinese word order principles, Hu categorizes Chinese word order principles into three domains, i.e., conceptual, functional and grammatical; the principles that Tai had singled out fall into the first domain, while the principles of Firbas and Mathesius belong to the second one:

Conceptual domain	1	Principle of Temporal Sequence
	2	Principle of Temporal Scope
	3.	Whole-Before-Part
	4	Container-Before-Contained
	5	Trajector-Landmark
Functional domain	6	Principle of Communicative Dynamism
	7	Principle of FSP
	8	Principle of Perspective Taking
	9	Principle of Focus
	10	Principle of Coherence and Relevance
Grammatical domain	11	Modifier-Before-Head

Ho (1993), in turn, investigated Chinese discourse structure from three perspectives, namely thematic structure, information structure and word order. He maintains that a «focal point of interest for discourse analysts is [...] the study of conceptual organization of users of a particular language as manifested in the functional continuum» (p. 9). In the word order perspective, his empirical corpus-based study demonstrates how some syntactic phenomena of Chinese discourse structure are controlled by non-syntactic forces, such as cognitive processes reflected in three word order principles (i.e., the Principle of Temporal Sequence [PTS], the Principle of General Preceding Particular and the Empathetic Principle [EP]).

## 5 Relevant WO Principles and their Application in Explaining Preverbal Elements and Constructions

In this section definitions of some of the main word order principles are provided, as well as examples showing how they function in governing Chinese word order, and in particular how they affect the preverbal position.

### 5.1 The Principle of Temporal Sequence (PTS)

As previously mentioned, the principle expressing iconicity in Chinese word order is what Tai calls the Principle of Temporal sequence, defined as:

The relative word order between syntactic units is determined by the temporal order of the states that they represent in the conceptual world. (Tai 1985, p. 50).

This principle clearly shows how elements before the verb (i.e., preverbal constituents) need to represent a temporal state that is anterior to that of the verb; this is evident in all the following examples:

- 1) 我晚上七点上课。  
*Wo wanshang qidian shang ke.*  
 I evening 7 o'clock have class  
 I have class at 7.00 in the evening.

In 1), since the time expression represents a temporal state that happens earlier than the action, it occurs before the verb: *wanshang qi dian* (7 pm) offers the starting point for the verb *shang ke* (have class). Similarly, other preverbal elements (like manner and place adverbials) follow the same principle:

- 2) 他用笔写信。  
*Ta yong bi xie xin.*  
 He use pen write letter  
 He writes a letter with a pen.

It is cognitively clear that the moment in which he starts using the pen, (*yong bi*) precedes the action of writing (*xie xin*). This principle also allows different interpretations of sentences 3a) and 3b), which comprise the same constituents.



3a) 猫在桌子上跳。(Ho 1993, p. 150)

*Mao zai zhuozi shang tiao.*

Cat on table up jump

The cat is jumping around on the table.

3b) 猫跳在桌子上。

*Mao tiao zai zhuozi shang.*

Cat jump on table up

The cat has jumped onto the table.

In 3a) the preverbal position of the locative expression *zai zhuozi shang* (on the table) indicates that the cat had been on the table before jumping around on it. In 3b) the locative expression *zai zhuozi shang* (on the table) is placed in a post-verbal position, therefore the location represents the result of the action *tiao* (jump).

In this sense, preverbal NPs seem to provide a temporal or spatial background onto which the following part is constructed, which is one of the properties of topics. As Tsao (1990) holds, even though occurring not in sentence initial position, such adverbials are considered topics, providing a frame that limits the validity of the following part (i.e., the comment).

## 5.2 The Whole-Before-Part principle (WBP)

Constituents representing a global scope (general or whole) should precede those that represent a smaller scope (particular or specific). (Ho 1993, p. 165)

Tai originally formulated this principle relating it to the temporal domain: «If the conceptual state represented by a syntactic unit X falls within the temporal scope of the conceptual state represented by a syntactic unit Y, then the word order is YX» (Tai 1985, p. 60); the validity of this principle is evident considering the order of temporal/locative expressions:

4) 2002 年 11 月 25 日下午 4 点。

*Er ling ling san nian shi yi yue er shi wu ri xia wu si dian.*

2003 year November twenty-five date afternoon four o'clock

At 4.00 p.m. on 25 November 2003.

Thus, this principle is very important in expressing a relationship between two constituents where one falls within the scope of the other. This principle thus accounts for presentative sentences introduced by locative expressions, such as 5), where *tushuguan* (library) is the spatial scope within which the predicate *you hen duo shu* (there are many books) is valid.

5) 图书馆里有很多书。

*Tushuguan li you hen duo shu.*

Library inside have many book

There are many books in the library.

This is reminiscent of the property of topic being the framework that limits the validity of the predication (comment): the fact that there are many books is valid only within the space indicated by the topic (library).

### 5.3 Principle of Information Center (PIC)

The asserted part of a sentence is ordered after the presupposed part.  
(Tai 1989, p. 210)

Tai defines the Information Center as the asserted part (what other linguists call *informational*, *natural* or *regular focus*).<sup>5</sup> This principle is also consistent with the topic-comment structure in Chinese, as well as with the Given Before New principle, in that, as Tai maintains, «both topic and what is presupposed represent ‘given’ information, and comment and the asserted ‘new’ information» (Tai 1989, p. 210).

6a) 学校到了新老师。

*Xuexiao dao le xin laoshi.*

School arrive LE new teacher

A new teacher came to the school.

6b) 新老师到了学校。

*Xin laoshi dao le xuexiao.*

New teacher arrive LE school

The new teacher came to the school

In 6.a), *Xuexiao* (the school) is the presupposition/given information/topic in the sentence, whereas *xin laoshi* (a new teacher) is the assertion/new information/part of the comment; in 6.b) it is the other way around, resulting in different meanings of the two sentences.

<sup>5</sup> There are differences in terminology on the notion of focus in the literature. For a detailed account, see Jiang 2009, p. 27.

## 6 Cognitive Principles, Topic Scopes and Preverbal Elements

On the basis of the principles illustrated above, the positions of all preverbal elements are determined according to the order in which elements occur in the mind of the speaker; this is consistent with the idea of reference and definiteness, which is a subjective mental state<sup>6</sup> and is usually associated with sentence-initial position as a property of topics. Moreover, as the Whole-Before-Part principle states, the constituent with a larger logical scope precedes the other, following a  $\text{scope}_1 > \text{scope}_2 > \text{scope}_3$  pattern, in that the scope cognitively represents the background information/framework of validity of the following part.

The validity of the aforementioned principles and the role of scope are clear if we consider these two examples:

7a) 我昨天功课一做完就睡觉了。

*Wo zuotian gongke yi zuowan jiu shui jiaole*

I yesterday homework once do-finish then sleep LE

Yesterday, after finishing my homework, I went to sleep

7b) \*我功课昨天一做完就睡觉了。

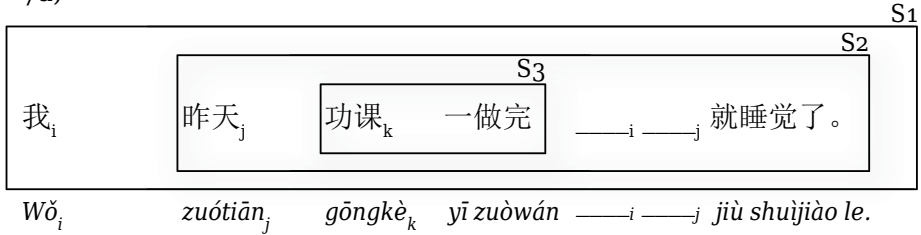
*Wo gongke zuotian yi zuowan jiu shui jiaole*

I homework yesterday once do-finish then sleep LE

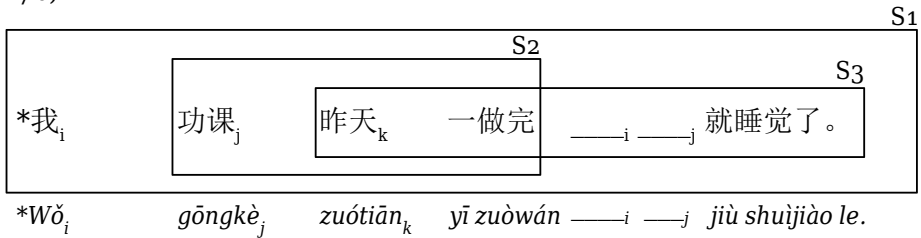
In (a), all NPs represent given information, but they are ordered in accordance with the PTS and WBP principles, since *zuotian* has a wider temporal scope than that associated with the action of the verb (in that it is presupposed that the time in which he finishes his homework is shorter than 24 hours). Moreover, the importance of scope is clear if we try to understand why, in comparison, (b) is ungrammatical: as already said, the temporal scope of *zuotian* is bigger than that associated with the action of *gongke yi zuo wan*, (doing homework), and it logically extends its influence to the second sentence, in that the action *jiu shui jiaole*, (went to sleep) happens within the same day; therefore, *zuotian* cannot occur after *gongke* (homework). This is made clearer if we examine the following representation, which applies the diagram proposed by Chu for the analysis of the so-called double nominatives (1999, p. 302): all preverbal NPs are topics with a scope that extends its semantic influence to one or more comments, and which needs to enclose the scope of the following topic-comment constructions, otherwise the sentence is not acceptable:

6 In this sense, Hu (1985, p. 20) maintains that the influence of the speaker's perception and interpretation of the real world plays a vital role in the decision of what is given, definite or important for communication; he accepts Firbas' insight that language is not a direct reflection of the real world, but corresponds at an abstract level to «the language user's experience of the extra-linguistic reality» (Firbas 1992, p. 139).

7a)



7b)



This suggests that there is a cognitive explanation to what Tsao (1979, 1990), Chu (1999) and Li (2005), hold, i.e., preverbal elements are hierarchically organized topics, in that they have different scopes ordered according to their extension. Let us consider the following sentences, which present the same constituents as 7a), though with a different order of different preverbal NPs:

7c) \*功课我昨天一做完就睡觉了。

*Gongke wo zuotian yi zuowan jiu shui jiaole*

Homework I yesterday once do-finish then sleep LE

7d) \*功课昨天我一做完就睡觉了。

*Gongke zuotian wo yi zuowan jiu shui jiaole*

Homework yesterday I once do-finish then sleep LE

7e) 昨天我功课一做完就睡觉了。

*Zuotian wo gongke yi zuowan jiu shui jiaole*

Yesterday I homework once do-finish then sleep LE

7f) ?昨天功课我一做完就睡觉了。

*Zuotian gongke wo yi zuowan jiu shui jiaole*

Yesterday homework I once do-finish then sleep LE

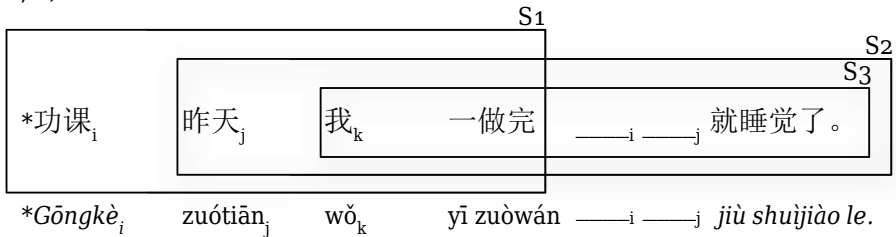
According to native speakers, the only fully acceptable sentence is 7e), while 7c), and 7d) are not acceptable; 7d) sounds strange, and some think

it could be slightly acceptable only in oral communication and in particular communication contexts. If we use the diagram above to analyze the sentence structure in terms of the (functional topic or cognitive principle-based) scope of each of the preverbal NPs, this native speakers' analysis of acceptability is easily demonstrated:

7c)



7d)



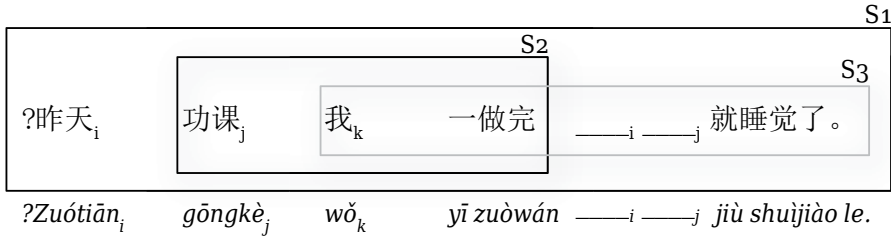
Both 7c) and 7d) present *gongke* (homework) as the first NP, which Temporal Scope and Topic Scope extends until the first predication *yī zuowan* (finish), while the second and third NPs, *wo* (I) and *zuotian* (yesterday) extend their scope to both predicates, including *shui jiaole* (slept), being the subject/agent and the time frame of both actions, respectively. Sentence 7e), in turn, perfectly suits the scope1>scope2>scope3 pattern, and is therefore acceptable to native speakers, not only for grammatical/pragmatic reasons, but also on a cognitive level:

7e)



As for the last sentence, the scopes of the different NPs do not respect the scope1>scope2>scope3 pattern, in that the scope of *wo* (I) is larger than that of the previous NP *gongke* (homework); nevertheless, native speakers' judgment of partial acceptability (in oral communication and in particular contexts) might depend on the fact that *wo* (I) actually does not represent a definite temporal scope, while *zuotian* and *gongke* do; in this sense, the Principle of Temporal Scope can be perceived as unviolated.

7f)



Another relevant example of scope application in sentences with several preverbal elements is the analysis of negative sentences. Let us consider the following sentences:

- 8a) 电影都那么有意思。  
*Dianying dou name you yisi*  
 Movie all so interesting  
 All movies are interesting
  
- 8b) 电影不都那么有意思。  
*Dianying bu dou name you yisi*  
 Movie not all so interesting  
 Not all movies are interesting
  
- 8c) 电影都不那么有意思。  
*Dianying dou bu name you yisi*  
 Movie all not so interesting  
 All movies are not that interesting
  
- 8d) 电影都那么没有意思!  
*Dianying dou name mei you yisi*  
 Movie all so not interesting  
 All movies are so boring!

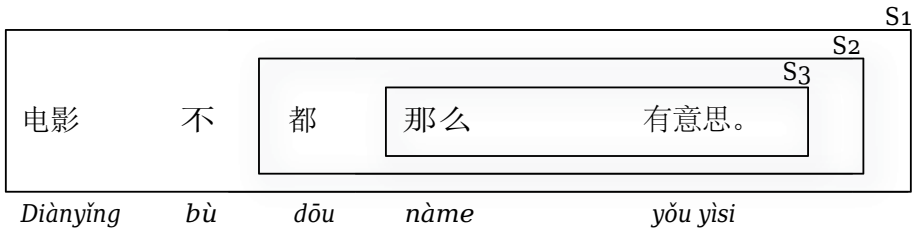
These sentences present the same constituents, but the negation markers *bu* or *mei* (not) occur in different positions, resulting in a dramatic change

of meaning. As Chu (1999, p. 221) observes, «否定的范畴常涵盖否定之前的全部 [negation often covers the whole part [of the sentence] after the negated word]»; this can be effectively explained in terms of scope since the negation extends its influence over the whole scope of the constituent before which it occurs, as shown below:

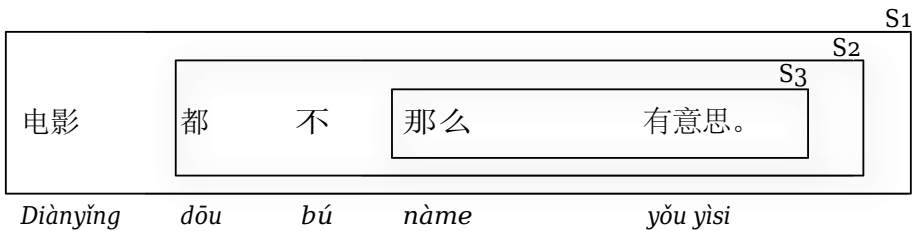
8a)



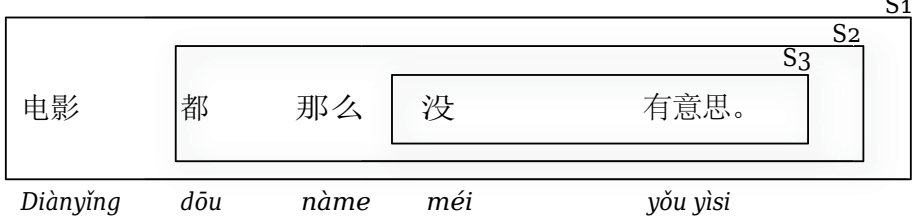
8b)



8c)



8d)



In 8b), the negation affects the adverb *dou* (all), which in turn modifies its whole scope, namely the rest of the sentence, onto which it extends its scope. In 8c), the negation occurs before *name* (so), affecting in turn also the predicate *you yisi* (interesting), while the adverb *dou* is not affected. In 8d) only the verb *you yisi* (interesting) is negated, which is the only constituent enclosed in its scope.

As demonstrated, there is a close relationship between discourse (topic) and cognitive (whole-before-part) scope analysis, in that they both account for sentence structuring in Chinese. It is noteworthy that Tai himself claims that the explanatory value of principles such as Temporal Scope (and later Whole Before Part) can be appreciated better with the notion of logical scope, which appears to underlie both functional and cognition-based principles (Tai 1985, p. 62).

This analysis seems to be a good starting point to understand what cognitive constraints underlie the selection of topics in an utterance on one hand, and the order of preverbal elements on the other. Moreover, it can be useful to further investigate the relationship between the cognitive level and the functional level, and how they interact in shaping language form in Chinese. Lastly, as Jiang (2009) maintains, principles of this type can certainly be useful in language instruction: as cognition-based principles closely related to the perception and conceptualization of the physical world, they can be understood and remembered more easily by Chinese L2 learners, who can also become more aware of the differences in conceptualization between their L1 and Chinese. As Hu (1995, pp. 2-3) states:

Language disparity is associated with different conceptualization of the same reality from different perspectives in different cultures. Despite the fact that human biological make-up, cognitive abilities, and the general features of our physical world are the same, peoples around the world have different socio-cultural traditions, and different experiences in their interactions with the world. Those social variants may lead to different perspectives from which they approach the same physical reality, and may have significant impact upon their conceptualized world and hence their linguistic structures, though what degree such impact has is still not that clear.

## 7 Conclusions

In this paper some interesting findings regarding research on word order principles in Chinese within the framework of a cognition-based functional approach have been presented, and some of the most relevant principles governing Chinese sentence structure have been reviewed and applied to the analysis of NPs occurring in sentence preverbal position.



As we have seen, these cognition-grounded principles, if applied to preverbal NP analysis, account for many of the properties of topics, including word order properties (the topic occurring in sentence-initial or preverbal position), information status (given), cognitive status (asserted), cognitive function (the framework, background information and the basis onto which the following part of the utterance is constructed) and, finally, the scope to which it extends its semantic and logical influence (following a scope1>scope2>scope3 pattern). This suggests that such iconic principles should be taken into account to further analyze the pragmatic structure of the preverbal position in the sentence, as well as topic-related phenomena, and that they can provide evidence for and elucidate theories related to multiple topics, topic chains and so on.

This work is far from exhaustive: it only seeks to draw a research path that can be useful to gain a more complete understanding of such phenomena. Further investigation is needed to understand the interplay between cognitive and functional factors, as well as to review the taxonomy of word order principles proposed by the various linguists: it appears that a lot of the principles actually derive from similar cognitive and logical conceptualizations, as observed in several points of this paper. Moreover, concrete applications in language instruction for learners of different languages are an especially interesting line of research, since language teaching could be significantly improved by applying cognition-based principles accounting for both conceptual similarities and differences among cultures and languages.

Nevertheless, the cognition-based functional approach has proved to be a valid research framework in this respect, in that it takes into account the grammatical domain at the syntactic level, the conceptual domain at the cognitive level and the functional domain at the pragmatic level, and seeks to discover how these different levels interact with each other in determining word order in Chinese: «the grammatical principles constitute conventionalized conceptual and functional principles brought about by the process of grammaticalization. The three domains of principles both cooperate and compete in governing Chinese word order and its variations» (Jiang 2009, p. 107). Further research along this line will certainly advance the study of the processes underlying language forms, which many linguists see as a continuum from cognition-based structures to functional patterns to conventionalized grammar, «involving a transfer from 'concrete' to 'abstract' domains of conceptualization on the one hand and conversational implicatures and context-induced reinterpretation on the other. This process leads to the emergence of grammaticalized structures as the conventionalized, frozen, or fossilized product of those cognitive activities» (Heine et al. 1991, p. 248).

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