

Functional categories, topic prominence, and complex sentences in Mandarin Chinese*

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Abstract

In our analysis of complex sentences in Chinese, we will show that the subordinating conjunctions in causal and conditional clauses (yinwei 'because', yaoshi, ruguo 'if', etc.) are not prepositions (taking a clausal complement), but rather an instance of the functional category Conjunction° c-selecting an IP-complement.

Like nominal topics, causal and conditional clauses occupy the specifier position of Topic Phrase, a new functional projection proposed for Chinese in order to capture its so-called topic prominence.

Unlike subordinating conjunctions, the items deshihou 'when', yiqian 'before', yihou 'after', etc., occurring in clause-containing temporal adjuncts belong to the lexical category Postposition°, that is, they are not nouns, as often claimed. The clause-containing temporal adjunct as a whole is analyzed as a PP whose head — empty or overtly filled by zai 'at' — c-selects the PostpP (headed by deshihou 'when', etc.) containing a clausal complement.

The main evidence for the opposition between the functional category Conjunction° and the lexical category Preposition° comes from extraction phenomena, which thus serve to illustrate the fundamental differences between functional and lexical projections in Chinese.

1. Introduction

In this article, we will attempt a comprehensive analysis of complex sentences in Chinese, a domain rather neglected within the field of Chinese linguistics.

We will concentrate on two types of complex sentences: (a) those with a causal or conditional adjunct clause (yinwei 'because', ruguo, yaoshi 'if', etc.) and (b) those with clause-containing temporal adjuncts (deshihou 'when', yiqian 'before', yihou 'after'). The comparison of these two types

will provide us with the crucial differences between lexical and functional projections in Chinese.

In part 2, we will introduce some of the functional categories of the Chinese sentence, especially the new functional category Topic^o associated with the so-called topic prominence of Chinese.

Part 3 discusses in detail complex sentences with causal and conditional clauses, in particular the hierarchical position occupied by the adjunct clause and the functional nature of the subordinating conjunctions.

Based on the results obtained in part 3, in part 4 we analyze complex sentences with clause-containing temporal adjuncts. This latter type of adjunct clause will be shown to differ from the causal and conditional clauses insofar as it is headed by the lexical category Preposition^o.

2. Functional categories in Chinese

Following Kiparsky (1991: 1), our starting point is that "Abstract Case and AGR (syntactic elements assumed to be present in ALL languages independently of morphology) do not exist." Consequently, our claim is that in an isolating language like Chinese there exist neither abstract Case nor functional categories like AGR-S or AGR-O.¹ We therefore do not adopt the mechanism of feature checking crucial for the minimalist program.

Investigating the manifestation of functional categories in Chinese syntax, we advocate a strongly lexicalist theory and claim that functional heads have only *c*-selectional features, but no *m*-selectional features. That is, considering words as the "atoms of syntax" (cf. Di Sciullo and Williams 1987), we will argue that in Chinese only grammatical words (free morphemes that primarily serve some grammatical purpose), but no inflectional elements, are able to serve as functional categories.

According to Higginbotham (1985), Fukui (1986), Bierwisch (1988), Wunderlich (1994), Zimmermann (1993), and others, functional categories can only be motivated if they are involved in the specification and binding of the referential theta roles of verbs and nouns. Wunderlich (1994) in particular claims that the referential argument of a verb is a complex consisting of a time coordinate, a world coordinate, and an event structure. One of the main implications of this proposal, which we will retain for our purpose here, is that more than one functional category is involved in the specification and binding of the verbal referential argument.

In this respect, we will argue that from a syntactic point of view there is more to functional categories than their semantic contribution in the

form of theta binding via discharging of a theta role. For in the domain of syntax, the task of functional categories (which project two levels: X' and X'') is primarily to establish canonical sentence positions by creating a specifier position. Such a structural position projected by a functional head may serve as a landing site for verbal arguments.

Within our framework, functional heads may be empty. Nevertheless, "abstract" functional features must be licensed by lexical material in the corresponding specifier position. In other words, the regular appearance of lexical material in the specifier position may verify a functional head or, vice versa, a functional category manifests itself in that material (cf. Ouhalla 1993).

In fact, the Spec-Head agreement in functional phrases can be characterized as "static agreement" (between the lexical material in the specifier position and the syntactic features of the head, be it overt or abstract) (Haegeman 1992: 14, citing Rizzi 1991b). Applying the *invisible category principle* by Emonds (1985: 227) to empty functional heads, one could also say that a functional head with a feature F may remain empty throughout the derivation provided F is transparent in the specifier.

Given this theory, the following functional categories can be postulated for Chinese: Complementizer (C°), Inflection (I°), and — as a new proposal for Chinese — Topic (Top°).² In order to determine the hierarchical position of this new Topic Phrase (TopP) in the Chinese sentence, we will briefly discuss the functional categories mentioned above and begin with the functional category occupying the highest position in the sentence, complementizer.

2.1. Complementizer°

In contrast to German and English, where the type of subordinate clauses is indicated by clause-initial complementizers like *daß*, *ob* and *that*, *whether*, respectively, different sentence types in Chinese are expressed by sentence-final particles (*ba*, *de*, *ma*, *ne*, etc.) accordingly analyzed as complementizer.³ In the default case, *de* indicates the declarative sentence type, *ma* indicates yes-no questions, *ne* occurs in wh-questions as well as in alternative (A-not-A) questions, and *ba* marks the imperative:⁴

- (1) Wo wen-guo Lao Wu *de*⁵
 I ask-AM Lao Wu PART
 'I have asked Lao Wu.'
- (2) a. Ni qu *ma*?
 you go PART
 'Do you go there?'

- b. Ni wen shei *ne*?
 you ask who PART
 'Whom did you ask?'
- c. Zhe-ju hua dui bu dui *ne*?
 this-CL sentence correct not correct PART
 'Is this sentence correct?'
- (3) Ni haohaor xiang-xiang *ba*!
 you well think-think PART
 'Do think it over thoroughly!'

When there is no overt complementizer, adverbs, auxiliaries, etc., can indicate the sentence type.

Following Bierwisch (1988), we assume that complementizers — being the highest functional category and having scope over the whole sentence (including the topic, cf. below, section 2.2.) — bind a position *E* corresponding to “the ‘hidden’ argument place for events” (cf. Higginbotham 1985: 555) in the thematic grid of verbs.⁶ As shown by examples (1)–(3), CP — unlike the other functional phrases in Chinese (cf. below) — is head-final at surface structure.⁷

2.2. *Topic*^o

The functional category *Topic*^o is involved in the process of binding and specifying the referential argument of the verb, because the topic, that is, the constituent occupying the specifier position of TopP, provides the frame of reference for the comment. We thus adopt Haiman’s (1978: 585) view that “topics are not necessarily what the sentence is ABOUT” but rather, “the topic sets a spatial, temporal, or individual framework [...] which limits the applicability of the main predication to a certain restricted domain” (Haiman, citing Chafe 1976: 50). Haiman (1978: 585–586) furthermore argues that topics serve as presuppositions of their sentences:

Topics [...] are presuppositions of their sentences. But superficially at least, presupposition means different things in the case of NP’s and complete sentences. For an NP, it is the EXISTENCE of its referent which is presupposed [...]. For an S, however, it is the TRUTH of the proposition of the sentence which is presupposed. [...] The validity or truth of a proposition, however, is no more than the existence of the state of affairs [in one of possible worlds, G/P] which it describes. Thus presuppositions, whether of NP’s or sentences, are reducible to presuppositions of existence.

Considering topics as presuppositions of their sentences allows Haiman to analyze clauses (especially conditional clauses) as topics as well, with NP topics and clausal topics both being “givens which constitute the frame of reference with respect to which the main clause is either true (if a proposition) or felicitous (if not)” (Haiman 1978: 564). This approach will be important for our claim (cf. below, section 3) that conditional and causal adjunct clauses in Chinese occupy the same position as nominal topics, that is, the specifier position of TopP.

From a (surface-)syntactic point of view, first of all, the topic is the constituent in the sentence-initial position. Consequently, in German verb-second sentences, for example, the constituent occupying the first position, that is, the position preceding the finite verb form, is sometimes analyzed as the topic. Thus according to Rosengren (1993: 274), in the unmarked word order this position can be occupied by the subject or an adverb. Rather interestingly, in recent works (cf. Rosengren 1993; Müller and Sternefeld 1993; among others), the topic position has been claimed to be a base-generated position (more precisely the highest specifier position in the sentence). Thus, topicalization is analyzed as substitution, and not as adjunction.⁸

It is important to point out that the TOPIC POSITION in Chinese is always different from the normal (S-structural) SUBJECT POSITION, that is, [Spec, IP] (cf. section 2.3. below).⁹ This is not to say that the subject DP cannot appear in the topic position, that is, in the specifier position of TopP. But in this case, we have a clear instance of extraction where the subject DP has been raised out of IP into the topic position (cf. below, example [7]).¹⁰ The availability of an extra position for the topic gives rise to what Li and Thompson (1976)¹¹ informally called the “topic prominence” of Chinese and it is illustrated by the extensive use of “base-generated” or “nongap” topics, that is, topics that bear no anaphoric relationship to a constituent in the comment sentence:

- (4) *Nei-chang huo, xingkui xiaofangdui lai de kuai*
 that-classifier fire fortunate fire-brigade come adv.particle quick
 ‘That fire (topic), fortunately the fire-brigade came quickly’ (Li and Thompson 1976: 462).

As Huang (1984: 550) points out, sentences like (4) “must count as basic forms in that they cannot be plausibly derived from other, more ‘basic’ forms.” Example (5) gives our analysis of such a sentence with a “Chinese-style” (Chafe 1976: 50) nongap topic:

- (5) [_{CP} [_{C'} [_{TOPP} [_{DP} Zhe-ge xuexiao] [_{TOP'} [_{TOP°} ∅]]]]
 this-CL school

- [_{IP} jiao zhongwen de laoshi duo]]] [_{C°} ma]]]
 teach Chinese NOM teacher many PART
 ‘As for this school, are there many teachers who teach Chinese?’
- (6) [_{CP} [_{TOPP} [_{DP} zhe-ge ren]_i [_{TOP'} [_{TOP°} me]]]]]
 this-CL person PART
 [_{IP} wo jian-guo t_i]]]]
 I see-AM
 ‘As for this person, I have already met him.’
- (7) [_{CP} [_{TOPP} [_{DP} Li xiansheng]_i [_{TOP'} [_{TOP°} ne] [_{IP} t_i renshi wo]]]]]
 Li Mr. PART know I
 ‘As for Mr. Li, he knows me.’

As illustrated in the examples above, the topic — whether base-generated (as in [5]) or moved (cf. [6] and [7]) — occupies the specifier position of TopP. Example (5) furthermore shows that the specifier position of CP would not be a possible position for the topic in Chinese, because sentence-final particles like *ma* that indicate the sentence type must have scope over the whole sentence, including the topic. Now if the topic were in the specifier position of CP, it would be outside the c-command domain, that is, outside the scope of the complementizer *ma*, which would be an undesired result. In our analysis, however, where TopP as the complement of C° is lower than CP, no such problem arises.¹²

As indicated in (6) and (7), optional pause particles like *a*, *ne*, *me*, etc., can be plausibly analyzed as topic markers (cf. Li and Thompson 1981: 87, 634), which accordingly occupy the head position Topic° in our framework.

Topic prominence is an important characteristic not only of Modern Chinese, but also of Ancient Chinese. Sentences (8)–(10) all represent examples of pre-Han Chinese, that is, before the second century B.C.:¹³

- (8) [_{CP} [_{TOPP} [_{DP} Huo] [_{TOP'} [_{TOP°} xi]]]]]
 misfortune PART
 [_{IP} fu zhi suo yi]]]
 fortune NOM PART rely:on
 [_{CP} [_{TOPP} [_{DP} Fu] [_{TOP'} [_{TOP°} xi]]]]]
 fortune PART
 [_{IP} huo zhi suo fu]]]
 misfortune NOM PART hide
 ‘In misfortune is fortune, in fortune is misfortune.’
- (9) [_{CP} [_{TOPP} [_{DP} Gu zhi ren] [_{IP} [_{DP} qi zhi]]]]]
 previous NOM people their wisdom
 suo zhi] yi]
 PART reach:zenith PART
 ‘The ancestors, their wisdom reached its zenith.’

- (10) [_{CP} [_{TOPP} [_{DP} Xianwang zhi zhi] [_{TOPP} [_{DP} zhuhou zhi
previous:kings NOM system ruler NOM
sang] [_{IP} shi diao dafu songzang]]]]
death baron express:condolences count bury
'According to the system of the previous kings, on the death of
the ruler, the barons expressed their condolences and the counts
buried him.'

Example (10) illustrates the "multiple topic construction" for which Modern Chinese examples are given in (11) and (12):

- (11) Zhongguo, da chengshi, Beijing zui luan
China big city Peking most chaotic
'In China, among the big cities, Peking is the most chaotic.'
(12) Hua, meiguohua, wo zui xihuan
flower rose I most like
'As for flowers, roses, I like them most.'
(Slightly modified examples taken from C.-C. J. Tang, [1990: 338].)

In (11), *Zhongguo* 'China' and *da chengshi* 'big city' as well are both base-generated topics, whereas in (12) we have a combination of a base-generated topic, *hua* 'flower', and a moved topic, *meiguohua* 'rose'. In the case of multiple topics, we assume recursively introduced successive TopPs so that each topic occupies the specifier position of a TopP.

2.3. Inflection°

Following Chomsky (1991) and — for Chinese — Gasde (1993) and Ernst (1994), we posit an (always empty) functional head Inflection° that is characterized for [\pm finite]. The specifier position of IP is then the normal surface structure position of the subject (which is generated within VP at D-structure).¹⁴ Thus, according to Koopman and Sportiche's classification (1991: 212), Chinese belongs to the type of language where the subject DP must move to the specifier position of IP (as is the case for English and French), and not to the second type (represented, e.g., by Italian and Japanese), where the subject has simply to be raised, but not necessarily to the specifier position of IP. This is shown in (13), where the subject DP *Zhang San* has been raised out of the VP whose leftmost boundary is clearly marked by the (VP-adjoined) adverb *zuotian* 'yesterday':

- (13) [_{CP} [_{IP} [_{DP} Zhang San]_i [_{I'} [_{I'} \emptyset] [_{VP} zuotian [_{VP} t_i [_{V'} mai-le
Zhang San yesterday buy-AM

bushao dongxi]]]]]

many thing

'Zhang San bought a lot of things yesterday.'

In contrast to sentences like (13), the subject position of INFINITE Chinese clauses cannot be lexically filled (cf. Gasde 1991; Ernst 1994). As a result, subject-control verbs like *qitu* 'to intend', *shefa* 'to endeavor', *ganyu* 'to dare', etc., and object-control verbs like *quan* 'to persuade', *qing* 'to ask', *poshi* 'to force', etc., select a sentential complement whose subject position can only be filled by a PRO element. As Ernst (1994: 200) points out, "there is no evidence for Tense or Agreement in Chinese." This view is confirmed by Tsai (1994), who links the absence of *case resistance principle* effects in Chinese to the lack of agreement.

In the hierarchy of functional categories discussed so far, CP > TopP > IP, Complementizer^o and Inflection^o are obligatory, given that the sentence type as well as the features [\pm finite] have to be determined for every sentence. Topic^o, however, only projects to TopP if its specifier is filled (by a base-generated or moved topic); otherwise, there is no TopP at all, and C^o c-selects an IP in that case.

3. Causal and conditional adjunct clauses

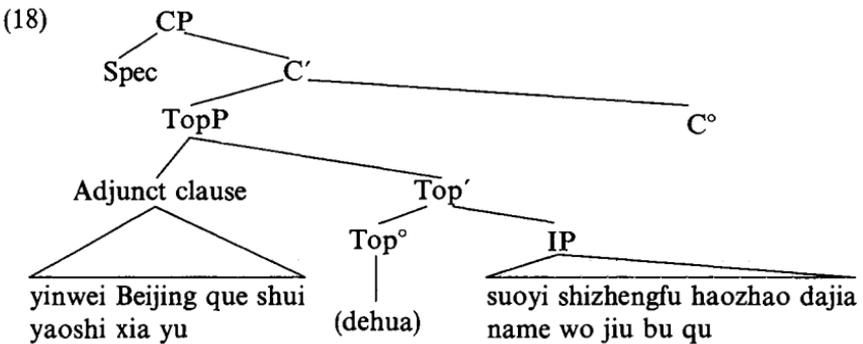
Having introduced TopP as a functional projection in Chinese, we will now elaborate our claim that the specifier position of TopP is not limited to nominal topics. In fact, conditional and causal adjunct clauses are base-generated here. Complex sentences thus provide further evidence for the topic prominence of Chinese.

3.1. Licensing causal and conditional adjunct clauses

Providing the frame of reference (presupposed or agreed upon by hearer and speaker)¹⁵ with respect to which the main clause is true or felicitous, causal and conditional adjunct clauses are licensed by Top^o, that is, they are base-generated in the specifier position of TopP:

- (14) Yinwei Beijing que shui, suoyi shi-zhengfu
 because Peking lack water therefore city-administration
 haozhao dajia jieyu yong shui
 appeal everybody cut:down use water
 'Because Peking has a water shortage, the municipal administration appeals to everybody to cut down the consumption of water.'

- (15) Ruguo ta lai (dehua), jiu qing ta xian dao wo-de
 if he come PART, then ask he first to I-NOM
 bangongshi lai yi-xia
 office come 1-time
 'If he comes, tell him to come to my office first.'
- (16) Zhiyou ni ziji qu qing, ta cai hui lai
 only:if you personally go invite he only:then will come
 'Only if you invite him personally, will he come.'
- (17) Yaoshi xia yu dehua, name wo jiu bu qu
 if fall rain PART in:that:case I then not go
 'If it rains, I won't go.'



As illustrated in (18), *dehua* 'in case' is another possible realization of Topic°. Unlike the pause particles already mentioned (*a*, *me*, *ne*, etc.), *dehua* (optionally) occurs with conditional clauses only. Etymologically speaking, *dehua* is composed of the nominalization marker *de* (as in *wo-de bangongshi* 'I-NOM office' = 'my office') and *hua* 'word(s)', thus "literally" meaning something like 'the words that ...'. If at first glance *dehua* would appear to be a postposition, we prefer to consider it to be a topic marker, for an analysis of *dehua* as a postposition would make wrong predictions for the extractability of the adjunct clause subject (cf. below, sections 3.2. and 4.3., as well as note 34).¹⁶

As for the different adverbs in the main clause of a complex sentence (whose choice depends on the causal vs. conditional character of the adjunct clause), they fall into two groups: (1) sentential adverbs like *suoyi* 'therefore',¹⁷ *name* 'then, in that case', which always precede the main-clause subject and are therefore analyzed as adjoined to IP or TopP,

respectively;¹⁸ and (2) adverbs like *jiu* 'then', *cai* 'only then', which must occur to the right of the subject and, accordingly, are adjoined to a functional projection lower than IP or to VP. (For the difference between *jiu* and *cai* in terms of sufficient vs. necessary condition, cf. Paris [1989 (1983)].)

The order in a Chinese complex sentence is always "adjunct clause-main clause," a fact well established in the literature. This strict order is obtained automatically in our analysis, where the adjunct clause is base-generated in the specifier position of TopP, that is, in sentence-initial position. Examples of "afterthought" where a causal or conditional clause occurs in sentence-final position represent cases of nonsyntactic movement to the right, taking place on the level of PF.¹⁹ The contrast between (19a) (which — though not perfect — is certainly acceptable in a spoken style) and (19b) (which is downright impossible) clearly shows that a sentence-final conditional clause is adjoined to the right of the entire CP (whose rightmost boundary is overtly marked by the complementizer *ma*):²⁰

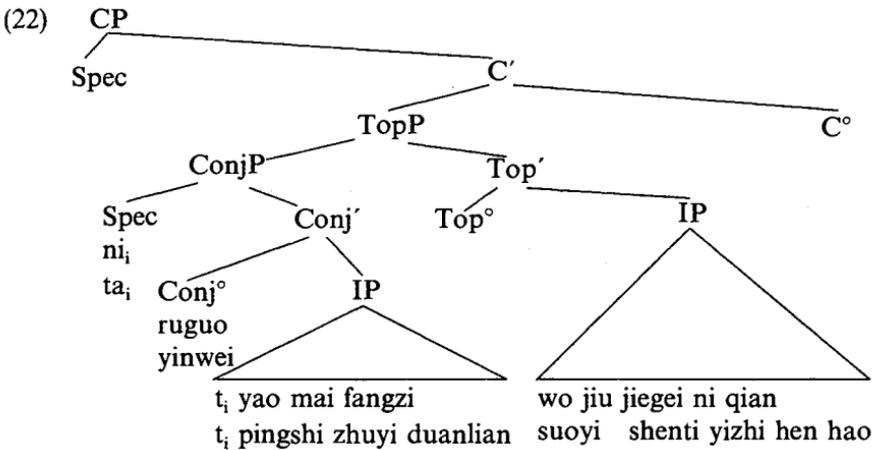
- (19) a. Ni ye qu *ma*, ruguo ta qu dehua?
 you also go PART if he go PART
 'Will you go, too, if he goes?'
 b. *Ni ye qu ruguo ta qu dehua *ma*?
 you also go if he go PART PART

3.2. *The internal structure of causal and conditional adjunct clauses*

Jackendoff (1977: 79), going back to Klima (1965), proposes to analyze subordinating conjunctions as prepositions taking an S-bar complement. He argues that this analysis provides "the simplest description of the relation between the prepositions in {*before, after*} *the ball* and the 'conjunctions' in {*before, after*} *the ball is over*." However, this analysis by Jackendoff cannot be applied to Chinese. Instead, we will argue that subordinating conjunctions in Chinese are an instance of the functional category Conjunction° (Conj°), which c-selects a TopP or an IP. Evidence for the functional status of Chinese subordinating conjunctions and against their prepositional (i.e. lexical) nature is provided by the following extraction data:²¹

- (20) a. Ruguo ni yao mai fangzi (dehua), wo jiu jiegei ni
 if you want buy house PART I then lend you
 qian
 money

- b. Ni_i ruguo t_i yao mai fangzi (dehua), wo jiu jiegei ni
 you if want buy house PART I then lend you
 qian
 money
 'If you want to buy a house, I will lend you some money.'
- (21) a. Yinwei ta pingshi zhuyi duanlian,
 because he usually attach:importance take:exercise
 suoyi shenti yizhi hen hao
 therefore body always very good
- b. Ta_i yinwei t_i pingshi zhuyi duanlian,
 he because usually attach:importance take:exercise
 suoyi shenti yizhi hen hao
 therefore body always very good
 'Because he does sports regularly, he is in excellent health.'



As illustrated in (22), the adjunct-clause subject moves from the IP complement of Conj° into the specifier position of ConjP. We now have to check how the trace of this raised subject is licensed with respect to the *empty category principle* (ECP).²² Our assumption is that a functional head like Conj° does not count as a potential governor intervening between the trace and its antecedent; consequently, the subject trace can be properly governed by its antecedent, that is, the DP in the specifier position of ConjP, IP being no barrier.²³ Further raising of the adjunct-clause subject NP to a position higher than [Spec, ConjP], that is, to a position outside of the adjunct clause, is prevented by the *adjunct island condition* (AIC), which prohibits extraction from adverbial clauses or

adjunct PPs (cf. Huang 1982). Given the AIC, the extracted subject-DP in (20b) and (21b) can only move to a landing site WITHIN the adjunct clause, that is, to the specifier position of ConjP, as predicted by our analysis.

It is important to point out that the adjunct domain is made up by the entire ConjP including the potential landing site specifier of ConjP to the left of the conjunction. In this respect, our account crucially differs from previous analyses (cf. Huang 1982, i.p.), where the position preceding the conjunction (analyzed as a preposition or a complementizer, respectively) is considered NOT to belong to the adjunct clause. Huang (i.p., as cited by C.-C. J. Tang 1990: 354–357) therefore has to resort to special assumptions to rule IN a sentence like (23a), where the adjunct-clause object *nei-ben shu* ‘that book’ apparently occupies a position outside the adjunct clause:²⁴

- (23) a. [Nei-ben shu]_i yinwei ni bu xihuan t_i ta hen nanguo
 that-CL book because you not like he very sad
 ‘That book, because you don’t like it he is very sad.’

In our account, however, *nei-ben shu* ‘that book’ — like the extracted subject DPs in (20b) and (21b) — occupies the specifier position of ConjP, that is, a position within the adjunct clause (ConjP), and the grammaticality of (23a) therefore follows automatically. The ungrammaticality of (23b), on the other hand, confirms our prediction that further movement of an adjunct-clause argument to a position outside of the ConjP is prohibited by the AIC:

- (23) b. *[_{CP} [_{DP} nei-ben shu]_i [_{TOPP} ta_j [_{TOPP} [_{CONJP} yinwei ni bu
 that-CL book he because you not
 xihuan t_i] [_{TOP} ∅ [_{IP} t_j hen nanguo]]]]]
 like very sad
 (‘That book, because you don’t like it, he is very sad.’)
 (Example from Huang [i.p.], bracketing added.)

In (23b), the adjunct-clause object *nei-ben shu* ‘that book’ is to the left of the extracted main clause subject *ta* ‘he’, which occupies the specifier position of a TopP (cf. section 3.3 below); consequently, *nei-ben shu* has clearly left the ConjP and violated the AIC.

The extraction phenomena illustrated in (20)–(23) clearly argue against the prepositional status of subordinating conjunctions in Chinese, because in Chinese PPs, the subject cannot be extracted from the sentential complement of the preposition (cf. section 4 below). For a functional category like Conj^o, however, it is a crucial property to host a raised argument in the specifier position. But conjunctions pose the following

problem: contrary to the defining characteristics of functional categories, they assign an adverbial theta role to their complement. Nevertheless, we think that the syntactic evidence provided by the extraction phenomena is rather compelling and that it would be difficult to account for the regular extraction possibilities if the conjunctions *yinwei* 'because', *ruguo* 'if', etc., were analyzed not as a functional but as a lexical category. Furthermore, the restricted c-selection of Conj° (only a sentential complement), as opposed to the choice of complements for prepositions (IP, NP, or postpositional phrase; cf. section 4 below), also points to the functional character of Conj° . Besides, similar cases of "hybrid" functional categories have already been discussed in the literature (cf. Zagana 1988).²⁵

Like the subject DP of the adjunct clause, the object DP can also move to the specifier position of ConjP (cf. [24a]). The ECP is satisfied here insofar as the object trace in IP is governed and theta-marked — hence properly governed — by the verb. If both the subject and the object are raised as in (24b), a recursively introduced ConjP (with an empty head Conj°) provides the second necessary landing site. The crucial point here is that the moved argument DPs remain within ConjP , the adjunct domain:

- (24) a. [_{CP} [_{TopP} [_{ConjP} [_{DP} zhei-zuo fangzi]_i [_{Conj'} ruguo [_{IP} ni yao
this-CL house if you want
mai t_i]]] [_{Top'} [_{Top°} dehua] [_{IP} wo jiu jiegei ni qian]]]]
buy PART I then lend you money
- b. [_{CP} [_{TopP} [_{ConjP} [_{DP} zhei-zuo fangzi]_i [_{Conj'} [_{Conj°} \emptyset]
this-CL house
[_{ConjP} ni_j [_{Conj'} ruguo [_{IP} t_j yao mai t_i]]]]]
you if want buy
[_{Top'} [_{Top°} dehua] [_{IP} wo jiu jiegei ni qian]]]]
PART I then lend you money
'This house, if you want to buy it, I will lend you some money.'

3.3. Extraction of main-clause arguments

Whereas so far we have concentrated on the movement possibilities for arguments within the adjunct clause, we will now turn to the extraction of main-clause arguments.

First, there is the possibility for a main-clause argument to move to the specifier position of a main-clause-internal TopP (*local topicalization*):

- (25) [CP [TopP [ConjP yinwei Zhang San mei you shijian]
 because Zhang San not have time
 [TopP suoyi [TopP zhe-ben shu]_i [Top' ∅ [IP ta hai mei
 therefore this-CL book he still not
 kan-wan t_i]]]]]
 read-finish
 'Because Zhang San has no time, this book, he has not finished
 reading yet.'

Second, a main-clause argument can be raised to the sentence-initial position (*long topicalization*); it then occupies the specifier position of a recursively introduced TopP:

- (26) [CP [TopP wo_i [TopP [ConjP yinwei tianqi bu hao]
 I because weather not good
 [Top' ∅ [IP t_i mei lai]]]]
 not come
 'Because the weather was bad, I could not come.'
- (27) [CP [TopP [DP zhei-ding maozi]_i] [TopP [ConjP yinwei wo mei-you
 this-CL hat because I not-have
 dai gou qian] [Top' ∅ [IP suoyi [IP pro mei-you
 bring enough money therefore not-have
 mai t_i]]]]]
 buy
 'This hat, because I did not bring enough money with me, I did
 not buy.'

Long-distance topicalization of a main-clause argument DP (to the sentence-initial position of a complex sentence) thus results in a multiple topic construction.

As for the ECP, the trace of the main-clause subject *wo* in (26) is properly governed by its antecedent, for — as assumed above — functional heads like *Conj*^o and *Top*^o do not count as potential governors intervening between the trace and its antecedent. As for the object traces in (25) and (27), they are theta-governed by the verb, hence properly governed.

To briefly summarize, we have argued in this section that causal and conditional adjunct clauses (as a kind of sentential topic) are base-generated in the specifier position of the functional projection TopP. In addition to the pause particles *a*, *me*, *ne*, etc., *dehua* occurring with conditional clauses is another realization of the functional head *Topic*^o. Subordinating conjunctions in Chinese are an instance of the functional category *Conj*^o. The main evidence for this analysis comes from extraction

phenomena, where the specifier position of ConjP provides a landing site for moved arguments within the adjunct clause, in accordance with the AIC. Main-clause arguments can be subject to local or long topicalization, respectively. In the latter case, we obtain a multiple topic construction with a moved (nominal) topic, that is, the main-clause argument, and a base-generated (sentential) topic, that is, the adjunct clause.

In the remainder of this article, we will discuss complex sentences with temporal adjunct clauses and see that their internal structure differs from that of causal and conditional clauses.

4. Clause containing temporal adjuncts²⁶

As mentioned in section 2.2, in a language like German the sentence-initial position of verb-second sentences, commonly analyzed as the topic position, can be filled by different constituents. Similarly, the specifier position of TopP in Chinese can be occupied not only by DPs and causal or conditional clauses, but also by temporal adjuncts. Besides occurring in a VP-adjoined position (cf. example [13] above), a temporal adjunct like *zuotian* 'yesterday' can also occupy the specifier position of TopP:

- (28) a. [_{CP} [_{IP} Zhang San [_{VP} *zuotian* [_{VP} *mai-le bushao*
Zhang San yesterday buy-AM many
dongxi]]]] (= [13])
thing
'Zhang San bought a lot of things yesterday.'
- b. [_{CP} [_{TopP} *Zuotian* [_{IP} Zhang San [_{VP} *mai-le bushao*
yesterday Zhang San buy-AM many
dongxi]]]]
thing
'Yesterday, Zhang San bought a lot of things.'

The distribution of temporal adjuncts containing a CLAUSE like, for example, *huiyi jieshu (yi) hou* 'after the meeting was over' in (29), however, is somewhat different insofar as there is a strong tendency (or even a necessity, according to some native speakers) for this kind of adjunct to appear in the specifier position of TopP.

- (29) a. ?[_{CP} [_{IP} Wo [_{VP} [*huiyi jieshu (yi) hou*] [_{VP} *jin cheng*]]]]²⁷
I meeting finish after go downtown
- b. [_{CP} [_{TopP} [(Zai) *huiyi jieshu (yi) hou*] [_{IP} wo [_{VP} *t_i*] [_{VP} (jiu)
at meeting finish after I

PostpP is defective in that it only projects to a one-bar level and never contains a specifier position. Third, we will provide evidence for the prepositional status of *zai* and thus show it to be different from the subordinating conjunctions *yinwei*, *ruguo*, etc.

4.1. Postpositions vs. time nouns

Though it is true that items such as *yihou* ‘after’, *yiqian* ‘before’, and *deshihou* ‘when’, which we claim to be postpositions, have a nominal background, they can nevertheless not be analyzed as time nouns.

First, if this were the case, then the clausal complement, like *huiyi jieshu* ‘the meeting was over’ in [*huiyi jieshu*] (*yi*)*hou* ‘after the meeting was over’ (cf. [29] above), would have to be analyzed as a modifying clause, where extraction should be prohibited by the *complex NP constraint* (CNPC). But as the following sentences show, extraction from phrases headed by a postposition is acceptable:

- (33) [[_{DP} Zhei-zuo fangzi]_i] [_{PostpP} [ni mai t_i] yiqian]] yinggai qu zhao
 this-CL house you buy before should go seek
 yi-ge gongzhengren³¹
 1-CL notary:public
 ‘This house, before you buy it, you should consult a notary public.’
- (34) [[_{DP} Zhei-jian zang yifu] [_{PostpP} [ni xi t_i] deshihou]]
 this-CL dirty clothing you wash when
 kending yao hua bushao liqi
 certainly must spend much energy
 ‘This dirty garment, when you wash it you will certainly have to make a lot of effort.’

On the contrary, in a sentence like (35a), where the nominal status of *jijie* ‘season’ is beyond doubt, we will argue that extraction from the adnominal clause is not allowed, though at first glance this seems to be possible (cf. [35b]):

- (35) a. [_{DP} [_{IP} cai-shou xigua] de jijie] hen kuai
 pick-harvest watermelon NOM season very fast
 jiu hui guoqu le
 then will pass PART
 ‘The season when you can harvest watermelons will soon be over.’
- b. Xigua cai-shou de jijie hen kuai jiu hui
 watermelon pick-harvest NOM season very fast then will

shijian] bu chang
time not long

Huang (1984: 570) therefore proposes a completely different analysis in order to account for the acceptability of sentences like (36a): the DP *na-men ke* ‘that subject’ has not been extracted from the adnominal clause but is a base-generated topic, while the object EC in IP has moved to an operator position of that clause, where it is then coindexed with the topic *na-men ke* ‘that subject’ via the *generalized control rule*:

- (36) c. [DP Na-men ke]_i [DP [IP e_i women xue t_i] de
that-CL subject we study NOM
shijian] bu chang
time not long

In short, the sentence-initial DPs in examples (33)–(36) are derived in three different ways. First, in (33) and (34), the DP (*zhei-zuo fangzi* ‘this house’ and *zhei-jian zang yifu* ‘this dirty garment’, respectively) is a moved topic and has been extracted from the clausal complement of the postpositional head to a position outside of PostpP. Second, in (35b) and (35c), *xigua* ‘watermelon’ has not left the complex DP headed by the time noun *jijie* ‘season’; more precisely, *xigua* as the “passivized” internal argument of the verb occupies the canonical subject position [Spec, IP] in the adnominal clause. Third, in (36a) and (36c), *na-men ke* ‘that subject’ is a base-generated topic, and the only movement involved here is that of the object EC within the adnominal clause. These extraction data show that the phrases headed by postpositions do not behave like complex DPs and therefore confirm our claim that postpositions constitute an independent lexical category different from nouns.

Second, within our (postpositional) analysis, the unacceptability of (37a) can immediately be accounted for:

- (37) a. *_{[PostpP [AdjP hen duan] deshihou]}
very short when
b. _{[DP [AdjP hen duan] de shijian]}
very short NOM time
‘a very short time’

This is because postpositions select DP and IP complements only, but no adjectival phrases. In an analysis of *deshihou*, etc., as nouns, however, the difference between (37a) and (37b) would be difficult to explain.

Third, items like *yiqian*, *yihou*, *deshihou* lack the standard properties of nouns, that is, they cannot be quantified and — with the exception of *deshihou* — they are not compatible with classifiers, demonstratives, or

other determining elements. As for *deshihou* ‘when’, it is true that it can be modified by *nei-ge* ‘that’. But in contrast to a real NP modified by a relative clause, where the determiner phrase *nei-ge* may either precede or follow the relative clause, in the case of *shihou*, *nei-ge* must occur directly before it:

- (38) a. Ta lai de nei-ge shihou wo bu zai jia
 he come NOM that-CL time I not be home
 ‘When he came, I was not in.’
 b. *Nei-ge ta lai de shihou wo bu zai jia
 that-CL he come NOM time I not be home
- (39) a. Dai yanjing de nei-ge xuesheng jiao Zhang San³²
 wear glasses NOM that-CL student call Zhang San
 ‘The student that wears glasses is called Zhang San.’
 b. Nei-ge dai yanjing de xuesheng jiao Zhang San
 that-CL wear glasses NOM student call Zhang San
 ‘That student, who wears glasses, is called Zhang San.’

Like *yiqian* and *yihou*, *shihou* does not allow quantification:

- (40) *Ta lai de nei liang-ge shihou wo bu zai jia
 he come NOM that 2-CL time I not be home
 (‘The two times when he came I was not in.’)

To summarize, we have provided evidence for the differences between postpositional phrases containing a clausal complement, on the one hand, and DPs with modifier clauses, on the other hand. Consequently, postpositions have to be postulated as a separate lexical category in Chinese.³³ In the following, we want to argue that temporal postpositions are a defective category in Chinese.

4.2. Temporal postpositions as a defective category

First, the postpositions examined here only have a single-bar projection, that is, they do not project a specifier position. Evidence for this claim is provided by the acceptability differences observed when the object DP is extracted from the clausal complement of the postposition. If it remains within the PostpP, the sentence is ungrammatical:

- (41) *_{[PP zai [_{PostpP} [_{DP zhei-zuo fangzi}]_i [_{Postp'} [_{IP ni mai t_i]} yiqian]]]}
 at this-CL house you buy before
 yinggai qu zhao yi-ge gongzhengren
 should go seek 1-CL notary:public
 (Cf. [33] above.)

If the extracted object leaves the domain of PostpP, however, we obtain a grammatical sentence:

- (42) [PP [DP zhei-zuo fangzi]_i [P' zai [PostpP [IP ni mai t_i] yiqian]]]
 this-CL house at you buy before
 yinggai qu zhao yi-ge gongzhengren
 should go seek 1-CL notary:public
 'This house, before you buy it, you should consult a notary public.'

Apparently, there is no landing site available within the PostpP itself, because otherwise (41) would be acceptable. This means that PostpP has no specifier position, nor does it allow the creation of a PostpP-adjoined position as a possible landing site. The unacceptability of (41) furthermore entails that a postposition cannot select a TopP as its complement, for a TopP would wrongly provide a landing site for the moved argument within the PostpP:

- (43) *[PP zai [PostpP [TopP [DP zhei-zuo fangzi]_i [IP ni mai t_i]]] yiqian]]
 at this-CL house you buy before

Consequently, an argument that has been extracted from the clausal complement of Postp^o must move to the specifier position of PP, because this is the nearest landing site available (cf. [46] below).

Second, the defective character of temporal PostpPs is reflected in the fact that the PostpP must always be embedded in a PP, even if the preposition is phonologically empty. Evidence for the assumption that a temporal PostpP is always the complement of a prepositional head (whether overt or covert) is provided by the following extraction data:

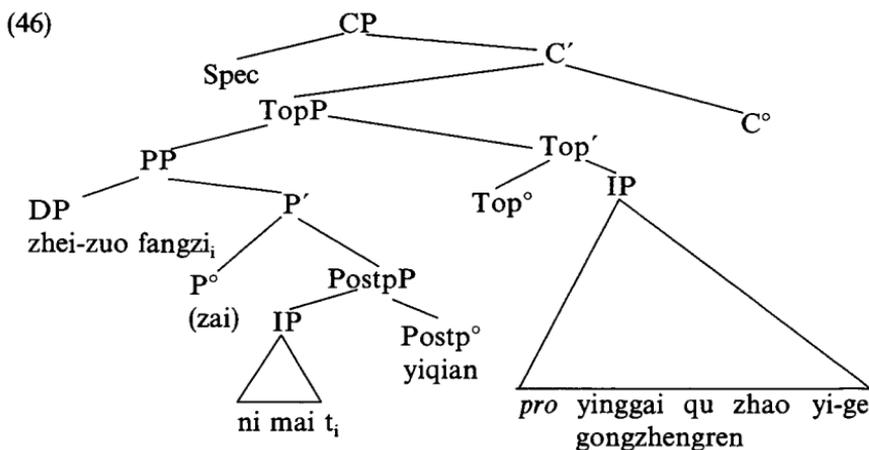
- (44) Zhei-zuo fangzi_i, ni mai t_i yiqian yinggai qu zhao yi-ge
 this-CL house you buy before should go seek 1-CL
 gongzhengren
 notary:public
 'This house, before you buy it, you should consult a notary public.'

As we have just shown above in the discussion of examples (41) and (42), there is no landing site available within the PostpP itself. Now, if in (44), the PostpP were not embedded in a PP (with an empty head) whose specifier position provides a landing site (as illustrated in [46]), the extracted object-DP *zhei-zuo fangzi* 'this house' would have to be adjoined to the TopP of the matrix clause. Since this would violate the adjunct island condition, sentence (44) would be wrongly ruled out under such an analysis:

- (45) *[CP [TopP [DP zhei-zuo fangzi]_i] [TopP [PostpP [IP ni mai t_i] yiqian]]
 this-CL house you buy before

[_{IP} *pro* yinggai qu ...]]]
 should go

If the PostpP is embedded in a PP, however, the specifier position of PP can serve as the landing site for an extracted argument, and the adjunct island condition is obeyed within PP as the relevant domain:



The assumption of an abstract prepositional head in Chinese can be motivated by Emonds's (1985: 227) *invisible category principle*, which says that a preposition can be phonologically empty if the prepositional features are realized by a sister XP of the preposition.

4.3. *zai* is a preposition, not a conjunction

Extraction phenomena have so far constituted the main evidence for our claim that temporal postpositions do not behave like nouns and are a defective category in Chinese. But the attentive reader will certainly have noticed that so far we have only provided examples where the object DP is extracted. In fact, subject extraction from the clause within a temporal adjunct is impossible:³⁴

- (47) *_{[IP} [_{DP} Huiyi]_i [_{P°} zai] [_{PostpP} [_{IP} t_i jieshu]
 meeting at finish
 [_{Postp°} yiqian/yihou/deshihou]]] wo jin cheng
 before/after/when I go downtown
 ('Before/after/when the meeting was over, I went downtown.')

Let us first discuss the unacceptability of subject extraction as exemplified in (47). It is correct that neither IP nor PostpP constitute barriers, for IP is L-marked by the lexical category Postp°, and PostpP is L-marked by P°. But besides the antecedent *huiyi* ‘meeting’, there are also the potential governors Postp° and Prep°, which can govern the trace inside the clausal complement. Consequently, antecedent government of the subject trace inside the clausal complement will always be prevented by the Postp°, which is closer to the subject trace than its “real” antecedent. Thus, in clausal temporal adjuncts, minimality is not guaranteed and the subject trace left in the IP complement of PostpP will never be properly governed. In conditional and causal clauses (cf. [20b] and [21b] above), however, subject extraction is acceptable, because a functional head like Conj° does not intervene in the proper government of the subject trace by its antecedent in the specifier position of ConjP.

As we have seen in several examples above, raising of the object from the clausal complement of PostpP is possible, for the object trace is theta-governed by the verb (e.g. *mai* in [42]); consequently, the ECP is satisfied.

As shown in the preceding discussion, the acceptability differences observed with respect to subject extraction clearly distinguish clause-containing temporal adjuncts from causal and conditional clauses: the first are headed by the lexical category Preposition, whereas the latter are the projection of the functional category Conj°.

5. Conclusion

We have presented evidence in this article for two new functional categories in Chinese: Topic° and Conjunction°.

The functional projection Topic Phrase is situated between CP and IP, and its head position can be (optionally) occupied by pause markers (*a*, *me*, *ne*, etc.) and the particle *dehua* occurring with conditional clauses. The specifier position of TopP hosts the topic constituent, which can be nominal or sentential. To generate adjunct clauses in the specifier position of TopP allows us to automatically derive the rigid word order “adjunct clause–main clause” observed in complex sentences with causal and conditional clauses.

Subordinating conjunctions (*yinwei* ‘because’, *ruguo* ‘if’, etc.) are analyzed as realizations of the functional category Conjunction°, based on the possibility of moving the adjunct-clause subject to the left of the conjunction.

In clause-containing temporal adjuncts, however, this kind of subject extraction is barred and they are accordingly analyzed as a lexical pro-

jection, that is, prepositional phrase. The head position of this PP may be empty or lexically filled (e.g. by *zai* 'at') and c-selects a postpositional phrase whose head (*deshihou* 'when', etc.) takes an IP complement. Object extraction from the IP complement to a position within the PostpP is excluded, which demonstrates that Postp° is a defective category projecting to a one-bar level only.

Our analysis of complex sentences thus illustrates the fundamental differences between functional and lexical projections in Chinese. Last, but not least, it tries to contribute to a better understanding of the rather vague concept of "topic prominence."

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Notes

- * The authors contributed equally to this paper and list our names alphabetically. In preparing this article, we have greatly benefited from discussions with and comments from C.-T. James Huang, Marie-Claude Paris, Alain Rouveret, and Ilse Zimmermann. However, they do not necessarily share the positions argued for here. The detailed reports by two anonymous reviewers are gratefully acknowledged here as well. We would also like to thank Chen Xuan for help with the data. Any remaining errors remain our responsibility.

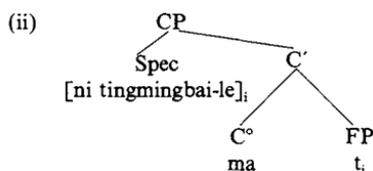
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- As for the nonexistence of AGR-S in Chinese, cf. Huang (1982: 331, 352), Aoun et al. (1987: 554), Hornstein and Lightfoot (1991: 374), and Tsai (1995), among others, who discuss sentences such as (i) and (ii):
 - Zhang San_i shuo [ziji_i hui lai]
Zhang San say self will come
'Zhang San said that he will come.'
 - Akiu_i renwei [ta-ziji_i hui dangxuan]
Akiu think he-self will be:electd
'Akiu thinks that he will get elected.'
- There are more functional categories below I° in Chinese. Their discussion is, however, beyond the scope of this article.
- Tang Ting-Chi (1989: 539ff.) also discusses the possibility of analyzing question markers like *ma* and *ne* as overt realizations of complementizer, but in the end he rejects this analysis because for considerations of scope, topics would then have to be placed in the Specifier position of CP according to his analysis. Cf. also Tang Ting-Chi (1988: 513, note 68), where [Spec, CP] or a CP-adjoined position are discussed as possible positions for the topic.
- It is interesting to note that Ancient Chinese also had a comparable elaborate system of sentence-final particles indicating the sentence type: *ye* and *yi* for the declarative, *ye*

occurring in sentences with stative verbs, *yi* in sentences with process verbs. The four particles most commonly used in interrogative sentences were *hu*, *zai*, *yu*, and *ye*. Cf. Wang Li (1958: chapter 50).

5. The following abbreviations are used in glossing examples: AM: aspectual marker; CL: classifier; PART: (sentence-final) particle; NOM: nominalization marker.
6. Technically speaking, the position *E* of the thematic grid of the verb is “discharged” at the point where VP meets C° . Unlike Bierwisch, Higginbotham (1985: 561) claims that the “hidden” argument place of verbs is discharged by Infl. The position *E* is also called the *referential argument* of the verb in the literature.
7. Kayne (1994) claims that all languages have an underlying head-complement order. If Kayne’s hypothesis is correct, this would imply that in Chinese, the originally righthand complement of C° (i.e. a functional projection FP) must raise to [Spec, CP] in order to obtain the surface order with a sentence-final complementizer. Accordingly, a simple Chinese sentence like (i) would have the S-structure in (ii):

- (i) Ni tingmingbai-le ma
 you understand-AM PART
 ‘Do you understand?’



It is not evident whether this is a desirable analysis. We will not pursue this issue here.

8. Müller and Sternefeld (1993: 485ff.) in particular propose that a topic constituent occupies the specifier position of a separate functional Topic phrase located between CP and IP. They furthermore claim that in the phrase structure of Germanic languages, the two competing functional heads, C° and Topic° , are always present: the complementizer is inherently nominal, and Topic° is inherently verbal, i.e. Topic° is the landing site for V/2 movement. Accordingly, topicalization — being “verb-oriented” — is associated with the V/2 position.
9. The necessity of a separate topic position in Chinese has already been discussed in the literature. Xu and Langendoen (1985: 1), for example, propose the following “[...] rule schema $S' \rightarrow X \{S, S'\}$, where X, the topic, is any major category, and S or S' , the comment, is another topic structure or a sentence which is independently well formed. Some constituent of the comment, or the comment as a whole, must be related to the topic.” Their main concern, however, is not to inquire into the nature of the topic position itself, but rather to show that “if the related constituent is an empty category, it is interpreted not as a variable bound by the topic, but as a pro-form whose antecedent is the topic.”
10. As pointed out by an anonymous reviewer, this part of our analysis is essentially the same as that proposed by Thiersch (1978) for German where the topic position is different from the subject position [Spec, IP]. Cf. the recent analysis by Haftka (1994: 153ff.), who also regards the subject position and the topic position as two structurally different positions.
11. According to Li and Thompson (1976: 459f.), Sino-Tibetan languages like Chinese, Lahu, and Lisu belong to the topic-prominent type, whereas Indo-European, Finno-

- Ugric, and Semitic languages all illustrate the subject-prominent type. Japanese and Korean are characterized as both subject-prominent and topic-prominent, while Tagalog is neither subject-prominent nor topic-prominent.
12. Contrary to a reviewer's suggestion, we do not consider it a possible alternative to assume that the topic after all occupies the specifier position of CP and reconstructs into the scope of *ma* at LF. First, the topic in example (5) is base-generated and, accordingly, there is no position available (within IP) into which it could reconstruct. Furthermore, if Tsai (1994: 218) is right, one important difference between English and Chinese lies in the fact that "Chinese subject indefinites [...] never reconstruct to benefit from \exists -closure." Since apparently reconstruction in Chinese is not as easily available as in English, it does not seem advantageous to use this mechanism in order to account for the scope phenomena illustrated in (5). In our view, the specifier position of CP in Chinese is not occupied by overt syntax (also cf. 3.2 below), but is reserved for *wh*-phrases and other operators raised at LF.
 13. Examples (8) and (9) are taken from *Laozi* and *Zhuangzi*, respectively, both books going back to the time of the Warring States (475–221 B.C.). Example (10) comes from *Zuozhuan*, a collection of chronicles from the Spring and Autumn Period (770–481 B.C.).
 14. Huang (1993) has shown that the VP-internal subject hypothesis holds in Chinese as well.
 15. "The speaker [...] is asking his listener to accept for a time a proposition *p* which provisionally becomes the framework of reference for the discourse — in particular, for the consequent proposition *q*" (Haiman 1978: 580).
 16. One might go further and speculate about the possibility of *dehua* as an adjunct clause complementizer. First, *dehua* on its own can indicate the conditional nature of a clause, i.e. it can indicate the sentence type (like the complementizers *ma*, *de*, etc., discussed above):

- (i) ruguo ni yao mai fangzi
if you want buy house
- (ii) ruguo ni yao mai fangzi dehua
if you want buy house PART
- (iii) ni yao mai fangzi dehua
you want buy house PART

(i)–(iii) all have the meaning 'if you want to buy a house ...'

Second, if *dehua* were analyzed as a complementizer, it would occur in sentence-final position like the matrix-clause complementizers: [_{CP} [ruguo ni yao mai fangzi] [_C dehua]]. Though for the time being *dehua* would be the only adjunct-clause complementizer in Chinese, it seems conceivable that the postpositions used in temporal adjunct clauses like e.g. *deshihou* '(time) when' (cf. below, section 4) are also on their way to turning into the functional category complementizer. We will stop our speculations here.

17. We thus take a position completely different from that expressed in C.-C. J. Tang (1990). She proposes analyzing *suoyi* as a complementizer selecting the main clause as its complement. The *yinwei* clause (being a CP itself) is then adjoined to the C-single-bar composed of *suoyi* and the main-clause IP. In her framework, to base-generate the causal clause under recursive C-single-bar captures the fact that causal and conditional clauses are licensed by C°.

For the obligatorily (main) clause-initial position of *suoyi* in complex sentences, cf. Lü Shuxiang (1980).

18. TopP as a possible adjunction site for *suoyi* 'therefore' is illustrated in example (i), where the main-clause object has been locally topicalized (cf. section 3.3 below), and in example (ii), where a complex sentence is embedded in another complex sentence, i.e. where Topic° takes a TopP complement rather than an IP complement:
- (i) Yinwei Zhang San mei you shijian, suoyi zhei-ben shu ta hai mei
 because Zhang San not have time therefore this-CL book he yet not
 kan-wan (= [25])
 read-finish
 'Because Zhang San has no time, this book, he has not finished reading yet.'
- (ii) yinwei women shi wei renmin fuwu de, suoyi women ruguo you
 because we be for people serve PART therefore we if have
 quedian jiu bu pa bieren pipingzhichu
 shortcoming then not fear other:people criticize
 'Because we serve the people, therefore, if we have shortcomings we are not afraid of people criticizing us.'
19. "As an afterthought, the [...] clause is spoken with a concluding intonation /./ and the afterthought fails to be a separate sentence only by the *piu mosso* tempo [...] in its first words, characteristic of afterthought expressions" (Chao 1968: 116).
 For an alternative account based on the different discourse function of a conditional or causal clause when in sentence-final position, cf. Paris (1996).
20. C.-C. J. Tang (1990: 121ff.) deals with cases of afterthought by raising the main clause to sentence-initial position. She faces, however, the problem that sentential adverbs may not occur in sentence-final position, though — like causal and conditional clauses — they are equally licensed by C° in her framework. Consequently, she has to resort to the ad-hoc solution that "adjuncts may be lexically marked with respect to the directionality of their projection" (Tang 1990: 150).
21. These facts are not stable. In fact, the native speakers consulted fell into three groups (none of which coincided with the speakers being exclusively from either Mainland China or Taiwan). The first group accepted subject extraction in both conditional and causal clauses, the second allowed subject extraction in causal clauses but not in conditional clauses, and the third group observed a pattern exactly opposite from the second group, i.e. subject extraction was accepted in conditional clauses but not in causal clauses. It is important to note, however, that often subject extraction became noticeably better when the adjunct clause and the main clause had the same overt subject. For instance, the native speakers belonging to the third group and accordingly rejecting sentences like (i) nevertheless accepted sentence (ii):
- (i) (?) Wo yinwei mei you shijian, suoyi ni yinggai yigeren qu
 I because not have time therefore you must alone go
 'Because I don't have any time, you will have to go on your own.'
- (ii) Wo yinwei mei you shijian, suoyi wo mingtian bu qu
 I because not have time therefore I tomorrow not go
 'Because I don't have any time, I won't go there tomorrow.'

The overt presence of *wo* 'I' in the main clause of (ii) is important insofar as it clearly shows that the sentence-initial *wo* is not the result of topicalizing the main-clause subject (cf. below, section 3.3), because, in the majority of examples with a subject DP to the left of the conjunction (suggested by the native speakers themselves or available in the literature), there was no overt subject in the main clause and it was therefore not clear whether the subject DP had been extracted from the adjunct clause or from the

main clause. Examples like (ii) also confirm the (rather plausible) generalization that subject extraction to the left of the conjunction is preferably used when adjunct clause and main clause have the same subject.

In the light of our discussion of temporal adjuncts (cf. section 4 below) it will become evident that the possibility for the adjunct-clause subject to move to [Spec, ConjP] distinguishes the functional category Conj° from the lexical category Preposition° . Consequently, it seems plausible to assume that in the instances where a given native speaker does not allow adjunct-clause subject extraction, the conjunction in question is (still) analyzed as a preposition, i.e. a lexical category, and not as a functional category. (Cf. Tsai Mei-chih [1995: chapter 6] for an alternative account of the extraction data in conditional and causal clauses.)

22. The relevant definitions follow:

ECP: Traces must be properly governed. α properly governs β iff α theta-governs β or α antecedent-governs β . α theta-governs β iff α governs β and α theta-marks β . α antecedent-governs β iff α governs β and α is coindexed with β (cf. Chomsky 1986: 17).

Government: α governs β iff α m-commands β and there is no γ , γ a barrier for β , such that γ excludes α .
 α excludes β if no segment of α dominates β (cf. Chomsky 1986: 9).

Minimality: α does not govern β in the configuration: ... α ... [γ ... δ ... β ...] if γ is the immediate projection of δ excluding α (cf. Chomsky 1986: 42).

23. So far, the explanation proposed here amounts to Rizzi's (1990a) *relativized minimality*. But in the discussion of temporal adjuncts (cf. section 4 below), we will see that — unlike a functional head like Conj° — a lexical head like $\text{Postposition}^\circ$ does intervene, i.e. it prevents proper government of the subject trace in the sentential complement of Postposition , hence the impossibility of subject extraction in temporal adjuncts. Thanks to Artemis Alexiadou for discussing the phenomenon of subject extraction with us.
24. Huang (i.p.) argues that in fact the topic structure in (23a) is formed by base-generation, and not by movement. Furthermore, he postulates a base-generated object *pro* that moves to the topic position of the *yinwei* clause where — via the *minimal distance principle* — it can now be properly controlled by the (base-generated) topic *nei-ben shu* 'that book'.
25. Rather than introducing a new functional category Conj° , it might be proposed to analyze the subordinating conjunctions as the realization of a clausal complementizer (as opposed to a matrix complementizer), thus using an already established functional category. The disadvantage of this solution — apart from the problem of a theta-role-assigning complementizer — would consist in having to postulate a head-final CP in the case of simple and matrix sentences (cf. [1] above) and a head-initial CP in the case of causal and conditional clauses. Furthermore, under this C° analysis, the class of elements analyzed as complementizers would be rather heterogeneous: sentence-final monosyllabic particles with clitic properties as instances of the matrix clause C° vs. sentence-initial bisyllabic words that certainly do not behave like clitics. We will leave this point open for further research and will continue to refer to the conjunctions by the label Conj° , while being aware of the eventually possible analysis in terms of a clausal complementizer.

26. In our analysis of temporal adjunct clauses, we will only examine temporal adjuncts indicating a point of time and not deal with temporal adjuncts indicating a time span, as illustrated in (i):

- (i) Tamen dao wanshang zhi kai-le yi-ci hui
 they until evening only hold-AM 1-CL meeting
 'They only had one meeting until the evening.'

For a detailed study of this kind of temporal adjunct, cf. Paul (1988a).

27. Some native speakers only accepted sentence (29) with *hou* instead of *yihou*, where *hou* has exactly the same meaning 'after' as *yihou* and is commonly regarded as a variant of the latter. We have no explanation for this fact; maybe it has to do with considerations of rhythm.

28. The absence or presence of the preposition *zai* is another problem for which we have no explanation. Some native speakers considered it optional at the sentence beginning (cf. [29b]), while others rejected it. Native speakers only agreed about the cases where *zai* is obligatory, i.e. in sentences like (30a) and (31a) where otherwise two [+human] DPs would be adjacent.

29. In the following, we will limit our analysis to the preposition *zai* 'at' as the most commonly used preposition in temporal adjuncts.

30. The postpositions under discussion here can also select a DP complement:

- (i) [PP [Prep* (zai)] [PostP [DP zhan-guo shiqi] [Postp* yihou]]]
 at warring-states period after
 'after the period of the Warring States'
- (ii) (zai) guoqingjie yiqian
 at National:Day before
 'before the National Day'
- (iii) (zai) di'er-ci shijiedazhan deshihou
 at second-time world:war when
 'during the Second World War'

31. The landing site for the raised argument of a temporal adjunct clause will be discussed in detail in section 4.2 below.

32. There is a tendency to interpret a relative clause as **RESTRICTIVE** when it precedes the demonstrative, and as **DESCRIPTIVE** when it follows the demonstrative (cf. Chao 1968; Huang 1982: 68, 1983).

33. It seems plausible to analyze the so-called "localizers" (like e.g. *shangmian* 'top of; on', *limian* 'inside of; in', etc.) as postpositions as well. Unlike the temporal postpositions, however, local postpositions take only DP complements, never clausal complements. Accordingly, the extractability of arguments from the clausal complement of Postp° cannot be examined in this case and cannot serve as a test for the nonnominal character of these items. (Cf. Ernst [1988] for an analysis of the "short" forms [e.g. *shang*, *li*] as postpositions, and Li [1990] and McCawley [1992] for an analysis of local postpositions as nouns.)

34. If *dehua* had been analyzed as a postposition, and not as a topic marker (cf. above, section 3.1), then subject extraction from a conditional clause with *dehua* would also be expected to be unacceptable. As the acceptability of (i) shows, however, this is not the case and our analysis of *dehua* as a topic marker gets further support:

- (i) Ni_i ruguo t_i yao mai fangzi dehua, wo jiu jiegei ni qian (= [20b])
 you if want buy house PART I then lend you money
 'If you want to buy a house, I will lend you some money.'

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