

A CP analysis of Mandarin Chinese

Ding Xu

0. Introduction

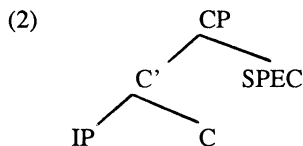
According to Chomsky (1986), sentences in English are to be analyzed as CPs (Complementizer Phrases).¹ The question that one may ask is if this analysis can be applied to Mandarin Chinese as well. The answer however, seems to be negative at first sight, since Mandarin Chinese lacks Complementizers in those positions where they do occur in European languages. This is illustrated in (1) where the subordinate clause immediately follows the main clause without being preceded by a Complementizer:

- (1) Zhangsan renwei Lisi dong Zhongwen.
 Zhangsan assume Lisi understand Chinese
 ‘Zhangsan assumes that Lisi understands Chinese.’

In this paper however, I intend to argue the opposite. I will claim that there is a C-position in Mandarin Chinese and that sentences in Mandarin Chinese can in fact be analyzed as CPs; a position which follows directly from the *Null-Hypothesis*, assuming that sentences in Mandarin Chinese should be analyzed in the same way as those of English and Dutch.

Given such a claim, the question that follows is whether there are elements in Mandarin Chinese which can serve as potential Complementizers, and I will argue that this is exactly the case. Two domains will be examined in this paper, the domain of relative clauses and the domain of root clauses. I will argue that in both domains we can find elements which can be analyzed as potential heads of the CP. In the case of the relative clause it is the pre-nominal modifier **DE** and in the case of the root clause it is the sentence-final particle **LE**. The structure of the Chinese CP which I will be arguing for is presented in (2):

¹ I want to thank Teun Hoekstra, Jan de Vries, James Liang, an anonymous reviewer and especially Rint Sybesma for their valuable comments. I am also very grateful to Yu Hong, Michel Hockx and Chen Yi-Chun for data and to Faye Chen for correcting my English. This paper is written as part of a research project on the functional projections in Chinese at CNWS/HIL, Leiden University.



According to this analysis, the head of CP in Mandarin Chinese follows its IP complement and the Specifier position lies on the right-hand side.

The paper is organized in the following way. Section one concerns the case of relative clauses where I shall argue that all types of the pre-nominal modifier **DE** can be analyzed as sentence-final Complementizers. In section two, I will examine some semantic and syntactic properties of sentence-final **LE**. Basing myself on the properties that Fukui (1986) has suggested for Functional Categories, I shall argue that sentence-final particle **LE** should also be analyzed as an instance of C.

1. The domain of relative clauses

In this section we will take a look at the domain of relative clauses in Mandarin Chinese. I will argue that Chinese phrases with the pre-nominal modifier **DE** should all be analyzed as CPs and that **DE** is a head-final complementizer.

1.1. The distribution of pre-nominal DE. It is a well-known fact that NPs in Chinese can be modified by various elements. Modifiers always precede the NPs they modify and are usually followed by the element **DE**. The distribution of this **DE** is given in (4):

- (3)
- a Lisi shang- guo DE daxue
Lisi up Asp. DE university
'the university which Lisi attended'
 - b haokan DE dianying
nice DE film
'a nice film'
 - c zai zhuo- shang DE shu
at table above DE book
'the book on the table'
 - d Zhangsan DE shu
Zhangsan DE book
'Zhangsan's book'

DE appears after a relative clause in (3a), after an adjective in (3b), after a prepositional phrase in (3c) and in a possessive construction in (3d). Various names have

been given to this pre-nominal modifier **DE**. Li & Thompson (1981) for example have argued that **DE** in (3a) is a *relative clause-marker*, in (3b) and (3c) a *modifier-marker*, and in (3d) a *genitive-marker*. To my mind, these names, though very interesting, fail to capture the syntactic properties which these **DE**s share. What I want to argue here is for the claim that all instances of pre-nominal **DE** can be analyzed as sentence-final Complementizers, in other words, that all modifying phrases in (4) are in fact relative clauses. We shall look at the cases in (4) individually and see if the analysis can be applied to all of them.

1.2. Pre-nominal modifiers as CPs. Let us start by taking a look at the relative clause in (3a). The idea that **DE** in a relative clause can be analyzed as a sentence-final Complementizer has already been discussed in the literature. Henry (1988) and Cheng (1986) for example, suggest that relative clauses in Mandarin Chinese should be analyzed in the same fashion as they are in languages where an overt Complementizer is present. If *relative clause-marker DE* is to be analyzed as the sentence-final Complementizer, the sentence in (3a) will have the D-structure that is given in (4):

- (4) [[Lisi shang-guo t_i] DE OP_i]_{CP} daxue_i]_{NP}

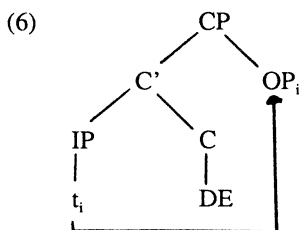
In this analysis, the relative clause is assumed to involve some kind of empty operator movement where the empty operator is co-indexed with the head Noun, as is the case with relative clauses in general.

There is also evidence for the postulation of an empty operator in (4). As Huang (1984) has observed, the difference between *Wh-movement* and *Relativization* in Chinese is that while the former is subject to Subjacency, the latter is not:

- (5) a Ni tingshuo Zhangsan mai sheme DE na- jian
 you hear Zhangsan buy what DE that CL.
 shi- LE ma?
 thing SFP Q
 'What have you heard the story that Zhangsan bought?'
 b *Wo tingshuo Zhangsan mai DE na- jian shi -LE
 I hear Zhangsan buy DE that CL. thing SFP
 DE che.
 DE car
 'the car that I hear the story that Zhangsan has bought'

As we can see, the English equivalents of (5a) and (5b) are both ungrammatical. By moving an element out of a Complex NP (CNPC), they both violate the Subjacency Condition (Chomsky 1981, Bennis & Hoekstra 1989). In Chinese however, this is different. Since *Wh-movement* in Chinese occurs at LF (Huang 1982), Subjacency

does not apply. But in the case of *relativization*, Subjacency does apply because it involves syntactic movement at S-structure. This explains the difference between (5a) and (5b). If Huang is right here--that relativization is a case of syntactic movement--we will have to assume that the moved element in (5a) is in fact an empty operator. The landing site for this empty operator is the Specifier position of the CP. The case of relativization will then have the structure presented in (6):



This further confirms our claim that relative clauses modifying NPs can be analyzed as CPs and that **DE** can be analyzed as an instance of C.

The second case which we will look at is that of the *adjective-marker* in (3b). This is in fact not a very difficult case. Since adjectives in Chinese need not be accompanied by a copular verb when used predicatively, witness the sentence in (7), NPs like *Piaoliang de guniang* 'a beautiful girl' and *haokan de dianying* 'an interesting movie' can easily be paraphrased as relative clauses such as 'a girl that is beautiful' and 'a film that is interesting' (see also Sproat & Shi 1988).

- (7) Na- wei guniang hen piaoliang.
 that Cl. girl very beautiful
 'That girl is very beautiful.'

If this is the case, sentences involving adjective modifiers can be analyzed in the same way as the relative clause above. The D-structure of (3b) will then be the following with **DE** as an instance of C:

- (8) [[t_i haokan] DE OP_i]_{CP} dianying_i]_{NP}

The same is also true with (3c) where the NP is modified by a prepositional phrase. Like (3b), (3c) *zai zhuo shang DE shu* 'the book on the table' can be paraphrased as 'the book that is on the table'. Since like adjectives, prepositions in Chinese can be used predicatively without a copula as is shown in (9):

- (9) Zhangsan zai jia.
 Zhangsan at home
 'Zhangsan is at home.'

the structure of (3c) will actually be the same as that of (3b) (cf (9)), in which case **DE** also serves as a sentence-final Complementizer:

- (10) [[t_i zai zhuo shang] DE OP_i]_{CP} shu_i]_{NP}

We have now had a look at three out of the four cases discussed in (3), and we have seen that there is strong evidence for analyzing the constituent which modifies the NP, as CP. It is also clear that in all three cases **DE** can be regarded as a candidate for the C position.

Next, let us consider the case of the possessive construction in (3d), repeated here in (11):

- (11) Zhangsan DE shu (cf (3d))
 Zhangsan DE book
 'Zhangsan's book'

The question is whether **DE** in the possessive construction can also be analyzed as a sentence-final Complementizer. In other words, is it possible to analyze the modifiers in these cases as CPs? A final answer to this question does not seem to be available at this moment, although some possible analyses have been suggested in the literature.

Hashimoto (1971) for example has argued that the sentence in (11) has exactly the same interpretation as the one in (12):

- (12) Zhangsan you DE shu
 Zhangsan has DE book
 'the book that Zhangsan has'

Judging from this, she argues that (11) can be considered as a relative clause construction with the relative clause generated from an underlying string of *Zhangsan you shu* 'Zhangsan has a book'. She further argues that there is a rule in Chinese which obligatorily deletes this *you* 'have' when it precedes **DE**. If we adopt Hashimoto's analysis, the genitive cases in Chinese will not be any different from the relative clause we have seen in (3a). The D-structure of (11) will then be:

- (13) [[Zhangsan Pred. t_i] DE OP_i]_{CP} shu_i]_{NP}

Notice that we might not need a rule like *you-deletion* as Hashimoto has proposed. We may assume that the predicate in the relative clause is empty.

Alternatively, (11) can be analyzed as containing an empty preposition, since it is also possible to interpret (11) as a variant of (14):

- (14) *gei* *Zhangsan* *de* *shu*
 to Zhangsan DE book
 'the book (belonging) to Zhangsan'

In this case, the phrase which modifies the NP *shu* 'book' is a prepositional one and can be analyzed in the same fashion as (3c), probably with the predicate in the relative clause being empty.

Here I will not decide which of these two analyses is to be preferred. Which ever analysis one might choose, it seems that there is a way to analyze **DE** in the possessive construction as a sentence-final Complementizer, the same way as we do for **DE** in the other pre-nominal modification constructions.

1.3. Summary. In the above we have examined the domain of relative clauses in Mandarin Chinese. I have proposed that the pre-nominal modifier **DE** in Mandarin Chinese should be analyzed as a sentence-final Complementizer. This assumption is based on the claim that all pre-nominal modifiers in Chinese can be analyzed as relative clauses, involving the following structure with **DE** in the Complementizer position:

- (15) $[[\dots t_i] \text{ DE } \text{OP}_i]_{\text{CP}} \text{ NP}_i]_{\text{NP}}$

2. *The domain of root clauses*

In this section we shall take a look at the domain of root clauses in Mandarin Chinese. I shall discuss some semantic and syntactic properties of sentence-final **LE**, and shall propose that **LE** is in fact base-generated under the head of CP.

2.1. The semantic properties of the sentence-final LE. Traditional Chinese grammar distinguishes two types of **LEs**: the one which is attached to the verb and the one which is attached to the whole sentence. The former functions as an aspect-marker and its semantic property is quite clear. It is the perfective aspect-marker which denotes that the action which is being described in the sentence has been accomplished, as is shown in (16):

- (16) *Zhangsan* *kan* -LE *shu*
 Zhangsan read Asp. book
 'Zhangsan has read the book.'

For the purpose of this paper, I shall leave out this aspectual **LE** and concentrate on the one which serves as a sentence-final particle. Some examples of this sentence-final **LE** are given in (17), (18) and (19):

- (17) Women kan dianying -LE
 We see film SFP.
 'We have seen a movie.' or 'We are going to see a movie.'
- (18) Zhangsan da -LE Lisi -LE
 Zhangsan beat Asp. Lisi SFP.
 'Zhangsan has beaten Lisi.'
- (19) Zhangsan bu -xiang xue yingwen -LE
 Zhangsan not want learn English SFP.
 'Zhangsan doesn't want to learn English any more.'

There has been a long-standing discussion on the question of the proper semantic nature of sentence-final **LE**. A definition which quite often appears in the literature is the one from Li & Thompson (1981). They state that "the basic communicative function of **LE** (sentence-final) is to signal a '*Current Relevant State*'" (Li&Thompson 1981:240). They argue that "(sentence-final) **LE** claims that a state of affairs has special current relevance with respect to some particular situation." (Li & Thompson 1981:240). They also propose five situations in which sentence-final **LE** can appear (Li & Thompson 1981: 244):

- (a) when one is expressing a changed state
- (b) when one corrects a wrong assumption
- (c) when one reports progress so far
- (d) when one determines what will happen next
- (e) when one is closing a statement

Here I will not go into the question as to whether Li & Thompson's approach is correct in all respects. What is clear is that they view **LE** (sentence-final) as an element, acting as an operator which has scope over the whole sentence (cf also Sybesma 1992). Sentence-final **LE** is seen as an element which is added to the whole sentence. It functions merely as a sentence-marker which actualizes the sentence, putting it into the current context of the discourse. Consequently, Sybesma (1992) argues that Li & Thompson's five contexts for sentence-final **LE** can in fact all be summarized under the heading '*change*', be it subjective or objective change.

Let me now return to the sentences in (17)-(19) and illustrate briefly how this system works out for them. The sentence in (19) is a clear illustration of the idea that sentence-final **LE** signals change (Li & Thompson's (a)): the sentence expresses that Zhangsan does not want to study English any more, though he did want to study

English before. In (18) sentence-final **LE** seems to be a case of subjective change (Li & Thompson's (b)): (18) conveys that, contrary to what the listener might think, Zhangsan has indeed beaten Lisi. The last example is the sentence in (17). Sentence (17) is ambiguous because it can be uttered in two different situations, one after seeing the movie, and the other before going to the movie. Nevertheless, in both cases sentence-final **LE** denotes a state of '*change*' (Sybesma 1992). In the case of the former (Li & Thompson's (c)), the sentence indicates that, so far as our activities are concerned, we have seen a movie (in contrast with other things that we have done). In the case of the latter (Li & Thompson's (d)), the sentence means that, contrary to what we are doing at this moment, we are going to see a movie for a change. Viewed in this way, the ambiguity in (17) should not be considered as surprising. It further confirms our claim that sentence-final **LE** is an element which is added to and has scope over the sentence as a whole.

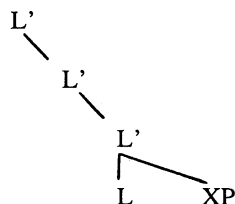
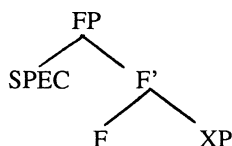
2.2. *Sentence-final particle LE as a Complementizer.*² Within the theory of Government and Binding (Chomsky 1981, 1986), it is assumed that we can distinguish two kinds of projections. One of them contains lexical heads, such as *N(oun)*, *V(erb)*, *P(reposition)* and *A(djective)*, while the other group contains non-lexical heads, such as *I(nfleotional affixes)*, *D(eterminer)* and *C(omplementizer)*. The former are labelled as Lexical Projections and the latter as Functional Projections. The differences between these two kinds of projections are summed up in the following way by Fukui (1986:31):

- a. Functional heads have one and only one specifier (i.e. non-iterable), while the specifiers of lexical heads may be iterable.
- b. All Functional heads can have specifier positions, it is not at all clear that all lexical heads have specifier positions.

According to Fukui (1986), lexical projections and functional projections are projected in different ways, the difference being that lexical projections are projected only to one bar-level while functional projections are two bar-level projections. This is illustrated as follows (Fukui 1986:50-51):

² For a Complementizer analysis of Cantonese sentence-final particles, see Law (1990).

- (20) a Functional projections b Lexical projections



One of the conclusions that Fukui has drawn from his investigation is the following: lexical projections are open projections, functional projections are closed ones caused by the presence of the Specifier position. Consequently, Fukui assumes that functional projections generally have the function of closing off projections as a whole. The sentence-final particle **LE** in Mandarin Chinese seems to possess this special kind of property.

It is pointed out by Li & Thompson (1981) that Mandarin sentences without sentence-final particles are often judged by native speakers as incomplete. The sentence in (21) is just such a case:

- (21) Zhangsan chi -LE fan
 Zhangsan eat Asp. rice
 'Zhangsan has eaten.'

However, when the sentence-final particle **LE** is added, the sentence becomes more acceptable, as it is shown in (22):

- (22) Zhangsan chi -LE fan -LE.
 Zhangsan eat Asp. rice SFP
 'Zhangsan has eaten by now.'

The contrast between sentences in (21) and (22) seems to suggest that **LE** has the function of making sentences complete, the same also argued by Lû (1981). If we regard sentences as projections, **LE** is said to be able to close off these projections. This is exactly the kind of property that functional projections has, as Fukui (1986)

pointed out. By putting **LE** under the head of the CP, we can nicely explain this unique function of sentence-final **LE**.³

A further indication that this analysis may be on the right track is the following. In Mandarin Chinese we have question particles like **NE** and **MA**. These question particles only occur in Yes/No questions, but never in Wh-questions. This is illustrated by the ungrammatical sentence in (23):⁴

- (23) *Zhangsan chi- le sheme le ma?
 Zhangsan eat Asp. what SFP Q

Given the fact that Wh-elements are moved to the position of Spec CP (Bennis & Hoekstra 1989) (although in Chinese this movement takes place at LF (Huang 1982)), it seems fair to assume that **NE** and **MA** also occupy the Spec CP position, judging from the complementary distribution between **NE** /**MA** and Wh-words in (23). Given further that they could appear after the sentence-final particle **LE**, as illustrated in (23):

- (24) Ni chi -guo fan -LE ma?
 you eat Asp. rice SFP. MA
 'Have you eaten?'

It matches beautifully with our claim of sentence-final particle **LE** being a sentence-final complementizer. In this way the distributional properties of **NE** and **MA** illustrated in both (23) and (24) could be elegantly accounted for.

2.3. *Summary.* In the above we have examined root clauses in Mandarin Chinese. In this domain of the grammar we have also found a potential candidate for the position of Complementizer, viz., the sentence-final particle **LE**, based on its *closure* property. In addition, our assumption seems to be further confirmed by the distributional properties of question particles in Mandarin Chinese.

³ A further argument which supports the Complementizer analysis of the sentence-final particle **LE**, is the complementary distribution between sentence-final **LE** and elements such as *yihou* 'after', *yiqian* 'before'. This is shown in the following sentence:

(i) *Wo likai Zhongguo -LE yiqian/yihou ...
 I leave China SFP before/after
 'After/before I left China, ...'

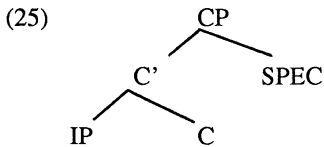
If we regard these elements as canonical C-elements, the complementary distribution between **LE** and these C-elements seems to indicate that **LE** can also be analyzed as a Complementizer. The ungrammaticality of (21) will be accounted for by the *Doubly-Filled-Comp Filter*, proposed by Chomsky (1981).

⁴ This sentence is only grammatical with *sheme* 'what' being an indefinite NP, meaning: Has Zhangsan eaten anything?

3. Concluding remarks

In this paper I have proposed that Mandarin Chinese sentences should be analyzed as CPs, in accordance with the *Null-Hypothesis*. Our claim is supported by the fact that in each of the domains we have examined in this paper, we have found elements which can serve as potential candidates for the C-position. In the domain of relative clauses, it is the pre-nominal modifier **DE**, and in the domain of root clauses, it is the sentence-final particle **LE**. The specifier position of this CP, as I have proposed, lies on the right-hand side of the CP, based on the distribution of question particles in Mandarin Chinese.⁵

In short we have the following structure for Mandarin Chinese CP:



where the C-position can be filled with the following elements:

- (26) a Sentence-final particle **LE**
 b Various types of pre-nominal **DEs**
 c Other C-elements like: **yihou** 'after', **yiqian** 'before', **...de hua** 'if' etc.

References

- Bennis, H and T. Hoekstra (1989) *Generatieve grammatica*, Foris, Dordrecht.
 Cheng, L.L.S. (1986) *Clause Structures in Mandarin Chinese*, M.A.thesis, University of Toronto.
 Chomsky, N.A.(1981) *Lectures on Government and Binding*, Foris, Dordrecht.
 Chomsky, N.A.(1986) *Knowledge of language: its origin, nature and use*, Praeger, New York.
 Fukui, N.(1986) *A theory of category projection and its applications*, PhD dissertation, MIT.
 Hashimoto, A.(1971) 'Mandarin syntactic structure', *Unicorn* 8, 1-149.
 Henry, A.(1988) *Empty categories in Chinese*, PhD dissertation, University of Ulster.
 Huang, J.C.-T. (1982) *Logical relations in Chinese and the theory of grammar*, PhD dissertation, MIT.
 Huang, J.C.-T. (1984) 'On the distribution and reference of empty pronouns', *Linguistic Inquiry* 15, 513-574.
 Li, C.N. and S.A. Thompson (1981) *Mandarin Chinese: a functional reference grammar*, University of California Press.

⁵ Since Wh-movement in Chinese is delayed until LF, as Huang (1982) has pointed out, the specifier position of Chinese CP can not be established on the basis of such movement, unlike the case of English or Dutch.

- Lü, S.X. (1981) *Xianai Hanyu Babaici*, Commercial Publications, Beijing.
- Sproat, R. and Chilin Shih (1988) 'Pre-nominal Adjectival ordering in English and Mandarin', *NELS* 18, 466-489.
- Sybesma, R.P.E. (1992) *Causatives and Accomplishments: the case of Chinese BA*, PhD dissertation, Leiden University.