

Chapter 5: Relativization --- Head-final relative constructions

In the previous chapter, we argued that the properties of Head-initial relative constructions in English and LA follow straightforwardly from a complementation structure where the Head can be either base generated in the position where it overtly occurs, or it can come to occupy the initial position via movement. The availability of movement, manifested in various reconstruction effects, depends on the possibility of licensing the empty internal D by the external D. In other words, Head-initial relative constructions invariably have a complementation structure with differences in behavior with respect to reconstruction of the Head following from differences in the availability of an external D to license the internal D.

A complementation structure results in a Head-initial relative construction, according to Kayne (1994)'s Antisymmetry approach to word order and phrase structure, all else being equal. Nonetheless, as is well known, there are languages where relative constructions are Head-final. How such relative constructions are derived is a focus of this chapter, where we take Chinese as an example and argue that relative constructions do not necessarily require complementation structures and what is moved is not necessarily a DP. Instead, the evidence will establish that relative constructions in Chinese involve adjunction structures, and NP, not DP movement. The support for NP movement, in contrast to DP movement, comes from reconstruction: Chinese has reconstruction effects which are different from English or LA. Whereas English and LA exhibit effects of DP reconstruction, Chinese exhibits NP reconstruction effects as evinced by QP scope facts. Moreover, the NP Head can itself be a relative construction. That is, the projection of a relative clause and its Head can be an NP, as indicated by reconstruction facts, further supporting an adjunction structure analysis for relative constructions.

This chapter is organized as follows. Because we use reconstruction as the diagnostic to determine the derivation of relative constructions in LA and English, we also begin with reconstruction effects in Chinese relative constructions in section 5.1. An interesting contrast emerges: Chinese allows reconstruction with respect to binding but not scope properties, in contrast to English and LA which exhibit reconstruction effects with respect to both binding and scope. Because of the morphosyntactic structure of QPs in Chinese, the contrast follows straightforwardly if what is reconstructed is an NP, not a DP. An NP reconstruction analysis is further supported by some novel and interesting coordination facts which demonstrate that a relative clause can be adjoined to an NP Head and the resulting complex nominal is still an NP (section 5.2). Our analysis not only argues for NP reconstruction but also supports an adjunction structure for relative constructions in Chinese, which share the same structural properties as true adjectives in this language (section 5.3). This also argues against the adoption of a complementation structure in Chinese, an analysis that is further supported by the lack of determiner and selection properties corresponding to those in English discussed in section 4.1.3 of the previous chapter. The difference in Head-initial and Head-final relatives thus can be reduced to a difference in their phrase structures: complementation vs. adjunction, a result that is in accordance with Kayne's (1994) Antisymmetry of linearization of phrase structure.

5.1. Reconstruction in Chinese relativization

In Chinese, the evidence for movement initially seems to be conflicting. In support of a movement analysis, it seems possible for reconstruction to take place when reflexives are involved, since a reflexive contained in the relativized Head can be bound by a QP antecedent within the relative clause:

- (1) a. wo jiao Zhangsan quan mei-ge-ren_i kai ziji_i de chezi lai.
I ask Zhangsan persuade every-CL-one drive self De car come

'I asked Zhangsan to persuade everyone to drive self's car over.'

- b. [[wo jiao Zhangsan quan mei-ge-ren_i kai t lai de] ziji_i de chezi].
I ask Zhangsan persuade every-Cl-one drive come De self De car
'self's car that I asked Zhangsan to persuade everyone to drive over'

A reconstruction effect is also exhibited in the following cases which involve bound pronouns contained in a relativized Head:

- (2) a. wo xiwang mei-ge xuesheng_i dou neng ba wo gei ta_ide shu dai lai.
I hope every-Cl student all can BA I give his book bring come
'I hope every student_i can bring the book that I gave to him_i.'
- b. ni hui kandao [[wo xiwang mei-ge xuesheng_i dou neng dai t lai de] wo gei ta_ide shu].
you will see I hope every-Cl student all can BA his book bring come De I give his book
'You will see the book that I gave to him_i that I hope every student_i will bring.'
- c. mei-ge-ren_i dou yiwei wo yijing mai-dao wo yao song gei ta_i liwu.
every-Cl-one all think I already bought I will give to him present
'Everyone thought I already bought the present that I was going to give to him.'
- d. [[mei-ge-ren_i dou yiwei wo yijing mai-dao t de] wo yao song gei ta_i de liwu].
every-Cl-one all think I already bought De I will give to him present
'present that I was going to give to him that everyone thought I already bought'

With respect to scope interaction, however, there are cases which show reconstruction to be unavailable.

- (3) a. wo hui zhengli [[mei-ge-ren dou hui kan t de] san-ben shu] ---same 3 books
I will arrange every-Cl-one all will read De three-Cl book
'I will put the three books that everyone will read in order.'
- b. [[mei-ge-ren dou hui kan t de] san-ben shu], wo hui zhengli. ---same 3 books
every-Cl-one will all read De three-Cl book I will arrange
'The three books that everyone will read, I will put in order.'

However, these expressions involve *dou* 'all'. When *dou*, which occurs with the QP in the relative clause, disappears, the reconstruction effect also seems to re-appear:

- (4) wo hui zhengli [[mei-ge-ren hui kan t de] san-ben shu]. ---different 3 books
I will arrange every-Cl-one will read De three-Cl book
'I will put the three books that everyone will read in order.'

This raises the question of why reconstruction seems to be available only in some cases.

Note that one cannot claim that the difference in reconstruction availability is due to the (in)definiteness of the complex nominals (cf. the contrast between definite and indefinite relatives in LA and English in the previous chapter). That is, one cannot suggest that the lack of scope reconstruction in (3) might be due to the fact that no overt determiner occurs in such expressions and so the relevant expressions must correspond to the English expressions without *the*. This is not possible because a Chinese nominal expression without an overt determiner can be translated

as definite or indefinite. Indeed, (3)b) requires the relevant nominal in the preposed topic position to be definite, corresponding to expressions with *the* in English.

Furthermore, note that the observed contrast in the availability of reconstruction corresponding to the absence or presence of *dou* does not appear in other non-relative constructions that allow reconstruction. For instance, a contrastive topic construction allows reconstruction regardless of whether or not *dou* is present. The following examples illustrate that a fronted QP in a contrastive topic construction can be reconstructed and interpreted as if it were in the base-generated argument position regardless of the presence or absence of *dou*:

- (5) mei-ge-ren (dou) hui kan san-ben shu. ---different 3 books
every-Cl-one all will read three-Cl book
'Everyone will read three books.'
- (6) san-ben shu, wo xiang mei-ge-ren (dou) hui kan, bu zhi liang-ben shu. ---different 3 books
three-Cl book I think every-Cl-one all will read not only two-Cl book
'Three books, I think everyone can read, not just two books.'

These facts indicate that relative constructions and contrastive topic constructions do not behave alike with respect to reconstruction. Reconstruction in relative constructions is sensitive to the presence or absence of *dou*, but not in contrastive topic constructions. It would be quite odd if we were forced to stipulate that reconstruction behaves differently in different constructions. Fortunately, there is a more logical option: we may question whether reconstruction is indeed available in relative constructions. In fact, we show below that closer examination of the data reveals that reconstruction of QPs which take the form [Q + Cl + N] is not available in relative constructions. The apparent reconstruction effects regarding scope interaction should be more appropriately analyzed as the result of direct scope interaction of the Head QP with the QP inside the relative clause.

Aoun and Li (1993, chapter 5) discuss a contrast that exists between the following pair of sentences (see Lee 1986 for an extensive discussion on the relation between a QP and *dou*):

- (7) a. [[mei-ge-ren xie t de] wenzhang] dou hen you yisi.
every-Cl-one write De article all very have interest
'The articles that everyone wrote are all interesting.'
- b. [[t xie mei-ge-ren de] wenzhang] dou hen you yisi.
write every-Cl-one De article all very have interest
'The articles that described everyone are all interesting.'

(7)b), in contrast to (7)a), must have a group reading. This is because the QP 'everyone' related to *dou* 'all' must be within *dou*'s "government" domain.¹ The subject QP *meigeren* 'everyone' in (7)a), but not the object QP *meigeren* 'everyone' in (7)b), can be raised out of the relative clause to be in the government domain of *dou* and obtain a reading according to which *meigeren* takes

¹ The work by Aoun and Li (1993) was carried out in the Principles and Parameters framework (Chomsky 1981) which embodies a central notion of government. In the Minimalist Program (Chomsky 1993, 1995), the notion of "government" is abandoned. It should still be recognized, however, that there is a domain requirement between *dou* and the nominal phrase it is associated with. For ease of presentation, we will continue using the term "government," with the understanding that the government domain requirement might best be captured in some other manner.

scope over *wenzhang* 'article' (everyone wrote a different article). The locality condition on QP-raising allows the raising of the subject QP out of the relative clause (due to the absence of Agreement in Chinese) but prohibits the raising of the object from within the relative clause.

Similarly, the QP in (7)c) cannot be raised out of the relative clause to take scope over *wenzhang* 'article' because of the domain (government) requirement between *dou* and the related QP.

- (7) c. wo kan le [[mei-ge-ren dou xie] de wenzhang].
I read Le every-Cl-one all write De article
'I read the article that everyone wrote.'

Aoun and Li further note that the contrast between the following pair of sentences follows from an account of QR and the domain requirement of *dou*:

- (8) a. wo kan le [[mei-ge-ren dou xie t] de liang-pian wenzhang]
I read Le every-Cl-one all write De two-Cl article
'I read the two articles that everyone wrote.'
- b. wo kan le [[mei-ge-ren xie t] de liang-pian wenzhang]
I read Le every-Cl-one write De two-Cl article
'I read the two articles that everyone wrote.'

Because of the domain requirement on the relation between *dou* and the phrase related to it, a QP such as *meigeren* in (8)a) cannot be raised to a position outside the relative clause. The QP's failure to be raised outside the relative clause makes it impossible to be raised to a position c-commanding the QP in the Head position of the complex nominal expression. Consequently, (8)a) does not have the interpretation according to which *meigeren* has wide scope. In contrast, (8)b) does not have *dou*, so any domain requirement is irrelevant. The subject QP can be raised out of the relative clause and c-command the Head QP. This derives the reading according to which the subject QP has wide scope.

Note that this account is adequate only if the Head QP cannot be reconstructed to within the relative clause. Otherwise, all the sentences above, including those with *dou*, should have allowed the narrow scope interpretation of the Head QP. This can best be illustrated by the contrast between (8)a-b). If the Head QP were interpreted in the position inside the relative clause from whence it is relativized, the interpretation of (8)a) should not differ from that of (9).

- (9) mei-ge-ren dou xie le liang-pian wenzhang.
every-Cl-one all write Le two-Cl article
'Everyone wrote two articles.'

(9) clearly has the interpretation according to which 'everyone' has scope over 'two articles', an interpretation which is unavailable in (8)a). The contrast between these two patterns argues against reconstruction for scope interpretation in relativization structures. Therefore, the availability of the wide scope interpretation for the subject QP is not due to reconstruction. It is due to raising of the subject QP 'everyone' out of the relative clause. This account can be further supported by the fact that, when QR fails to raise 'everyone' outside the relative clause, it no longer has scope over the relativized QP, even though it c-commands the position from whence the relativized QP originated. This is illustrated by the following sentences where the QP in the embedded clause cannot be raised outside the relative clause and the sentence is not ambiguous: the Head has unambiguous wide scope over the QP in the most deeply embedded clause:

- (10) a. wo hui zhengli [[ta xiwang mei-ge-ren hui kan t de] san-ben shu] ---same 3 books
I will arrange he hopes every-Cl-one will read De three-Cl book
'I will put the three books that he hopes that everyone will read in order.'
- b. [[ta xiwang mei-ge-ren hui kan t de] san-ben shu], wo hui zhengli.---same 3 books
he hopes every-Cl-one will read De three-Cl book I will arrange
'the three books that he hopes that everyone will read I will put in order.'
- c. ta xiang kan [[ni yiwei mei-ge-ren yao nian t] de liang-pian wenzhang].---same 2 articles
he want read you think every-Cl-one read De two-Cl article
'He wants to read the two articles that you thought everyone would read.'

In brief, a QP as Head of a relative clause does not reconstruct to interact with another QP inside the relative clause.

Further note that it is not true that reconstruction never takes place with respect to scope. It is only when the Head itself is a QP that scope reconstruction is not available. If a QP is contained in a modifier adjoined to a nominal together making a Head of a relative clause, such a complex Head containing the QP modifier can be reconstructed and a reconstructed scope interpretation is available. For instance, in an example like (11), 'three authors' is not the Head itself. It is just a modifier adjoined to a nominal 'book' and the two together 'books by three authors' is the complex Head of the relative clause 'everyone likes'. This Head, which contains the adjoined QP 'three authors', can undergo reconstruction in the relative construction. The sentence has the interpretation according to which 'three authors' takes narrow scope with respect to 'everyone'. This contrasts with (12) whose relativized Head does not contain a QP or (13) whose Head is itself a QP and does not reconstruct; 'everyone' in the relative clause does not take scope over the Head:

- (11) [[mei-ge ren dou xihuan t_i de] [_{NP} [san-ge zuojia de] shu]_i] ---wide scope for 'everyone' available
every-Cl person all like De three-Cl author De book
'the books by three authors that everyone likes'
- (12) [[san-ge zuojia de] [_{NP} [mei-ge ren dou xihuan t_i de] shu]_i]] ---wide scope for 'everyone' unavailable
three-Cl author De every-Cl person all like De book
'three authors' books that everyone likes'
- (13) [_{NP} [mei-ge ren dou xihuan t_i de] san-ben shu]_i]] ---wide scope for 'everyone' unavailable
every-Cl person all like De three-Cl book
'three books that everyone likes'

With respect to idioms, both reconstruction (movement from within relative clauses) and base-generation are possible. There are instances where parts of an idiom, occurring as a relativized Head, are related to the relative clause (14) and other instances, where they are related to the matrix clause (15):²

² Not surprisingly, the idiom chunk can also be related to the relative clause and the matrix clause simultaneously:

- (1) a. ta **chi**-le [[ta bu yinggai **chi** e_i **de**] cu_i].
he **eat**-Le he not should **eat** De **vinegar**

- (14) a. [[ta **chi** e_i **de**] **cu**_i] bi shei dou da.³
 he **eat De vinegar** compare who all big
 'lit: The vinegar he eats is greater than anyone else's.'
 'His jealousy is greater than anyone else's.'
- b. wo ting-bu-dong [[ta **you** e_i **de**] **mo**_i].⁴
 I listen-not-understand he **hu- De -mor**
 'Lit: I do not understand the -mor that he hu-ed.'
 'I do not understand his humor.'
- (15) a. ta laoshi ai **chi** [[rang ren shou-bu-liao **de**] **cu**].
 he always like **eat** let people receive-not-complete **De vinegar**
 'Lit: He always likes to eat vinegar that cannot be put up with.'
 'He always likes to be jealous to such a degree that is beyond what can be put up with.'
- b. ta zhi hui **you** [[meiren ting-de-dong **de**] **mo**].
 he only can **hu-** nobody listen-De-understand **De -mor**
 'Lit: He can only hu- the -mor that nobody understands.'
 'He can only say humor that nobody can understand.'

The discussion in this section, summarized below, shows that the conclusions we reached concerning the availability of reconstruction in Chinese relative constructions are not quite consistent.

- (16) i. Reconstruction is possible for binding relations involving anaphors, bound pronouns, etc. in the Head.
 ii. Reconstruction is unavailable for examples involving a Head QP interacting with another QP inside a relative clause for scope interpretations.
 ii. Idiom chunks involving a relativized Head can be related to the relative clause.⁵
 Therefore, reconstruction is possible when idiom chunks are involved. However, the idiomatic Head is not always necessarily related to the relative clause. It can be related to

'He eats vinegar that he should not eat.'

- b. ta **you-le** [[ta bu yinggai **you** e_i **de**] **mo**_i].
 he **hu-Le** he not should **hu- De -mor**
 'Lit: He hu-ed the -mor that he should not hu-.'
 'He said humor that he should not have said.'

³ The idiom *chi-cu* 'eat vinegar', meaning 'jealous,' has a [V + O] structure.

⁴ *You-mo* is a transliteration of the English expression 'humor'. It takes on a [V + O] structure, as illustrated in (i) below, with the first syllable analyzed as a verb and the second as an object of the verb:

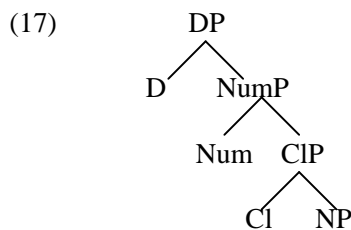
- (i) ta hen xihuan **you** ni-de **mo**.
 he very like **hu-** you-De **-mor**
 'He likes to **humor** you.'

⁵ The possibility of an idiom chunk related to the matrix clause instead of the relative clause indicates that relative constructions are not always derived by Head-raising. That is, the Head can be base-generated. We return to this option later in the text.

the matrix clause.

It is surprising that reconstruction effects appear to be so inconsistent in Chinese relative constructions, in contrast to the relevant English and LA relative constructions which exhibit reconstruction effects systematically. Why is it that QPs in Chinese behave differently from the other cases, and how can we make sense out of such seemingly incoherent reconstruction effects?

The reconstruction facts regarding binding certainly argue for an analysis that derives the relative Head by movement. On the other hand, the QP scope interaction facts do not support direct movement to the Head. How can the two seemingly conflicting sets of facts be integrated? The answer lies in the morpho-syntactic differences of these expressions. Note that the scope interaction facts noted above involve QPs which contain number and classifier expressions. The occurrence of number and classifier expressions necessarily projects the expression beyond an NP to a larger expression which includes the classifier and number projections, given that Chinese nominal structures have the projection below (Tang 1990, Li 1998, 1999a, b):



On the other hand, a modifier (including a relative clause) together with the NP it modifies can be projected as an NP. The object of [V + O] idioms can also be an NP, as such object idiom chunks are generally non-referential. The NP/non-NP distinction provides an answer to the apparent conflicting reconstruction effects just mentioned: what is reconstructed in Chinese is an NP. An NP may be an idiom chunk or may have a modifier that contains an anaphor or a pronoun. In contrast, an NP cannot be a QP because of the lack of number and classifier projections (and consequent lack of the Q or D projection). In other words, if what is reconstructed can only be an NP, instead of a DP, the seemingly inconsistent reconstruction facts follow straightforwardly: QPs which necessarily contain a number+classifier expression, must be projections larger than NP; the non-QP cases, which do not contain a number+classifier expression, need not be larger than an NP.⁶ The distinction between NP-reconstruction and DP-

⁶ The number and classifier expression and even a demonstrative can still occur in those instances that allow reconstruction of the Head, such as the examples below. What matters is that, in these instances, what is reconstructed can still be just the NP part, excluding the demonstrative and classifier; i.e., only NPs are reconstructed. The relative clause is raised from an NP-adjoined position to a higher projection, and since NPs reconstruct in Chinese, reconstruction effects do appear (in this case, Binding Principle C), as expected:

- (i) a. zhe jiu shi [[Zhangsan_i yiwei women yijing kan-guo de] you guan ta_i fuqin de na-fen baodao]
 this exactly is Zhangsan think we already seen De have relation he father De that-Cl report
 'This is the report about his father that Zhangsan thinks that we have already seen.'
- b. *zhe jiu shi [[ta_i yiwei women yijing kan-guo de] you guan Zhangsan_i fuqin de na-fen baodao]
 this exactly is he think we already seen De have relation Zhangsan father De that-Cl report
 'This is the report about Zhangsan's father that he thinks that we have already seen.'
- c. *zhe jiu shi [[wo cai ta_i yiwei women yijing kan-guo de] you guan Zhangsan_i fuqin de na-fen baodao].
 this exactly is I guess he think we already seen De have relation Zhangsan father De that-Cl report

reconstruction not only captures the seemingly inconsistent reconstruction facts in Chinese but also accounts for cross-linguistic differences in the unavailability of the full-range of reconstruction effects in Chinese in contrast to the relevant English and LA relative constructions.

Even though the distinction between NP-reconstruction and DP-reconstruction captures the interesting variations in reconstruction effects within Chinese relative constructions and between Chinese on the one hand and English and LA on the other,⁷ numerous questions arise. Why is it that an NP is reconstructed in Chinese, rather than a DP as in English and LA? Moreover, among the examples that were used to illustrate the reconstruction effects in Chinese some even contain a relative clause in the reconstructed Head, such as in (2). In (2b), for instance, what is reconstructed is 'the book that I gave to him' and in (2d), 'the book that I was going to give to him'. This amounts to saying that the projection containing a Head and a relative clause can itself be an NP. If the Head is an NP and the addition of a relative clause still makes an NP, a relative clause construction can be an adjunction structure, not a complementation structure. Is this correct? Is it true that Chinese relativization indeed involves an adjunction structure, in contrast to a complementation structure in English or LA? What are the properties of such an adjunction structure? These questions and issues are resolved in the following sections and in the next chapter, which investigate in detail the structure and derivation of relative constructions.

5.2. NP projection

We begin with the observation that the projection containing a relative clause and its Head indeed can be an NP. The relevant evidence is based on the behavior of different conjunctors in various types of conjunction structures.

First of all, note that conjunction of two NPs exists, such as in the English example below.

(18) He is a [secretary and typist].

The expression *secretary and typist* describes the dual roles of one individual. Chinese also allows such NP conjunction:

(19) ta shi [mishu jian daziyuan].
he is secretary and typist

'This is the report about Zhangsan's father that I guess he thinks that we have already seen.'

d. zhe jiu shi [[renshi ta_i de ren dou yiwei women yijing kan-guo de] you guan Zhangsan_i
this exactly is know him De person all think we already seen De have relation Zhangsan

fuqin de na-fen baodao]
father De that-Cl report

'This is the report about Zhangsan's father that the people that knows him think that we have already seen.'

⁷ In English, the external determiner is not part of the Head that is raised to its surface position and therefore is not reconstructed with the Head. The Head contains a null determiner if it is not a *wh*-element. One may wonder if it is possible to suggest that English actually raises an NP in the non-*wh* relatives, instead of a DP, just as Chinese does (see Kayne 1994, Bhatt 1999). This option, however, faces the problems raised by Borsley. (We will return in the next two chapters to an account for why Chinese allows NP movement but not DP movement). Moreover, it does not explain why Chinese does not allow reconstruction with respect to scope but English does.

'He is a secretary and typist.'

A number and classifier expression *yige* 'one-Cl', more or less like an indefinite determiner in English, can also occur before the conjunction:

- (20) ta shi yi-ge [mishu jian daziyuan].
he is one-Cl secretary and typist
'He is a secretary and typist.'

Further examples illustrate conjunction describing one individual:

- (21) a. wo xiang zhao yi-ge [mishu jian daziyuan]. ---one person is being sought
I want find one-Cl secretary and typist
'I want to find a secretary and typist.'
- b. wo yao zuo yi-ge [yisheng jian hushi]. ---doctor and nurse simultaneously
I want do one-Cl doctor and nurse
'I want to be a doctor and nurse.'

Relevant to our discussion is the use of the conjunctive *jian* in such examples. In contrast to *and* in English, which can be used to conjoin like phrases of basically any category, Chinese has a rich set of conjunctives used to connect different types of like categories. For instance, if two individual-denoting expressions are connected, the connector is *he* or *gen*, which contrast with *jian*, a connector used exclusively to connect two properties pertaining to one individual. (21)a-b should be contrasted with the following sentences where the conjunction of two individuals requires *he/gen* and is indicated by the addition of a number+classifier expression to the second conjunct as well as the first.

- (22) a. wo xiang zhao [[yi-ge mishu] he/gen [yi-ge daziyuan]].
I want find one-Cl secretary and one-Cl typist
'I want to find a secretary and a typist.'
- b. wo yao kan [[yi-ge yisheng] he/gen [yi-ge hushi]].
I want see one-Cl doctor and one-Cl nurse
'I want to see a doctor and a nurse.'

Not only can number+classifier+noun expressions denoting individuals be connected by *he/gen*, but also other individual-denoting expressions such as proper names, pronouns and expressions with demonstratives:

- (23) a. wo hen xihuan [[zhe-ge xuesheng] he/gen [na-ge xuesheng]].
I very like this-Cl student and that-Cl student
'I like this student and that student.'
- b. wo hen xihuan [[ta] he/gen [Zhangsan]].
I very like him and Zhangsan
'I like him and Zhangsan.'

Such conjunction of individual-denoting expressions is not possible with *jian*. Thus, replacing *he/gen* in (22) with *jian* is unacceptable:

- (24) a. *wo xiang zhao [[yi-ge mishu] jian [yi-ge daziyuan]].
I want find one-Cl secretary and one-Cl typist
'I want to find a secretary and a typist.'
- b. *wo yao kan [[yi-ge yisheng] jian [yi-ge hushi]].
I want see one-Cl doctor and one-Cl nurse
'I want to see a doctor and a nurse.'
- (25) a. *wo hen xihuan [[zhe-ge xuesheng] jian [na-ge xuesheng]].
I very like this-Cl student and that-Cl student
'I like this student and that student.'
- b. *wo hen xihuan [[ta] jian [Zhangsan]].
I very like him and Zhangsan
'I like him and Zhangsan.'

Jian, as already shown, can be used to connect two properties describing one individual. It can also connect two activities for one individual. That is, it can connect two VPs:⁸

- (26) a. Zhangsan [[nian-shu] jian [zuo-shi]], hen mang.
Zhangsan study and work very busy
'Zhangsan studies and works; (he is) busy.'
- b. wo [[sheji] jian [huatu]], ta [[shigong] jian [jiangong]], women hezuo-de hen hao.
I design and draft he construct and supervise we cooperate very well
'I design and draft; he constructs and supervises; we cooperate very well.'

When two clauses are connected, none of the above conjunctors (*he/gen/jian*) are used. Instead, *erqie* is used.⁹

⁸ Two VPs connecting by *jian* express dual activities performed by one person or simultaneous activities. Otherwise, the connector is *erqie*, which can be used to connect any non-nominal expressions. The conjuncts connected by *jian* cannot contain aspect markers:

- (i) *ta nian-zhe/le/guo shu, jian zuo-zhe/le/guo shi.
he read-Asp, and do-Asp works

⁹ Does *erqie* connect CPs, or IPs or both? The sentences in (27)a-b demonstrate that *erqie* connects full clauses. If clauses are CPs, *erqie* connects two CPs. There are examples which more clearly indicate whether or not C is included or excluded (CP or IP) in the cases of *erqie* conjunction: if *yinwei* 'because' is analyzed as C, it is clear that *erqie* can connect two conjuncts without repeating *yinwei*. That is, it can connect two IPs:

- (i) yinwei ta dedao le zuida de jiang erqie ta you you xi shi jiang-lin, women dou wei ta gaoxing.
because he get Le biggest De prize and he also have good thing forth-coming, we all for him happy
'We are all happy for him because he got the biggest prize and he is having a happy event.'

It is also acceptable to connect conjuncts with *yinwei* repeated in the second conjunct. That is, the connection of CPs is acceptable as well:

- (ii) women dou wei ta gaoxing, yinwei ta dedao le zuida de jiang erqie yinwei ta you xi shi jiang-lin.
we all for him happy because he got Le biggest De prize and because he have good thing forth-coming
'We are all happy for him because he got the biggest prize and because he is having a happy event.'

- (27) a. [[wo xihuan ta] erqie [Zhangsan ye xihuan ta]].
I like him and Zhangsan also like him
'I like him and Zhangsan also likes him.'
- b. [[wo xihuan ta] erqie [Zhangsan hui zhaogu ta]].
I like him and Zhangsan will care him
'I like him and Zhangsan will take care of him.'

In sum, the function of conjunctors can be described as follows:

- (28) a. *jian* connects two properties of a single individual or two activities performed by one individual. In terms of categories, *jian* can connect NPs or VPs.¹⁰
b. *he/gen* connects two individual-denoting expressions, i.e. two DPs, which can be proper names, pronouns, expressions containing demonstratives or expressions containing number and classifier expressions.
c. *erqie* connects two non-nominal categories, including clauses, Adjective phrases and VPs not expressing dual properties/activities of one individual.¹¹
d. These connectors are not interchangeable.

The unique distribution of conjunctors provides us with an important test for the categorial status of complex nominals. Suppose that $[_{DP} D CP]$ were an appropriate structure for Chinese relative constructions; then we would expect the conjunction of the relative clause with the Head (excluding D) to be possible with the CP conjunctive *erqie*. This expectation is not met:

- (29) a. *wo xiang zhao yi-ge [[fuze Yinwen de mishu] **erqie** [jiao xiaohai de jiajiao]].¹²
I want find one-Cl charge English De secretary and teach kid De tutor
'I want to find a secretary that takes care of English (matters) and tutor that teaches kids.'
- b. *wo yao dang yi-ge [[neng yin shi de shiren] **erqie** [neng hua huar de huajia]].
I want be one-Cl can sing poem De poet and can draw painting De painter

¹⁰ Such a requirement of *jian* may have to do with the fact that *jian* can be a verb meaning doing something simultaneously with another, as the V-O compound *jian-chai* 'Jian-job' means doing part time work.

¹¹ Note (9) gives examples of the conjunction of CPs and IPs. The following examples illustrate the conjunction of adjective phrases and VPs by *erqie*:

- (i) ta hen congming erqie hen piaoling.
she very bright and very pretty
'She is bright and pretty.'
- (ii) ta changchang jiao wo shuxue erqie jie wo qian.
he often teach me math and lend me money
'He often teaches me math and lends me money.'

¹² Some speakers accept such sentences especially if the sentences are made more complicated. A remark made by one of such speakers is that they sound "interpretable but not logical" (Bingfu Lu, personal communication). It probably is not surprising to find that some speakers are much more tolerant than others.

'I want to be a poet that can sing poems and painter that can paint paintings.'

Indeed, such sentences can only be made acceptable by replacing *erqie* with *jian*, the connector of dual properties or events to a single individual. Neither *He* nor *gen* are possible:

- (30) a. wo xiang zhao yi-ge [[fuze Yinwen de mishu] **jian** [jiao xiaohai de jiajiao]].
I want find one-Cl charge English De secretary and teach kid De tutor
'I want to find a secretary that takes care of English (matters) and tutor that teaches kids.'
- b. wo yao dang yi-ge [[neng yin shi de shiren] **jian** [neng hua huar de huajia]].
I want be one-Cl can sing poem De poet and can draw painting De painter
'I want to be a poet that can sing poems and painter that can paint paintings.'
- (31) a. *wo xiang zhao yi-ge [[fuze Yinwen de mishu] **he/gen** [jiao xiaohai de jiajiao]].
I want find one-Cl charge English De secretary and teach kid De tutor
'I want to find a secretary that takes care of English (matters) and tutor that teaches kids.'
- b. *wo yao dang yi-ge [[neng yin shi de shiren] **he/gen** [neng hua huar de huajia]].
I want be one-Cl can sing poem De poet and can draw picture De painter
'I want to be a poet that can sing and painter that can draw pictures.'

Not surprisingly, just as (22) is acceptable with *he/gen*, which requires a number+classifier expression in the second conjunct and makes the conjunction one of two individual-denoting expressions, (31)a-b) can be rescued in the same way:

- (32) a. wo xiang zhao [[yi-ge fuze Yinwen de mishu] **he/gen** [yi-ge jiao xiaohai de jiajiao]].
I want find one-Cl charge English De secretary and one-Cl teach kid De tutor
'I want to find a secretary that takes care of English (matters) and a tutor that teaches kids.'
- b. wo yao zhao [[yi-ge neng yin shi de shiren] **he/gen** [yi-ge neng hua huar de huajia]].
I want find one-Cl can sing poem De poet and one-Cl can draw picture De painter
'I want to find a poet that can sing and a painter that can draw pictures.'

The acceptability of (32) is not surprising. After all, a complex nominal can be an individual-denoting expression (DP). It is the use of *jian* in (30) that is significant. Recall that a complex nominal in English or LA is always a DP and the category inside D is a CP. However, the appearance of *jian*, the NP connector, not the CP conjunct *erqie*, or the DP conjunct *he/gen*, suggests that the connected categories are NPs, not CPs or DPs. Indeed, if a complex nominal were always a DP, we would not expect the conjuncts of NP conjunction to contain any relative clause. Recall that in English for instance, the occurrence of a relative clause forces the projection of a DP. Some of the relevant examples are repeated here.

- (33) a. *He is an [[actor that wants to do everything] and [producer that wants to please everyone]].
b. He is [[an actor that wants to do everything] and [a producer that wants to please everyone]].
c. [Great actor] that he was, we still fired him.
d. *[Great actor that wants to do everything] that he was, we still fired him.

Summarizing, the contrast between the Chinese (30) and the English (33) clearly argues for the different categorial status of complex nominals in these two languages: a complex nominal can be an NP in Chinese but it must be a DP in English. It, thus, is not surprising that instances like (2)

show the reconstruction of a phrase containing a relative construction: the Head itself is a complex nominal, which is an NP. An NP Head can be reconstructed.

We, now, have the following important generalizations concerning Chinese relative constructions proceeding from the discussions above:

- (34)
- i. Chinese relative constructions allow NP-reconstruction, but not DP reconstruction.
 - ii. The Head of a relative construction can itself be a relative construction and undergoes reconstruction: it is an NP.
 - iii. The projection of a relative clause and its Head can itself be an NP.

The fact that the addition of a relative clause to an NP Head can still make an NP suggests an adjunction structure for relative constructions. We show in the next section that relative clauses behave like adjuncts within nominal expressions.

5.3. Adjunction

We begin with an observation regarding word order. In Chinese nominal expressions, in addition to the fact that the Head noun must always be final (in traditional terminology, the language is head-final within nominal expressions), the only other elements that are fixed in ordering are demonstratives, numbers, and classifiers: they must occur in the order [demonstrative + number + classifier + noun]. In order to account for this fixed ordering, it has been proposed that these elements are the syntactic head of their respective projections (see, for instance, Tang 1990, Li 1998, 1999a, b). The fixed ordering is therefore accommodated by the hierarchical projections.

In contrast, traditional "modifiers" such as adjectives and relative clauses can occur in any position (with the marker *de* immediately following the modifier).¹³ They occur before a demonstrative, between a demonstrative and a number, and between a classifier and a noun, as illustrated below.¹⁴

¹³ The "modifiers" always end with the marker *de* which indicates that a noun must follow. The status of *de* is a matter of debate. The morpheme *de* occurs in the pattern [XP *de* NP] (NP can be replaced by CIP or DP), where XP can be nominal, adjectival or clausal. It seems to be a genitive marker when XP is a nominal and the nominal is interpreted as a possessor. However, *de* is more than a genitive marker, as its wider distribution indicates. Two issues have been much in debate: (i) is there one *de* or more than one? Should all the occurrences of *de* be analyzed as one and the same; (ii) does *de*, which can be phonologically dependent on the preceding syllable, syntactically form a constituent with the preceding XP or actually head a projection? The coordination facts we will see shortly indicate that *de* can form a constituent with the preceding XP. If *de* forms a constituent with the preceding XP, *de* does not head a projection by itself. The answer to the first question, however, seems to be more theory internal.

The question, of course, is what *de* is if it does not head a projection itself. One speculation is that *de* is simply a spell-out of a phrasal adjunction structure (inserted to indicate adjunction, in contrast to, for example, compounding). The XP in the pattern [XP *de* NP] is always an adjoined element. Similarly, the adverbial *de* attached to an adjective to modify a verb phrase such as in *kuai-le-de zou le* 'left happily' may also be considered as a spell-out of an adjunction structure.

¹⁴ Only one-syllable adjectives describing size can occur between a number and a classifier:

- (i) san da zhang zhi
three big piece paper
'three big pieces of paper'

- (ii) yi xiao bei shui

(35) Demonstrative + Number + Classifier + Noun
 ↑ ↑ (↑) ↑

(36) a. hong de na shi ben shu
 red De that ten CI book
 'those ten red books'

b. na hong de shi ben shu
 that red De ten CI book
 'those ten red books'

c. na shi ben hong de shu
 that ten CI red De book
 'those ten red books'

(37) a. meiren yao de na shi ben shu
 I like De that ten CI book
 'those ten books that nobody likes'

b. na meiren yao de shi ben shu
 that nobody like De ten CI book
 'those ten books that nobody likes'

c. na shi ben meiren yao de shu
 that ten CI nobody like De book
 'those ten books that nobody likes'

One may account for the distribution of adjectives by suggesting that they are simply a subclass of relative clauses. Indeed, adjectives can often function as predicates. When they function as predicates, the intensifier *hen* 'very' generally cooccurs, with its meaning being bleached (i.e. the meaning of the intensifier being lost), a test that is usually accepted as distinguishing verbs from adjectives.¹⁵ The adjectival predicate can also be negated by the verbal negator *bu* 'not'. When an

one small cup water
 'one small cup of water'

(iii) yi-da-tou niu
 one big CI cow
 'a big cow'

It is no surprise from a semantic point of view that the adjectives before classifiers are restricted to size if we assume that an adjective modifies what immediately follows: the modification of classifiers (unit expressions) is inherently restricted. What needs to be stipulated is the morpho-syntactic fact that the number and classifier and the intervening size adjective seem to form a compound. Indeed, it is a general pattern within nominal phrases that, if *de* disappears in [XP de ___], the XP is compounded with the following element (the exception being the cases [XP de Demonstrative...], where *de* can disappear without XP and Demonstrative forming a compound. See the previous note.

¹⁵ Because *hen* occurring with an adjectival predicate does not carry much meaning (the intensifier meaning being lost), it has been claimed and widely accepted that the interpretation of *hen* is a test to distinguish adjectives from verbs (see, for instance, Li and Thompson 1981). If a predicate phrase needs *hen* without

adjective occurs prenominally and can function as a predicate, it is possible to analyze it as a reduced relative clause. (38)a-c) illustrate examples with prenominal adjectives and the examples in (39)a-c) illustrate the predicative use of such adjectives.

- (38) a. zhongyao de shiqing
important De matter
'important matters'
- b. hen zhongyao de shiqing
very important De matter
'very important matters'
- c. bu zhongyao de shiqing
not important De matter
'unimportant matters'
- (39) a. zhe jian shiqing hen zhongyao.
this CI matter very important
'This matter is important'
- b. zhe jian shiqing bu zhongyao.
this CI matter not important
'This matter is not important.'

However, some adjectives cannot be regarded as reduced relative clauses because such adjectives cannot be used predicatively:

- (40) a. zhuyao de daolu
main De road
'the main road'
- b. *daolu (hen/bu) zhuyao¹⁶
road very/not main
- c. *hen/bu zhuyao de daolu
very/not main De road

the intensifier meaning, it is an adjective. However, this claim needs to be viewed with some caution because such a semantically bleached *hen* often occurs with gradable verbs as well:

- (i) ta hen xihuan ni.
he very like you
'He likes you.'

¹⁶ The following is acceptable because the adjective is still used as a pre-nominal modifier, rather than a predicate:

- (i) zhe-tiao daolu shi zhuyao de (daolu).
this-CI road be main De road
'This road is the main one.'

- (41) a. gaosu de daolu
 high-speed De road
 'high-speed roadway'
- b. *daolu (hen/bu) gaosu
 road very/not high-speed
- c. *(hen/bu) gaosu de daolu
 very/not high-speed road
- (42) a. gongtong de shiye
 shared de business
 'shared business'
- b. *zhexie dongxi (hen/bu) gongtong.
 these things very/not shared
- c. *hen/bu gongtong de shiye.
 very/not shared de business

Other similar adjectives are *weiyi-de* 'unique, only', *gaochao-de* 'super' etc. We thus need to recognize the existence of prenominal adjectives which can not be reduced relative clauses. Logically, there are two possible structures for adjectives: one is to place them in an independent projection with a head that is not the noun it modifies (such as in the Spec of some higher functional projections, see, Cinque 1994, 1999, and Rizzi 1995) and the other is to place them as sister of the modified element (an adjunction analysis, see, for instance, Jackendoff 1977, Valois 1991, Bernstein 1993b).¹⁷

The main argument for independent projection analyses and against adjunction analyses is the fixed ordering among different adjectives. It has been observed that adjectives generally need to occur in a certain fixed order. For instance, a size expression generally occurs before a color expression, as illustrated by the following English examples:

- (43) a. a small red car
 b. *a red small car

¹⁷ Inside a separate projection, an adjective can be a head (Head analysis) according to some analyses (see, for instance, Abney 1987, Kester 1993, Bernstein 1993) or a specifier (Specifier analysis, for instance, Cinque 1994, see also Jackendoff 1977, Giorgi and Longobardi 1991, Longobardi 1994). See Bhattacharya 1999, chapter 2, section 4.0 for discussions on these analyses.

The distinction between a Specifier analysis and an adjunction analysis is not clear when multiple Specifiers are allowed in a projection and an adjective is the Specifier of an NP (see Bhattacharya 1999, for instance). What is important for this work is to determine whether an adjective is in a separate functional projection, different from the projections within a nominal expression we have discussed so far (DP, NumP, CIP, NP).

In Chinese, in contrast, the ordering is free, except in cases where the adjectives are compounded with the noun (indicated by the lack of *de*):¹⁸

- (44) a. hong (se) de xiao chezi
 red color De small car
 'red small car'
- b. xiao de hong chezi
 small De red car
 'small red car'
- c. xiao de hong (se) de chezi¹⁹
 small De red color De car
 'small red car'
- d. hong (se) de xiao de chezi
 red color De small De car
 'red small car'
- e. xiao hong che
 small red car
- f. ??hong xiao che
 red small car

When *de* does not occur, the adjective forms a compound with the head noun. When compounding takes place, the ordering of adjectives is strict. It is basically the same as the ordering found in many other languages, such as English, illustrated in (44)e-f). In contrast, when *de* occurs, i.e., the adjective is not compounded with the head noun, the ordering is quite free. This is surprising if each adjective heads a functional projection: the hierarchy of these projections would have to be quite free. This would mean that there cannot be any ordering relation between the various projections. The motivation for postulating various functional projections to account for word order possibilities is lost. On the other hand, the relatively free ordering is expected if adjectives with *de* are adjoined structures. They are adjoined to the head they modify, which can be before a demonstrative, a number or a noun:

- (45) a. zhuyao de na san-tiao daolu
 main De that three-Cl road
 'those three main roads'
- b. na zhuyao de san-tiao daolu
 that main De three-Cl road

¹⁸ Compounding generally has rigid restrictions on the number of syllables of each component. The strict ordering of compounds perhaps indicates that compounding reflects the basic order of words within nominal phrases.

¹⁹ The expressions in (c) and (d) are ambiguous. Both can have a conjoined reading: (c) is 'small and red' and (d) is 'red and small'. Alternatively, they can have a hierarchical interpretation: (c) means 'the small one(s) among the red ones' and (d) means 'the red one(s) among the small ones'. See Huang (1982) for the scope relations of stacked modifiers: the one on the left has scope over the one on the right.

'those three main roads'

- c. na san-tiao zhuyao de daolu
that three-Cl main De road
'those three main roads'

Similarly, in addition to the fact that a relative clause can freely occur in various positions, the relative position of relative clauses among themselves and with adjectives is also fairly free --- behavior which is expected from adjunction structures. The following examples show that the relative ordering of relative clauses is free.

- (46) a. wo kan-guo de fang-zai ta jia de shu
I see-Asp De place-at he home De book
'books that are at his home that I have seen'
- b. fang-zai ta jia de wo kan-guo de shu
place-at he home De I see-Asp De book
'books that I have seen that are at his home'

The following examples show that the relative ordering between a relative clause and an adjective (not derived from a relative clause) is also quite free:

- (47) a. wo kan-guo de zhuyao de xiangmu
I read-Asp De main De items
'the main items that I have read'
- b. zhuyao de wo kan-guo de xiangmu
main De I read-Asp De items
'the main items that I have read'

A relative clause can also be conjoined with a pre-nominal modifier which cannot be a predicate. In this case, the conjunctive *erqie*, which conjoins non-nominal categories, is used:

- (48) a. zhuyao de erqie women yijing taolun-guo de shiqing
main De and we already discuss-Asp De matter
'the main matters that we have discussed'
- b. gongtong de erqie meiren keyi dai hui-qu de dongxi
common De and nobody can take back-go De thing
'things that are shared and nobody can take back'

It, thus, is straightforward to claim that relative clauses, just like prenominal adjectives, are adjoined structures. They can be adjoined to almost all projections within a nominal expression, as illustrated earlier. The conjunction examples further indicate that a relative clause is very much like an adjective.

Further evidence supporting the need to recognize a relative clause, as well as an adjective, as being an adjoined structure comes from the fact that not all pre-nominal expressions can be freely ordered. As mentioned earlier, demonstratives, number and classifier expressions are quite fixed in ordering. So is the position of the clauses that give rise to derived nominals. With respect to

this kind of construction, Fu (1994) argues that the derived head noun 'investigation' is raised from inside the pre-nominal clause:²⁰

- (49) [wo dui zhe-ge anjian de] diaocha
I to this-Cl case De investigation
'my investigation of this case'

'I' is the subject of the investigation and 'this case', the object. *Dui* is a Case assigner that assigns Case to the object whose verb has been moved to the Head position. What is relevant to our discussion is that the clause from which the verb is moved does not have the same freedom in ordering as the other pre-nominal *de*-expressions such as relative clauses and adjectives. It must occur after the demonstrative and number+classifier expressions, and cannot occur before them:²¹

- (50) a. ta canyu-le na-san-ci wo dui zhe-ge anjian de diaocha.
he participated that-three-times I to this-Cl case De investigation
'He participated in those three times of my investigation of this case.'
- b. *ta canyu-le na wo dui zhe-ge anjian de san-ci diaocha.
he participated that I to this-Cl case De those three-times investigation
'He participated in those three times of my investigation of this case.'
- c. *ta canyu-le wo dui zhe-ge anjian de na-san-ci diaocha.
he participated I to this-Cl case De that-three-times investigation
'He participated in those three times of my investigation of this case.'

The close relation between the deverbal head noun and the preceding clause may be due to the fact that the deverbal N assigns theta-roles to the expressions within the pre-nominal clause (deverbal process nouns). Whatever the reason is, the pre-nominal clause from which the deverbal noun originates does not have freedom of ordering. In contrast, the freedom of ordering of relative clauses indicates that relative clauses are not complements of N or not assigned theta-roles by N. This is expected if a relative clause is an adjoined structure.

5.4. Complementation structure

So far, we have shown that Chinese relative constructions involve an adjunction structure, instead of a complementation structure, as in English and LA (the relative being a complement of D [_{DP} D CP]). The adoption of a [_{DP} D CP] complementation structure in Chinese would not account for the fact that the projection containing a relative clause and its Head can still be an NP. Neither would it account for the contrast between English and LA relative constructions which are obligatorily projected to a DP versus Chinese relatives which can be projected as an NP.

These arguments in support of an adjunction structure argue against allowing a complementation structure for Chinese relative constructions. Furthermore, the general arguments that have been proposed in favor of the adoption of a complementation structure do not hold in Chinese. In order to consider them we will first examine Kayne's (1994, chapter 8) proposal of a [_{DP} D CP]

²⁰ Fu (1994) suggests that the clause from which the deverbal noun is raised is a VP.

²¹ The verb *canyu* 'participate' is used in the main clause to ensure that the head noun is a process noun, not a result noun (see Fu 1994, for instance). The said property is relevant only to process nouns.

complementation structure for Head-final relative constructions as well as Head-initial one. Kayne argues that a Head-final relative construction also has the complementation structure $[_{DP} D CP]$. The reverse word order of a Head-final construction is derived by movement of the entire IP to the Spec of DP position:

(51) $[_{DP} [_{IP} \dots t_i \dots]_j [_{D'} D [_{CP} DP_i [C t_j]]]]$

That is, (52)a) should have the structure in (52)b), which does not derive the word order of Chinese relativization directly.

(52) a. [ta kan de] shu
 he read De book
 'the book he read'

b. $[_{D} [_{CP} book [_{IP} he read]]]$

In order to derive the Head-final word order, the IP needs to be raised to Spec of DP:

(52) c. $[_{DP} [_{IP} he read] [_{D} [_{CP} book [_{IP} e]]]]$

This makes the IP higher than D. According to Kayne, a relative clause is non-restrictive if it is outside the c-command domain of D. A structure like (52) is the representation for a non-restrictive relative clause (1994:110-115).²² Because of the word order, a Chinese relative clause is always higher than D, i.e., outside the c-command domain of D. A Chinese relative therefore should always be interpreted as non-restrictive (or else there is no distinction between restrictive and non-restrictive relative clauses in Chinese). This is not the case, however. The following relative clause clearly is interpreted as restrictive (see Chao 1968, Huang 1982 for the restrictive status of such relative clauses).²³ Indeed, it has only a restrictive interpretation. Its only

²² According to Kayne (1994, chapter 8), a relative clause is non-restrictive as long as it is outside the c-command domain of D, even though the relative clause is still inside the complex DP, as illustrated in the structure in (52). This view is different from those for the appositive or non-restrictive relative clause put forward by Ross (1967), Emonds (1979), Demirdache (1991) etc. In these works, an appositive is not part of the clause containing the Head of the appositive (for instance, a coordination structure is involved. Also cf. the "discontinuous constituent" approach of McCawley 1982). When an appositive is not part of the clause containing the Head of the appositive, no constituents of the clause can c-command the appositive. For instance, the subject of the clause cannot c-command the appositive. The binding of a pronoun contained in an appositive by the subject of the clause, thus, is not acceptable.

(i) *Everyone_i likes Mary_j, who will bring his_i favorite picture.

In Kayne's analysis of a non-restrictive relative, the relative clause is simply out of the scope of the determiner but is not outside the containing complex DP. Accordingly, the subject of the main clause should be able to bind a pronoun within such a "non-restrictive relative clause." The binding relation in (i) should be acceptable if (i) contains a "non-restrictive relative clause." Kayne (1994: fn 72 to chapter 8) suggests that the unacceptability of (i) is due to the fact that the complex nominal is a definite expression, which is opaque for binding. Bianchi (1999, 152) suggested a further movement process that moves the IP of the appositive to a topic position of the matrix clause. See Bianchi (1999, chapter 5) for an extensive review of various approaches and arguments for Kayne's approach to appositives.

²³ In Chinese, relative clauses and adjectives occurring in different positions are interpreted differently: they modify what immediately follows. When they precede and therefore modify a demonstrative, they modify/restrict the reference of the demonstrative. When they precede and modify a noun, they further

describe the property denoted by the noun. The relative occurring before a demonstrative has been termed restrictive and the one after a demonstrative and before a noun has been termed non-restrictive, or descriptive (Chao 1968, Huang 1982). For instance, as Huang (1982) observed, if we want to further describe the city New York, the order [demonstrative + relative clause] is used:

- (i) Niu Yue, zhe-ge conglai bu mie deng de chengshi
New York, this-Cl ever not extinguish light De city
'New York, the city that never goes dark'

cf.

- (ii) ??Niu Yue, conglai bu mie deng de zhe-ge chengshi
New York, ever not extinguish light De this-Cl city
'New York, the city that never goes dark'

The relative clause only further describes the city of New York. It does not restrict the reference of the city. (Note that the choice of relative clause is important. The relative acceptability of (ii) increases as the relative clause becomes more likely to help identify which city the speaker is referring to. It is not always the case that the mentioning of New York prevents the speaker from using the form [Rel + Dem...]. The speaker may choose to help the hearer identify which city he is talking about by using a relative clause restricting the reference of the city: *Niu Yue, zai Meiguo dongbu de na-ge zui zhuyao de chengshi* 'New York, the important city that is on the east coast of the States'. If the proper name clearly needs no reminding references, the contrast is sharper:

- (iii) a. ta dui Zhongguo, zhe-ge lishi youjiu de guojia, hen you xingqu.
he to China this Cl history long De country very have interest
'He is quite interested in China, a country with a long history.'

- b. ??ta dui Zhongguo, lishi youjiu de zhe-ge guojia, hen you xingqu.
he to China history long De this Cl country very have interest
'He is quite interested in China, a country with a long history.'

The following sentences give contexts facilitating the interpretation that the relative clause serves to identify the referent. In such contexts, the relative clause precedes the demonstrative:

- (iv) ta nar you Wangwu xie de shu, Lisi xie de shu, Zhangsan xie de shu;
he there have Wangwu write De book, Lisi write De book, Zhangsan write De book,

keshi wo zhidao **Wangwu xie de naxie** shu quanbu bei jie-zou le.
but I know Wangwu write De **those** book all by borrow-away Le

'He has books written by Wangwu, books written by Lisi, books written by Zhangsan; but I know that all the books written by Wangwu have been borrowed.'

- cf. (v) ?? ta nar you Wangwu xie de shu, Lisi xie de shu, Zhangsan xie de shu;
he there have Wangwu write De book, Lisi write De book, Zhangsan write De book,

keshi wo zhidao **naxie Wangwu xie de** shu quanbu bei jie-zou le.
but I know **those** Wangwu write De book all by borrow-away Le

Note that the use of "non-restrictive" here should be compared with sentences discussed in the previous note. Structurally, such descriptive or non-restrictive relative clauses are still inside the complex nominal, and, therefore, can be c-commanded by any higher phrase within the complex nominal or the clause containing the complex nominal. The acceptability of binding a reflexive in the following example illustrates the hierarchical relation:

interpretation is like the one given in the English translation: the reference of the book is restricted by the relative clause.

- (53) [ta kan-guo de] (na/yi-ben) shu
 he read-Asp De that/one-Cl book
 '(the/a) book that he has read'

In addition to the problem of word order and interpretation, there is no evidence that D can select a CP in Chinese (see section 4.1.3 in the previous chapter). Chinese does not have a definite or indefinite article, corresponding to *the* or *a* in English. The most likely candidates for D is a demonstrative *zhe/na* 'this/that' or a Quantifier such as *mei* 'every'. Take idiomatic expressions for example. The object part of some [V + O] idioms can occur as the relative head with a demonstrative; others do not allow a demonstrative. What is important, however, is that the acceptability of a demonstrative in such cases is the same with or without a relative clause:

- (54) a. [ta kai de] [na-ge dao] hen chenggong. ---*kai-dao* 'open-knife = operate'
 he open De that-Cl knife very successful
 'That operation he performed was successful.'
 cf.
 b. deng ta [kai-wan] [na-ge dao] yihou zai zou.
 wait he open-finish that-Cl knife after then leave
 'Don't leave till he finishes the operation.'
 c. *[ta chi de] [na-xie doufu] tai duo le.²⁴ ---*chi-doufu* 'eat tofu = flirt'
 he eat De those tofu too much Le
 'He flirted too much.'
 cf.
 d. *deng ta [chi-wan] [na-xie doufu] zai zou.

-
- (iii) Zhangsan_i hen xihuan na-pian miaoshu ziji_i de wenzhang.
 Zhangsan very like that-Cl describe self De article
 'Zhangsan likes the article that describes himself.'

Such "non-restrictive" relative clauses are not the type of appositive relative clauses found in English. Indeed, Francesca Del Gobbo (2001) argues that a relative clause of the order [Relative + Demonstrative + Classifier + Noun] or [Demonstrative + Classifier + Relative + Noun] is uniformly a restrictive relative clause if the so-called non-restrictive is an appositive. Her arguments are based on the following generalizations:

- (iv) a. appositives are used to qualify unmodified proper nouns, restrictives usually are not
 b. appositives allow pied-piping, restrictives don't (Emonds 1979)
 c. the antecedent of an appositive can be any maximal projection (Sells 1985, among others)
 d. appositives follow the modifiers of a noun
 e. restrictive allow stacking, appositives do not
 f. quantifiers cannot be the antecedent of an appositive (Ross 1967)
 g. no quantifier in the matrix clause can have scope over a pronoun in the appositive clause (Safir 1986)
 h. appositives are affected by the presence of negation in the main clause (Sells 1985)

The terms "non-restrictive," "descriptive," "appositive" etc. are used differently in different works, what matters is that Chinese does not have the counterpart of the English appositives (with the properties listed above) as a sub-type of relative clauses.

²⁴ The sentences in (c) and (d) are acceptable under the non-idiomatic interpretation.

wait he eat-finish those tofu then go
'Don't leave till he finishes flirting.'

The lack of reconstruction, as indicated via scope interaction, in contrast to its availability in the relevant Head-initial relative constructions in English and LA, also argues against the structure in (52)c). The interpretation of (55)c) is like (55)b), rather than (55)a).

- (55) a. mei-ge ren dou wen-le liang-ge wenti.
every-Cl person all asked two-Cl questions
'Everyone asked two questions.'
- b. mei-ge ren dou wen-le na liang-ge wenti.
every-Cl person all asked that two-Cl questions
'Everyone asked those two questions.'
- c. mei-ge ren dou wen de na liang-ge wenti.
every-Cl person all ask De that two-Cl questions
'the two questions that everyone asked.'

In brief, the type of evidence supporting the dependency relation between D and CP in English and LA simply does not exist in Chinese,²⁵ and there is no evidence in favor of a complementation structure in Chinese.²⁶

²⁵ If the historical evidence based on the similarity between correlatives and relative clauses stands (Bianchi 2000b), such evidence does not provide any evidence for a [D CP] structure in Chinese, either. The best candidate for a correlative in Chinese contains a *wh*-phrase in the conditional clause and a coindexed expression in the main clause (Cheng and Huang 1996). The *wh*-phrase stays in situ. That is, the *wh*-phrase is not moved to the peripheral position. There is not a prominent NP at the edge of a sentence (foregrounded, as in Schachter 1973) that "induces" the addition of a D on top of the clause to create an externally headed relative clause.

- (i) ruguo ni xihuan shei, wo jiu qing ta/na-ge ren, lai.
if you like who I then invite him/that person come
'If you like anyone, I will invite him/that person.'

²⁶ One may suggest the equivalent of a DP in English is a CIP in Chinese (Cheng and Sybesma 1999). Therefore, Chinese relative constructions have CIP raising, in place of DP raising, and the relative CP is complement to Cl (in place of D). This alternative cannot be adopted, however, because (i) it is not quite appropriate to claim that a Chinese CIP is the equivalent of an English DP and (ii) the CIP account is not adequate for the facts regarding Chinese relative constructions.

First of all, it is not appropriate to equate a Chinese CIP with an English DP. Cheng and Sybesma (1999: 535-536) adopt the claim that a classifier in Chinese is involved in grammatical number. This makes a Cl+N expression in Chinese the equivalent of N-s in English (NP), not DP (see Borer, to appear). Indeed, it is not expected that, if a CIP in Chinese is like a DP in English, why a number projection must precede the CIP in Chinese (the putative equivalent of DP) but must follow D in English. See Borer (to appear) for details regarding an English N (esp. plural nouns) being equivalent of a Cl in Chinese, both of which are dominated by a Number projection, which in turn is dominated by a D projection.

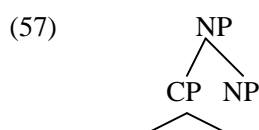
Specific to relative constructions, if, indeed, Chinese should adopt the same analysis for English relative constructions with D replaced by Cl, most of the facts discussed in this chapter cannot be accommodated. For instance, it is not clear how the word order [Cl + Relative + N] can be derived. In order to derive Head-final word order, a relative clause can only move to Spec of Cl/D. It is not clear how a relative clause

5.5. Summary

This chapter began with an observation of the seemingly chaotic array of reconstruction effects exhibited in Chinese relative constructions. We demonstrated that the apparently inconsistent reconstruction effects in fact follow straightforwardly from an analysis that assumes that what is raised to the Head position is an NP, rather than a DP. Accordingly, the reconstruction of the Head is NP-reconstruction, not DP reconstruction. This captures the unavailability of reconstructing a Head which is a QP itself (necessarily a projection larger than NP), in contrast to the availability of reconstructing a Head which is an NP and can contain an adjoined phrase. The phrase adjoined to the NP Head (adjunction resulting in an NP projection) may be a relative clause, an adjective or even a QP. The last possibility gives rise to the QP-reconstruction cases in (11). The following summarize the characteristics of Chinese relativization.

- (56)
- i. What is relativized can be an NP. That is, the Head of a relative construction can be an NP, which can undergo reconstruction.²⁷
 - ii. A relative clause and its head can be projected as an NP.
 - iii. The distribution of a relative clause is very much like that of a prenominal adjective modifying the head N.
 - iv. A relative clause as well as an adjective enjoys freedom of ordering, in contrast to other expressions within nominal expressions which require fixed ordering, such as demonstratives, number and classifier expressions and deverbal nominal structures.

These characteristics argue for the following adjunction structure for relativization in Chinese:



This contrasts with the complementation structure for English relativization structures or the LA structure discussed in the previous chapter. We have established that such a contrast should exist. The evidence in favor of the [_{DP} D CP] structure in English and LA does not exist in Chinese; moreover, there is evidence against adopting such a structure. Chinese does not exhibit the close dependency between a determiner and a relative clause that exists in languages such as English and LA. In addition to the lack of positive evidence, we have demonstrated that there is direct evidence against such a structure in Chinese. Importantly, there is a contrast between the Chinese (30) and the English (33):

- (30)
- a. wo xiang zhao yi-ge fuze Yinwen de mishu **jian** jiao xiaohai de jiajiao.
 I want find one-Cl charge English De secretary and teach kid De tutor
 'I want to find a secretary that takes care of English (matters) and tutor that teaches kids.'

can follow a classifier. It also is not clear how the NP conjunction facts in Chinese, in contrast to the obligatory DP conjunction in English relative constructions can be accounted for. Nor is it obvious how the reconstruction facts follow from the analysis.

²⁷ We will show in the next chapter that the difference in reconstruction possibilities with respect to scope and binding properties cannot be accounted for by the notion of chain binding (Cecchetto and Chierchia, 1999).

- b. wo yao dang yi-ge neng yin shi de shiren **jian** neng hua huar de huajia.
 I want be one-CI can sing poem De poet and can draw painting De painter
 'I want to be a poet that can sing poems and painter that can paint paintings.'
- (33) a. *He is an actor that wants to do everything and producer that wants to please everyone.
 b. He is an actor that wants to do everything and **a** producer that wants to please everyone.

The unacceptability of the English sentences in (33)a, d) follows from the fact that a relative construction must be a DP in English. The acceptability of the Chinese (30) argues for the NP status of a relative construction in that language, a property that is allowed when a relative construction is derived by adjunction.

The adjunction structure is further supported by the free ordering of relative clauses and the similarity in distribution with adjectives which are adjoined structures.

Indeed, an adjunction structure for Chinese relativization is not unexpected given Kayne's Antisymmetry approach to phrase structures, which allows left-adjunction structures. A relative clause in Chinese precedes its head, an ordering which can be straightforwardly derived by left-adjointing a relative clause to its head.

The adjunction structure in (57) and the NP reconstruction effects, although supported empirically by the facts discussed so far in this chapter, raise the question of why it is NP, not DP, that is relativized in Chinese and the question of how movement can derive an adjunction structure like (57). We turn to these questions in the next chapter.