

The *De*-marked Modification Structure in Mandarin Chinese

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Over the years the nominal construction with marked modifiers in Mandarin Chinese, the so-called *de* construction, has been one of the most studied topics within the literature of Chinese linguistics. Due to its complicated properties and distributions, a satisfactory account has not yet been achieved that covers all the phenomena observed. In particular, the categorial status of *de* remains rather vague. Therefore, this paper addresses the issue of the syntactic category of the element *de* in the nominal domain. It reanimates the idea that in Mandarin Chinese all modifiers in the nominal domain which are accompanied by *de* are full-fledged relative clauses adjoined to the left of modified phrases by the syntactic operation Adjunction and that the particle *de* is a head-initial complementiser. The current left-adjunction proposal can better account for the co-ordination of two relative clauses modifying one single nominal phrase in Mandarin Chinese.

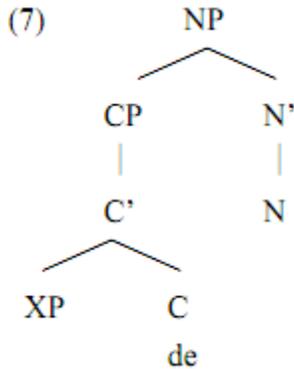
1. Introduction

Over the years the nominal construction with marked modifiers in Mandarin Chinese, the so-called *de* construction, has been one of the most studied topics within the literature of Chinese linguistics. So far, due to its complicated properties and distributions, a satisfactory account has not yet been achieved that covers all the phenomena observed. In particular, the categorial status of *de* remains rather vague. Within the framework of Chomsky's (2000, 2001, 2004) Minimalism, this paper investigates the way in which *de*-marked modifiers is incorporated into the syntactic structure of nominal phrases.

According to Li and Thompson (1981), the particle *de* that marks modification in pre-nominal strings has several functions: a possessive marker, an adjectival marker and a nominalisation marker. Examples of *de* being used in its various contexts are provided in (1) to (6) below, with the labelled bracketing indicating the surface structure of the preceding constituents.

- (1) [_{DP} Zhào Yuánrèn] de shū
Zhào Yuánrèn DE book
'Zhào Yuánrèn's book(s)'

precisely, the modification marker *de* can select a possessor as in (1), an AdjP as in (2), a PP as in (3), a noun phrase (NP) as in (4), or a tense phrase (TP) as in (5) and (6). Although not stated explicitly, Cheng seems to treat all the pre-nominal modifiers in (1) to (6) as full or reduced forms of relative clauses. The structure she assumed is illustrated in (7), where XP represents the various sorts of modifying elements.



Cheng's proposal that *de* is a head-final complementiser seems to rely solely on her observation of the surface word order. However, it is not in line with her belief in Huang's (1982) X-bar schema for Mandarin highlighted in (8), where only the NP is assumed to be head-final.

Huang (1982: 41; modified):

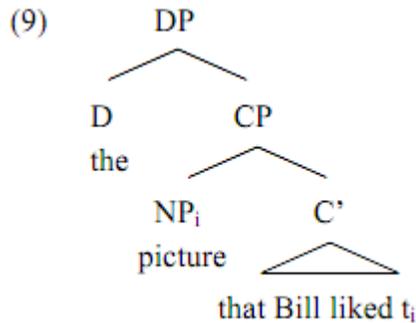
(8) X-bar schema for Mandarin:

- a. $[X^n X^{n-1} YP^*]$ if and only if $n=1$ and $X \neq N$
- b. $[X^n YP^* X^{n-1}]$ otherwise

Even if she abandons Huang's X-bar schema for Mandarin, her assumption of the existence of a head-final C head needs to face the challenge from the existence of subordinators, such as *rúguǒ* 'if' in Mandarin, which are generally analysed as involving a head-initial C. To accommodate this, Cheng would need two types of C in Mandarin, each with different directionality. However, from the theoretical viewpoint of first language acquisition, it seems dubious that there is variation of directionality within the C category.

Adopting Cheng's idea, Xu (1997) also argues that *de* is a C element from an early Minimalist perspective (Chomsky 1995). However, in accordance with Kayne's (1994) restrictive and universal theory of phrase structure, the Linear Correspondence Axiom (LCA), in which all phrases are underlyingly head-initial and no (base-generated or derived) right-adjunction structures are allowed, Xu maintains that *de* is a head-initial complementiser that takes an inflection phrase (IP) (the previous version of TP) as its complement. As for the surface modifier-*de*-N order, following Kayne's D-CP analysis

of relative clauses in English, which assumes that a D head selects a CP complement, Xu assumes that some movements are involved in the derivation of *de*-marked modification in Mandarin. First of all, Xu proposes that an NP moves to the Spec of CP. This proposal is in line with Kayne's (1994) analysis of the English non-wh-relative clause as in **Error! Reference source not found.**, where *t* indicates the position out of which the NP moves:¹

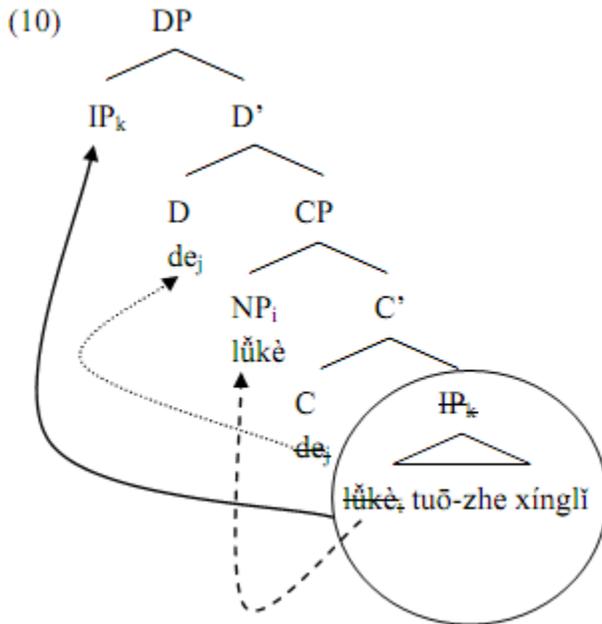


According to Kayne's D-CP analysis, English nominal expressions such as *the picture that Bill liked* are derived by a syntactic operation of movement of the NP object *picture* to the Spec of CP. The determiner *the* heads the projection of D, and the clause *that Bill liked picture* projects as the complement of the determiner *the*.

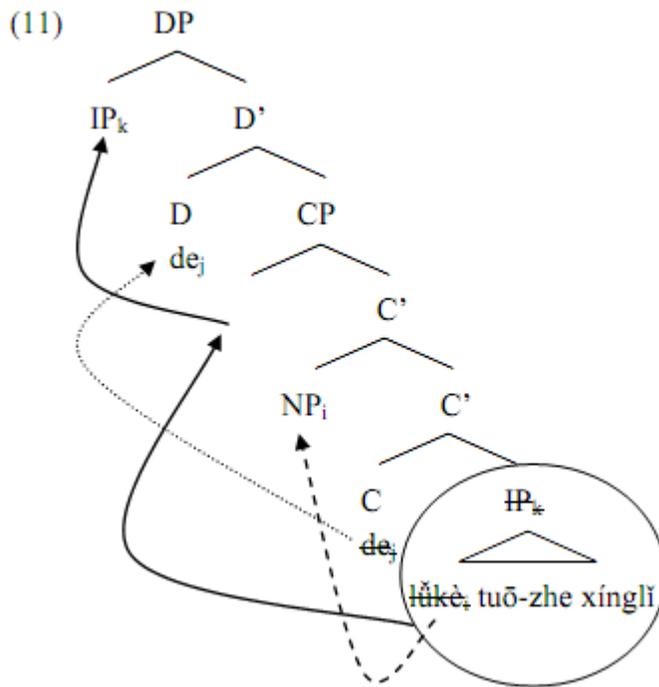
Secondly, Xu maintains that the particle *de* moves from the head of CP to the head of DP. Lastly, he argues that the complement of C, the remnant IP, moves to the Spec of DP. The entire derivation is illustrated in (10), where the lower copy of a moved item is marked by strikethrough.

¹ As for the English wh-relative clause as in (i), Kayne proposes that it involves a D with a CP complement and movement of a DP or PP to the Spec of CP.

- (i)a. the picture which Bill liked
- b. the picture at which Bill gazed



Although this can derive the correct word order for the relative clauses in Mandarin, Xu's analysis encounters a major problem within the recent Phase-based Minimalist Programme (Chomsky 2000, 2001, 2004). That is, the movement of remnant IP to the Spec of DP is not fully motivated (or is even redundant). According to his analysis, the head movement of *de* from C to D paves the way for the feature checking of IP. Nevertheless, within the Phase-based Minimalist framework, the movement of IP to the Spec of DP needs to pass through the Spec of CP as shown in (11) (with strikethrough marking the lower copy of moved items).



If the IP does not pass through the Spec of CP as shown above, a violation of the Phase Impenetrability Condition in (12) will be incurred.

Chomsky (2000: 108):

(12) *Phase-Impenetrability Condition*

In a phase α with head H, the domain of H is not accessible to operations outside α , only H and its edge are accessible to such operations.

According to (12), the external Probe in (10), namely the D head, cannot attract the c-command domain (the remnant IP) of a phase head, namely the C head in this case. Since the remnant IP has to move via the Spec of CP, the features of IP, which have to be checked by the C head instead of the D head as claimed by Xu, will be matched and deleted in the Spec of CP. As a result, the further movement of IP to the Spec of DP will become redundant. In other words, Xu has to discard the idea that the head movement of *de* from C to D paves the way for the feature checking of IP and that the feature checking of IP are all related to the C head. Alternatively, Xu has to resort to an articulated CP to solve this problem.

Furthermore, the obligatory movement of the particle *de* to the D head contradicts Li's (2001) finding that the occurrence of a relative clause in Mandarin can merely have

an NP projection. In other words, a relative clause in Mandarin does not require the occurrence of a D head. An example is provided in (13) below.²

Li (2001: 179; modified):

- (13) yī ge fùzé yīngwén de mìshū jiān jiāo xiǎohái de
 jiājiào
 one Cl charge English DE secretary and teach kid DE tutor
 ‘a secretary that takes care of English (matter) and tutor that teaches kids’

As can be seen above, the conjunction word *jiān* ‘and’ in (13) coordinates two activities performed by one individual. In terms of categories, according to Li (2001), the conjunction *jiān* only connects NPs but not DPs as shown in (14) to (15) below:³

Li (2001: 175; modified):

- (14) yī ge [NP mìshū] jiān [NP dǎzìyuán]
 one Cl secretary and typist
 ‘a secretary and typist’

Li (2001: 176; modified):

- (15) *[DP yī ge mìshū] jiān [DP yī ge dǎzìyuán]
 one Cl secretary and one Cl typist
 Intended meaning: ‘a secretary and typist’

Xu’s analysis that Mandarin relative clauses require the occurrence of D is not compatible with Li’s observation, for the coordination of two DPs is not allowed for the conjunction word *jiān* ‘and’ as shown in (15). Therefore, (13) must involve the coordination of two NPs as illustrated in (16) below:

- (16) [DP yī ge [NP [NP [CP fùzé yīngwén de] [NP mìshū]] jiān [NP [CP jiāo
 oneCl charge English DE secretary and teach
 xiǎohái de] [NP jiājiào]]]]]
 kid DE tutor
 ‘a secretary that takes care of English (matter) and tutor that teaches kids’

As a result, Xu’s proposal that the particle *de* moves obligatorily from the head of CP to the head of DP is not on the right track.

² Li (2001) provides a sentence from which I have isolated just the nominal phrase.

³ Li (2001) provides the sentences from which I have isolated just the nominal phrases.

Rejecting the analysis that postulates an underlying predicate for different categorial modifiers, Paul (2007: 18) proposes that the particle ‘*de* is a complementiser limited to non-root contexts’. She argues that some complementisers in Mandarin are able to select complements of heterogeneous nature in addition to clauses. The particle *de* is just one of these sorts of complementisers. She further proposes that the particle *de*, with its various categorial complements, forms a *de* Phrase (henceforth DeP). In line with Aoun and Li’s (2003) adjunction analysis for relative clauses in Mandarin, she maintains that DeP is adjoined to the modified noun, as illustrated in (17) below, where XP represents the various sorts of modifying element.

Paul (2007: 21):

(17) [NP [DeP XP *de*] N]

According to Paul, the requirement for the DeP to occur within a nominal expression is due to the feature composition of the particle *de*, in which a nominal feature is included. This also accounts for why the modifier-*de* sequence is always interpreted as a headless nominal.

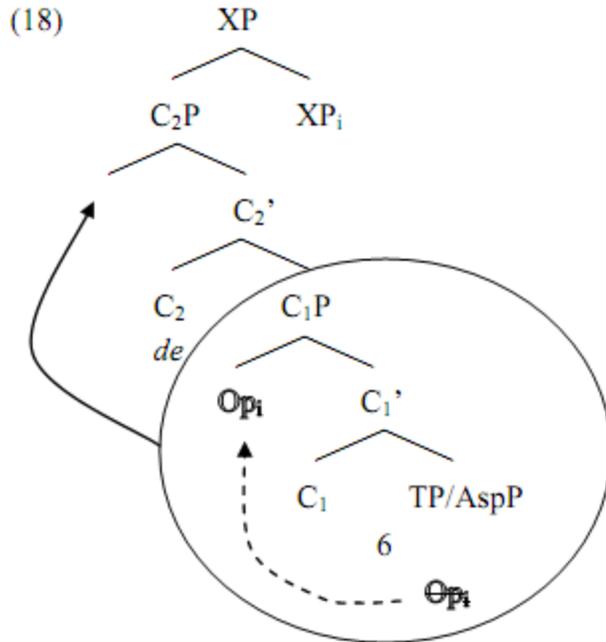
Although Paul’s analysis is compatible with Li’s (2001) observation that the D is optional in the formation of a relative clause in Mandarin, Paul does not justify the head-final status of the particle *de* but only takes Cheng’s (1986) proposal as her starting point. As a result, her proposal inherits the same flaw as in Cheng’s analysis of the particle *de*. That is the head directionality of C in Mandarin. In addition, her rejection of the predicational approach, which derives modifier phrases from underlying predicates in the form of a small clause or a relative clause, cannot explain why the *de*-marked modification structures in (1) to (6) can be negated, as shown in Section 0 below.

3. Current Analysis

This section will cover all the uses of *de* in the previous section and present a uniform analysis. It is proposed here that the formation of the *de*-marked modification structure in Mandarin Chinese is derived by the operation Adjunction. More specifically, it is argued that the particle *de* is a head-initial complementiser and that all instances of the *de*-marked modifying phrases as in (1) to (6) are actually full forms of relative clauses adjoined to the left of modified phrases.

The entire derivation of the *de*-marked modification structure is depicted in (18), where XP represents the modifiee and \textcircled{p} embodies the null relative operator.⁴

⁴ I assume that the operator can bind either an argument variable (resulting in an argumental relative clause), or an adjunct variable (leading to an adjunct relative clause).



The particle *de* is assumed to be base-generated in the C_2 position. This position is also the place where sentence final particles (SFPs) in Mandarin are base-generated as proposed by Hsieh and Sybesma (2008a, 2008b). As for the C_1 position, this is the place where subordinators, such as *shuō* ‘say’ and *rúguō* ‘if’ in Mandarin, are merged. In Mandarin relative clauses, there is a null C_1 that takes a TP (or an aspect phrase (AspP) if one assumes that there is no TP in Mandarin) as its complement to its right. In addition, as can be seen from (18), it is proposed that a relative clause in Mandarin is adjoined to the left of a modified phrase by the operation Adjunction. The so-called head noun is base-generated external to the relative clause. In other words, Kayne’s (1994) head-internal analysis of relative clauses as complementation structures is rejected in the following investigation due to theoretical concerns and empirical facts which will be disclosed later in this section. Furthermore, within the TP (or AspP), there is a null relative operator which is co-indexed with the modified phrase. This operator undergoes movement to the Spec of C_1P . After the movement of the operator, the whole C_1P moves to the Spec of C_2P to derive the surface word order.⁵

From a theoretical perspective, Kayne’s head-internal analysis of relative clauses as complementation structures has been rejected independently.

⁵ See Hsieh and Sybesma (2008a, 2008b) for a discussion of the obligatory XP-raising in the left periphery of the clause in Mandarin Chinese.

This is on the basis of anaphor binding within the current copy theory of movement in Minimalism (Chomsky 1995).⁶ Consider the contrast in (19).

Hornstein, Nunes and Grohmann (2005: 276):

- (19) a. *Which claim that John_i was asleep did he_i discuss?
 b. Which claim that John_i made did he_i discuss?

The sentences above have different binding properties, which are related to Binding Theory. The pronoun *he* cannot be co-referential with *John* in (19a), whereas it can be in (19b). According to Lebeaux (2000), the contrast between the two sentences lies in the distinction between complement and adjunct. More specifically, (19a) involves a noun complement clause, which is generated by the operation Merge, whereas (19b) involves a relative clause, which is generated by the operation Adjunction. Given the assumption that adjuncts can be merged in the course of the derivation (immune from the Extension Condition), the potential violation of Binding Condition C can be avoided because the relative clause containing *John* in (19b) can be merged once it is no longer c-commanded by the pronoun *he*. Therefore, (19b) is grammatical, whereas (19a) is ruled out due to the violation of Binding Condition C.

In contrast to Kayne's head-internal analysis of relative clauses, the current left-adjunction proposal can better account for the co-ordination of two relative clauses modifying one single nominal phrase in Mandarin as observed by Tang (1979) in the sentence below:

Tang (1979: 189; modified):

- (20) hěn piàoliàng de gēn hěn cōngmíng de xiǎojiě dōu lái-le
 very beautiful DE and very smart DE lady all come-Asp
 'The beautiful lady and the smart lady both have come.'
 'The beautiful ladies and the smart ladies all have come.'

Since there are two occurrences of the *de*-marked modifiers, within the head-internal analysis of relative clauses, an extra mechanism is required to explain from which position the noun, such as *xiǎojiě* 'lady' in (20), is moved. For instance, there may be a means in the PF component for the deletion of one of the copies of the noun. However, in the adjunction analysis, there is no need for such a mechanism because the constituents which are being coordinated are two CPs as illustrated in (21).

⁶ See also Borsley (1997) for a discussion of arguments against Kayne's (1994) D-CP analysis of the relative clause.

- (21) [_{CP} hěn piàoliàng de] gēn [_{CP} hěn cōngmíng de] xiǎojiě dōu lái-le
 very beautiful DE and very smart DE lady all come-Asp
 ‘The beautiful lady and the smart lady both have come.’
 ‘The beautiful ladies and the smart ladies all have come.’

Interestingly, relative clauses in English show evidence of a comparable construction, as exemplified in (22).

Alexiadou, Haegeman and Stavrou (2007: 356):

- (22) a. The students [who failed the exam][who are currently on holiday]
 b. The students [who are currently on holiday][who failed the exam]

Similarly, as there are two occurrences of *wh*-relative clauses, within Kayne’s (1994) head-internal analysis of relative clauses, an extra mechanism is required to explain from which position the noun, such as *students* in (22), is moved. As mentioned, a means in the PF component for the deletion of one of the copies of the noun is needed. In contrast, there is no need for such a mechanism in the adjunction analysis. Furthermore, the free ordering illustrated in (22) is not surprising, since the operation Adjunction is not subject to the ordering restrictions.⁷

In addition, the current *de*-as-complementiser analysis can also account for Tang’s (1979) observation that the sentence with the SFP, such as (23) and (24), cannot be embedded as a relative clause. This restriction is accounted for if we accept Hsieh and Sybesma’s (2008a, 2008b) proposal that SFPs in Chinese are base-generated in the C₂ position, for which the particle *de* competes. Once the C₂ position is inserted with SFPs, the formation of a relative clause is inhibited, as shown in (23) and (24).

- (23) yì pī pǎo hǎo kuài (*a) de mǎ
 one Cl run very fast SFP DE horse
 ‘a horse that runs very fast’
- (24) zài xiào (*lī) de nà ge nǚhái
 Asp smile SFP DE that Cl girl
 ‘the girl that is smiling’

The proposal that the particle *de* is base-generated in the position where the SFP is base-generated is supported by Hsieh’s (1998) observation that *de* can appear as the SFP in cleft sentences as in (25).

⁷ With regard to the surface word order of English relative clauses, whether it is derived from right adjunction or obligatory movement of DP to the Spec of higher functional projection is an issue left open for future research.

- (25) Zhāngsān yīnggāilái yīngguó de
 Zhangsan should come Britain DE
 ‘Zhangsan should come to Britain.’

In the above example, the particle *de* simply indicates the mood that has the connotation of affirmation.

In contrast to Kayne’s (1994) analysis of English adjectives as reduced forms of relative clauses, I propose that in Mandarin the *de*-marked modification structures are all full forms of relative clauses. Such a proposal is based on the fact that all of them can be negated as shown in (26) to (31) below.

- (26) a. bù shǔyú Zhào Yuánrèn de shū⁸
 not belong Zhào Yuánrèn DE book
 ‘a/the book(s) that do/does not belong to Zhào Yuánrèn’
 b. fēi Zhào Yuánrèn de shū
 not Zhào Yuánrèn DE book
 ‘a/the book(s) that is/are not Zhào Yuánrèn’s’
 c. Zhào Yuánrèn méi yǒu de shū⁹
 Zhào Yuánrèn not have DE book
 ‘a/the book(s) that Zhào Yuánrèn does not have’

- (27) bù piàoliàng de fāngzǐ
 not gorgeous DE house
 ‘a/the house(s) that is/are not gorgeous’

- (28) bù zài zhuōshàng de chábēi
 not at table DE cup
 ‘a/the cup(s) that is/are not on the table’

- (29) fēi mùtóu de zhuōzi
 not wood DE table
 ‘a/the table(s) that is/are not made of wood’

⁸ As mentioned in Xu (1997), Sybesma (p.c.) suggests to him that the possessive construction in (1) can be analysed as containing an empty preposition (namely, the null spell-out of the word *shǔyú* ‘belong to’).

⁹ Yue-Hashimoto (1971) argues that the possessive construction in (1) can be considered as a relative clause construction derived from an underlying sequence of *Zhào Yuánrèn yǒu shū* ‘Zhào Yuánrèn has a book’ and that there is a rule in Mandarin which deletes the verb *yǒu* ‘have’ when it precedes the particle *de*.

(30) méi tuō-zhe xínglǐ de lǚkè
 not carry-Asp luggage DE passenger
 ‘a/the passenger(s) who is/are not carrying the luggage’

(31) wǒ zuótiān méi mǎi de shū
 I yesterday not bought DE book
 ‘a/the book(s) that I did not buy yesterday’

Furthermore, the full relative clause analysis of the *de*-marked modification structures can also be supported by the fact that they can merge with high adverbs, such as *xiǎnrán* ‘obviously’, *yíding* ‘certainly’ and *jìngrán* ‘actually’ as exemplified in (32) to (34) below:

(32) xiǎnrán wújiě de xuánàn
 obviously unsolvable DE unsettled case
 ‘a/the case(s) that is/are obviously unsolvable’

(33) yíding dǎobì de gōngchǎng
 certainly close down DE factory
 ‘a/the factory/factories that is/are certainly to be closed down’

(34) jìngrán dāngxuǎn de zàiyě dǎng língxiù
 actually elected DE opposition party leader
 ‘a/the leader(s) of the opposition party/parties that is/are actually elected’

On the other hand, Paul (2005, 2007) argues that non-predicative adjectives in the *de*-marked modification structure invalidate the claim that every *de*-marked sequence is to be analysed as a relative clause. However, non-predicative *de*-marked modifying phrases can also be negated whereas their *de*-less counterparts may not. An example of the latter phenomenon is provided in (35) below.

(35) a. yuánlái (de) yìsi
 original DE meaning
 ‘original meaning’
 b. fēi yuánlái *(de) yìsi
 not original DE meaning
 ‘non-original meaning’

As a result, it is maintained here that the non-predicative *de*-marked modification can be analysed as a relative clause as the predicative *de*-marked modification. However, does this mean that there is no so-called non-predicative adjective in Mandarin? The answer is

definitely negative, since the non-predicative adjective cannot appear in the copula construction as shown in (36).

- (36) *zhè yìsi (bù) shì yuánlái
 this meaning not copula original
 Intended meaning: ‘this meaning is (not) original.’

Following Paul (2007), I propose that the requirement for the CP headed by the particle *de* to occur within a nominal expression is due to the feature composition of the particle *de*, in which a nominal feature (namely, the uninterpretable categorial [+N] feature¹⁰) is included. This may explain why the non-predicative adjectives can appear in the *de*-marked modification structure and why they can be negated within the CP headed by the particle *de*. In other words, this uninterpretable categorial [+N] feature makes the CP headed by the particle *de* different from the matrix clause so that modifiers which cannot function as a predicate of the matrix clause are still able to get the intersective reading within the relative clause.

Compared with Cheng’s (1986) or Paul’s (2007) analysis of *de* as a head-final complementiser, the current head-initial complementiser account of *de* is even more compatible with the essential assumption of head directionality within the GB framework, no matter whether the head directionality parameter is set for the whole language or per category. From the theoretical viewpoint of first language acquisition, it seems dubious that there is variation of head directionality within the C category. If headedness must be unidirectional within one category, given Hsieh and Sybesma’s (2008a, 2008b) head-initial analysis of complementisers in Chinese, it is more consistent to treat the C head lexicalised by *de* as head-initial. The surface word order is then due to a movement-triggering feature carried by the C head. Although this just shifts parameterisation from a head ordering parameter to the movement-triggering feature, it conforms to the current Minimalist assumptions more.

In contrast to Xu’s (1997) analysis, the current proposal can better account for Li’s (2001) observation that a relative clause in Mandarin does not require the occurrence of a D head as shown in (13), repeated as (37) below. This is because *de*-marked modifiers can adjoin to the left of *n*Ps given my assumption that the C head realised by *de* bears an uninterpretable categorial [+N] feature that has to be matched and deleted by the interpretable categorial [+N] feature. This Agree operation takes place when the pair-Merge of C and *n*P occurs.

¹⁰ This uninterpretable categorial [+N] feature will be matched and deleted when the pair-Merge of CP and the modified nominal phrase occurs. In other words, this uninterpretable categorial [+N] feature gives a signal to the Narrow Syntax to carry out the operation pair-Merge.

Li (2001: 179; modified):

- (37) yī ge fùzé yīngwén de mìshū jiān jiāo xiǎohái de jiājiao
 one Cl charge English DE secretary and teach kid DE tutor
 ‘a secretary that takes care of English (matter) and tutor that teaches kids’

More precisely, (37) has its internal structure as illustrated in (38) below:¹¹

- (38) yī ge [_{nP} [_{nP} [_{CP} fùzé yīngwén de] [_{nP} mìshū]] jiān [_{nP} [_{CP} jiāo xiǎohái
 one Cl charge English DE secretary and teach kid
 de] [_{nP} jiājiao]]
 DE tutor
 ‘a secretary that takes care of English (matter) and tutor that teaches kids’

As can be seen in the above example, the *de*-marked modifiers adjoin to the left of *nPs* so that the two *nPs* can be further co-ordinated by the conjunction word *jiān* ‘and’. The *nP* that results from the co-ordination can then merge with the classifier *ge*.

Furthermore, the current proposal is more consistent with the general assumption that argumental nominal phrases are all DPs rather than NPs. On the other hand, the head-internal analysis of Mandarin relative clauses, such as Xu’s (1997) analysis, has to assume that argumental nominal phrases in Mandarin relative clauses as shown in (10) are NPs but not DPs.

4. Conclusion

This paper discusses the derivation of *de* construction in Mandarin within the current Phase-based Minimalist programme (Chomsky 2000, 2001, 2004). It is argued that *de* is a head-initial C and that all instances of the *de*-marked modifying phrases are full forms of relative clauses. Furthermore, Kayne’s (1994) head internal analysis of relative clauses as complementation structures is rejected. Instead, it is proposed that Chinese relative clause is adjoined to a DP or NP by adjunction. The current proposal can better account for Li’s (2001) finding that a Chinese relative clause does not require the occurrence of a D and Tang’s (1979) observation that the sentence with the sentence final particles cannot be embedded as relative clauses. In addition, it is more compatible with the fact that Mandarin Chinese is a C-initial language.

¹¹ Here I assume that the *n* head lexically realised by a classifier can select another *nP*.

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