

# On the status of ‘modifying’ *de* and the Structure of the Chinese DP

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## 1. Introduction

This paper re-examines the status of so-called nominal ‘modifying’ *de* and arrives at an analysis of the Chinese NP/DP which suggests that contra previous assumptions the NP/DP is underlingly head-initial with a fully regular structure paralleling that in other languages. Surface distortion of this structure is attributed to a proposal that *de* is actually a clitic-like determiner of the Romanian-type which attracts some XP element to its Spec for phonological support. The paper also argues that definiteness is quite generally a property of a DP-internal demonstrative position and is not necessarily mirrored in  $D^0$  unless a language displays definiteness concord (which Chinese does not). Observing that the hypothetical Chinese determiner *de* might only seem to be licensed in modificational structures it is shown that this is actually quite a common property of determiners cross-linguistically and suggests that a common function of determiners may possibly be to instantiate an external variable in an unsaturated open predication. Finally it is shown that the analysis presented in combination with Fu’s (1997) insights into the process/result distinction in Chinese

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nominals is able to provide a simple account of a number of puzzles concerning the relative positioning of complements and adjuncts internal to the DP in Chinese.

## 2. Modifying de, relative clauses and Kayne (1994)

A primary goal of this paper is to develop a better understanding of the syntactic status and properties of the particle de found occurring in relative clauses, as a marker of possession, and with pre-nominal Adjectival-Phrases and PPs as illustrated in examples (1-4) below:<sup>1</sup>

- |    |   |    |   |
|----|---|----|---|
| 1) | wo mai de shu<br>I buy DE book<br>'the book I bought' | 2) | wo de shu<br>I DE book<br>'my book'                   |
| 3) | hao de shu<br>good DE book<br>'good books'            | 4) | dui ta de xinren<br>to him DE trust<br>'trust in him' |

Referred to variously as a relativizer, a genitive case-marker and sometimes just vaguely as a modifying particle, little consensus has been reached on the actual syntactic category of the element de and its status in the NP/DP is often simply ignored. In order to probe this issue further, I would like to focus first on the occurrence of de in relative clause structures and examine an interesting result which ensues from analyzing Chinese relative clauses in terms of Kayne's (1994) Antisymmetry of Syntax theory.

One important consequence of Kayne's general theory of word-order is that rightward adjunction is disallowed, forcing the re-analysis of a number of constructions including relative clauses which have commonly been taken to involve such rightward adjunction. To avoid the possibility that the RC is rightwardly adjoined to the head noun in languages like English, Kayne suggests the analysis sketched out in (5) below. The head noun originates in the IP clause and undergoes raising to the Specifier of a CP which is selected as the *complement* of a determiner:

- 5)        [DP the [CP man<sub>i</sub> [C] that [IP I met t<sub>i</sub> ]]]
- ↑  
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Considering languages in which the RC precedes the head-noun, a number of patterns are found. To avoid the possibility of rightward-

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<sup>1</sup> Here I do not consider the use of the morphologically-related sentence-final de. For a discussion of the syntax of this element see Simpson & Wu (1998).

adjunction again, all such languages are essentially suggested to follow the derivation in (5) and then take this further in a number of different ways. In *Amharic*-type languages it is suggested that forms such as (5) will be transformed into structures such as (6) via raising to SpecDP of the clausal constituent following the head-noun. The abstract example (6) uses English words for ease of exposition:

6) [DP [C that [IP I met t<sub>i</sub> ]]<sub>k</sub> [D the [CP man<sub>i</sub> [ t<sub>k</sub> ] ] ] 'Amharic'

Yoruba-type languages alternatively would raise the entire CP following the head-noun in (5) to SpecDP, resulting in the order in (7):

7) [DP [CP man<sub>i</sub> [C that [IP I met t<sub>i</sub> ]]] [D the [ t<sub>k</sub> ] ] 'Yoruba'

Certain languages having similar patterns to Amharic also seem to display a 'relative particle' sandwiched between the 'raised' RC and the determiner or head-noun, giving a sequence such as that indicated in (8):

8) I met REL (the) man

Kayne argues that such elements cannot be relativizers in Comp as the analysis only allows that a Comp node could occur either preceding the raised RC or following the head noun, in the positions indicated in (9):

9) # I met REL (the) man #

He consequently suggests that they are actually Infl elements attached to the verb. Such a proposal in fact is plausible here as all of these languages having 'raised' relative clauses are verb-final O-V languages and the 'relativizer' appears adjacent to the verb which is final in the relative clause - the 'relativizer' could then quite possibly be taken to be a verbal suffix. Chinese however now gives rise to an interesting problem - Chinese is a language with pre-nominal relative clauses and an element which looks like a relativizer (de) occurring between the relative clause and the head-noun, but Chinese is a language which is atypically *V-O* in its word order;<sup>2</sup> consequently the 'relativizer' de does *not* necessarily occur adjacent to the

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<sup>2</sup> Relative clauses in Chinese are typologically extremely marked. In a study examining the word order patterns of 130 languages, Dryer (1992) reports that Chinese was the *only* language having both pre-nominal relative clauses and a basic verb-initial/V-O order; all other languages with the order relative clause - noun turned out to be uniformly O-V languages.

verb and so cannot be analyzed as an inflectional suffix on the verb. Consider the relative clause in (10) - for Kayne such a structure has to follow the lines of derivations already outlined - the head-noun will be taken to raise to SpecCP from the underlying structure in (11) and then some IP-like clausal constituent following the head-noun will undergo further raising to an initial position as in the schema in (12):

- 10)    [ \_ qu Beijing ] de ren  
          go Beijing    DE person  
          ‘the person who went to Beijing’
- 11)    [ de [<sub>CP</sub> ren<sub>i</sub> [<sub>IP</sub> t<sub>i</sub> qu Beijing ]]]  
                             ↑
- 12)    [[<sub>IP</sub> t<sub>i</sub> qu Beijing ]<sub>k</sub> [ de [<sub>CP</sub> ren<sub>i</sub>] t<sub>k</sub> ]]  
                             ↑

The element de cannot be analyzed as an inflectional suffix on the verb in the relative clause, nor can it be analyzed as a relativizer in a Comp position, because Kayne’s analysis does not allow for a Comp node to occur in this position - the two potential Comp positions are those indicated in (9), hence those signalled in (13) and not the position occupied by de:

- 13)    # qu Beijing de ren #

The only possible analysis for de following Kayne would seem to be that de in fact is a *determiner* occupying D<sup>0</sup>, with the IP-RC raised to SpecDP

- 14)    [ <sub>DP</sub> [<sub>IP</sub> t<sub>i</sub> qu Beijing ]<sub>k</sub> [<sub>D</sub> de [<sub>CP</sub> ren<sub>i</sub>] t<sub>k</sub> ] ]

This clearly is a rather odd result as de certainly does not seem to display the behaviour and properties commonly associated with determiners. For example, de would not seem to have any *definiteness* value, this generally being taken to be a defining property of determiners. Secondly de may occur more than once in an NP/DP as in (15) whereas DPs are commonly taken to be associated with a single D<sup>0</sup> position and hence a single occurrence of a determiner:

- 15)    wo-de    zhu zai Beijing de hao pengyou  
          I    DE    live in Beijing DE good friend  
          ‘my book which I bought in Beijing’

Thirdly, de clearly can co-occur with demonstratives which are otherwise generally taken to instantiate and occur in  $D^0$ , suggesting that de itself is not in  $D^0$  but is rather an element of a different type. The position occupied by the Demonstrative in (16) position might also appear to be a fully regular determiner position initial in the DP whereas de is never found to be DP-initial and always follows some other constituent:

- 16) nei-ben [wo zuotian mai]-de shu  
that CL I yesterday buy DE book  
'that book I bought yesterday'

Instead however of immediately concluding that the Kaynean approach to relativization must necessarily be incorrect for Chinese because it leads one to what seems like an intuitively odd analysis of de, I would actually like to investigate the possibility that Chinese de might in fact be a determiner, and suggest that there is actually much to be gained from understanding de as an instantiation of  $D^0$ . In what follows in the paper I will first argue in section (3) that the reasons for rejecting de as a determiner noted above are not in fact well-grounded and that determiners cross-linguistically show a behaviour which is much more varied than that in languages such as English which have tended to shape our initial conceptions of the nature of determiners. Section (4) then continues with a comparison of determiners, demonstratives and quantifiers and a consideration of the notion of definiteness in DPs, arguing for a rather different analysis of the functional role of determiners. Finally section (5) attempts to show that an analysis of de as a determiner-element potentially allows for a more general analysis of DPs in Chinese in which they need not be taken to be head-final as often in the past, but can be shown to be really very similar to descriptively head-initial DPs in other languages.

### 3. Multiple determiners, Definiteness and Demonstratives

One of the reasons for not wanting to consider de as a determiner mentioned immediately above is that one frequently finds more than a single occurrence of de in a DP and it is commonly assumed that there should only be a single  $D^0$  position in any DP. Such an assumption may largely be based on our understanding of English and other west European languages where this restriction does indeed seem to hold. However, there are in fact also a considerable number of languages where determiners do appear multiply within a single DP, as for example in Hebrew where (17) shows a determiner occurring both on the head noun and on the following adjective:<sup>3</sup>

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<sup>3</sup> Examples here are taken from Giusti (1997).



c. \*mio Gianni

Albanian (22) shows that the necessary insertion of a 'definite' determiner with an adjective in fact has no relation to the ensuing definiteness of the DP, and is reported in Guasti (1997) to be triggered solely by properties of the adjectival stem - in (22) a 'definite' determiner occurs with the adjective but the whole DP is actually indefinite:

22) nje djale i mire  
a boy the good  
'a good boy'

The 'definite' determiner in English may also be used without giving rise to any interpretation of definiteness-familiarity as illustrated in (23) and (24):

23) I bet you'll never find the secretary of a deputy who's willing to testify against him.<sup>4</sup>

24) The Crow and the Fox (as a book/story title)

The referents represented by the DPs marked with definite determiners in (23) and (24) are fully novel to the hearer/reader and so do not qualify as definite.<sup>5</sup>

Finally French uses the 'definite' determiner in instances of inalienable possession where English would use an indefinite determiner, hence again an instance where the 'definiteness' specification of a determiner is far from clear:

25) Olga a le bras enflé  
Olga has the arm swollen  
'Olga has a swollen arm.'

Consequently it is *not* possible to argue that determiners must always have necessary inherent definiteness properties and so reject the analysis of de as a determiner because it appears to lack such a definiteness specification. Clear determiners in other languages frequently do not seem

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<sup>4</sup> This example again comes from Guasti (1997).

<sup>5</sup> Interestingly, the Miao language of Weining as reported by Bisang (1997) has two different types of classifier which are associated with definiteness and indefiniteness and would here in (24) select the *indefinite* novel classifier for a similar story title.

to make any contribution to the definiteness of a DP and may appear to have instead some other rather poorly understood expletive-type function.

The third initial reason given for rejecting an analysis of de as a determiner was that de is found to co-occur with demonstratives which traditionally have been taken to instantiate D<sup>0</sup>. Such an assumption is in large part based on the observation that determiners and demonstratives may not co-occur in languages such as English, as in (26):

26) \*the that book                      \*that the book

However, here again there is abundant cross-linguistic evidence that determiners generally *may* co-occur with demonstratives and hence that they do not compete for the same D<sup>0</sup> position in the base. Greek as already illustrated in (19), Spanish, Romanian, Hungarian and Irish are just a few of the many languages where determiners and demonstratives are found together in the same DP. Spanish and Irish show that when the demonstrative occurs after the noun a determiner is actually *forced* to occur, as in (27). In Spanish such an order alternates with one in which the demonstrative occurs initially and suggests that the determiner is simply an expletive place-holder for the demonstrative which itself is responsible for the definiteness specification:

27) a. el hombre este                      b. \*hombre este  
       the man    this                        c. este<sub>i</sub> hombre t<sub>i</sub>  
       ‘this man’

      d. \*(an)    fear    seo    (*Irish*)  
           the    man    this  
           ‘This man’

Grosu (1988) also convincingly suggests that a wide variety of complex patterns found in Romanian DPs may be neatly explained if one assumes that Demonstratives are in fact inserted as XPs in a *Specifier* position (of an Agreement Phrase) rather than being in selected head positions. In (28a) N-to-D head movement licitly takes place over a demonstrative; it is argued that this movement is not blocked by the HMC precisely because the demonstrative is not in an intervening head-position. Movement of an AdjP to SpecDP however is blocked when a demonstrative occurs (28b)<sup>6</sup> because the latter is taken to be an XP nearer to SpecDP and so should itself raise itself as in (28c):

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<sup>6</sup> This movement is otherwise well-formed in the absence of a demonstrative.

- 28) a. baiat<sub>i</sub>-ul acesta frumos t<sub>i</sub>  
 boy - thethis nice  
 ‘this nice boy’
- b. \*frumos<sub>i</sub>-ul acesta t<sub>i</sub> baiat  
 nice - the this boy
- c. acest<sub>i</sub> t<sub>i</sub> frumos baiat  
 this nice boy

Giusti (1997) shows that Spanish, Greek and Irish all indicate that demonstratives should be taken to be base-generated quite low inside the DP. She notes that the demonstrative in Spanish occurs as the lowest modifier of N, preceding all PPs but following all adjectives including thematic ones, as in (29):

- 29) la reaccion (\*esa) alemana (esa) a las criticas  
 the reaction that German that to the criticisms  
 ‘that/the German reaction to the criticisms.’

The order reported for Irish is schematically as indicated in (30) below, the demonstrative again occurring in a position following determiners, numerals and adjectives:

- 30) Det NumP N AP\* Dem RC

Giusti (1997) suggests that one should therefore assume that demonstratives are *universally* base-generated in relatively low Spec positions rather than directly in D<sup>0</sup> and that when they do occur initially, this should be taken to be the result of movement from the lower base position. Chinese now would also seem to indicate that demonstratives are base-generated in such low DP-internal positions and are relatively ‘mobile’ as in Spanish, Romanian and Greek, occurring in a variety of additional higher positions within a DP, as shown in (31) from Tsao (1997):

- 31) (nei-san-dian) ni (nei-san-dian) dui-nei-jian shi de (nei-san-dian) piping  
 Dem-3-CL you Dem-3-CL to that-CL matter DE Dem-3-CL criticism  
 ‘those three criticisms of that matter of yours’

The conclusion once again is that the co-occurrence of de together with demonstratives is likewise as before no valid reason for rejecting an analysis



a portrait of-the one girl  
'a portrait of the girl'

In Chinese I would therefore like to suggest that an XP-element is attracted to SpecDP by de in D<sup>0</sup> for entirely parallel reasons, to support de as an enclitic,<sup>7</sup> this quite simply accounting for the linear ordering patterns/non-initial position of de, as for example in (36) and (37) below

36) [IP wo zuotian mai]<sub>i</sub>-de nei-ben [CP shu [ t<sub>i</sub> ]]  
I yesterday buy DE that-CL book  
'the book I bought yesterday'

37) [wo]<sub>i</sub> de t<sub>i</sub> nei-ben-shu  
I DE that-CL book  
'that book of mine'

Assuming such an analysis and raising of relative clauses and possessors to SpecDP then immediately raises another question, namely what position is occupied by other elements which optionally precede possessors and relative clauses, as in examples (38) and (39):

38) *hen-duo/liang-ben/mei-ben* [DP [IP wo zuotian mai]<sub>i</sub>-de [CP shu [ t<sub>i</sub> ]]]  
many/two/every book that I bought yesterday

39) *nei-ben* [DP [IP wo zuotian mai]<sub>i</sub>-de [CP shu [ t<sub>i</sub> ]]]  
that book I bought yesterday

Concerning the elements in (38), it has often been suggested that certain *quantifiers* and quantificational elements may actually select DP, as in English (40) and other languages:

40) [QP [Q all [DP the books]]]

Giusti (1997) shows that certain of these quantifiers may also be positionally quite ambiguous in various languages and occur either high in a Q<sup>0</sup> position or lower down in some adjectival Specifier. Romanian in particular has the interesting example of an element meaning 'both' which takes on morphologically different shapes when used initially in Q and when occurring as a pure adjective lower down in the DP:

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<sup>7</sup> Noting incidentally that the homophonous potential and adverbial markers de have also frequently been analyzed as clitics.

- 41) amindoi baieti-i t<sub>i</sub> (*amindoi=Q*)  
 both children-the  
 'both the children'
- 42) ambi<sub>i</sub>-i t<sub>i</sub> baieti (*ambi=Adj raised from regular*  
 both-the children *lower Adj position*)  
 'the two/both children'

I consequently assume that the italicized quantifiers are occupying a pre-DP Q<sup>0</sup> position parallel to that in other languages (and similarly may also occur in a lower adjectival-like position).

Regarding the high position of the demonstrative in (39), I would tentatively like to suggest that there may be some high *deictic* functional category potentially dominating the DP. Investigating the functional structure of the clause, Cinque (1997) notes that its highest functional projections would seem to relate the clause directly to the speaker in terms of his/her attitude to its truth, and the origin of a piece of information with respect to the speaker. Taking this to be a deictic siting of the proposition relative to the speaker, and the long-noted parallels between DPs and clauses, one might then suggest that there is a semi-equivalent deictic functional projection high in the DP-structure too, primarily relating the reference of the DP to the speaker/hearer, and it is here that I would (tentatively) propose that the demonstrative might be raising in DPs such as (39).

Another more simple but testing question is the following. If de is indeed to be analyzed as a determiner, why is it then not possible to have just simple sequences of de-noun or noun-de as in (43) below?

- 43) a. \*de ren                      b. \*ren-de  
       DE person                    person-DE  
 intended: 'the person'

(43a) is ruled out because it has been suggested that de requires some element in its Spec to provide it with phonological support, but nothing so far explains why (43b) should not be possible with the noun/NP ren raised to SpecDP. This particular problem I actually wish to set aside for the present and return to later on. For now it can be noted that the underlying intuition which needs to be captured is that de only ever occurs when there is some modification relation. In section (4.1) I will show that there are in fact *many* other instances cross-linguistically where determiners or determiner-like elements similarly seem to require the presence of some other modifying

phrase in order to legitimately occur, and hence the requirement that the putative Mandarin determiner de be accompanied by some other modifying phrase is really just one instantiation of a more general pattern which possibly calls for a wider reassessment of the functional role of determiners.

#### 4. Definiteness, Demonstratives and Szabolsci (1994)

I would first like to return to de and the *definiteness issue* - the traditional assumption that the definiteness of a DP is a direct result of the definiteness specification of a DP's determiner. Essentially I will propose adopting a version of a rather different approach towards (the locus of) definiteness in the DP put forward in an article by Szabolsci (1996) on the structure of the DP in Hungarian.

Szabolsci notes that a determiner in Hungarian may co-occur with a low demonstrative or other low quantifier such as minden 'every' providing that some other element such as a reduced relative clause or a possessor phrase intervenes between these elements, as e.g in (44) and (45):

44)    a       \*(tol-ed    kapott)   valemennyi    level  
           the    from-2sg received each            letter  
           'the letter I/we received from you'

45)    az       \*(en)       minden allitas-om  
           the        I        every    book  
           'my every book'

If a determiner does not occur in forms such as (44), then the Demonstrative/Quantifier is forced to raise to the initial D<sup>0</sup> position, as in (46):

46)    valamennyi<sub>i</sub>   tol-ed        kapott    t<sub>i</sub>        level  
           each            from-2sg received        letter

47)    \*tol-ed        kapott        valamennyi    level  
           from-2sg received        each            letter

Suggesting that this raising is triggered by a simple need to fill the D<sup>0</sup> position with some overt element, Szabolsci then notes that the interpretation of (44) with the determiner and (46) without the determiner is exactly the same and concludes that the determiner does not make any special contribution towards interpretation in (44). Szabolsci goes on to argue that if the definiteness interpretation in (46) results from the presence of the quantifier alone, it should likewise also result from just the quantifier in (44)

where the determiner is in fact present. Interpretations of definiteness are consequently suggested not to come from determiners in Hungarian and it is argued that such elements must therefore have some other function in the DP. Drawing a parallel with CP complementizers, Szabolsci proposes that the primary function of both determiners and complementizers is to act as *subordinators* and formally enable a CP proposition or a DP to refer as an argument. She then notes that complementizers cross-linguistically might in fact seem to have two regular functions - sometimes acting simply as pure embedders/subordinators and elsewhere also 'typing' clauses in the sense evoked by Cheng (1991). In some languages these two functions may possibly be performed by separate lexical items, as for example in Japanese where to is a pure embedder and ka an interrogative clause typer, however other languages might be found to employ a single lexical element for both functions, as for example is hypothesized to be the case in English with that being both an embedder and a typer. Parallel to this and in the domain of the DP, Szabolsci speculates that the English determiner the might similarly fulfill both functions of subordination *and* providing a definiteness specification (an equivalent 'typing' function) - this potentially allowing for an explanation why determiners do not co-occur with demonstratives in English (i.e. the determiner can fulfill both roles of subordinating and typing). In Hungarian Szabolsci takes the determiner to be a pure subordinator, while the definiteness specification of the DP is assumed to *always* come from some other element - an overt demonstrative or quantifier if one is present, as in (44/45/46), *or* some covert null variant which is suggested to occur when only the determiner is overtly present, as in (48):

- 48)     a             $\emptyset$         level  
           the          $\emptyset$         letter

Finally, Szabolsci suggests that although definiteness may in fact be the result of the (definiteness) specification of a low position hosting demonstratives and certain quantifiers in *all* languages (rather than come from a purely subordinating determiner element in  $D^0$ ), there may also be some kind of definiteness 'concord' process whereby a higher subordinating determiner has to agree in definiteness specification with a lower demonstrative. Such a definiteness agreement process would then require the use of the 'definite' determiner in Hungarian (44/45) rather than an indefinite equivalent.<sup>8</sup>

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<sup>8</sup> Szabolsci likens this concord/agreement to that obtaining between a complementizer and a lower  $T^0$ -head - a complementizer may have to 'agree' in terms of finiteness with  $T^0$ , as in English where that is a finite-C and for a non-finite C.



languages is in fact somewhat different from Szabolsci's pure subordinating function. The question put aside in section 2 was why it is not possible to have just de and a bare head-noun as in (51):

51) \*ren<sub>i</sub> -de t<sub>i</sub>  
 person DE

As briefly noted in section 2, the idea which needs to be captured is that de only occurs when there is some other modifying element present. Here I will try and show that there are in fact many instances where determiners or determiner-like elements require some other modifying element to be present, and that broadly this might indeed be a pre-condition on determiners of certain types, possibly that the primary function of these determiners precisely is to enable a modification relation to be effected; the determiners themselves might then perhaps be taken to instantiate syntactic variables allowing the modifying element to enter into some kind of a non-canonical predication relation with the noun.<sup>9</sup>

A first illustration of the wider connection between determiners and noun modification was actually present in the preceding section. There it was shown that the sequence the...every in Hungarian is only licit if some additional modifying expression is included in the sequence, either a possessor or a reduced relative clause as schematized in (52), hence that the determiner may only co-occur with a demonstrative if there is some other noun modifier present.<sup>10</sup>

52) the \*(poss-NP/RC) that/every N

<sup>9</sup> There is also another way to try and rule out (51). (51) may be usefully compared with the Spanish paradigm in (i) which shows that the determiner el is simply an expletive place-holder - either el occurs in D<sup>0</sup> and the demonstrative remains in its post-nominal position, or if el is not present, the demonstrative raises to an initial position:

- i) a. el hombre este  
       the man this  
       'this man'
- b. \* hombre este
- c. este<sub>i</sub> hombre t<sub>i</sub>

In Chinese, one could suggest that when there is no modifying XP present, the head-noun in a DP itself raises and fills the head-position D<sup>0</sup> so that de is simply not inserted, or that raising of an X<sup>0</sup>-head category to D<sup>0</sup> results in deletion of the head element de so that forms such as (51) will never surface.

<sup>10</sup> Note too the suggestive fact that both these types of modifiers are elements which occur marked by de in Chinese.

A second example of essentially the same phenomenon can be given from Vietnamese. Bisang (1997) argues that classifiers are not always necessary for counting in Vietnamese and that it is therefore possible to have a numeral with a noun without a classifier as in (53):

- 53)      trong nha-hat kia co muoi-bay ghe  
          in    cinema this are 17        chairs  
          ‘There are 17 chairs in this cinema.’

However, if a further modifying expression is added in to (53), use of the classifier becomes obligatory, as illustrated in (54) - therefore a clear link obtains between the occurrence of a modifying expression and that of a determiner-like element, classifiers in many languages having clear determiner-like properties - see Cheng & Sybesma (1996) on Cantonese, Daley (1995) on Vietnamese, also Simpson (1997):

- 54)      trong nha-hat kia co muoi-bay \*(cai) ghe lam bang cay tot  
          in    cinema this are 17            CL chairs made of wood good  
          ‘There are 17 chairs made of good wood in this cinema.’

Further examples can actually be given from English. Whereas sequences of determiners and quantifiers such as the every boy are not normally licensed (as in Hungarian), when an additional modifying possessor phrase is added on, this seems to make such sequences quite acceptable and the determiner is in fact licensed to appear with the quantifier:

- 55)      \*the every whim  
56)      the every whim [of Margaret Thatcher]

(57-59) below show a similar patterning, this time with a relative clause. Whereas (57) is grammatical with a *demonstrative*, if the demonstrative is replaced with a determiner, the sequence immediately becomes unacceptable (58). This illicit presence of the determiner can then however be licensed by the addition of a modifying relative clause, so again the presence of the determiner is dependent on that of the relative clause:

- 57)      that sweater of John’s (is expensive)  
58)      \*the sweater of John’s (is expensive)

59) the sweater of John's [that you showed me last night]

Another quite parallel case is noted in Kayne (1994) - in English names can only be accompanied by determiners if there is also an additional modifying relative clause, as shown by the contrast in (60) and (61):

60) \*the Rome

61) the Rome [that I love]

Throughout all of these cases we see that the presence of the determiner depends on the presence of a second modifying element, which is exactly what we find with de in Mandarin. The determiners seem to be intrinsically bound up with restrictive modification, and I would like to suggest that this is indeed a primary function of the determiners here - although they may also function as place-holders and display signs of definiteness concord, the connection to modification and predication would really seem to be very strong. Here we may also reflect back on earlier examples from Romanian, Albanian and other languages where it was shown that adjectives introducing properties of the head noun are all marked with a determiner, this in addition to the presence of a determiner on the head noun, as for example in (17) repeated here:

17) ha-bayit ha-gadol  
the-house the-big  
'the big house'

Generally then it is actually quite common for restrictive predication on a noun to be introduced by means of a determiner. It is tempting therefore to suggest that the determiner in these instances provides something like a visible externalized variable allowing an unsaturated predicate to be interpreted as modifying some other element, and this is how I would like to propose analyzing Chinese de - as an element of this same determiner class used to introduce a predicative restriction on some nominal. This function of de parallel to that of clear determiners in other environments may then be held directly responsible for the fact that sequences such as \*ren-de in (51) do not occur - de obligatorily introduces a restriction on the head noun and none is present in such sequences.<sup>11 12 13</sup>

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<sup>11</sup> Given the obligatory occurrence of a modifying expression with de and the frequent occurrence of determiners with adjectives etc in other languages, one might then ask what allows for a determiner to occur with a bare unmodified nominal in languages like English, i.e. simple sequences such as 'the book'. If one argues that a primary function of determiners is possibly always to provide some kind of variable for a restrictive predication relation, one

## 5. DP structure, complements and adjuncts

Having arrived at a characterization of de as a determiner in the preceding sections, I would now like to try to show how such an analysis of de may

might suggest that there is actually some kind of hidden restrictive modificational expression understood from context and present in such sequences, possibly bound by an empty topic-like operator in SpecDP as below:

- i) [DP Op<sub>i</sub> [D the [ book ] e<sub>i</sub> ]]

<sup>12</sup> An alternative (but rather unrevealing) way to capture the fact that de co-occurs not just with a bare noun but necessarily also with some kind of modifier is to suggest that this is simply due to the syntactic sub-categorization requirements which de has - if de specifically selects for a CP complement rather than an NP complement (as indeed suggested here), then in addition to the head-noun following de there will clearly also always be a clausal modifier present (raised to SpecDP after relativization of the head-noun to SpecCP).

<sup>13</sup> In connection with the ‘\*ren-de’-problem, an anonymous reviewer asks why it is that an intermediate form such as (i) cannot give rise to a surface form (ii) via raising to SpecDP of the NP rather than the IP:

- (i) [de [[NP shu]<sub>i</sub> [IP wo mai t<sub>i</sub>]]]  
(ii) \*[[[NP shu]<sub>i</sub>]; [de [t<sub>i</sub> [IP wo mai t<sub>i</sub>]]]]  
(iii) [[IP wo mai t<sub>i</sub>]<sub>k</sub> de [[NP shu]<sub>i</sub> t<sub>k</sub> ]]

If movement of the IP to SpecDP is triggered by a need to provide phonological support for de, one might wonder why the NP could not be raised to SpecDP to provide this phonological support instead of the IP. This, I believe, can arguably be ascribed to the selective nature that clitics are cross-linguistically observed to show and the fact that clitics vary quite considerably with regard to their tolerance of different phonological hosts. Whereas certain clitics may allow attachment to a wide variety of hosts, others appear to be rather intolerant and target only a single specific type of host (as e.g. the pronominal clitics in Romance languages). Chinese de can therefore be suggested to be highly selective in this latter way and only target/attract a clausal IP constituent, not NPs or any other type of element; in the Minimalist model of syntax this may be achieved by assuming that de is base-generated with strong *v*-(or T)-features which are satisfied when a clause headed by an element with *v*-features is attracted to the Specifier of DP (it can also be noted that movement of the full IP rather than just the I<sup>0</sup>/V<sup>0</sup> carrying the *v*-features may be forced by the Head Movement Constraint - head-movement of I<sup>0</sup>/V<sup>0</sup> alone might well be impossible across the intervening C<sup>0</sup> head).

This answer to the question of why (ii) is not permitted will in fact also provide an alternative solution to the ‘\*ren-de’ problem (as the same reviewer suggests) - if de will only tolerate (can only attract) an IP to its Spec for phonological support, then the non-occurrence of ‘\*ren-de’ forms will be straightforwardly ruled out - ren as an NP will simply fail to satisfy the highly selective enclitic requirements projected by de. Note that possessor structures such as (iv) which might appear to pose a problem for such a view are analyzed in Simpson (1998) as relative clause-type structures containing a null verb of predication. Consequently the constituent to the left of de is (suggested to be) an IP out of which the head-noun shu has been relativized and the IP-requirement imposed by de is indeed uniformly maintained:

- (iv) [IP wo t<sub>i</sub> ]<sub>k</sub> de [[shu]<sub>i</sub> t<sub>k</sub> ]  
I DE book  
‘my book’

lead to a simplified view of DP structure in Chinese which accounts quite simply for the apparent head-final character of NPs/DPs and suggests that the NP/DP is instead a fully regular head-initial phrasal-type. The commonly held assumption that DPs/NPs are head-final in Chinese is otherwise rather problematic, both for the reason that head-final categories are argued not to exist in theories such as Kayne (1994) and more generally because Chinese seems to be consistently head-initial in all its other categories - in PPs, VPs, IPs (with auxiliary verbs preceding the VP), and in CP (with elements such as ruguo and yaoshi etc occurring in C<sup>0</sup> and preceding IP). The NP/DP would then really be quite exceptional if it were to actually be head-final.

To begin with, I would just like to recap what has been proposed along the way in sections 2-4. Underlyingly I have suggested that the structure of the DP is basically as represented in (62):

62) (DeicticP?)      Q      D<sub>(de)</sub>      Poss      Dem      Num      N

Such a structure also coincides exactly with that found in Hungarian, English<sup>14</sup> and many other languages and so would seem to receive cross-linguistic support if DPs are assumed to exhibit a universal type of hierarchical organisation.

Turning now to other elements which occur DP-internally, Lin (1994) and Tang (1990) have suggested that there is actually no distinction between complements and adjuncts within Chinese DPs because adjuncts regularly occur separating complement-type elements from their potential selecting head nouns, as in (53):

63)      Zhangsan [dui Lisi]      yanli de piping  
          Zhangsan towards Lisi      severe DE criticism  
          ‘Zhangsan’s severe criticism of Lisi’

Tsao (1997) however shows that ordering restrictions which do seem to reflect a complement/adjunct distinction are to be found when both elements are clausal, as in examples (64) and (65) which show that a clausal complement must indeed occur adjacent to the selecting noun and an adjunct clause may not intervene:

64)      [wo zuotian tingdao]-de [Deng Xiao-ping shishi]-de xiaoxi  
          I yesterday hear DE      Deng Xiao-ping die      DE news  
          ‘the news that Deng Xiao-ping had died which I heard yesterday’

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<sup>14</sup> For evidence that demonstratives and numerals occur base-generated below possessors in English see Simpson (1997).

- 65) \* [Deng Xiao-ping shishi]-de [wo zuotian tingdao]-de xiaoxi  
 Deng Xiao-ping die DE I yesterday hear DE news  
 ‘the news that Deng Xiao-ping had died which I heard yesterday’

Assuming this to be a valid indication of a complement/adjunct distinction, it suggests that [dui Lisi] in (63) is also a complement which must have undergone *movement* away from its base-generated position. Now, if the complement PP has indeed been moved, there is no real reason to assume that it has been moved from a position *preceding* the noun rather than from a *post-N* position - i.e. there is no good reason for believing that Chinese is underlyingly N-final rather than N-initial as the complement of a noun might always seem to be forced to undergo some kind of movement away from its base-generated position (and hence one can never be sure where exactly the base position actually was).

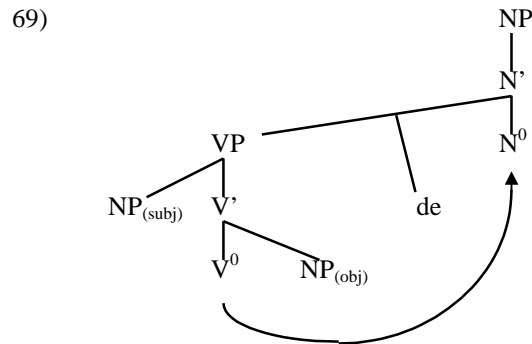
Continuing on, Fu (1994) provides convincing arguments that elements occurring with *process* nominals in Chinese really are arguments and contrast in their behaviour with similar elements occurring with result nominals and other non-verbal nouns which appear more genuinely adjunct-like. Process nominals are distinguished from result nominal equivalents by occurring with special classifiers (ci, bian and hui), and with the process light verb jinxing and by being compatible with ‘time-how-long’ adverbs rather than ‘time-when’ adverbs. Using such tests, Fu shows first of all that the complement of a process nominal must indeed be present, as illustrated in (66):

- 66) ta ??(dui zaiqing) de baodao jinxing-le san-ge-xiaoshi  
 he towards disaster DE report last Asp 3-CL-hours  
 ‘His reporting of the disaster lasted three hours.’

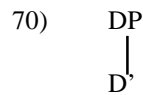
Secondly it is shown that only a single instance of the element de occurs with process nominals; in contrast to result nominals neither the subject argument nor a PP may be marked with an additional de in process nominals:

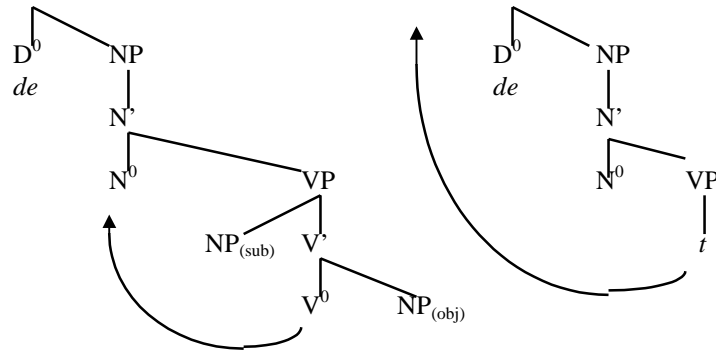
- 67) [Lisi (\*de) dui zhei-ge anjian de diaocha] jinxing-le yi-ge-xiaoshi  
 Lisi DE to this CL case DE investigation last Asp 1-CL-hour  
 ‘Lisi’s investigation of this case lasted an hour.’
- 68) [ta zai zher (\*de) dui zhei-ge anjian de diaocha] jinxing-le yi-ge-xiaoshi  
 he here DE to this CL case DE investigation last Asp 1-CL-hour  
 ‘His investigation of this case here lasted an hour.’

Fu suggests that process nominals are syntactically derived from underlying VPs, pointing out that the linear sequence of all elements associated with a process nominal precisely follows that found in VPs and contrasts with the more varied order of the same elements in non-process nominals. Fu proposes that the  $V^0$  head of the posited underlying VP raises rightwards past de to a head-final  $N^0$  resulting in a deverbal derived nominal with many of the properties of VPs, abstractly as indicated in (69):



While agreeing with much of the argumentation in Fu, I suggest that the derivation actually proceeds in a different direction. One potential shortcoming of the analysis given by Fu is that it is not clear what position de occurs in, and why as an  $X^0$  category it does not block head-movement of the verb and give rise to a HMC violation. I would like to propose that the relevant structure underlying process nominals is not in fact head-final but a fully regular head-initial structure, that the verb does raise to  $N^0$  as Fu suggests but in a leftward movement, followed by raising of the remnant VP higher to SpecDP (with de in  $D^0$ ) as in (70) and (71), noting that in such a derivation there will be no HMC violation and no new assumptions are needed to account for the structure:





In this fairly simple way it can be seen how an NP may come to appear to be strongly head-final. To illustrate the derivation with a concrete example, sentence (63) will have a straightforward head-initial underlying form (72) which subsequently gets converted into the surface form via two applications of movement - first V-to-N in (73) and then VP-remnant to SpecDP as in (74):

72) [DP de [NP [VP Zhangsan dui Lisi yanli piping ]

73) [DP de [NP [N piping<sub>i</sub> [VP Zhangsan dui Lisi yanli t<sub>i</sub> ]

74) [DP [VP Zhangsan dui Lisi yanli t<sub>i</sub> ]<sub>k</sub> de [NP [N piping<sub>i</sub> t<sub>k</sub> ]]]

Note that it is no longer particularly problematic that the complement of the noun head [dui Lisi] is not adjacent to the noun, appearing to be separated by the adjunct yanli - essentially the position of yanli between [dui Lisi] and piping is fully due to its position in the corresponding VP. A single de occurs in D<sup>0</sup> and the VP is attracted to SpecDP for the same reasons as in other cases, to support the clitic-like D-element de. In short, a simple explanation of the word order facts is provided in a principled way which is fully in line with Kayne's assumption that languages are uniformly head-initial

One might then ask what happens when there are in fact two occurrences of de, and how one might account for the ordering restrictions found in examples (64) and (65). (64) will be generated in the following way. The DP object to the verb tingdao 'the news that Deng Xiao-ping died' will first have to be formed and then inserted into the larger structure (as object to tingdao). Consequently we begin with the structure in (65):

75) [DP de [NP xiaoxi [ Deng Xiao-ping shishi ]]]

(75) is then converted into (76) for the normal reasons, and inserted as object of tingdao in (77):

76) [DP [ Deng Xiao-ping shishi ]<sub>i</sub> [D de [NP xiaoxi t<sub>i</sub> ]]]

77) wo zuotian tingdao [DP Deng Xiao-ping shishi de xiaoxi]

(77) is subsequently converted into a relative clause structure where de selects a CP and the relativized element is attracted to SpecCP as in (78):

78) [DP de [CP[DP D-X-P shishi de xiaoxi] [IPwo zuotian tingdao t<sub>m</sub> ]]]

Finally the IP is attracted to SpecDP as in all regular relative clauses, resulting in the attested surface form:

79) [DP[IP wo zuotian tingdao t<sub>m</sub> ]]<sub>p</sub> [D de [CP[DP D-X-P shishi de xiaoxi] t<sub>p</sub> ]]

The reverse derivation should not be available, where the relative clause would be created first and then the complement clause built in afterwards, i.e. it should not be possible to first create a DP [wo zuotian tingdao de xiaoxi] and then somehow add in an extra initial determiner and follow this by building in the complement to the head noun xiaoxi in such a way that it could be attracted up to the initial SpecDP resulting in a form such as (78).<sup>15</sup> Consequently the proposed account of de as a determiner combined with Kayne's approach to relative clauses provides an explanation of the ordering restrictions noted by Tsao, and generally the analysis is able to make sense of the apparent surface head-final nature of Chinese NPs without the need for any radical new assumptions. Chinese can be taken to be underlyingly head-initial and fully regular in its DP structure with an internal hierarchical organisation completely parallel to that in other languages - the surface distortion of this regularity ultimately relates in large part to clitic-like properties of the element de when analyzed as a determiner.

## 6. Concluding remarks

<sup>15</sup> Such a derivation would be clearly counter-cyclic, building in a complement after the noun is embedded in higher structure.

To conclude with some brief summarizing remarks, this paper began by showing that the typologically odd combination of V-O order and N-final relative clauses together with Kayne's analysis of relativization leads to the intuitively surprising result that *de* in Chinese is actually a determiner. Rather than immediately rejecting this conclusion however, I suggested that a broad investigation of the patterning of determiners across languages provides evidence that the main initial objections to an analysis of *de* as a determiner are not in fact well-grounded. Following ideas in Szabolsci (1994), it was argued that the definiteness specification of a DP does not necessarily result from determiners as commonly believed but rather from demonstratives and quantifiers and suggested that the definiteness concord effect which may result in the choice of a definite determiner in languages such as Hungarian is either absent or simply not overtly instantiated in Chinese. The paper then considered further the function of determiners and *de* and it was shown that determiners may frequently only appear when there is some modification relation present, and hence that determiners might well have modification as a primary function in a number of languages, possibly providing an external variable in an unsaturated open predication. Finally I re-examined the general architecture of the Chinese DP and attempted to show that the analysis of *de* as a clitic-like determiner attracting some element to its Spec along with Kayne's theory of relativization and Fu's insights into process nominals ultimately leads to a view of the underlying structure of DPs in Chinese which is both highly regular and resolves the theoretical problem that Chinese DPs/NPs might appear to be exceptionally head-final in their surface word-ordering patterns.

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