

The insubordinate subordinator *de* in Mandarin Chinese: Second take^{*}

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*The so-called subordinator *de* in the nominal projection is shown to be an instantiation of different heads on the *D*-spine, among them light *n* and *D*, thus accounting for the possibility of more than one *de*. An immediate consequence of this claim is that the feature make-up of *de* is not completely identical in all cases, but partly depends on its position in the hierarchy of the extended nominal projection as well as on the nature of the modifier *XP* in its specifier. Importantly, this analysis results in a mixed head directionality for the extended nominal projection in Chinese, viz. a head-initial *D(e)P* with a head-final *NP* complement: [_{DeP} *XP* [_{De'} *de NP*]].*

1. Introduction

This article provides evidence for *de* in the nominal projection as a functional head, with the *NP* following *de* as its complement. Given *Bare Phrase Structure Theory* (cf. Chomsky 1995) where the label of a category is its head, this implies that the projection headed by *de* is a *DeP*: [_{DeP} *XP* [_{De'} *de NP*]]. The central claim of the present proposal is that *de* instantiates different heads within the extended nominal projection, among them light *n* and *D*, thus accounting for the possibility of more than one *de*. An immediate consequence of this claim is that the feature make-up of *de* is not completely identical in all cases, but partly depends on its position in the hierarchy of the extended nominal projection as well as on the nature of the *XP* in its specifier (cf. Adger & Svenonius (2011, sect. 2.3) for the variability of (second order) features). This approach incorporates basic insights of previous studies (Simpson 2001, 2003; Li 2007, Tang 2007, Cheng & Sybesma 2009, Larson 2009, Huang/Li/Li 2009, Zhang 1999, 2010 among others), but avoids their major shortcoming, which consists in extending to all cases of *XPs* an account working for a subset of *XPs* only.

Case assignment via *de* is a good example; while for nominal projections as *XP* in ‘*XP de NP*’, *de* plausibly acts as a case assigner (cf. Li 1985, Larson 2009 among others), this does not hold for adjectival phrases, *PPs* and clauses in *de*’s specifier position. In this respect, *de* resembles English *of*, assigning case to nominal, but not to verbal projections within *DP*, albeit being obligatory for both: *the possibility *(of) still finding survivors *(of) the earthquake*. In order to obtain a comprehensive analysis of *de* it is therefore indispensable to take into account the complete array of *XPs* in ‘*XP de NP*’.

The article is organized as follows. Section 2 identifies the set of possible *XPs* and demonstrates their heterogeneous nature with respect to dimensions such as case licensing and the possibility of functioning as a predicate. Against this background, the necessity to distinguish between *de* in the nominal projection and the *de* sometimes present on adverbs is established. This distinction in turn is important for the feature make-up of *de*, an issue taken up in section 3. The variability of *de*’s features is reflected in the different constraints applying to the various subprojections in *DeP* as well as the rigid order observed for these

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subprojections. Section 4 highlights the advantages of the analysis of *de* as instantiating different heads on the D-spine and compares it with Simpson's (2001, 2003) earlier proposal for *de* as *Determiner* (D), i.e. the highest head in the extended nominal projection. The section concludes with an outlook on the consequences for typological studies of the mixed head directionality characterizing the extended nominal projection in Chinese.

2. *De as head in an extended nominal projection*

2.1. The heterogeneous nature of the phrases preceding *de*

One of the reasons why *de* has eluded a satisfactory analysis so far is the heterogeneity of XPs preceding *de*. As already alluded to in the introduction, possible XPs include elements requiring case, i.e. nominal projections, as well as a whole array of XPs not involving case licensing, such as clauses, Adpositional Phrases (i.e. PPs and PostpPs), Adjectival Phrases etc.

- (1a) [DP Měili / tā] de diànnǎo¹
 Mary/ 3SG DE computer
 'Mary's/her computer'
- 1b) [NP hēi tóufǎ] de nūhái
 black hair DE girl
 'the girl with black hair'
- (1c) sān-ge [QP wǔ suì] de háizi
 3 -CL 5 year DE child
 'three five-year old children'
- (2a) [PP guānyú tiānwénxué] de zhīshì
 about astronomy DE knowledge
 'knowledge about astronomy'
- (2b) [PP duì wèntí] de kànǎ (Lü et al. 2000: 157)
 towards problem DE opinion
 'an opinion about the problem'
- (3a) [DP [PostP cāochǎng shàng/ wūzi lǐ] de rén]
 sports.ground on / room in DE person
 'the people on the sports ground/in the room'
- (3b) [DP [PostP luóji shàng] de guānxi]
 logic on DE relation
 'logical relations'
- (4a) [DP [TP nǐ jìlái Ø_i] de xìn_i]
 2SG send DE letter
 'the letter you sent'

¹ The following abbreviations are used in glossing examples: CL classifier; EXP experiential aspect; NEG negation; PART sentence-final particle; PL plural (e.g. 3PL = 3rd person plural); SG singular. The subordinator *de* under investigation is simply glossed as DE.

- (4b) [DP [TP Liú Xiáobō dé Nuòbèi'ěr jiǎng] de xiāoxi].
 Liu Xiaobo obtain Nobel prize DE news
 'the news that Liu Xiaobo obtained the Nobel prize'
- (5a) [Adj^o yuánlái] de yìsi
 original DE meaning
 'the original meaning'
- (5b) yī-ge [Adj^o fāng] de pánzi
 1 -CL square DE plate
 'a square plate'
- (5c) [AP tèbié cōngmíng] de hái zi
 particularly intelligent DE child
 'a particularly intelligent child'
- (5d) [Adj^o gāogāoxìngxìng] de hái zi
 happy DE child
 'happy children'

Concerning clausal XPs in Spec,DeP, while they have in common not to involve case assignment, they must be divided into two different cases and thereby further illustrate the variability in *de*'s feature make-up. More precisely, as already noted by Ning (1993: 64), in combination with a relative clause (4a), *de* functions as an operator binding the empty category, whereas this is clearly not the case for clausal complements (4b).²

Adjectives as XPs, finally, deserve some special attention, because they can help us to invalidate the widely held assumption (Simpson 2001, 2003; Den Dikken & Singhapreecha 2004 among others) that all XPs preceding *de* are to be derived from an underlying clausal source. (For a more detailed discussion, cf. Paul 2012.)

Note first that adjectives such as *yuánlái* 'original' - on a par with its counterparts in other languages - cannot function as predicates, due to their non-intersective meaning (cf. Aoun & Li 2003: 148ff; Paul 2005: 780ff.):

- (6a) *Zhèi-ge yìsi yuánlái
 this-CL meaning original

- (6b) *This meaning is original

Accordingly, there simply is no clausal structure available with *yuánlái* as predicate from which the modifier *yuánlái* in (5a) could have been derived.

Second, adjectives of the type *fāng* (5b) belong to the group of absolute adjectives in Chinese. These adjectives, although intersective in meaning, cannot function as predicates on their own, but need the copula *shì* plus *de* (the latter not being the same as the *de* under discussion) (cf. Paul 2005, 2010 and references therein):

- (7a) Zhèi-ge pánzi *(shì) fāng *(de)
 this-CL plate be square DE
 'This plate is square.'

² Interestingly, this likewise holds for *de*'s "predecessor" *zhě* (cf. Aldridge 2009: 245 among others) which (besides NPs) can also be preceded by complete TPs as well as TPs containing a gap, i.e. relative clauses.

Importantly, the copula and *de* are precluded for *fāng* ‘square’ as modifier, again invalidating any derivation from a clausal source:

- (7b) yī-ge [_{DP} (*shi) fāng de pánzi]
 1 -CL be square DE plate
 ‘a square plate’

Finally, “even” adjectives that can function as predicates on their own such as *cōngmíng* ‘intelligent’ (5c) nevertheless might not warrant a derivation from a relative clause when preceding *de*, either. Because in the predicative function, intersective adjectives are interpreted as indicating the comparative degree, with the standard of comparison either being implicit or mentioned in the preceding discourse (8a). As modifiers, however (8b), these same adjectives give rise to the positive degree interpretation.

- (8a) Zhèi-ge háizi cōngmíng
 this-CL child intelligent
 ‘This child is more intelligent [in comparison to somebody else].’
- (8b) zhèi -ge cōngmíng de háizi
 this-CL intelligent DE child
 ‘this intelligent child’ [Not: a child more intelligent than somebody else]

It is therefore not excluded that this meaning difference reflects a difference in the syntactic structures involved, i.e. clausal vs. non-clausal.

Last, but not least, an underlying clausal source is also excluded for PPs and PostPs, because they cannot function as predicates on their own (cf. Djamouri and Paul 2009; Djamouri/Paul/Whitman 2013; Paul 2015, chapters 3 and 4):

- (9a) * [_{TP} Tā de zhīshi [_{PP} guānyú tiānwénxué]] (cf. (2a))
 3SG DE knowledge about astronomy
 [Intended: ‘Her knowledge is about astronomy.’]
- (9b) * [_{TP} Xuéshēng [_{PostP} cāochǎng shàng / wūzi lǐ]] (cf. (3a))
 student sports.ground on / room in
 [Intended: ‘The students are on the sports ground/in the room.’]

As can be seen from the English translation, adpositional phrases in English likewise cannot function as predicates on their own, but require the presence of the copula. Accordingly, it is unfeasible to posit an underlying clausal source for all XPs.³

³ Note that Simpson's (2001, 2003) analysis of *de* as *Determiner* hinges precisely on postulating an underlying clause for every XP, a move necessary in order to transpose Kayne's analysis (1994) of relative clauses (cf. (i)) to Chinese (cf. (ii)). Accordingly, a DeP such as *wǒ de shū* ‘my book’ (iii) is derived in the same way as *wǒ zuótiān mǎi de shū* ‘the book I bought yesterday’ with a relative clause as XP (ii):

- (ia) [_{DP} the [_{CP} [_{Comp} that] [_{IP} Bill liked picture]]]
 (ib) [_{DP} the [_{CP} picture_i [_{C'} [_{Comp} that] [_{IP} Bill liked t_i]]]]
 (iia) [_{DP} de [_{CP} [_{Comp} Ø] [_{IP} wǒ zuótiān mǎi shū]]
 (iib) [_{DP} de [_{CP} shū_i [_{C'} [_{Comp} Ø] [_{IP} wǒ zuótiān mǎi t_i]]]]
 (iic) [_{DP} [_{IP} wǒ zuótiān mǎi t_i]_k [_{D'} [_D de] [_{CP} shū_i [_{C'} [_{Comp} Ø] t_k]]]]
 (iiia) [_{DP} de [_{CP} [_{Comp} Ø] [_{IP} wǒ I° [_{VP} e shū]]]]
 (iiib) [_{DP} de [_{CP} shū_i [_{Comp} Ø] [_{IP} wǒ I° [_{VP} e t_i]]]]

The large variety of XPs preceding *de* illustrated in this section challenges any attempt that wants to reduce the general function of *de* to one of the subcases only, such as case licenser for nominal projections (cf. Y.-H. Audrey Li 1985, Larson 2009 among others), complementizer for relative clauses (cf. Cheng 1987) or a D selecting a CP complement (cf. Simpson 2001, 2003). The heterogeneous nature of XPs also presents a problem for any approach that first merges *de* with XP, and only in a second step combines ‘XP *de*’ with the NP (cf. among others Y.-H. Audrey Li 2007). For it is typically the specifier position that allows for a multitude of phrases of different categorial nature, whereas the selection of a complement (first merge) is much more constrained. In fact, the exclusive combination of ‘XP *de*’ with NPs precisely illustrates such a constraint, and it is far from evident how to rule out the undesired combination of ‘XP *de*’ with phrases other than NPs in the scenario above, where this is supposed to happen *after* merging of *de* with its complement XP. By contrast, the observed heterogeneity of XPs is straightforwardly accounted for by the analysis adopted here: XP occupies the specifier of DeP and *de* c-selects a nominal projection.

2.2. Nominal *de* vs adverbial *de*

In order to obtain a meaningful and coherent analysis of *de*, it is indispensable to address from the start the suggestion encountered in the literature (cf. among others Y.-H. Audrey Li 2006, Huang/Li/Li 2009: 36) that the *de* in the nominal projection discussed so far is the same as the *de* sometimes occurring with adverbs:

- (10a) [Xiǎnrán(#-*de*) [_{TP} ta bù néng lái] le]
 obviously 3SG NEG can come PART
 ‘Obviously, he cannot come.’
- (10b) [_{TP} Ta xiǎnrán(#-*de*) [bù néng lái]]
 3SG obviously NEG can come
 ‘Obviously, he cannot come.’ (Li 2006: 14; (30a-b))

In other words, an adverb preceding a TP or a verbal projection is claimed to involve the same basic structure as a complex DP, ‘XP *de* NP’, *modulo* the difference that an adverbial XP would have a TP or VP as modifiee. However, there are numerous arguments challenging this view.

First, *de* is excluded for monosyllabic adverbs and optionally present with only a small subset of di- or polysyllabic adverbs, e.g. *hūrán* ‘suddenly’, *jiànjiàn* ‘gradually, little by little’ (cf. Zhu Dexi 1956/1980: 161; Lü Shuxiang et al. 2000). No such phonotactic constraint applies to XP in the nominal projection ‘XP *de* NP’, as largely exemplified in (1) - (5) above, where XPs with any number of syllables (one, two or more) are acceptable preceding *de*. Also note in this context that the native speakers consulted differ in their judgements for the acceptability of *de* in (10a-b), some not accepting *de* at all for the adverb *xiǎnrán* in the sentence-initial topic position, but only for *xiǎnrán* in TP-internal position, and some showing the exact opposite judgements (hence my marking *de* as ‘#’). Besides, many adverbs,

(iiic) [_{DP} [_{IP} wǒ I° [_{VP} e t_i]_k [_{DP} de [_{CP} shū_i [_{Comp} Ø] t_k]]] Simpson (2001:150-52)

According to Simpson (2001: 152), “[t]he interpretation encoded in the structure created in (76) [= (iii); WP] is then essentially that of a relative clause form: ‘the book which I have’ and all that is argued to be “absent” from such sequences is a phonetically pronounced form of a verb of possession.” However, as is well-known, the position Spec,DP is open for all kinds of interpretations, not only that of “possessor” (cf. (16a) below). Accordingly, not only is this analysis questionable from a syntactic point of view, because it posits clausal sources for XPs never able to function as predicates, but it also makes wrong predictions for the semantics associated with Spec,DP in Chinese and in other languages.

“although” disyllabic or polysyllabic, never allow *de* (cf. Lü Shuxiang et al. 2000), thus challenging the optionality of *de* as implied by enclosing it in parentheses.

Second, there exists no choice for XP besides adverbs when the modifiee is a VP or a clause, in contrast to the large variety of XPs allowed in Spec, DeP when the modifiee is nominal. This is also acknowledged by Huang/Li/Li (2009: 36) who observe that “X is largely restricted to AP when Y = V, with *de* being optional even then”.

Third, even for a very small data sample, problems immediately arise of how to determine the exact categorial identity of the modifiee. Thus, while e.g. in the case of *xiǎnrán(de)* both an affirmative and a negated vP are acceptable as potential modifiee, in the case of *rènzhēnde* a negated vP is excluded, and only an affirmative vP is allowed:

- (11) Tā rènzhēn-de (*bu) zuò shì
 3SG diligently NEG do work
 ‘He works diligently.’

Furthermore, an adverb such as *rènzhēn-de*, being a manner adverb, is excluded from the sentence-initial position to the left of the subject, another difference with the sentential adverb *xiǎnrán(#-de)*. Again, this would have to be captured in terms of restriction on the possible modifiee, excluding TP in the case of *rènzhēn-de* ‘diligently’, but admitting it as a possible modifiee for *xiǎnrán(de)* ‘obviously’.

This dependency of the size and type of modifiee on the type of adverb in the XP position sharply contrasts with the straightforward c-selection of a nominal projection by the nominal *de*, irrespective of the category of XP occupying Spec, DeP. Furthermore, it is precisely the complement status of the NP to the right of *de* which allows this NP to remain covert, the resulting sequence always being analysed as a nominal projection, i.e. a DeP: [DeP XP de [NP Ø]] (cf. section 3.1 immediately below for further discussion). By contrast, for adverbial XPs, there exists no well-formed sequence ‘(S) adv *de* [vP Ø]’ on a par with [DeP XP *de* [NP Ø]], indicating that the vP modifiee is not a complement selected by the *de* attached to the adverb. An adverb on its own might at best serve as a one-word answer, but in that case does not imply the presence of a covert XP of a fixed categorial type corresponding to a modifiee.

The fundamental difference between the nominal *de* under investigation and the *de* sometimes occurring with adverbs is also backed up by dialectal and historical evidence, as demonstrated by Zhu Dexi (1961, 1980b). For Modern Mandarin Zhu Dexi (1961, 1980b) distinguishes three different *de*’s:

*de*₁ - with certain di/polysyllabic adverbs: *hūrán* ‘suddenly’, *jiànjàn* ‘gradually’ etc.

*de*₂ - with reduplicated adjectives (*gāogāoxìngxìng*, *hóngtōngtōng* etc.)

*de*₃ - with all kinds of XPs (NP, VP, adjectives etc.) and preceding NP

When examining this issue for Cantonese, Zhu (1980b: 162) obtains the following paradigm, where Mandarin adverbial *de*₁, adjectival *de*₂, and nominal *de*₃ are each instantiated by a different item, and where accordingly the question of their eventual identity is not raised:

kəm = Mandarin *de*₁ = adverbial

tei = Mandarin *de*₂ = with reduplicated adjectives⁴

kε = Mandarin *de*₃ = subordinator in NPs

⁴ The Cantonese data clearly show that *tei* (the equivalent of *de*₂) is part of the reduplicated adjective itself, because the presence of *kε* (equivalent of Mandarin *de*₃) is obligatory in modification structures: ‘AA*téi* *(*kε*) NP’. Accordingly, Mandarin *gāogāoxìngxìng de háizi* (cf. (5d) above) involves the haplology of *de*₂ and the nominal *de*₃, comparable to the haplology of perfective *-le* with SFP *le*, a parallel explicitly drawn by Zhu (1980b: 165, footnote 3).

Importantly, earlier stages of Mandarin – like today’s Cantonese – also had three separate items. More precisely, in the Tang-Song period, *dǐ* exclusively occurred in nominal projections where it could be preceded by all kinds of XPs: XP *dǐ* NP, thus contrasting with the two different *dì*, one exclusively occurring with adverbs, the other with reduplicated adjectives (cf. Zhu Dexi 1980b based on Lü Shūxiāng 1943).

To conclude, the historical evidence confirms the result obtained for the synchronic grammar of Modern Mandarin, i.e. the impossibility of extending the analysis of *de* in the nominal projection to adverbs when in combination with *de*.

3. The articulated structure of DP in Chinese⁵

3.1. The head-initial nature of DeP

While so far emphasis has been laid on the heterogeneity of XPs and the corresponding variation in the feature make-up of *de*, there evidently is also a “hard core” of invariable features for *de*, irrespective of the properties of the XP in its specifier. First, being a functional head in the extended nominal projection, *de* must be nominal, i.e. have the the same categorial features [-V, +N] as the lexical nominal domain it dominates (cf. among others van Riemsdijk 1998 and references therein).⁶ Furthermore, *de* has an EPP feature requiring Spec,DeP to be filled, and a c-selecting feature indicating that the complement of *de* is a nominal projection (cf. Adger & Svenonius 2011: 40; Adger 2003 among others).⁷

Importantly, this complement-NP can be overt or covert; when covert, it is licensed by *de* as head and refers to an antecedent either present in the preceding discourse or provided by the extralinguistic context. This captures the well-known fact that the empty category in the sequence ‘XP *de* Ø’ is always analysed as nominal:

- (12a) Nǐ yào nǎ zhǒng shǒujī ? Wǒ yào fěnhóngsè de [NP Ø]
 2SG want which kind mobile.phone 1SG want pink DE
 ‘What kind of mobile phone do you want? I want a pink one.’

The licensing relation between a head and its complement allowing the latter to remain covert also holds elsewhere in Chinese grammar, e.g. between a classifier and its NP complement:⁸

- (12b) Tā jīntiān kàn -le liǎng-bù diànyǐng, wǒ kàn -le sān-bù [NP Ø]
 3SG today watch-PERF 2 -CL film 1SG watch-PERF 3 -CL
 ‘He watched two films today, I watched three.’

Accordingly, the sequence ‘XP *de* Ø’ is not a headless NP as assumed so far, but rather a complementless DeP: [_{DeP} XP [_{De} [_{De°} *de*] [_{NP} Ø]]]. It is analysed as a nominal projection due to *de*’s categorial [-V,+N] feature. Note that this is on a par with English ‘*s* as in *This is Peter’s mobile phone, and that is John’s (mobile phone)*.

⁵ In the following, *DeP* refers to the projection containing one or several *de*, and *DP* is short for the highest DeP closing off the nominal projection. The term *NP* is used here as cover term for *nominal projections* in general, i.e. the lexical NP plus functional layers as well as DeP.

⁶ Van Riemsdijk (1998: 4) formulates this as the “*Categorial Identity Thesis*: In the unmarked case the lexical head and the corresponding functional head have the same categorial features.”

⁷ This might also be captured by a functional sequence of categorial features, in analogy with the sequence established for the clause: C over T over *v* over V. Cf. Adger & Svenonius (2011: 40) for these two alternatives.

⁸ As pointed out by the reviewer, head status is only a necessary, but not a sufficient condition for allowing a covert complement, given that e.g. demonstratives and numerals always require an overt complement. While both *de* and classifiers may license a covert complement, they cannot be conflated (*contra* Cheng & Sybesma 2009), but involve separate heads with distinct syntactic and semantic properties (cf. Niina Ning Zhang 2012).

In other words, Chinese is a language with a head-initial DeP and a head-final NP, the latter evidenced by cases of *de*-less modification such as [_{NP} *cōngmíng rén*] ‘intelligent person’ where the modifier always precedes the head noun (cf. section 3.3 below). When examining the headedness of the nominal projection in Chinese it is therefore necessary to distinguish between the functional layer(s) headed by different instantiations of *de*, on the one hand, and the lexical domain NP, on the other (*contra* among others Simpson 2003: 74 who postulates a uniformly head-initial nature for NP/DP, thus incorrectly conflating these two domains). Note that the same situation obtains for Japanese where the lexical NP is head-final, but the (recursive) DP head-initial (cf. Whitman 2001).

The head-initial nature of DeP implies that *de* as head first merges with the NP-complement to its right, i.e. forms a constituent with this NP (overt or covert). This is the exact opposite of what is observed in phonology where the XP preceding *de* forms a phrase with *de*. This phonological dependency has often been mistaken as reflecting the underlying structural relationship and has led many researchers to postulate an analysis where XP and *de* form a constituent, which in turn is either adjoined to NP or assumed to occupy Spec, NP (cf. among others Y.-H. Audrey Li 2007). However, the situation observed for Chinese *de* where syntax and phonology do not match is not exceptional, because it also holds for English, as emphasized by Whitman (2001: 78): “[...] possessive ‘s in English [...] provides probably the best-known model for a phrasal head *qua* phonological dependent on its specifier (Abney 1987, Chomsky 1995: 263).”

This issue is also addressed by Niina Ning Zhang (2010: 98) who explicitly points out that phonological phrases are not necessarily isomorphic with syntactic constituents. One of her main arguments for *de* plus NP as a constituent is precisely the acceptability of the sequence ‘XP *de* Ø’ as discussed above, which can be straightforwardly accounted for if the relationship between *de* and the empty category is that between a head and its complement, thus licensing Ø.⁹ This sharply contrasts with nominal projections without *de*, i.e. *de*-less modification where no empty category, more precisely no empty nominal head is allowed: *[_{NP} Adjective [_{N°} Ø]] (Niina Ning Zhang 1999: 102-3). It is not obvious how these facts can be accounted for in a scenario where ‘XP *de*’ is adjoined to NP or hosted by Spec, NP.

Last, but not least, the usual tests for constituenthood (such as movement etc.) cannot be applied to ‘*de* NP’, due to the EPP feature on *de*. In other words, ‘*de* NP’ on its own never constitutes a well-formed sequence, not because it does not represent a constituent, but because the EPP feature always requires Spec,DeP to be projected and filled.¹⁰ In this respect, ‘*de* NP’ again resembles English ‘s where the sequence ‘s NP (*’s book) is likewise ill-formed.

3.2. The different subprojections within DeP

So far I have provided evidence for the structure of the minimal nominal projection containing *de*, i.e. ‘XP *de* NP’ where NP is the complement c-selected by *de* as the head, and XP occupies its specifier position. Given *Bare Phrase Structure Theory* (cf. Chomsky 1995) where the label of a category is its head, this implies that the projection headed by *de* is a DeP: [_{DeP} XP [_{De°} *de* NP]].

This section now turns to the properties of *de* itself. Since nominal projections with several *de*’s are very common in Mandarin Chinese (also cf. the data to be provided in this

⁹ Note, however, that according to Niina Ning Zhang (2010 : 105) *de* itself does not have any intrinsic categorial features, but obtains them from the nominal or verbal “kernel” element it combines with. Accordingly, in her analysis it is an intrinsically feature-less head *de* that c-selects a complement and licenses its remaining covert, a not unproblematic assumption.

¹⁰ Thanks to Lin Jo-wang for raising this issue.

section), the main claim put forward here is to a certain extent self-evident, viz that these instances of *de* cannot be completely identical, because they head different projection in the hierarchy of the nominal projection. This is reflected in the constraints on XP and the observed rigid order of the subprojections involved.

Let us first turn to NPs having an argument structure and assigning theta-roles. The well-known interpretational facts observed here, namely the rigid hierarchical order ‘XP[=possessor] *de* YP[=theme] *de* NP’ (cf. Fu Jingqi 1987, Tang Chih-Chen 1990 among others) can now be neatly captured by an articulated nominal projection:¹¹

- (13) [DP Zhāngsān [D' de [_{nP} Lǐsì [_n de [_{NP} zhàopiàn t_{Lisi}]]]]]¹²
 Zhangsan DE Lisi DE photograph
 ‘Zhangsan’s photograph(s) of Lisi’ [not: ‘Lisi’s photograph(s) of Zhangsan’]

As indicated in (13), the argument of N bearing the theme role, *Lisi*, is hosted within *nP*, while the possessor *Zhangsan* occupies Spec,DP. The unavailability of the interpretation ‘Lisi’s photograph(s) of Zhangsan’ indicates that an argument of N must be realized within *nP*, where *nP* is the next higher projection above the lexical domain NP and below DP.¹³ Also note that *n* being realized by *de*, there is no N-to-*n* movement in Chinese, unlike English (cf. Adger 2003).¹⁴ Example (14) illustrates the same constraints, but this time for an agent instead of a theme role:¹⁵

- (14) [DP Zhāngsān [D' de [_{nP} Lǚ Shūxiāng [_n de [_{NP} shū t_{Zhangsan}]]]]]
 Zhangsan DE Lǚ shuxiang DE book
 ‘Zhangsan’s books by Lǚ Shuxiang’ [not: ‘Lǚ Shuxiang’s books by Zhangsan’]

As to be expected, when a noun such as *zhàopiàn* ‘photograph’ or *shū* ‘book’ is preceded by one XP only, this XP can be interpreted in several ways (theme or agent, possessor etc; cf. Fu 1987: 62), implying different parsing possibilities. More precisely, the

¹¹ As will become obvious in the remainder of this article, the analysis presented here owes much to Fu Jingqi’s (1987) thesis. Since this thesis was written before the advent of the DP-hypothesis (cf. Abney 1987), the generalizations obtained are formulated in terms of X-bar theory, *modulo* the difference that Fu Jingqi adopts a three-layered NP, unlike Jackendoff’s (1977) two-layered NP. This framework had the disadvantage of obscuring the major borderline between the lexical domain NP, including *de*-less modification [_{NP} adjective/noun N°] (a phenomenon limited to N-bar for Fu Jingqi), on the one hand, and the functional layer(s) headed by *de* above NP. Another distinction turning out to be crucial for an adequate analysis of *de*, i.e. the introduction of light *n* hosting arguments of N, was also introduced much later only.

¹² Following current practice in the literature, for expository purposes I use the bar-level notation of X-bar theory in labelled bracketings. In a representation consistent with bare phrase structure, intermediate levels such as *n*-bar would also be noted as *nP* and then be identifiable as non-maximal projection by virtue of being dominated by another *nP*.

¹³ An analysis of *de* as *n* was already proposed by Niina Ning Zhang (1999):

(i) [DP nà [_{NumP} sān [ge [_{nP} mài yīnliǎo de]]]] zǒu-le (Zhang 1999: 38, (28))
 that 3 CL sell beverage DE leave-PER
 ‘Those three beverage sellers have left.’

However, given the interpretational differences observed in (13) for Spec,*nP* vs. Spec,DP and the different positional constraints for complement clauses vs. relative clauses (cf. (26a-b) below), Zhang’s overall analysis of *de* as *n* cannot be successfully implemented.

¹⁴ Also cf. Aldridge (2009) where Classical Chinese *zhě* - the “precursor” of *de* - realizes *n* and where accordingly there is no N-to-*n* raising, either.

¹⁵ As noted by the reviewer, the DP in (14) itself can be the complement of a classifier preceded by a demonstrative pronoun such as *zhè* ‘this’: in this case, it is *zhè* ‘this’ that instantiates the highest DP:

(i) [DP zhè [_{CIP} (sān) běn [DP Zhāngsān [D' de [_{nP} Lǚ Shūxiāng [_n de [_{NP} shū t_{Zhangsan}]]]]]]
 this 3 CL Zhangsan DE Lǚ shuxiang DE book
 ‘these (three) books of Zhangsan by Lǚ Shuxiang’

multiple ambiguity observed for the sequence *Zhāngsan de zhàopiàn/shū* ‘Zhangsan’s photograph/book(s)’ in (15a) can be captured by assigning two different structures: (15b) with *Zhangsan* in Spec,*nP* corresponds to the readings where Zhangsan is assigned a theta-role (agent or patient) by the head noun, while (15c) with Zhangsan in Spec,DP accounts for the other possible readings (possessor etc.).

(15a) *Zhāngsān de zhàopiàn / shū*
Zhangsan DE photograph / book

(15b) [_{NP} *Zhāngsān* [_n’ de [_{NP} *zhàopiàn / shū*]]]
Zhangsan DE photograph / book
‘the photograph(s) of Z [=patient]’; Z’s [=agent] book(s)’

(15c) [_{DP} *Zhāngsān* [_D’ de [_{NP} *zhàopiàn / shū*]]]
Zhangsan DE photograph / book
‘Z’s photograph(s)/book(s), i.e. the photograph(s)/book(s) he possesses, bought etc.’

The multiple interpretations possible in (15c) tie in nicely with the semantic “openness” of Spec,DP known from other languages. In fact, Zhu Dexi (1980a: 82) already made observations along these lines in providing paraphrases for the possible interpretations of the XP preceding *de*; in addition, the choice of his examples highlights the importance of the head noun for the readings assigned to XP; while *huà* ‘painting’ can assign a theta-role (here *theme*) to XP, *bēizi* ‘cup’ cannot:

(16a) [_{DP} *xiaǒxióngmāo* [_D’ de [_{NP} *bēizi*]]] (= Zhu Dexi 1980a: 82: (12), (13))
panda.bear DE cup
(i) *yǒu xiaǒxióngmāo tú’àn de bēizi*
have panda.bear design DE cup
‘a cup with a panda bear design’
(ii) *shùyú xiaǒxióngmāo de bēizi*
belong panda.bear DE cup
‘a cup which belongs to the panda bear’

(16b) *dàocǎorén de huà*
scarecrow DE painting
(i) *huà de shì dàocǎorén* = [_{NP} *dàocǎorén* [_n’ de [_{NP} *huà*]]]
paint DE be scarecrow
‘the painted one is the scarecrow’
(ii) *shùyú dàocǎorén de huà* = [_{DP} *dàocǎorén* [_D’ de [_{NP} *huà*]]]
belong scarecrow DE painting
‘a painting belonging to the scarecrow’

Transposed into the terms of my analysis, *xiaǒxióngmāo* ‘panda bear’ in (16a) occupies Spec,DP, a position giving rise to both readings in (i) and (ii). By contrast, (16b) is on a par with (15a) (where the head noun can likewise assign a theta-role to the XP), i.e. the two interpretations obtained for (16b) correspond to two different structures, an *nP* for (16bi) and a DP for (16bii).

Importantly, when a noun has more than one argument, they are hosted in the same *nP*:

- (17) [_{nP} Zhāngsān (*de₁) [_{PP} duì zhè jiàn shì] [_{n'} de₂ [_{NP} fǎnyìng t_{PP}]]]
 Zhangsan DE towards this CL matter DE reaction
 ‘Zhangsan’s reaction towards this matter’ (Fu 1987:262ff.)

The unacceptability of *de*₁ between the agent and the patient (i) requires to posit multiple specifiers within *nP* (cf. Adger & Svenonius 2011, Georgi & Müller 2010) and (ii) indicates the lack of raising to Spec, DP for arguments of N. Chinese thus differs from English where the agent may further raise to Spec, DP (cf. Adger 2003): *the reaction of John towards that matter*; *John’s reaction towards that matter*.

The comparison of (17) with (18) indicates the need to distinguish between structures where *de* is unacceptable precisely because no position is available (cf. (17)), on the one hand, and structures where the head position is present, but optionally not spelt out by *de* (cf. (18)), on the other:

- (18a) tā (de) jiějie (de) yuánlái (#de) zhàngfu de gēgē de shǒubiǎo
 3SG DE sister DE former DE husband DE brother DE watch
 ‘the watch of the brother of his sister’s former husband’ Fu 1987: 287, (58)¹⁶

As indicated by the translation, the possessor of *shǒubiǎo* ‘watch’ itself is a complex DP. It is within that complex DP, more precisely within the possessor DP occupying the specifier position of the highest D (selecting *gēgē* ‘brother’ as complement) that D can, but need not be spelt out by *de*. The internal hierarchy becomes more transparent when the optional instances of *de* are omitted:

- (18b) [_{DPshoubiao} [_{DPgege} [_{DPzhangfu} tā jiějie yuánlái de zhàngfu] de gēgē] de shǒubiǎo
 3SG sister former DE husband DE brother DE watch
 ‘the watch of [the brother of [his sister’s former husband]]’

In other words, the heads that may remain covert are D heads and their covert or overt nature does not seem to have a semantic impact (cf. section 3.4 below for further discussion). This is important with respect to *de*-less modification discussed in the next section.

3.3. De-less modification

The preceding discussion sheds a new light on *de*-less modification, where an adjective or a noun is directly juxtaposed with the head noun without *de*, as in *hēi tóufǎ* ‘black hair’, *yángé guīdìng* ‘strict regulations’, *cōngmíng rén* ‘intelligent person’. Since the “corresponding” structure with *de*: ‘A *de* N’ is semantically clearly different (Tang 1979, Zhu 1984 among others) this is not a case of optionally pronouncing *de* in the same structure (as suggested by Cinque 2010: 97); on the contrary, two separate structures are involved, an NP [_{NP} A/N N] and a DeP [_{DeP} AP/NP *de* NP]:

- (19a) Nǐ shì ge [_{NP} cōngmíng rén], wǒ bù bī duō jiěshì (Tang 1979: 147)
 2SG be CL intelligent person 1SG NEG must much explain
 ‘You are somebody intelligent, I don’t need to explain much.’
- (19b) Yī-ge [_{DeP} cōngmíng de rén] bù huì zuò zhèyàng hǔtu de shìqíng
 1 -CL intelligent DE person NEG will do such muddle-headed DE matter
 ‘An intelligent person would not do such a muddle-headed thing.’

¹⁶ While for Fu Jingqi (1987) all instances of *de* enclosed in parentheses are optional, the native speakers consulted by me require *de* between *yuánlái* and *zhàngfu*, whence the marking by ‘#’.

Admittedly, the semantic difference associated with the absence or presence of *de* is rather subtle: with the *de*-less modification structure, a new subcategory is established, where the modifier is presented as a defining property of the resulting new subcategory, here *cōngmíng rén* (cf. Paul 2005, 2010 for further discussion and references). While most contexts allow both types of modification structures, Fu (1987: 302) has identified a few diagnostic contexts where only the *de*-less structure is allowed, such as the identification context:

(20a) Zhè shì mùtóu (*de) zhuōzi / hēi (*de) tóujīn (Fu 1987: 302)
This be wood DE table / black DE scarf
'This is a wooden table/ a black scarf.'

(20b) Zhāngsān yīgerén yī-tiān kěyǐ zuò sān-zhāng mùtóu (*de) zhuōzi
Zhangsan alone 1-day can make 3-CL wood DE table
'Zhangsan on his own can make three wooden tables a day.' (Fu 1987: 292)

Furthermore, for some well-chosen examples, the meaning difference turns out to be very sharp, thus confirming the existence of two corresponding syntactic structures:

(21a) [_{NP} zhōngguó liúxuéshēng]
China student.abroad
'Chinese students (studying) abroad'

(21b) [_{DeP} zhōngguó de [_{NP} liúxuéshēng]]
China DE student.abroad
'foreign students (studying) in China'

In the *de*-less structure (21a), *zhōngguó* 'China' is merged within NP and can only be interpreted as referring to the nationality/origin (cf. Cinque 2010 for the low position of this projection in the nominal hierarchy). By contrast, in (21b), *zhōngguó* 'China' occupies Spec, DeP and can therefore be analysed as referential and definite, leading to the interpretation 'foreign students (studying) in China'. (cf. among others Wen Zhenhui 1998: 37). It follows that both structures can be combined, as in (21c):

(21c) [_{DeP} Zhōngguó de [_{NP} rìběn liúxuéshēng]] bù shǎo
China DE Japan student.abroad NEG few
'The Japanese students in China are quite numerous.'

Within the extended nominal projection, (the lowermost) *de* thus indicates the boundary between the lexical domain NP (including *de*-less modification structures [_{NP} A N], [_{NP} N N]) and the extended functional projections above NP. The function of the lowermost *de* as "semantico-syntactic divide" (cf. Paul 2005) can account for the well-known unacceptability of the sequence *A A *de* N (cf. Zhu Dexi 1956/1980; Fu Jingqi 1987: 286) under both parsings: *[A [A *de* N]] and *[A A *de* N]. This is because *de*-less modification is limited to the NP (cf. (22a)) and excluded in the functional projection(s) above (cf. (22b)). By contrast, [_{DeP} A *de* [_{NP} A (A) N]] is fine (cf. (22c-d)):

(22a) yī-tiáo [_{NP} dà hēi gǒu]
1-CL big black dog
'a big black dog'

(22b) *yī-tiáo dà hēi de gǒu
 1 -CL big black DE dog

(22c) yī-tiáo [_{DeP} dà de [_{NP} hēi gǒu]]
 1 -CL big DE black dog
 ‘a big black dog’

(22d) yī-tiáo [_{DeP} hen xiōng [_{De} de [_{NP} dà hēi gǒu]]
 1 -CL very fierce DE big black dog
 ‘a fierce big black dog’

To summarize, the structure involving *de*-less modification is not a DeP whose head remains unpronounced, but an NP, i.e. a projection where there is simply no position for the functional head *de*. This is confirmed by the meaning differences induced by the presence/absence of *de* in an otherwise identical nominal projection (cf. (21a) vs. (21b)) as well as the possibility for the *de*-less modification NP to be selected as complement by *de* (cf. (21c)).

3.4. The hierarchical constraints within DeP

The major importance of the boundary between the lexical domain NP itself and the projections above NP also reveals itself in the fact that in the case of several XPs, it is often sufficient to have one overt *de* signaling this boundary (cf. Fu 1987, ch. 4).

(23) zhōngguó (de) chéngshì (de) jūmín (de) zhùfáng (de) qíngkuàng de biànhuà
 China DE town DE resident DE housing DE situation DE change
 ‘changes in the housing situation for urban residents in China’

In (23) all instances of *de* except the one immediately preceding *biànhuà* ‘change’ are optional, *modulo* the subtle semantic differences resulting from construing different *de*-less modification structures within that DP. For example, without *de* between *chéngshì* ‘town’ and *jūmín* ‘resident’, we obtain the *de*-less modification *chéngshì jūmín* ‘urban citizen’, leading to *zhōngguó de chéngshì jūmín* ‘the urban residents in China’ (cf. (24a)). Another possible *de*-less modification NP is *zhōngguó chéngshì* ‘Chinese cities’ which then functions as possessor for *jūmín* ‘resident’ resulting in *zhōngguó chéngshì de jūmín* ‘the residents of Chinese cities’ (cf. (24b)):

(24a) zhōngguó de [_{NP} chéngshì jūmín] (de) zhùfáng (de) qíngkuàng de biànhuà
 China DE town resident DE housing DE situation DE change
 ‘changes in the housing situation for urban residents in China’

(24b) [_{NP} zhōngguó chéngshì] de jūmín (de) zhùfáng (de) qíngkuàng de biànhuà
 China town DE resident DE housing DE situation DE change
 ‘changes in the housing situation for residents of Chinese cities’

As soon as complementation (rather than modification) is involved, *de* is obligatory, i.e. complements are to be hosted in *nP*, not in NP, and thus behave on a par with NP and PP arguments of N (also cf. (14) - (17) above):

- (25) [DP_{[rel.cl.} Wǒmen tíchūlái] de [_{nP} [_{compl.clause} míngtiān qù bù qù] *(de) [_{NP} wèntí]]]
 1PL mention DE tomorrow go NEG go DE question
 ‘the question we raised whether to go there tomorrow or not’ (Fu 1987)

(25) also illustrates the rigid order between clausal complements of N and relatives clauses (cf. Fu 1987: 167), a fact reinterpreted here as the requirement for clausal complements to be merged in *nP*, not in higher DePs:

- (26a) Méi rén tīng [DeP [_{rel.cl.} gāng tí] [De' de [_{nP} [_{compl.cl.} xiān chī fàn] [_{n'} de jiànyì]]]]
 NEG person listen just raise DE first eat food DE suggestion
 ‘Nobody listens to the suggestion just made to eat first.’ (cf. Fu 1987: 167)

- (26b) *méi rén tīng [_{compl.cl.} xiān chī fàn] de [_{rel.cl.} gāng tí] de jiànyì
 NEG person listen first eat food DE just raise DE suggestion

Concerning the ordering restrictions among relative clauses themselves, observed by Hsieh (2005), Del Gobbo (2004) and Lin (2008) among others, individual-level relatives must occur closer to the head than stage-level relatives, whereas the order between relatives of the same type is free (cf. Lin 2008):

- (27a) [Wǒ zuótiān kànjiàn] de [xǐhuān qù yīnyuèhuì] de rén shì Zhāngsān
 1SG yesterday see DE like go concert DE person be Zhangsan
 ‘The person I met yesterday who likes to go to concerts is Zhangsan.’

- (27b) *[Xǐhuān qù yīnyuèhuì] de [wǒ zuótiān kànjiàn] de rén shì Zhāngsān
 like go concert DE 1SG yesterday see DE person be Zhangsan
 (Lin 2008: 842)

Denoting individual-level vs stage-level properties is thus one of the various parameters determining the hierarchy of the different DePs within the nominal projection, where the hierarchy is likewise evidenced by the ordering restrictions observed for adjectival and nominal modifiers (cf. Cinque 2010 among others for a cartographic approach to these restrictions):

- (28) [DP Zhāngsān de [DeP yuán de [_{NP} mùtóu zhuōzi]] (Fu 1987: 16)
 Zhangsan DE round DE wood table
 ‘Zhangsan’s round wooden table’

No permutation is permitted in (28), because the possessor DP must be higher than the DeP relating to shape, which in turn must dominate the lexical domain NP.

Further evidence for *de* instantiating different heads in the nominal projection with partially variable features is provided by differences in constraints observed for *de* instantiating e.g. *n* vs. the highest *de*, i.e. D:

- (29a) [xiǎo bái tù] de shū (cf. Fu Jingqi 1987: 18; my bracketing)
 small white rabbit DE book
 ‘the book about the small white rabbit’ [_{nP} [xiǎo bái tù] de shū]
 ‘the book of the small white rabbit’ [DP [xiǎo bái tù] de shū]
 (i.e. the book owned, bought etc. by the small white rabbit)

- (29b) [DP [nèi-zhī xiǎo bái tù] de shū]
 that-CL small white rabbit DE book
 possessor interpretation = dominant: ‘the book of the small white rabbit’

In other words, a phrase-initial definite XP is liable to be analysed as occupying the specifier position of the highest DeP, i.e. DP.

Note that some of the native speakers consulted likewise allow an analysis of *nèi-zhī xiǎo bái tù* as theme argument of *shū* ‘book’ in (29b). However, the same native speakers observe that the theme reading is much stronger when *nèi-zhī xiǎo bái tù* is preceded by the demonstrative *nà* ‘that’ plus classifier *běn*:

- (30) [DP *nà běn* [_{NP} [*nèi -zhī xiǎo bái tù*] de shū]]
 that CL that-CL small white rabbit DE book
 ‘that book about the small white rabbit’

This ties in with Fu’s observation for (29a-b) above insofar as *nèi-zhī xiǎo bái tù* in (30) is clearly not located in the highest projection of the DeP, the DP itself hosting the demonstrative *nà* plus classifier.

Another constraint applies to the DeP indicating material, associated with a rather low projection in Cinque’s (2010) cartography of nominal structure. This DeP cannot host referential DPs, a fact taken here as another argument for the differences between the *de*’s instantiating the heads of different subprojections:

- (31a) *[*nèi -kuài mùtóu*] de zhuōzi (cf. Fu Jingqi 1987: 20)
 that-CL wood DE table
 (*‘a table of that (piece of) wood’)

The meaning intended in (31a) must be rendered by a relative clause:

- (31b) [_{DeP} [_{Rel.Cl.} *pro yòng nà kuài mùtóu zuò*] de] zhuōzi
 use that piece wood make DE table
 ‘a table made using that piece of wood’

As indicated by the translations, the same constraint also holds for English: **a table of that piece of wood* vs. *a table made using that piece of wood*.

By contrast, a non-referential XP such as *nà zhǒng mùtóu* ‘that kind of wood’ is acceptable when indicating material:¹⁷

- (32) [_{DeP} [*nà zhǒng mùtóu*] de zhuōzi]
 that kind wood DE table
 ‘a table of that kind of wood’

Again note the parallel with English where the translation of (32) - though not perfect - is much better than that in (31a).

The existence of different constraints holding for the XPs in the specifier positions of the different subprojections in the DP reflects the differences in the properties of the respective *de* heads.

¹⁷ Thanks to the audience of the workshop for providing this example.

4. Conclusion and typological outlook

4.1. *De as instantiation of different heads on the D-spine vs. de as D*

The existence of several instances of *de* within the same extended nominal projection has been one of the major obstacles for a satisfying analysis of *de*. In particular, it renders unfeasible the equation of *de* with D, i.e. the highest head in the extended nominal projection DP (cf. Simpson 2001, 2003)), as correctly pointed out by Y.-H. Audrey Li (2006). (Note, however, that Li 2006 does not provide any derivation for multiple *de* structures within her analysis of *de* as a conjunction, either). Also recall the semantic differences observed for minimal pairs distinguished by the presence vs. absence of *de* such as *cōngmíng (de) rén* ‘intelligent person’ which cannot be captured in terms of definiteness and/or referentiality of the entire nominal projection, in contrast to the prediction of the Determiner-hypothesis à la Simpson.¹⁸

Simpson (2001: 43) dodges this problem by declaring that *de* is “a determiner whose existence in the language is no longer justified by any contribution of definiteness to the DP, but solely by a secondary function [...] of introducing a predication/modification on the NP [...]”. Simpson provides a rich sample of examples from typologically diverse languages other than Chinese in order to show the different degrees of definiteness determiners may display. By contrast, with respect to evidence internal to Chinese, the only argument for D-properties of *de* is the use of *zhī* as a demonstrative pronoun in Classical Chinese (cf. (33)), whence the relation of *zhī*’s successor *de* with the D head according to Simpson (2001, 2003).

- (33) Zhī èr chóng yòu hé zhī
these 2 worm again what know
‘And what do these two worms know?’ Zhuangzi 1.10
(Glosses, translation and source indication as in Simpson 2001:137, (37))

However, as is equally well-known and pointed out by Tang (2007), *zhī* in e.g. the same works by Zhuangzi also subordinated modifiers to a nominal modifiee, as today’s *de*:¹⁹

- (34) Yǒu rén zhī xíng , wú rén zhī qíng (Zhuangzi, Dechongfu)
have human ZHI appearance lack human ZHI feeling
‘(lit) with the form of a human being and yet without the substance of a human being’
(Glosses, translation and source indication as in Tang 2007:(52b))

Last, but not least, even if one adopted the more obvious choice of the subordinating rather than the demonstrative *zhī* as the precursor of *de*, one would still gloss over a crucial difference between *zhī* and today’s *de*, i.e. the impossibility of an empty category after *zhī*. This casts doubt on Simpson’s claim to gain insights into the nature of modern *de* from properties of Classical Chinese *zhī*. The non-existence of structures of the type ‘XP *zhī* Ø’ has in fact led scholars (Lü Shuxiang 1943/1990; Feng Chuntian 1990 among others) to posit *zhě* as the precursor of *de*, and not *zhī*. (Also cf. Aldridge 2009 for extensive discussion of *zhě* and its analysis as *n*, i.e. a head on the D-spine.)

¹⁸ Note that Simpson (2005) abandons the analysis of *de* as D and posits - without any further comments re his earlier works (Simpson 2001, 2003) - the demonstrative pronouns *zhè* ‘this’ and *nà* ‘that’ as heads of DP.

¹⁹ For a detailed critique of Simpson (2001), cf. Tang (2007); for an in-depth study of the demonstrative pronoun *zhī* since its earliest attestations in the Shang inscriptions, cf. Djamouri (1999.)

By contrast, the problems observed for Simpson's equation of *de* with D do not exist in the analysis defended here, where *de* realizes different heads on the D-spine, not only the highest one, D.²⁰ Starting from the bottom to the top, we obtain the following picture. *De* realizes *n*, i.e. the head of the projection hosting the argument(s) of a noun (including complement clauses) and as such can, but need not assign case (e.g. when the argument is a PP, cf. (2a-b) above). *De* also instantiates the (Chinese specific) projection DeP hosting XPs that are not arguments such as relative clauses, adjectival phrases, QPs, NPs, PPs. Last, but not least, *de* can also realize the highest head in the extended nominal projection, i.e. D; as in other languages, XPs occupying Spec,DP allow a wide range of interpretations in Chinese as well (cf. (14) – (16) above) and can contribute to the referentiality/definiteness of the entire nominal projection. Given these multiple functions of *de* it is self-evident that no particular semantic label such as “modifier” can be assigned to *de* (*contra* among others Rubin 2003), the modifying relation between XP and the NP being only one of the different possibilities, including e.g. the cases where XP is an argument of NP, a relation which cannot be subsumed under modification.²¹

Chinese *de* resembles Japanese *no* which likewise can show up several times within the same nominal projection: “Unlike DP-heads such as English *the* (but like English ‘s), *no* is transparent with respect to definiteness or any other type of semantic content. It may be that this kind of semantic transparency is a prerequisite for phrasal recursion of this kind.” (Whitman 2001: 92) This statement by Whitman also implies that upon further reflection, the D-elements postulated for English are not homogeneous, either, thus lending further support to the partial variability in the feature make-up of *de* proposed here. This variability exists against the backdrop of a constant set of features characterizing all realizations of *de*, as argued for above: the nominal categorial feature [-V, +N], the EPP feature requiring Spec,DeP to be filled and the c-selecting feature requiring a nominal projection as complement. Beyond this “hard core”, the feature make-up of each instantiation of *de* depends on the hierarchical position of *de* in the extended nominal projection. Accordingly, it is impossible to assign a fixed interpretational value to *de* itself (*contra* Den Dikken & Singhapreecha 2004 among others).

4.2. Chinese *de* under a typological perspective

The result obtained here is not only important for Chinese syntax itself, but also for typological studies. First, it shows the need to distinguish between the functional layer(s) in the nominal projection (headed by different instantiations of *de* in Chinese) and the lexical domain NP. Second, against the background of this more articulate view, it confirms the parallel between nominal projections in Chinese and those in Japanese, where the NP is head-final (as witnessed by ‘adjective head noun’ order) and the DP head-initial (cf. Whitman

²⁰ Simpson (2001, 2003) invokes “definiteness agreement” observed for other languages as a means to account for the presence of more than one *de*, but does not spell out at all how this is to be implemented for Chinese. Furthermore, in the light of the analysis presented here where *de* is the instantiation of different heads on the D-spine, there is precisely no “agreement” between the *de*'s, witness the existence of different constraints for the different subprojections within DeP (e.g. no referential XP for the low subprojection indicating material: **nà kuài mùtóu de zhuōzi* vs *nà zhǒng mùtóu de zhuōzi*; cf. (31) and (32) above). Last, but not least, a closer look at the constraints at work for languages with “determiner spreading” such as Greek (cf. Panagiotidis & Marinis 2011) dispels any possibility of a parallel with the Chinese case.

²¹ This likewise challenges one of the two scenarios proposed for *de* in Huang/Li/Li (2009: 36), viz. that *de* is an “adjectival functional word which turns a phrase inside a larger NP into a modifier”. When evaluating the latter possibility, they - correctly - raise the question why *de* would then be needed at all for adjectival XPs and provide the following response: “A possible answer relates this to another property of A. Unlike their English counterparts, Chinese adjectives play the role of a predicate directly, without any copula (cf. 1.1.3.2). In this use, AP behaves just like VP. It follows that an AP modifier may in fact be a relative clause, which in turn is “adjectivized” by *de*.” (Huang/Li/Li 2009: 37).

2001). Third, it forces us to reconsider crosscategorical generalizations insofar as up to now even theoretically more sophisticated analyses adopt - basically unchanged and unchallenged - the correlations established at the time of Greenberg (1966), before the advent of e.g. functional categories.

In order to obtain somewhat more meaningful correlations, it appears necessary to compare lexical projections with lexical projections and functional projections with functional projections and to pay attention to the dichotomy lexical vs. functional category within the same extended projection. In the case of Chinese, this results in correlations between the nominal projection and other categories which are quite different from the crosscategorical correlations generally cited. More precisely, DeP is now harmonic with the head-initial character of Chinese as exemplified by VO order, while the head-final NP is not. Furthermore, NP, but not DeP patterns with CP in being head-final (cf. Thomas Hun-tak Lee 1986, Paul 2014), notwithstanding the functional character of both DeP and CP. In other words, so-called “harmonic” relations seem to cut across the dichotomy between lexical and functional categories (cf. Paul 2015, ch. 8, for related discussion).

The extended nominal projection in Chinese itself turns out to be “mixed” in combining head-finality (NP) with head-initiality (DeP), as is the case for the extended nominal projection in Japanese, thus showing that Chinese is not an isolated case. Accordingly, contrary to the current practice in large scale crosslinguistic comparisons such as WALS (cf. Haspelmath et al. 2008), one cannot conflate NP and DP and invoke the head-final nature of NP/DP for Chinese. Quite on the contrary, in order to obtain meaningful results it is necessary to distinguish between the functional layer(s) and the lexical domain within the nominal projection.

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