SYNTACTIC AGREEMENT IN CHINESE NOMINAL INTERNAL STRUCTURES *

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ABSTRACT

Two nominal internal structures in Mandarin Chinese are introduced in this study, one with the order Demonstrative + Numeral + Classifier + Adjective + Noun, the other with the order Adjective + Demonstrative + Numeral + Classifier + Noun. This study assumes an AgrP between DP and NP (Yoon 1995), and movement of adjectival modifiers from Spec-NP to Spec-AgrP in Mandarin. The 'de' and the pre- 'de' segment in the Adjectives undergo a fusion process, incorporating them into a frozen AP, prior to further syntactic operations. The differences between these two options arise from successive AP movement in the latter, which supports Zhang's (2015) generalization. This cyclic movement is triggered by a strong [+foc] feature on the covert head D. This analysis supports a similar approach to left peripheries of CPs and DPs, and also empirically explains the freer position of adjectival modifiers in nominal-internal structures in Mandarin.

Key words: nominal, internal, feature, movement, agreement

1. INTRODUCTION

Two positions for the Adjective (A) are observed in nominal internal structures in Mandarin Chinese, with A either directly pre-nominal in (1), or initially pre-demonstrative in (2).

(1) Na liang-zhi huangse-de gou (adapted from Williams 1998)
DEM two-CLs yellow-DE dog
'those two yellow dogs'

(2) Huangse-de na liang-zhi gou (adapted from Williams 1998)
yellow-DE DEM two-CLs dog
'those two yellow dogs'

These two orders are considered unmarked (1) and marked (2) nominal structures in Cinque (2005), and I also label them as restrictive and non-restrictive patterns respectively, according to the differences in referential denotation (Kim 1997; Leffel 2014). The goal of this paper is to in-

* My gratitude first goes to Prof. Phil Branigan for his valuable advice and support to my research at MUN. I also thank the audiences at APLA 39 for their feedback on my presentation, the anonymous reviewers and editors for their significant comments, and the CSC for funding my overseas studies. All remaining mistakes are my own.

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vestigate the syntactic derivations in these two structures, and argue that the non-restrictive pattern involves the movement of the Adjective Phrase (AP) to Spec, AgrP. The leftward-movement provides the dislocation of AP to the pre-demonstrative order syntactically.

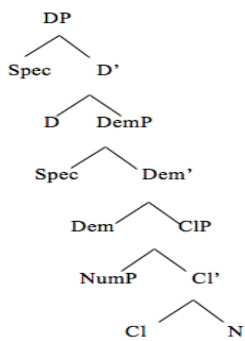
2. BACKGROUND THEORIES

This section introduces the theoretical background for this study: the DP-hypothesis in nominal-internal structures, AgrP between DP and NP; hierarchies of adjectival modifiers in nominal-internal structures; and the syntactic treatment of DE in Mandarin.

2.1. DP-hypothesis applied to Mandarin

According the DP hypothesis (Abney 1987), nominal-internal phrases in Chinese are DP headed by empty Determiner D, although bare nouns in Chinese is analysed as Noun Phrase NPs, compared to full DPs. As for the syntactic analysis of numerals and classifiers, I follow Cheng & Sybesma (1999), where the classifier projects a phrase, and the numeral merges in its Specifier. With respect to Dems, a controversy arises as to whether Dem is DP-internal (Zhang 2015) or DP-external (Alexiadou et al. 2007). The different treatments make no direct predictions for Chinese. In this study, I adopt a DP-internal approach to Dem in Mandarin, in which Dems are generated in Spec, DemP, although Wood (2008: 9) and Zhang (2015) argue for a position in Spec, DP for Dems. The structure of DP with numeral and classifier is presented in (3).

(3)



One way of composing the meanings of phrasal expressions is to compute the semantic types of their parts. Based on Jiang (2012: 59), the semantic types of numerals and classifiers are illustrated in (4).

(4) $Cl_{individual} = \lambda k \lambda n[n(AT(\cup k))]$
$= \lambda k \lambda n f\exists[n(AT(\cup k))]$
Numeral<<e,t>,<e,t>>= $\lambda P[n(P)]$ If $\alpha \in$ Num<<e,t>,<e,t>>, then
$\lambda P f\exists(\alpha(P)) \in$ Num<<e,t>,<e,t>> (according to lexical rule of ambiguous numerals, f is a choice function and is subject to existential closure (f∃) at arbitrarily chosen scope sites)

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I represent the semantic types of 'na liang-zhi gou' (those two-Cl dogs) as below.

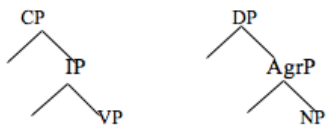
- gou (dog): e (not a set)
- zhi (Cl): <e,<e,t>> or <e,<n,t>>
- liang (two): <e,t>,<e,t> or <<e,t>,e>
- liang-zhi gou (two dogs): <e,t> or e
- na (that): <<e,t>, e>
- na liang-zhi gou (those two dogs): <e,t> or e

Bare nouns in Chinese are of type e, which does not denote a set of individuals. However, the kind-denoting usage undergoes a type-shifting operation from e to <e,t> (Bošković & Hsieh 2015), giving us a set of individuals that are in particular properties. The function of type <<e,t>,e> in demonstratives takes the Num-ClP (of type <e,t>) as its argument. The semantic types of the parts are help to understand the composition and the structure of the nominal internal phrases, and the internal DP-structure will be at work in this study of Chinese data.

2.2. AgrP

Kayne (1994) argues that there is an AgrP between DP and NP. AgrP > NP is an argumental domain. Wood (2008) further supports this idea by comparing clausal and nominal phrases. The DP-AgrP-NP in nominals matches CP-IP-VP in clauses, as is seen in (5).

(5)



Cross-linguistic agreemental markers in nominal structures are widely observed. Yoon (1990) illustrates the honorific and number agreement in noun phrases in Korean, as illustrated in (6) and (7). The honorific marker *si* attached to the adjective *emha*, and *nim* attached to the head noun *sensayng*, indicate the agreement between an adjectival modifier and a head noun in Korean in (6). The number agreement (plural marker *tul*) on the genitive NP and the head noun are also found in Korean, in (7).

(6) [$_{DP}$ Ku [$_{AP}$ emha-(si)-n] [$_{NP}$ sensayng-nim-i]] o-si-ess-ta.
the strict-HON-AM teacher-HON-NOM come-HON-PST-DEC
'the strict teacher came'

(7) Sonnim-tul-uy tochakkwangkyeng-tul
guest-PL-GEN arrival scene-PL
'the scenes of the guests' arrival'

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In this study, I will adopt the idea that AgrP projects between DP and NP in Mandarin, with the AP in the Spec, AgrP. The hierarchical treatment of prenominal adjectival modifiers is illustrated in the following section.

2.3. Hierarchies of pre-nominal adjectives

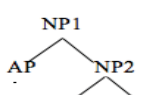
Sproat and Shih (1988; 1991) and Zhang (2015) have researched adjectival modifications in Chinese, involving DE-marked or DE-less adjectives (Zhang 2015), as well as the ordering restriction on adjectives (Sproat & Shih 1988; 1991). Sproat and Shih (1991) divide Chinese adjectives into Direct and Indirect modification, as seen in (8).

(8) a. Direct modification: qian zongtong ‘former president’
*gao ren ‘tall person’
b. Indirect modification: *qian de zongtong ‘former president’
gao de shu ‘tall tree’

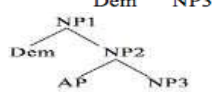
The direct modification is usually considered a closer semantic relation with the modified head noun. Cinque (2010: 55) argues that the direct adjectival modifications are generated at the lower projection, and the indirect adjectival modification is derived in the higher projection. Each adjective is in the specifier of a functional projection. Zhang (2015: 10) holds a similar view: there is a FP^{L} in a low zone and a FP^{H} in a high zone respectively. The unmarked prenominal order between adjectival modifiers and noun is illustrated below: [FP^{H} $A^{indirect}$ [FP^{L} A^{direct} N]] (Zhang 2015: 10). That is, Zhang (2015) argues for a base-generation of the (high or low) modifiers, whereas Mui (2001: 7) argues that only direct modification is generated in a hierarchical configuration, but indirect modifiers are only adjuncts.

The adjunction treatment of nominal-internal modifiers in Chinese, which justifies the flexible order of modifiers, is also found in Bošković (2014). Furthermore, Bošković (2014) provides semantic support, claiming that the semantic type of bare nouns and adjectives are of type e, and the demonstrative is also of type e, so the type-matching constraint is observed. The two structures of nominal phrases in Bošković (2014) are shown in (9).

(9) a.



b.



Two major objections against the adjunction treatment of adjectives in pre-demonstrative context are raised in Zhang (2015). First, when the pre-demonstrative modifier is a relative clause, rather than an adjectival modifier, it is impossible to have type e, as argued in Bošković (2014). Second, Bošković (2014) analyses the demonstrative and the classifier as a whole Dem constituent, by ignoring the occurrence of numerals. There is no clear motivation to syntactically combine the demonstrative and the classifier as a single constituent.

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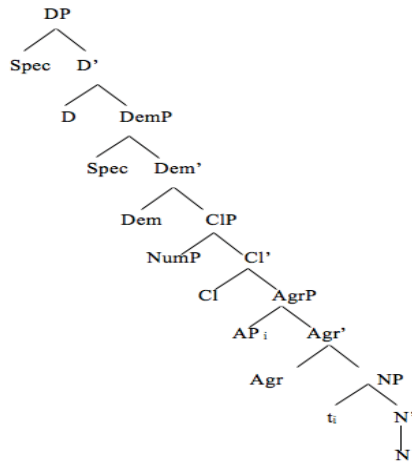
My proposal in this paper differs from both Bošković (2014) and Zhang (2015): I argue that the adjectival modifier is not base-generated, but moved from Spec,NP to Spec, AgrP, where it checks the [+agr] feature. Based on the nominal internal structure introduced in (3) in section 2.1, the pre-nominal structure is further specified in (10). This tree diagram will be employed to analyse Chinese nominal-internal structures.

(10)



2.4. Syntactic treatment of DE

There is an interesting phenomenon regarding adjectival modifiers in Mandarin: there may or may not be a marker DE in the modification structure. That is, either 'A de N' or 'A N' is found in nominal internal structures. The occurrence of DE is closely relevant to the interpretation. The DE-less modification is used to denote a new subcategory. This idea is argued by Bolinger (1967), and DE-less can be only used to express a natural and plausible class (Bolinger 1967, cited in Paul 2010). That is, DE-less modification cannot be used to establish a new subcategory by illustrating the intrinsic property of a category, such as:

(11) a. *tian fengmi
sweet honey
b. tian mantou
sweet steamed bun

'A N' and 'A de N' in this study are both analysed with phrasal status. The widely acknowledged argument for the syntactic treatment is to analyse the marker DE as a functional head, with the previous adjectival modifier and the following noun as the specifier and the complement respectively (Zhang 2015), rather than to consider it as an enclitic to the left (Huang 1989). Cinque (2010) and Zhang (2015) specify the constraint of the occurrence of DE in indirect and direct modification zones. In indirect (higher) adjectival modification, DE is present; however, it may be optional in direct adjectival modification. That is, if DE-less modification occurs in nominal-

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internal structure, there is supposed to be a lower direct modifier. In my study, I adopt the idea that subordinator DE is in the Agr head, and the adjectival modifier (pre-DE segment in surface order) is directly merged in Spec, NP, and then moves to Spec,AgrP. The marker DE and the pre-DE segment undergo a fusion process, incorporating into a frozen AP, before proceeding for any further syntactic operation in the non-restrictive pattern in Mandarin.

3. ANALYSIS OF CHINESE NOMINAL INTERNAL PATTERNS

This section focuses on the structures in (1) and (2), repeated as (12) and (13). I argue that these two patterns arise from different derivational patterns.

(12) Na liang-zhi huangse-de gou (adapted from Williams 1998)
DEM two-CLs yellow-DE dog
'those two yellow dogs'

(13) Huangse-de na liang-zhi gou (adapted from Williams 1998)
yellow-DE DEM two-CLs dog
'those two yellow dogs'

Let us start with the restrictive pattern in (12). AgrP is a functional domain between DP and NP. Following the feature-checking theory in Chomsky (1995), I assume that the strong [+agr] feature on the functional head Agr is valued and checked by moving adjectival modifiers from Spec, NP to Spec, Agr, and is spelled out as DE in PF. Then the classifier, having the numeral in its Spec, merges with AgrP. The demonstrative *na* 'that' is base-generated in the Spec, Dem, and the DP in Mandarin is headed by a covert D. Thus we have the restrictive nominal pattern, with the adjectival modifier in direct pre-nominal order.

However, for the pre-demonstrative modification in non-restrictive pattern in (13), the adjectival modifier moves from Spec, NP to Spec, AgrP first, being attracted by the [+agr] feature. In line with Tieu's (2008) analysis of verb copying in Mandarin (c.f. Tieu 2008: 857), I assume there is a fusion between the item in Spec, AgrP (pre-DE segment, as in *huangse*) and the head Agr-DE, becoming one single item, before they are proceeding for any further syntactic operation. This fusion involves morphological reanalysis. The pre-demonstrative modifier is finally derived via a successive AP-movement to Spec, DP, in response to a [+foc] feature probing from D, as shown in (14). The derivation of this example involves the movement of AP to the highest Spec, which is an A' position. This movement by-passes the intervening Specs, which have an A status. The [+foc] feature on D occurs only in the non-restrictive pattern.

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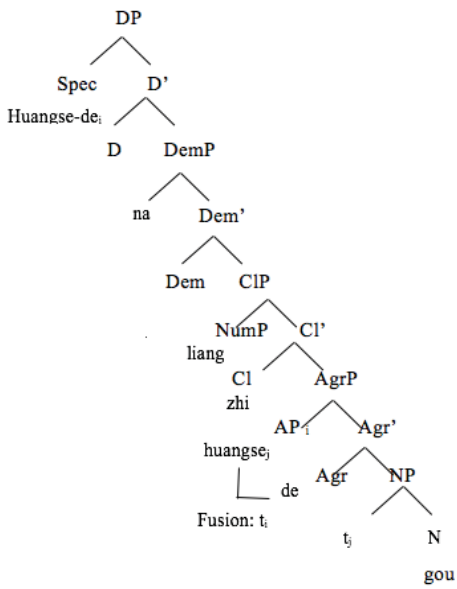
(14)



The presence of [+foc] (i.e., informational-based features) on D is theoretically supported by the symmetric features clusters in the left peripheries of CPs and DPs. Following the CP-split hypothesis (Rizzi 1997), there are discourse related projections in this field, that is, TopP and FocP. Recent studies argue for the same organization of the DP field. The contrast between the restrictive and non-restrictive structures discussed here supports this hypothesis. That is, when we factor in the prosody, we notice differences in the stress placement: As shown in (15), the noun carries the stress in the restrictive pattern, while in the non-restrictive pattern the stress falls on the adjective.

(15) a. Na liang-zhi huangse-de **gou**
that two-Cl yellow-DE dog
b. **huangse-de** na liang-zhi gou
yellow-DE that two-Cl dog

This is an argument in favor of my proposal that the non-restrictive adjectival modifier in Mandarin moves from Spec, NP to Spec, AgrP, and further to Spec, DP for the non-restrictive pattern. The presence of [+foc] on D is signalled by the stress pattern in (15b).

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4. CONCLUSIONS

This study discussed the derivation of two nominal internal structures, and argued in favor of an intermediate Agr between NP and DP in Mandarin. I argued that, within this hierarchy, adjectival modifications in Mandarin involve movement of AP to Spec, AgrP, following which, the adjective and Agr spelled out as DE undergo a fusion, yielding a frozen AP before proceeding to further operations. Furthermore, a distinction was made between restrictive and non-restrictive derivational pattern, the distinction consisting mainly in the presence of a [+foc] feature upon D in the non-restrictive pattern. This feature triggers movement of AP to Spec, DP. Hence, the conclusion is that the word order within the nominal phrase in Mandarin depends on the mapping of discourse features, within the information structure field at the left periphery of DP. Thus, this paper supports the hypothesis of an identical structure for the left peripheries of CPs and DPs.

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