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Nominal-Internal Phrasal Movement in Mandarn Chinese[1]

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Abstract

In Mandarin Chinese, the phrasal modifier or complement of a noun, usually followed by the functional element *de*, may occur either between a classifier and the noun, or at the left edge of the whole nominal, preceding a (demonstrative)-numeral-classifier string. The latter order exhibits many restrictions and thus is marked. Some of the restrictions are similar to the restrictions on the marked nominal-internal order in English. This paper argues that the marked order in Chinese is derived by a phrasal movement. The movement analysis is supported by the hierarchy of nominal-internal elements, the Superiority Condition effect, the Crossing-Over-Nesting effect, and island effect. This movement analysis is able to explain certain restrictions on the marked order, with respect to the types of modifiers, the readings of the same modifier, and *zheyang* 'such' at the left edge. The analysis also provides a possible account for the absence of nonspecific readings and the impossibility of *de*-stranding for the marked order.

Keywords: nominal, adjective, order, superiority, IMN, OMN, Chinese, ellipsis

1. Introduction

In Mandarin Chinese (Chinese henceforth), the phrasal modifier or complement of a noun, usually followed by the functional element *de*, may occur either next to the noun, as shown by the underlined part in (1a) and (2a), or away from the noun, preceding a demonstrative (if any), or a numeral, as in (1b) and (2b).[2][3] Modifiers and complements of α are called major constituents of α (Hankamer 1973: 18) (XPmc, henceforth). We call the nominals in the former order IMNs (Inner Major-constituent Nominal) and the nominals in the latter order OMNs (Outer Major-constituent Nominal).[4]

(1)	a.	*na*	*san*	*ge*	*mai-le ditan*	*de*	*ren*		IMN: XPmc = relative clause
		that	three	CL	buy-PRF carpet	DE	person		
	b.	*mai-le ditan*		*de*	*na*	*san*	*ge*	*ren*	OMN
		buy-PRF carpet		DE	that	three	CL	person	
		Both: 'the three persons who bought carpet'							
(2)	a.	*na*	*tiao*	*Sichuan dizhen*		*de*	*xiaoxi*		IMN: XPmc = complement
		that	CL	Sichuan	earthquake	DE	news		

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[2] Abbreviations used in the Chinese examples: BA: causative marker; CL: classifier; DE: associative marker; PRF: perfect aspect; IMP: imperative marker; PRT: sentence-final aspect, focus, or clause-type particle; RC: relative clause; RED: reduplicant; Q: question marker; TOP: topic marker; XPmc: phrasal major constituent.

The position between a demonstrative and a numeral is not a natural position for a modifier to me and many others, including Lin (2008: 846) and Huang et al. (2009: 215) (cf. Cheung 2012: 47-48).

[3] We use the distal demonstrative *na* 'that', instead of the proximal one *zhe* 'this' in our examples, since cross-linguistically, a distal one is underspecified for location, whereas a proximal one is specified for location and thus the distribution of the latter is more restricted (see Boef 2012).

[4] In N. Zhang (2006), M in the notions IMN and OMN means modifier. In order to cover both types of major constituents, modifiers and complements, I here extend the use of M to cover both types of major constituents.

b. *Sichuan dizhen* *de* *na* *tiao* *xiaoxi* OMN
Sichuan earthquake DE that CL news
Both: 'the news that there is an earthquake in Sichuan'

In (2b), the relation between the string *Sichuan dizhen* 'Sichuan earthquake' and the string *na tiao xiaoxi* 'that CL news' is not appositive, because of the presence of *de*. As seen in (3), *de* may not occur between the elements that have an appositive relation.

(3) *Li An (*de) na wei zhuming de daoyan*
Li An DE that CL famous DE director
'Lee Ang, the famous director'

The alternation between IMNs and OMNs is productive. For a modification construction, the word order of an IMN follows Greenberg's Universal 20 (Greenberg 1963: 87), which states that in a nominal, for a demonstrative, a numeral, and an adjective, if any or all of them precede the N, they are found in the order Dem > Num > Adj. IMNs follow this order, but OMNs do not. The order of an OMN is not well-studied (see Koopman and Sportiche 2013: p. 28, 40). It is also not seen in other article-less languages such as Serbo-Croatian (Bošković 2014: 77). How is an OMN in Chinese derived in syntax? While Huang (1982; also Huang et al. 2009: 218) and Bošković (2014) claim that in an OMN, the left edge XPmc is base-generated there, Simpson (2001), L. Zhang (2007), and Lin (2008: 857) claim that it reaches there by movement. The syntactic differences between IMNs and OMNs may correlate with certain semantic or information structure differences. Chao (1968: 286), Huang (1982), Lu (1998), N. Zhang (2006), L. Zhang (2007), Ming (2010), Ming and Chen (2010), Shi (2011: 215-220), Constant (2011), and Lin and Tsai (2013), all have made some effort to identify the exact reading differences between the two constructions, e.g., whether OMNs express a non-restrictive modification. However, we still need to find out the syntactic mechanism to build the well-formed structures of the constructions. Moreover, to my knowledge, there is no discussion of the parallel complement type of OMNs, e.g., (2). This type of OMNs has nothing to do with restrictive or non-restrictive readings, but the syntactic issue why the complement of a noun may occur in two positions remains.

In this paper, I use syntactic tests to investigate the possible derivation to build IMNs and OMNs. In so doing, I will explain certain systematic restrictions on OMNs.

I do not discuss possessive constructions (see Partee 2006). Possessive constructions are different from modification ones syntactically. They may use different functional elements (Li 2012 for Taiwan Southern Min; Jenks and Huang 2013 for Thai). Also, I do not discuss deverbal constructions (e.g., *Luoma de huimie* 'the destruction of Rome'), since their structures are not yet clear to me (see Fu 1994; Fu et al. 2001; Borer 2014).

The organization of the paper is the following. In Section 2, I introduce five formal restrictions on OMNs. In Section 3, I present my proposal and supporting arguments. The five restrictions are explained in Section 4. I then compare this analysis with two non-movement analyses in Section 5. Section 6 concludes the paper and clarifies a few additional issues.

2. Major restrictions on OMNs

2.1. *The restrictions on the types of XPmc*

All kinds of XPmc that may occur at the left edge of OMNs may also occur in a non-edge position in IMNs, but not the other way around. XPmcs that can occur in both constructions include all types of relative clause (RC), complements of various categories, and many types of modifiers. We have seen examples of RC and clausal complement constructions in (1) and (2), respectively. The XPmc is *guanyu Xizang* 'about Tibet', a PP complement, in (4). The

XPms is *hong yanse* ‘red color’, an NP modifier, in (5), *chao nan* ‘to south’, a PP modifier, in (6), *zhuozi-shang* ‘table-on’, a locative modifier, in (7), and *liu cun* ‘six inches’, a measure phrase modifier, in (8).

(4) a. *na san ben guanyu Xizang de shu* IMN: PP complement
that three CL about Tibet DE book
b. *guanyu Xizang de na san ben shu* OMN
about Tibet DE that three CL book
Both: ‘the three books about Tibet’

(5) a. *na si ge hong yanse de panzi* IMN: NP modifier
that four CL red color DE plate
b. *hong yanse de na si ge panzi* OMN
red color DE that four CL plate
Both: ‘the four red plates’

(6) a. *na san dong chaonan de fangzi* IMN: PP modifier
that three CL to south DE house
b. *chaonan de nan san dong fangzi* OMN
to south DE that three CL house
Both: ‘the three houses facing the south’

(7) a. *na si ge zhuozi-shang de beizi* IMN: locative modifier
that four CL table-on DE cup
b. *zhuozi-shang de na si ge beizi* OMN
table-on DE that four CL cup
Both: ‘the four cups on the table’

(8) a. *na san ge liu cun de dangao* IMN: measure phrase modifier
that three CL six inch DE cake
b. *liu cun de na san ge dangao* OMN
six inch DE that three CL cake
Both: ‘the three six inch cakes’

Moreover, many types of AP modifiers may also occur in both constructions. In (9), the XPmc is *hen shenmi* ‘very mysterious’, a DegP. In (10), the XPmc is *hong-hong* ‘red-RED’, a reduplicate adjective.

(9) a. *na si ge hen shenmi de shangren* IMN: DegP
that four CL very mysterious DE merchant
b. *hen shenmi de na si ge shangren* OMN
very mysterious DE that four CL merchant
Both: ‘the four mysterious merchants’

(10) a. *na liang duo hong-hong de meiguihua* IMN: reduplicte adj.
that two CL red-RED DE rose
b. *hong-hong de na liang duo meiguihua* OMN
red-RED DE that two CL rose
Both: ‘the two red roses’

However, certain types of AP modifiers may occur in IMNs, but not OMNs. First, non-predicative APs may not occur in OMNs (see Lin 2008: 848, fn. 6). The non-predicative adjective *suowei* ‘so-called’ occurs in the IMN in (11a), but not in the OMN in (11b).

(11) a. *(na) san xiang suowei de jianyi*
that three CL so-called DE suggestion
'the three so-called suggestions'
b. **suowei de (na) san xiang jianyi*
so-called DE that three CL suggestion

Other adjectives that may not occur in either a matrix or secondary predicate position include *youji* 'organic', *chu-ji* 'basic-leveled', *er-ji* 'second-leveled', *duoxiang* 'multiple', *man-xing* 'slow-type', *gongtong* 'shared', *gebie* 'individual', *ren-wei* 'human-made' (Lü 1999: 17). They may not appear at the left-ege of an OMN (Cheung's 2012: 47 OMNs of such adjectives are not natural to me and others).

Second, adjectives in epithets may not occur in OMNs. In the IMN in (12a), *na ge hunzhang de jiahuo* 'that CL damn *de* guy' refers to *Dafa* in the previous clause. The adjective *hunzhang* 'damn' may not occur in the OMN in (12b).[5]

(12) a. *Wo yao jian Dafa, dan bu zhidao na ge hunzhang de jiahuo*
I want see Dafa but not know that CL damn DE guy
pao-dao nali qu-le.
run-to where go-PRF
'I want to see Dafa, but I don't know where that damn guy is.'
b. **Wo yao jian Dafa, dan bu zhidao hunzhang de na ge jiahuo*
I want see Dafa but not know damn DE that CL guy
pao-dao nali qu-le.
run-to where go-PRF

A parallel contrast is seen in English: the unmarked AN order may have such epithets, but the marked NA order may not (Cinque 2010: 87). In (13), *the angry old man* refers to *the mayor* in the context. In this expression, the adjective *angry* precedes the noun *man*. The reverse order of the two elements in *the man angry at his constituents* may not occur in this sentence.

(13) *I tried to visit the mayor last week, but {the angry old man/*the man angry at his constituents} refused to see me*.

2.2. *The restrictions on the readings of the same modifier*

The fact that IMNs may have more types of XPmc than OMNs indicates that they have more positions for XPmcs and represent the unmarked pattern of nominals in the language. Cinque (2010) presents many facts to show that Germanic languages such as English and Romance languages such as Italian have the opposite patterns of markedness with respect to the order of an adjective and the modified noun. In (14), I list the markedness patterns of word order in these three types of languages.

[5] Schlenker (2005) claims that in some languages, it is preferable for an epithet to take an R-expression, rather than a pronoun, as its antecedent. Patel-Grosz (2012: 19) reports that in many languages, including Czech, Croatian, Dutch, Hindi, the contrast is not seen. I found Chinese patterns with these languages. In (12a), the antecedent of the epithet is *Dafa*, while in (i), it can be *ta* 'him'. Both examples are equally acceptable.

(i) *Dafa ne? Wo yao jian ta, dan bu zhidao na ge hunzhang de jiahuo*
Dafa Q I want see he but not know that CL damn DE guy
pao-dao nali qu-le.
run-to where go-PRF
'Where is Dafa? I want to see him, but I don't know where that damn guy is.'

(14)

	unmarked order	marked order
Germanic	A N	N A
Romance	N A	A N
Chinese	IMN	OMN

There are two types of modifiers available to the languages, and they are underlyingly ordered as Dem Num indirect-modifier direct-modifier N. Both types are available for an IMN. The left-edge XPmc of an OMN, however, only has the the properties of the higher type (i.e., the indirect modifier).

We have just seen that in both Chinese and English, adjectives in epithets may occur in the unmarked order, but not in the marked order. In this section, I show that two more reading restrictions found in the marked order in English discussed in Cinque (2010) are also found in the marked order (i.e., that of OMNs) in Chinese.

2.2.1. *Intersective vs. nonintersective readings.* A modifier of a noun can have either an intersective or nonintersective reading in English. For instance, the word *beautiful* as a modifier of the noun *dancer* can refer to the set of beautiful entities intersecting with the set of dancers, but it can also modify the intension of *dancer*, meaning "to dance beautifully." In the latter use, its interpretation is "adverbial" rather than intersective (Vendler 1968; Larson 1995). Cinque (2010: 9) describes that in the AN order in (15a), both readings are possible; but in the NA order in (15b), only the intersective reading is available.

(15) a. *Olga is a more beautiful dancer than her instructor*. (ambiguous)
'Olga is a dancer who is also a more beautiful person than her instructor.' (intersective)
'Olga dances more beautifully than her instructor.' (nonintersective)

b. *Olga is a dancer more beautiful than her instructor* (unambiguous)
'Olga is a dancer who is also a more beautiful person than her instructor.' (intersective)
#'Olga dances more beautifully than her instructor.' (nonintersective)

In Chinese, a modifier can have either an intersective or nonintersective reading in an IMN, but only the former reading in an OMN. For example, the adjective *naixin* 'patient' in the IMN in (16a) has two readings, shown by the two translations; but it has only the intersective reading in the OMN in (16b). In the context provided in (17), where only the nonintersective reading is appropriate, the OMN is not acceptable, if the sentence is uttered in the default prosody.

(16) a. *liang wei naixin de laoshi* (IMN: ambiguous)
ttwo CL patient DE teacher
'two teachers, who are patient persons' (intersective)
'two teachers, who teach patiently' (nonintersective)

b. *naixin de liang wei laoshi* (OMN: unambiguous)
patient DE two CL teacher
'two teachers, who are patient persons' (intersective)
#'two teachers, who teach patiently' (nonintersective)

(17) {*Liang wei naixin de laoshi/#Naixin de liang wei laoshi*} *hui-dao*
two CL patient DE teacher/patient DE two CL teacher return-to

jia-li, piqi baozao.
home-in temper grumpy
'The two patient teachers returned to their homes, and they became grumpy.'

The adjective *lao* 'old' in *lao de pengyou* 'old DE friend' (also *nianqing* 'young') does not have a nonintersective use (Cinque 2010: 142-143, and the references thereof). Lin and Liu (2005) also note that the adjectives in (18) never have nonintersective or manner readings. These idiosyncratic lexical restrictions do not mean the absence of such readings for adjectives in the whole language system (contra Huang To appear: Section 5). In addition to *naixin*, some more adjectives that allow a manner reading in IMNs are listed in (19). All of the adjectives may modify verbs to denote a manner reading. The OMN counterparts of the nominals have only intersective readings.

(18) a. **hen kuai de daziyuan*
very fast DE typist
b. *piaoliang de wuzhe*
beautiful DE dancer
'a dancer who is beautiful'
Not: 'a dancer who dances beautifully'

(19) *liang wei {xixin de yishi / cuxin de hushi/guoduande faguan/yanli de jiazhang}*
two CL careful DE doctor/carelessDE nurse/decisive DE judge/strict DE parent
'two {careful doctors/careless nurses/decisive judges/strict parents}'

2.2.2. *Idiomatic vs. non-idiomatic readings*. A contrast in the availability of idiomatic readings of adjectives is seen in English: the unmarked AN order may have such readings, but the marked NA order may not (Cinque 2010: 87-88). For instance, the idiomatic reading of *a red herring* may not be expressed in the [NA] order. Idiomatic readings are also found in IMNs, but not in their corresponding OMNs. In the IMN in (20a), *huangse* 'yellow' means either the yellow color or pornographic; but in the OMN in (20b), the latter meaning disappears.

(20) a. *na liu ben huangse de xiaoshuo*
that six CL yellow DE novel
'the six yellow books'
'the six pornographic books'
b. *huangse de na liu ben xiaoshuo*
yellow DE that six CL novel
'the six yellow books'
#'the six pornographic books'

2.3. *The restriction on the left-edge* zheyang *'such'*
L. Zhang (2007: 128-130) notes that the intensifying demonstrative *zheyang* 'such' may precede an IMN, but not an OMN. She gives RC examples like (21) to show the contrast. I use more examples in (22) through (25) to show that the constraint is seen in all kinds of OMNs (note that the examples should be uttered without any pause after *zheyang* (*de*)).

(21) a. *zheyang (de) san ben Luxun xie de shu* IMN: RC
such DE threeCL Luxun write DE book
'such three books that Luxun wrote'
b. **zheyang (de) Luxun xie DE san ben shu* OMN
such DE Luxun write de threeCL book

(22) a. *zheyang (de) liangduo hong-hong de hua* IMN: AP
such DE two CL red-RED DE flower
'such two red flowers'

b. **zheyang (de) honghong de liang duo hua* OMN
such DE red- RED DE two CL flower

(23) a. *zheyang (de) san jia yan malu de shangdian* IMN: PP
Such DE threeCL along street DE shop
'such three shops along the street'

b. **zheyang (de) yan malu de san jia shangdian* OMN
such DE along street DE threeCL shop

(24) a. *zheyang (de) si tiao hong yanse de qunzi* IMN: NP
such DE four CL red color DE skirt
'such four red skirts'

b. **zheyang (de) hong yanse de si tiao qunzi* OMN
such DE red color DE four CL skirt

(25) a. *zheyang (de) liangtiao Jiaoyu Buzhang cizhi de yaoyan* IMN: compl.
such DE two CL education minister resign DE rumor
'such two rumors that the Education Minister resigned'

b. **zheyang (de) Jiaoyu Buzhang cizhi de liang tiao yaoyan* OMN
such DE education minister resign DE two CL rumor

2.4. *The restriction on the specificity of the whole nominal*

OMNs exhibit a specificity restriction. In the absence of a demonstrative, both an IMN and an OMN can be indefinite. In an existential coda construction, the post-verbal nominal must be indefinite and specific (Huang 1987). The examples in (26) show that both IMNs and OMNs may occur in the construction, and thus both can also be specific (contra N. Zhang 2006: 10).

(26) a. *Wo jiao-guo [cong Jinmen lai de yi ge xuesheng] hen*
I teach-EXP from Jinmen come DE one CL student very
xihuan he jiu.
like drink alcohol

b. *Wo jiao-guo [yi ge cong Jinmen lai de xuesheng] hen xihuan*
I teach-EXP one CL from Jinmen come DE student very like
he jiu.
drink alcohol
Both: I taught a student from Jinmen who likes to drink alcohol a lot.'

If only indefinite readings are considered, one restriction on OMNs is that they are never nonspecific. This is stated in N. Zhang's (2006: 5) following generalization:

(27) Indefinite IMNs can be either specific or nonspecific, while indefinite OMNs can be specific, but never nonspecific.

The generalization in (27) is seen in many facts. One fact is that an IMN may occur as an argument in an irrealis context, whereas an OMN may not. In (28a), the IMN *yi bu hen duan de dianying* 'one CL very short DE movie' occurs in the conditional clause, but in (28b), the correlated OMN may not occur in the same context.

(28) a. *Ruguo ni xiang kan yi bu hen duan de dianying, ...*
if you want see one CL very short DE movie
'If you want to see a very short movie, ...'

b. **Ruguo ni xiang kan hen duan de yi bu dianying, ...*
if you want see very short DE one CL movie

A second fact is that IMNs can, but OMNs cannot, occur as the internal argument of a (dis)appearance verb, such as *lai* 'come' and *si* 'die', as seen in (29) and (30) (N. Zhang 2006: 5-6):

(29) a. *Lai-le san ge dai yanjing de xuesheng.*
come-PRF three CL wear glasses DE student
'Here come three students who wear glasses.'

b. **Lai-le dai yanjing de san ge xuesheng.*
come-PRF wear glasses DE three CL student

(30) a. *Cun-li si-le liangtiao qu-nian chusheng de gou.*
village-in die-PRF two CL last-year bear DE dog
'In the village, two dogs that were born last year died.'

b. **Cun-li si-le qu-nian chusheng de liangtiao gou.*
village-in die-PRF last-year bear DE two CL dog

A third fact is about the occurrence of the non-referential marker *ta* 'it' (Lin and Zhang 2006). I call *ta* in this use Existential TA (E-TA henceforth).[6] E-TA may occur with IMNs, as in (31a) and (32a), but not OMNs, as seen in (31b) and (32b).

(31) a. *Zanmen haohao de he ta liangbei gang mai de pijiu ba*!
we good DE drink it two cup just buy DE beer IMP
'Let's have a good drink of two cups of beer that was just bought!'

b. **Zanmen haohao de he ta gangmai de liangbei pijiu ba*!
we good DE drink it just buy DE two cup beer IMP

(32) a. *Zheli keyi zuo ta san ge bu dai xingli de lüke.*
here may sit it three CL not bring luggage DE tourist
'Here can sit three tourists who did not bring their luggage.'

b. **Zheli keyi zuo ta bu dai xingli de san ge lüke.*
here may sit it not bring luggage DE three CL tourist

A fourth fact is an extraction fact. No element may be extracted from a specific-nominal (Fiengo and Higginbotham 1981). (33a) has an IMN object *liang ben guanyu Xizang de lishi shu* 'two books on Tibetan history'. The extraction of *lishi shu* 'history book' from this IMN is possible, as seen in (33b). The object in (34a) is the OMN version of that in (33a), but the parallel extraction of *lishi shu* is impossible, as seen in (34b). This contrast is expected if IMNs can be nonspecific but OMNs are never nonspecific (N. Zhang 2006: 8-9).

(33) a. *Ziyi du-guo liangben guanyu Xizang de lishi shu.*
Ziyi read-EXP two CL about Tibet DE history book
'Ziyi has read two books on Tibetan history.'

[6] E-TA occurs only in declaratives and imperatives. It might have a dependency on a force feature in the C-domain. It is never in a PP, as seen in (i-a). If PP is a phase, a PP-internal E-TA will fail to link to the C-domain. Also, E-TA never occurs in an island. As shown in (ib), E-TA may not occur in an adverbial clause.

(i) a. *Wo xiang [xiang (*ta) yi ge ren] faxie yixia.*
I want toward TA one CL person vent once
'I want to vent (my anger) to someone.'

b. *dang wo xiang he (*ta) yi ping pijiu deshihou, ...*
when I want drink TA one bottle beer time
'when I want to drink a bottle of beer, ...'

b. *Lishi shu, Ziyi du-guo liangben guanyu Xizang de __ .*
history book Ziyi read-EXP two CL about Tibet DE
'History books, Ziyi has read two on Tibetan history.'

(34) a. *Ziyi du-guo guanyu Xizang de liangben lishi shu.*
Ziyi read-EXP about Tibet DE two CL history book
'Ziyi has read two books on Tibetan history.'

b. **Lishi shu, Ziyi du-guo guanyu Xizang de liangben __.*
history book Ziyi read-EXP about Tibet DE two CL

2.5. *The restriction on the* de*-stranding*

As noted in N. Zhang (2013: 242), *de*-stranding, i.e., the ellipsis of the post-*de* string, is possible for IMNs, but not OMNs, if the XPmc is a modifier. The general contrast is illustrated in (35):[7]

(35) IMN: [(DEM) Numeral CL XP de ~~NP~~] OMN: *[XP de [~~(DEM) Numeral CL NP~~]]

The contrast is consistent, as shown by the examples in (36) through (39), with modifiers of various categories (AP, NP, PP, measure phrase). In (36a), for example, the *de* in the second clause licenses the ellipsis of *shu* 'book', which can take the same NP in the first clause as its antecedent. (36b) is an OMN version of (36a). The *de* in the second clause does not license the ellipsis of (*na*) *liu ben shu* 'that six CL book', although the same string occurs in the parallel position in the first clause.

(36) a. *Lili mai-le (na) liu ben hen hou de shu, Nini ze mail-le (na) liu ben hen bo de.*
Lili buy-PRF that six CL very hick DE book Nini but buy-PRF that six CL very thin DE
'Lili bought six very thick books, but Nini bought six very thin ones.'

b. **Lili mai-le hen hou de (na) liu ben shu, Nini ze mail-le hen bo de.*
Lili buy-PRF very thick DE that six CL book Nini but buy-PRF very thin DE

(37) a. *Lili yao mai na zhan lan yanse de deng, Nini ze yao mai na zhan lü yanse de.*
Lili want buy that CL blue color DE lamp Nini but want buy that CL green color DE
'Lili wants to buy that blue lamp, but Nini wants to buy the green one.'

b. **Lili yao mai lan yanse de na zhan deng, Nini ze yao mai lü yanse de.*
Lili want buy blue color DE that CL lamp Nini but want buy green color DE

(38) a. *Lili zhu-le liangjian chaonan de fangzi, Nini ze zhu-le liang jian chaobei de.*
Lili rent-PRF two CL to south DE room Nini but rent-PRF two CL to north DE
'L rented two rooms facing the south, but N rented two facing the north.'

b. **Lili zhu-le chaonan de liang jian fangzi, Nini ze zhu-le chao bei de.*
Lili rent-PRF to south DE two CL room Nini but rent-PRF to north DE

[7] A parallel *de*-stranding restriction on OMNs is also found in Cantonese (Cheung and Li 2013).

(39) a. *Na liangge liu cun de dangao tai da le, zhe liangge si cun de zhenggao.*
that two CL six inch DE cake too big PRT this two CL four inch DE right
'Those two 6 inch cakes are too big, these 2 inch ones are just right.'

b. **Liu cun de na liang ge dangao tai da le, si cun de zhenggao.*
six inch DE that two CL cake too big PRT four inch DE right

However, a *de*-final nominal may always occur as a predicate, following the copular *shi* 'be', as in (40), regardless of whether another nominal in the context (the underlined part in (40)) is an IMN, as in (40a), or an OMN, as in (40b).

(40) a. *Lili mai-le (na) liu ben hen hou de shu, bu shi (na) liu ben hen bo de.*
Lili buy-PRF that six CL very thick DE book not be that six CL very thin DE
'Lili bought six very thick books, but not six very thin ones.'

b. *Lili mai-le hen hou de (na) liu ben shu, bu shi hen bo de.*
Lili buy-PRF very thick DE that six CL book not be very thin DE
'Lili bought six very thick books, but not very thin ones.'

3. A leftward movement analysis

3.1. *Research background*

3.1.1. *Two FP zones*. One assumption adopted in this research is that there are two functional projection zones for the base-positions of modifiers of a noun: the lower one hosts direct modification adjectives, and the higher one hosts RCs and indirect modification adjectives, which are reduced RCs, and each adjective is at Spec of an FP (Cinque 2010: 55). I mark an FP in the low zone as FP^{L} and an FP in the high zone as FP^{H}, as seen in (41a). Either zone may have semantically-ranked multiple FP projections to host multiple modifiers (see Larson and Takahashi 2007 for the ranking of RCs). Cinque (2010) argues that the marked orders in both Germanic languages and Romance languages are derived by phrasal movement. For instance, the English unmarked [A N] order is the base-order, as in (41a). In order to derive the marked order [N A], first, an adjective in the high zone moves up, deriving the structure in (41b), and then the remnant phrase, which contains the noun, moves to the left of the raised adjective, as in (41c).[8]

(41) a. $[_{FP}{}^{H}\ A^{indirect}\ [_{FP}{}^{L}\ A^{direct}\ N]]$ (base order; unmarked order in English)

[8] The movement in (41b) seems to be attested in the English construction where a DegP headed by the degree word *too* occurs with a singular indefinite article (Troseth 2009), as seen in (i). Troseth shows that such a fronted modifier must be predicative, which means it must be base-generated in the high FP zone.

(i) a. *Attila is too good (of) an athelete*. b. *Too long (of) a movie could put me to sleep*.

A PP complement of a noun may also occur at the right edge of a nominal in English, as seen in (ii) (Keller 1995: 6). A movement analysis might also apply to such a case.

(ii) a. *In* [*an* [*interview _ published yesterday*]] [*with the Los Angeles Daily News*], *Mr. Simmons said: "Lockheed is actually just a decoy*. (…)"

b. *"The question" at* [*a closed-door meeting* _ [*K mart is scheduled to hold today*]] [*with analysts*] *"will be: Why aren't we seeing better improvement in sales?"*

b. A_i [indirect] $[_{FP}{}^{H} \__i \; [_{FP}{}^{L} \ldots N]]$

c. $[_{FP}{}^{H} \__i \; [_{FP}{}^{L} \ldots N]]_k \ldots A_i$ [indirect] $\__k$ (marked order in English)

If the unmarked IMN order is the base-order, Chinese facts like the following support Cinque's two-zone theory for nominal modifiers. In (42a), the RC *xihuan dubo* 'like gambling' is in a higher position than the non-predicative adjective *suowei* 'so-called'. In (42b), the order of the RC and the adjective is reversed. The unacceptability of (42b) is predicted by Cinque's claim that an RC and a non-predicative adjective are base-generated in the high and the low zone, respectively.

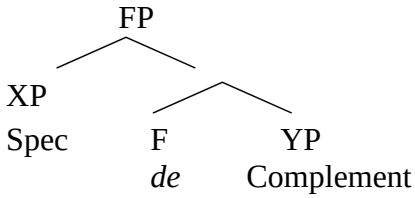
(42) a. *na ge* [*xihuan dubo*] *de suowei de jiaoshou* IMN
that CL like gamble DE so-called DE professor
'that so-called professor who likes gambling'

b. **na ge suowei de* [*xihuan dubo*] *de jiaoshou* IMN
thatCL so-called DE like gamble DE professor

As for ranked multiple XPmc, Del Gobbo (2005) and Lin (2008) discuss multiple RCs (the high zone), and Cheung (2012: 45) studies multiple non-predicative adjectives (the low zone).

3.1.2. De *is a realization of a functional head*. Another assumption adopted in this research is that the head of an FP in either zone can be realized by the functional element *de* in Chinese. Unlike in compounds and certain idioms, *de* may follow an XPmc in a phrasal nominal (Fan 1958). The assumption means that an XPmc and the post-*de* phrase surface as the Spec and complement of F, respectively, as in (43).

(43)



The head status of *de* has been argued for in the literature (e.g., N. Zhang 1999; Simpson 2001; Li 2012, 2013). N. Zhang (2010: 97-105) shows the problems of various proposals to group *de* with the phrase to its left, although the former, as an enclitic, takes the latter as its phonological host (C.-R, Huang 1989). She also presents arguments for the complementation structure in (43). One of her arguments is that like head elements in the language, *de* may license ellipsis of the phrase to its right (i.e., YP in (43)), as shown in (44).

(44) *na ge da de* ~~*mao*~~
that CL big DE cat
'that big cat'

The enclitic status of *de* may correlate with an EPP-like property, requiring the Spec phrase be overt. Thus an F in (43) has phonological realization only when its Spec is overt. *De* thus may not have a null host, including a movement trace.

Since *de* is obligatory with non-predicative adjectives such as *sowei* 'so-called', it cannot be a predicate marker (Aoun and Li 2003: 148ff). Also, the possible absence of *de* to the right

of an adjective does not mean that the [AN] sequence may not be a phrase (Wang 1995). As pointed out by Cinque (2010: 97), in the order in (41a), if *de* follows an indirect modification adjective (i.e., as a realization of a F^H), it is necessarily pronounced; but if it follows a direct modification adjective (i.e., as a realization of a F^L), it sometimes is not pronounced.

3.2. *Proposal: nominal-internal phrasal movement*

I propose that an OMN is derived by the movement of an XPmc, regardless of whether the XPmc is a modifier or complement, to a position higher than that of a demonstrative (see Simpson 2001: 148, L. Zhang 2007, and Lin 2008 for similar analyses of OMNs with an RC). (45) illustrates this movement.

(45) $XPmc_i$ (demonstrative) numeral CL [$_{FP}$ t_i N]

After the XPmc fronting, the string that contains a fronted XPmc and the noun is still a nominal constituent (OMN). This can be seen in four facts. First, an OMN may occur in a topic position, as in (46a) and (47a). Second, it may function as an antecedent of the pronoun *ta* 'it', as in (46b) and (47b). Third, it can coordinate with another nominal, as seen in (46c) and (47c). Finally, it may follow the causative marker *ba*, to function as a causee, as seen in (46d) and (47d). The four facts indicate that like an IMN, an OMN is also a nominal constituent, and thus the proposed movement is nominal-internal.

(46) a. *Dai yanjing de na san ge xuesheng a, wo dou renshi.*
wearglass DE that threeCL student TOP I all know
'As for the three students who wear glasses, I know all of them.'

b. *Dai yanjing de na san ge xuesheng,wo guajiang-guo tamen.*
wearglass DE that threeCL student I praise-EXP they
'As for the three students who wear glasses, I have praised them.'

c. *Shizhang gen dai yanjing de na san ge xuesheng dou jiang-le hua.*
mayor and wearglasses DE that threeCL student all utter-PRF speech
'The mayor and the three student who wear glasses all made speeches.'

d. *Shizhang ba dai yanjing de na san ge xuesheng xun-le yidun.*
mayor BA wearglasses DE that threeCL student rebuke-PRF once
'The mayor rebuked the three student who wear glasses.'

(47) a. *Xuefei zhengjia de na tiao xiaoxi, wo yijing gaosu laoba le.*
tuition increase DE that CL news I already tell father PRT
'As for the news that the tuition increased, I have told the father about it.'

b. *Xuefei zhengjia de na tiao xiaoxi, wo yijing ba ta pao-dao lianshu-shang le.*
tuition increase DE that CL news I already BA it post-to facebook-on PRT
'The news that the tuition increased, I have already posted it on facebook.'

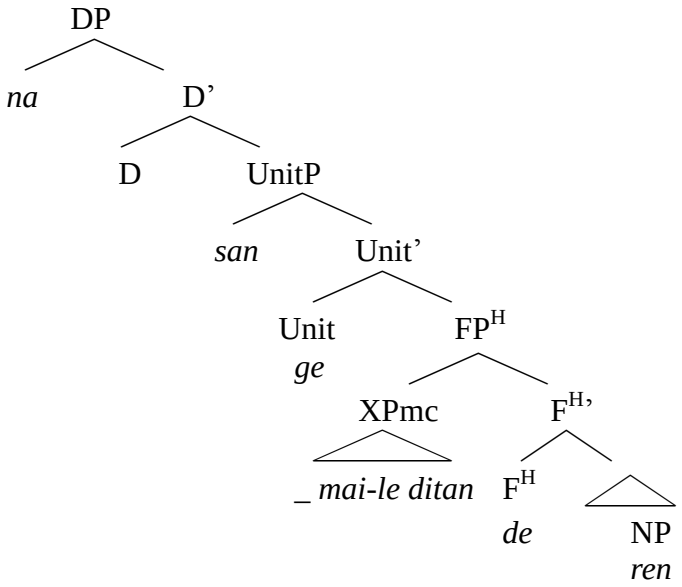
c. *Zhe ge xiaoxi gen xuefei zhengjia de na tiao xiaoxi dou rang wo hen chijing.*
this CL news and tuition increase DE that CL news all let I very surprised
'This news and the news that the tuition increased both let me surprised.'

d. *Tamen ba xuefei zhengjia de na tiao xiaoxi gaosu-le wo.*
they BA tuition increase DE that CL news tell-PRF I
'They told me the news that the tuition increased.'

I use (48b) to show the derivation of the IMN in (48a), and (49b) to show the derivation of the OMN in (49a). In my analysis, for the syntactic positions of numerals and classifiers, I assume that they are at Spec and head of a functional projection (Cheng and Sybesma 1998: 406; Watanabe 2006; N. Zhang 2013), labeled as UnitP. As for *de*, it occurs when the XPmc to its left is overt (see 3.1.2). Thus, there is no *de* with the base-position of the XPmc in (49b).[9]

(48) a. *na san ge mai-le ditan de ren* IMN
that three$_{CL}$ buy-$_{PRF}$ carpet $_{DE}$ person
'the three persons who bought carpet'

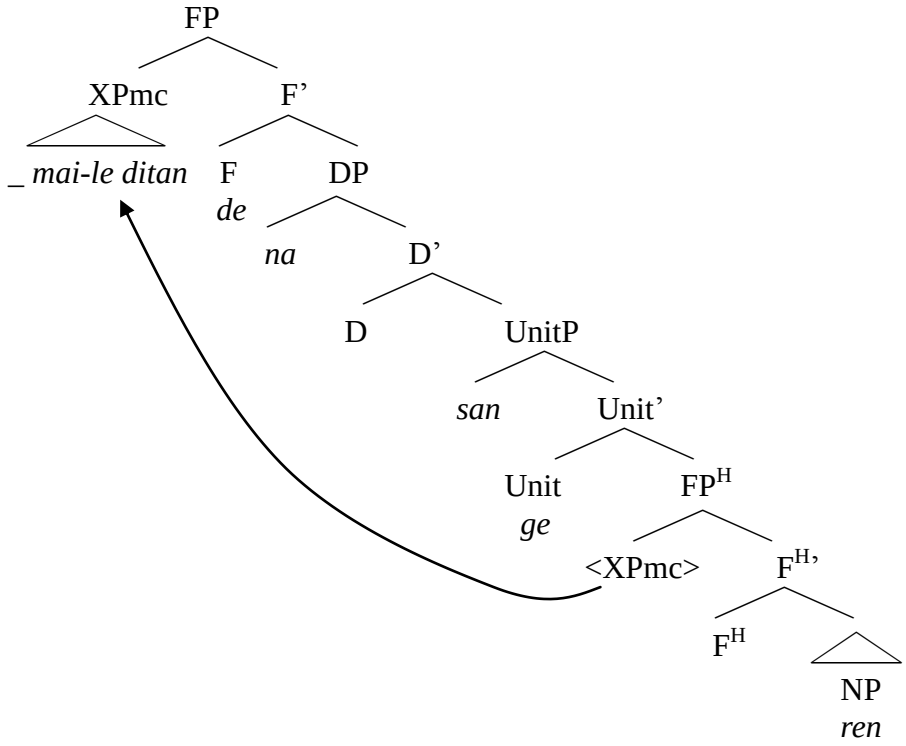
b.



(49) a. *mai-le ditan de na san ge ren* OMN
buy-$_{PRF}$ carpet $_{DE}$ that three$_{CL}$ person
'the three persons who bought carpet'

[9] An alternative hypothesis mentioned by a reviewer is that an XPmc might be attracted from a FP to the Spec of *de*, which could be merged either immediately above FP or immediately above DP. The former derives an IMN and the latter derives an OMN. Under this hypothesis, an XPmc moves even in an IMN.

b.



This analysis is not affected by any particular syntactic analysis of RC constructions (see Cinque 2010: 55, among others). What is crucial here is that the XPmc of an OMN eventually moves to a position higher than a demonstrative, a nominal-internal phrasal movement.

As for an IMN that contains a noun and its complement, as in (50), I make the following three claims that are compatible with any syntactic analysis of this kind of complex nominals (e.g., Arsenijević 2009; Donati and Cecchetto 2011). First, the OMN counterpart of such an IMN is derived by the movement of the XPmc to the left edge of the nominal. Thus, the OMN in (51a) is derived by the movement of the complement *Sichuan dizhen* 'Sichuan earthquake' to the left of *na* 'that', as shown in (51b).

(50) *na tiao Sichuan dizhen de xiaoxi* IMN
that CL Sichuan earthquake DE news
'the news that there is an earthquake in Sichuan'

(51) a. *Sichuan dizhen de na tiao xiaoxi* OMN
Sichuan earthquake DE that CL news
'the news that there is an earthquake in Sichuan'

b. [*Sichuan dizhen*]$_i$ *de* [*na tiao* [t$_i$ *xiaoxi*]]

Second, similar to the raising of a modifier to derive an OMN, *de* does not take a trace as its morphological host, and thus there is no *de* following t$_i$ in (51b). Third, there is no contrast parallel to that between direct and indirect modifiers for complements. A complement is base-generated in one place only, and it is able to move, deriving an OMN.

Arguments for the general movement analysis of OMNs are presented in 3.3 through 3.6.

3.3. *The quantity-quality hierarchy*

In both Greenberg's Universal 20 (Greenberg 1963: 87; see our Section 1) and Rijkhoff's (1998: 333, 2002: 221) "layered structure of nominals", an element that expresses a quality must be closer to the noun than the element that expresses a quantity. The contrast between (52a) and (52b) shows the rule. According to Schwarzschild (2006), the measure phrase *liu*

cun ‘six inches’ in (52a) is an attributive modifier, similar to other quality-denoting modifiers such as *big* or *round*. This modifier is closer to the noun *dangao* ‘cake’ than the quantity-denoting *san ge* ‘three CL’ in (52a). The unacceptability of (52b) indicates that the reverse order may not be base-generated. Both (52a) and (52b) start with the demonstrative *na* ‘that’, and thus they are IMNs. Their acceptability contrast is captured in (48b), where the UnitP, which hosts a numeral, is higher than FP^{H}, which hosts a modifier. In this structure there is no position to host a modifier between a demonstrative and the numeral, and therefore, the order in (52b) is not derivable. However, in the OMN in (52c), the order of the quality-denoting *liu cun* and the quantity-denoting *san ge* is similar to that in (52b), but the form is acceptable, and synonymous to (52a). If the order may not be base-generated, the movement analysis is supported.

(52) a. *na san ge liu cun de dangao*
that threeCL six inch DE cake
‘the three six-inch cakes’
b. **na liu cun de san ge dangao*
that six inch DE three CL cake
c. *liu cun de na san ge dangao*
six inch DE that threeCL cake
‘the three six-inch cakes’

3.4. *The Superiority Condition effect*

The Superiority Condition states, informally, that if element A asymmetrically c-commands element B, and if both have a certain feature relevant to a certain type of movement and only one of them may move, it is A that should move (Chomsky 1973). Thus, in the wh-constructions in (53a) and (53b), since the WH subject *who* c-commands the WH object *what*, the former should move. (53a) satisfies the condition, but the unacceptable (53b) does not.

(53) a. (*I wonder*) *who _ saw what*. b. *(*I wonder*) *what who saw _*.

In my analysis of OMNs, an XPmc moves, in (49b) and (51b). Now let us examine an IMN that contains two XPmcs, a modifier and a complement, and its correlated OMN. If XPmc1 asymmetrically c-commands XPmc2 in an IMN, the two indeed exhibit the same c-commanding relation in the correlated OMN. Consider the following IMNs in (54) and their correlated OMNs in (55) (the examples in (54) are adapted from Tsao 1997).

(54) a. *na ge* [*wo zuotian tingdao*] *de* [*Mandela shishi*] *de xiaoxi*
that CL I yesterday hear DE Mandela die DE news
‘the news that Mandela died, which I heard yesterday’
b. **na ge* [*Mandela shishi*] *de* [*wo zuotian tingdao*] *de xiaoxi*
thatCL Mandela die DE I yesterday hear DE news
(55) a. [*wo zuotian tingdao*] *de na ge* [*Mandela shishi*] *de xiaoxi*
I yesterday hear DE that CL Mandela die DE news
‘the news that Mandela died, which I heard yesterday’
b. *[*Mandela shishi*] *de na ge* [*wo zuotian tingdao*] *de xiaoxi*
Mandela die DE that CL I yesterday hear DE news

In (54a), the base-position of the complement *Mandela shishi* ‘Mandela died’ is lower than the base-position of the RC *wo zuotian tingdao* ‘I heard yesterday’. In (54b), since the

merge order is reversed, the form is not acceptable. Now, if one of them moves, the choice should be the RC, rather than the complement clause. The OMN in (55a) satisfies the condition, whereas the unacceptable (55b) does not.

Similarly, as already discussed in Lin (2008: 856-859), in (56a), the base-position of the individual-level RC *xihuan shige* 'like poems' is lower than the base-position of the stage-level RC *jintian meiyou lai* 'today not come'; and in (56b), since the merge order is reversed, the form is not acceptable. Now, if one of them moves, the choice should be the stage-level RC, rather than the invidual-level RC. The OMN in (57a) satisfies the condition, whereas the unacceptable (57b) does not (the examples are adapted from Del Gobbo 2005).

(56) a. *na ge* [*jintian meiyou lai*] *de* [*xihuan shige*] *de xuesheng*
that CL today not come DE like poem DE student
'the student who didn't come today and who likes peoms'

b. **na ge* [*xihuan shige*] *de* [*jintian meiyou lai*] *de xuesheng*
that CL like poem DE today not come DE student

(57) a. [*jintian meiyou lai*] *de na ge* [*xihuan shige*] *de xuesheng*
today not come DE that CL like poem DE student
'the student who didn't come today and who likes poems'

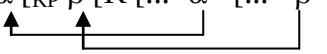
b. *[*xihuan shige*] *de na ge* [*jintian meiyou lai*] *de xuesheng*
like poem DE that CL today not come DE student

3.5. *The Crossing-Over-Nesting effect*

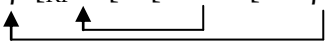
The positions of multiple fronted XPmcs in an OMN exhibit the same ordering effect found in the constructions in which multiple elements undergo the same type of movement (Lin 2008: 856-859). It has been noted that if α c-commands β in their base-positions, as in (58a), and if they undergo the same type of movement and land in the same phase-domain, then, in their surface positions, α should still c-command β, as in (58b), rather than (58c). This can be called a Crossing-Over-Nesting effect.

(58) a. [K [...α [...β]]]

b. [$_{KP}$ α [$_{KP}$ β [K [...<α> [... <β>]]]]] (Crossing)



c. *[$_{KP}$ β [$_{KP}$ α [K [...<α> [... <β>]]]]] (Nesting)



One case to show this effect is the movement of multiple WH elements in Slavic languages (Rudin 1988; Richards 1997; Bošković 2002; Krapova and Cinque 2008). In the Bulgarian example in (59a), the fronted subject *koj* 'who' is higher than the fronted object *kogo* 'whom'. Their reversed positions in (59b) are not acceptable (Rudin 1988: 449).

(59) a. *Koj kogo vižda*?
who whom sees
'Who sees whom?'

b. **Kogo koj vižda*?
whom who sees

In the literature, it has been claimed that in some other Slavic languages such as Russian, multiple WH fronting does not have this ordering restriction. However, both Rojina (2011) and Scott (2012) show that the order restriction indeed holds in Russian; and they explain the special effect of matrix WH questions in the language, from different perspectives.

Now let us examine IMNs and their correlated OMNs. The IMN examples in (54) are repeated here as (60). This pair of examples shows that before any movement applies to the

RC *wo zuotian tingdao* ‘I heard yesterday’ and the complement clause *Mandela shishi* ‘Mandela died’, the former asymmetrically c-commands the latter.

(60) a. *na ge wo zuotian tingdao de Mandela shishi de xiaoxi*
that CL I yesterday hear DE Mandela die DE news
‘the news that Mandela died, which I heard yesterday’
b. **na ge Mandela shishi de wo zuotian tingdao de xiaoxi*
thatCL Mandela die DE I yesterday hear DE news

If both clauses move, the lower one, i.e., the complement clause, should surface at a position lower than the RC. The opposite order should not be acceptable. The data in (61) prove this.

(61) a. [$_{FP}$[*wo zuotian dingdao*_]$_k$ *de* [$_{FP}$[*Mandela shishi*]$_I$ *de na ge* _$_k$ _$_i$ *xiaoxi*]]
b. *[$_{FP}$ [*Mandela shishi*]$_i$ *de* [$_{FP}$ [*wo zuotian dingdao*_]$_k$ *de na ge* _$_k$ _$_i$ *xiaoxi*]]

A similar constraint is seen in the multiple RC constructions. The IMN examples in (56) are repeated here in (62). If both RCs are fronted, as pointed out by Lin (2008: 856), their original hierarchy must be kept, as seen in (63). Specifically, in both the IMN and the OMN, the individual-level RC *xihuan shige* ‘like poems’ must be lower than the stage-level RC *jintian meiyou lai* ‘today not come’.

(62)a. *na ge* [*jintian meiyou lai*] *de* [*xihuan shige*] *de xuesheng*
that CL today not come DE like poem DE student
‘the student who didn’t come today and who likes poems’
b. **na ge* [*xihuan shige*] *de* [*jintian meiyou lai*] *de xuesheng*
that CL like poem DE today not come DE student
(63) a. [*jintian meiyou lai*] *de* [*xihuan shige*] *de na ge xuesheng*
b. *[*xihuan shige*] *de* [*jintian meiyou lai*] *de na gexuesheng*

The Crossing-Over-Nesting effect seems to be countercyclic, violating the Extension Condition. However, both the Superiority and the Crossing-Over-Nesting effect can be explained by Relativized Minimality (Rizzi 1990, 2014; Krapova and Cinque 2008: 332-334; for other accounts, see Richards 1997 and Pesetsky 2000: 25). Specifically, in (53a), the WH movement of *who* is not intervened by another WH element, but in (53b), the movement of *what* is intervened by *who*. Moreover, if “only a whole chain, not just a link of chain, counts as an ‘intervener’” (Krapova and Cinque 2008: 333; also Rizzi 2014: Sec. 5), in (58b), neither of the two chains, α and β, intervenes the other, and thus the crossing pattern is well-formed. In (58c), however, chain α does intervenes chain β, and thus the nesting pattern is ill-formed.[10]

3.6. *The island effect*

OMNs exhibit island effects. No subcomponent of a modifier may be separated from the other part of the modifier, to derive an OMN. This is an island condition, which rules out extraction from a non-complement element. In the IMN in (64a), the whole string *wei erzi zihao* ‘for son proud’ is a modifier. In the correlated OMN in (64b), the whole modifier moves. In (64c) and

[10] In these two subsections, I have discussed the interactions of movement chains of the same type: the interactions of WH question chains in other languages and the interactions of XPmc fronting in Mandarin Chinese. As for the interactions between different types of movement chains (e.g., focus, topic, and relativization, etc.), mentioned by a reviewer, see Rizzi (2014).

(64d), however, only part of the modifier moves, and the resultant forms are not acceptable.

(64) a. *na ge* [*wei erzi zihao*] *de muqin*
that CL for son proud DE mother
b. [*wei erzi zihao*] *de na ge muqin*
for son proud DE that CL mother
Both: 'that mother who is proud of her son'
c. *[*wei erzi*] *de na ge* [_ *zihao*] *de muqin*
d. **zihao de na ge* [*wei erzi* _] *de muqin*

The above four effects, i.e., the quantity-quality hierarchy, the superiority, the crossing-over-nesting effect, and the island effect, all support the movement analysis of OMNs. The derivation step in (41b) is thus attested in the XPmc raising in deriving OMNs in Chinese.

4. Explaining the restrictions on OMNs

In Section 2, I introduced five restrictions on OMNs. The first three support the movement analysis directly and the other two can also be explained in the analysis.

4.1. *The XPmc types: the immobility of the low-zone adjectives*

In Section 2.1, I reported that non-predicative adjectives and adjectives in epithets may not occur in OMNs. In (65a), for instance, the IMN contains the non-predicative adjective *suowei* 'so-called'. The unacceptable OMN in (65b) shows that this adjective may not be fronted.

(65) a. *na wan suowei de pidan-zhou*
that bowl so-called DE egg-congee
'that bowl of so-called egg-congee'
b. **suowei de na wan pidan-zhou*
so-called DE that bowl egg-congee

Lin (2008: 848, fn. 6) speculates that the ungrammaticality of examples like (65b) "is perhaps due to the fact that the non-predicative *suowei* 'so-called' categorially selects an N as its complement." However, first, selection does not mean adjacency at PF. Either the selecting or the selected element may move. A transitive verb selects its object, but generally speaking, the verb can move and the object can also move. After the movement, the two elements do not have to be adjacent. Second, there is no evidence indicating that *suowei* is a head element, taking a noun as its complement. Also, since such adjectives must be followed by *de*, they do not form compounds with their associate nouns.

Non-predicative adjectives in English include *mere, alleged, so-called,* and *ostensible*. Semantically, such adjectives are not one place predicates (see Beesley 1982). They denote exclusively properties of properties (type <<e,t>, <e,t>>) (McNally and Kennedy 2008: 3). They may not be modified by speaker-oriented adverbs, such as *obviously* (Beesley 1982: 226-227), as seen in (67). The constraint is also seen in the Chinese examples in (68).

(66) **Mary is {mere/alleged/so-called/ostensible}*.
(67) a. *The obviously red barn collapsed*. b. **The obviously mere barn collapsed*.
(68) a. *na wei xianran hen chuse de xuezhe*
that CL obviously very good DE scholar
'that obviously very good scholar'

b. **na wei xianran suowei de xuezhe*
that CL obviously so-called DE scholar

Therefore, non-predicative adjectives in Chinese share basic properties with their counterparts in other languages. In Section 2.1, we also saw that adjectives in epithets may not occur in the marked order in either English or Chinese. Cross-linguistically, non-predicative adjectives and the adjectives in epithets are direct modification adjectives, hosted in an FP^{L}. Such adjectives do not move (Cinque 2010: 61-62). If OMNs are derived by movement, the immobility of such modifiers explains their absence in OMNs.

4.2. *The readings of the same modifier: a mobility restriction again*

In 4.1, we have discussed a type of adjectives that are not ambiguous. In this section, we discuss a type of adjectives that can be ambiguous in an IMN, but not in the correlated OMN. We repeat one pair of examples discussed in 2.2 here in (69) (= (20)). The modifier *huangse* 'yellow' may have the idiomatic reading 'pornographic' in the IMN in (69a), but not in the OMN in (69b).

(69) a. *na liu ben huangse de xiaoshuo*
that six CL yellow DE novel
'the six yellow books'
'the six pornographic books'

b. *huangse de na liu ben xiaoshuo*
yellow DE that six CL novel
'the six yellow books'
#'the six pornographic books'

As I mentioned in 2.2, all the reading restrictions on OMNs correlate with the same restrictions on the marked word order in English. According to Cinque (2010: 93), such ambiguous adjectives are base-generated in two positions, and their two readings are mapped with the two positions: one is in the position for a direct modification adjective (in FP^{L}), and the other is in the position for an indirect modification adjective (in FP^{H}). Specifically, for instance, an idiomatic interpretation is mapped to the direct modification position and its correlated literal interpretation is mapped to the indirect (reduced RC) modification position (p. 27). As I introduced above, only modifiers base-generated in a FP^{H} may move, deriving the marked order. Therefore, only the adjectives with literal readings, rather than the ones with idiomatic readings, are found in the marked order. OMNs have the marked order, and thus they are not ambiguous, unlike IMNs.

As stated in 3.1.1, either of the two zones may have semantically-ranked multiple FP projections to host multiple modifiers. Both *suowei* 'so-called' and *huangse* 'pornographic' are in the low zone, and since the former scopes over the latter semantically (i.e., the speaker casts a doubt on the property of pornography), it must precede the latter. Thus *suowei huangse de* 'the so-called pornographic' is fine but **huangse de suowei* is not.

One reviewer asked to clarify another issue here. The reason for thinking that a phrase is moved is that it shows the same properties at the origin and in the landing site. This is indeed the case for the non-idiomatic reading of *huangse* 'yellow', as well as the XPmcs in other examples, such as the measure phrase in (52c). Now, consider the idiom chunk argument for passive. It is precisely because of the idiomatic reading remaining under passive that speaks for movement of the idiom chunk. The lack of the idiomatic reading under passive would not speak for movement. The reviewer stated that the same should be said of idiomatic adjectives. If, counter-factually, idiomatic adjectives can appear before the demonstrative, then it would be evidence for their being moved to the derived position. But the facts seem to be just the opposite. My response to the comment is the following. First, we need to distinguish the well-accepted rule that the meaning must remain the same in the movement operation from the issue whether a type of element may move. Not all idioms may undergo passive

movement (*kicked the bucket* vs. **the bucket was kicked* in its idiomatic reading). Adjectives with an idiomatic reading are similar to the nominals in this type of idioms: they may not move. The account offered here is that such adjectives are base-generated in the low zone, similar to the non-predicative adjectives discussed in the previous section. Second, the adjectives under discussion here are ambiguous. If the version with the idiomatic reading may not move, the only movable version is the one with the non-idiomatic reading, which is base-generated in the high zone. As expected, the adjectives keep their non-idomatic readings in the derived position. Similarly, although *the bucket was kicked* has no idiomatic reading, it may have the literal reading. In no case may an element change its meaning becaue of movement.

4.3. *The left-edge* zheyang *'such': the interations of movement chains*

In Section 2.3 we have seen that the word *zheyang* 'such' may precede an IMN, but not an OMN. The examples in (70) (= (21)) show this contrast.

(70) a. *zheyang (de) san ben Luxun xie de shu* IMN
such DE threeCL Luxun write DE book
'such three books that Luxun wrote'

b. **zheyang (de) Luxun xie de san ben shu* OMN
such DE Luxun write DE threeCL book

L. Zhang (2007: 130) claims that an RC in an OMN moves, landing at the same position that *zheyang* 'such' may occur. However, if multiple modifiers may be fronted (3.5), there must be more positions available to the left of a numeral. If so, it is a puzzle why an XPmc should compete with *zheyang* for the same surface position. Moreover, *zheyang* may occur with the demonstrative *na*, if they are not next to each other, as seen in the IMN in (71a). The other IMN examples in (71b) and (71c) show that *zheyang* and *na*, two deictic elements, may not be next to each other ((71b) is also independently ruled out by the absence of a position between the demonstrative and the numeral, as pointed out by a reviewer). The OMN in (71d) shows that the raised modifier may occur with *na*. If the position of *na* in (71d) is taken by *zheyang*, we get the OMN in (71e), where *zheyang* does not show up at the left-edge position of the whole nominal.

(71) a. *na san tiao zheyang de qunzi* IMN
that threeCL such DE skirt
'the three such skirts'

b. **na zheyang de san tiao qunzi* IMN
thatsuch DE threeCL skirt

c. **zheyang de na san tiao qunzi* IMN
such DE that threeCL skirt

d. [*wo mai* _] *de na san tiao qunzi* OMN
I buy DE that threeCL skirt
'the three skirts that I bought'

e. [*wo mai* _] *de zheyang de san tiao qunzi* OMN
I buy DE such DE threeCL skirt
'the three such skirts that I bought'

It is possible that there are two uses of *zheyang*, and they are base-generated in different positions. One is a demonstrative use. This explains why *zheyang* and the demonstrative *na* may not be next to each other, as seen in (71b) and (71c). The acceptability of the IMN in

(71a), however, tells us that *zheyang* may also be base-generated in a position lower than that of a demonstrative. One hypothesis is that the low *zheyang* is a nominal-internal predicate. Haegeman (2010) argues that in West Flemish, the DP-initial *zuk* 'such', as in *zukken unden* 'such dogs', is based generated as a predicate of the associate NP in a DP-internal small clause (SC), [$_{SC}$ *unden zukken*], and obligatorily moves to the immediate left of the SC, deriving the surface order. In Chinese, the word z*heyang* can be predicative, since it can function as a matrix and secondary predicate, as shown in (72a) and (72b), respectively.

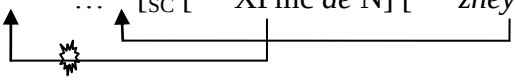
(72) a. *Shiqing jiu shi zheyang*.
matter just be such
'The matter is just such.'

b. *Ni zenme ba wenzhang gai-cheng zheyang*?
you how BA article change-become such
'How did you change the article into such a state?'

We thus have both a demonstrative and a predicative *zheyang*. The former never moves, like other demonstratives. It is seen in the IMN in (70a) and the OMN in (71e). The relation between this *zheyang* and its following *de* is the Spec-head relation of a D-domain functional projection.

Since the left-edge XPmc of an OMN has reached the position by movement, if *zheyang* precedes the XPmc, it must be the movable one, i.e., the predicative one, rather than the demonstrative one. I now use Haegeman's predicate-raising approach to explain why an OMN may not have a left-edge *zheyang*. One illegal derivation should be ruled out first. The movement of XPmc in (73) is illegal, since the launching site is inside the subject of the SC, which is an island.

(73) … [$_{SC}$ [^{subj} XPmc *de* N] [^{pred} *zheyang*]]



Now we consider only the derivations in which the XPmc is base-generated out of the SC. Assume that only a bare noun is the subject of *zheyang* in a SC, and that *zheyang* obligatorily moves to the left of the SC, as shown in (74a). Then an XPmc, a classifier (CL), and a numeral (Num), are integrated, with the demonstrative *na* 'that' occurring at the left edge, as shown in (74b). The result is the structure of the IMN in (75a), where the XPmc is the RC *Luxun xie* 'Luxu write'. If the XPmc moves to the left of *na*, we get (74c), in which *zheyang* is not at the edge position. This is the structure of the OMN in (75b). Now, if we move both *zheyang* and the XPmc, we check three derivations. In (74d), the crossing pattern of the two movement chains is syntactically legal (3.5), but the adjacency of the two deictic elements, *zheyang* and *na* is not allowed. Then, consider (74e). This is the same string as (74d), except that there is no demonstrative. This is the structure of the OMN in (75c). Finally, in (74f), the nesting pattern of the two movement chains is not syntactically well-formed (3.5). This explains why OMNs may not have an initial *zheyang*.

(74) a. *zheyang*$_i$ *de* [$_{SC}$ [^{subj} N] [^{pred} t$_i$]]
b. (*na*) Num CL XPmc *de zheyang*$_i$ *de* [$_{SC}$ [^{subj} N] [^{pred} t$_i$]] (= (75a))
c. XPmc$_k$ *de* [(*na*) Num CL t$_k$ *zheyang*$_i$ *de* [$_{SC}$ [^{subj} N] [^{pred} t$_i$]]] (= (75b))
d. *XPmc$_k$ *de zheyang*$_i$ *de* [na Num CL t$_k$ t$_i$ [$_{SC}$ [^{subj} N] [^{pred} t$_i$]] (**zheyang-na*)
e. XPmc$_k$ *de zheyang*$_i$ *de* [Num CL t$_k$ t$_i$ [$_{SC}$ [^{subj} N] [^{pred} t$_i$]] (= (75c))
f. **zheyang*$_i$ de XPmc$_k$ *de* [(na) Num CL t$_k$ t$_i$ [$_{SC}$ [^{subj} N] [^{pred} t$_i$]] (*nesting) (70b)

(75) a. *na san ben* [*Luxun xie*] *de zheyang de shu* IMN
that three CL Luxun write DE suc DE book

b. [*Luxun xie*] *de na san ben zheyang de shu* OMN
Luxun write DE threeCL that such DE book
Both: 'the three such books that Luxun wrote'

c. [*Luxun xie*] *de san ben zheyang de shu* OMN
Luxun write DE threeCL that such DE book
'three such books that Luxun wrote'

In this analysis, it is the combination of Haegeman's (2010) predicate raising analysis of a *such*-word and our XPmc raising analysis that offers a plausible account for the ban of the left-edge *zheyang* for OMNs.[11]

4.4. *The specificity issue: the edge semantics of optional phrasal movement*

An IMN may have both a specific and a nonspecific reading, but an OMN may not have the latter reading (2.4). Although my movement analysis is argued for independently of this fact, it is able to explain the fact (as stated at the beginning of Section 4).

If an OMN is derived by the movement of an XPmc, and the movement is optional, it seems that its reading restriction correlates with certain restriction on the semantics of the landing site, which is the left-edge of the D-domain. As argued in L. Zhang (2007), the raised XPmc is focused; and accordingly, as suggested to me by Paul Law (p.c.), the reading of the rest part of the OMN is backgrounded and hence presupposed.

Specific readings of the marked order of nominals in other languages are also reported in Cinque (2010: 13-14). It is well-known that in languages such as English, an extraposed XPmc must have a focus reading. This contrasts with an XPmc that is not extraposed, which may have either a focus or non-focus reading. In order to exclude a non-focus reading for an in situ XPmc, some strategy such as a contrastive stress is used. Thus, like a special prosodic operation, extraposition is one of various ways to restrict readings in information-structures. The raising of an XPmc in OMNs can also be a strategy to exlude a nonspecific reading. Whether the raising in OMNs may restrict the semantics of the nominal in other aspects, in addition to the specificity one, is still under debate (see the literature cited in Section 1). We look forward to clear criteria in identifying other possible semantic effects.

In Turkish, we find similar IMN-OMN pairs, such as (76a) and (76b). It has been claimed that the modifier *büyük* 'big' in the OMN in (76b) is restricted to an emphasized meaning (Rijkhoff 1998: 353).

(76) a. *bir büyük ev* IMN
{a/one} big house
'{a/one} big house'

b. *büyük bir ev* OMN Turkish
big a house
'a BIG house'

A similar restriction effect is also found in Greek (Rijkhoff 1998: 352). In the IMN in (77a), the adjective follows the demonstrative, whereas in the OMN in (77b), the adjective precedes the demonstrative. Note that in this language, every adjective may be preceded by a determiner, under certain conditions (e.g., Alexiadou and Wilder 1998; Cinque 2010: 104). It

[11] One reviewer asked if all intersective adjectives may appear in a predicate position, then they should be able to move from a SC. This is true. The alternative analysis is seen in Troseth (2009: 49) for DegP fronting in English (see my footnote 8). *Zheyang* may also do so, as seen in (74e).

The same reviewer also asked why *de* takes an SC complement in (74b), but other categories in other structures. My assumption is that *de* is a phonological realization of a functional head, and indeed the complement of the head can vary (see Zhang 1999: 43-44).

is the reading of the OMN that is more restricted: the AP is emphasized there.

(77) a. *aftí* *i* *ómorfi* *kopéla* IMN Greek
this.NOM.SG.F the.NOM.SG.F pretty.NOM.SG.F girl.NOM.SG.F
'this pretty girl'

b. *i* *ómorfi* *aftí* *kopéla* OMN
the.NOM.SG.F pretty.NOM.SG.F this.NOM.SG.F girl.NOM.SG.F
'this PRETTY girl'

Hungarian OMNs can also be used as exclamatives. Rijkhoff (1998: 352) describes the examples in (78) as follows: "The adjective and the noun are normally contiguous in Hungarian, but in an exclamation (i.e. not in NPs in a regular sentence) the emphasized adjective may precede an indefinite article or a numeral".[12]

(78) a. *Gyönyörú egy állat*!
beautiful an animal
'A beautiful animal!'

b. *Szép két ló*!
beautiful two horse
'Two beautiful horses!' [Hungarian]

Vendler (1968: 130), Sproat and Shih (1988: 469), among others, also discuss how the marked position of an element in a nominal correlates with its emphasis reading. Addressing the examples in (76), (77), and (78), Rijkhoff (1998: 352) further states that "This ordering may be explained if we assume that the first position in an NP is reserved for constituents with a special (pragmatic) function, just like the clause-initial position (cf. Dik 1989: 367). This is by no means unusual, as can be shown by examples from e.g. Babungo (Niger-Kordofanian) in which an emphasized demonstrative or possessive pronoun may occur in NP-initial position, whereas they normally appear after the noun (Schaub 1985: 77)." In Chomsky (2000; et seq.), the forms derived by A-bar movement may correlate with certain scope relations, specificity, and information structures (what Chomsky 2000: 109 terms as "specific interpretations associated with peripheral positions"; also see Rizzi 2014: Sec. 2). Topicalization and focalization movement in clauses are well-known, and their nominal-internal counterparts have been studied in many languages (see Aboh et al. 2010; Aelbrecht et al. 2012). From this perspective, the specificity restriction on OMNs in Chinese is covered by the general semantic effects of A-bar movement.

4.5. *The* de*-stranding issue: a manifestation of a general rule of NP ellipsis*

In the full-form of an IMN and that of an OMN, *de* is followed by an overt string: *zi* 'character' in the IMN in (79a), and *san ge zi* 'three CL character' in the OMN in (79b).

(79) a. *Zai qiang-shang, Akiu xie-le san ge dada de zi*.
at wall-on Akiu write-PRF threeCL big DE character

b. *Zai qiang-shang, Akiu xie-le dada$_i$ de san ge t_i zi*.
at wall-on Akiu write-PRF big DE three CL character
Both: 'On the wall, Akiu wrote three big characters.'

[12] In Chinese, if an OMN is used as an exclamative, the XPmc must be a DegP headed by the degree word *hao* 'good' and no demonstrative is allowed ((i) is cited from Lü 1999: 258). This DegP fronting is similar to the English ones in (i) of footnote 8, and the exclamative reading is similar to the Hungarian examples in (78). The ban of a definite marker in this type of the marked word order is seen in all three languages.

(i) {*Hao/*Hen/*∅*} *shen de* {*yi/*na*} *kou jing*!
good/very deep DE one/that CL well
'What a deep well!'

The post-*de* string may be elided in an IMN, but not in an OMN, as shown by (80a) and (80b), respectively (2.5).

(80) a. *Akiu xie-le san ge dada de zi, Dali xie-le san ge*
Akiu write-PRF threeCL big DE character Dali write-PRF threeCL
xiaoxiao de ~~zi~~.
small DE character
'Akiu wrote three big characters, and Dali wrote three small ones.'

b. **Akiu xie-le dada$_i$ de san ge t_i zi, Dali xie-le*
Akiu write-PRF big DE three CL character Dali write-PRF
xiaoxiao de ~~san ge t_i zi~~.
small DE three CL character

Although my movement analysis of OMNs is argued for independently of this fact, it is able to explain the fact (as stated at the beginning of Section 4).

In a nominal [XP *de* YP] construction, *de*-stranding is an issue of YP-ellipsis (or an empty category), licensed by *de*. Ellipsis is licensed by certain interpretable feature in the syntactic context. Since the same formative may occur in different structures, it may license ellipsis in one structure, but not in another structure. Also, different heads have different conditions in licensing the ellipsis of their complement. In (81a), the modal *must* licenses VP ellipsis in a deontic reading, but not an epistemic reading. In the epistemic context (81b), this modal does not license ellipsis (Gergel 2007: 17; Bošković 2014: 30). The word *being* licenses ellipsis in (82c), but not in (82a) (Aelbrecht and Harwood 2013: 44 (49)). Descriptively, *being* in (82c) contributes an aspect contrast with the first conjunct, whereas the second *being* in (82a) does not do so. In (82b), *is* contrasts with *was* in the first conjunct in tense, and it licenses the VP ellipsis (for more unacceptable examples like (82a), see Johnson 2001: 442 (12a, b)). It has also been observed that the infinitive *to* licenses VP ellipsis in control, but not in ECM constructions, as seen in (83) (Zagona 1988; Takahashi 2000: 321).

(81) a. *Bob must wash his car every day and Peter must _ too. deontic / *epistemic reading*
b. **The president must have been at the meeting and the vice president must _ too.*

(82) a. **Ted was being punished this morning, and now Barney is being _.*
b. *Ted was being punished this morning, and now Barney is _.*
c. *Ted was punished this morning, and now Barney is being _.*

(83) a. *John tried to be smart, and Mary tried to _ also.*
b. **I believe John to be smart, and I believe Mary to _ also.*

In the nominal domain, it is well-known that classifiers (or unit words in general) license NP ellipsis. One example is (84). Alexiadou and Gengel (2012) further show that the licensors of NP ellipses in other languages can also be classifiers. They claim that it is the semantics of individuation and partitivity that enables classifiers to license NP ellipsis (p. 204) (see Günther 2013 for more discussion of semantic conditions of NP ellipsis in English).

(84) *Akiu xie-le san ge zi, Dali xie-le si ge _.*
Akiu write-PRF three CL character Dali write-PRF four CL
'Akiu wrote three characters, and Dali wrote four.'

What is a possible condition for *de* to license an NP ellipsis? I have found that in an argumental nominal, if there is an intersective relation between the phrase to the left of *de* and

the string to the right of *de*, the string can be null. In (85), the pre-*de* phrase is the predicative modifier *xiao* 'small', which has an intersective relation with the elided *fangzi* 'house'.

(85) *Ziyi yao da de fangzi, Mimi yao xiao de _.*
Ziyi wantbig DE house Mimi wantsmall DE
'Ziyi wants a big house, but Mimi wants a small one.'

In an OMN, the post-*de* phrase contains the trace of the pre-*de* XPmc, as well as a demonstrative (if any), a numeral, a classifier, and a noun. There is no intersective condition between the pre-*de* XPmc and the whole post-*de* string, although the former does establish an intersective relation with the noun that is contained in the latter (i.e., the relation exists before the movement). This explains why *de* cannot be stranded in the OMN in (80b).

This analysis accounts for the fact that even for IMNs, *de* does not always license ellipsis. It does, when the pre-*de* phrase is a predicative modifier of the elided phrase, as in (80a) above. It does not, if its preceding phrase is a non-predicative adjective, such as *suowei* 'so-called' in (86a), an adjective in an epithet, such as *hunzhang* 'damn' in (86b), an appositive modifier of a proper name, such as the RC *ai ku* 'like to weep' in (86c), or a complement, such as *Bali youxing* 'Paris parade' in (86d) (see Pan and Hu 2003: 123). In (86e), the temporal expression *si nian* 'four years' precedes *de*, and it has no intersective relation with the elided NP *laoshi* 'teacher'. Similarly, in (86f), the temporal expression *ban xiaoshi* 'half hour' precedes *de*, and it has no intersective relation with the elided NP *qiu* 'ball'. The NP ellipsis in these two examples also fails.

(86) a. *Wo jian-guo na ge zhenzheng de huajia, dan mei jian-guo na ge*
I see-EXP that CL real DE artist but not see-EXP that CL
*suowei de *(huajia*).
so-called DE artist
'I saw that real artist, but not the so-called one.'[13]

b. *Akiu qing-le Dali, dan wo bu hui jian na ge*
Akiiu invite-PRF Dali but I not will meet that CL
*hunzhang de *(jiahuo*).
damn DE guy
'Akiu invited Dali, but I will not meet the damn guy.'

c. *Wo xihuan ai dushu de Lili, ni xihuan ai ku de *(Lili*).
I like like read DE Dali you like like weep DE Lali
'I like Lili, who likes read, and you like the same person (i.e., Lili), who likes to weep.'

d. *Wo tingdao-le Riben dizhen de xiaoxi, ta tingdao-le*
I hear-PRF Japan earthquake DE news he hear-PRF
*Bali youxing de *(xiaoxi*).
Paris parade DE news
'I heard the news of Japan earthquake and he heard the news of Paris parade.'

e. *Wo dang-le san nian de laoshi, ta dang-le si nian de *(laoshi*).
I be-PRD threeyear DE teacher he be-PRF four year DE teacher
'I was a teacher for three years, and he was a teacher for four years.'

[13] The contrast between (ia) and (ib) shows that *hard* is not predicative. (ic) shows that the word may not occur as ellipsis remnant (see Barros et al. to appear: Sec. 3.3 for more examples and discussion).

(i) a. *Bill hired a {diligent/hard} worker*. b. *This worker is {diligent/*hard}*.
c. *Billy hired a {diligent/hard} worker, but I don't know how {diligent/*hard}*.

f. *Wo da-le yi xiaoshi de qiu, ta da-le ban xiaoshi de *(qiu).*
I play-PRF one hour DE ball he play-PRF half hour DE ball
'I played the ball for one hour, and he did so for half an hour.'

The intersective condition of NP ellipsis of *de*-constructions is also seen when we compare two uses of a quantifier phrase: in one use, it encodes a quantity, and in the other use, it encodes a quantity-oriented property (3.3). In (87a), the use of the quantifier phrase *20 bao* '20 packages' tells us the quantity of the tea, rather than any property of the tea. There is no intersective relation between *20 bao* and *chaye* 'tea'. Therefore, *de* does not license NP ellipsis in (87a). In (87b), however, *20 bao* tells us a special type of tea which is packed in 20 bags (see Schwarzschild 2006). There is an intersective relation between *20 bao* and *chaye*, and thus, *de*-stranding is possible. In (87b), *liang he* 'two boxes' plays the same role that *20 bao* and *30 bao* do in (87a) (see Tsai 2011 and Li 2013 for more examples).

(87) a. **Ziyi mai-le 20 bao de chaye, Mimi mai-le 30 bao de.*
Ziyi buy-PRF 20 bag DE tea Mimi buy-PRF 30 bag DE
b. *Ziyi mai-le liang he 20 bao de chaye, Mimi mai-le liang he 30 bao de.*
Ziyi buy-PRF two box 20 bag DE tea Mimi buy-PRF two box 30 bag DE
'Ziyi bought two boxes of tea that are packed in 20 bags, and Mimi bought two boxes of tea that are packed in 30 bags.

One more fact to show the semantic condition on NP ellipsis is the following. Recall that *naixin* 'patient' in the IMN in (88) (= (17)) has only a nonintersective reading in the context. If the teachers mentioned are identifiable in the context, *de* still may not license the ellipsis of *laoshi* 'teacher'. Therefore, the *de*-stranding contrast between argumental OMNs and some IMNs is captured by the general intersective condition of NP ellipsis of *de* constructions.

(88) *Liang wei naixin de *(laoshi) hui-dao jia-li, piqi baozao.*
two CL patient DE teacher return-to home-in temper grumpy
'The two patient teachers returned to their homes, and they became grumpy.'

It is well-recognized that the same formative behaves differently in different contexts. Nobody denies that *must* in (81b), *being* in (82a), and the infinitive *to* in ECM constructions are head elements, taking the elements to their right as complement. We therefore do not assume that if an element fails to license the ellipsis of another element, it may not take the latter as its complement (also see Chou 2013: 122; *pace* Tsai 2011; Cheung and Li 2013; Lin and Tsai 2013; Li 2013). The facts discussed here clearly show that a unified condition for *de* to license NP ellipsis is the intersective relation; and in the absence of the relation, *de* fails to license NP ellipsis consistently. On the other hand, we do not see any unified configurational or phonological property in the constructions in which *de* fails to license NP ellipsis. Theoretically, if ellipsis is syntactic (e.g., Baltin 2012; Bošković 2014), it is not surprising that both syntactic and semantic factors play some roles, beyond pure phonological recoverability.

As we introduced in 2.5, a *de*-final nominal can always occur as a predicate. The unacceptable *de*-final form in (80b) becomes perfect if it is a predicate, as seen in (89a). Other unacceptable *de*-final forms in (86) and (87) also become perfect, if they occur as predicates, as seen in (89b) through (89d).

(89) a. *Akiu xie-le dada de san ge zi, bu shi xiaoxiao de.*
Akiu write-PRF big DE threeCL character not be small DE
'Akiu wrote three big characters, not three small ones.' (cf. (80b))

b. *Wo dang-le san nian de laoshi, bu shi si nian de.*
I be-PRD threeyear DE teacher not be four year DE
'I was a teacher for three years, not four years.' (cf. (86e))

c. *Wo da-le yi xiaoshi de qiu, bu shi ban xiaoshi de.*
I play-PRF one hour DE ball not be half hour DE
'I played the ball for one hour, not half an hour.' (cf. (86f))

d. *Ziyi mai-le 20 bao de chaye, bu shi 30 bao de.*
Ziyi buy-PRF 20 bag DE tea not be 30 bag DE
'Ziyi bought 20 bags of tea, but not 30 bags.' (cf. (87a)))

I claim that in the examples in (89), the subject of the *bu shi*-predicate is a *pro*, which takes the complement of the verb in the previous clause as its antecedent. Thus, the structure of (89a) is (90a). (90a) is synonymous to (90b), in which the full form of the OMN is a predicate.

(1.) a. *Akiu xie-le* [*dada*$_i$ *de san ge* t_i *zi*]$_k$, *pro*$_k$ *bu shi xiaoxiao de.*
Akiu write-PRF big DE threeCL character not be small DE

b. *Akiu xie-le* [*dada*$_i$ *de san ge* t_i *zi*]$_k$, *pro*$_k$ *bu shi* [*xiaoxiao*$_m$
Akiu write-PRF big DE threeCL character not be small
de san ge t_m *zi*].
DE three CL character
Both: 'Akiu wrote three big characters, but not three small ones.'

(90a) is not a reduced form of (90b), since *de*-final predicates are also found in other constructions. In (91a), *piaopiao-liangliang de* 'beautiful-RED DE' is a resultative, so is *baobao de* 'full-RED DE' in (91b) (e.g., Liu et al. 1996: 115). There is no ellipsis in these examples and those in (89). The availability of *de*-final predicates does not affect the intersective condition for *de*-final arguments.

(91) a. *Akiu daban de piaopiao-liangliang de.*
Akiudress.up DE beautiful-RED DE
'Akiu dressed himself up beautiful'.

b. *Akiu chi de baobao de.*
Akiu eat DE full-RED DE
'Akiu ate such that he was full.'

Moreover, *de*-final arguments may contain a *pro*, instead of ellipsis (N. Zhang 1999). In IMN examples such as (92), no overt form may follow *de*, and thus no ellipsis occurs. In this example, the *pro* takes *bi* 'pen' in the context as its antecedent. The modifier *hongse* 'red' and the *pro* establish an intersective relation.

(92) *Na zhong [bi]*$_i$*,wo yao liang zhi hongse de {*bi/pro*$_i$*}.*
that CL pen I want two CL red DE pen
'That kind of pens, I want two red ones.'

I therefore state my generalization for *de*-final arguments in (93).

(93) A *de*-final argument is licensed if the pre-*de* expression has an intersective relation with an elided nominal or *pro* that immediately follows *de*.

Importantly to the discussion of this paper, this generalization is not OMN-specific.

In this section, I have explained the five restrictions on OMNs presented in Section 2. All acceptable OMNs have their correlated IMNs, and all reading patterns of OMNs can be found in their correlated IMNs. If the former is derived from the latter by movement, the correlation availability means that reconstruction of the movement is possible. It needs to be emphasized that OMNs do not have any reading that is not available in their correlated IMNs. Thus, the movement does not create anything, and the moved element keeps its semantics in the syntactic operation. On the other hand, the five restrictions indicate that the correlation in the opposite direction is not seen, and thus not all IMNs have correlated OMNs. Since not all elements may move freely, the restrictions on OMNs may come from the restrictions on movement. I have shown in this section that for the first three restrictions, the IMNs may not have their OMN counterparts because the movement operation is problematic: either the launching site is too low (the restriction in XPmc types and the restriction in the readings of the same XPmc), or the movement interacts with the movement of another element (the *zheyang* 'such' restriction). As for the specificity restriction, I have shown that OMNs do not have non-specific reading because, as other kinds of A-bar movement, the movement that derives OMNs shows the edge effects in semantics. Finally, I have also given a possible independent explanation for the *de*-stranding restriction.

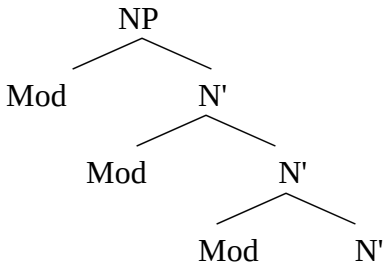
5. Comparing with two multiple-base-position analyses

Like the analysis proposed here, Simpson (2001: 148), L. Zhang (2007), and Lin (2008: 857) also propose that OMNs are derived by the leftward movement of an XPmc, although they discuss RC constructions only. In this section, I make brief comments on two multiple-base-position analyses of OMNs.

5.1. *Free adjunction and a special treatment of the demonstratives in OMNs*

Huang et al. (2009: 218; also Huang 1982; Cheung and Li 2013) claim that the two positions of an XPmc in an IMN and an OMN are both base-generated. They give the structure in (94), assuming that in each level, Mod modifies its sister constituent (Wu 1993: 201 proposes a similar structure for OMNs, but she does not discuss demonstrative constructions).

(94)



In an OMN, a predicative modifier precedes a demonstrative. As pointed out by Lin (2008: 857) and Bošković (2014: 78), once a demonstrative has mapped a nominal element to an individual, further modification by predicates of type <e,t> is impossible. Therefore, semantic composition requires adjectives to be integrated before demonstratives. This means that demonstratives must be merged later than adjectives. Huang et al. (2009: 217) cite Lu's (1998) claim that the demonstratives in IMNs and OMNs are different: the left-edge demonstrative in an IMN is a deictic expression, but the post-RC demonstrative in an OMN is an "anaphoric" expression, which is identified by the preceding RC. However, why is the

anaphoric expression next to its antecedent? Note that as we addressed in Section 1, the presence of *de* rules out any appositive relation between the pre- and post-*de* element. Second, since the left XPmc in an OMN is predicative, if an element takes the XPmc as its antecedent, the proform should behave like other predicate-proforms such as *so* in the English *do so* construction. No shared property between the demonstrative in an OMN and a predicate-proform has been seen. Third, if the demonstratives play different roles in the two positions, Lu's theory may generate unacceptable forms like (95), in which two demonstratives co-occur.

(95) **na ge dai yanjing de na ge xuesheng*
that CL wear glasses DE that CL student

Moreover, it is not clear how to explain the systematic restrictions that are found on OMNs, compared to IMNs (Section 2), if every Mod modifies its sister constituent equally in (94).

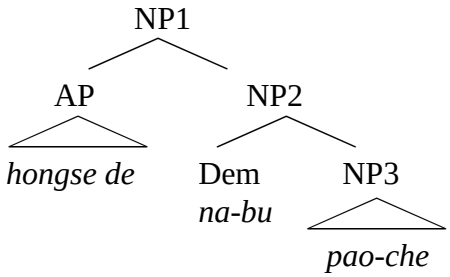
This multiple-base-position analysis, like all other analyses of OMNs in the literature, does not discuss OMNs in which the XPmc is a complement. It is obvious that the complement of a noun may not be base-generated in different positions.

5.2. *Free adjunction and a special treatment of adjectives in Chinese*

Bošković (2014) claims that in Chinese, nominal-internal modifiers are adjuncts, and therefore, they can be ordered freely. He gives the structure in (96b) for the OMN in (96a).

(96) a. *hongse de na bu pao-che*
red DE that CL sport-car
'that red sport-car'

b.



Bošković (2014: 80) states that "The relevant assumptions regarding Chinese (from Chierchia 1998 and Huang 2006) are that bare nouns and adjectives are of type e and that prenominal modification (in all languages) observes the type-matching constraint. In light of this, consider the second example in Chinese (117b) [= (96a)], where the adjective precedes the demonstrative. The type-matching constraint is satisfied since both the demonstrative NP and the adjective are of type e." The hypothesis adopted by Bošković (2014) that Chinese bare adjectives may not function as predicates has been shown to be problematic. Liu (2010) and Grano (2012) show that Chinese bare adjectives function as predicates perfectly in questions, negations, conditions, focus constructions, among many other contexts. Moreover, a predemonstrative modifier can also be a relative clause, and it is unlikely that a relative clause is of type e.

There are other unclear parts in this free adjunction analysis of OMNs. Some details in (96b) are not justified, e.g., why the combination of a demonstrative and a classifier is a constituent, and where a numeral occurs (the OMN structure offered in Constant 2011 also has no position for a numeral). Numerals are consistently allowed in OMNs, as seen in many examples in the paper. Moreover, the analysis does not consider the restrictions on OMNs,

especially those that are also found in movement operations (Section 3). Furthermore, the free adjunction analysis is not applicable to OMNs with a complement XPmc.

6. Conclusions and further issues

In this paper, I have argued that an OMN is derived from an IMN by the movement of an XPmc. The movement analysis is supported by the hierarchy of nominal-internal elements, the Superiority Condition effect, the Crossing-over-Nesting effect, and island effects. This analysis is able to explain five formal restrictions on OMNs. The restriction on the types of the XPmc is explained by Cinque's (2010) two functional projection zones for nominal modifiers and the restriction that only modifiers base-generated in the high zone may move. The restriction on the readings of the same modifier is explained by Cinque's theory that such modifiers have two possible base-positions in an IMN (in the high and low zone), and only the one in the high zone may move, deriving an OMN. The restriction on the left edge *zheyang* 'such' is explained by the interactions of multiple movement operations. The restriction on the availability of nonspecific readings is explained by the edge semantic effects of optional A-bar movement. Finally, the restriction on the *de*-stranding is explained by the general intersective condition of NP ellipsis of *de* constructions in the language.

Showing unified properties of marked orders of nominal-internal elements in very different types of languages (Chinese and English), providing substantial evidence for phrasal movement in the marked order, and accounting for the properties, this paper has made an effort to get a better understanding of the underlying general syntax of nominals.

In the following, I clarify a few additional issues. First, N. Zhang (2006: 12) mentions that three modifiers may not follow a CL, and thus they seem to occur in OMNs exclusively: *qiyu* 'the rest', *ciwai* 'other', and *yishang* 'the above'.

(97) a. *qiyu de (na) san ben shu*
rest DE that threeCL book
'the rest three books'

b. *[(*na*) *san ben qiyu de shu*]
that threeCL rest DE book

(98) a. *ciwai de (na) liu ben shu*
other DE that six CL book
'the other six books'

b. *[(*na*) *liu ben ciwai de shu*]
that six CL other DE book

(99) a. *yishang de (na) san ge ci*
above DE that threeCL word
'the above three words'

b. *[(*na*) *san ge yishang de ci*]
that threeCL above DE word

In fact, the three words occur in definite nominals only, and they are not predicative. They might be modifiers of an explicit or implicit demonstrative, which are base-generated at Spec of DP. If they are not modifiers of nouns, the unacceptability of the IMN-forms is explained. Another word, *tong* 'same', may not be next to a noun, either, as seen in (100b). This word is different from the above three words in that it never occurs with *na* 'that'. Unlike other modifiers, including *xiangtong* 'same', it may not be followed by *de*. Also, it must be followed by the word *yi* 'one', rather than any other numeral. This means that *yi* is not a real numeral in the construction. *Tong* might be an element base-generated in the D-domain (Liao and Shi 2013: 60). These words do not affect the generalization that OMNs are marked compared with IMNs, with respect to the types of modifiers.[14]

[14] Cross-linguistically, the counterparts of such words also behave differently from adjectives. Oxford (2010) argues that *other* is in the domain of D.

(100) a. *tong (*de) yi ba shanzi* b. **yi ba tong (de) shanzi*
same DE one CL fan oneCL same DE fan
'the same fan'

As expected by a reviewer, these apparent high-position-only modifiers may co-occur with low-position modifiers. In (101a), *qiyu* 'rest' precedes the demonstrative, and *da* 'big' is next to the noun *shanzi* 'fan'. Actually, all OMNs may have a low XPmc, in addition to the left-edge one. In (101b), the RC *ni mai* 'you buy' moves to a position higher than the demonstrative, but the other modifier, the adjective *da* 'big', remains in situ.

(101) a. *qiyu de na san ba da de shanzi*
rest DE that threeCL big DE book
'the rest three big books'
b. *ni mai de na san ba da de shanzi*
you buy DE that threeCL big DE fan
'the three big fans that you bought'

Second, in (102a), *wo chusheng* is an RC, and the modified *nian* 'year' moves from N to the head of UnitP (N. Zhang 2013: 44), to satisfy the rule that a numeral must be next to a unit word in the language. The IMN in (102b) is not acceptable, because the numeral *yi* 'one' is not next to a unit word. The acceptability contrast in (102) is independently accounted for, and thus it does not affect the general unmarked status of IMNs.

(102) a. *wo chusheng de na yi nian* b. **na yi wo chusheng de nian*
I bear DE that one year thatone I bear DE year
'the year when I was born'

Third, unlike IMNs, OMNs do not host bare CLs, which have no overt numeral to the left. In (103a), the bare CL *ge* occurs, but the correlated OMN in (103b) is not acceptable. Yang (2001: 72) presents evidence to show that bare CLs are enclitics, but post-numeral ones are not (contra Huang et al. 2009: 214). The host of a bare CL must be a verb or preposition. In (103a), the bare CL *ba* is hosted by the verb *mai-le* 'buy-PRF', but the bare CL *ba* in (103b) follows *de*, which cannot host the clitic. This explains why the OMN is not acceptable. The acceptable contrast in (103), again, is independently accounted for, and thus it does not represent a general restriction on OMNs.

(103) a. *Wo mai-le ba da de shanzi*.
I buy-PRF CL big DE fan
'I bought a big fan.'
b. **Wo mai-le da de ba shanzi*.
I buy-PRF big DE CL fan

Fourth, Huang (1982, cited in L. Zhang 2007: 132) claims that *yigong* 'altogether, total' may not occur with an OMN:

(104) a. *Wo yigong kanjian-le* [*san ge dai yanjing de xuesheng*].
I total see-PRF threeCL wear glasses DE student
'Altogether, I saw three students who had glasses on.'
b. **Wo yigong kanjian-le* [*dai yanjiang de san ge xuesheng*].
I total see-PRF wear glasses DE threeCL student

In fact, *yigong* may occur with either an IMN or OMN, if it c-commands a numeral, in without any phrasal intervening element. All of the *yigong* examples in (105) and (106) are perfect. In (107), however, regardless of whether the object is an IMN (107a), OMN (107c,d), or a simple NP (107b), the underlined part intervenes between *yigong* and the numeral, and the examples are all unacceptable. Thus, (104b) is bad simply because the RC *dai yanjing* 'wear glasses' intervenes between *yigong* and *san* 'three'. In (104a), the intervening *kanjian-le* 'see-PRF' is not a phrase, and thus it does not interact with the *yigong*-numeral dependency. The contrast in (104) thus does not represent a general restricitn on OMNs.

(105) a. *Wo ba yigong san ben Lili xie de shu dou mai-le.*
I BA total threeCL Lili write DE book all buy-PRF
'I bought all three books that Lili wrote.'

b. *Wo ba Lili xie de yigong san ben shu dou mai-le.*
I BA Lili write DE total threeCL book all buy-PRF
'I bought all three books that Lili wrote.'

(106) a. *Yigong san ge xie zhe ben shu de ren dou bei zhuaqilai-le.*
total threeCL write this CL book DE person all PASS arrest-PRF
'All three persons who wrote this book were arrested.'

b. *Xie zhe ben shu de yigong san ge ren dou bei zhuaqilai-le.*
write this CL book DE total threeCL person all PASS arrest-PRF
'All three persons who wrote this book were arrested.'

(107) a. **Wo yigong hen renzhen de kan-le san ben Lili xie de shu*
I total very careful DE read-PRF threeCL Lili write DE book

b. **Wo yigong hen renzhen de kan-le san ben shu*
I total very careful DE read-PRF threeCL book

c. **Wo ba yigong Lili xie de san ben shu dou mai-le*
I BA total Lili write DE three CL book all buy-PRF

d. **Yigong xie zhe ben shu de san ge ren dou bei zhuaqilai-le*
total write this CL book DE threeCL person all PASS arrest-PRF

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