

# On Inner and Outer Modifiers in Mandarin and Cantonese

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## Abstract

This paper investigates the syntactic properties of inner and outer modifiers in Mandarin and Cantonese with respect to extraction and ellipsis. The investigation reveals that while inner modifiers allow extraction or ellipsis of the following noun, outer modifiers do not allow extraction or ellipsis of the following [Demonstrative-Numeral-Classifier-Noun] sequence. Adopting Tsai's (2011) reformulation of formal licensing, I propose that inner modifiers are best accommodated under the complementation analysis where the modifying marker is analyzed as a functional head whose Specifier hosts the modifying phrase and it takes the modified phrase as its complement. In contrast, outer modifiers are best captured under the adjunction analysis where the modifying phrase plus the modification marker is adjoined to the modified phrase. Building on previous studies of noun phrase structure, I further offer a parametric account for inner and outer modifiers in Mandarin and Cantonese.

## Keywords

inner and outer modifiers, formal licensing, complementation analysis, adjunction analysis, noun phrase structure, Mandarin, Cantonese

## 1. Introduction

### 1.1. *Inner and outer modifiers in Mandarin and Cantonese*

In Mandarin and Cantonese, it has been observed that modifying phrases, such as modifying NPs, modifying APs and modifying PPs, can immediately precede either the noun (henceforth “inner modifiers”), as in (1) and (3), or the demonstrative (henceforth “outer modifiers”), as in (2) and (4) (see Aoun and Li 2003, Cheung 2012, Hsieh 2005, J. Tang 1990a, 1993, 2007, S.-W. Tang 2006 *inter alia* for Mandarin; see Sio 2006, 2011 for Cantonese).<sup>1</sup> For clarity, the modifying phrase and the following modification marker are boldfaced in the following examples.<sup>2</sup>

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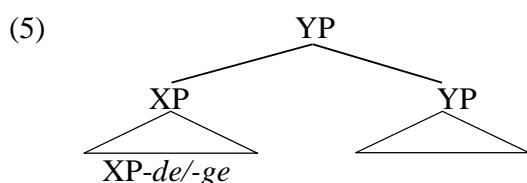
<sup>1</sup> In light of studies on the syntax of relative clauses in Mandarin have shown that different structures and different derivations are available to relative clauses depending on what is being relativized (Aoun and Li 2003) and the fact that the syntax of the relative clauses that appear immediately before a noun and those that appear before a demonstrative in Mandarin and the semantic differences between the two remain controversial (see, for instance, Del Gobbo 2003, 2005 and Lin 2003, 2008), I leave the syntax of relative clauses and the semantic differences between outer and inner modifiers in Mandarin and Cantonese for future study.

<sup>2</sup> The following abbreviations are used in glossing examples: Cl: classifier; Exp: Experiential aspect; Loc: localizer; Neg: negative particle; Perf: Perfective aspect, and SFP: sentence-final particle.

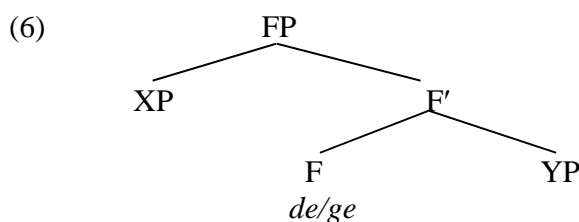
- (1) Mandarin inner modifiers
- a. na liang-ba **suliao de** yizi (Modifying NP)  
that two-Cl plastic DE chair  
'those two plastic chairs'
  - b. na san-tai **xin de** diannao (Modifying AP)  
that three-Cl new DE computer  
'those three new computers'
  - c. na si-ben **zai zhuōzi-shang de** shu (Modifying PP)  
that four-Cl at table-Loc DE book  
'those four books on the table'
- (2) Mandarin outer modifiers
- a. **suliao de** na liang-ba yizi (Modifying NP)  
plastic DE that two-Cl chair  
'those two plastic chairs'
  - b. **xin de** na san-tai diannao (Modifying AP)  
new DE that three-Cl computer  
'those three new computers'
  - c. **zai zhuōzi-shang de** na si-ben shu (Modifying PP)  
at table-Loc DE that four-Cl book  
'those four books on the table'
- (3) Cantonese inner modifiers
- a. go loeng-zoeng **gaau ge** dang (Modifying NP)  
that two-Cl plastic GE chair  
'those two plastic chairs'
  - b. go saam-bou **san ge** dinnou (Modifying AP)  
that three-Cl new GE computer  
'those three new computers'
  - c. go sei-bun **hai toi-soengmin ge** syu (Modifying PP)  
that four-Cl at table-Loc GE book  
'those four books on the table'
- (4) Cantonese outer modifiers
- a. **gaau ge** go loeng-zoeng dang (Modifying NP)  
plastic GE that two-Cl chair  
'those two plastic chairs'
  - b. **san ge** go saam-bou dinnou (Modifying AP)  
new GE that three-Cl computer  
'those three new computers'
  - c. **hai toi-soengmin ge** go sei-bun syu (Modifying PP)  
at table-Loc GE that four-Cl book  
'those four books on the table'

## 1.2. Complementation analysis versus adjunction analysis of nominal modifiers

Among previous studies of nominal modifiers in Mandarin and Cantonese, two major lines of research can be identified. One is the “adjunction analysis,” where the modification marker following the modifying phrase is analyzed as a clitic-like element attached to the modifying phrase (labeled as “XP” below) and the modifying phrase is in turn adjoined to the modified phrase (labeled as “YP” below) (see Huang 1982, Tang 1990a, b, Rubin 2002, 2003, Tang 2006 for Mandarin; see Sio 2006 for Cantonese), as schematized in (5).<sup>3</sup>



The second line of research is the “complementation analysis,” where the modification marker is analyzed as a functional head taking the modified phrase YP as its complement (Zhang 1999, 2009; see also Simpson 2002, den Dikken and Singhapreecha 2004, den Dikken 2006, among others). The modifying phrase XP is located in the Spec of the functional phrase (FP), as visualized in (6).<sup>4</sup>



The goal of this paper is to show that both analyses are needed to account for the different syntactic behaviors of inner and outer modifiers in Mandarin and Cantonese. In particular, I propose that inner modifiers should be analyzed under the complementation analysis while outer modifiers are best captured under the adjunction analysis. I further offer a parametric account of inner and outer modifiers in Mandarin and Cantonese.

This paper is organized as follows. In section 2, I show that inner and outer modifiers exhibit different properties with respect to ellipsis and extraction in both

<sup>3</sup> Note that while the modification marker *de* is analyzed as a clitic-like element attached to the modifying phrase in this line of research (see, for instance, Huang 1982, Tang 1990a,b), I leave open the question of whether it should be analyzed as a clitic-like element adjoined to the modifying phrase XP, as proposed by Tsai (2011), or as a functional head, as proposed by Rubin (2002, 2003).

<sup>4</sup> Note that while it is generally recognized that the modification marker serves as a functional head in the complementation analysis, the schema in (6) essentially follows from Zhang’s (2009) analysis and I have abstracted away from analyses such as those advanced by Simpson (2002), den Dikken and Singhapreecha (2004) and den Dikken (2006).

Mandarin and Cantonese. In particular, I show that while inner modifiers can license ellipsis and extraction of the following noun, outer modifiers cannot license ellipsis and extraction of the following [Dem(onstrative)-Nume(ral)-Cl(assifier)-N(oun)] sequence. In section 3, adopting Tsai's (2011) reformulation of formal licensing, I propose a syntactic account for inner and outer modifiers in Mandarin and Cantonese. In section 4, I turn to two modification structures that are commonly found in Cantonese, namely [Modifier-Cl-N] and [Modifier-Dem-Cl-N], and offer a parametric account for inner and outer modifiers in Mandarin and Cantonese. Section 5 concludes the paper.

## 2. Outer and Inner Modifiers in Mandarin and Cantonese

### 2.1. *Ellipsis*

One piece of evidence supporting the different syntactic analyses of inner and outer modifiers comes from ellipsis. Specifically, while ellipsis of the noun following an inner modifier is possible, ellipsis of the [Dem-Nume-Cl-N] sequence following an outer modifier always results in ill-formedness in Mandarin, regardless of whether the modifying phrase is an NP, an AP or a PP. This is shown by the contrast between the (a) and (b) examples in (7)–(9), where the former examples involve inner modifiers and the latter involve outer modifiers. Note that the elided elements are indicated by *strikeout* here and throughout.

#### (7) Modifying NP

- a. Libai yao mai **na san-ba suliao de yizi**, Wangwei que yao mai **na**  
 Libai want buy that three-Cl plastic DE chair Wangwei but want buy that  
**san-ba mutou de [yizi]**.  
 three-Cl wood DE chair  
 'Libai wants to buy those three plastic chairs, but Wangwei wants to buy those  
 three wooden ones.'
- b. \*Libai yao mai **suliao de na san-ba yizi**, Wangwei que yao mai **mutou**  
 Libai want buy plastic DE that three-Cl chair Wangwei but want buy wood  
**de [na-san-ba-yizi]**.  
 DE that three-Cl chair

#### (8) Modifying AP

- a. Libai xihuan yong **na san-tai xin de diannao**, Wangwei que xihuan yong  
 Libai like use that three-Cl new DE computer Wangwei but like use  
**na san-tai jiu de [diannao]**.  
 that three-Cl old DE computer  
 'Libai likes to use those three new computers, but Wangwei likes to use those  
 three old ones.'
- b. \*Libai xihuan yong **xin de na san-tai diannao**, Wangwei que **xihuan yong**  
 Libai like use new DE that three-Cl computer Wangwei but like use  
**jiu de [na-san-tai-diannao]**.  
 old DE that three-Cl computer

(9) Modifying PP

- a. Libai fangwen-le **na liang-suo zai Xianggang de daxue**, Wangwei que  
Libai visit-Perf that two-Cl at Hong.Kong DE university Wangwei but  
fangwen-le **na liang-suo zai Meiguode** [~~daxue~~].  
visit-Perf that two-Cl at US DE university  
'Libai visited those two universities in Hong Kong, but Wangwei visited those  
two in the US.'
- b. \*Libai fangwen-le **zai Xianggang de na liang-suo daxue**, Wangwei que  
Libai visit- Perf at Hong.Kong DE that two-Cl university Wangwei but  
fangwen-le **zai meiguo de** [~~na-liang-suo-daxue~~].  
visit- Perf at US DE that two-Cl university

The same observation holds for inner and outer modifiers in Cantonese with respect to ellipsis. Specifically, as with Mandarin inner and outer modifiers, ellipsis of the noun following the inner modifier is allowed ((a) examples of (10)–(12)), whereas ellipsis of the [Dem-Nume-Cl-N] sequence following the outer modifier results in ill-formedness ((b) examples), regardless of whether the modifying phrase is an NP, an AP or a PP.

(10) Modifying NP

- a. Mingzai soeng maai **go loeng-tou pei ge sofaa**, daanhai Siufan soeng  
Ming want buy that two-Cl leather GE sofa but Siufan want  
maai **go loeng-tou bou ge** [~~sofaa~~].  
buy that two-Cl fabric GE sofa  
'Ming wants to buy those two leather sofas, but Siufan wants to buy those two  
fabric ones.'
- b. \*Mingzai soeng maai **pei ge go loeng-tou sofaa**, daanhai Siufan soeng  
Ming want buy leather GE that two-Cl sofa but Siufan want  
maai **bou ge** [~~go-loeng-tou-sofaa~~].  
buy fabric GE that two-Cl sofa

(11) Modifying AP

- a. Mingzai soeng tai **go loeng-ceot caamcing ge hei**, daanhai Siufan  
Ming want watch that two-Cl tragic GE movie but Siufan  
soeng tai **go loeng-ceot gausiu ge** [~~hei~~].  
want watch that two-Cl funny GE movie  
'Ming wants to watch those two tragic movies, but Siufan wants to watch those  
two funny ones.'
- b. \*Mingzai soeng tai **caamcing ge go loeng-ceot hei**, daanhai Siufan  
Ming want watch tragic GE that two-Cl movie but Siufan  
soeng tai **gausiu ge** [~~go-loeng-ceot-hei~~].  
want watch funny GE that two-Cl movie

(12) Modifying PP

- a. Mingzaisoeng tai **go loeng-bun hai toi-min ge syu**, daanhai Siufan

Ming                    want read that two-Cl   at   table-Loc   GE book but           Siufan  
 soeng tai   **go loeng-bun hai syugaa-soengmin ge** [~~syu~~]  
 want read that two-Cl           at   bookshelf-Loc           GE book  
 ‘Ming wants to read those two books on the table, but Siufan wants to read those  
 two on the bookshelf.’

- b. \*Mingzai soeng tai   **hai toi-min   ge go loeng-bun syu**, daanhai Siufan  
 Ming           want read at   table-Loc   GE that two-Cl           book but           Siufan  
 soeng tai   **hai syugaa-soengmin ge** [~~go—loeng-bun syu~~].  
 want read at   bookshelf-Loc           GE that two-Cl           book

That the different syntactic behaviors of inner and outer modifiers in regard to ellipsis is an important piece of evidence for analyzing the former under the complementation analysis and the latter under the adjunction analysis becomes evident if we take into account the licensing condition on ellipsis. According to Saito and Murasugi (1990) and Lobeck (1990), an element can be deleted under identity only if the deleted element is a complement of a functional head and the Specifier of the functional head is filled (see also Saito, Lin and Murasugi 2008). One piece of supporting evidence given by Saito and Murasugi (1990) is N'-ellipsis in English. As originally observed by Jackendoff (1971), N'-ellipsis is allowed in English only when it strands a genitive phrase but not when it strands an indefinite article *a/an* or the definite article *the*, as illustrated in (13).

- (13) a. I have read Bill's book, but I haven't read [DP John's [NP book]].  
       b. \*I have edited a book, but I haven't written [DP a [NP ~~book~~]].  
       c. \*I have seen the book, but I haven't had a chance to read [DP the [NP ~~book~~]].

Adopting Abney's (1987) DP hypothesis, which analyzes the genitive marker as located in D and the possessor as located in Spec-DP, the contrast between (13a) and (13b–c) receives a straightforward explanation. That is, the well-formedness of (13a) is due to the presence of the possessor in Spec-DP, while the ill-formedness of (13b–c) is due to the lack of an element filling the Spec-DP. Following Saito and Murasugi's (1990) and Lobeck's (1990) proposal, the preliminary licensing condition on ellipsis can be formulated as follows (subject to revision later):

- (14)    The Licensing Condition on Ellipsis (to be revised)  
           An element can be elided only if (i) it is a complement of a functional head, and  
           (ii) the Specifier of the functional head is filled.

Given that inner modifiers in both Mandarin and Cantonese can license ellipsis of the following noun, it is evident that they fulfill the licensing condition on ellipsis in (14). It follows that inner modifiers must be accommodated under the complementation analysis.

Another piece of evidence that bears on the licensing condition on ellipsis comes from the contrast between [Nume-Measure-N] and [Nume-Measure-*de*-N] sequences in

Mandarin with respect to N'-ellipsis. In particular, Tsai (2011) observes that while N'-ellipsis is possible in [Nume-Measure-N] sequences, it is impossible in [Nume-Measure-*de*-N] sequences, as illustrated by the contrast between (15) and (16) (adapted from Tsai 2011: (6a–b)).<sup>5</sup>

- (15) Akiu zuotian he-wan-le liu-guan pijiu, jintian ze  
 Akiu yesterday drink-up-Perf six-can beer today on.the.other.hand  
 he-wan-le shier-guan [pijiu].  
 drink-up-Perf twelve-can beer  
 'Akiu drank up six cans of beer yesterday, and he drank up twelve today.'
- (16) \*Akiu zuotian he-wan-le liu-guan de pijiu, jintian ze  
 Akiu yesterday drink-up-Perf six-can DE beer today on.the.other.hand  
 he-wan-le shier-guan de [pijiu].  
 drink-up-Perf twelve-can DE beer  
 Intended: 'Akiu drank up beer in the quantity of six cans yesterday, and he drank up beer in the quantity of twelve cans today.'

Adopting Saito, Lin and Murasugi's (2008) proposal that a numeral occupies the Specifier of Classifier Phrase (CIP), whose head subcategorizes for an NP as its complement in Mandarin, Tsai (2011) suggests that the well-formedness of (15) can receive a natural explanation, assuming that the measure word *guan* 'can' is located in the head of CIP, and its Specifier position hosts the numeral in [Nume-Measure-N] sequences. Following the licensing condition on ellipsis in (14), such a configuration correctly predicts that N'-ellipsis can be sanctioned. In contrast, for [Nume-Measure-*de*-N] sequences, Tsai proposes that the measure word plus *de* is adjoined to the following NP. If Tsai's account for the contrast between (15) and (16) is on the right track, it suggests that ellipsis can never take place if the elided element is the target of adjunction (see also Saito, Lin and Murasugi 2008). Following Tsai's proposal, I revise the licensing condition on ellipsis as follows:

- (17) The Licensing Condition on Ellipsis
- a. An element can be elided only if (i) it is a complement of a functional head, and (ii) the Specifier of the functional head is filled.
  - b. An element cannot be elided if it is the target of adjunction.

The licensing condition on ellipsis in (17) and the fact that inner modifiers, but not outer modifiers, can license ellipsis lend important support to my proposal that inner modifiers should be accommodated under the complementation analysis, whereas outer

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<sup>5</sup> Note that the intended reading of the [Nume-Measure-*de*-N] sequence in (16) is the "quantity reading," as opposed to the "property reading." For detailed discussion of the two readings and their different behaviors with respect to N'-ellipsis, see Li (2013).

modifiers should be captured under the adjunction analysis in both Mandarin and Cantonese.

## 2.2. Extraction

Another piece of evidence supporting the non-uniform analyses of inner and outer modifiers comes from their different behaviors with respect to extraction. A construction that is typically considered to involve extraction is object fronting. In particular, for object fronting in Mandarin, as shown in (18)–(19), I adopt Shyu’s (1995, 2001) and Badan’s (2008) proposal that it is derived by movement. Assuming the copy theory of movement (Chomsky 1995, Nunes 1995, *inter alia*), the unpronounced lower copies are in grey color and the preposed objects are set in boldface here and throughout

- (18) Zhangsan **gou** dangran kan-guo [gou] le.  
 Zhangsan dog certainly see-Exp dog SFP  
 a. ‘Zhangsan, dogs, have certainly seen.’  
 b. ‘Zhangsan, the dog(s), have certainly seen.’
- (19) Zhangsan **na san-zhi gou** dangran kan-guo [na san-zhi gou] le.  
 Zhangsan that three-Cl dog certainly see-Exp that three- Cl dog SFP  
 ‘Zhangsan, those three dogs, have certainly seen.’

As shown in (18)–(19), the preposed object can be a bare noun or a [Dem-Nume-Cl-N] sequence. A bare noun can be interpreted as generic (18a) or definite (18b), whereas a [Dem-Nume-Cl-N] sequence can only yield a definite reading (19).

Even though a bare noun and a [Dem-Nume-Cl-N] sequence can undergo object fronting, inner and outer modifiers show different syntactic behaviors with respect to object fronting in Mandarin. In particular, whereas the noun following an inner modifier can undergo object fronting, the [Dem-Nume-Cl-N] sequence following an outer modifier cannot, regardless of whether the modifying phrase is an NP, an AP or a PP.<sup>6</sup>

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<sup>6</sup> Another type of extraction that is considered to involve movement is topicalization (Huang, Li and Li 2009). However, as Audrey Li (p.c.) points out, topicalization of the [Dem-Cl-N] sequence following an outer modifier is acceptable if the [Dem-Cl-N] sequence is understood as deictic. The deictic use of the [Dem-Cl-N] sequence is illustrated in (i).

- (i) Na tiao qunzi, gei wo yi-tiao xin de.  
 that Cl dress give I one-Cl new DE  
 ‘That dress, give me one that is new.’

The sentence in (i) can be uttered felicitously in a context where the speaker is in a boutique and has identified the kind of dress that she wants to buy, which is distal to her. It is in this sense that *na tiao qunzi* ‘that dress’ in (i) is deictic. In this context, the speaker can use *na tiao qunzi* ‘that dress’ to refer to the kind of dress that she wants to buy that is distal to her. That *na tiao qunzi* ‘that dress’ in (i) has a “kind” reading is evidenced by the fact that it can co-occur with *yi-tiao* and the fact that *na tiao qunzi* ‘that dress’ can readily be replaced by *na zhong qunzi* ‘that kind of dress,’ as in (ii) (this was brought to



(20) Modifying NP

- a. Libai **yizi** yiding hui mai **na san-ba suliao de [yizi]**.  
Libai chair definitely will buy that three-Cl plastic DE chair  
Lit. ‘Libai, (the) chairs, will definitely buy those three plastic ones.’
- b. \*Libai **na san-ba yizi** yiding hui mai **suliao de [na san-ba yizi]**.  
Libai that three-Cl chair definitely will buy plastic DE that three-Cl chair

(21) Modifying AP

- a. Libai **jiaoxiangyueai** ting **na san-shou xiongzhuangde [jiaoxiangyue]**.  
Libai symphony love listen that three-Cl majestic DE symphony  
‘Libai, (the) symphonies, only likes to listen to those three majestic ones.’
- b. \*Libai **na san-shou jiaoxiangyueai** ting **xiongzhuangde [na san-shou jiaoxiangyue]**.  
Libai that three-Cl symphony love listen majestic DE that one-Cl symphony

(22) Modifying PP

- a. Libai **daxue** yiding yao shenqing **na liang-suo zai Xi’an de [daxue]**.  
Libai university definitely want apply that two-Cl at Xi’an DE university  
‘Libai, (the) universities, definitely wants apply to those two in Xi’an.’
- b. \*Libai **na liang-suo daxue** yiding yao shenqing **zai Xi’an de [na liang-suo daxue]**.  
Libai that two-Cl university definitely want apply at Xi’an DE that two-Cl university

The same contrast is observed in Cantonese. While the noun following an inner modifier can undergo object fronting ((a) examples in (23)–(25)), the [Dem-Nume-Cl-N] sequence following an outer modifier cannot ((b) examples). The contrast holds regardless of whether the modifying phrase is an NP (23), an AP (24) or a PP (25).

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my attention by Jo-wang Lin, p.c.).

- (ii) Na zhong qunzi, gei wo yi-tiao xin de.  
that kind dress give I one-Cl newDE  
‘That kind of dress, give me one that is new.’

Since the deictic use of [Dem-Cl-N] sequences crucially differs from the anaphoric use in that the deictic use cannot be “reconstructed” (see (iia–b)), suggesting that the deictic use is base-generated rather than derived by movement, I will set aside the deictic use of [Dem-Cl-N] sequences in this study.

- (iii) a. \*Gei wo yi-tiao xin de na tiao qunzi.  
give I one-Cl new DE that Cl dress  
b. \*Gei wo yi-tiao xin de na zhong qunzi.  
give I one-Cl new DE that kind dress

(23) Modifying NP

- a. Mingzai **sofaa** jatding jiu maai **go loeng-tou pei ge** [sofaa].  
Ming sofa definitely need buy that two-Cl leather GE sofa  
'Ming, (the) sofas, must buy those two leather ones.'
- b. \*Mingzai **go loeng-tou sofaa** jatding jiu maai **pei ge**  
Ming that two-Cl sofa definitely need buy leather GE  
[go loeng-tou sofaa].  
that two-Cl sofa

(24) Modifying AP

- a. Mingzai **hei** jatding jiu tai **go loeng-ceot caamcing ge** [hei].  
Ming movie definitely need watch that two-Cl tragic GE movie  
'Ming, (the) movies, must watch those two tragic ones.'
- b. \*Mingzai **go loeng-ceot hei** jatding jiu tai **caamcing ge**  
Ming that two-Cl movie definitely need watch tragic GE  
[go loeng-ceot hei].  
that two-Cl movie

(25) Modifying PP

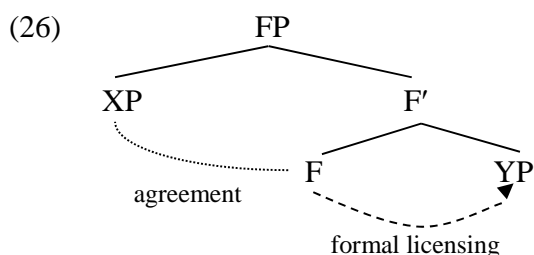
- a. Mingzai **daaihok** soeng haau **go saam-gaan hai Hoenggong ge** [daaihok].  
Ming university want exam that three-Cl at Hong.Kong GE university  
'Ming, (the) universities, wants to enter those three in Hong Kong.'
- b. \*Mingzai **go saam-gaan daaihok** soeng haau **hai Hoenggong ge**  
Ming that three-Cl university want exam at Hong.Kong GE  
[go saam-gaan daaihok].  
that three-Cl university

Assuming that object fronting involves movement, a natural question is how the systematic contrast between inner and outer modifiers in terms of extraction bears on the complementation and adjunction analyses. Given my proposal that inner modifiers essentially involve a complementation structure, whereas outer modifiers involve an adjunction structure, the noun following an inner modifier is considered a complement and the [Dem-Nume-Cl-N] sequence following an outer modifier an adjunct. On this view, the systematic contrast between inner and outer modifiers is reminiscent of the licensing condition on ellipsis in (17), which crucially allows a complement, but not an adjunct, to be licensed by ellipsis. If we take the traditional view that a non-pronominal empty category, whether resulting from ellipsis or extraction, must be governed by formal licensing in the sense of Rizzi (1990), it becomes evident that the fact that inner and outer modifiers show exactly the same behaviors with respect to ellipsis and extraction is not a mere accident but may receive a natural explanation once formal licensing is taken into account. In the next section, I will offer a syntactic account for inner and outer modifiers in Mandarin and Cantonese based on Tsai's (2011) reformulation of formal licensing in the Minimalist Program.

### 3. Syntactic Analyses of Inner and Outer Modifiers

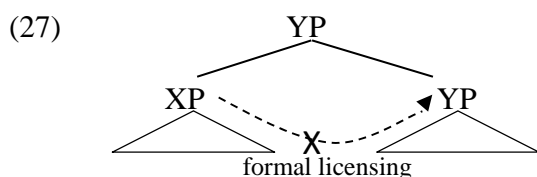
#### 3.1. Tsai's (2011) reformulation of the notion of formal licensing

Adopting the Minimalist Program, Tsai (2011) reformulates the notion of formal licensing (Aoun et al. 1987, Rizzi 1990) in terms of sisterhood, which renders a functional head able to license deletion of the complement under identity at PF. This is in line with Rizzi's (1990) formulation of formal licensing that requires a non-pronominal empty category to be properly head-governed in the Government and Binding framework (see also Lobeck 1990, 1995). Following Saito and Murasugi's (1990) proposal that the complement of a functional head can be deleted only if the functional head has a Specifier with which it agrees (see the licensing condition on ellipsis in (17)), Tsai further proposes that the functional head must agree with its Specifier in order to license deletion of the complement under identity at PF. Following Tsai's reformulation of formal licensing, a phrase YP can be subject to deletion under identity at PF only if it occurs in the following configuration:



In (26), F stands for a functional head, which agrees with its Specifier XP. As the complement of F, YP can be subject to formal licensing and undergo deletion under identity at PF.

As for adjuncts, Tsai proposes that they fail to sanction the target of adjunction via formal licensing; hence, the target of adjunction can never be subject to deletion under identity at PF (see the licensing condition on ellipsis in (17)), as visualized in (27).



In (27), XP is adjoined to YP. Being a phrasal category and an adjunct, XP fails to sanction YP via formal licensing.

Tsai's reformulation of formal licensing correctly captures the contrast between [Nume-Measure-N] and [Nume-Measure-*de*-N] sequences in Mandarin shown in (15) and (16), repeated here as (28) and (29).

(28) Akiu zuotian he-wan-le liu-guan pijiu, jintian ze

Akiu yesterday drink-up-Perf six-can beer today on.the.other.hand  
 he-wan-le shier-guan [**pjiu**].  
 drink-up-Perf twelve-can beer  
 ‘Akiu drank up six cans of beer yesterday, and he drank up twelve today.’

- (29) \*Akiu zuotian he-wan-le liu-guan de pijiu, jintian ze  
 Akiu yesterday drink-up-Perf six-can DE beer today on.the.other.hand  
 he-wan-le shier-guan de [**pjiu**].  
 drink-up-Perf twelve-can DE beer  
 Intended: ‘Akiu drank up beer in the quantity of six cans yesterday, and he drank up beer in the quantity of twelve cans today.’

Specifically, N'-ellipsis is allowed in (28) because the measure word occupies the head of CIP, which takes Numeral Phrase (NumeP) as its Specifier and an NP as its complement, as independently argued by Saito, Lin and Murasugi (2008). In contrast, N'-ellipsis is impossible in (29) because the measure word plus *de* is adjoined to the following NP, as proposed by Tsai (2011).

Recall that extraction such as object fronting also leaves behind a copy that is deleted under identity at PF. Following Tsai's analysis of [Nume-Measure-N] and [Nume-Measure-*de*-N] sequences, we expect that extraction of the noun is possible in [Nume-Measure-N] sequences but not in [Nume-Measure-*de*-N] sequences. This expectation is borne out, as witnessed by the fact that the noun in [Nume-Measure-N] sequences can undergo object fronting (30), whereas the noun in [Nume-Measure-*de*-N] sequences cannot (31), as noted by Tsai (2011).<sup>7</sup>

- (30) Akiu **pjiu** zuotian he-le liu-guan [**pjiu**].  
 Akiu beer yesterday drink-Perf six-can beer  
 ‘Akiu, beer, drank six cans yesterday.’

- (31) \*Akiu **pjiu** zuotian he-le liu-guan de [**pjiu**].  
 Akiu beer yesterday drink-Perf six-can DE beer  
 Intended: ‘Akiu, beer, drank in the quantity of six cans yesterday.’

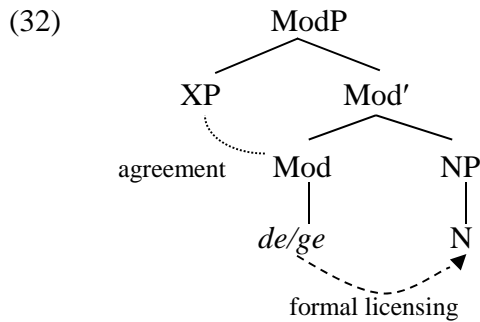
To briefly summarize, following Tsai's reformulation of formal licensing, deletion under identity at PF is allowed only if the deleted element is the complement of a head whose Specifier is filled.

### 3.2. A complementation analysis of inner modifiers

In light of Tsai's reformulation of formal licensing and the fact that inner modifiers can always sanction ellipsis and extraction of the following noun, I propose that inner

<sup>7</sup> Note that the intended reading of the [Nume-Measure-*de*-N] sequence in (31) is the quantity reading, as opposed to the property reading (see fn. 5).

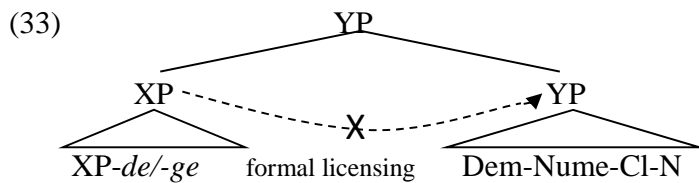
modifiers in both Mandarin and Cantonese have a complementation structure in which the modification marker (i) serves as a functional head, which agrees with the modifying phrase that occupies its Spec, and (ii) takes an NP as its complement. For concreteness, I adopt Rubin's (2002, 2003) proposal of treating nominal modifiers as Modifier Phrase (ModP), although it should be clear that the exact status of the phrase hosting an inner modifier is tangential to my analysis. Following this view, the modification marker is located in the head of ModP, taking an NP as its complement. The modifying phrase XP is located in Spec-ModP, as visualized in (32).



Since the NP in (32) fulfills Tsai's reformulation of formal licensing (i.e., it is the complement of a functional head and the functional head agrees with the modifying phrase XP in the Spec position), the analysis in (32) correctly captures the fact that the noun can be subject to deletion under identity at PF, as we have seen in cases involving ellipsis and extraction.

### 3.3. An adjunction analysis of outer modifiers

As for outer modifiers, given that they cannot license ellipsis and extraction of the following [Dem-Nume-Cl-N] sequence, I propose that they are best captured under the adjunction analysis. Specifically, the modifying phrase XP and the modification marker are adjoined to the modified phrase YP hosting the [Dem-Nume-Cl-N] sequence. I will discuss the syntactic status of YP in section 4.



The outer modifier, being an XP adjoined to the YP hosting the [Dem-Nume-Cl-N] sequence, fails to sanction YP via formal licensing. Hence, the analysis in (33) correctly captures the fact that deletion of the [Dem-Nume-Cl-N] sequence under identity at PF is strictly prohibited.

### 3.4. Predictions

An important prediction from the non-uniform analysis of inner and outer modifiers in Mandarin and Cantonese is that the modifying phrases that are allowed in the two types of modifiers need not be identical. This is because under the non-uniform analysis, inner and outer modifiers are not derivationally related. This prediction is borne out, as Zhang (2006, 2013) notes that not all modifying phrases allowed in inner modifiers are allowed in outer modifiers in Mandarin (the following examples are taken from Zhang 2013).

- (34) a. na san-xiang **suowei de** jianyi  
that three-Cl alleged DE suggestion  
'those three alleged suggestions'  
b. \***suowei de** na san-xiang jianyi  
alleged DE that three-Cl suggestion
- (35) a. na si-ge **wanzheng de** gushi  
that four-Cl complete DE story  
'those four complete stories'  
b. \***wanzheng de** na si-ge gushi  
complete DE that four-Cl story

The same observation holds for the Cantonese counterparts.

- (36) a. go saam-go **sowai ge** ginji  
that three-Cl alleged GE suggestion  
'those three alleged suggestions'  
b. \***sowai ge** go saam-go ginji  
alleged GE that three-Cl suggestion
- (37) a. go sei-go **jyungzing ge** gusi  
that four-Cl complete GE story  
'those four complete stories'  
b. \***jyungzing ge** go sei-go gusi  
complete GE that four-Cl story

The fact that modifying phrases available to inner and outer modifiers need not be identical provides additional support for the non-uniform analysis.

## 4. A Parametric Account for Inner and Outer Modifiers

### 4.1. [Modifier-Cl-N] and [Modifier-Dem-Cl-N] in Cantonese

In addition to inner and outer modifiers, Cantonese allows two types of modification structures: [Modifier-Cl-N] and [Modifier-Dem-Cl-N] (Sio 2006, Au Yeung 2005, Matthews and Yip 2011, *inter alia*). The modifier can be instantiated by a genitive DP ((a)

examples in (38)–(39)), a modifying AP ((b) examples) or a modifying PP ((c) examples).

(38) [Modifier-Cl-N]

- a. Ngo soeng jung **Mingzai bou dinnou**.  
I want use Ming Cl computer  
'I want to use Ming's computer.'
- b. Mingzai maai-zo **hungsik zoeng toi**.  
Ming buy-Perf red.color Cl table  
'Ming has bought the red table.'
- c. Ngo soeng jap **hai Saantin gaan daaihok**.  
I want enter at Shatin Cl university  
'I want to enter the university in Shatin.'

(39) [Modifier-Dem-Cl-N]

- a. Ngo soeng jung **Mingzai go bou dinnou**.  
I want use Ming that Cl computer  
'I want to use that computer of Ming's.'
- b. Mingzai maai-zo **hungsik go zoeng toi**.  
Ming buy-Perf red.color that Cl table  
'Ming bought that red table.'
- c. Ngo soeng jap **hai Saantin go gaan daaihok**.  
I want enter at Shatin that Cl university  
'I want to enter that university in Shatin.'

Both [Modifier-Cl-N] and [Modifier-Dem-Cl-N] are interpreted as definite (Sio 2006), as shown by the fact that they can appear in subject position like [Cl-N] sequences (Cheng and Sybesma 1999, 2005), while [Nume-Cl-N] sequences cannot.

(40) **Bou dinnou** m-gin-zo.

Cl computer Neg -see-Perf  
'The computer disappeared.'

(41) \***Jat-bou dinnou** m-gin-zo.

one-Cl computer Neg -see-Perf  
Intended: 'A computer disappeared.'

(42) a. **Mingzai bou dinnou** m-gin-zo.

Ming Cl computer Neg -see-Perf  
'Ming's computer disappeared.'

b. **Hungsik zoeng dang** m-gin-zo.

red.color Cl chair Neg -see-Perf  
'The red chair disappeared.'

c. **Hai toi-min bun syu** m-gin-zo.

at table-Loc Cl book Neg -see-Perf  
 ‘The book on the table disappeared.’

- (43) a. **Mingzai go bou dinnou** m-gin-zo.  
 Ming that Cl computer Neg -see-Perf  
 ‘That computer of Ming’s disappeared.’  
 b. **Hungsik go zoeng dang** m-gin-zo.  
 red.color that Cl chair Neg -see-Perf  
 ‘That red chair disappeared.’  
 c. **Hai toi-min go bun syu** m-gin-zo.  
 at table-Loc that Cl book Neg -see-Perf  
 ‘That book on the table disappeared.’

As discussed by Cheng and Sybesma (1999), [Cl-N] sequences in subject position are interpreted as definite while [Nume-Cl-N] sequences can only yield an indefinite interpretation (see also Cheng and Sybesma 2005). The fact that [Modifier-Cl-N] and [Modifier-Dem-Cl-N] sequences pattern with [Cl-N] sequences in being able to appear in subject position as in (40) and (42)–(43) while [Nume-Cl-N] sequences cannot (41) suggests that [Modifier-Cl-N] and [Modifier-Dem-Cl-N] must be interpreted as definite.

#### 4.2. Ellipsis and Extraction: [Modifier-Cl-N] and [Modifier-Dem-Cl-N]

Having established that [Modifier-Cl-N] and [Modifier-Dem-Cl-N] are interpreted as definite and that ellipsis and extraction of the noun following an inner modifier are possible, I turn to explore the syntactic behaviors of [Modifier-Cl-N] and [Modifier-Dem-Cl-N] in terms of the possibility of licensing ellipsis and extraction of the following noun. In light of Tsai’s reformulation of formal licensing, the investigation will shed new light on the noun phrase structure of Cantonese.

Let us first consider the syntactic behaviors of [Modifier-Cl-N] and [Modifier-Dem-Cl-N] in terms of the possibility of licensing ellipsis of the following noun. As (44)–(46) show, whereas [Modifier-Cl-N] cannot license ellipsis of the following noun, [Modifier-Dem-Cl-N] can.

- (44) a. \*Ngo soeng jung **Mingzai bou dinnou**, m soeng jung **Siufan bou [dinnou]**.  
 I want use Ming Cl computer Neg want use Siufan Cl computer  
 Intended: ‘I want to use Ming’s computer, and I don’t want to use Siufan’s.’  
 b. Ngo soeng jung **Mingzai go bou dinnou**, m soeng jung **Siufan go**  
 I want use Ming that Cl computer Neg want use Siufan that  
**bou [dinnou]**.  
 Cl computer  
 ‘I want to use that computer of Ming’s, and I do not want to use that one of Siufan’s.’

- (45) a. \*Mingzai maai-zo **hungsik zoeng toi**, Siufan maai-zo **baak6sik1**



Ming buy-Perf red.color Cl table Siufan buy-Perf white.color  
**zoeng [toi]**.  
 Cl table

Intended: 'Ming bought the red table and Siufan bought the white one.'

- b. Mingzai maai-zo **hungsik go zoeng toi**, Siufan maai-zo **baak6sik1 go zoeng [toi]**.  
 Ming buy-Perf red.color that Cl table Siufan buy-Perf white.color  
 that Cl table  
 'Ming bought that red table and Siufan bought that white one.'

- (46) a. \*Mingzai soeng jap **hai Hoenggong gaan daaihok**, Siufan soeng jap  
 Ming want enter at Hong.Kong Cl university Siufan want enter  
**hai Gwongzau gaan [daaihok]**.  
 at Guangzhou Cl university  
 Intended: 'Ming wants to enter the university in Hong Kong, and Siufan wants  
 to enter the one in Guangzhou.'
- b. Mingzai soeng jap **hai Hoenggong go gaan daaihok**, Siufan soeng jap  
 Ming want enter at Hong.Kong that Cl university Siufan want enter  
**hai Gwongzau go gaan [daaihok]**.  
 at Guangzhou that Cl university  
 'Ming wants to enter that university in Hong Kong, and Siufan wants to enter  
 that one in Guangzhou.'

The same asymmetry is observed with extraction. Whereas the noun in [Modifier-Cl-N] cannot undergo object fronting, the noun in [Modifier-Dem-Cl-N] can, as evidenced by the contrast between the (a) and (b) examples in (47)–(49).

- (47) a. \*Ngo **dinnou** zinghai jung **Mingzai bou [dinnou]**.  
 I computer only use Ming Cl computer  
 Intended: 'I, (the) computers, only use Ming's.'
- b. Ngo **dinnou** zinghai jung **Mingzai go bou [dinnou]**.  
 I computer only use Ming that Cl computer  
 'I, (the) computers, only use that one of Ming's.'

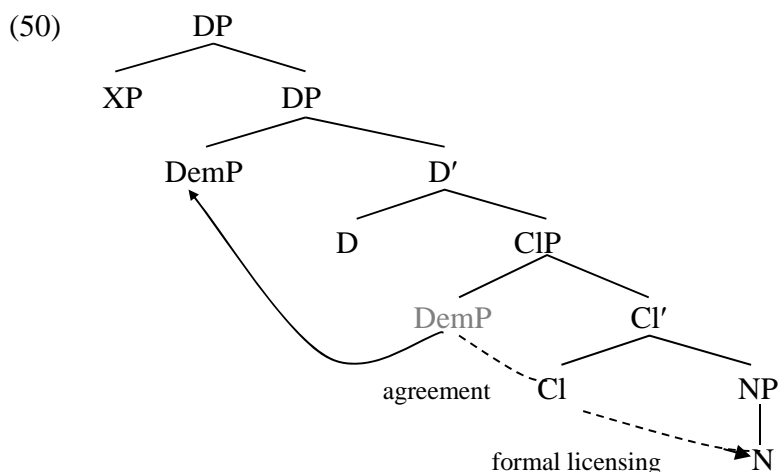
- (48) a. \*Mingzai **toi** soeng maai **hungsik zoeng [toi]**.  
 Ming table want buy red.color Cl table  
 Intended: 'Ming, (the) tables, wants to buy the red one.'
- b. Mingzai **toi** soeng maai **hungsik go zoeng [toi]**.  
 Ming table want buy red.color that Cl table  
 'Ming, (the) tables, wants to buy that red one.'

- (49) a. \*Mingzai **daaihok** soeng jap **hai Hoenggong gaan [daaihok]**.  
 Ming university want enter at Hong.Kong Cl university  
 Intended: 'Ming, (the) universities, wants to enter the one in Hong Kong.'

- b. Mingzai **daaihok** soeng jap **hai Hoenggong go gaan [daaihok]**.  
 Ming university want enter at Hong.Kong that Cl university  
 ‘Ming, (the) universities, wants to enter that one in Hong Kong.’

#### 4.3. Parametric account for inner and outer modifiers

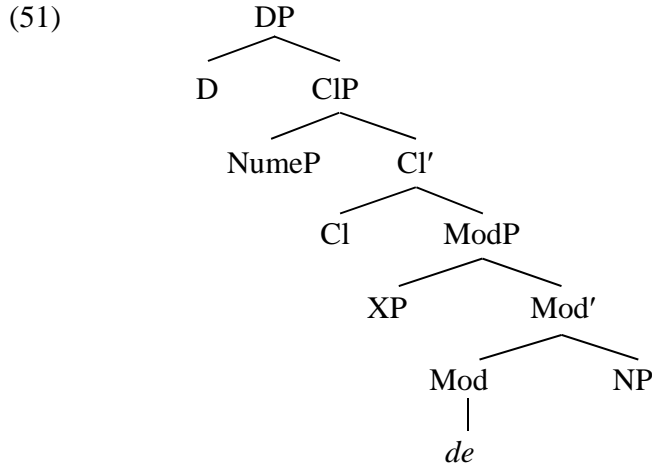
The fact that [Modifier-Dem-Cl-N], but not [Modifier-Cl-N], can license ellipsis and extraction of the following noun can shed light on the noun phrase structure of Cantonese. Specifically, I adopt Cheng and Sybesma’s (2012) proposal that ClP can be subcategorized by D, which is the locus of definiteness according to Simpson (2005). Following Tsai’s reformulation of formal licensing, which requires the head to agree with its Spec in order to license the deletion of the complement under identity, the contrast between [Modifier-Dem-Cl-N] and [Modifier-Cl-N] in terms of ellipsis and extraction can be attributed to the presence of DemP in Spec-ClP, and hence deletion of the noun under identity can be sanctioned via formal licensing. The DemP is then raised to Spec-DP to check the [+definite] feature, assuming D as the locus of definiteness à la Simpson. The modifier XP is adjoined to DP, as visualized in (50).



In contrast, [Modifier-Cl-N] involves Cl-to-D movement to check the [+definite] feature in D, as it can yield a definite reading like [Cl-N] sequences (see section 4.1). As is the case for [Modifier-Dem-Cl-N], the modifier XP is adjoined to DP for [Modifier-Cl-N]. However, [Modifier-Cl-N] crucially differs from [Modifier-Dem-Cl-N] in that the former lacks a filled Specifier. Hence, [Modifier-Cl-N], unlike [Modifier-Dem-Cl-N], cannot license ellipsis or extraction of the noun.

Given that inner and outer modifiers behave the same in Mandarin and Cantonese, a natural question is whether outer modifiers in Mandarin and Cantonese should have the same structure. The same question arises with inner modifiers: should inner modifiers in Mandarin and Cantonese have the same structure? Building on noun phrase structures previously suggested for Mandarin and Cantonese, I offer a parametric account for inner and outer modifiers. Specifically, if we adopt Li’s (1998, 1999) proposal that Mandarin

has a DP structure with D hosting demonstratives and Saito, Lin and Murasugi's (2008) proposal that NumeP is located in Spec-CIP, inner modifiers in Mandarin should have the structure in (51).



For inner modifiers in Cantonese, I adopt Cheng and Sybesma's (2012) proposal that a DP is also available in Cantonese and that its Spec can be filled by DemP to check the [+definite] feature in D as in Simpson's (2005) analysis. Furthermore, I follow Saito, Lin and Murasugi's (2008) proposal that NumeP is located in Spec-CIP in Cantonese as in Mandarin.<sup>8</sup> It follows that inner modifiers will have the structure in (52).

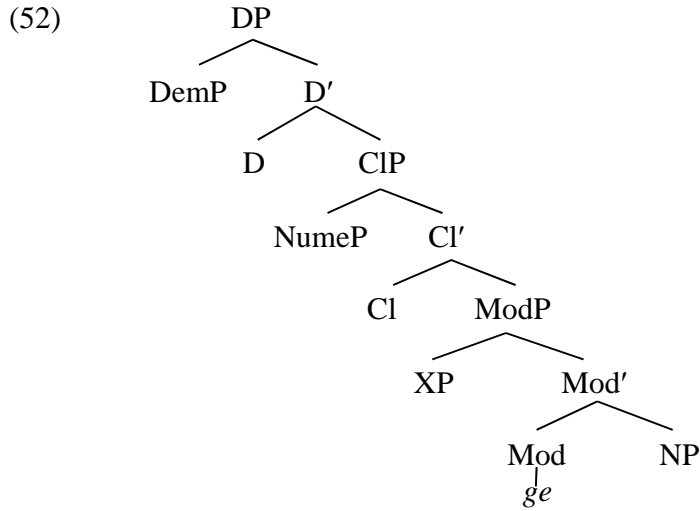
<sup>8</sup> As Sze-Wing Tang (p.c.) points out, Cantonese can readily sanction ellipsis of the numeral and the noun provided that the numeral is *jat* 'one', as shown in (i) (see also Cheng and Sybesma 2009).

- (i) Syu, ngo sung bun bei nei laa.  
 book I give Cl to you SFP  
 'The books, let me give you one.'

In light of Tsai's reformulation of formal licensing, a natural question is how (i) can be accommodated under the proposed noun phrase structure of Cantonese. Given that ellipsis of the numeral and the noun can only take place when the numeral is *jat* 'one', I suggest that NumeP hosting *jat* 'one' is in Spec-CIP to sanction ellipsis of the noun in compliance with formal licensing and that *jat* 'one' is later subject to PF deletion. In fact, this proposal is supported by data from Mandarin, which also allows ellipsis of the numeral and the noun when the numeral is *yi* 'one', as shown in (ii).

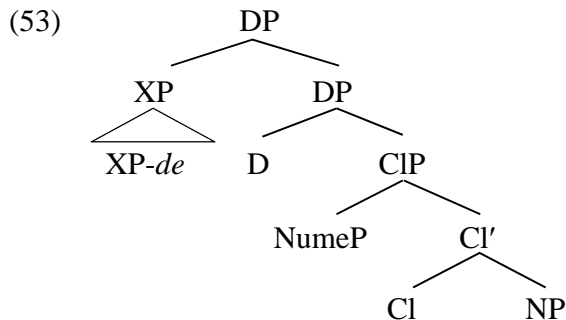
- (ii) Shu, wo song ben gei ni hao le.  
 book I give Cl to you good SFP  
 'The books, let me give you one.'

Following Saito, Lin and Murasugi's (2008) proposal that NumeP is located in Spec-CIP in Mandarin, ellipsis of the numeral *yi* 'one' and the noun can be explained if the NumeP hosting *yi* 'one' is in Spec-CIP to sanction ellipsis of the noun in compliance with formal licensing and if *yi* 'one' is later subject to PF deletion.

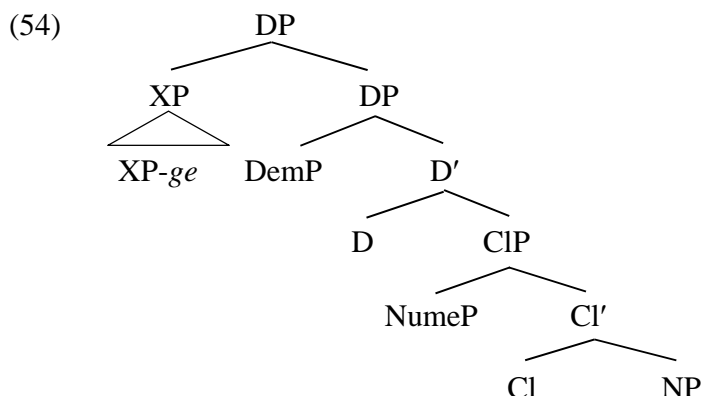


On this view, a crucial difference between Mandarin and Cantonese is that demonstratives are located in D in the former and in DemP in the latter. Furthermore, as discussed by Cheng and Sybesma (2012), there are two ways of licensing definite readings following Simpson's (2005) analysis, including base-generation of DemP in Spec-DP or CI-to-D movement. That Cantonese allows CI-to-D movement is due to the fact that [CI-N] sequences can yield a definite reading, as we saw in section 4.1 (see also Cheng and Sybesma 1999, 2005). If my analysis of [Modifier-Dem-CI-N] in (52) is correct, it suggests that Cantonese has a third way of licensing definite readings, namely via movement of DemP from Spec-CIP to Spec-DP. Note that this option is available only if the NumeP is absent, as it will compete with DemP for the same position, namely Spec-CIP. When NumeP is present, it occupies Spec-CIP and DemP must be base-generated in Spec-DP, as in (52).

Given the proposed noun phrase structures of Mandarin and Cantonese, outer modifiers in Mandarin will have the structure in (53), where the modifying phrase plus *de* is adjoined to DP with D housing demonstratives.



As for outer modifiers in Cantonese, the modifying phrase plus *ge* is also adjoined to a DP but the structure differs from its counterpart in Mandarin in that demonstratives are hosted by DemP base-generated in Spec-DP, as shown in (54).



Since I have assigned similar structures to [Modifier-Dem-Cl-N] and to outer modifiers, a natural prediction is that both can host the same range of modifying phrases. This prediction is borne out, as shown by the fact that the modifying phrase in both structures can be manifested as a genitive DP, a modifying AP, a modifying PP or a modifying NP.

- (55) a. **Mingzai (ge)** go bou dinnou (Genitive DP)  
 Ming GE that Cl computer  
 ‘that computer of Ming’s’
- b. **san (ge)** go zoeng toi (Modifying AP)  
 new GE that Cl table  
 ‘that new table’
- c. **hai Saantin (ge)** go gaan daaihok (Modifying PP)  
 at Shatin GE that Cl university  
 ‘that university in Shatin’
- d. **pei (ge)** go tou sofaa (Modifying NP)  
 leather GE that Cl sofa  
 ‘that leather sofa’

The parametric account has further implications: the investigation of outer modifiers with respect to ellipsis and extraction in Mandarin and Cantonese reveals that they all involve adjunction structures (see (53)–(54)), with the modifying phrase and the modification marker adjoined to the same adjunction site, namely DP. Following this view, the fact that [Modifier-Cl-N], [Modifier-Dem-Cl-N] and [Modifier-ge-Dem-Cl-N] in Cantonese all involve adjunction of the modifying phrase XP or XP-ge to DP suggests that they are best regarded as “outer modifiers.” That Cantonese has a wider range of outer modifiers than Mandarin can be traced back to their difference in terms of noun phrase structures: whereas Cantonese has the options of licensing the definite reading via base-generation of DemP in Spec-DP, movement of DemP from Spec-CIP to Spec-DP or Cl-to-D movement, these options are unavailable in Mandarin, as D can host demonstratives only.

## 5. Conclusion

In this study, I have proposed that a non-uniform approach is needed to account for the different syntactic behaviors of inner and outer modifiers in Mandarin and Cantonese with respect to ellipsis and extraction. In particular, I have shown that outer modifiers should be accommodated under the adjunction analysis, where the modifying phrase plus the modification marker is adjoined to the modified phrase. In contrast, inner modifiers are best accommodated under the complementation analysis, where the modifying marker is analyzed as a functional head taking the modified phrase as its complement.

An investigation of [Modifier-Cl-N] and [Modifier-Dem-Cl-N] in Cantonese with respect to ellipsis and extraction sheds new light on the noun phrase structure of Cantonese. Specifically, building on Cheng and Sybesma's (2012) proposal that a CIP can be subcategorized by D, which is the locus of definiteness according to Simpson (2005), I have proposed that a DemP hosting a demonstrative can be base-generated in Spec-CIP, which undergoes movement to Spec-DP to check the [+definite] feature of D. I have further offered a parametric account for inner and outer modifiers in Mandarin and Cantonese, suggesting that the former essentially involve a ModP with the modification marker serving as its head, whereas the latter involve adjunction of the modifying phrase plus the modification marker to DP. I have shown that the adjunction-to-DP analysis can be extended to [Modifier-Cl-N] and [Modifier-Dem-Cl-N] in Cantonese.

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