ON CHINESE AND JAPANESE RELATIVE CLAUSES AND NP-ELLIPSIS[*]

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1. Introduction

Aoun and Li (2003: A&L hereafter) argue that English relative clauses are derived by either relative-head-raising (Brame 1968, Kayne 1994, Schachter 1973) or operator (Op)-movement (Chomsky 1977). According to A&L, a relative clause headed by the complementizer *that* is formed by the movement of the relative head to CP SPEC, whereas Op-movement takes place when a relative clause is headed by an overt relative operator. They base their claim on the observation that only relative clauses headed by *that* exhibit reconstruction effects such as scope reconstruction and idiomatic interpretation. Hulsey and Sauerland (2006) further argue that when relative clauses headed by *that* are extraposed, they cannot have been formed by relative-head-raising. These previous works show that in principle, natural language allows both the head-raising and Op-movement options. The purpose of this paper is to examine Chinese and Japanese relative clauses from the perspective of these two types of relative clause formation.

A&L (2003) argue that Chinese relative clauses make use of head-raising and Op-movement. Building upon Saito, Lin and Murasugi's (2008: SL&M hereafter) comparative study of Chinese and Japanese nominal architecture, this paper also attempts to show that in principle, Chinese relative clauses allow both head-raising and Op-movement. However, I show that A&L's and my proposals make different predictions regarding

NP-ellipsis to be triggered by a relative clause in one context.[1] Support for my proposal comes in the form of an examination of the (un)availability of NP-ellipsis in this particular context. My proposal also allows us to dispense with A&L's auxiliary condition on the identification requirement on the relative Op.

If we turn our attention to other East Asian languages, we find that Japanese relative clauses behave differently from their Chinese counterparts. Japanese relative clauses have been argued to be TPs (Saito 1985, Murasugi 1991). I suggest that the absence of the Japanese equivalent of *de* prevents Japanese from adopting the head-raising option and therefore, a relative clause must make use of an adjunction structure in this language (Murasugi 1991). As a consequence, no NP-ellipsis is allowed in Japanese.

The organization of this paper is as follows. Section 2 introduces Simpson's (2002)/SL&M's proposal on relative clauses in Chinese. In Section 3, I propose that not only Kaynean head-raising but also Op-movement is available in Chinese relative clauses. I name this the "hybrid" hypothesis. I also show in this section that these two options are not always equally available due to independent reasons. In Section 4, I turn to introduce A&L's seminal work on relative clauses in Chinese. Of our particular interest is their finding that a certain type of relative clause in Chinese can trigger NP-ellipsis. Section 5 aims to support the hybrid hypothesis by examining NP-ellipsis in two different contexts. When discussing these two contexts, I compare predictions made by our hybrid hypothesis and those made by A&L. In Section 6, I discuss relative clauses with resumption in Chinese and show that the unavailability of NP-ellipsis is not problematic for the hybrid hypothesis. In Section 7, I speculate that the predicate of a relative clause in the noun-modifying form, or the *rentai* form under traditional Japanese grammar, leads to the lack of the head-raising option in Japanese. Section 8 concludes this paper.

2. Kaynean Head-Raising in Chinese Relative Clauses

2.1. Simpson (2002)/Saito, Lin and Murasugi (2008)

Simpson (2002) and SL&M propose an analysis of Chinese relative clauses, which is based on Kayne (1994). In order to illustrate the essence of their proposal, let us consider the example in (1):[2]

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[1] Under the Kaynean approach to relative clauses, standard "NP-ellipsis" should be understood as CP-ellipsis. In this paper, I use the term "NP-ellipsis" for CP-ellipsis, unless necessary, because of the familiarity of the terminology in point.

[2] Abbreviations used in this paper are as follows:
Acc = accusative, CL = classifier, Nom = nominative, PERF = perfective marker, Q = question marker, RC = relative clause, Top = topic marker.

(1)   [[wo zuotian   kanjian] de nanhai] bi   **[[ni   zuotian   kanjian] de**
       I   yesterday see   DE boy   compare   you yesterday see   DE
       (nanhai)] geng youqian.
       boy   more rich

       'The boy I saw yesterday is richer than the boy you saw yesterday.'

                                                   (Saito, Lin and Murasugi 2008: 263)

Under Simpson's/SL&M's proposal, the boldfaced DP has the structure given in (2):

(2)
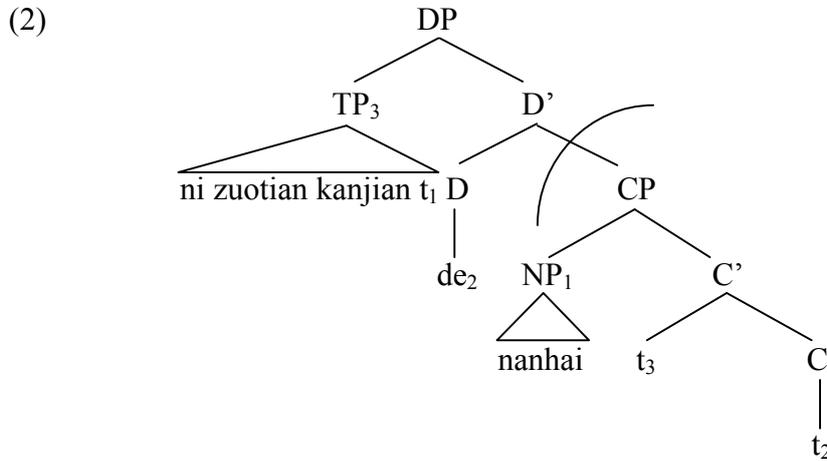
In (2), first, the relative head NP *nanhai* 'boy' is raised out of the relative clause TP to CP SPEC, as shown in (3a). Second, *de*, which is generated in C, is raised to D, which makes DP SPEC and CP SPEC "equidistant" from the CP complement position (Lin, Murasugi and Saito 2001).[3] The head-movement in point is illustrated in (3b). Finally, the relative clause TP is raised to DP SPEC, as given in (3c).

(3)   a. $[_{DP}$ $[_{CP}$ $[_{NP}$ **nanhai**$]_1$ $[_{C'}$ $[_{TP}$ ni zuotian kanjian **t$_1$**] de]]]

       b. $[_{DP}$ $[_{D'}$ **de$_2$** $[_{CP}$ $[_{NP}$ nanhai$]_1$ $[_{C'}$ $[_{TP}$ ni zuotian kanjian t$_1$] **t$_2$**]]]]

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[3] SL&M base their claim that the original position of *de* is C on the observation that a homophone *de* can occupy the C position in cleft sentences as in (ia) and in the sentence-final position as in (ib):

(i)   a.   Laowang shi zuotian   [chi niu-rou mien   de].
                         be yesterday eat beef   noodle DE

             'It is yesterday that Laowang ate beef noodle.'

                                                   (Lin, Murasugi and Saito 2001: 22)

       b.   Laowang yinggai qu Taipei de.
                       should go   DE

             'Laowang should go to Taipei.'

                                                   (Saito, Lin and Murasugi 2008: 265)

It is therefore not unnatural to assume that *de* is generated as the C head in relative clauses as well.

c.　[DP [TP **ni zuotian kanjian t₁**]₃ [D' de₂ [CP [NP nanhai]₁ [C' **t₃** t₂]]]]

Notice that Chinese relative clauses can trigger NP-ellipsis (see also Aoun and Li 2003, Huang, Li and Li 2009). For example, the boldfaced NP *nanhai* 'boy' can be elided in (1). In this paper, I assume that empty NPs are licensed by D via proper government in the same way that empty VPs are licensed by I (Saito and Murasugi 1990, Lobeck 1990). The importance here is that NP-ellipsis can take place only when DP SPEC is filled. This requirement on SPEC captures, for instance, the contrast between (4a) and (4b) in English:

(4)　a.　John bought [DP [D' the *([NP car])]].

　　　b.　John bought [DP **Mary** [D' 's ([NP car])]].

I dub this requirement on SPEC "the SPEC-R" throughout this paper. In (3c), the relative clause satisfies this SPEC-R, and it is not surprising that the CP can be elided in (2).

The question concerning the NP-ellipsis in Chinese is how relative clauses come to occupy DP SPEC. According to Saito and Murasugi (1990), the argument/adjunct asymmetry is a crucial factor in Japanese to determine whether a phrase can trigger NP-ellipsis, and only arguments can be raised to DP SPEC and license the operation in point. Consider (5a, b):

(5)　a.　[Taroo-no taido]-wa　yoi ga,　[Hanako-no (taido)]-wa　yokunai.
　　　　　　-NO attitude-Top　good　though　　　　　-NO attitude-Top　good-not

　　　　'Though Taroo's attitude is good, Hanako's isn't.'

　　　b.　[hare-no　hi]-wa　yoi ga,　[ame-no *(hi)]-wa　ochikomu.
　　　　　 clear-NO　day-Top　good though　rain-NO　day-Top　feel-depressed

　　　　'Clear days are OK, but I feel depressed on rainy days.'
　　　　　　　　　　　　　　　　　　　　　(Saito, Lin and Murasugi 2008: 253)

In (5a), *Taroo-no* and *Hanako-no* are subjects, and thus, they are arguments. Therefore, they can be raised to DP SPEC. Consequently, *Hanako-no* can trigger NP-ellipsis. On the other hand, in (5b), *hare-no* and *ame-no* are neither subjects nor objects, and thus, they are adjuncts. Accordingly, they cannot move to DP SPEC. As a result, *ame-no* cannot trigger NP-ellipsis. It is therefore natural to expect that Japanese relative clauses do not allow NP-ellipsis either. This is in fact the case, as shown in (6):

(6)   [[Taroo-ga   kinoo   atta] hito]-wa   yasashii ga,   **[[Hanako-ga**
         -Nom yesterday saw person-Top kind   though   -Nom
kinoo   atta] *(hito)]-wa   kowai.
yesterday saw   person-Top scary

'The person Taroo saw yesterday is kind, but the person Hanako saw yesterday is scary.'

(Saito, Lin and Murasugi 2008: 263)

Taking the contrast between (1) and (6) into consideration, SL&M, following Simpson (2002), suggest that *de* is an enclitic and requires some phrase in DP SPEC. In (1), *de* forces the relative clause to move to DP SPEC. In short, the difference between (1) and (6) comes from the lexical nature of *de*, not from deeper principles of UG. It should be noted that under the Kaynean approach to relative clauses, the relative clause TP in (1) is the complement of C, and therefore, the argument/adjunct asymmetry in (5) is not a problem for Chinese relative clauses. I return to Japanese relative clauses in Section 7.

2.2.   Positions available for Relative Clauses

The structure in (2) leads us to predict that Chinese relative clauses should always precede other elements located below DP. With this prediction in mind, I consider cases where a relative clause and a numeral accompanied by a classifier, dubbed as Classifier Phrase (CLP hereafter), co-occur within a nominal. The CLP has a numeral in the SPEC and its classifier in the head, and it is located between DP and NP, as illustrated in (7) (Cheng and Sybesma 1999, Li 1999, among others for Number Phrase/CLP in Chinese):

(7) $[_{DP}$ D $[_{CLP}$ Num $[_{CL'}$ CL $[_{NP}$ … N …]]]]

For instance, the DP in (8a) has the structure given in (8b):

(8)   a.   Lisi de liang-ben shu
                 DE two-CL   book

       'Lisi's two books'

b.

```
                    DP
                  /    \
              Lisi      D'
                      /    \
                    D       CLP
                    |      /    \
                   de  liang    CL'
                             /      \
                           CL        NP
                           |         |
                          ben       shu
```
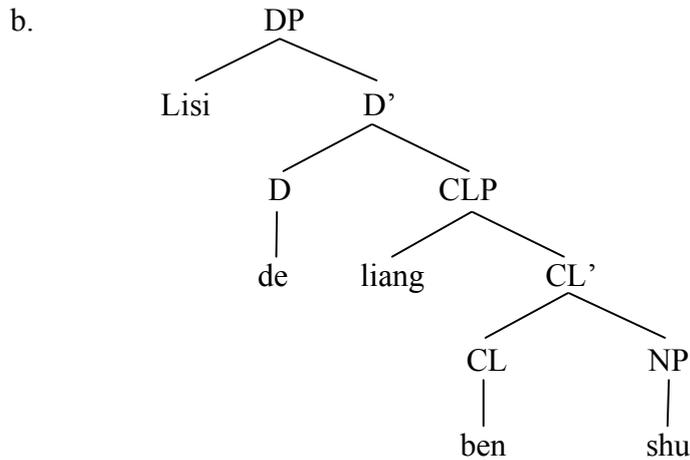
Now, in order to clarify which position a numeral with a classifier occupies under Simpson's/SL&M's proposal, let us first consider the grammatical contrast between (9a) and (9b) (Kayne 1994: 86):

(9)   a. ?*I found the (two) pictures of John's/his.

      b.   I found the (two) pictures of John's/his that you lent me.

In contrast to (9a), (10) is grammatical.

(10)   I found two pictures of John's.

The grammaticality of (10) shows that the complement *two pictures of John's* is a constituent and that the ungrammaticality of (9a) comes from the existence of the definite article. Now, if *the (two) pictures of John's/his* in (9b) had the same structure as the one for (9a) and the relative clause had simply been adjoined to this nominal, we would incorrectly predict (9b) to be equally ungrammatical. Kayne therefore proposes the structures given in (11a, b) for (9a, b) respectively (see Kayne 1993 for (11a)):

(11)   a.   [DP the [DP [QP **two pictures**]₁ [D' of [AGRP John [AGR' [AGR 's] **t₁**]]]]]

       b.   [DP the [DP [QP **two pictures of John's/his**]₁ [C' that [TP you lent me **t₁**]]]]

For Kayne, the contrast between (9a) and (9b) comes from the assumption that *the*, which is taken to be a D head, can take a CP complement, but not a DP complement. (9b), then, shows that quantified phrases (QPs) can be subject to the head-raising operation in English.

Significantly, in Chinese, a numeral either precedes or follows a relative clause, as exemplified in (12a, b) (Chao 1968, Huang 1982, Del Gobbo 2003, among others):

(12) a. [Lisi xihuan] de   liang-ben shu
              like   DE two-CL   book

'two books that Lisi likes'

   b. liang-ben [Lisi   xihuan] de   shu
       two-CL   like   DE book

Given the derivational step in (11), it is natural to take it that the structure of (12a) is as shown in (13) with its derivational steps in (14):

(13)
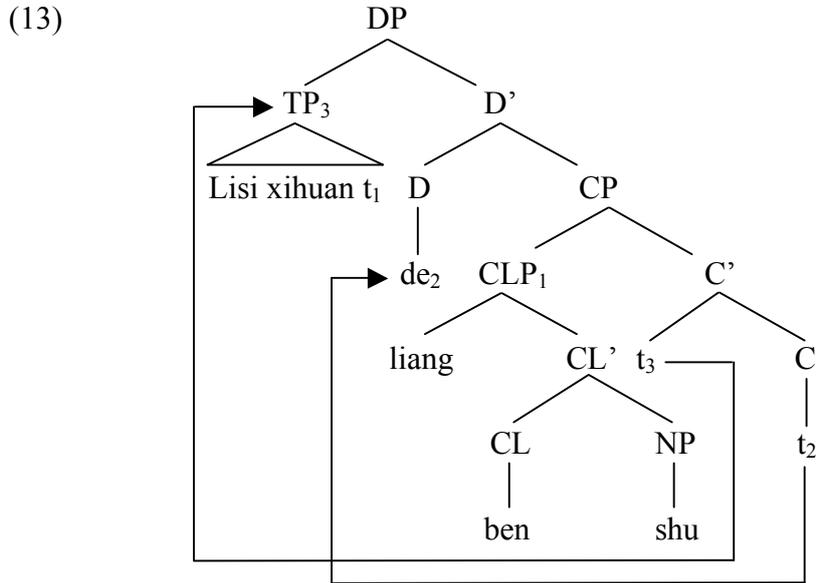
(14) a. [$_{DP}$ [$_{CP}$ [$_{CLP}$ **liang-ben shu**]$_1$ [$_{C'}$ [$_{TP}$ Lisi xihuan **t$_1$**] de]]]

   b. [$_{DP}$ [$_{D'}$ **de$_2$** [$_{CP}$ [$_{CLP}$ liang-ben shu]$_1$ [$_{C'}$ [$_{TP}$ Lisi xihuan t$_1$] **t$_2$**]]]]

   c. [$_{DP}$ [$_{TP}$ **Lisi xihuan t$_1$**]$_3$ [$_{D'}$ de$_2$ [$_{CP}$ [$_{CLP}$ liang-ben shu]$_1$ [$_{C'}$ **t$_3$** t$_2$]]]]

In (14a), the CLP *liang-ben shu* 'two-CL book' is generated within the relative clause TP, and it is raised to the CP SPEC. Subsequently, *de* is raised to the D position, as shown in (14b), which makes DP SPEC and CP SPEC "equidistant". This in turn allows the relative clause TP to be raised to DP SPEC, as illustrated in (14c). What is important for our purposes here is that in (14c), the relative clause is necessarily located above the CLP, which means that the relative clause necessarily precedes the CLP *liang-ben*.

Alternatively, one may consider the possibility that the DP optionally takes the CLP as its complement, as shown in (15):

(15)

```
                        DP
                ┌────────┴────────┐
              TP₃                 D'
           ┌──┴──┐          ┌─────┴─────┐
       Lisi xihuan t₁  D          CLP
                        │      ┌────┴────┐
                       de₂   liang     CL'
                              ┌──────┴──────┐
                             CL            CP
                              │       ┌─────┴─────┐
                            ben     NP₁          C'
                                     │       ┌────┴────┐
                                    shu      t₃        C
                                                       │
                                                       t₂
```
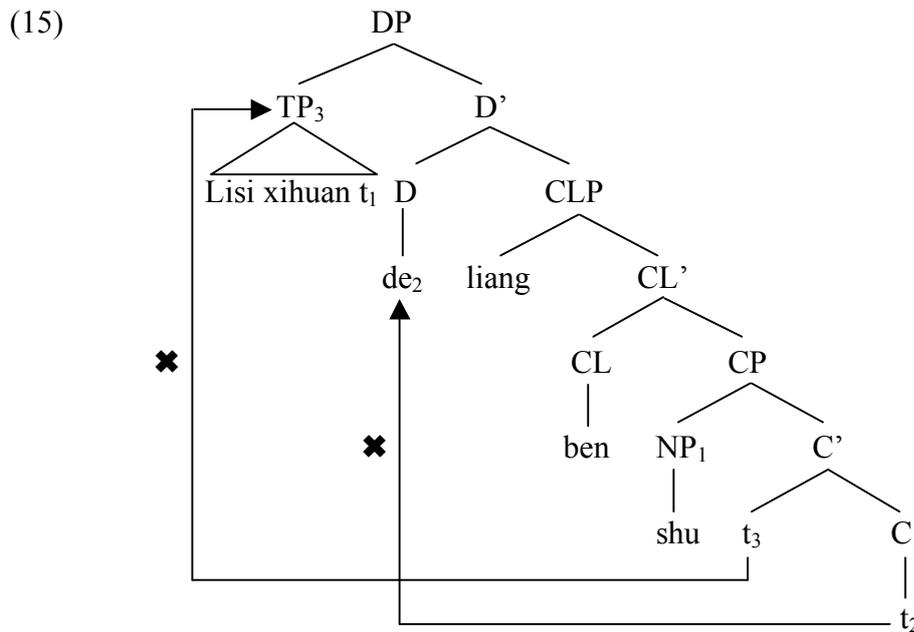
This time, the NP *shu* is raised to CP SPEC, followed by the raising of *de* to D. However, notice that the CL intervenes between D and C, and the *de*-raising would violate the head-movement constraint. Consequently, the relative clause cannot be raised to DP SPEC either, due to minimality. The structure in (15) therefore is not available for (12a).

To summarize, under Simpson's/SL&M's proposal, we only have the structure given in (13) for (12a), which in turn predicts that relative clauses necessarily precede numeral quantifiers accompanied by a classifier. The fact that a relative clause can follow a numeral accompanied by a classifier, as exemplified in (12b), therefore appears to be problematic for the Kaynean approach to Chinese relative clauses.

The question here is whether the fact that (12b) is grammatical undermines Simpson's/SL&M's analysis of Chinese relative clauses. It is obvious that their proposal needs modifying; however, it is not immediately clear whether we should refute the proposal in question altogether. In Section 3, building upon Lin, Murasugi and Saito's (2001) analysis of pure complex NPs in Chinese, I propose a "hybrid" hypothesis for Chinese relative clauses in order to accommodate (12b) as well as (12a).

3. Proposal

Lin, Murasugi and Saito (2001) propose that pure complex NPs involve adjunction of a CP (CP$_{PCNP}$ hereafter) to N'. For instance, (16a) has the structure given in (16b):

(16) a. [CP Huaqi-Yinhang pochan   de] xiaoxi
          Citibank   bankrupt DE   news

     'the news that Citibank went bankrupt'

          (Lin, Murasugi and Saito 2001: 21)

  b.

```
                    DP
                     \
                      D'
                     /  \
                    D    NP
                          \
                           N'
                          /  \
                        CP    N'
                        / \    /\
                      C'  xiaoxi
                     /  \
                   TP    C
                  /__\   |
      Huaqi-Yinhang  pochan  de
```
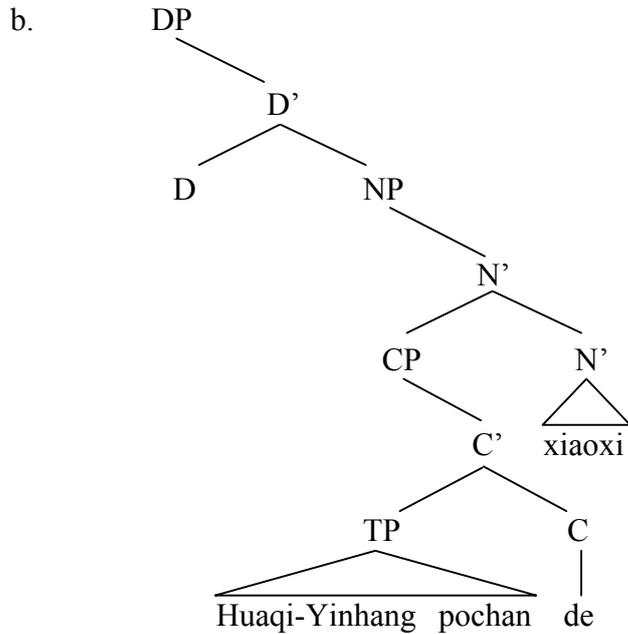
This proposal nicely accommodates the relative order between CP$_{PCNP}$'s and relative clauses. As shown in (17a, b), the CP$_{PCNP}$ must be closer to the head N than the relative clause in English:

(17) a. the rumor [that Citibank got robbed] [that John heard *e* yesterday]

    b. *the rumor [that John heard *e* yesterday] [that Citibank got robbed]

          (Lin, Murasugi and Saito 2001: 19)

The structure of (17a) is as shown in (18):

(18)

```
              DP
               \
               D'
              /   \
            D       CP
            |      /   \
          the   NP₁     C'
                 |      /  \
                N'     C    TP
               /  \    |     \
             N'   CP  that  John …t₁ …
             /\    /\
          rumor  that Citibank …
```
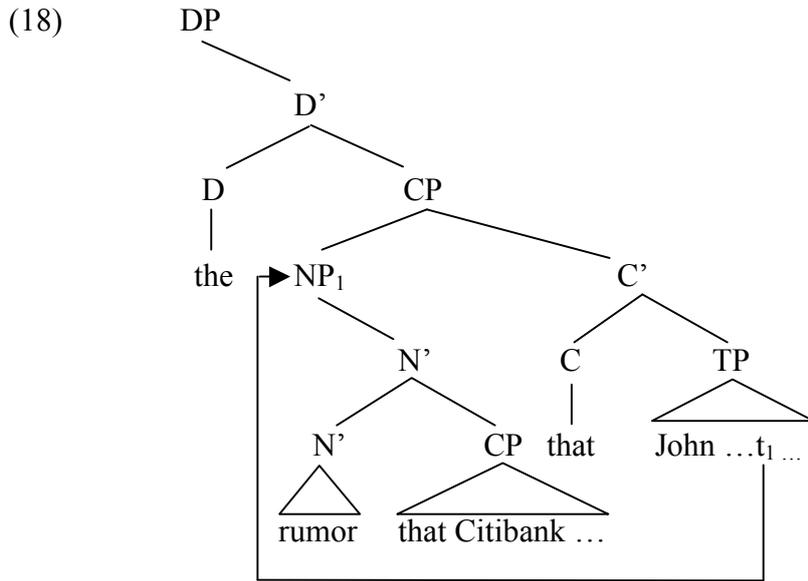
The same contrast is observed in Chinese, as illustrated in (19a, b):

(19) a. [Laowang zuotian   tingdao *e* de] [Huaqi-yinghang bei qiang de] yaoyan
                     yesterday hear   DE   Citibank   got rob   DE   rumor

       'the rumor that Citibank got robbed which Laowang heard yesterday'

      b. *[Huaqi-yinghang bei qiang de] [Laowang zuotian   tingdao *e* de] yaoyan
           Citibank   got rob   DE   yesterday hear   DE   rumor

       'the rumor which Laowang heard yesterday that Citibank got robbed'
                                                    (Lin, Murasugi and Saito 2001: 19)

This is exactly what we expect if a relative clause occupies DP SPEC whereas a CP$_{PCNP}$ is adjoined to N'. The structure of (19a) is as shown in (20):

(20)

```
                  DP
                /     \
             TP₃       D'
            /  \      /   \
     Laowang … t₁ D         CP
               |          /    \
             de₂        NP₁      C'
                         |      /  \
                        N'    t₃    C
                       /  \         |
                     CP    N'       t₂
                    /\     /\
         Huaqi-yinghang … de  yaoyan
```
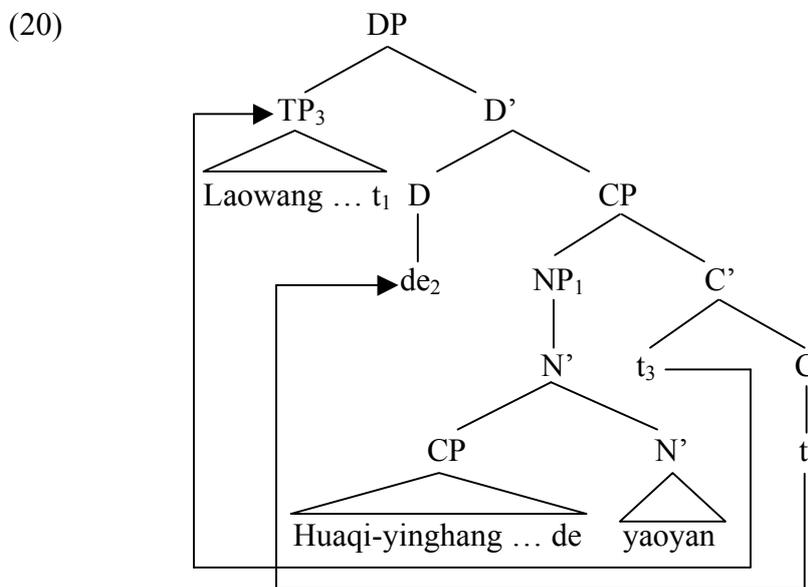
Of our particular interest here is the fact that CP_{PCNP}'s cannot trigger NP-ellipsis, as shown in (21):

(21) *[$_{CP}$ Huaqi-Yinhang pochan de] xiaoxi bi   [$_{CP}$ Meiguo-Yinhang pochan de]
        Citibank   bankrupt DE news   compare   Bank-of-America bankrupt DE
      [e] geng ling   shichang zhenjing.
          more make market   shock

   'The news that Citibank went bankrupt shocks the market more than the news that
   Bank of America went bankrupt.'

                                                                (Lin, Murasugi and Saito 2001: 21)

This naturally follows if the structure exemplified in (16b) is correct. In (21), the CP_{PCNP} is not in the DP SPEC, and therefore, the SPEC-R is not met. As a result, no NP-ellipsis is allowed in this example.

Keeping in mind the hypothesis that Chinese CP_{PCNP}'s are adjoined to N', we now turn to relative clauses in Chinese. The potential problem raised in Section 2.2 for relative clauses is that a relative clause can follow a numeral-classifier sequence in this language. Considering that an adjunction structure is available to Chinese CP_{PCNP}'s, I would like to extend Lin, Murasugi and Saito's (2001) hypothesis and propose that relative clauses can also have an adjunction structure in this language, that is, the traditional head-final structure (e.g. Aoun and Li 1993, Tsai 2008). In principle, relative clauses can have either of the two structures given in (22a, b) in Chinese:

(22)   a.   Head-Raising Option

-23-

b.   Op-Movement Option

```
                    DP
                     |
                     D'
                    / \
                   D   NP
                      /  \
                    CP    NP
                   /  \     \
                 Op₁   C'    N'
                      / \     |
                    TP   C    N
                   /___\  |
                  … t₁ … de
```
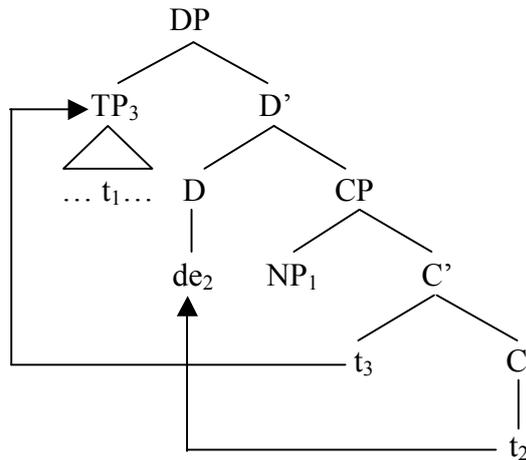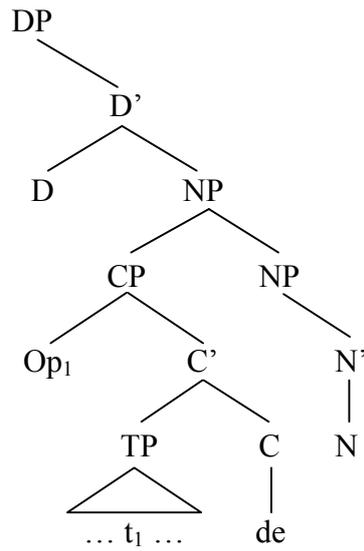
(22a) illustrates the Kaynean head-raising option, whereas the relative clause is adjoined to NP in (22b).

With this hybrid hypothesis in mind, I return to (12a, b), repeated here as (23a, b):

(23)   a.   [Lisi xihuan] de   liang-ben shu
                  like   DE two-CL   book

       'two books that Lisi likes'

       b.   liang-ben [Lisi xihuan] de   shu
            two-CL   like   DE   book

Let us start with (23a) which can make use of the Kaynean head-raising option and has the structure given in (13), repeated here as (24):

(24)

```
                        DP
                       /  \
                    TP₃    D'
                   /__\   /  \
         Lisi xihuan t₁  D    CP
                        |    /  \
                      de₂ CLP₁   C'
                         /  \    / \
                     liang  CL' t₃  C
                          /   \      |
                        CL    NP    t₂
                        |      |
                       ben    shu
```
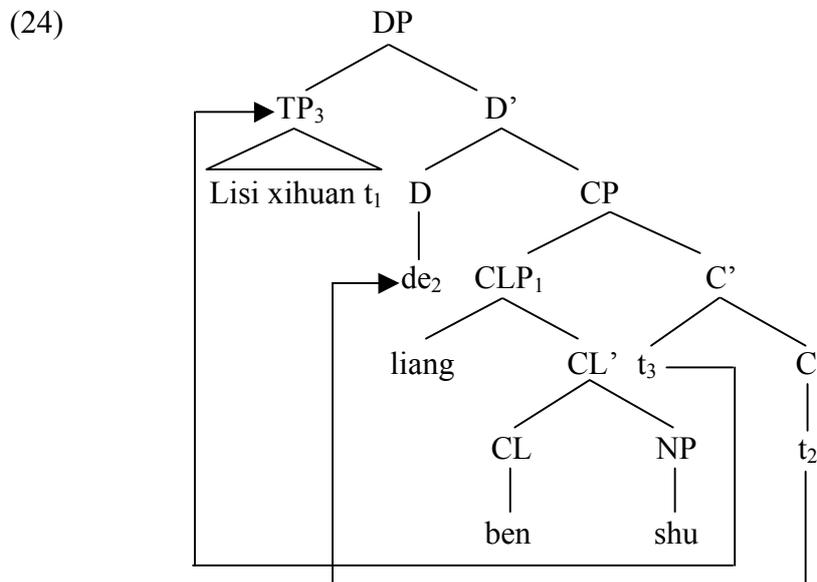
In addition, suppose that the CLP intervenes between DP and NP. Then, this example can also have the structure given in (25) on the assumption that the relative clause can be raised to a functional category above NP, thus to DP, plausibly for focal reasons (Zhang 2004) or referential reasons (Lu 1998):

(25)

```
                        DP
                   ┌────┴────┐
                 CP₂         DP
              ┌───┴───┐    ┌──┴──┐
        [Op₁ [Lisi xihuan t₁] de]  D'
                              ┌───┴───┐
                              D       CLP
                                   ┌───┴───┐
                                 liang     CL'
                                       ┌────┴────┐
                                      CL         NP
                                       │      ┌───┴───┐
                                      ben    t₂      NP
                                                      │
                                                     shu
```
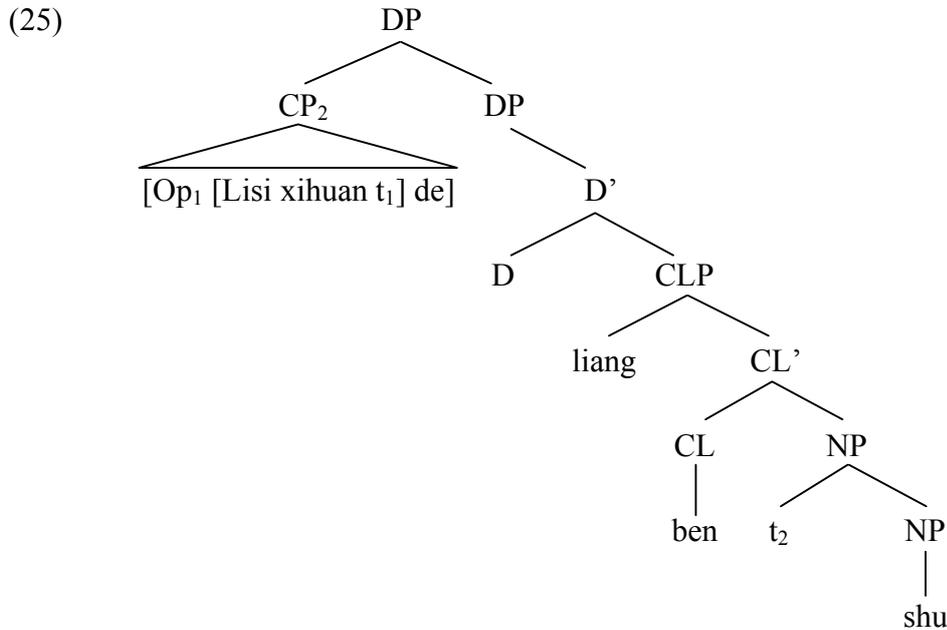
Alternatively, as proposed in Hsieh (2005), the relative clause may be base-generated in a DP-adjoined position.

As for (23b), since the relative clause follows the numeral-classifier sequence, the head-raising option is unavailable, as we saw in Section 2.2. Thus, the Op-movement option must be chosen. Accordingly, (23b) has the structure given in (26) with the relative clause necessarily adjoining to NP:

(26)

```
        DP
       ┌─┴─┐
          D'
       ┌───┴───┐
       D       CLP
            ┌───┴───┐
          liang     CL'
                ┌────┴────┐
               CL         NP
                │      ┌───┴───┐
               ben    CP      NP
                   ┌───┴───┐   │
         [Op₁ [Lisi xihuan t₁] de]  shu
```
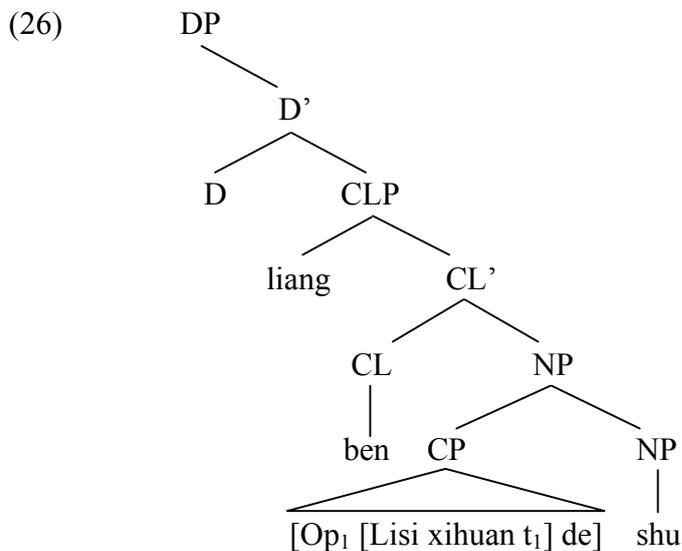
To summarize, this section proposes that in principle, Chinese relative clauses can

choose either Kaynean head-raising or Op-movement. However, when a relative clause follows a numeral-classifier sequence, the Kaynean head-raising option is not available. In the following four sections, I aim to show that the hybrid hypothesis makes interesting predictions regarding NP-ellipsis phenomena. First of all, Section 4 discusses A&L's (2003) seminal work on the context in which NP-ellipsis is (un)available with Chinese relative clauses.

4. Aoun and Li's (2003) Discovery

A&L (2003) (see also Huang, Li and Li 2009) adopt Kayne's (1994) head-raising hypothesis of relative clauses in English for Chinese relative clauses in a "modified" manner. According to A&L, the relative clause in (27a), for example, has the structure given in (27b):

(27) a. [[ta chi e_1 de] cu_1] bi shei dou da.
　　　　 he eat 　 DE vinegar compare who all big

　　　 '*Lit*. The vinegar he eats is greater than anyone else's.
　　　 His jealousy is greater than anyone else's.'

<div align="right">(Huang, Li and Li 2009: 220)</div>

b.
```
                    NP
                   /  \
                 CP    [Head NP]1
                /  \
          … [NP t1] …
```
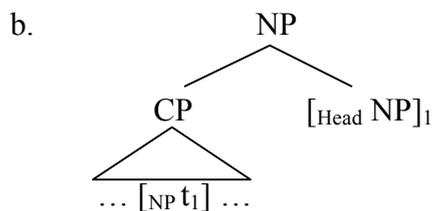
<div align="right">(Aoun and Li 2003: 175)</div>

Of importance is the fact that *chi-cu* 'eat vinegar' has an idiomatic meaning, namely 'be jealous.' Given the assumption that idiomatic meanings require reconstruction, which is assumed to be possible only with head-raising, (27a) necessarily involves the raising of the NP *cu* to the relative head position.

A&L observe that this type of relative clauses can trigger NP-ellipsis. For instance, (28a, b) are both grammatical:

(28) a. [lai zher] de [*e*]
　　　　 come here 　 DE

　　　 '(the one) that came here'

　　 b. [ta zuo] de [*e*]
　　　　 he do 　 DE

　　　 '(the thing) that he did'

<div align="right">(Aoun and Li 2003: 180)</div>

We therefore understand that for A&L, the syntactic context shown in (27b) is the one where NP-ellipsis is possible.

A&L further find a correlation between the category of the gap within a relative clause and the (un)availability of NP-ellipsis. Significantly, when the relative head is 'reason' or 'method,' NP-ellipsis is not allowed. Consider the grammatical contrast between (28a, b) above and (29a, b):

(29) a. *[ta xiu che] de [*e*]
          he fix car   DE

      '(the way) that he fixed the car'

      b. *[ta likai] de [*e*]
          he leave   DE

      '(the reason) that he left'

<div align="right">(Aoun and Li 2003: 180)</div>

More examples are given in (30a, b). These examples become ungrammatical if the phrases in parentheses are elided:

(30) a. [[ta xiu che] de   fangfa] bi   **[[wo xiu che] de *(fangfa)]** hao.
           he fix car   DE   method   compare   I   fix car   DE   method   good

      'The way he fixes cars is better than the way I fix cars.'

      b. [[ta bu neng lai   de] yuanjin] wo zhidao le; **[[ni bu neng lai]   de**
           he not can   come DE   reason   I   know LE   you not can   come DE
      *(yuanyin)] ne.
           reason   Q

      'The reason that he cannot come, I know; how about the reason you cannot come?'
<div align="right">(Aoun and Li 2003: 181-182)</div>

A&L argue that the Kaynean analysis of Chinese relative clauses is applicable only to cases where the gap inside a relative clause is an NP. This naturally follows from the assumption that the relative head must be an NP. This in turn indicates that the head-raising option is not available in cases where the gap inside a relative clause is a non-NP. Consequently, non-NP relative clauses must make use of Op-movement. Accordingly, the relative clause in (30a), for example, must have the structure given in (31):

(31)
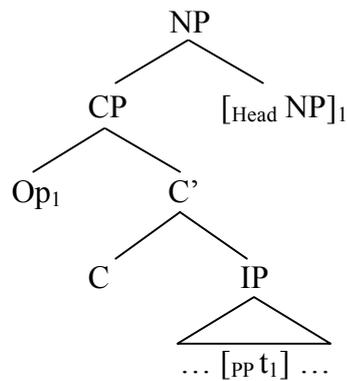
```
                    NP
            ／‾‾‾‾‾‾‾＼
          CP          [Head NP]1
      ／‾‾‾‾＼
    Op1      C'
          ／‾‾＼
         C      IP
              ／‾‾＼
            … [PP t1] …
```
(Aoun and Li 2003: 175)

In short, according to A&L (and Huang, Li and Li 2009), the choice between head-raising and Op-movement crucially depends on the categorical status of a phrase to be relativized: NP-relatives and non-NP relatives. Huang, Li and Li's (2009: 225) summary is given below:

(32) a. Relatives with a gap in argument positions:
          A relative can be derived by directly raising the nominal to be relativized to the Head position. The Head is related to the trace in an argument inside the relative.

      b. Relatives with the Head related to an adjunct or a pronoun in an argument position:
          The Head of the relative is base-generated. The Head-relative clause relation is via a relative operator at the peripheral position of the relative clause.

Section 5 focuses on this asymmetry between NP-relatives and non-NP-relatives, and I defer discussion on NP-relatives with a resumptive pronoun until Section 6.

Notice that under A&L (see also Huang, Li and Li 2009), NP-relatives and non-NP-relatives are both adjoined to NP. Accordingly, in order to make a distinction between these two types of relatives with respect to NP-ellipsis, they rely on the internal structure of relative clauses themselves: whether a relative clause involves Op-movement or head-raising; when the Op-movement option is taken, NP-ellipsis is not allowed. A&L explain the contrast in question by relying on a condition on the identification requirement of the relative Op. They provide two possibilities given in (33a, b) (see also Aoun and Li 2003: 182):

(33) Due to some requirement on the relative operator (Op):
      a. The Op needs to be identified in the sense that some content needs to be provided for the Op to be interpreted. <u>A null form does not have enough content to identify the Op</u> [underlined by Y.M.].

b.   A relative clause is licensed when the Op and the head match in features, including phi-features (person, number, gender) and substantive features such as [human], [place], [time]. However, <u>an empty head does not have lexical content and does not have these features</u> [underlined by Y.M.].

<div align="right">(Huang, Li and Li 2009: 227)</div>

The basic idea is that if the relative head is elided, the relative Op fails to be properly identified. Consequently, NP-ellipsis is not permitted with non-NP-relatives.

It is clear that we need an identification requirement on the relative Op. However, it is not obvious why we have to refer to the phonetic content of the relative head in licensing the Op in question as suggested in (33a, b). One construction worth examining in this respect is the temporal adverbial construction that Geis (1970) and Larson (1990) discuss. Consider (34):

(34)   I saw Mary in New York [$_{PP}$ before [$_{CP1}$ she claimed [$_{CP2}$ that she would arrive]]].

<div align="right">(Larson 1990: 170)</div>

Geis (1970) observes that temporal adverbials of the type exemplified in (34) are ambiguous. (34) can describe the situation in which I saw Mary in New York before she made the claim on her arrival. (34) can also mean that I saw Mary prior to her scheduled arrival time. Larson (1990) accounts for this ambiguity based on temporal Op-movement. According to Larson, these two interpretations are distinguished, based on the position in which the Op is generated, as roughly illustrated in (35a, b):

(35)   a.   I saw Mary in New York [$_{PP}$ before [$_{CP1}$ she claimed [$_{CP2}$ that she would arrive] Op]].

       b.   I saw Mary in New York [$_{PP}$ before [$_{CP1}$ she claimed [$_{CP2}$ that she would arrive Op]]].

Within the *before*-clause, the Op modifies the matrix event and refers to the time when she made the claim in (35a). On the other hand, in (35b), it modifies the embedded event and represents the time of her scheduled arrival.

Of interest here is the fact that (34) is basically equated with (36) where the overt NP *the time* is present:

(36)   I saw Mary in New York [$_{PP}$ before [$_{NP}$ the time [$_{CP1}$ she claimed [$_{CP2}$ that she would arrive]]]].

In (36), it is natural to assume that the NP *the time* licenses the temporal Op. However, in (34), due to the absence of this very NP, it is not obvious how the temporal Op is identified. It is conceivable that the covert NP *the time* is also present in this example. If this is the case, the only difference between (34) and (36) is whether the NP in point is overt or covert. The

grammaticality of (34) then suggests that Op can be identified even if the identifier does not have any phonetic content. We ought, therefore, to account for the unavailability of NP-ellipsis in (28a, b) and (29a, b) without referring to the auxiliary condition of the type underlined in (33a, b). In Section 5.2, I show that under the hybrid hypothesis, the (un)availability of NP-ellipsis with non-NP relatives is independent of such an auxiliary condition.

5.   Orders between Relative Clauses and Numeral-Classifier Sequences

To reiterate, relative clauses can trigger NP-ellipsis but CP$_{PCNP}$'s cannot, as shown in (1) and (21), repeated here as (37a, b):

(37) a.   [$_{DP}$ [$_{TP}$ wo zuotian   kanjian] de   nanhai] bi   **[$_{DP}$ [$_{TP}$ ni   zuotian**
            I   yesterday see   DE boy   compare   you yesterday
       kanjian] de (nanhai)] geng youqian.
       see   DE boy   more rich

       'The boy I saw yesterday is richer than the boy you saw yesterday.'

      b.   [[$_{CP}$ Huaqi-Yinhang pochan   de] xiaoxi] bi   **[[$_{CP}$ Meiguo-Yinhang**
            Citibank   bankrupt DE news   compare   Bank-of-America
       pochan   de] *(xiaoxi)] geng ling   shichang zhenjing.
       bankrupt DE   news   more make market   shock

       'The news that Citibank went bankrupt shocks the market more than the news that Bank of America went bankrupt.'

The contrast between (37a) and (37b) appears to follow from the hypothesis that relative clauses can occupy DP SPEC, but CP$_{PCNP}$'s cannot. Given the hybrid hypothesis, we now have a finer distinction among relative clauses: if the Op-movement option is taken, no NP-ellipsis is allowed even in relative clauses. It might appear to the reader that there is no distinction between the present hypothesis and A&L's. However, I show that this is not the case.

5.1.   Asymmetry regarding NP-Ellipsis

A first case where a difference between the two hypotheses shows up concerns the relative order between a relative clause and a numeral with a classifier.[4] As we already saw in Section 2, if the NP is not elided, the numeral-classifier *liang-ben* can either precede or follow the relative clause, as shown in (38a, b):

---

[4] We admit that variations exist among native speakers of Chinese for the data presented in Section 5. These variations will be discussed in a separate occasion (but see the footnote 5).

(38) a. Lisi diu-le   [Zhangsan mai] de [liang-ben] shu, Huazi diu-le
         dump-PERF   buy DE two-CL   book   dump-PERF
         [Tailang mai] de [liang-ben] shu.
            buy DE two-CL   book

         'Lisi threw away the two books Zhangsan bought. Huazi threw away the two books Tailang bought.'

     b. Lisi diu-le   [liang-ben] [Zhangsan mai de] shu, Huazi diu-le
         dump-PERF two-CL   buy DE book   dump-PERF
         [liang-ben] [Tailang mai de] shu.
          two-CL   buy DE book

         'Lisi threw away the two books Zhangsan bought. Huazi threw away the two books Tailang bought.'

However, when the NP is elided, a grammatical contrast arises between these examples.

First, when the relative clause precedes the numeral-classifier *liang-ben*, the relative clause can elide the numeral-classifier-NP sequence, and the CLP can delete the NP, as shown in (39):

(39) Lisi diu-le   [Zhangsan mai] de [liang-ben] shu, Huazi ye   diu-le
         dump-PERF   buy DE two-CL   book   also dump-PERF
         [Tailang mai] de ([liang-ben]) [*e*].
            buy DE   two-CL

         'Lisi threw away the two books Zhangsan bought. Huazi also threw away the two books Tailang bought.'

In the case where *liang-ben* also seems to be elided, it might be the case that the numeral in point is not present in the structure after all, and the interpretation under consideration is just a matter of inference. Yet, even if this is the case, we can still conclude that the relative clause can trigger NP-ellipsis.

In contrast, if the relative clause follows the numeral-classifier sequence, the NP *shu* cannot be elided, as illustrated in (40):[5]

---

[5] It should be noted that for some native speakers of Chinese, NP-ellipsis is available in (40). J. Lin (p.c.) suggests that these speakers may have taken the numeral-classifier sequence as a so-called "massifier," which Cheng and Sybesma (1999) argue is a relative clause. If this is the case, it is natural that the numeral-classifier sequence in point can be adjoined to DP, which in turn allows the relative clause [TP Tailang mai *e*] to occupy DP SPEC. Consequently, for these speakers, the NP-ellipsis can occur in (40).

(40) *Lisi diu-le   [liang-ben] [Zhangsan mai] de shu, Huazi ye   diu-le
         dump-PERF two-CL   buy   DE book   also dump-PERF
    [liang-ben] [Tailang mai] de [*e*].
     two-CL   buy   DE

    'Lisi threw away the two books Zhangsan bought. Huazi also threw away the two
    books Tailang bought.'

This is quite surprising given the discussion so far that Chinese relative clauses can trigger
NP-ellipsis. There is then an asymmetry between (39) and (40) with respect to the availability
of NP-ellipsis triggered by a relative clause.

    The contrast between (39) and (40), however, is precisely what we predict under the
hybrid hypothesis. Let us start with (39). Recall our discussion in Section 3 that when the
Op-movement option is taken, no NP-ellipsis is allowed. Therefore, we only consider the
Kaynean head-raising option. Under this option, when the relative clause precedes the
numeral-classifier sequence, it is necessarily the case that the CLP *liang-ben shu* is raised to
CP SPEC, as shown in (41):

(41)
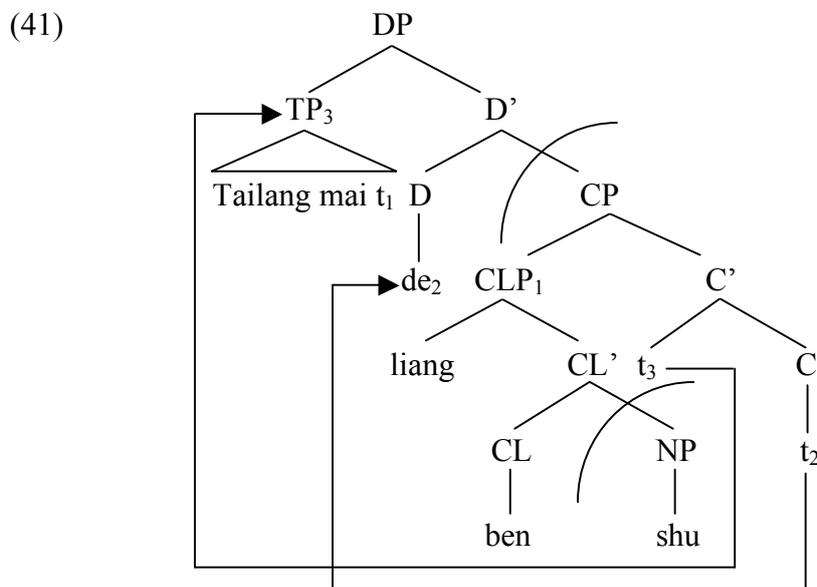
Since Chinese numerals can trigger NP-ellipsis, as exemplified in (42), it is not surprising that
NP-ellipsis can occur within the CLP in (41):

(42)   suiran Zhangsan mai-le   [san-ben   shu], dan Lisi mai-le   [wu-ben (shu)].
       though   buy-PERF three-CL book but   buy-PERF five-CL   book

    'Zhangsan bought three books, but Lisi bought five (books).'

                                                        (Saito, Lin and Murasugi 2008: 261)

In addition, the relative clause can trigger ellipsis of the entire CP in (41). If the CP is elided,
only the relative clause remains in (39).

In contrast to (39), Kaynean head-raising is not permitted in (40) since there is no SPEC to which the relative clause can be raised. Consequently, Op-movement is the only option available for this particular case, and the relative clause is necessarily adjoined to the NP, as shown in (43):

(43)   [$_{DP}$ [$_{CLP}$ liang [$_{CL'}$ ben [$_{NP}$ **[$_{CP}$ Op$_1$ [$_{TP}$ Tailang mai t$_1$] de]** shu]]]]

In (43), since the relative clause in question does not occupy the DP SPEC position, the NP-ellipsis in point is expected to be prohibited in (40). In short, under the hybrid hypothesis, no stipulation is required to account for the contrast between (39) and (40).

It is worth considering what A&L can say about the fact in (40). Under the present proposal, (38b) necessarily makes use of the Op-movement option. In contrast, for A&L, this example can involve head-raising. Under A&L's proposal, (44) would be the structure of the relative clause in question:

(44)   [$_{DP}$ [$_{CLP}$ liang [$_{CL'}$ ben [$_{NP}$ **[$_{CP}$ Tailang mai t$_1$ de]** shu$_1$]]]]

Although the CLP (possibly the DP as well) is present above NP, the relative clause, which has been created through the head-raising operation, is adjoined to the NP. This appears to conform to A&L's generalization for NP-ellipsis. Consequently, NP-ellipsis should be permitted, contrary to fact. In order to account for the unavailability of NP-ellipsis in (40), A&L would say that the presence of the numeral-classifier sequence somehow prevents the NP-ellipsis under consideration from taking place. Given the fact that (38b), in which no NP-ellipsis has taken place, is grammatical, it is not immediately clear why this should be the case under their head-raising proposal.

5.2. NP/PP Dichotomy

Another case where we can tell the present hypothesis from A&L's is not regarding the structural position of the relative clause, but concerns the category of a gap within a relative clause. As discussed in Section 4, A&L found a NP relatives/non-NP relatives asymmetry with respect to NP-ellipsis triggered by relative clauses. The purpose of this section is to show that the dichotomy in question does not pose any problem for the present proposal. In addition, the contrast in point is shown to follow purely from a structural difference between these two types of relatives.

First of all, under the hybrid hypothesis, for the reason that A&L exclude the same structures, neither of the structures in (46a, b) should be assigned to the boldfaced DP in (30a), repeated here as (45):

(45) [[ta *e*₁ xiu che] de   fangfa₁] bi   **[[wo xiu che] de   fangfa]** hao.
      he   fix car DE method compare I   fix car DE method good

'The way he fixes cars is better than the way I fix cars.'

(46) a.
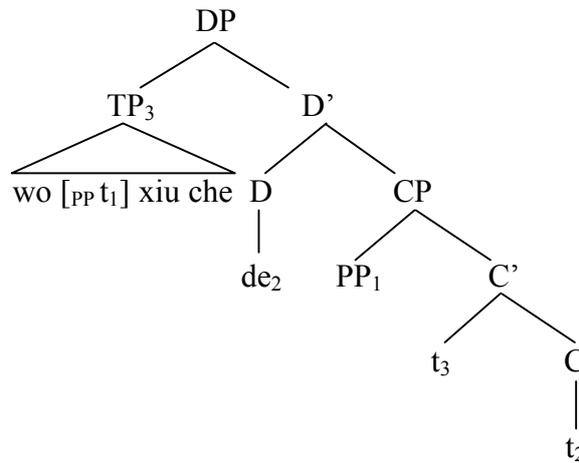
b.
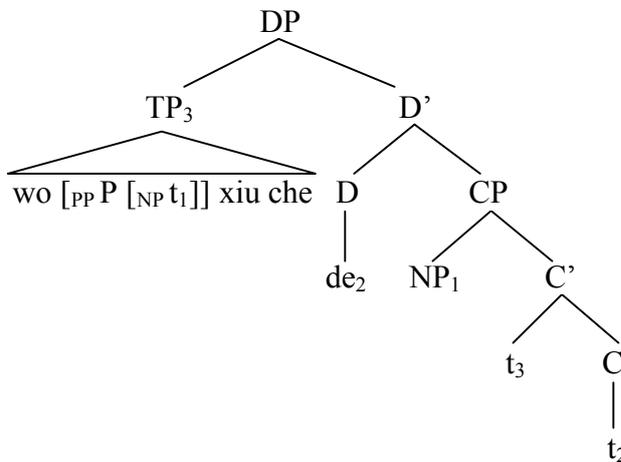
(46a), in which the PP is raised to CP SPEC, should be excluded since we independently know that the head of a relative clause must be an NP in category. In addition, even if empty Ps are available in cases like (45), (46b) should also be ruled out due to a ban against P-stranding in Chinese. It is known that Chinese observes a prohibition against P-stranding. For instance, sentences like (47a, b) are ungrammatical if *ta* is not present.

(47) a. nei-ge   ren,   wo wu fa   gen *(ta)   hezuo.
         that-CL person I   no means with him cooperate

      'That person, I cannot cooperate with *(him).

      b. nei-ben shu,   wo ba *(ta) jie-gei-le   Lisi le.
         that-CL book   I   BA it loan-to-PERF Lisi PERF

      'That book, I already loaned (it) to Lisi.'

                                                    (Huang, Li and Li 2009: 249)

Accordingly, whatever principle or constraint excludes (47a, b) rules out the possibility illustrated in (46b). We therefore conclude that the Kaynean-type analysis of relative clauses is not available for non-NP relatives, and that non-NP relatives must employ Op-movement. This type of relative clause is then adjoined to NP, as shown in (48):

(48)

```
                    DP
                     \
                      D'
                     /  \
                    D    NP
                        /  \
                      CP    NP
                     /  \    /\
                   Op₁   C'  /  \
                        /  \ /____\
                      TP    C
                     / \    |
                    /___\   de
                 … [PP t₁] …
```
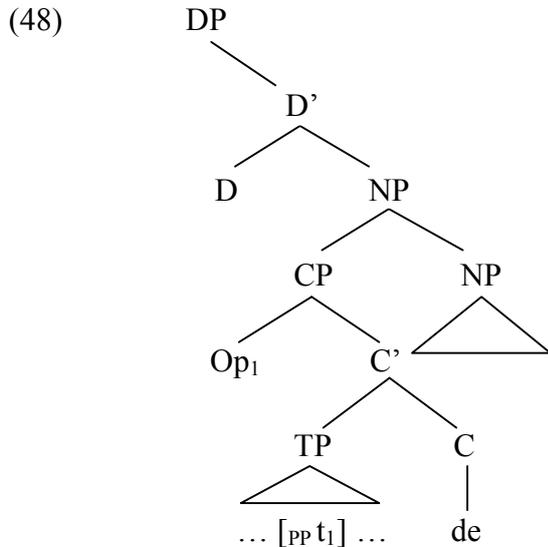
Here, I assume that the relative clause can also be raised and adjoined to DP or it can be base-generated in a DP-adjoined position (see (25) for its NP-relative counterpart).

Armed with the structure in (48), we have a different explanation from A&L's regarding the unavailability of NP-ellipsis in non-NP relatives. For A&L, the auxiliary condition on the identification requirement on the relative Op discussed in Section 4 forces the relative head to be overt. Consequently, no matter whether a non-NP-relative precedes or follows a numeral-classifier sequence, NP-ellipsis is expected to be unavailable with non-NP relatives. In contrast, under the hybrid hypothesis, no NP-ellipsis is predicted to be permitted on structural grounds. Non-NP relatives necessarily have an adjunction structure, which means that the relative clauses in question do not occupy the DP SPEC position. As a result, no NP-ellipsis should be allowed.

We are now ready to present crucial data with this prediction in mind. First of all, when no NP-ellipsis takes place, of course, no problem arises no matter whether the relative clause precedes or follows the CLP, as shown in (49a, b):

(49) a. Lisi zhidao [Zhangsan xiu che de] [liang-ge] fangfa, Xiaohua ye zhidao
              know   fix car DE two-CL method   also know
          [Xiaobao xiu motuoche de] [liang-ge] fangfa.
              fix motorcycle DE two-CL method

      'Lisi knows the two ways Zhangsan fixes cars. Xiaohua also knows the two ways
      Xiaobao fixes motorcycles.'

b. Lisi zhidao [liang-ge] [Zhangsan xiu che de] fangfa, Xiaohua ye zhidao
      know   two-CL   fix car DE method   also know
      [liang-ge] [Xiaobao xiu motuoche de] fangfa.
      two-CL   fix motorcycle DE method

'Lisi knows the two ways Zhangsan fixes cars. Xiaohua also knows the two ways Xiaobao fixes motorcycles.'

However, when deletion takes place, (49a) becomes ungrammatical regardless of whether or not *liang-ge* is elided with *fangfa*. Consider (50):

(50) *Lisi zhidao [Zhangsan xiu che de] [liang-ge] fangfa, Xiaohua ye zhidao
         know   fix car DE two-CL method   also know
    [Xiaobao xiu motuoche de] ([liang-ge]) [*e*].
       fix motorcycle DE two-CL

'Lisi knows the two ways Zhangsan fixes cars. Xiaohua also knows the two ways Xiaobao fixes motorcycles.'

This example sharply contrasts with (39), repeated here as (51):

(51) Lisi diu-le   [Zhangsan mai de] [liang-ben] shu, Huazi ye diu-le
      dump-PERF   buy DE two-CL   book   also dump-PERF
    [Tailang mai de] ([liang-ben]) [*e*].
       buy DE two-CL

'Lisi threw away the two books Zhangsan bought. Huazi also threw away the two books Tailang bought.'

(49b), in which the relative clause follows the numeral-classifier sequence, also becomes ungrammatical when *fangfa* is elided, as shown in (52):

(52) *Lisi zhidao [liang-ge] [Zhangsan xiu che de] fangfa, Xiaohua ye zhidao
         know   two-CL   fix car DE method   also know
    [liang-ge] [Xiaobao xiu motuoche de] [*e*].
     two-CL   fix motorcycle DE

'Lisi knows the two ways Zhangsan fixes cars. Xiaohua also knows the two ways Xiaobao fixes motorcycles.'

The (un)grammaticality of (49a, b), (50) and (52) therefore follows under either A&L's or the present proposal. When it comes to (49a, b), no ellipsis has taken place, and therefore, these examples are predicted to be grammatical. Under the hybrid hypothesis, the relative clause is adjoined to NP in (49b) whereas it is located in a DP-adjoined position in (49a). It is, however, worth reiterating here that we account for the unavailability of NP-ellipsis in (50) and (52) on purely structural grounds without referring to the auxiliary condition on the identification requirement on the relative Op, whose existence is yet to be motivated. I believe

that the fact that such a condition is not necessitated therefore favors the present proposal over A&L's.

5.3. Summary

This section discussed two contexts where the head-raising option is unavailable. The section observed that NP-ellipsis cannot be triggered by a relative clause if it follows a numeral quantifier accompanied by a classifier. I showed that this fact is expected under the hybrid hypothesis, but it requires additional stipulations to be accommodated under A&L's proposal. In addition, I proposed that the contrast between NP relatives and non-NP relatives naturally follows under the hybrid hypothesis without any auxiliary assumption.

Simpson (2002) suggests that relative clauses are always derived through Kaynean head-raising. However, to the extent that the present hybrid hypothesis is correct, we are led to conclude that Simpson's suggestion is weakened. Section 5 presented two contexts where Kaynean head-raising is not an available option. Precisely in this case, relative clauses are left-adjoined and therefore head-final.

6. Relative Clauses with Resumption in Chinese

As A&L observe, NP-ellipsis cannot be triggered by a relative clause with resumption either. Thus, (53) is ungrammatical in Chinese:

(53)   wo xiang kan [[ni   shuo Zhang hui dai ta_1 huilai de] *(ren_1)].
       I   want see   you say   will bring him back DE   person

   'I want to see the one that you said that Zhang would bring back.'

(Aoun and Li 2003: 183)

If (53) made use of the head-raising option, then the derivation should proceed as in (54):

(54)   a.   [$_{DP}$ [$_{CP}$ [$_{NP}$ **ren**]$_1$ [$_{C'}$ [$_{TP}$ ni shuo Zhang hui dai ta_1 huilai] de]]]

       b.   [$_{DP}$ [$_{D'}$ **de$_2$** [$_{CP}$ [$_{NP}$ ren]$_1$ [$_{C'}$ [$_{TP}$ ni shuo Zhang hui dai ta_1 huilai] t_2]]]]

       c.   [$_{DP}$ [$_{TP}$ **ni huo Zhang hui dai ta$_1$ huilai**]$_3$ [$_{D'}$ de$_2$ [$_{CP}$ [$_{NP}$ ren]$_1$ [$_{C'}$ t_3 t_2]]]]

If this derivation were permitted, we would expect (53) to allow NP-ellipsis. The fact that NP-ellipsis is impossible in (53) therefore indicates that the derivation illustrated in (54) is not an available option in Chinese relative clauses with resumption, which needs exploring.

I suggest that an identification requirement on resumptive pronouns provides an answer to this question. Safir's (1986) R(elative head)-binding is one such requirement. According to the R-binding requirement, resumptive pronouns must be R-bound. This R-binding

requirement comes with an auxiliary locality condition that states that resumptive pronouns must be R-bound via an operator in CP SPEC. This locality condition then requires the presence of the Op in CP SPEC.

A&L (2003) independently provide evidence that a relative clause with resumption must contain a relative Op. Consider the paradigm in (55):

(55) a. shei kandao-le [[shei shuo e_1 mingtian yao biaoyan de] yanyuan$_1$].
          who see-PERF   who say   tomorrow will perform DE actor

          'Who saw the actor that who said would perform tomorrow?'

    b. *shei kandao-le [[shei shuo ta$_1$ mingtian yao biaoyan de] yanyuan$_1$].
          who see-PERF   who say   he tomorrow will perform DE actor

          'Who saw the actor that who said he would perform tomorrow?'

    c. shei kandao-le [[Zhangsan shuo ta$_1$ mingtian yao biaoyan de] yanyuan$_1$].
          who see-PERF   say   he tomorrow will perform DE actor

          'Who saw the actor that Zhangsan said he would perform tomorrow?'
                                          (Aoun and Li 2003: 171-172)

Schematically, the structure of (55a, b) is as follows:

(56)   [WH$_1$ … [$_{NP}$ [$_{RC}$ Op … e_1 / ta$_1$ … de] NP$_1$]]

According to A&L, the contrast between (55a) and (55b) follows. This is because in the latter example, the relative clause projects a CP with its SPEC occupied by the relative Op, and this relative Op creates an island for extraction of WH$_1$, whereas in the former example, the head-raising option is taken and therefore, no Op-movement is involved. Consequently, no island is created, and as a result, WH$_2$ can take matrix scope. As shown in (55c), if WH$_1$ is replaced by *Zhangsan*, (55b) becomes grammatical with the resumptive pronoun.

Aoun and Li also observe that in parallel to (55a, b), adjunct relativization, which necessarily involves Op-movement, also yields island effects, as shown in the contrast between (57a) and (57b):

(57) a. ??shei tingdao-le [[ni   jiao shei   xiu che] de yuanyin].
        who hear-PERF   you ask whom fix car   DE reason

    'Who heard the reason you asked whom to fix the car?'

  b.   shei kandao-le [[ni   jiao shei   xiu] de che].
       who see-PERF   you ask whom fix   DE car

    'Who saw the car you asked whom to fix?'

<div align="right">(Aoun and Li 2003: 180)</div>

The parallelism between (55b) and (57a) then confirms that Op-movement takes place in the former example.

In order to license the resumptive pronoun in (53), the relative clause must therefore project a CP and accommodate the relative Op. However, under the Kaynean head-raising option, what is raised to DP SPEC is a TP. Thus, (53) cannot make use of the head-raising option, which in turn means that the Op-movement option must be chosen. The structure of (53) must be as shown in (58):

(58)
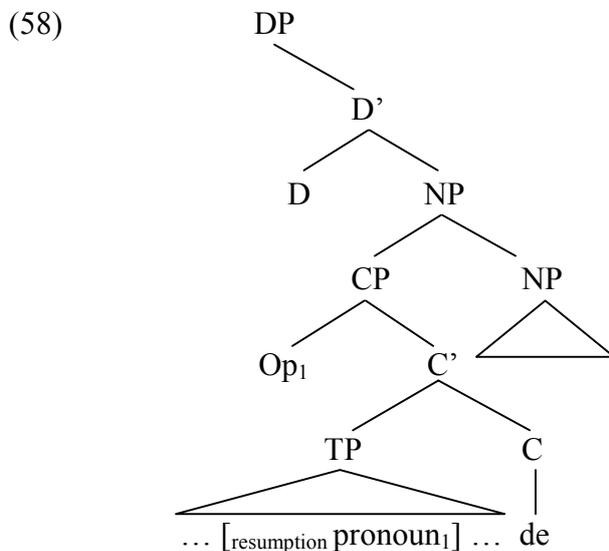
In (58), the relative clause with resumption cannot satisfy the SPEC-R and therefore, should not allow NP-ellipsis. Accordingly, (53) is ungrammatical if *ren* is deleted.

It should be emphasized before closing this section that under the hybrid hypothesis, again, we account for the unavailability of NP-ellipsis in (53) without relying on A&L's auxiliary condition on the identification requirement of the relative Op.

7. Relative Clauses in Japanese: CP-Relatives vs. TP-Relatives

The discussion related to Chinese relative clauses so far is based on the assumption that Chinese relative clauses are headed by C. That is, Chinese relative clauses are CPs the head of

which is occupied by *de*, which makes the Kaynean head-raising option available.

Yet, once we turn our attention to other East Asian languages, we find that Saito (1985), and then Murasugi (1991) show that Japanese relative clauses are TPs. This means that Japanese relative clauses cannot make use of Op-movement since there is no CP SPEC available for the Op to be raised to. The most straightforward evidence for this is based on the fact that long-distance dependency is not possible in Japanese adjunct relative clauses. In (59), *riyuu* 'reason' cannot refer to the reason why Taroo swam:

(59) *[NP [RC Hanako-ga   [[Taroo-ga   oyoida]-to] omotteiru] riyuu]
                    -Nom   -Nom swam-that think   reason

     'the reason Hanako thinks that Taroo swam'

This contrasts with the Chinese example in (60) in which *fangfa* 'reason' can refer to the reason why you should leave:

(60) [NP [RC [ta renwei [nimen yinggai likai]] de] fangfa]
                 he think   you   should leave   DE   reason

     'the reason why he thinks you should leave'

<div align="right">(Aoun and Li 2003: 177)</div>

This asymmetry between Japanese and Chinese naturally follows if Chinese relative clauses, but not Japanese relative clauses, involve Op-movement. Under the hypothesis that Japanese relative clauses are TPs, this is exactly what we predict since there is no CP SPEC to which the Op can be raised in Japanese.

Maki (1995) also provides the same type of argument as the one by A&L discussed in Section 6, and shows that the relative Op is not present in Japanese relative clauses. Consider (61):

(61) kimi-wa [[RC Taroo-ga   nani-o   katta] riyuu]-o   kiita-no.
       you-Top   -Nom what-Acc bought reason-Acc ask-Q

     '*Lit*. You asked for the reason why Taroo bought what.'

<div align="right">(Maki 1995: 86)</div>

If the relative-Op-movement had taken place in (61), island effects would be predicted to arise in this example, in parallel to (55b). The absence of island effects in (61) therefore indicates that no relative Op needs to be present in Japanese relative clauses. This naturally follows from the hypothesis that Japanese relative clauses are TPs.

We then need to ask what the hypothesis that Japanese relative clauses are TPs can say about the Kaynean approach to Japanese relative clauses.[6] If we directly substantiated the

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[6] See also Murasugi (2000a, b) for relevant discussion on this issue.

hypothesis that Japanese relative clauses are TPs under the Kaynean approach, the structure of the nominal with a relative clause would be as in (62):[7]

(62)

```
                DP
              /    \
          SPEC      D'
                   /  \
                  D    TP
                      /\
                    … NP …
```
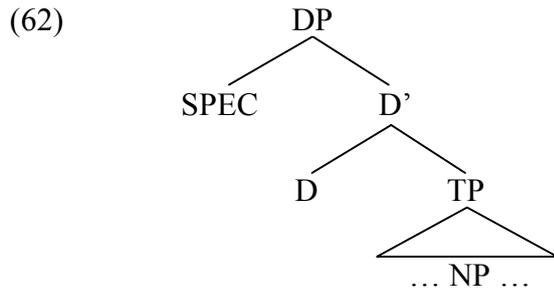
However, given the assumption that the D necessarily takes CP as its complement to make the intended relative-head-raising available, the structure in (62) cannot be maintained. Consequently, under the hybrid hypothesis, Japanese relative clauses must be adjoined to NP, as shown in (63):

(63)

```
                  DP
                /    \
            SPEC      D'
                     /  \
                    NP    D
                   /  \
                  TP   NP
                 /\    /\
```
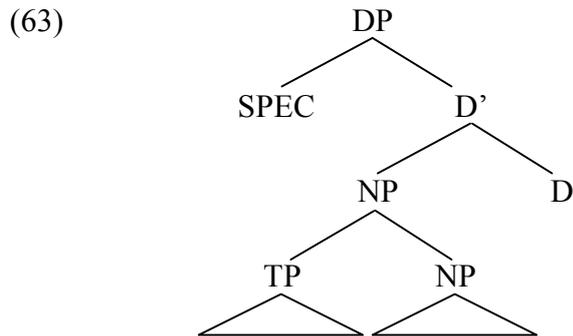
Since an adjunct cannot move to DP SPEC, a relative clause never comes to occupy DP SPEC. This correctly predicts the unavailability of NP-ellipsis, exemplified in (6), repeated here as (64):

(64)   [[Taroo-ga   kinoo   atta] hito]-wa   yasashii ga,   **[[Hanako-ga**
           -Nom yesterday saw person-Top kind   though   -Nom
       kinoo   atta] *(hito)]-wa   kowai.
       yesterday saw   person-Top scary

   'The person Taroo saw yesterday is kind, but the person Hanako saw yesterday is scary.'

                                                        (Saito, Lin and Murasugi 2008: 263)

   However, the entire picture is not as simple as this. We independently know that Japanese has the complementizer *no*. A representative case in point can be found in cleft sentences in Japanese, as exemplified in (65):

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[7] I leave aside the question of whether DP is head-initial or head-final.

(65)   [[Taroo-ga   kinoo   hon-o   uketotta]-no]-wa   Hanako-kara   da.
            -Nom   yesterday book-Acc received-NO-Top   -from   is

'It is from Hanako that Taroo received a book yesterday.'

Hoji (1990) argues that the structure of (65) is as in (66):

(66)   [$_{CP}$ OP$_1$ [$_{TP}$ Taroo-ga kinoo t$_1$ hon-o uketotta]-no]-wa Hanako-kara da.

Notice that this Op-based hypothesis of Japanese cleft sentences provides a natural account for the availability of long-distance dependency in (67):

(67) ?[$_{CP}$ Op$_1$ [$_{TP}$ Hanako-ga   [$_{CP}$ [$_{TP}$ Taroo-ga   oyoida]-to] omotteiru]-no]-wa
                             -Nom   -Nom swam-that   think   -NO-Top
     [$_{PP}$ sono riyuu-de]   da.
         that   reason-for is

'It is for that reason that Hanako thinks that Taroo swam.'

Cleft sentences are CPs, which allow Op-movement to take place. Consequently, the dependency in point should be available in cleft sentences. This results in the contrast between (59) and (67), as pointed out by Murasugi (1991).

We are now left needing to explain why the complementizer *no*, which is available in cleft sentences, cannot occupy the C position in relative clauses, in the way illustrated in (68):

(68)
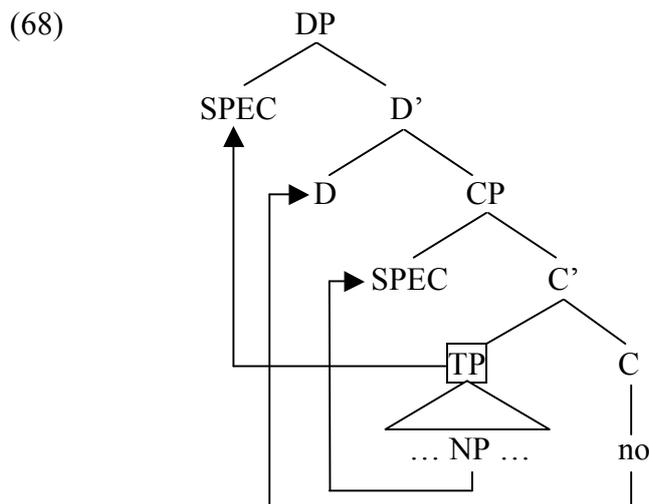
If the derivation in (68) were available for Japanese relative clauses, we would again predict that NP-ellipsis can be triggered by a relative clause, contrary to fact.

At this point it is important to notice that in Japanese relative clauses, but not in cleft sentences, the predicate is in the noun-modifying form, or the *rentai* form under traditional

Japanese grammar.[8] One way to identify the *rentai* form is to attach the adverbial particle *dake* 'only' to the predicate under consideration. The point is that *dake* cannot attach to a predicate in the non-*rentai*-form (see Kishimoto 2005). As we predict, *dake* can attach to the relative clause TP, but not to the TP in the presuppositional part of a cleft sentence, as shown in the contrast between (69a) and (69b):[9]

(69) a. [[Taroo-ga   tegami-o   uketotta](*-dake)-no]-wa tomodachi-kara da.
            -Nom letter-Acc received   only-NO-Top friend-from   is

      'It is from Hanako that Taroo (only) received a letter.'

   b. [[Taroo-ga   tegami-o   uketotta]-dake-no] tomodachi
           -Nom letter-Acc received -only-NO friend

      'the friend from whom Taroo only received a letter'

   c. [[Taroo-ga   tegami-o   uketotta](*-no)] tomodachi
           -Nom letter-Acc received   -NO   friend

      'the friend from whom Taroo received a letter'

I then speculate that the complementizer *no* cannot select TP with a predicate in the *rentai*-form, which means that Japanese does not allow CP relatives or CP$_{PCNP}$'s altogether (see Murasugi 1991). Consequently, the derivational steps given in (68) should not be available.[10] In (69b), *no* is not a complementizer but the genitive marker. The genitive marker

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[8] I thank M. Saito (p.c.) for bringing my attention to the significance of the form of the predicate here. See Kikuta (2002) and Saito (2004) for discussion on the form of a predicate in a Japanese relative clause, with special attention to the nominative/genitive conversion phenomenon.

[9] I am indebted to H. Kishimoto (p.c.) for pointing out the importance of adverbial particles in Japanese relative clauses.

[10] This makes a further prediction. Although *no* appears in relative clauses, NP-ellipsis should not be permitted since the head-raising option is unavailable in Japanese altogether. This prediction seems to be borne out. Consider (i):

(i) [[gakubusei-ga   shidookyooin-ni   miseru] amae]-wa
      undergraduates-Nom academic advisor-to show   emotional dependency-Top
   taitei   yuruseru-ga,   [[Taroo-ga   gakushironbun-teishutsu-mae-ni ichijiteki-ni
   most of the time can allow-though   -Nom B.A.thesis-submission-before   temporarily
   miseta]   *(amae)]-wa   yurusenai.
   showed   emotional dependency-Top   cannot allow

   'The emotional dependency that undergraduates show to their academic advisors is usually OK, but the emotional dependency that Taroo showed to his academic advisor temporarily cannot be tolerated.'

is inserted due to the genitive-insertion rule (Kitagawa and Ross 1982). The contrast between (69b) and (69c) then shows that genitive-insertion becomes available if *no* is not adjacent to a predicate in the *rentai*-form (see Kishimoto 2005).

Under this stipulation, in contrast to relative clauses, the complementizer *no* is naturally expected to appear in cleft sentences. This in turn makes Op-movement available in the sentences in question. Thus, the above-mentioned contrast between cleft sentences and relative clauses with respect to long-distance dependency still follows.

To summarize this section, the difference between Chinese and Japanese relative clauses, or the one between CP-relatives and TP-relatives, boils down to the presence or absence of an appropriate C head in the Kaynean relative clause formation. The Japanese complementizer *no* cannot appear in relative clauses because the predicate in a relative clause is in the noun-modifying form. This forces Japanese to have the traditional adjunction structure for relative clauses.

8. Concluding Remarks

Based on the fact that Chinese relative clauses can trigger NP-ellipsis, this paper examined the context where the ellipsis in point can take place. The paper showed that NP-ellipsis is not always possible with Chinese relative clauses. Examining the contexts for NP-ellipsis triggered by a relative clause, this paper proposed that in principle, Chinese relative clauses make use of both head-raising and Op-movement. The paper then compared our proposal with Aoun and Li's (2003) similar proposal. I showed that the two proposals make different predictions and that my proposal provides a wider coverage of data. In addition, under my proposal, when accounting for the unavailability of the NP-ellipsis expected to be triggered by non-NP relatives and NP-relatives with resumption, A&L's auxiliary condition on the identification requirement on relative Op can be dispensed with.

Even when the relative clause is accompanied by *dake-no*, *amae* 'emotional dependency' cannot be elided, as shown in (ii):

(ii) [[gakubusei-ga   shidookyooin-ni   miseru] amae]-wa
       undergraduates-Nom academic advisor-to show   emotional dependency-Top
     taitei   yuruseru-ga,   [[Taroo-ga   gakushironbun-teishutsu-mae-ni ichijiteki-ni
     most of the time can allow-though   -Nom B.A.thesis-submission-before   temporarily
     miseta]-dake-no   ???(amae)]-wa   yurusenai.
     showed-only-NO   emotional dependency-Top cannot allow

   'The emotional dependency that undergraduates show to their academic advisors is usually OK, but the emotional dependency that Taroo only showed to his academic advisor temporarily cannot be tolerated.'

Given the hypothesis that Japanese relative clauses always make use of an adjunction structure, this is exactly what we predict.

Cross-linguistically, I suggest that the (un)availability of NP-ellipsis in Chinese and Japanese relative clauses is ultimately accounted for by the presence or absence of an appropriate C head in these two languages.

References

Aoun, J. and Y.-H. A. Li (2003) *Essays on the Representational and Derivational Nature of Grammar: the Diversity of Wh-Constructions*, MIT Press, Cambridge, Mass.

Brame, M. (1968) "A New Analysis of the Relative Clause: Evidence for an Interpretive Theory," ms., MIT.

Chao, Y.-R. (1968) *A Grammar of Spoken Chinese*, University of California Press, Berkeley.

Cheng, L. L.-S. and R. Sybesma (1999) "Bare and Not-So-Bare Nouns and the Structure of NP," *Linguistic Inquiry* 30, 509-542.

Chomsky, N. (1977) "On Wh-movement," in P. Culicover, T. Wasow, and A. Akmajian, eds., *Formal Syntax*, Academic Press, New York, 71-132.

Del Gobbo, F. (2003) *Appositives at the Interface*, Ph.D. dissertation, University of California, Irvine.

Geis, M. (1970) *Adverbial Subordinate Clauses in English*, Ph.D. dissertation, MIT.

Hsieh, M.-L. (2005) "Two Types of Modifiers and Parallelisms between DPs and TPs in Chinese," *Language and Linguistics* 6, 397-429.

Huang, C.-T. J. (1982) *Logical Relations in Chinese and the Theory of Grammar*, Ph.D. dissertation, MIT.

Huang, C.T. J., Y.-H. A. Li, and Y. Li (2009) *The Syntax of Chinese*, Cambridge University Press, Cambridge.

Hulsey, S. and U. Sauerland (2006) "Sorting Out Relative Clauses," *Natural Language Semantics* 14, 111-137.

Kayne, R. (1993) "Toward a Modular Theory of Auxiliary Selection," *Studia Linguistica* 47, 3-31.

Kayne, R. (1994) *The Antisymmetry of Syntax*, MIT Press, Cambridge, Mass.

Kikuta, C. (2002) "Ga/No Conversion in the New Light: A Non-Derivational, Mixed Category Analysis," *Doshisha Studies in English* 74, 93-136.

Kishimoto, H. (2005) *Toogo Koozoo-to-Bunpoo Kankei*, Kuroshio, Tokyo.

Kitagawa, C. and C. Ross (1982) "Prenominal Modification in Chinese and Japanese," *Linguistic Analysis* 9, 19-53.

Kuno, S. (1973) *The Structure of Japanese Language*, MIT Press, Cambridge, Mass.

Larson, R. (1990) "Extraction and Multiple Selection in PP," *Linguistic Review* 7, 169-182.

Li, Y.-H. A. (1999) "Plurality in a Classifier Language," *Journal of East Asian Linguistics* 8, 75-99.

Lin, T.-H. J, K. Murasugi, and M. Saito. (2001) "Modification and Specification: An Investigation of No and De," Paper presented at the 10th Annual Meeting of the International Association of Chinese Linguistics, June 22-24, The University of California, Irvine.

Lobeck, A. (1990) "Functional Heads as Proper Governors," *Proceedings of the North East Linguistic Society* 20, 348-362.

Lu, B. (1998) *Left-Right Asymmetries of Word Order Variation: A Functional Explanation*, Ph.D. dissertation, University of Southern California.

Maki, H. (1995) *The Syntax of Particles*, Ph.D. dissertation, University of Connecticut, Storrs.

Murasugi, K. (1991) *Noun Phrases in Japanese and English: A Study in Syntax, Learnability, and Acquisition*, Ph.D. dissertation, University of Connecticut, Storrs.

Murasugi, K. (2000a) "An Antisymmetry Analysis of Japanese Relative Clauses," in A. Alexiadou, P. Law, A. Meinunger, and C. Wilder, eds., *The Syntax of Relative Clauses*, John Benjamins, Amsterdam, 231-264.

Murasugi, K. (2000b) "Japanese Complex Noun Phrases and the Antisymmetry Theory," in R. Martin, D. Michaels, and J. Uriagereka, eds., *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*, MIT Press, Cambridge, Mass., 211-234.

Saito, M. (1985) *Some Asymmetries in Japanese and Their Theoretical Implications*, Ph.D. dissertation, MIT.

Saito, M. (2004) "Genitive Subjects in Japanese: Implications for the Theory of Null Objects," in P. Bhaskararao and K. V. Subbarao, eds., *Non-nominative Subjects* 2, John Benjamins, Amsterdam, 103-118.

Saito, M., T.-H. J. Lin, and K. Murasugi (2008) "N'-Ellipsis and the Structure of Noun Phrases in Chinese and Japanese," *Journal of East Asian Linguistics* 17, 247-271.

Saito, M. and K. Murasugi (1990) "N'-Deletion in Japanese: A Preliminary Study," in H. Hoji, ed., *Japanese/Korean Linguistics*, Vol. 1, CSLI Publications, Stanford, 258-286.

Schachter, P. (1973) "Focus and Relativization," *Language* 49, 19-46.

Simpson, A. (2002) "On the Status of Modifying De and the Syntax of the Chinese DP," in S.-W. Tang and C.-S. L. Liu, eds., *On the Formal Way to Chinese Languages*, CSLI Publications, Stanford, 74-101.

Tsai, H.-C. J. (2008) "On Gapless Relative Clauses in Chinese," *Nanzan Linguistics: Special Issue* 5, 109-124.

Zhang, J. (2004) "Contour Tone Licensing and Contour Tone Representation," *Language and Linguistics* 5, 925-968.