Overtly Empty but Covertly Complex

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The main goal of this paper is to argue for an ellipsis analysis of Japanese null arguments on the basis of a novel observation that covert extraction (i.e. extraction that does not affect word order) is possible out of them. Specifically, assuming that the extraction possibility is a diagnostic for surface anaphora/ellipsis, I claim that the covert extraction possibility indicates that Japanese null arguments can be elliptic: they cannot be uniformly silent deep anaphora/proforms. Furthermore, I show that there is an overt/covert extraction asymmetry in that only covert extraction is allowed out of Japanese null arguments. I argue that the LF-copy analysis of argument ellipsis provides a solution for the overt/covert extraction asymmetry. The discussion in the paper also has consequences for the proper analysis of several phenomena of Japanese syntax, including *wh*-in-situ.

Keywords: argument ellipsis, extraction, LF-copying, PF-deletion, pro, Japanese

1 Introduction

The syntax of null arguments has been a hotly debated issue in Japanese syntax. For example, as in (1), the first sentence can be followed by the second sentence where the object is dropped.[1]

(1) Taroo-wa [$_{DP}$ Hanako]-o   sikatta.   Ziroo-mo [$_{DP}$ Δ] sikatta.

Taro-TOP   Hanako-ACC scolded   Ziro-also   scolded

(Lit.) 'Taro scolded [$_{DP}$ Hanako]. Ziro also scolded [$_{DP}$ Δ].'

In the literature, there are two major analyses of the null object in (1): the *pro* analysis (Kuroda 1965, Ohso 1976, Hoji 1985, Saito 1985, Nakamura 1987, among many others) and the argument ellipsis analysis, where arguments can directly undergo ellipsis (Oku 1998, Kim 1999, Saito 2004, 2007, Goldberg 2005, Takahashi 2006, 2008a, b, 2014, Şener and Takahashi 2010, Takita 2010, 2011a, b, Otaki 2014, Sato 2014, 2015, Sakamoto 2015, 2016a, 2016b, Sugisaki to appear, among many others).[2] Under these approaches, (1) is analyzed as in (2a) and (2b), respectively.

(2) a.   Taro [$_{DP}$ Hanako]$_i$ scolded. Ziro also [$_{DP}$ *pro*]$_i$ scolded.

b.   Taro [$_{DP}$ Hanako] scolded. Ziro also [$_{DP}$ Hanako] scolded.

In (2a), the null object position is occupied by *pro*, while (2b) involves ellipsis of the object *Hanako*. Both derivations can yield the intended interpretation in (1).

The fact that Japanese null arguments can yield a variety of 'sloppy' readings is taken to support the availability of argument ellipsis in addition to *pro* (cf. Oku 1998, Saito 2007, Takahashi 2008a, b, Şener and Takahashi 2010, Sakamoto 2015). For example, consider (3).

(3) a. Taroo-wa [DP san-dai-no   kuruma]-o aratta.

         Taro-TOP   three-CL-GEN car-ACC   washed

         'Taro washed [DP three cars].'

     b. Ziroo-mo [DP Δ]   aratta.

         Ziro-also   washed

         (Lit.) 'Ziro also washed [DP Δ].'   E-type; quantificational

     b'. Ziroo-mo [DP sorera]-o   aratta.

         Ziro-also   they-ACC   washed

         'Ziro also washed [DP them].'   E-type;*quantificational

With (3a) as its antecedent, (3b) is ambiguous in that the set of cars that Ziro washed can

be either identical to the set of cars that Taro washed (E-type reading; see Evans 1980) or

different from it (quantificational reading; see Takahashi 2008a, b). However, if the null

object in (3b) is replaced by an overt pronoun *sorera* 'they', as in (3b'), the latter

interpretation becomes unavailable: (3b') can only mean that Ziro also washed the three

cars that Taro washed. Assuming that *pro* is a phonologically empty counterpart of overt

pronouns, the proponents of argument ellipsis claim that null arguments in Japanese

cannot be uniformly *pro* since they can yield interpretations that pronouns cannot support

(in the relevant contexts), e.g. the quantificational reading in (3b). Then, they claim that

the relevant reading of Japanese null arguments arises through argument ellipsis: e.g. the

null object in (3b) is analyzed as in (4) under the argument ellipsis analysis.

(4)   Ziro also [DP three car] washed

Here, the ellipsis site includes the quantifier, so the availability of the quantificational

reading straightforwardly follows.[3]

The main goal of this paper is to provide a novel argument for the ellipsis view of Japanese null arguments. Specifically, adopting the widely-held hypothesis in the anaphora literature that the possibility of extraction out of anaphora sites signals surface anaphora, i.e. ellipsis (cf. Tancredi 1992, Tomioka 1997, Depiante 2000, Johnson 2001, Merchant 2013, among many others), I show that Japanese null arguments allow certain types of extraction out of them. This indicates that Japanese null arguments cannot be uniformly *pro* since *pro* is by assumption an instance of deep anaphora (proforms), which uniformly disallows extraction out of it. However, I also show that only some extraction is possible out of Japanese null arguments (this being the reason why the extractability was missed in the literature). That is, Japanese null arguments are very 'picky' regarding what types of extraction they allow. In particular, I show that only covert movement (i.e. movement that does not affect the word order; I will refer to such movement as covert movement for ease of exposition) is possible out of Japanese null arguments. I use this state of affairs to argue for a particular implementation of the ellipsis analysis. Specifically, I argue that LF-copying explains the overt/covert asymmetry regarding extraction out of Japanese null arguments.

This paper is organized as follows. In section 2, I will introduce the distinction between surface anaphora (ellipsis) and deep anaphora (proforms) (cf. Hankamer and Sag 1976). In particular, I discuss the widely-assumed test for surface anaphora, i.e. the possibility of extraction, showing that extraction is only possible out of surface anaphora sites. In section 3, I demonstrate that certain types of extraction is possible from null

arguments in Japanese. Specifically, it will be shown that overt movement is disallowed out of them, whereas silent movement is allowed. Based on the extraction possibilities out of Japanese null arguments, I will argue that they can be derived via ellipsis. In section 4, I show that the relevant overt/covert extraction asymmetry can be explained under the LF-copy analysis of ellipsis. The discussion here will also shed light on the more general issue regarding whether ellipsis should be treated in terms of PF-deletion or LF-copying: in section 5, I will claim that both PF-deletion and LF-copying are available as strategies for deriving ellipsis, and that the distinction between the two strategies is related to the phasal status of the ellipsis domain. In section 6, I will discuss consequences of the proposed analysis of argument ellipsis. To be more precise, I will show that the analysis provides a tool to differentiate different analyses of several phenomena, including control and *wh*-in-situ. Section 7 will conclude the paper.
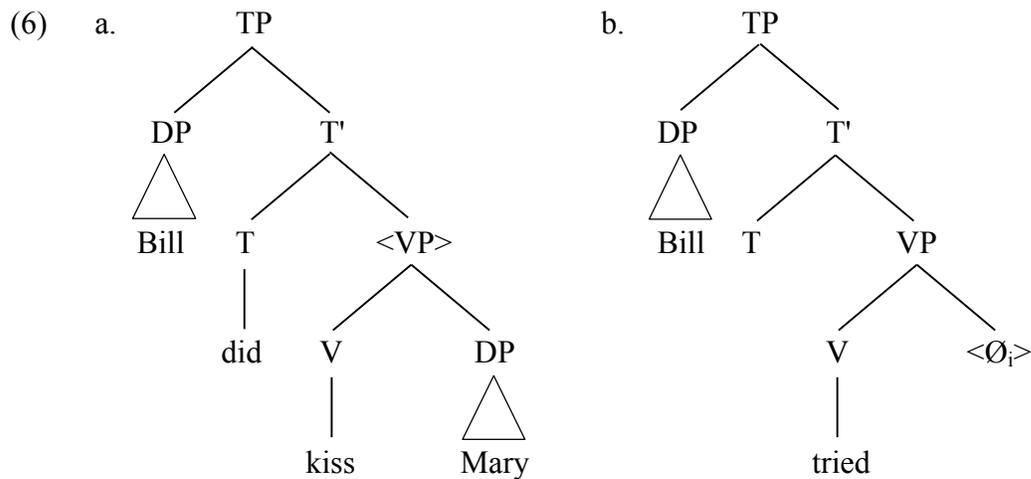
2 Surface Anaphora and Deep Anaphora

Since Hankamer and Sag (1976), it has been widely assumed that there are two types of anaphora in natural languages: surface anaphora and deep anaphora (model-interpretive anaphora/ellipsis and record-interpretive anaphora in Sag and Hankamer's 1984 sense). For example, in English, VP-ellipsis in (5a) and Null Complement Anaphora (NCA) in (5b) are considered to illustrate surface and deep anaphora, respectively.

(5)　　a.　　John kissed Mary, and Bill did Δ, too.

　　　　b.　　John tried to kiss Mary, and Bill tried Δ, too.

Although the second conjuncts of (5a) and (5b) are phonologically "incomplete", they can be interpreted as *kiss Mary* and *to kiss Mary*, respectively.

The difference between surface and deep anaphora is generally claimed to involve the presence/absence of internal structure: only the former includes internal structure. Specifically, the second conjuncts of (5a) and (5b) are generally analyzed as in (6a) and (6b), respectively (brackets and Ø are used to designate phonologically missing parts and atomic elements, respectively).

(6) a.

```
                TP
              /    \
            DP      T'
           /\      /  \
          /  \    T    <VP>
         Bill did      /   \
              |       V     DP
             did      |     /\
                    kiss   /  \
                          Mary
```

b.

```
                TP
              /    \
            DP      T'
           /\      /  \
          /  \    T    VP
         Bill      /    \
                  V     <Øᵢ>
                  |
                tried
```

The missing VP in (5a) involves full-fledged internal structure, and the interpretation of the missing VP is taken to be obtained because of the presence of the structure in question as in (6a). On the other hand, the missing part in (5b) does not include any internal structure throughout the derivation, and its interpretation is taken to be obtained through the assignment function (cf. Heim and Kratzer 1998), e.g. [i → λx. x kiss Mary]. Although a number of diagnostics have been proposed to differentiate these two types of anaphora (Grinder and Postal 1971, Bresnan 1971, Hankamer and Sag 1976, Sag 1976, Sag and Hankamer 1984, Depiante 2000, Johnson 2001, among many others), Merchant (2013) claims that the possibility of extraction is one of the most reliable tests for surface anaphora: if extraction is possible, there must be something to be extracted out of in the

syntax. Consider (7a) and (7b).

(7)   a.   Which films$_1$ did he refuse to see t$_1$, and which films$_2$ did he agree to see t$_2$?

       b.   *Which films$_1$ did he refuse to see t$_1$, and which films$_2$ did he agree Ø?

(Merchant 2013:538)

(7a) and (7b) show that overt *wh*-movement (overt Ā-movement) is possible from a

VP-ellipsis site but not from a NCA site, which is taken to indicate that the former

involves internal structure, while the latter does not. Specifically, only VP-ellipsis

(surface anaphora) sites include internal structure, thereby being able to accommodate a

place for *wh*-traces.

The other types of extraction, i.e. null operator (Op) movement and QR, are also

used as diagnostics for surface anaphora. Consider the following examples.[4]

(8)   a.   I always eat anything Op$_1$ that he does eat t$_1$.

       b.   *I always eat anything Op$_1$ that he volunteers Ø.   (Depiante 2000:59)

(9)   a.   Some boy admires every teacher, and some girl does admire every teacher too.

∃»∀;∀»∃ (Fox 2000:4)

       b.   Some doctor volunteered to visit every patient, and some nurse also

             volunteered Ø.   ∃»∀;*∀»∃ (Depiante 2000:97)

In (8), relative Op is extracted out of the relevant anaphora sites, and only the VP-ellipsis

case in (8a) is grammatical. In (9), although both the VP-ellipsis case in (9a) and the

NCA case in (9b) are grammatical, inverse scope, which requires QR out of the null

element, is available only in the former. (8) and (9) thus show that extraction is possible

only out of VP-ellipsis (surface anaphora) sites but not from NCA (deep anaphora) sites:

only surface anaphora includes internal structure, so that it can provide an appropriate position for traces of movement.

In the following, I will investigate whether extraction is possible out of Japanese null arguments. It will be shown that they exhibit a surprising asymmetry regarding extraction out of them: overt extraction is disallowed out of them, while silent extraction is allowed.

3 Escape from Null Arguments in Japanese

3.1 Overt Extraction

3.1.1 Overt Extraction out of Null Clausal Complements

Extraction out of Japanese null arguments has been discussed in the context of null CPs in the recent literature (cf. Shinohara 2006, Saito 2007, Tanaka 2008, Takita 2010, Cheng 2013, Takahashi 2013, Kasai 2014, Sakamoto 2016b). In Japanese, not only nominals but also clausal complements can be dropped, as in (10).

(10) Taroo-wa [CP Hanako-ga   hon-o   yonda to] itta. Ziroo-mo [CP Δ] itta.

       Taro-TOP   Hanako-NOM book-ACC read   C   said Ziro-also   said

       (Lit.) 'Taro said [CP that Hanako read a book]. Ziro also said [CP Δ].'

First, let us consider the possibility of overt Ā-extraction out of them. It has been well-known since Saito (1985) that scrambling is an instance of movement that is subject to subjacency effects. Also, there are many asymmetries between clause-internal scrambling and long-distance scrambling in Japanese: e.g. the former can create a new binding relation but the latter cannot, as shown in (11) and (12), respectively (Saito 1992, Abe 1993, Tada 1993, Nemoto 1993, among others).

(11) a. *Soitu$_i$-no   hahaoya-ga [san-nin-izyoo-no   gakusei]$_i$-o sikatta.

the.guy-GEN mother-NOM three-CL-or.more-GEN student-ACC scolded

(Lit.) 'Their$_i$ mothers scolded [three or more students]$_i$.'

b. [San-nin-izyoo-no   gakusei]$_{1/i}$-o soitu$_i$-no   hahaoya-ga t_1 sikatta.

three-CL-or.more-GEN student-ACC   the.guy-GEN mother-NOM   scolded

(Lit.) '[Three or more students]$_{1/i}$, their$_i$ mothers scolded t_1.'

(12) a. *Soitu$_i$-no   hahaoya-ga [$_{CP}$ Taroo-ga [san-nin-izyoo-no   gakusei]$_i$-o

the.guy-GEN mother-NOM   Taro-NOM three-CL-or.more-GEN student-ACC

sikatta   to] itta.

scolded C   said

(Lit.) 'Their$_i$ mothers said [$_{CP}$ that Taro scolded [three or more students]$_i$].'

b. *[San-nin-izyoo-no   gakusei]$_{1/i}$-o soitu$_i$-no   hahaoya-ga [$_{CP}$ Taroo-ga t_1

three-CL-or.more-GEN student-ACC the.guy-GEN mother-NOM   Taro-NOM

sikatta   to] itta.

scolded C   said

(Lit.) '[Three or more students]$_{1/i}$, their$_i$ mothers said [$_{CP}$ that Taro scolded t_1].'

Although (11a) cannot be interpreted as 'There are three or more x, x a student, such that

x's mother scolded x', (11b), where the object QP has undergone clause-internal

scrambling over the subject, allows the bound variable interpretation in question. This is

taken as evidence that clause-internal scrambling can behave as A-movement since

binding relations are generally assumed to be established by A-movement. (12a) also

disallows the intended bound variable interpretation, i.e. 'There are three or more x, x a

student, such that x's mother said that Taro scolded x'. The bound variable interpretation in question also cannot be obtained in (12b), where the embedded object QP has undergone long-distance scrambling over the matrix subject. This is generally taken to indicate that long-distance scrambling uniformly counts as Ā-movement, unlike clause-internal scrambling.

Given the above discussion, let us consider whether long-distance scrambling, i.e. overt Ā-movement, is possible out of null arguments. It has actually been observed in the literature that the movement in question is disallowed out of them, as in (13) (see Shinohara 2006, Saito 2007, Tanaka 2008, Takita 2010, Cheng 2013, Kasai 2014, and Sakamoto 2016b for relevant discussion).

(13) a. Fugu$_1$-o   Hanako-wa   [$_{CP}$ Taroo-ga   t$_1$ tabeta to] omotteiru kedo,

            blowfish-ACC Hanako-TOP   Taro-NOM   ate   C   think   but

            (Lit.) 'Although a blowfish$_1$, Hanako thinks [$_{CP}$ that Taro ate t$_1$],'

       b. Dokuturutake$_2$-o   Sachiko-wa [$_{CP}$ Taroo-ga   t$_2$ tabeta to] omotteiru.

            destroying.angel-ACC Sachiko-TOP   Taro-NOM   ate   C   think

            (Lit.) 'A destroying angel$_2$, Sachiko thinks [$_{CP}$ that Taro ate t$_2$].'

      b'. *Dokuturutake$_2$-o   Sachiko-wa   [$_{CP}$ Δ] omotteiru.

            destroying.angel-ACC Sachiko-TOP   think

            (Lit.) 'A destroying angel$_2$, Sachiko thinks [$_{CP}$ Δ].'   (cf. Tanaka 2008:11)

With (13a) as its antecedent, (13b) is grammatical, whereas (13b'), where *dokuturutake* 'destroying angel' is extracted out of the null CP via long-distance scrambling, is ungrammatical. This leads us to conclude that Japanese null arguments disallow overt

Ā-movement out of their domains.

Now, let us turn to overt A-movement. Overt A-movement out of CPs in Japanese has widely been discussed in the context of the ECM construction (Kuno 1976, Kaneko 1988, Bruening 2001, Hiraiwa 2001, 2005, Tanaka 2002, 2004, Takano 2003, among many others). Consider the following examples.

(14) a. Taroo-ga   Hanako-ga   tensai da   to itta.

          Taro-NOM   Hanako-NOM genius COP C   said

          'Taro said that Hanako is a genius.'

      b. Taroo-ga   Hanako-o   tensai da   to itta.

          Taro-NOM   Hanako-ACC genius COP C   said

          'Taro said that Hanako is a genius.'

Although (14a) and (14b) are logically equivalent, the argument of the predicate *tensai* 'genius', i.e. *Hanako*, can be in either nominative case or accusative case.[5] Although the exact analysis of ECM constructions is still under debate, the consensus is that the ECM subject in (14b) can occupy a position in the matrix clause based on, e.g. Kuno's (1976) observation that only ECMed subjects, not nominative subjects, can precede matrix adverbs, as shown in (15).

(15) a. *Taroo-ga   Hanako$_1$-ga   orokanimo [$_{CP}$ t$_1$ tensai da   to] itta.

          Taro-NOM   Hanako-NOM   stupidly   genius COP C   said

          (Lit.) 'Taro, Hanako$_1$, stupidly said [$_{CP}$ that t$_1$ is a genius].'

      b. Taroo-ga   Hanako$_1$-o   orokanimo [$_{CP}$ t$_1$ tensai da   to] itta.

          Taro-NOM   Hanako-ACC   stupidly   genius COP C   said

(Lit.) 'Taro, Hanako$_1$, stupidly said [$_{CP}$ that t$_1$ is a genius].'

(16)   #Hanako-wa   orokanimo   tensai   da.

Hanako-TOP   stupidly   genius   COP

'Hanako is stupidly a genius.'   (Takeuchi 2010:105)

(16) indicates that *orokanimo* 'stupidly' cannot modify *tensai* 'genius', which means that

orokanimo 'stupidly' in (15) is a matrix adverb. The next question to be asked is whether

movement involved in (15b) is an instance of Ā-movement or A-movement. Tanaka

(2002) observes that ECMed subjects can be new binders, as in (17b).

(17) a. *Soitu$_i$-no   hahaoya-ga   [$_{vP}$ [sannin-izyoo-no   gakusei]$_{1/i}$-o   orokanimo

the.guy-GEN mother-NOM   three-or.more-GEN student-ACC   stupidly

[$_{CP}$ t$_1$ tensai   da   to] itta].

genius COP C   said

(Lit.) 'Their$_i$ mothers [$_{vP}$ [three or more students]$_{1/i}$ stupidly said [$_{CP}$ that t$_1$ are

genius]].'

b.   [Sannin-izyoo-no   gakusei]$_{1/i}$-o soitu$_i$-no   hahaoya-ga   [$_{vP}$ t'$_1$ orokanimo

three-or.more-GEN student-ACC the.guy-GEN mother-NOM   stupidly

[$_{CP}$ t$_1$ tensai   da   to] itta].

genius COP C   said

(Lit.) '[Three or more students]$_{1/i}$, their$_i$ mothers [$_{vP}$ t'$_1$ stupidly said [$_{CP}$ that t$_1$

are genius]].'

(17b) can be interpreted as 'There are three or more x, x a student, such that x's mother

stupidly thinks that x is a genius'. This indicates that the movement from t'$_i$ to the

sentence-initial position in (17b) is clause-internal scrambling, i.e. overt A-movement, which in turn means that movement from the embedded clause to the matrix clause in the ECM construction is also an instance of overt A-movement, given the notion of improper movement, which prohibits the Ā-A-Ā sequence of movement.

Now, we can test whether the movement in question, i.e. overt A-movement, is possible out of null arguments in Japanese. The following data show that overt A-movement is also disallowed out of them (cf. Tanaka 2008).

(18) a. Taroo-wa Ayaka₁-o   orokanimo [$_{CP}$ t₁ tensai da   to] itta.

Taro-TOP Ayaka-ACC stupidly   genius COP C   said

(Lit.) 'Taro, Ayaka₁, stupidly said [$_{CP}$ that t₁ is a genius].'

b. Ziroo-wa Kanako₂-o   orokanimo [$_{CP}$ t₂ tensai da   to] itta.

Ziro-TOP Kanako-ACC stupidly   genius COP C   said

(Lit.) 'Ziro, Kanako₂, stupidly said [$_{CP}$ that t₂ is a genius].'

b'. *Ziroo-wa Kanako₂-o   orokanimo [$_{CP}$ Δ] itta.

Ziro-TOP Kanako-ACC stupidly   said

(Lit.) 'Ziro, Kanako₂, stupidly said [$_{CP}$ Δ].'

With (18a) as its antecedent, (18b'), which involves overt A-movement out of the null argument, is ungrammatical. This suggests that overt A-extraction is impossible out of null arguments in Japanese.[6]

3.1.2 Overt Extraction out of Null Nominals

Japanese generally disallows left-branch extraction out of nominals (cf. Kikuchi 1987, Snyder, Wexler, and Das 1995, Nomura and Hirotsu 2005, Kato 2007), as in (19).

(19) a. Taroo-wa [DP Hanako-no hon]-o yonda.

Taro-TOP Hanako-GEN book-ACC read

'Taro read [DP Hanako's book].'

b. *Hanako₁-no Taroo-wa [DP t₁ hon]-o yonda.

Hanako-GEN Taro-TOP book-ACC read

(Lit.) 'Hanako's₁, Taro read [DP t₁ book].'

However, Takahashi and Funakoshi (2013) observe that the left-branch extraction ban is obviated if what is extracted from a nominal is a PP *wh*-phrase. Consider (20).

(20) a. Taroo-wa [DP dare-kara-no tegami]-o yonda no?

Taro-TOP who-from-GEN letter-ACC read Q

(Lit.) 'Did Taro read [DP a letter from who]?'

b. Dare-kara₁-no Taroo-wa [DP t₁ tegami]-o yonda no?

who-from-GEN Taro-TOP letter-ACC read Q

(Lit.) 'From who₁ did Taro read [DP a letter t₁]?'

In (20b), the PP *wh*-phrase *dare-kara-no* 'from who' is overtly extracted out of an DP, and the sentence is grammatical, which indicates that extraction is possible here.[7]

Given that PP *wh*-phrases can be overtly extracted out of nominals in Japanese, the following sentences show that overt extraction out of null nominals is disallowed in the same way as overt extraction out of null clausal complements.

(21) A: Dare-kara₁-no Taroo-wa [DP t₁ tegami]-o yonda no?

who-from-GEN Taro-TOP letter-ACC read Q

(Lit.) 'From who₁ did Taro read [DP a letter t₁]?'

B: Bill da yo.

Bill COP SFP

'Bill.'

A: a. Zyaa, dare-kara$_2$-no Hanako-wa [$_{DP}$ t$_2$ tegami]-o yonda no?

then who-from-GEN Hanako-TOP letter-ACC read Q

(Lit.) 'Then, from who$_2$ did Hanako read [$_{DP}$ a letter t$_2$]?'

b. *Zyaa, dare-kara$_2$-no Hanako-wa [$_{DP}$ Δ] yonda no?

then who-from-GEN Hanako-TOP read Q

(Lit.) 'Then, from who$_2$ did Hanako read [$_{DP}$ Δ]?'

In (21A-b), the PP *wh*-phrase *dare-kara-no* 'from who' is extracted out of the null DP,

and the sentence is ungrammatical. This indicates that overt extraction out of null DPs as

well as null CPs is disallowed.

To sum up, the above observations lead us to conclude that overt extraction is

uniformly excluded out of Japanese null arguments regardless of the type of movement

(A or Ā) or the domain of null arguments (clausal or nominal). In the following, I will

discuss covert movement, i.e. movement that does not affect word order.[8] I will show

that there is a surprising contrast with overt movement here. More precisely, covert

extraction is uniformly allowed out of Japanese null arguments, in contrast to overt

extraction.

3.2 Covert Extraction

3.2.1 Covert Extraction out of Null Clausal Complements

3.2.1.1 Null Operator Movement

First, I discuss null operator (Op) movement. In Japanese, there are two major

configurations where Op-movement arguably involved: Comparative Deletion (CD)

(Kikuchi 1987) and PP *Tough* constructions (PPTs) (Takezawa 1987), the basic examples

of which are illustrated in (22) and (23), respectively.

(22)   *CD*

   John-ga   [Mary-ga *e* motteiru yori(mo)] takusan hon-o   motteiru.

   John-NOM Mary-NOM   have   than   many   book-ACC have

   (Lit.) 'John has more books [than Mary has *e*].'   (Kikuchi 1987:2)

(23)   *PPT*

   Sono dai-kara$_i$-ga   (John-nitotte) [*e*$_i$ tobikomi]-yasui.

   that   board-from-NOM John-for   jump-easy

   (Lit.) 'From that board$_i$ is easy (for John) [to jump *e*$_i$].'   (Takezawa 1987:215)

Importantly, CD and PPTs exhibit subjacency effects, as shown in (24b) and (25b),

though unbounded dependencies are in principle allowed in these constructions, as (24a)

and (25a) demonstrate.

(24)   *CD*

   a.   [[$_{CP}$ John-ga   *e* yonda to] iwareteiru yori(mo)] Mary-wa takusan

         John-NOM   read   C   be.said   than   Mary-TOP many

      hon-o   yondeita.

      book-ACC read

      (Lit.) 'Mary read more books [than it is said [$_{CP}$ that John read *e*]].'

                                                            (Kikuchi 1987:6)

b. *[[[RC Sono tukue-de *e* yondeita] hito]-o John-ga nagutta

 the table-on was.reading person-ACC John-NOM hit

yori(mo)] Paul-wa takusan hon-o yondeita.

than Paul-TOP many book-ACC was.reading

(Lit.) 'Paul read more books [than John hit [a person [RC who was reading *e* at

the table]]].' (Kikuchi 1987:7)

(25) *PPT*

a. Zibun-no otooto-kara$_i$-ga (John-nitotte) [[CP *e*$_i$ okane-o takusan

self-GEN brother-from-NOM John-for money-ACC much

kariteiru to] mitome]-nikui.

borrow C admit-hard

(Lit.) 'From self's brother$_i$ is hard (for John) [to admit [CP that he has

borrowed a lot of money *e*$_i$]].' (Takezawa 1987:196)

b. *Sooiu kinyuukikan-kara$_i$-ga (John-nitotte) [[[RC *e*$_i$ itumo

such financial.agency-from-NOM John-for always

okane-o kariteiru] hito]-o sinyoosi]-nikui.

money-ACC borrow person-ACC trust-hard

(Lit.) 'From such a financial agency$_i$ is hard (for John) [to trust [a person [RC

who always loans a lot of money *e*$_i$]]].' (Takezawa 1987:216)

Based on the presence of subjacency effects, cf. (24b) and (25b), Kikuchi (1987) and

Takezawa (1987) argue that the gap in CD and PPTs is the trace of Op-movement.

Therefore, under their analyses, (22) and (23) are analyzed as in (26) and (27), respectively.

(26) *CD*

    John-ga   [Op_1 Mary-ga t_1 motteiru yori(mo)] takusan hon-o   motteiru.

    John-NOM   Mary-NOM   have   than   many   book-ACC have

    (Lit.) 'John has more books than [Op_1 Mary has t_1].'

(27) *PPT*

    Sono dai-kara$_i$-ga   (John-nitotte) [$Op_{1/i}$ t_1 tobikomi]-yasui.

    that   board-from-NOM John-for   jump-easy

    (Lit.) 'From that board$_i$ is easy (for John) [$Op_{1/i}$ to jump t_1].'

The ungrammaticality of (24b) and (25b) now follows since Op-movement crosses an island boundary, causing a violation of subjacency.[9]

    Given that CD and PPTs involve Op-movement, the following data demonstrate that Op-movement is possible out of null arguments in Japanese.

(28) *CD*

    a. [Op_1 [$_{CP}$ Taroo-ga t_1 yonda to] Kanako-ni iwareteiru yori(mo)]

              Taro-NOM   read   C   Kanako-by be.said   than

      Hanako-wa   takusan   ronbun-o   yondeiru.

      Hanako-TOP many   paper-ACC read

      (Lit.) 'Hanako reads more papers than [Op_1 it is said by Kanako [$_{CP}$ that Taro reads t_1]].'

b. Sarani, [Op₂ [CP Taroo-ga t₂ yonda to] Ayaka-ni iwareteiru

furthermore Taro-NOM read C Ayaka-by be.said

yori(mo)] kanozyo-wa takusan ronbun-o yondeiru.

than she-TOP many paper-ACC read

(Lit.) 'Furthermore, she reads more papers than [Op₂ it is said by Ayaka [CP

that Taro reads t₂]].'

b'. Sarani, [Op₂ [CP Δ] Ayaka-ni iwareteiru yori(mo)] kanozyo-wa

furthermore Ayaka-by be.said than she-TOP

takusan ronbun-o yondeiru.

many paper-ACC read

(Lit.) 'Furthermore, she reads more papers than [Op₂ it is said by Ayaka [CP

Δ]].'

(29) *PPT*

a. Hahaoya-karaᵢ-ga Taroo-nitotte-wa [Op₁/ᵢ [CP t₁ aizyoo-o uketeiru to]

mother-from-NOM Taro-for-TOP love-ACC receive C

kanzi]-yasui.

feel-easy

(Lit.) 'From his motherᵢ is easy for Taro [Op₁/ᵢ to feel [CP that he receives love

t₁]].'

b. Demo, titioya-karaⱼ-ga Ziroo-nitotte-wa [Op₂/ⱼ [CP t₂ aizyoo-o uketeiru to]

but father-from-NOM Ziro-for-TOP love-ACC receive C

kanzi]-yasui.

feel-easy

(Lit.) 'But, from his father$_j$ is easy for Ziro [$_{Op2/j}$ to feel [$_{CP}$ that he receives

love t$_2$]].'

b'. Demo, titioya-kara$_j$-ga   Ziroo-nitotte-wa [$_{Op2/j}$ [$_{CP}$ Δ] kanzi]-yasui.

but   father-from-NOM Ziro-for-TOP   feel-easy

(Lit.) 'But, from his father$_j$ is easy for Ziro [$_{Op2/j}$ to feel [$_{CP}$ Δ]].'

With (28a) and (29a) as its antecedent, (28b') and (29b'), both of which involve

Op-movement out of a null CP, are grammatical. This indicates that Op-movement is

possible out of Japanese null arguments.

3.2.1.2 Quantifier Raising

Based on examples like (30b), much literature has claimed that Japanese is a scope-rigid

language (see Kuroda 1970, Hoji 1985, among others; but see Shibata 2015 for an

opposing view).

(30) a. Somebody loves everybody.   ∃»∀；∀»∃

b. Dareka-ga   daremo-o   sikatta.

someone-NOM everyone-ACC scolded

'Someone scolded everyone.'   ∃»∀；*∀»∃

Although both the surface scope and the inverse scope are available in English (30a),

only the surface scope is available in Japanese (30b). Given this, it is not easy to test

whether QR is possible out of null clausal complements in Japanese. However, QP

objects in Japanese are known to interact with negation as follows (cf. Miyagawa 2001).

(31)   Taroo-ga   zen'in-no gakusei-o   sikaranakatta.

Taro-NOM   all-GEN   student-ACC not.scolded

'Taro did not scold all the students.'   Neg » ∀ ; ∀ » Neg

(31) can mean either that Taro scolded no students or that it is not the case that Taro scolded all the students. In light of this, the following ECM construction is a plausible case of QR on the inverse scope interpretation, i.e. the interpretation where the ECMed QP subject takes scope over the matrix negation.

(32)   Taroo-ga   [CP Tokyo-no-yooni subete-no mati(-no-koto)-o   nigiyaka da   to]
       Taro-NOM   Tokyo-GEN-like all-GEN   city-GEN-thing-ACC lively   COP C

       iwanakatta.

       not.said

       'Taro did not say [CP that all the cities are lively like Tokyo].'   Neg » ∀ ; ∀ » Neg

(33) #Taroo-ga   Tokyo-no-yooni iwanakatta.

        Taro-NOM   Tokyo-GEN-like not.said

        (Lit.) 'Taro did not say like Tokyo.'

(33) indicates that the adverb *Tokyo-no-yooni* 'like Tokyo' cannot modify the verb *iwanakatta* 'not.said'. This shows that the adverb in question is an embedded clause adverb in (32), which in turn means that the ECMed subject *subete-no mati* 'all the cities' stays within the embedded clause (see Bruening 2001, Hiraiwa 2001, 2005, among others, for the claim that accusative ECM subjects can remain within the embedded CP on the surface). Therefore, it is plausible that QR is responsible for the inverse scope reading in question.[10] Interestingly, with (32) as its antecedent, (34) is ambiguous.[11]

(34)   Ziroo-mo [CP Δ] iwanakatta.

Ziro-also   not.said

(Lit.) 'Ziro did not say [$_{CP}$ Δ], either.'   Neg » ∀ ; ∀ » Neg

The fact that the universal quantifier within the null argument can take scope outside of it in (34) suggests that QR is possible out of the relevant site.

This conclusion gains further support from the scope of focus particles. Consider (35).

(35)   John-wa [$_{CP}$ Mary-ga   oisii   ringo-sae   tabeta to] omotteinai.

        John-TOP   Mary-NOM tasty apple-even ate   C   not.think

        'John does not think [$_{CP}$ that Mary ate even a tasty apple].'

(adapted from Abe 2012:70)

Aoyagi (1994) observes that a sentence like (35) is ambiguous in that the embedded QP object *oisii ringo-sae* 'even a tasty apple' can take either embedded or matrix scope. Under the embedded scope reading, it is interpreted as "John does not think that Mary ate a tasty apple in addition to some other thing", whereas, under the matrix scope reading, it is interpreted as "even for a tasty apple, John does not have an idea that Mary ate it (in addition to some other idea about some other things)". Importantly, with (35) as its antecedent, (36) is ambiguous in the same way, i.e. the quantificational object within the null argument site can take scope either in the matrix clause or within the null CP.

(36)   Bill-mo   [$_{CP}$ Δ]   omotteinai.

        Bill-also   not.think

        (Lit.) 'Bill also does not think [$_{CP}$ Δ].'

Specifically, (36) is ambiguous in that it can mean either that "Bill also does not think

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that Mary ate a tasty apple in addition to some other thing" or "even for a tasty apple, Bill also does not have an idea that Mary ate it (in addition to some other idea about some other things)". The availability of the matrix scope reading in (36) provides evidence that QR is possible out of null arguments in Japanese.[12]

3.2.2 Covert Extraction out of Null Nominals

Kishimoto (2013) observes a novel type of possessor raising constructions, i.e. possessor raising idioms, which he claims involves covert A-movement. Consider (37).

(37) a. Sono toki-no   koto-ga   [$_{DP}$ Taroo-no kioku]-ni   nokotteiru.

that   time-GEN event-NOM   Taro-GEN memory-LOC remain

'Taro remembers the event at that time.'

b. Taroo$_1$-ni sono toki-no   koto-ga   [$_{DP}$ t$_1$ kioku]-ni   nokotteiru.

Taro-DAT that   time-GEN event-NOM   memory-LOC remain

'Taro remembers the event at that time.'

Although (37a) and (37b) are logically equivalent, *Taro* can either remain in the possessum noun, as in (37a), or be moved out of it, being in dative case, as in (37b).[13] Importantly, Kishimoto claims that even the genitive possessor within the possessum noun in (37a) undergoes covert possessor raising, i.e. silent A-movement, out of it. He bases his claim on variable binding (see Kishimoto 2013 for other arguments to this effect). Consider the following examples.

(38) a. Daremo$_i$-ga   [[e_i atta] hito]-o   hometa.

everyone-NOM   met   man-ACC praised

(Lit.) 'Everyone$_i$ praised [the man [who met e_i]].'

b. *[[e_i atta] hito]-ga daremo$_i$-o hometa.

   met man-NOM everyone-ACC praised

   (Lit.) '[The man [who met e_i]] praised everyone$_1$.'

c. Daremo$_{1/i}$-o [[e_i atta] hito]-ga t_1 hometa.

   everyone-ACC met man-NOM praised

   (Lit.) 'Eveyone$_{1/i}$, [the man [who met e_i]] praised t_1.'

(39) a. *His$_i$ wife admires [every husband]$_i$.

   b. [Every man]$_{1/i}$ seems to his$_i$ mother t_1 to be smart.

Hoji (1985) observes that Japanese null arguments can serve as a variable bound by a c-commanding operator, as in (38a).[14] The ungrammaticality of (38b) is generally attributed to a weak crossover violation, on a par with (39a). Importantly, the grammaticality of (38c) with the relevant bound variable interpretation indicates that a violation of weak crossover effects can be 'rescued' via clause-internal scrambling, i.e. A-movement (cf. (11b)), on a par with (39b). Kishimoto then claims that the grammaticality of (40a) under the bound variable interpretation signals covert raising, i.e. covert A-movement, of the genitive possessor: he argues that e_1 in (40a) is licensed as in (40b).[15]

(40) a. [[Kyonen e_i sita] koto]-ga [$_{DP}$ hotondo-no gakusei$_i$-no kioku]-ni

   last.year did thing-NOM most-GEN student-GEN memory-LOC

   nokotteiru.

   remain

   'Most students$_i$ remember what they$_i$ did last year.'

b.   most students$_{1/i}$ [[last year e_i did] thing] [$_{DP}$ t$_1$ memory] remain.
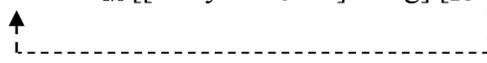
Covert Possessor Raising

In LF, the possessor *hotondo-no gakusei* 'most students' undergoes covert possessor

raising, i.e. covert A-movement, from inside of the DP headed by *kioku* 'memory' over

the nominative theme argument, licensing the null object in question as a bound variable:

covert possessor raising obviates the violation of weak crossover effects in (40a), on a par

with (38c) and (39b).[16]

Interestingly, with (40a) as its antecedent, (41), where the possessum nominal is

phonologically empty, is grammatical with the bound variable interpretation.

(41)   [[Sannenmae-ni e_j sita] koto]-mo   [$_{DP}$ Δ] nokotteiru.

three.years.ago-in   did   thing-also   remain

'Most students also remember what they did three years ago.'

Here, the possessive operator within the null argument can bind the null object within the

nominative theme argument. This can be accounted for if the null argument is derived via

ellipsis of the locative DP *hotondo-no gakusei-no kioku* 'most student's memory', with

the possessor undergoing covert A-movement out of the ellipsis site. (41) is then derived

in the same way as (40). The grammaticality of (41) then indicates that covert possessor

raising, i.e. silent A-movement, is also possible out of Japanese null arguments.[17]

3.5 Discussion: Elliptic Status of Japanese Null Arguments

Above, I have investigated the possibility of extraction out of Japanese null arguments.

Incorporating extraction possibilities out of typical instances of surface anaphora, e.g.

VP-ellipsis, and deep anaphora, e.g. NCA, into the picture, we obtain the following table

regarding extraction out of the anaphora sites in question.

(42)

	Overt Extraction	Covert Extraction
VP-ellipsis (Surface Anaphora)	✓	✓
NCA (Deep Anaphora)	✗	✗
Japanese Null Arguments	✗	✓

As the table here illustrates, it has been shown in this section that Japanese null arguments do allow extraction out of them, which has important consequences for the analysis of Japanese null arguments. Although it is often assumed that Japanese null arguments can be derived via either *pro* or argument ellipsis, this assumption is far from uncontroversial. For example, authors like Hoji (1998, 2003), Tomioka (1998, 2003, 2014), Kurafuji (1999), and Kasai (2014) claim that the evidence that was taken in the previous literature to argue for the argument ellipsis analysis should/can be treated via *pro*, this being the only option for Japanese null arguments for them. However, that Japanese null arguments allow extraction out of them, as was shown in the above discussion, is unexpected if they are uniformly *pro* since *pro* is by assumption an instance of deep anaphora, which should not include any internal structure. In other words, the uniform *pro* analysis of Japanese null arguments would wrongly predict extraction to be uniformly banned out of them: that it is not then provides evidence that Japanese null arguments can be derived via ellipsis. However, I have also shown that Japanese null

arguments exhibit different behavior from both VP-ellipsis and NCA, which show

uniform extraction possibilities in that extraction is uniformly allowed out of a

VP-ellipsis site, while it is uniformly disallowed out of a NCA site. Specifically, Japanese

null arguments show an overt/covert extraction contrast, allowing covert, but not overt

extraction out of them (in fact, regardless of the type of movement, i.e. A or Ā, or their

domain, i.e. clausal or nominal). The extraction pattern out of Japanese null arguments

thus adds a novel type of ellipsis to the relevant typology in that such elements exhibit

non-uniform behavior, i.e. an overt/covert contrast, with respect to extraction out of their

domain. In the following section, I will provide an account for the overt/covert extraction

asymmetry out of Japanese null arguments on the basis of the LF-copy analysis of

argument ellipsis.

4 LF-Copying as a Solution to the Overt/Covert Extraction Asymmetry

There are two major approaches to ellipsis: PF-deletion (Ross 1969, Sag 1976, Tancredi

1992, Johnson 2001, Lasnik 2001, Merchant 2001, Goldberg 2005, Aelbrecht 2010,

among others) and LF-copying (Williams 1977, Fiengo and May 1994, Chung, Ladusaw,

and McCloskey 1995, Fortin 2007, among others). Under the PF-deletion analysis, an

ellipsis site involves full-fledged structure both in overt syntax and in LF, but the

structure is deleted in PF so that the relevant site is phonologically null. Under the

LF-copy analysis, an ellipsis site is empty both in overt syntax and in PF, but it has

full-fledged internal structure in LF via copying of its antecedent. What is important for

our purposes is that under the PF-deletion analysis, an ellipsis site has full-fledged

structure in both overt and covert syntax; under the LF-copy analysis, it has internal

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structure only in covert syntax.

In the previous section, it was shown that Japanese null arguments can be derived via argument ellipsis based on the extraction possibility. Once the existence of argument ellipsis is taken for granted, a question arises as to whether this case of ellipsis should be implemented through PF-deletion or LF-copying. Both views have been espoused in the literature: the LF-copy analysis is adopted in Oku (1998), Shinohara (2006), Takahashi (2006), Saito (2007), Takita (2010), Sato (2014, 2015), Sakamoto (2016b), among others, but Takahashi (2013) proposes a PF-deletion analysis. To illustrate, the second sentence of (10), which is repeated here as (43), is analyzed as in (44) and (45) under the PF-deletion and the LF-copy analyses, respectively.

(43) Taroo-wa [CP Hanako-ga   hon-o   yonda to] itta. Ziro-mo   [CP Δ] itta.

       Taro-TOP   Hanako-NOM book-ACC read   C said Ziro-also   said

       (Lit.) 'Taro said [CP that Hanako read a book]. Ziro also said [CP Δ].'

(44) a. Overt Syntax: Ziro also [CP Hanako book read C] said

      b. PF: Ziro also [CP Hanako book read C] said

      c. LF: Ziro also [CP Hanako book read C] said

(45) a. Overt Syntax: Ziro also [CP Ø] said

      b. PF: Ziro also [CP Ø] said

   c. LF: Ziro also [CP Hanako book read C] said

Recall now that one difference between the PF-deletion and the LF-copy analyses concerns the presence/absence of internal structure in overt syntax: only the former analysis posits internal structure in the ellipsis domains in overt syntax.

Keeping this in mind, let us reconsider the extraction pattern out of Japanese null arguments. Recall that overt extraction is uniformly excluded out of the relevant domains, as has already been discussed with respect to the long-distance scrambling, the ECM, and the left-branch cases in (13), (18), and (21). The ungrammaticality of (13b'), (18b'), and (21A-b) indicates that overt extraction is uniformly excluded out of null arguments in Japanese. On the other hand, silent extraction, i.e., movement that does not affect word order, is possible out of Japanese null arguments as in, e.g. (32) and (34), and (40a) and (41).[18] As discussed above, the grammaticality of (41) and the availability of inverse scope in (34) indicate that covert extraction is allowed from Japanese null arguments.

I argue that the extraction pattern noted above can be explained under the LF-copy analysis of argument ellipsis. First, the impossibility of overt extraction in (13b'), (18b'), and (21A-b) leads us to conclude that Japanese null arguments do not include any internal structure in overt syntax. This is exactly what the LF-copy analysis predicts since it does not provide the ellipsis domain with any internal structure in overt syntax, cf. (45). Specifically, (13b'), (18b'), and (21A-b) are analyzed as in (46), (47), and (48), respectively: there can be no extraction since there is nothing to extract from.

(46)   Overt Syntax: Destroying.angel$_2$ Sachiko [$_{CP}$ Ø] thinks

               Long-distance Scrambling

(47)   Overt Syntax: Ziro Kanako$_2$ stupidly [$_{CP}$ Ø] said

               ECM movement

(48)   Overt Syntax: Then, who-from$_2$ Hanako [$_{DP}$ Ø] read $_Q$

               PP Left-branch Extraction
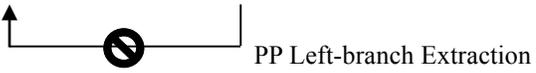
Therefore, the fact that overt extraction is uniformly disallowed out of Japanese null

arguments straightforwardly follows if argument ellipsis is implemented by LF-copying.

Recall, however, that covert extraction is possible out of an argument ellipsis site.

This indicates that the ellipsis domain has internal structure in LF, which is in fact what

the LF-copy analysis predicts. Consider, e.g., the possibility of QR and covert possessor

raising out of Japanese null arguments in (34) and (41). This can be easily accommodated

under the LF-copy analysis as in (49) and (50).

(49) a. Overt Syntax:

Ziro also [NegP [VP [CP Ø] say] NEG]

b. LF① (LF-copying):

Ziro also [NegP [VP [CP Tokyo-like all town lively COP C] say] NEG]

c. LF② (QR):

Ziro also all town [NegP [VP [CP Tokyo-like all town lively COP C] say] NEG]

(50) a. Overt Syntax:

[[3.years.ago e_j did] thing] also [DP Ø] remain

b. LF① (LF-copying):

[[3.years.ago e_j did] thing] also [DP most student memory] remain

c. LF② (Covert Possessor Raising):

most student [[3.years.ago e_j did] thing] also [DP most student memory] remain

Under the LF-copy analysis, although Japanese null arguments do not involve any

internal structure in overt syntax as in (49a) and (50a), they do in LF, as in (49b) and (50b), after LF-copying of their antecedents. Given the presence of the relevant structure in LF, LF operations like QR and covert possessor raising can successfully apply as in (49c) and (50c), explaining the possibility of inverse scope in (34) and the grammaticality of (41), respectively.

Consider now the possibility of Op-extraction out of Japanese null arguments. As discussed with respect to (28b') and (29b'), Op-extraction is possible out of argument ellipsis sites. Given the grammaticality of (28b') and (29b'), the current analysis provides evidence that Op-movement is implemented in LF, not in overt syntax. The issue itself is somewhat controversial (both views can be found in the literature). Thus, Kennedy (2002) and Cecchetto and Percus (2006) argue for the former possibility, which is also confirmed by the current discussion. Chomsky's (1995, chapter 4) view on movement is also worth noting here. Chomsky claims that there are two types of features that drive movement: strong features, which drive movement in overt syntax and can only be "satisfied" by overt movement, i.e. movement that affects word order, and weak features, which drive movement in LF and can be "satisfied" by covert movement, i.e. movement that does not affect word order. For Chomsky (Chomsky 1995, chapter 4), overt movement is driven by strong features but strong features can be present in the numeration only if their presence causes a change in word order. More generally, α can be present in the numeration only if its presence results in affecting either the PF or the LF output. Chomsky argues that strength never affects the latter: hence, strength, and overt syntax movement in general, must affect word order in his system (see also here

Bošković 2000). Under this system, Op-movement cannot in principle be driven by strong features since Op does not involve phonological features, hence its movement does not affect word order: Op-movement then must be LF-movement in Chomsky's (1995) system.[19]

In sum, the overt/covert asymmetry regarding extraction out of Japanese null arguments discussed in section 3 can be captured under the LF-copy analysis of ellipsis since under this analysis an ellipsis site has internal structure in covert syntax but not in overt syntax, thereby allowing only covert extraction out of the relevant domain.

5 PF-deletion versus LF-copying: A Phasal Dichotomy

There has been a great deal of debate in the literature regarding whether ellipsis should be treated in terms of PF-deletion or LF-copying. Observing that the dichotomy between PF-deletion and LF-copying concerns the presence/absence of internal structure in overt syntax, I have argued that argument ellipsis should be implemented by LF-copying rather than PF-deletion since Japanese null arguments do not allow extraction out of them in overt syntax, but they do in LF. There are, however, cases where overt extraction is possible out of an ellipsis domain. A typical case is sluicing (cf. Ross 1969, Merchant 2001, among many others), as in (51), where *who* is extracted overtly out of an ellipsis site.

(51)   John met someone, but I don't know [$_{CP}$ who$_1$ [$_{TP}$ ~~he met t$_1$~~]].

The reasoning employed above leads us to the conclusion that sluicing involves PF-deletion. Since sluicing then involves internal structure in overt syntax, overt extraction out of it is possible. The discussion in the paper, which focused on extraction

possibilities out of ellipsis sites, then leads us to the conclusion that both PF-deletion and LF-copying are available as strategies for deriving ellipsis. A question then arises whether we can predict for any particular instance of ellipsis whether it involves PF-deletion or LF-copying. I tentatively suggest that we can. Consider in this respect sluicing, which involves ellipsis of the TP complement of C, and clausal argument ellipsis, which involves ellipsis of the entire CP. Interestingly, Bošković (2014) argues that ellipsis is phase-constrained and that both phases and phasal complements can undergo ellipsis. In fact, sluicing and argument ellipsis are two of the cases Bošković considers in this respect. Bošković proposes that the difference between argument ellipsis and sluicing is the phasal status of the ellipsis domain. Specifically, sluicing is an instance of phasal complement ellipsis: CP is a phase and the sluicing site, TP, is a phasal complement. By contrast, argument ellipsis is an instance of phasal ellipsis given that DPs as well as CPs are phases (cf. Bošković 2014). [20] All things being considered, the following generalization can be deduced regarding ellipsis.

(52)   Phasal ellipsis, e.g. argument ellipsis, is implemented by LF-copying, while phasal complement ellipsis, e.g. sluicing, is implemented by PF-deletion.

This generalization can be considered as a by-product of the phase theory. The claim that a PF-deletion site corresponds to a phasal complement, i.e. what is sent to spell-out, is not novel; it has been argued for in the literature. Specifically, PF-deletion can be considered a flipside of spell-out: if a spell-out domain is not pronounced, that is considered as an instance of PF-deletion. By contrast, LF-copying should target phases since phasal complements do not have any theoretical status on their own in the phase theory: only

phases do, which makes phases a natural domain for operations like LF-copying (where considerations of spell-out do not apply).[21] Therefore, the implementation of argument ellipsis via LF-copying is not only supported by the empirical data discussed in the paper, where Japanese null arguments only allow covert extraction out of them, but also quite naturally follows from the phase-based theory of ellipsis. The suggestion in (52), however, has broader consequences, which cannot be explored within the confines of this paper.

6 Consequences for Other Phenomena

Before concluding the paper, I will briefly discuss the consequences of the current analysis of Japanese null arguments for the proper analysis of control and *wh*-in-situ in Japanese. The goal of this section is modest: simply to show that the current analysis of Japanese null arguments can provide a tool for teasing apart different analyses of these phenomena proposed in the literature, not to discuss the phenomena in any detail or potential shortcomings of the analyses discussed below.

6.1 Control

The current analysis of Japanese null arguments has consequences for control constructions. It has been highly controversial how control constructions should be analyzed. The traditional approach to such constructions claims that the controlee is PRO, a null pronominal element coindexed with its controller (see Landau 2003, Bobaljik and Landau 2009, among others, for recent arguments for the PRO analysis). However, Hornstein (1999, 2001), Boeckx and Hornstein (2003, 2004, 2006), Boeckx, Hornstein, and Nunes (2010), among others, claim that controlees are derived via A-movement. A

typical case of the English control construction in (53a) is analyzed as in (53b) under the

PRO analysis and as in (53c) under the movement analysis.

(53) a.   John tried [$_{Clause}$ *e* to defend argument ellipsis].

       b.   John$_i$ tried [$_{Clause}$ PRO$_i$ to defend argument ellipsis].

       c.   John$_1$ tried [$_{Clause}$ __$_1$ to defend argument ellipsis].

In (53b), the gap within the embedded clause is PRO that is coindexed with the matrix

subject *John*. In (53c), the gap in question is the trace of A-movement of *John* out of the

embedded clause.

       Whether the control construction involves PRO or movement has also been an issue

in Japanese syntax. Although the PRO analysis has been influential in the literature (cf.

Nemoto 1993), Takano (2010) argues for the movement analysis. To illustrate, the

control construction in (54a) is analyzed as in (54b) under the PRO analysis and as in

(54c) under the movement analysis.

(54) a.   Taroo-wa Ayaka-ni   [$_{Clause}$ *e* hakaseronbun-o kaku yoo(ni)] meizita.

             Taro-TOP   Ayaka-DAT   dissertation-ACC write C.INF   ordered

             (Lit.) 'Taro ordered Ayaka [$_{Clause}$ *e* to write her dissertation].'

       b.   Taro Ayaka$_i$ [$_{Clause}$ PRO$_i$ dissertation write C] ordered

       c.   Taro Ayaka$_1$ [$_{Clause}$ __$_1$ dissertation write C] ordered

The two analyses of the control in question make different predictions with respect to

extraction possibilities out of Japanese null arguments. Specifically, under the PRO

analysis, nothing is overtly extracted out of control clauses, so it is expected that control

clauses can be phonologically dropped; on the other hand, under the movement analysis,

control constructions like (54a) involve overt movement out of control clauses, so that control clauses should not be phonologically droppable in light of the preceding discussions. The following data indicate that the current perspective favors the PRO analysis over the movement analysis (cf. Tanaka 2008).

(55) a. Taroo-wa Ayaka-ni [_Clause_ *e* hakaseronbun-o kaku yoo(ni)] meizita.

Taro-TOP Ayaka-DAT dissertation-ACC write C.INF ordered

(Lit.) 'Taro ordered Ayaka [_Clause_ *e* to write her dissertation].'

b. Ziroo-wa Kanako-ni [_Clause_ *e* hakaseronbun-o kaku yoo(ni)] meizita.

Ziro-TOP Kanako-DAT dissertation-ACC write C.INF ordered

(Lit.) 'Ziro ordered Kanako [_Clause_ *e* to write her dissertation].'

b'. Ziroo-wa Kanako-ni [_Clause_ Δ] meizita.

Ziro-TOP Kanako-DAT ordered

(Lit.) 'Ziro ordered Kanako [_Clause_ Δ].'

With (55a) as its antecedent, both (55b) and (55b'), the latter of which involves a control clause that undergoes argument ellipsis, are grammatical. Given that overt extraction is impossible out of Japanese null arguments, the grammaticality of (55b') entails that overt extraction has not taken place out of the control clause, which in turn provides an argument that favors the PRO analysis over the movement analysis.

6.2 Wh-in-situ

I will now discuss the consequences of the current analysis for Japanese *wh*-in-situ. Japanese is a well-known *wh*-in-situ language, and the scope of *wh*-questions is marked by a Q-particle, as follows.

(56) a. Taroo-wa [CP Hanako-ga   nani-o   tabeta ka] tazuneta.

Taro-TOP   Hanako-NOM what-ACC ate   Q   asked

(Lit.) 'Taro asked [CP Q Hanako ate what].'

b. Taroo-wa [CP Hanako-ga   nani-o   tabeta to] omotteiru no?

Taro-TOP   Hanako-NOM what-ACC ate   C   think   Q

(Lit.) 'Q Taro thinks [CP that Hanako ate what]?'

(56a) is interpreted as an embedded *wh*-question, and (56b) as a matrix *wh*-question. The latter shows that the relation between *wh*-words and Q-particles can be unbounded.

Interestingly, Tanaka (2008) observes that embedded clauses with *wh*-in-situ can be dropped as indirect questions but not as matrix questions, as in (57) and (58).

(57) Taroo-wa [CP Hanako-ga   nani-o   tabeta ka] tazuneta.

Taro-TOP   Hanako-NOM what-ACC ate   Q   asked

Ziroo-mo [CP Δ] tazuneta.

Ziro-also   asked

(Lit.) 'Taro asked [CP Q Hanako ate what]. Ziro also asked [CP Δ].'

(58) A: Taroo-wa [CP Hanako-ga   nani-o   tabeta to] omotteiru no?

Taro-TOP   Hanako-NOM what-ACC ate   C   think   Q

(Lit.) 'Q Taro thinks [CP that Hanako ate what]?'

B: Pan   da   yo.

bread COP SFP

'Bread.'

A: *Zyaa, Ziroo-wa [CP Δ] omotteiru no?

then   Ziro-TOP   think   Q

(Lit.) 'Then, Q Ziro thinks [$_{CP}$ Δ]?'

The data noted above can also be accommodated under the analysis developed in the paper.

The syntax of *wh*-in-situ has been discussed in some depth in the literature. There are three major approaches: movement in overt syntax (which can be implemented in very different ways; see Watanabe 1992, Hagstrom 1998, Miyagawa 2001, Kishimoto 2005, Cable 2007, 2010, among others), movement in LF (Huang 1982, Lasnik and Saito 1992, among others), and no movement, i.e. unselective binding (Cheng 1991, Tsai 1994, 1997, Shimoyama 2001, among others). For example, (56b) can be analyzed as in (59), (60), and (61), respectively.

(59)   Overt Syntax: Taro [Hanako what ate C] think Q?   (Movement in Overt Syntax)

(60)   Overt Syntax: Taro [Hanako what ate C] think Q?

        LF: Taro [Hanako what ate C] think Q?   (Movement in LF)

(61)   Taro [Hanako what$_x$ ate C] think Q$_X$?   (Unselective Binding)

In (59), the *wh*-question interpretation is implemented by overt movement which establishes an appropriate relation between the *wh*-phrase and the relevant Q-particle; in (60), such a relation is established by LF-movement; and in (61), it is obtained without any movement, i.e. it is obtained through unselective binding, where the *wh*-element is

taken to be a variable bound by the Q-particle. Although the choice among these analyses

has been controversial, the current discussion provides a tool to tease them apart. In

particular, it provides evidence that Japanese *wh*-questions do involve overt movement, in

fact of a phonologically realized element, as in the Q-movement analysis (cf. Hagstrom

1998, Miyagawa 2001, Kishimoto 2005, Cable 2007, 2010), where Q-particles are

base-generated with *wh*-phrases and undergo overt movement to the relevant C head.

This analysis fits most straightforwardly with the data noted above under the analysis

proposed in this paper, where null CPs are derived via LF-copying (or *pro*). Specifically,

if *wh*-in-situ involves overt movement to the relevant CP-domain, the ungrammaticality

of the second A in (58) follows since null CPs do not include any internal structure in

overt syntax: hence, overt extraction out of it is disallowed.[22]

It should also be noted here that not only embedded clauses with *wh*-in-situ

interpreted as matrix questions but also *wh*-phrases themselves cannot be dropped, as in

(62) (cf. Sugisaki 2012 and Ikawa 2013).

(62) A: Taroo-wa [$_{DP}$ nani]-o   tabeta no?

Taro-TOP   what-ACC ate   Q

(Lit.) 'Taro ate [$_{DP}$ what]?'

B: Pan   da   yo.

bread COP SFP

'Bread.'

A: *Zyaa, Ziroo-wa [$_{DP}$ Δ] tabeta no?

then Ziro-TOP   ate   Q

(Lit.) 'Then, Ziro ate [$_{DP}$ Δ]?'

The null object in the second A is intended to be anaphoric on *nani* 'what' in the first A,
and the sentence is ungrammatical. This ungrammaticality of the second A in (62) also
follows given the overt movement analysis of *wh*-in-situ and the current perspective on
Japanese null arguments: the null object in question cannot include any internal structure
in overt syntax, so nothing can be extracted out of it in overt syntax (i.e. the Q-particle
cannot be extracted out of it, which causes the ungrammaticality here). The proposed
analysis of null arguments in Japanese thus sheds new light on the debate regarding the
syntax of Japanese *wh*-in-situ.

6 Conclusion

In this paper, I have discussed Japanese null arguments, showing that they can be derived
via ellipsis. The evidence comes from the fact that Japanese null arguments allow certain
types of extraction out of them, unlike deep anaphora such as NCA, which uniformly
disallows extraction. That extraction is possible out of Japanese null arguments indicates
that they cannot be uniformly *pro* since *pro* is by assumption an instance of deep
anaphora, which should disallow extraction. The discussion in this paper thus sheds novel
light on the proper treatment of Japanese null arguments: there are certain contexts where
the ellipsis analysis is necessary to derive them. Extraction possibilities out of Japanese
null arguments not only provide evidence for the ellipsis analysis of them but also add a
novel type of ellipsis to the typology regarding extraction patterns. In contrast to
VP-ellipsis, which allows both overt and covert extraction, and NCA, which disallows
both, Japanese null arguments allow covert movement (i.e. movement that does not affect

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word order) out of them but they disallow overt extraction out of them. I have argued that

the overt/covert extraction asymmetry receives an explanation if argument ellipsis is

implemented by LF-copying. Specifically, taking the possibility of overt extraction out of

anaphora sites as an indication of the presence of internal structure in overt syntax and

the possibility of covert extraction as an indication of the presence of internal structure in

covert syntax, the LF-copy analysis can straightforwardly explain the fact that Japanese

null arguments allow covert, but not overt extraction out of them. If the analysis

developed in the paper is on the right track, it provides novel arguments for the LF-copy

analysis of ellipsis (i.e. that LF-copying is an available strategy for deriving ellipsis) as

well as the argument ellipsis analysis of Japanese null arguments. However, since there

are ellipsis phenomena that allow overt extraction out of the ellipsis site, the discussion in

this paper led us to the conclusion that PF-deletion and LF-copying are both available as

strategies for deriving ellipsis. Given Bošković's (2014) claim that ellipsis can target both

phases and phasal complements, and that argument ellipsis is an instance of phasal

ellipsis, I suggested that LF-copying should target phases rather than phasal complements

since only phases have a theoretical status, which makes them a natural domain for

LF-copying. PF-deletion, on the other hand, targets phasal complements, as a by-product

of spell-out (given that what is sent to spell-out is a phasal complement). Finally, the

proposed analysis was also shown to provide a tool for teasing apart different analyses

proposed in the literature for several phenomena in Japanese syntax, in particular the

proper treatment of control and *wh*-in-situ.

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[1] Throughout the paper, Δ is used to designate phonologically empty elements theory-neutrally.

[2] An alternative ellipsis view of Japanese null arguments is V-stranding VP-ellipsis (Otani and Whitman 1991, Abe 2014, Funakoshi 2016, Lee 2016, among others), where V overtly moves to T followed by VP-ellipsis. However, it has been shown in the literature that some contexts where Japanese null arguments occur and which pass ellipsis tests of the kind discussed below simply disallow V-stranding VP-ellipsis (Oku 1998, Kim 1999, Goldberg 2005, Takita 2011a, b, Sakamoto 2015, 2016a, Sugisaki to appear, among others). Therefore, I only refer to argument ellipsis as the ellipsis view on Japanese null arguments in this paper.

[3] The argument for argument ellipsis based on 'sloppy' interpretations has not been uncontroversial. See Tomioka (2014) and references cited therein for the overview of the relevant literature.

[4] Although overt A-movement, e.g. passive movement, cannot be tested here since such movement is independently excluded in the context involved in NCA, it is well-known that other cases of deep anaphora, e.g. *do it*, disallow overt A-extraction out of its domain, as in (i).

    (i) a. This dog$_1$ was adopted t$_1$, but that one$_2$ was not adopted t$_2$.

b. *This dog$_1$ was adopted t$_1$, but that one$_2$ was not done it.

[5] Hiraiwa (2001, 2005) argues that ECM subjects are base-generated within embedded CPs, i.e. that they are not base-generated within matrix clauses, based on (i) (cf. Sakai 1998).

  (i) Taroo-wa dare(-no-koto)-o   baka   da   to-mo omowanakatta.

       Taro-TOP who-GEN-thing-ACC stupid COP C-Q   not.thought

       'Taro did not think that anyone is stupid.'   (Hiraiwa 2005:165)

In a sentence including negation and an NPI consisting of a *wh*-phrase and *-mo*, there is a constraint that negation must c-command *-mo*, which must in turn c-command the *wh*-phrase (cf. Kishimoto 2001). The grammaticality of (i) then indicates that the ECMed subject cannot be base-generated within the matrix clause since then, the constraint in question would not be satisfied, and (i) should be ungrammatical. In the following discussion, I then assume with Hiraiwa (2001, 2005), among many others, that ECMed subjects are base-generated within embedded CPs. See Bruening (2001) and Tanaka (2002) for additional evidence to this effect.

[6] The conclusion here, i.e. that overt A-extraction is disallowed out of Japanese null arguments, gains further support from Takahashi and Uchibori's (2003) pseudoraising. Consider (i) and (ii).

  (i) [Sannin-izyoo-no gakusei]$_{1/i}$-ga soitu$_i$-no   hahaoya-ni-wa [$_{CP}$ t$_1$ A-o

     three-or.more-GEN student-NOM the.guy-GEN mother-to-TOP   A-ACC

     toru to] omoeta.

     get C   seemed

(Lit.) '[Three or more students]$_{1/i}$ seemed to their$_i$ mothers [$_{CP}$ that t$_1$ would get an A].'

(ii) a. John$_1$-ga   Kanako-ni-wa   [$_{CP}$ t$_1$ Nihon-ni ryuugakusuru to] omoeta.

John-NOM   Kanako-to-TOP   Japan-to study.abroad   C   seemed

(Lit.) 'John$_1$ seemed to Kanako [$_{CP}$ that t$_1$ would study abroad in Japan].'

b. *Bill$_2$-ga   Ayaka-ni-wa   [$_{CP}$ Δ] omoeta.

Bill-NOM   Ayaka-to-TOP   seemed

(Lit.) 'Bill$_2$ seemed to Ayaka [$_{CP}$ Δ].'

Takahashi and Uchibori claim that movement involved in (iia) is an instance of A-movement since such movement can create a new binding relation, as in (i). Given this, the ungrammaticality of (iib) also shows that overt A-movement is disallowed out of Japanese null arguments.

[7] See Takahashi and Funakoshi (2013) for the observation that the relevant PP extraction is subject to subjacency effects, though it in principle allows a long-distance dependency.

[8] Recall that I am using the term covert extraction for extraction that does not affect word order. I return to the issue in question in section 4.

[9] Takezawa (1987) argues that what is involved in PP *tough* constructions is Op-movement, not overt movement of PPs, based on examples like (i).

(i) *(John-nitotte) [$_{CP}$ okane-o   [zibun-no otooto-kara]-ga   takusan kariteiru

John-for   money-ACC self-GEN   brother-from-NOM many   borrow

to hito-ni   ii]-nikui.

C person-to say-hard

(Lit.) 'It is hard [to tell people [$_{CP}$ that one has borrowed a lot of money from

self's brother]].' (Takezawa 1987:198)

Here, the nominative PP is placed right in the middle of the embedded clause, and the sentence is ungrammatical. This indicates that the PP subject receives nominative case within the matrix clause. Then, Takezawa reasons, given that movement involved in Case-assignment/licensing is A-movement, the PP *tough* constructions such as (25a) cannot involve overt movement of the PP subject out of the embedded clause since that would result in a violation of the condition A of the binding theory. Takezawa then argues that we can ensure that the PP *tough* construction involves covert Op-movement if we use a matrix subject with nominative case.

[10] It has been claimed in the literature that a number of scope rigid languages have QR (see, e.g., Sauerland 2001 and Wurmbrand 2008 for German, Oh 2006 for Korean, and Fitzgibbons 2010 for Russian). Many authors have also argued for QR in Japanese (see Sano 1985, Shoji 1986, Harada and Noguchi 1992, Aoyagi 1998, 2006, Futagi 2004, Saito 2005, Bobaljik and Wurmbrand 2007, Goro 2007, Takahashi 2011, among many others). See also Bobaljik (1995, 2002), Diesing (1997), Chierchia (1998), and especially Takahashi (2011) and Bobaljik and Wurmbrand (2012) for discussion related to the question why QR in Japanese is more 'restricted' than QR in English, i.e. why QR is possible only in cases like (32), not in cases like (30b).

Notice also that the in-situ approach to inverse scope, namely choice function (cf. Reinhart 1997, Kratzer 1998, Winter 2004, among others) would not account for the inverse scope in (32) since the quantifier *all* is known to be non-choice-functional. This

claim gains further support from the fact that the inverse scope still obtains even if we replace the QP *subete-no mati* 'all the cities' in (32) by other non-choice-functional QPs such as *sukunakutomo hutatu-no mati* 'at least two cities'.

[11] Fox's (2000) Scope Parallelism is observed in (32) and (34). Specifically, if we get the surface scope in (32), we can only get the surface scope in (34); if we get the inverse scope in (32), we must get the inverse scope in (34). The same holds in (35) and (36) too.

[12] One might wonder whether in (35) focus projection could apply in ways not involving movement. However, Aoyagi (1994) and Abe (2012) observe that the matrix scope reading exhibits subjacency effects as in (i), where the embedded QP object can only take the embedded scope. This indicates that movement is actually involved here.

(i) Mary-ga [[$_{RC}$ gakubusei-zidai-ni Barriers-sae yonda] hito]-ni atta.

Mary-NOM undergraduate-time-at Barriers-even read person-DAT met

'Mary met [a person [$_{RC}$ who read even Barriers when he/she was an

undergraduate student]].' (Aoyagi 1994:32)

[13] An anonymous reviewer notes that overt possessor raising cases with dative possessors such as (37b) are marginal to him/her. I reexamined (37b) with four native speakers of Japanese (all of them linguists), and it turned out that one speaker actually found (37b) degraded; all the others did accept it. I have nothing interesting to say here regarding this speaker variation. However, because what is important for the current discussion are cases such as (37a) with genitive possessors, not cases such as (37b) with dative possessors, I put aside the dative possessor case in the following for expository reasons.

[14] It is standardly assumed that the *pro* strategy is also available for null arguments in Japanese (in addition to argument ellipsis). This strategy is employed in (38).

[15] For relevant discussion of covert A-movement, see also Polinsky (2009), Polinsky and Potsdam (2013), and reference cited therein.

[16] One might wonder whether the bound variable reading here could be licensed via reconstructing the nominative argument (located in an A-position) to a position below the locative argument. However, Kishimoto provides several arguments against such a view. First, the reconstruction approach must provide a lower position than the locative argument for the nominative argument, but this is called into a question given that in (40a) what constitutes an idiomatic expression with the verb *nokotteiru* 'remain' is the locative argument, not the nominative argument, so that the latter should not intervene between the former and the relevant verb at the level of underlying structure (see Miyagawa and Tsujioka 2004, Kishimoto 2008, among others, for this effect in Japanese idiom formation). Second, even if a position lower than the locative argument turns out to be available, reconstruction does not rescue the weak crossover violation, as the following examples demonstrate.

(i) a. *[[e_i nadameta] hito]$_1$-ga   [dare$_i$-no   okaasan]-kara-mo t$_1$

         soothed   person-NOM anyone-GEN mother-from-MO

   homerarenakatta.

   was.not.praised

   (Lit.) '[The person [who soothed him$_i$]]$_1$ was not praised t$_1$ by anyone$_i$'s mother.'

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b. *[[e_i nadameta] hito]$_1$-ga   [dare$_i$-no   okaasan]-mo homenakatta.

soothed   person-NOM anyone-GEN mother-MO   not.praised

(Lit.) '[The person [who soothed him$_i$]] did not praise anyone$_i$'s mother.'

(Kishimoto 2013:192)

In (ia), the nominative argument undergoes passive movement from a position lower than the argument which involves a quantifier taken to bind the bound pronoun within the nominative argument. Importantly, the relevant bound variable interpretation cannot be obtained on a par with the active voice counterpart in (ib). This suggests that the bound variable interpretation in (40a) is not related to reconstruction, which in turn supports the idea that covert possessor raising is responsible for the relevant bound variable interpretation, given that a quantifier within a nominal cannot license the bound variable in a higher position in ordinary sentences.

[17] It is also worth noting here that Kishimoto (2013) observes that the genitive possessor remaining within possessum nominals can take scope over the nominative thematic argument, as in (ia). Given this, the availability of inverse scope in (ib) may also provide an argument for the claim that silent movement is possible out of Japanese null arguments.

(i) a. [Sishunki-no   nanika]-ga   [$_{DP}$ hotondo-no otona-no   kioku]-ni

adolescence-GEN something-NOM   most-GEN   adult-GEN memory-LOC

nokotteiru.

remain

'Most adults remember something in their adolescence.' ∃ » *most* ; *most* » ∃

b. [Yooshooki-no nanika]-mo   [DP Δ] nokotteiru.

childhood-GEN something-also   remain

'Most adults remember something in their childhood too.' ∃ » *most* ; *most* » ∃

[18] I will discuss the null operator cases separately below.

[19] Holmberg's (2000) approach to strong features/overt movement, in terms of a

P-feature which can only be deleted by elements with phonological features, may also be

implementable here.

[20] Bošković (2014, 2015) actually argues that highest clausal projection is a phase (if the

highest clausal projection is a TP, then TP is a phase for Bošković). Regarding nominal

arguments, Bošković actually argues that Japanese lacks DP but that the highest

projection in the nominal domain, which is KP in the case of Japanese for Bošković, is a

phase. I ignore this point in the text, simply assuming DP for Japanese.

[21] A great deal of effort has gone into coming up with a proper unified definition of what

counts as a phase; by contrast, there has been nothing like that for phasal complements.

The reason is simple: only phases have a theoretical status.

[22] As noted above, discussing how the proposed analysis fares with respect to other

aspects of the phenomena discussed in this section is beyond the scope of this paper.