Overtly Empty but Covertly Complex

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Linguistic Inquiry, Volume 50, Number 1, Winter 2019, pp. 105-136 (Article)

Published by The MIT Press

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In this article, I 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 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, the first sentence in (1) 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].'

Researchers have proposed two major analyses of the null object in (1): the *pro* analysis (e.g., Kuroda 1965, Ohso 1976, Hoji 1985, Saito 1985, Nakamura 1987) and the argument ellipsis analysis, where arguments can directly undergo ellipsis (e.g., 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,b, Sugisaki 2018).[2] Under these approaches, (1) is analyzed as in (2a) and (2b), respectively.

This article stems from chapters 3 and 5 of my Doctoral dissertation, written at the University of Connecticut. I wish to thank Jonathan David Bobaljik, Ian Roberts, Mamoru Saito, and especially Željko Bošković for their helpful comments and discussions. Thanks are also due to Jun Abe, Akihiko Arano, Mark Baltin, Yoshiki Fujiwara, Ryosuke Hattori, Kyle Johnson, Hiromune Oda, Hiroaki Saito, Koji Sugisaki, Daiko Takahashi, and Yuta Tatsumi. This work is partially supported by the Fulbright program for graduate study (IIE Grant ID#: 15121872). Any errors are, of course, my own.

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

[2] An alternative ellipsis view of Japanese null arguments is V-stranding VP-ellipsis (e.g., Otani and Whitman 1991, Abe 2014, Funakoshi 2016, Lee 2016), where V overtly moves to T followed by VP-ellipsis. However, it has been shown

Linguistic Inquiry, Volume 50, Number 1, Winter 2019
105–136

doi: 10.1162/ling_a_00302

(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* (see 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 the 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), such as the quantificational reading in (3b). Then, they claim that the relevant reading of Japanese null arguments arises through argument ellipsis: for example, the null object in (3b) is analyzed as in (4) under the argument ellipsis analysis.

(4) Ziro also [$_{DP}$ three cars] washed.

Here, the ellipsis site includes the quantifier, so the availability of the quantificational reading straightforwardly follows.[3]

The main goal of this article 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

in the literature that some contexts where Japanese null arguments occur and that pass ellipsis tests of the kind discussed below simply disallow V-stranding VP-ellipsis (e.g., Oku 1998, Kim 1999, Goldberg 2005, Takita 2011a,b, Sakamoto 2015, 2016b, Sugisaki 2018). Therefore, in this article I refer only to argument ellipsis as the ellipsis view on Japanese null arguments.

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

the possibility of extraction out of anaphora sites signals surface anaphora—that is, ellipsis (see, e.g., Tancredi 1992, Tomioka 1997, Depiante 2000, Johnson 2001, Merchant 2013)—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 extractions are 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" about what types of extraction they allow. In particular, I show that only covert movement (i.e., movement that does not affect 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 article is organized as follows. In section 2, I introduce the distinction between surface anaphora (ellipsis) and deep anaphora (proforms) (see Hankamer and Sag 1976). In particular, I discuss the widely assumed test for surface anaphora—namely, 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 are possible from null arguments in Japanese. Specifically, I show that overt movement is disallowed out of them, whereas silent movement is allowed. Given the extraction possibilities out of Japanese null arguments, I 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 also sheds light on the more general issue of whether ellipsis should be treated in terms of PF deletion or LF copying: in section 5, I 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 discuss consequences of the proposed analysis of argument ellipsis: I show that the analysis provides a tool to differentiate analyses of several phenomena, including control and *wh*-in-situ. Section 7 concludes.

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.

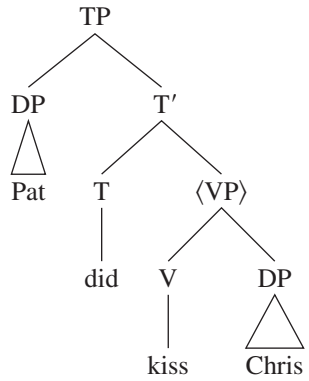
(5) a. Pat kissed Chris, and Terry did Δ, too.
b. Pat tried to kiss Chris, and Terry tried Δ, too.

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

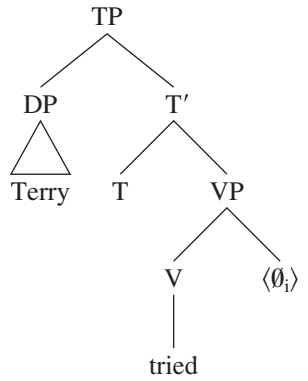
The difference between surface and deep anaphora is generally claimed to involve the presence or absence of internal structure: only the former includes internal structure. Specifically, the

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.



b.



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, throughout the derivation, the missing part in (5b) does not include any internal structure, and its interpretation is taken to be obtained through the assignment function (see Heim and Kratzer 1998); for example, [i → λx. x kiss Chris]. Although a number of diagnostics have been proposed to differentiate these two types of anaphora (e.g., Bresnan 1971, Grinder and Postal 1971, Hankamer and Sag 1976, Sag 1976, Sag and Hankamer 1984, Depiante 2000, Johnson 2001), Merchant (2013) claims that the possibility of extraction is one of the most reliable tests for surface anaphora: if extraction is possible, the syntax must include something to be extracted out of. 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 an 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—that is, null operator (Op) movement and Quantifier Raising (QR)—are also used as diagnostics for surface anaphora. Consider the following examples:[4]

[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 their 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.

(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 from 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 section, I investigate whether extraction is possible out of Japanese null arguments. I show that they exhibit a surprising asymmetry regarding extraction out of them: overt extraction is disallowed, 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 (see Shinohara 2006, Saito 2007, Tanaka 2008, Takita 2010, Cheng 2013, Takahashi 2013, Kasai 2014, Sakamoto 2016a). 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 Japanese null arguments. 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: for example, the former can create a new binding relation but the latter cannot, as shown in (11) and (12), respectively (e.g., Saito 1992, Abe 1993, Nemoto 1993, Tada 1993).

(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 like A-movement since binding relations are generally assumed to be established by A-movement. (12a) also disallows the intended bound variable interpretation, that is, '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 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 2016a 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].'
(see 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 exceptional case-marking (ECM) construction (e.g., Kuno 1976, Kaneko 1988, Bruening 2001, Hiraiwa 2001, 2005, Tanaka 2002, 2004, Takano 2003). 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. This consensus is based on, for example, Kuno's (1976) observation that only ECM 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 the movement

[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), on the basis of (i) (see 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 a negative polarity item 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 (see Kishimoto 2001). The grammaticality of (i) then indicates that the ECM 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 ECM subjects are base-generated within embedded CPs. See Bruening 2001 and Tanaka 2002 for additional evidence to this effect.

involved in (15b) is an instance of Ā-movement or A-movement. Tanaka (2002) observes that ECM subjects can be new binders, as in (17b).

(17) a. *Soitu$_i$-no hahaoya-ga [$_{vP}$ [sannin-izyoo-no gakusei]$_{1/i}$-o orokanimo [$_{CP}$ t_1
the.guy-GEN mother-NOM three-or.more-GEN student-ACC stupidly
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 geniuses]].'

b. [Sannin-izyoo-no gakusei]$_{1/i}$-o soitu$_i$-no hahaoya-ga [$_{vP}$ t'_1 orokanimo [$_{CP}$ t_1
three-or.more-GEN student-ACC the.guy-GEN mother-NOM stupidly
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 geniuses]].'

(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, that is, overt A-movement. This 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—namely, overt A-movement—is possible out of null arguments in Japanese. The following data show that overt A-movement is in fact disallowed out of them (see Tanaka 2008):

(18) a. Taroo-wa Ayaka$_1$-o orokanimo [$_{CP}$ t_1 tensai da to] itta.
Taro-TOP Ayaka-ACC stupidly genius COP C said
(Lit.) 'Taro, Ayaka$_1$, stupidly said [$_{CP}$ that t_1 is a genius].'

b. Ziroo-wa Kanako$_2$-o orokanimo [$_{CP}$ t_2 tensai da to] itta.
Ziro-TOP Kanako-ACC stupidly genius COP C said
(Lit.) 'Ziro, Kanako$_2$, stupidly said [$_{CP}$ that t_2 is a genius].'

b′. *Ziroo-wa Kanako$_2$-o orokanimo [$_{CP}$ Δ] itta.
Ziro-TOP Kanako-ACC stupidly said
(Lit.) 'Ziro, Kanako$_2$, 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]

[6] The conclusion 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).

3.1.2 Overt Extraction out of Null Nominals Japanese generally disallows left-branch extraction out of nominals (see 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. *Hanako$_1$-no Taroo-wa [$_{DP}$ t$_1$ hon]-o yonda.
Hanako-GEN Taro-TOP book-ACC read
(Lit.) 'Hanako's$_1$, Taro read [$_{DP}$ t$_1$ 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 whom]?'
b. Dare-kara$_1$-no Taroo-wa [$_{DP}$ t$_1$ tegami]-o yonda no?
who-from-GEN Taro-TOP letter-ACC read Q
(Lit.) 'From whom$_1$ did Taro read [$_{DP}$ a letter t$_1$]?'

In (20b), the PP *wh*-phrase *dare-kara-no* 'from whom' is overtly extracted out of a 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-kara$_1$-no Taroo-wa [$_{DP}$ t$_1$ tegami]-o yonda no?
who-from-GEN Taro-TOP letter-ACC read Q
(Lit.) 'From whom$_1$ did Taro read [$_{DP}$ a letter t$_1$]?'

(i) [Sannin-izyoo-no gakusei]$_{1/i}$-ga soitu$_i$-no hahaoya-ni-wa [$_{CP}$ t$_1$ A-o toru to] omoeta.
three-or.more-GEN student-NOM the.guy-GEN mother-to-TOP A-ACC 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 the 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 in principle it allows a long-distance dependency.

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 whom$_2$ 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 whom$_2$ did Hanako read [$_{DP}$ Δ]?'

In (21Ab), the PP *wh*-phrase *dare-kara-no* 'from whom' 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 section, I will discuss covert movement, that is, 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 is arguably involved: comparative deletion (CD) (Kikuchi 1987) and PP *tough*-constructions (PPTs) (Takezawa 1987). The basic examples of these configurations 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)

[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.

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 hon-o
John-NOM read C be.said than Mary-TOP many book-ACC
yondeita.
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 yori(mo)]
the table-on was.reading person-ACC John-NOM hit than
Paul-wa takusan hon-o yondeita.
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 kariteiru to]
self-GEN brother-from-NOM John-for money-ACC much borrow C
mitome]-nikui.
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 okane-o
such financial.agency-from-NOM John-for always money-ACC
kariteiru] hito]-o sinyoosi]-nikui.
borrow person-ACC trust-hard
(Lit.) 'From such a financial agency$_i$ is hard (for John) [to trust [a person [$_{RC}$ who always borrows a lot of money e_i]]].'
(Takezawa 1987:216)

Given 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 approaches, (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 Subjacency violation.[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)] Hanako-wa
Taro-NOM read C Kanako-by be.said than Hanako-TOP
takusan ronbun-o yondeiru.
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, [Op$_2$ [$_{CP}$ Taroo-ga t$_2$ yonda to] Ayaka-ni iwareteiru yori(mo)]
furthermore Taro-NOM read C Ayaka-by be.said than
kanozyo-wa takusan ronbun-o yondeiru.
she-TOP many paper-ACC read
(Lit.) 'Furthermore, she reads more papers than [Op$_2$ it is said by Ayaka [$_{CP}$ that Taro reads t$_2$]].'

b′. Sarani, [Op$_2$ [$_{CP}$ Δ] Ayaka-ni iwareteiru yori(mo)] kanozyo-wa takusan
furthermore Ayaka-by be.said than she-TOP many
ronbun-o yondeiru.
paper-ACC read
(Lit.) 'Furthermore, she reads more papers than [Op$_2$ it is said by Ayaka [$_{CP}$ Δ]].'

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

(i) *(John-nitotte) [$_{CP}$ okane-o [zibun-no otooto-kara]-ga takusan kariteiru to hito-ni ii]-nikui.
John-for money-ACC self-GEN brother-from-NOM many borrow 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, 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 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.

(29) *PPT*

a. Hahaoya-kara$_i$-ga Taroo-nitotte-wa [Op$_{1/i}$ [$_{CP}$ t$_1$ aizyoo-o uketeiru to] kanzi]-yasui.
mother-from-NOM Taro-for-TOP love-ACC receive C feel-easy
(Lit.) 'From his mother$_i$ is easy for Taro [Op$_{1/i}$ to feel [$_{CP}$ that he receives love t$_1$]].'

b. Demo, titioya-kara$_j$-ga Ziroo-nitotte-wa [Op$_{2/j}$ [$_{CP}$ t$_2$ 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 [Op$_{2/j}$ to feel [$_{CP}$ that he receives love t$_2$]].'

b′. Demo, titioya-kara$_j$-ga Ziroo-nitotte-wa [Op$_{2/j}$ [$_{CP}$ Δ] kanzi]-yasui.
but father-from-NOM Ziro-for-TOP feel-easy
(Lit.) 'But, from his father$_j$ is easy for Ziro [Op$_{2/j}$ to feel [$_{CP}$ Δ]].'

With (28a) and (29a) as their respective antecedents, (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 On the basis of examples like (30b), much literature has claimed that Japanese is a scope-rigid language (see, e.g., Kuroda 1970, Hoji 1985; 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 surface scope and inverse scope are available in English (30a), only 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 (see 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, that is, the interpretation where the ECM 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 ECM subject *subete-no mati* 'all the cities' stays within the embedded clause (see, e.g., Bruening 2001 and Hiraiwa 2001, 2005 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; that

[10] It has been claimed 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, e.g., Sano 1985, Shoji 1986, Harada and Noguchi 1992, Aoyagi 1998, 2006, Futagi 2004, Saito 2005, Bobaljik and Wurmbrand 2007, Goro 2007, Takahashi 2011). See also Bobaljik 1995, 2002, Diesing 1997, Chierchia 1998, and especially Takahashi 2011 and Bobaljik and Wurmbrand 2012 for discussion related to the question of why QR in Japanese is more "restricted" than QR in English—that is, 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 (see, e.g., Reinhart 1997, Kratzer 1998, Winter 2004)—would not account for inverse scope in (32) since the quantifier *all* and its counterparts in other languages are known to be non-choice-functional. This claim gains further support from the fact that inverse scope 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 surface scope in (32), we can only get surface scope in (34); if we get inverse scope in (32), we must get inverse scope in (34). The same holds in (35) and (36) as well.

is, 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 'Bill also does not think 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 construction, possessor-raising idioms, which he claims involve covert A-movement. Consider (37).

(37) a. Sono toki-no koto-ga [$_{DP}$ Hanako-no kioku]-ni nokotteiru.
that time-GEN event-NOM Hanako-GEN memory-LOC remain
'Hanako remembers the event at that time.'
b. Hanako$_1$-ni sono toki-no koto-ga [$_{DP}$ t$_1$ kioku]-ni nokotteiru.
Hanako-DAT that time-GEN event-NOM memory-LOC remain
'Hanako 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, appearing 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]].'

[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 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 or she was an undergraduate student]].'
(Aoyagi 1994:32)

[13] An anonymous reviewer finds overt possessor-raising cases with dative possessors such as (37b) marginal. I reexamined (37b) with four native speakers of Japanese (all linguists); one of them did find (37b) degraded and the other three accepted it. I have nothing interesting to say here regarding this speaker variation. However, because what is important for the current discussion is cases such as (37a) with genitive possessors, not cases such as (37b) with dative possessors, I put the dative possessor case aside here for expository reasons.

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$_i$.'
c. Daremo$_{1/i}$-o [[e_i atta] hito]-ga t_1 hometa.
everyone-ACC met man-NOM praised
(Lit.) 'Everyone$_{1/i}$, [the man [who met e_i]] praised t_1.'

(39) a. *Her$_i$ husband admires [every wife]$_i$.
b. [Every woman]$_{1/i}$ seems to her$_i$ father t_1 to be smart.

Hoji (1985) observes that a Japanese null argument 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 nokotteiru.
last.year did thing-NOM most-GEN student-GEN memory-LOC remain
'Most students$_i$ remember what they$_i$ did last year.'
b. most student$_{1/i}$ [[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 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]

[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 references 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 (2013) provides several arguments against such a view. For example, the reconstruction approach must provide a lower position than the locative argument for the nominative argument; however, this is called into 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 in underlying structure (see, e.g., Miyagawa and Tsujioka 2004 and Kishimoto 2008 for this effect in Japanese idiom formation). Furthermore, even if a position lower than the locative argument turns out to be available, reconstruction does not rescue the weak crossover violation, as (ia–b) demonstrate.

(i) a. *[[e_i nadameta] hito]$_1$-ga [dare$_i$-no okaasan]-kara-mo t_1 homerarenakatta.
soothed person-NOM anyone-GEN mother-from-MO was.not.praised
(Lit.) '[The person [who soothed him$_i$]]$_1$ was not praised t_1 by anyone$_i$'s mother.'

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 students' 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]

3.3 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	✗	✓

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 'anyone's mother', which involves a quantifier taken to bind the bound pronoun within the nominative argument. Importantly, as in its active voice counterpart (ib), the relevant bound variable interpretation cannot be obtained in (ia). 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 nokotteiru.
adolescence-GEN something-NOM most-GEN adult-GEN memory-LOC 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* » ∃

As the table illustrates, I have 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 in their view the only option for Japanese null arguments. However, that Japanese null arguments allow extraction out of them, as 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 behavior different from that of both VP-ellipsis and NCA, which show uniform extraction possibilities: extraction is uniformly allowed out of a VP-ellipsis site, while it is uniformly disallowed out of an 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 (A or $\bar{A}$) or their domain (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 nonuniform 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 based on 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 (e.g., Ross 1969, Sag 1976, Tancredi 1992, Johnson 2001, Lasnik 2001, Merchant 2001, Goldberg 2005, Aelbrecht 2010) and LF copying (e.g., Williams 1977, Fiengo and May 1994, Chung, Ladusaw, and McCloskey 1995, Fortin 2007). 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 structure only in covert syntax.

In the previous section, I showed, on the basis of extraction possibilities, that Japanese null arguments can be derived via argument ellipsis. Once the existence of argument ellipsis is taken for granted, the question arises whether this case of ellipsis should be implemented through PF deletion or LF copying. Both views have been espoused in the literature: Oku (1998), Shinohara (2006), Takahashi (2006), Saito (2007), Takita (2010), Sato (2014, 2015), and Sakamoto (2016a), among others, adopt the LF copy analysis, 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 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 discussed earlier with respect to the long-distance scrambling, ECM, and left-branch cases in (13), (18), and (21). The ungrammaticality of (13b′), (18b′), and (21Ab) 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, for example, (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 (21Ab) 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 (see (45)). Specifically, (13b′), (18b′), and (21Ab) 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 Sachiko [$_{CP}$ Ø] think
Long-distance scrambling

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

(47) *Overt syntax*
Ziro Kanako stupidly [$_{CP}$ Ø] said
ECM movement

(48) *Overt syntax*
then who-from 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, for example, 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. *LF ① (LF copying)*
Ziro also [$_{NegP}$ [$_{VP}$ [$_{CP}$ Tokyo-like all city lively COP C] say] NEG]
c. *LF ② (QR)*
Ziro also all city [$_{NegP}$ [$_{VP}$ [$_{CP}$ Tokyo-like all city lively COP C] say] NEG]

(50) a. *Overt syntax*
[[three.years.ago e_j did] thing] also [$_{DP}$ Ø] remain
b. *LF ① (LF copying)*
[[three.years.ago e_j did] thing] also [$_{DP}$ most student memory] remain
c. *LF ② (covert possessor raising)*
most student [[three.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: chap.

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, 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 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 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: 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 vs. LF Copying: A Phasal Dichotomy

Whether ellipsis should be treated in terms of PF deletion or LF copying has been a matter of considerable debate. 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 (see, e.g., Ross 1969, Merchant 2001), as in (51), where *who* is extracted overtly out of an ellipsis site.

(51) Mary met someone, but I don't know $[_{CP}$ who$_1$ $[\sout{_{TP}\text{ she met } t_1}]]$.

The reasoning employed above leads us to conclude that sluicing involves PF deletion. Since sluicing then involves internal structure in overt syntax, overt extraction out of it is possible. The discussion in this article, which has focused on extraction possibilities out of ellipsis sites, then leads us to conclude that both PF deletion and LF copying are available as strategies for deriving ellipsis. The 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. He proposes

[19] Holmberg's (2000) approach to strong features/overt movement, in terms of a P-feature that can only be deleted by elements with phonological features, may also be implementable here.

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 (see Bošković 2014).[20] All things 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 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 the flip side of Spell-Out: if a Spell-Out domain is not pronounced, that is considered 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 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 not only is supported by the empirical data discussed here, showing that Japanese null arguments only allow covert extraction out of them, but also quite naturally follows from the phase-based theory of ellipsis. However, the suggestion in (52) has broader consequences, which cannot be explored within the confines of this article.

6 Consequences for Other Phenomena

Before concluding, 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. I do not discuss the phenomena in any detail or address potential shortcomings of the analyses discussed below.

6.1 Control

The current analysis of Japanese null arguments has consequences for control constructions. How control constructions should be analyzed has been highly controversial. The traditional approach to such constructions claims that the controllee is PRO, a null pronominal element coindexed with its controller (see, e.g., Landau 2003 and Bobaljik and Landau 2009 for arguments for the PRO analysis). However, Hornstein (1999, 2001), Boeckx and Hornstein (2003, 2004, 2006), and

[20] Bošković (2014, 2015) actually argues that the 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 in his view is KP in the case of Japanese, 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, nothing like that has been undertaken for phasal complements. The reason is simple: only phases have a theoretical status.

Boeckx, Hornstein, and Nunes (2010), among others, claim that controllees 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. Mary tried [$_{\text{Clause}}$ *e* to defend argument ellipsis].
b. Mary$_i$ tried [$_{\text{Clause}}$ PRO$_i$ to defend argument ellipsis].
c. Mary$_1$ tried [$_{\text{Clause}}$ t$_1$ to defend argument ellipsis].

In (53b), the gap within the embedded clause is PRO that is coindexed with the matrix subject *Mary*. In (53c), the gap in question is the trace of A-movement of *Mary* 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 (see 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 [$_{\text{Clause}}$ *e* hakaseronbun-o kaku yoo(ni)] meizita.
Taro-TOP Ayaka-DAT dissertation-ACC write C.INF ordered
(Lit.) 'Taro ordered Ayaka [$_{\text{Clause}}$ *e* to write her dissertation].'
b. Taro Ayaka$_i$ [$_{\text{Clause}}$ PRO$_i$ dissertation write C] ordered
c. Taro Ayaka$_1$ [$_{\text{Clause}}$ t$_1$ 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 discussion. The following data indicate that the current perspective favors the PRO analysis over the movement analysis (see Tanaka 2008):

(55) a. Taroo-wa Ayaka-ni [$_{\text{Clause}}$ *e* hakaseronbun-o kaku yoo(ni)] meizita.
Taro-TOP Ayaka-DAT dissertation-ACC write C.INF ordered
(Lit.) 'Taro ordered Ayaka [$_{\text{Clause}}$ *e* to write her dissertation].'
b. Ziroo-wa Kanako-ni [$_{\text{Clause}}$ *e* hakaseronbun-o kaku yoo(ni)] meizita.
Ziro-TOP Kanako-DAT dissertation-ACC write C.INF ordered
(Lit.) 'Ziro ordered Kanako [$_{\text{Clause}}$ *e* to write her dissertation].'
b′. Ziroo-wa Kanako-ni [$_{\text{Clause}}$ Δ] meizita.
Ziro-TOP Kanako-DAT ordered
(Lit.) 'Ziro ordered Kanako [$_{\text{Clause}}$ Δ].'

With (55a) as antecedent, both (55b) and (55b′), the latter involving 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*

The current analysis also has consequences 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.

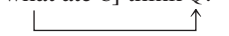
Interestingly, Tanaka (2008) observes that embedded clauses with *wh*-in-situ can be dropped as indirect questions but not as matrix questions, as in (57) and (58).

(57) Taroo-wa [$_{CP}$ Hanako-ga nani-o tabeta ka] tazuneta. Ziroo-mo [$_{CP}$ Δ] tazuneta.
Taro-TOP Hanako-NOM what-ACC ate Q asked 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 article.

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, e.g., Watanabe 1992, Hagstrom 1998, Miyagawa 2001, Kishimoto 2005, Cable 2007, 2010); movement in LF (e.g., Huang 1982, Lasnik and Saito 1992); and no movement, that is, unselective binding (e.g., Cheng 1991, Tsai 1994, 1997, Shimoyama 2001). 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. In (61), it is obtained without any movement; that is, 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, movement of a phonologically realized element, as in the Q-movement analysis (see 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 here, 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 them 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) (see Sugisaki 2012, 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:

[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 article.

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.

7 Conclusion

In this article, 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 article thus sheds new 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 such arguments 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 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 this article 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 here led 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, I showed that the proposed analysis provides 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.

References

Abe, Jun. 1993. Binding conditions and scrambling without A/A′ distinction. Doctoral dissertation, University of Connecticut, Storrs.

Abe, Jun. 2012. Scrambling and operator movement. *Lingua* 122:66–91.
Abe, Jun. 2014. Antecedent-contained deletion in Japanese: Support for the VP-ellipsis analysis. Ms., Tohoku Gakuin University.
Aelbrecht, Lobke. 2010. *The syntactic licensing of ellipsis.* Amsterdam: John Benjamins.
Aoyagi, Hiroshi. 1994. On association with focus and scope of focus particles in Japanese. In *Formal Approaches to Japanese Linguistics 1*, ed. by Masatoshi Koizumi and Hiroyuki Ura, 23–44. MIT Working Papers in Linguistics 24. Cambridge, MA: MIT, MIT Working Papers in Linguistics.
Aoyagi, Hiroshi. 1998. On the nature of particles in Japanese and its theoretical implications. Doctoral dissertation, University of Southern California, Los Angeles.
Aoyagi, Hiroshi. 2006. *Nihongo-no zyohi-to kinoohanchuu* [Particles in Japanese and functional categories]. Tokyo: Hituzi Syobo.
Bobaljik, Jonathan David. 1995. Morphosyntax: The syntax of verbal inflection. Doctoral dissertation, MIT, Cambridge, MA.
Bobaljik, Jonathan David. 2002. A-chains at the PF-interface: Copies and 'covert' movement. *Natural Language and Linguistic Theory* 20:197–267.
Bobaljik, Jonathan David, and Idan Landau. 2009. Icelandic control is not A-movement: The case from case. *Linguistic Inquiry* 40:113–132.
Bobaljik, Jonathan David, and Susi Wurmbrand. 2007. Complex predicates, aspect, and anti-reconstruction. *Journal of East Asian Linguistics* 16:27–42.
Bobaljik, Jonathan David, and Susi Wurmbrand. 2012. Word order and scope: Transparent interfaces and the ¾ signature. *Linguistic Inquiry* 43:371–421.
Boeckx, Cedric, and Norbert Hornstein. 2003. Reply to "Control is not movement." *Linguistic Inquiry* 34: 269–280.
Boeckx, Cedric, and Norbert Hornstein. 2004. Movement under control. *Linguistic Inquiry* 35:431–452.
Boeckx, Cedric, and Norbert Hornstein. 2006. Control in Icelandic and theories of control. *Linguistic Inquiry* 37:591–606.
Boeckx, Cedric, Norbert Hornstein, and Jairo Nunes. 2010. Icelandic control really is A-movement: Reply to Bobaljik and Landau. *Linguistic Inquiry* 41:111–130.
Bošković, Željko. 2000. Sometimes in [Spec, CP], sometimes in situ. In *Step by step: Essays on Minimalism in honor of Howard Lasnik*, ed. by Roger Martin, David Michaels, and Juan Uriagereka, 53–87. Cambridge, MA: MIT Press.
Bošković, Željko. 2014. Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis. *Linguistic Inquiry* 45:27–89.
Bošković, Željko. 2015. From the Complex NP Constraint to everything: On deep extractions out of categories. *The Linguistic Review* 32:603–669.
Bresnan, Joan. 1971. A note on the notion "identity of sense anaphora." *Linguistic Inquiry* 2:589–597.
Bruening, Benjamin. 2001. Syntax at the edge: Cross-clausal phenomena and the syntax of Passamaquoddy. Doctoral dissertation, MIT, Cambridge, MA.
Cable, Seth. 2007. The grammar of Q: Q-particles and the nature of *wh*-fronting, as revealed by the *wh* questions of Tlingit. Doctoral dissertation, MIT, Cambridge, MA.
Cable, Seth. 2010. *The grammar of Q: Q-particles,* wh-*movement, and pied-piping.* Oxford: Oxford University Press.
Cecchetto, Carlo, and Orin Percus. 2006. When we do that and when we don't: A contrastive analysis of VP ellipsis and VP anaphora. In *Phases of interpretation*, ed. by Mara Frascarelli, 67–100. Berlin: Mouton de Gruyter.
Cheng, Hsu-Te. 2013. Argument ellipsis, classifier phrases, and the DP parameter. Doctoral dissertation, University of Connecticut, Storrs.
Cheng, Lisa Lai-Shen. 1991. On the typology of *wh*-questions. Doctoral dissertation, MIT, Cambridge, MA.

Chierchia, Gennaro. 1998. Reference to kinds across languages. *Natural Language Semantics* 6:339–405.
Chomsky, Noam. 1995. *The Minimalist Program.* Cambridge, MA: MIT Press.
Chung, Sandra, William Ladusaw, and James McCloskey. 1995. Sluicing and Logical Form. *Natural Language Semantics* 3:239–282.
Depiante, Marcela Andrea. 2000. The syntax of deep and surface anaphora: A study of null complement anaphora and stripping/bare argument ellipsis. Doctoral dissertation, University of Connecticut, Storrs.
Diesing, Molly. 1997. Yiddish VP order and the typology of object movement in Germanic. *Natural Language and Linguistic Theory* 15:369–427.
Evans, Gareth. 1980. Pronouns. *Linguistic Inquiry* 11:337–362.
Fiengo, Robert, and Robert May. 1994. *Indices and identity.* Cambridge, MA: MIT Press.
Fitzgibbons, Natalia Viktorovna. 2010. Licensers and meanings: Structural properties of dependent infinitives. Doctoral dissertation, University of Connecticut, Storrs.
Fortin, Catherine. 2007. Indonesian sluicing and verb phrase ellipsis: Description and explanation in a Minimalist framework. Doctoral dissertation, University of Michigan, Ann Arbor.
Fox, Danny. 2000. *Economy and semantic interpretation.* Cambridge, MA: MIT Press.
Funakoshi, Kenshi. 2016. Verb-stranding verb phrase ellipsis in Japanese. *Journal of East Asian Linguistics* 25:113–142.
Futagi, Yoko. 2004. Japanese focus particles at the syntax-semantics interface. Doctoral dissertation, Rutgers University, New Brunswick, NJ.
Goldberg, Lotus. 2005. Verb-stranding VP-ellipsis: A crosslinguistic study. Doctoral dissertation, McGill University, Montréal.
Goro, Takuya. 2007. Language-specific constraints on scope interpretation in first language acquisition. Doctoral dissertation, University of Maryland, College Park.
Grinder, John, and Paul Postal. 1971. Missing antecedents. *Linguistic Inquiry* 2:269–312.
Hagstrom, Paul. 1998. Decomposing questions. Doctoral dissertation, MIT, Cambridge, MA.
Hankamer, Jorge, and Ivan Sag. 1976. Deep and surface anaphora. *Linguistic Inquiry* 7:391–428.
Harada, Yasunori, and Nahoko Noguchi. 1992. On the semantics and pragmatics of *dake* (and *only*). In *Proceedings of the 2nd Conference on Semantics and Linguistic Theory*, ed. by Chris Barker and David Dowty, 125–144. Columbus: Ohio State University.
Heim, Irene, and Angelika Kratzer. 1998. *Semantics in generative grammar.* Oxford: Blackwell.
Hiraiwa, Ken. 2001. Multiple Agree and the Defective Intervention Constraint in Japanese. In *Proceedings of the 1st HUMIT Student Conference in Language Research*, ed. by Nathan Lance, Albert Costa, Javier Martin-Gonzalez, Ora Matushansky, and Adam Szczegielniak, 67–80. MIT Working Papers in Linguistics 40. Cambridge, MA: MIT, MIT Working Papers in Linguistics.
Hiraiwa, Ken. 2005. Dimensions of symmetry in syntax: Agreement and clausal architecture. Doctoral dissertation, MIT, Cambridge, MA.
Hoji, Hajime. 1985. Logical Form constraints and configurational structure in Japanese. Doctoral dissertation, University of Washington, Seattle.
Hoji, Hajime. 1998. Null object and sloppy identity in Japanese. *Linguistic Inquiry* 29:127–152.
Hoji, Hajime. 2003. Surface and deep anaphora, sloppy identity, and experiments in syntax. In *Anaphora: A reference guide*, ed. by Andrew Barss, 172–236. Oxford: Blackwell.
Holmberg, Anders. 2000. Scandinavian stylistic fronting: How any category can become an expletive. *Linguistic Inquiry* 31:445–483.
Hornstein, Norbert. 1999. Movement and control. *Linguistic Inquiry* 30:69–96.
Hornstein, Norbert. 2001. *Move! A Minimalist theory of construal.* Oxford: Blackwell.
Huang, C.-T. James. 1982. Logical relations in Chinese and the theory of grammar. Doctoral dissertation, MIT, Cambridge, MA.

Ikawa, Hajime. 2013. What the ineligibility of *wh*-phrases for argument ellipsis tell us: On the inertness of phonetically null elements. In *Proceedings of GLOW in Asia IX*, ed. by Nobu Goto, Koichi Otaki, Atsushi Sato, and Kensuke Takita. http://faculty.human.mie-u.ac.jp/~glow_mie/IX_Proceedings_Poster/07Ikawa.pdf.

Johnson, Kyle. 2001. What VP-ellipsis can do, and what it can't, but not why. In *The handbook of contemporary syntactic theory*, ed. by Mark Baltin and Chris Collins, 439–479. Oxford: Blackwell.

Kaneko, Yoshiaki. 1988. On exceptional case-marking in Japanese and English. *English Linguistics* 5: 271–289.

Kasai, Hironobu. 2014. On the nature of null clausal complements in Japanese. *Syntax* 17:168–188.

Kato, Takaomi. 2007. On the nature of the Left Branch Condition: Syntactic or phonological? In *Locality and Minimalism: Proceedings of the 9th Seoul International Conference on Generative Grammar*, ed. by D.-W. Lee, 39–51. Seoul: Hankuk.

Kennedy, Christopher. 2002. Comparative deletion and optimality in syntax. *Natural Language and Linguistic Theory* 20:553–621.

Kikuchi, Akira. 1987. Comparative deletion in Japanese. Ms., Yamagata University.

Kim, Soowon. 1999. Sloppy/Strict identity, empty objects, and NP ellipsis. *Journal of East Asian Linguistics* 8:255–284.

Kishimoto, Hideki. 2001. Binding of indeterminate pronouns and clause structure in Japanese. *Linguistic Inquiry* 32:597–633.

Kishimoto, Hideki. 2005. *Wh*-in-situ and movement in Sinhala questions. *Natural Language and Linguistic Theory* 23:1–51.

Kishimoto, Hideki. 2008. Ditransitive idioms and argument structure. *Journal of East Asian Linguistics* 17: 141–179.

Kishimoto, Hideki. 2013. Covert possessor raising in Japanese. *Natural Language and Linguistic Theory* 36:161–205.

Kratzer, Angelika. 1998. Scope or pseudoscope: Are there wide scope indefinites? Ms., University of Massachusetts, Amherst.

Kuno, Susumu. 1976. Subject raising. In *Syntax and semantics 5: Japanese generative grammar*, ed. by Masayoshi Shibatani, 17–49. New York: Academic Press.

Kurafuji, Takeo. 1999. Japanese pronouns in dynamic semantics: The null/overt contrast. Doctoral dissertation, Rutgers University, New Brunswick, NJ.

Kuroda, S.-Y. 1965. Generative grammatical studies in the Japanese language. Doctoral dissertation, MIT, Cambridge, MA.

Kuroda, S.-Y. 1970. *Japanese syntax and semantics.* Dordrecht: Kluwer.

Landau, Idan. 2003. Movement out of control. *Linguistic Inquiry* 34:471–498.

Lasnik, Howard. 2001. When can you save a structure by destroying it? In *NELS 31*, ed. by Minjoo Kim and Uri Strauss, 301–320. Amherst: University of Massachusetts, Graduate Linguistic Student Association.

Lasnik, Howard, and Mamoru Saito. 1992. *Move α: Conditions on its application and output.* Cambridge, MA: MIT Press.

Lee, Jeong-Shik. 2016. Some ellipsis phenomena in Korean: Implications for phrase structure. In *2016 beyond core syntax: A Minimalist approach, Proceedings of the 18th Seoul International Conference on Generative Grammar*, ed. by Tae Shik Kim and Seungwan Ha, 298–334. Seoul: The Korean Generative Grammar Circle.

Merchant, Jason. 2001. *The syntax of silence: Sluicing, islands, and the theory of ellipsis.* Oxford: Oxford University Press.

Merchant, Jason. 2013. Diagnosing ellipsis. In *Diagnosing syntax*, ed. by Lisa Lai-Shen Cheng and Norbert Corver, 537–542. Oxford: Oxford University Press.

Miyagawa, Shigeru. 2001. EPP, scrambling, and *wh*-in-situ. In *Ken Hale: A life in language*, ed. by Michael Kenstowicz, 293–338. Cambridge, MA: MIT Press.

Miyagawa, Shigeru, and Takae Tsujioka. 2004. Argument structure and ditransitive verbs in Japanese. *Journal of East Asian Linguistics* 13:1–38.

Nakamura, Masaru. 1987. Japanese as a *pro* language. *The Linguistic Review* 6:281–296.

Nemoto, Naoko. 1993. Chains and case positions: A study from scrambling in Japanese. Doctoral dissertation, University of Connecticut, Storrs.

Nomura, Masashi, and Koko Hirotsu. 2005. The Left Branch Condition in the acquisition of Japanese. In *University of Connecticut working papers in linguistics 13*, ed. by Masashi Nomura, Fumikazu Niinuma, and Lara Reglero, 119–144. Cambridge, MA: MIT, MIT Working Papers in Linguistics.

Oh, Sei-Rang. 2006. Plurality markers across languages. Doctoral dissertation, University of Connecticut, Storrs.

Ohso, Mieko. 1976. A study of zero pronominalization in Japanese. Doctoral dissertation, Ohio State University, Columbus.

Oku, Satoshi. 1998. A theory of selection and reconstruction in the Minimalist Program. Doctoral dissertation, University of Connecticut, Storrs.

Otaki, Koichi. 2014. Ellipsis of arguments: Its acquisition and theoretical implications. Doctoral dissertation, University of Connecticut, Storrs.

Otani, Kazuyo, and John Whitman. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry* 22:345–358.

Polinsky, Maria. 2009. In defense of covert A-movement: Backward raising and beyond. Paper presented at the Workshop on Diagnostics in Syntax, Leiden University and Utrecht University.

Polinsky, Maria, and Eric Potsdam. 2013. Diagnosing covert A-movement. In *Diagnosing syntax*, ed. by Lisa Lai-Shen Cheng and Norbert Corver, 210–234. Oxford: Oxford University Press.

Reinhart, Tanya. 1997. Quantifier scope: How labor is divided between QR and choice functions. *Linguistics and Philosophy* 20:335–397.

Ross, John R. 1969. Guess who? In *Papers from the 5th regional meeting of the Chicago Linguistic Society*, ed. by Robert Binnick, Alice Davison, Georgia Green, and Jerry Morgan, 252–286. Chicago: University of Chicago, Chicago Linguistic Society.

Sag, Ivan. 1976. Deletion and Logical Form. Doctoral dissertation, MIT, Cambridge, MA.

Sag, Ivan, and Jorge Hankamer. 1984. Toward a theory of anaphoric processing. *Linguistics and Philosophy* 7:325–345.

Saito, Mamoru. 1985. Some asymmetries in Japanese and their theoretical implications. Doctoral dissertation, MIT, Cambridge, MA.

Saito, Mamoru. 1992. Long distance scrambling in Japanese. *Journal of East Asian Linguistics* 1:69–118.

Saito, Mamoru. 2004. Ellipsis and pronominal reference in Japanese clefts. *Nanzan Linguistics* 1:21–50.

Saito, Mamoru. 2005. Further notes on the interpretation of scrambling chains. In *The free word order phenomenon: Its syntactic sources and diversity*, ed. by Joachim Sabel and Mamoru Saito, 335–376. Berlin: Mouton de Gruyter.

Saito, Mamoru. 2007. Notes on East Asian argument ellipsis. *Language Research* 43:203–227.

Sakai, Hiromu. 1998. Raising asymmetry and improper movement. In *Japanese/Korean Linguistics 7*, ed. by Noriko Akatsuka, Hajime Hoji, Shoichi Iwasaki, and Susan Strauss, 481–497. Stanford, CA: CSLI Publications.

Sakamoto, Yuta. 2015. Disjunction as a new diagnostic for (argument) ellipsis. In *NELS 45*, ed. by Thuy Bui and Deniz Özyıldız, 3:15–28. Amherst: University of Massachusetts, Graduate Linguistic Student Association.

Sakamoto, Yuta. 2016a. Overtly empty but covertly complex: An argument for the LF-copy analysis. In *NELS 46*, ed. by Christopher Hammerly and Brandon Prickett, 3:155–168. Amherst: University of Massachusetts, Graduate Linguistic Student Association.

Sakamoto, Yuta. 2016b. Phases and argument ellipsis in Japanese. *Journal of East Asian Linguistics* 25: 243–274.

Sano, Masaki. 1985. LF-movement in Japanese. *Descriptive and Applied Linguistics* 18:245–259.
Sato, Yosuke. 2014. Argument ellipsis in Colloquial Singapore English and the anti-agreement hypothesis. *Journal of Linguistics* 50:365–401.
Sato, Yosuke. 2015. Argument ellipsis in Javanese and voice agreement. *Studia Linguistica* 69:58–85.
Sauerland, Uli. 2001. On quantifier raising in German. Ms., University of Tübingen.
Şener, Serkan, and Daiko Takahashi. 2010. Ellipsis of arguments in Japanese and Turkish. *Nanzan Linguistics* 6:79–99.
Shibata, Yoshiyuki. 2015. Exploring syntax from interfaces. Doctoral dissertation, University of Connecticut, Storrs.
Shimoyama, Junko. 2001. *Wh*-constructions in Japanese. Doctoral dissertation, University of Massachusetts, Amherst.
Shinohara, Michie. 2006. On some differences between the major deletion phenomena and Japanese argument ellipsis. Ms., Nanzan University.
Shoji, Atsuko. 1986. *Dake* and *shika* in Japanese: Syntax, semantics, and pragmatics. Doctoral dissertation, Cornell University, Ithaca, NY.
Snyder, William, Kenneth Wexler, and Dolon Das. 1995. The syntactic representation of degree and quantity: Perspectives from Japanese and child English. In *Proceedings of the West Coast Conference on Formal Linguistics 13*, ed. by Raul Aranovich, William Byrne, Susanne Preuss, and Martha Senturia, 581–596. Stanford, CA: CSLI Publications.
Sugisaki, Koji. 2012. A constraint on argument ellipsis in child Japanese. In *Proceedings of the 36th annual Boston University Conference on Language Development*, ed. by Alia K. Biller, Esther Y. Chung, and Amelia E. Kimball, 555–567. Somerville, MA: Cascadilla Press.
Sugisaki, Koji. 2018. Argument ellipsis in child Japanese revisited. In *Proceedings of the 10th Workshop on Altaic Formal Linguistics*, ed. by Theodore Levin and Ryo Masuda, 37–54. Cambridge, MA: MIT, MIT Working Papers in Linguistics.
Tada, Hiroaki. 1993. A/A-bar partition in derivation. Doctoral dissertation, MIT, Cambridge, MA.
Takahashi, Daiko. 2006. Apparent parasitic gaps and null arguments in Japanese. *Journal of East Asian Linguistics* 15:1–35.
Takahashi, Daiko. 2008a. Noun phrase ellipsis. In *The Oxford handbook of Japanese linguistics*, ed. by Shigeru Miyagawa and Mamoru Saito, 394–422. New York: Oxford University Press.
Takahashi, Daiko. 2008b. Quantificational null objects and argument ellipsis. *Linguistic Inquiry* 39:307–326.
Takahashi, Daiko. 2013. Comparative syntax of argument ellipsis. Paper presented at the NINJAL project meeting: Linguistic variations within the confines of the language faculty: A study in Japanese first language acquisition and parametric syntax. http://www.ad.cyberhome.ne.jp/~d-takahashi/DTSyntaxLab/Research.html.
Takahashi, Daiko. 2014. Argument ellipsis, anti-agreement, and scrambling. In *Japanese syntax in comparative perspective*, ed. by Mamoru Saito, 88–116. Oxford: Oxford University Press.
Takahashi, Daiko, and Asako Uchibori. 2003. Pseudoraising. *Gengo Kenkyu* 123:299–329.
Takahashi, Masahiko. 2011. Some theoretical consequences of Case-marking in Japanese. Doctoral dissertation, University of Connecticut, Storrs.
Takahashi, Masahiko, and Kenshi Funakoshi. 2013. On PP left branch extraction in Japanese. In *Proceedings of the 36th Annual Penn Linguistics Colloquium*, ed. by Kobey Shwayder, 237–246. Philadelphia: University of Pennsylvania, Penn Linguistics Club.
Takano, Yuji. 2003. Nominative objects in Japanese complex predicate constructions: A prolepsis analysis. *Natural Language and Linguistic Theory* 21:779–834.
Takano, Yuji. 2010. Scrambling and control. *Linguistic Inquiry* 41:83–110.
Takeuchi, Hajime. 2010. Exceptional case marking in Japanese and optional feature transmission. *Nanzan Linguistics* 6:101–128.

Takezawa, Koichi. 1987. A configurational approach to case-marking in Japanese. Doctoral dissertation, University of Washington, Seattle.
Takita, Kensuke. 2010. Cyclic linearization and constraints on movement and ellipsis. Doctoral dissertation, Nanzan University.
Takita, Kensuke. 2011a. Argument ellipsis in Japanese right dislocation. In *Japanese/Korean Linguistics 18*, ed. by William McClure and Marcel den Dikken, 380–391. Stanford, CA: CSLI Publications.
Takita, Kensuke. 2011b. An argument for argument ellipsis from *-sika* NPIs. In *NELS 39*, ed. by Susi Lima, Kevin Mullin, and Brian Smith, 771–784. Amherst: University of Massachusetts, Graduate Linguistic Student Association.
Tanaka, Hidekazu. 2002. Raising to object out of CP. *Linguistic Inquiry* 33:637–652.
Tanaka, Hidekazu. 2004. On the categorial status of raising complements. *York Papers in Linguistics* 1: 213–222.
Tanaka, Hidekazu. 2008. Clausal complement ellipsis. Ms., University of York.
Tancredi, Christopher. 1992. Deletion, deaccenting, and presupposition. Doctoral dissertation, MIT, Cambridge, MA.
Tomioka, Satoshi. 1997. Focusing effects and NP interpretation in VP ellipsis. Doctoral dissertation, University of Massachusetts, Amherst.
Tomioka, Satoshi. 1998. The laziest pronouns. In *Japanese/Korean Linguistics 7*, ed. by Noriko Akatsuka, Hajime Hoji, Shoichi Iwasaki, and Susan Strauss, 515–532. Stanford, CA: CSLI Publications.
Tomioka, Satoshi. 2003. The semantics of null arguments and its cross-linguistic investigations. In *Interfaces*, ed. by Kerstin Schwabe and Susanne Winkler, 321–339. Amsterdam: John Benjamins.
Tomioka, Satoshi. 2014. Remarks on missing arguments in Japanese. In *Formal Approaches to Japanese Linguistics 7*, ed. by Shigeto Kawahara and Mika Igarashi, 251–264. MIT Working Papers in Linguistics 73. Cambridge, MA: MIT, MIT Working Papers in Linguistics.
Tsai, Wei-Tien Dylan. 1994. On economizing the theory of A-bar dependencies. Doctoral dissertation, MIT, Cambridge, MA.
Tsai, Wei-Tien Dylan. 1997. On the absence of island effects. *Tsing Hua Journal of Chinese Studies, New Series* 27:125–149.
Watanabe, Akira. 1992. Subjacency and S-Structure movement of *wh*-in-situ. *Journal of East Asian Linguistics* 1:255–291.
Williams, Edwin. 1977. Discourse and Logical Form. *Linguistic Inquiry* 8:101–139.
Winter, Yoad. 2004. Functional quantifiers. *Research on Language and Computation* 2:331–363.
Wurmbrand, Susi. 2008. Word order and scope in German. In *Groninger Arbeiten zur germanistischen Linguistik 46*, ed. by C. Jan-Wouter Zwart, 89–110. Groningen: University of Groningen.

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