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Escape from Silent Syntax

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Escape from Silent Syntax
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This thesis is a cross-linguistic investigation into the nature of null arguments in radical *pro*-drop languages where null arguments are claimed to be derivable via the process called argument ellipsis, which directly elides arguments. I examine whether null arguments in such languages involve internal structure by testing extraction possibilities out of them on the basis of the hypothesis that the possibility of extraction indicates the presence of internal structure in anaphora sites. Based on novel data from Chinese, Japanese, Korean, Mongolian, and Turkish, I show that elliptic arguments exhibit a hitherto unnoticed pattern of extraction out of ellipsis sites, a pattern that does not follow from either Hankamer and Sag's (1976) surface anaphora such as VP-ellipsis or deep anaphora such as *do it* anaphora. Specifically, I show that null arguments in the languages in question uniformly disallow overt extraction out of them, while they uniformly allow covert extraction (more precisely, extraction that does not affect word order).

Having established the overt/covert extraction asymmetry out of null arguments under consideration, I show that the extraction pattern in question has several consequences for the PF-deletion versus LF-copying debate in the literature on ellipsis. 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/LF, I argue that the relevant extraction asymmetry out of null arguments in question is best analyzed under the LF-copy analysis, which provides ellipsis domains with internal structure only in covert syntax/LF so that only covert movement is possible out of the relevant domains. I argue that PF-deletion is also an available strategy and propose that the dichotomy between PF-deletion and LF-copying is related to the phasal status of ellipsis domains, building on Bošković's (2014) phase-based analysis of ellipsis, where only phases and phasal complements can undergo ellipsis. In particular, I claim that ellipsis of phases, including argument ellipsis, is implemented by LF-copying and ellipsis of phasal complements is implemented by PF-deletion, which is shown to be a by-product of the phase theory. Finally, I show that the LF-copy analysis of elliptic arguments has consequences for the proper analysis of a number of phenomena, including *wh*-in-situ, control, and the timing of null operator movement.

Escape from Silent Syntax

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“I have really longed for the linguistics department at UConn.”

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Chapter 1

Introduction

1.1 Escapable from Silence?

This thesis is a cross-linguistic investigation into the nature of null arguments in radical *pro*-drop languages, where arguments such as subjects and objects can be productively dropped in the absence of agreement morphology on the verb, which is generally assumed to license null subjects in languages like Italian and Spanish. In particular, I focus on radical *pro*-drop languages where null arguments are claimed to be derivable via the process referred to as argument ellipsis, which is an ellipsis strategy that directly elides arguments.

The status of null arguments in radical *pro*-drop languages has been a hotly debated issue in the study of generative grammar. (1) exemplifies a typical instance of null object constructions in Japanese.¹

- (1) a. Taroo-wa [_{DP} Yamada sensei-no hon]-o hihansi-ta.
Taro-TOP Yamada teacher-GEN book-ACC criticize-PST
'Taro criticized [_{DP} Prof. Yamada's book].'
- b. Hanako-mo [_{DP} △] hihansi-ta.
Hanako-also criticize-PST
(Lit.) 'Hanako also criticized [_{DP} △].'

¹ In the literature, it has been controversial whether Japanese-type nominal arguments have the DP layer (cf. Fukui 1986, Chierchia 1998, Tomioka 2003, Bošković 2008, Takahashi 2011, among many others). In the following, I will simply assume DP for Japanese-type languages without any commitment to this issue. However, see chapter 6 for relevant discussion.

With (1a) as its antecedent, (1b) can be interpreted as “Hanako also criticized Prof. Yamada’s book” despite the phonological emptiness of its direct object. It has been assumed since Kuroda (1965) that Japanese null arguments are phonologically empty pronouns (*pro*) (see also Ohso 1976, Hoji 1985, Saito 1985, Nakamura 1987, among others). However, there is a growing body of literature which has accumulated evidence that Japanese null arguments cannot be uniformly empty pronouns: they can involve ellipsis as well as empty pronouns (cf. Otani and Whitman 1991, Oku 1998, Saito 2004a, b, 2007, Takahashi 2006, 2008a, b, 2014, Takita 2010, 2011a, b, Otaki 2014, Sakamoto 2015a, b, 2016a, b, Funakoshi 2016, Sugisaki to appear, among many others). In particular, the argument ellipsis analysis, in which arguments are elided, has been quite influential in the literature. For example, the null object in (1b) is analyzed under the empty pronoun analysis and the argument ellipsis analysis as in (2a) and (2b) respectively.

- (2) a. Empty Pronoun Analysis
 Hanako-also [_{DP} *pro*]_i criticized
- b. Argument Ellipsis Analysis
 Hanako-also [_{DP} ~~Prof. Yamada’s book~~] criticized

In (2a), the null object position is occupied by an empty pronoun. It is generally assumed that the empty pronoun receives its semantic interpretation via co-indexation with its antecedent *Prof. Yamada’s book*, presumably through the assignment function, e.g. [$i \rightarrow \lambda x. x$ is Prof. Yamada’s book] (Heim and Kratzer 1998). In (2b), the null object position is derived via ellipsis of its antecedent argument, so the relevant interpretation trivially follows.

Argument ellipsis involves several differences from well-known English ellipsis constructions such as sluicing and NP-ellipsis. Consider the following examples.

- (3) a. Sluicing
 John bought something, but I don't know [_{CP} what_i [_{TP} ~~he bought~~ _____]].
- b. NP-ellipsis
 You criticized John's novel, and I criticized [_{DP} Bill's [_{NP} ~~novel~~]].

What is shared by sluicing and NP-ellipsis is that what is elided is a complement of a functional head. Specifically, sluicing is an instance of ellipsis of a TP complement of the functional head C, and NP-ellipsis is an instance of ellipsis of an NP complement of the functional head D. The above ellipsis constructions are also 'partial' in the sense that they do not elide a full argument since the head and its specifier are left behind. On the other hand, what is elided with argument ellipsis is a full argument. Furthermore, the elided element is a complement of a lexical head. It has been argued in the literature that ellipsis that is licensed by a functional head where the complement of a functional head is elided has an additional requirement in that the licensing functional head must undergo spec-head agreement (cf. Lobeck 1990, 1995, Saito and Murasugi 1990), as indicated by the contrast between (3a), where the C undergoes spec-head agreement, and (4a), where the C does not undergo spec-head agreement, and (3b), where the D undergoes spec-head agreement, and (4b), where it does not.

- (4) a. Sluicing
 *John thinks that Mary kissed someone, but I don't think [_{CP} that [_{TP} ~~Mary kissed someone~~]].
- b. NP-ellipsis
 *John criticized a novel, and Bill criticized [_{DP} a [_{NP} ~~novel~~]] too.

The spec-head agreement requirement is a requirement on the ellipsis of complements of functional heads, hence does not apply to the cases where what is elided is a complement of a

lexical head, as with argument ellipsis. Argument ellipsis thus differs from sluicing and NP-ellipsis in English in that it elides a full argument, and a complement of a lexical head, not a functional head, hence it is not subject to functional head licensing ellipsis conditions.²

Let us now turn to why argument ellipsis has been entertained in languages like Japanese in the literature. It has been claimed that a wide variety of interpretations that Japanese null arguments can yield necessitates an ellipsis analysis in addition to an empty pronoun analysis. One of the interpretations that is claimed to be a problem for the empty pronoun analysis of Japanese null arguments is the sloppy interpretation (cf. Whitman 1988, Otani and Whitman 1991). Consider the following examples.

- (5) a. Taroo-wa [_{DP} zibun-no kuruma]-o arat-ta.
Taro-TOP self-GEN car-ACC wash-PST
(Lit.) ‘Taro washed [_{DP} self’s car].’
- b. Ziroo-mo [_{DP} △] arat-ta.
Ziroo-also wash-PST
(Lit.) ‘Ziroo also washed [_{DP} △].’
- b’. Ziroo-mo [_{DP} sore]-o arat-ta.
Ziroo-also it-ACC wash-PST
‘Ziroo also washed [_{DP} it].’

² A number of languages other than Japanese have been argued to allow argument ellipsis, e.g. American Sign Language (Koulidobrova 2012, to appear), Burmese (Lee 2016), Chinese (Cheng 2013), Colloquial Singapore English (Sato 2014), Javanese (Sato 2015), Korean (Kim 1999, Takahashi 2007), Mongolian (Takahashi 2007, Sakamoto 2012), Persian (Sato and Karimi 2016), and Turkish (Şener and Takahashi 2010). It has been hotly debated what characterizes the languages that allow argument ellipsis, e.g. why Japanese allows argument ellipsis, while English does not. The previous literature has proposed several possibilities. Oku (1998) claims that the possibility of argument ellipsis is related to the possibility of scrambling; Saito (2007) argues that absence of obligatory ϕ -agreement is the key to licensing argument ellipsis; Cheng (2013) proposes the generalization that argument ellipsis is available only in languages without articles, i.e. NP-languages in Bošković’s (2008) sense; Otaki (2014) claims that argument ellipsis arises from non-fusional case morphology. While I will not fully discuss this issue in the thesis, I will note a new possibility for characterizing argument ellipsis languages in chapter 6.

In (5a), the object contains a *self* anaphor *zibun* ‘self’. With (5a) as its antecedent, (5b) is ambiguous in that the null object can be interpreted as either Taro’s car or Ziro’s car. The former interpretation is generally referred to as the strict reading and the latter interpretation as the sloppy reading (cf. Sag 1976, Williams 1977, Fiengo and May 1994). Importantly, if the null object in (5b) is replaced by an overt pronoun *sore* ‘it’, as in (5b’), the sloppy reading becomes unavailable: (5b’) can only mean that Ziro also washed Taro’s car, not his own car. Under the assumption that empty pronouns are silent counterparts of overt pronouns, the availability of the sloppy reading in (5b) is taken to be problematic for the empty pronoun analysis because the analysis in question would be able to yield only the strict reading, as the overt pronoun *sore* ‘it’ does. By contrast, the sloppy reading in (5b) can be accommodated if the null object in question is derived via ellipsis because ellipsis can productively yield sloppy interpretations, as the following English VP-ellipsis data demonstrates.

(6) John will [_{VP} wash his car]. Bill will [_{VP} Δ] too.

In the second sentence, the VP has undergone ellipsis under ‘identity’ with the antecedent VP in the first sentence. Importantly, the second sentence can receive the sloppy reading: it can mean that Bill will wash his own car. Therefore, the argument ellipsis analysis of Japanese null arguments can attribute the availability of the sloppy reading of the null object in (5b) to whatever is responsible for the sloppy reading in the English VP-ellipsis case in (6).³

As noted above, most of the recent literature on Japanese-type null arguments has argued for the argument ellipsis view on the basis of their interpretive possibilities. Once it is taken for granted

³ I will also discuss the possibility of analyzing Japanese null arguments in terms of VP-ellipsis, where the verb raises out of the VP which is to be elided (cf. Otani and Whitman 1991), arguing against this analysis.

that Japanese-type null arguments can be derived via argument ellipsis, a question arises as to whether they exhibit the syntactic properties that other instances of ellipsis constructions such as English VP-ellipsis do. It has been well-known since Hankamer and Sag's (1976) seminal work that there are certain syntactic properties that are characteristic of ellipsis, but not (silent) proforms. An important difference between ellipsis and (silent) proforms involves the presence/absence of internal structure: only the former involves internal structure. For example, under the empty pronoun analysis, a null argument position is occupied by *pro*, which is an atomic element without any internal structure; under the ellipsis analysis, null arguments involve silent full-fledged nominal structure. While a number of diagnostics have been proposed to differentiate ellipsis from (silent) proforms (Grinder and Postal 1971, Bresnan 1971, Hankamer and Sag 1976, Sag 1976, Sag and Hankamer 1984, Depiante 2000, Johnson 2001, among many others), Merchant (2013b) notes that the possibility of extraction is one of the most reliable diagnostics for differentiating ellipsis and (silent) proforms: if extraction is possible, there must be something to be extracted from in the syntax. Null Complement Anaphora (NCA) is generally contrasted with VP-ellipsis to illustrate the difference between ellipsis and (silent) proforms in light of extraction possibilities. NCA is a case of anaphora where the complement domain of a lexical verb is phonologically empty, as shown in (7) (cf. Shopen 1972, Hankamer and Sag 1976, Grimshaw 1979, Tanenhaus and Carlson 1990, Depiante 2000, Merchant 2013a).

(7) John refused [to see this film], but Bill agreed [_{NCA} Δ].

Here, the complement domain of the verb *agreed* is phonologically missing, but the second sentence can be appropriately interpreted as “Bill agreed to see this film”. The following examples demonstrate that VP-ellipsis and NCA behave differently regarding extraction possibilities out of

their domains.

- (8) a. Which films₁ did he refuse to [VP see ___₁], and which films₂ did he agree to [VP Δ]?
b. *Which films₁ did he refuse [to see ___₁], and which films₂ did he agree [NCA Δ]?
(Merchant 2013b:538)

- (9) a. Some boy [VP admires every teacher], and some girl does [VP Δ] too.
 $\exists \gg \forall; \forall \gg \exists$ (Fox 2000:4)
b. Some doctor volunteered [to visit every patient], and some nurse also volunteered
[NCA Δ]. $\exists \gg \forall; * \forall \gg \exists$ (Depiante 2000:97)

In (8a), *which films* has been extracted out of the VP-ellipsis domain, and the sentence is grammatical; in (8b), *which films* has been extracted out of the NCA domain, and the sentence is unacceptable. In (9), although both the VP-ellipsis case (9a) and the NCA case (9b) are grammatical, inverse scope, which requires QR out of the null element, is available only in the former. This contrast is generally attributed to the ellipsis versus (silent) proform distinction: the VP-ellipsis cases (8a) and (9a) involve ellipsis of the VP-domain, while the NCA cases (8b) and (9b) involve a silent proform, not ellipsis. Specifically, the VP-ellipsis cases are generally analyzed as in (10), and the NCA cases as in (11) (\emptyset in (11) is taken to stand for an atomic silent proform).

- (10) a. Which films₁ did he refuse to [VP see ___₁], and which films₂ did he agree to [~~VP see~~
___₂]?
b. Some boy [VP admires every teacher], and some girl does [~~VP admire every teacher~~]
too.

- (11) a. *Which films₁ did he refuse [to see ___₁], and which films₂ did he agree [_{NCA} Ø]?
b. Some doctor volunteered to visit every patient, and some nurse also volunteered [_{NCA} Ø]

In (10a) and (10b), the VP-ellipsis domain involves full-fledged structure, thus being able to accommodate an appropriate position for the ‘trace’ of *wh*-movement and QR. On the other hand, in (11a) and (11b), the NCA domain involves an atomic silent proform which does not involve any internal structure so that nothing can be extracted out of the domain in question, hence the ungrammaticality of (11a) and the lack of inverse scope in (11b). Therefore, although VP-ellipsis and NCA both make the anaphora domain phonologically silent, they exhibit different behavior regarding extraction possibilities, which can be attributed to the presence/absence of internal structure in the relevant anaphora domain.

The previous work on Japanese-type null arguments has paid a great deal of attention to the ellipsis versus empty pronoun debate in light of their interpretations, paying little attention to it in light of the presence/absence of internal structure. In this respect, one question that I will tackle in this thesis is the following.

- (12) Is there unpronounced internal structure in Japanese-type null arguments?

Using extraction possibilities as a diagnostic for the presence of internal structure in anaphora sites, I will show that Japanese-type null arguments do allow certain types of extraction out of them. This indicates that there is unpronounced internal structure in Japanese-type null arguments, which in turn provides strong evidence that they are derivable via ellipsis. However, I will also show that Japanese-type null arguments exhibit a hitherto unnoticed pattern of extraction possibilities out of anaphora sites. Specifically, they uniformly disallow overt extraction, while they uniformly allow

covert extraction, e.g. QR, out of their domain.

In light of this conclusion, I will address the question of the proper analysis of ellipsis. It has been highly controversial how ellipsis should be implemented theoretically. There are two major analyses: PF-deletion (Sag 1976, Tancredi 1992, Fox 2000, Johnson 2001, Merchant 2001, Goldberg 2005, Aelbrecht 2010, among others) and LF-copying (Williams 1977, Fiengo and May 1994, Chung, Ladusaw, and McCloskey 1995, Lappin 1999, Fortin 2007, 2011, among others). Under the PF-deletion analysis, an ellipsis site involves full-fledged internal structure both in overt syntax and covert syntax/LF, but the structure is deleted at PF so that the relevant site is phonologically null. The PF-deletion analysis thus provides ellipsis sites with syntactic structure throughout the entire syntactic derivation. On the other hand, under the LF-copy analysis, an ellipsis site is empty both in overt syntax and PF, but it has full-fledged internal structure in LF via copying of its antecedent. For example, consider the following VP-ellipsis example.

(13) John will [_{VP} visit UConn], and Bill will [_{VP} Δ] too.

Here, the VP in the second conjunct is elided, taking the VP in the first conjunct as its antecedent.

(14) illustrates how the PF-deletion analysis and the LF-copy analysis treat the elliptic VP in (13).

(14) PF-deletion versus LF-copying

	PF-deletion	LF-copying
Overt Syntax	<pre> graph TD VP --> V[V] VP --> DP[DP] V --> visit[visit] DP --> UConn[UConn] </pre>	<pre> graph TD VP --> e[e] </pre>
PF	<pre> graph TD VP --> V[V] VP --> DP[DP] V --> visit[visit] DP --> UConn[UConn] V -.-> DP style DP stroke-dasharray: 5 5 </pre>	<pre> graph TD VP --> e[e] </pre>
Covert Syntax/LF	<pre> graph TD VP --> V[V] VP --> DP[DP] V --> visit[visit] DP --> UConn[UConn] </pre>	<pre> graph TD VP --> V[V] VP --> DP[DP] V --> visit[visit] DP --> UConn[UConn] </pre>

What is important for us is that under the PF-deletion analysis, the VP involves internal structure in both overt and covert syntax, while under the LF-copy analysis, it has internal structure only in covert syntax. The PF-deletion analysis has been quite influential for VP-ellipsis in the literature. One of the reasons is that both *wh*-movement and QR, i.e. overt movement and covert movement, are possible out of English VP-ellipsis sites, cf. (8a) and (9a). This extraction pattern straightforwardly follows under the PF-deletion analysis since this analysis provides the elided VP with internal structure in both overt and covert syntax, so that both operations that apply in overt syntax and those that apply in covert syntax should be able to apply to the relevant domain. By

contrast, the LF-copy analysis does not provide the elided VP with internal structure in overt syntax, so that overt extraction in (8a) should be banned, contrary to the fact (see also Aelbrecht 2010 and Lee to appear for relevant discussion). Therefore, the availability of overt extraction out of English VP-ellipsis sites is generally taken to argue for the PF-deletion analysis of the construction in question.⁴

Given that Japanese-type null arguments can be derived via argument ellipsis, I will then tackle the following question in this thesis.

- (15) Is there unpronounced internal structure in Japanese-type null arguments throughout the entire syntactic derivation?

Based on the extraction pattern that Japanese-type null arguments exhibit, I will claim that the answer to the question (15) is negative. Specifically, as noted above, it will be shown that Japanese-type null arguments exhibit an overt/covert extraction asymmetry: they allow covert, but not overt

⁴ Fiengo and May (1994) proposed an LF-copy-based analysis of overt *wh*-movement out of English VP-ellipsis sites. Under their analysis, (8a), repeated here as (i), is analyzed as in (ii) (cf. Fiengo and May 1994:229).

- (i) Which films₁ did he refuse to [_{VP} see ___₁], and which films₂ did he agree to [_{VP} Δ]?
- (ii) a. Overt Syntax
Which films₁ did he refuse to [_{VP} see x^α₁], and which films₁ did he agree to [_{VP} e]?
- b. Covert Syntax/LF
Which films₁ did he refuse to [_{VP} see x^α₁], and which films₁ did he agree to [_{VP} see x^α₁]?

Leaving aside technical details, what is crucial for Fiengo and May's (1994) analysis of cases like (i) is the base-generation of 'extracted' elements in a position outside of the ellipsis domain. Given the standard assumption that islandhood is derivational in nature, i.e. that it involves derivational violations (cf. Chomsky 1995, 2000, Epstein and Seely 2002, Stroik 2009, Müller 2010, 2011, among others), the base-generation analysis of VP-ellipsis cases like (i) is hard to maintain because VP-ellipsis exhibits islands effects, as in (iiia) (see Chung, Ladusaw, and McCloskey 1995 for relevant discussion).

- (iii) a. *Abby [_{VP} wants to hire someone who speaks a Balkan language], but I don't remember which (Balkan language) Ben does [_{VP} Δ].
- b. *Abby [_{VP} wants to hire someone who speaks a Balkan language], but I don't remember which (Balkan language) Ben does [_{VP} want to hire someone who speaks].

(iiia) is ungrammatical presumably due to a relative clause island effect, on a par with its non-elided counterpart (iiib). If the *wh*-phrase *which (Balkan language)* can be base-generated outside of the ellipsis domain, it is difficult to explain the ungrammaticality of (iiia). I will discuss this issue in more detail in chapter 5.

extraction out of them. 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/LF, I will then argue that the extraction asymmetry in question provides supporting evidence for the LF-copy analysis, which provides an ellipsis domain with internal structure only in covert syntax/LF so that only covert movement should be possible out of the relevant domain under this analysis. I will, however, also argue that there are certain ellipsis processes that involve PF-deletion (see in fact the above discussion of VP-ellipsis), which will lead me to the conclusion that both LF-copying and PF-deletion are available as strategies for deriving ellipsis. I will then propose a principled phase-based approach which predicts for every ellipsis process whether it involves LF-copying or PF-deletion. The proposed analysis will be confirmed by data from a number of languages. It will also be shown to have consequences for a number of constructions and phenomena, including the timing of null operator movement and the proper analysis of control and *wh*-in-situ in languages like Japanese. The discussion of the timing of null operator movement will in turn be shown to have consequences for implementation of the driving force of movement. Regarding control and *wh*-in-situ, investigating their interactions with null arguments will be shown to provide a novel window into the proper analysis of the phenomena in question (i.e. it provides a novel diagnostic for determining the nature of control and *wh*-in-situ).

1.2 Organization of the Thesis

This thesis is structured as follows: In chapter 2, I will review the previous literature on null arguments in radical *pro*-drop languages, in particular Japanese, including arguments that have been taken to motivate the existence of the ellipsis strategy in radical *pro*-drop languages. Also, I

will provide several new diagnostics that can tease apart the two major ellipsis analyses of Japanese-type null arguments, namely the verb-stranding verb phrase ellipsis analysis and the argument ellipsis analysis, showing that the latter is favored over the former by the diagnostics in question.

In chapter 3, I will first introduce the distinction between ellipsis and (silent) proforms (surface anaphora and deep anaphora in Hankamer and Sag's (1976) sense). Specifically, the two behave rather differently regarding extraction possibilities out of them: extraction is possible out of ellipsis domains, not out of (silent) proform domains. Then, I will examine whether extraction is allowed out of Japanese null arguments, using e.g. long-distance scrambling and raising-to-object as instances of overt movement and e.g. QR as an instance of covert movement. Investigating the extraction patterns out of Japanese null arguments will lead us to the generalization that they disallow overt extraction out of them, while they allow covert extraction, more precisely extraction that does not affect word order, out of them.

In chapter 4, I will examine whether the relevant overt/covert extraction asymmetry out of null arguments is cross-linguistically observed in argument ellipsis languages. The novel data on extraction out of null arguments from Chinese, Korean, Mongolian, and Turkish will provide us with the confirmation that null arguments in languages where argument ellipsis is claimed to be possible exhibit an overt/covert extraction asymmetry.

In chapter 5, I will discuss how the overt/covert extraction asymmetry regarding extraction out of null arguments in the above languages can be theoretically accommodated. Specifically, I will claim that the extraction pattern in question is best analyzed under the LF-copy analysis of ellipsis, which in turn provides evidence that LF-copying is an available option for implementing ellipsis. Nevertheless, I will also argue that both PF-deletion and LF-copying are available options

based on the fact that sluicing and VP-ellipsis productively allow overt extraction out of their domains. Then, I will propose a phase-based account regarding the dichotomy between PF-deletion and LF-copying, building on Bošković's (2014) phase-based analysis of ellipsis, where only phases and phasal complements can undergo ellipsis. Specifically, I will claim that ellipsis of phases, e.g. argument ellipsis, is implemented by LF-copying, whereas ellipsis of phasal complements, e.g. sluicing and VP-ellipsis, is implemented by PF-deletion. Furthermore, the LF-copy-based analysis of argument ellipsis will be shown to provide us with a tool to tease apart the competing analyses of several syntactic phenomena in Japanese syntax, including *wh*-in-situ. Specifically, investigating interactions between null arguments and *wh*-in-situ will be shown to support the view that *wh*-in-situ in Japanese involves overt movement (namely, movement that affects word order; see Hagstrom 1998, among others, for such a view), which will be shown to have consequences for *wh*-in-situ in other languages as well. The analysis proposed in this chapter will also enable us to determine the timing of null operator movement, the proper analysis of control, as well as Case-marked clefts and split QP phenomena in Japanese.

In chapter 6, I will summarize the thesis, also exploring a possible way to capture the cross-linguistic variability regarding the availability of argument ellipsis, building on Bošković's (2012) generalization regarding radical *pro*-drop and Cheng's (2013) generalization regarding argument ellipsis. The discussion in question will also have consequences for the internal structure of various pronominal elements.

Chapter 2

Silent Arguments as Elliptic Arguments

In this chapter, I will review the discussion of Japanese null arguments from the previous literature, also providing novel arguments for the argument ellipsis analysis. This chapter is organized as follows. In section 2.1, I will introduce a general classification of null arguments. In section 2.2, I will discuss empty pronoun approaches to Japanese null arguments, showing that they cannot account for the full paradigm regarding the interpretation of Japanese null arguments. In section 2.3, I will introduce the ellipsis analyses of Japanese null arguments, namely the verb-stranding verb phrase ellipsis analysis and the argument ellipsis analysis, summarizing the existing arguments that favor the latter approach over the former approach. In section 2.4, I provide new arguments for the argument ellipsis analysis, which involve ‘immobile’ elements and complex predicates. Section 2.5 summarizes the chapter.

2.1 Radical Pro-drop

The syntax of null arguments has been a hotly debated issue since the early stages of the study of generative grammar. Null arguments are generally classified into two types: agreement-licensed null arguments and discourse-licensed null arguments (the latter are also referred to as radical *pro*-drop).¹

Agreement-licensed null arguments are observed in e.g. Italian and Spanish, where

¹ See Roberts and Holmberg (2010) and references cited therein for different types within the first group regarding null subjects.

arguments can be phonologically null in the presence of rich agreement inflection on the verb (cf. Taraldsen 1980, Rizzi 1982, 1986, Jaeggli and Safir 1989, Barbosa 1995, Alexiadou and Anagnostopoulou 1998, among many others). Consider the following examples from Italian.

(1) Italian

- a. Δ bevo.
drink.1SG
(Lit.) ‘ Δ drink.’ = ‘I drink.’
- b. Δ bevi.
drink.2SG
(Lit.) ‘ Δ drink.’ = ‘You drink.’
- c. Δ beve.
drink.3SG
(Lit.) ‘ Δ drink.’ = ‘He/She drinks.’
- d. Δ beviamo.
drink.1PL
(Lit.) ‘ Δ drink.’ = ‘We drink.’
- e. Δ bevete.
drink.2PL
(Lit.) ‘ Δ drink.’ = ‘You guys drink.’
- f. Δ bevono.
drink.3PL
(Lit.) ‘ Δ drink.’ = ‘They drink.’

In (1a–f), the subject is phonologically null, but it can be assigned an appropriate interpretation based on the morphology of the verb. For example, the null subject of (1a) is interpreted as ‘I’ because the verb *bevo* encodes the 1st person singular information. In this type of languages, null

arguments are licensed by the rich agreement morphology on the verb. As a result, since Italian has subject-verb agreement but not object-verb agreement, there is no corresponding object *pro*-drop in Italian, as in (2).²

(2) Italian

*Mario ha costretto Δ a partire.

Mario has forced me/you/him/her/us/you guys/them to leave

(Lit.) ‘Mario has forced Δ to leave.’ (Rizzi 1986:517)

Here, the object is phonologically empty, and the sentence is ungrammatical, in contrast to (1).

Discourse-licensed null arguments, also referred to as radical *pro*-drop, are observed in languages like Chinese, Japanese, Korean, Mongolian, Thai, Turkish, Vietnamese, among many others. In this type of languages, arguments such as subjects and direct/indirect objects can be dropped under an appropriate context in the absence of agreement morphology on the verb (see e.g. Huang 1984, Tomioka 2003, Neelman and Szendői 2007, Bošković 2012 for discussion regarding what characterizes radical *pro*-drop languages).³ Consider the following examples from Japanese (the data in the following discussion in this chapter are all from Japanese, unless otherwise noted).

(3) a. Watasi/Anata/Kare/Kanozyo/Watasi-tati/Anata-tati/Karera-wa hon-o yon-da.
 I/you/he/she/I-PL/you-PL/they-TOP book-ACC read-PST
 ‘I/You/He/She/We/You guys/They read a book.’

² Objects can be occasionally dropped in Italian but only when they are interpreted as arbitrary. See Rizzi (1986) for relevant discussion.

³ Note that Turkish exhibits subject agreement but not object agreement. See Öztürk (2004) for the claim that Turkish is a radical *pro*-drop language despite the presence of subject agreement.

- b. Δ_{SUBJ} zassi-mo yon-da.
 magazine-also read-PST
 (Lit.) ‘ Δ also read a magazine.’
 = ‘I/You/He/She/We/You guys/They also read a magazine.’

(3) shows that Japanese does not have overt agreement morphology on the verb (cf. Fukui 1986, 1988, Kuroda 1988), and that subjects can still be dropped regardless of their person specifications. For example, if the subject in (3a) is *watasi* ‘I’, the null subject in (3b) is interpreted as ‘I’. Note that radical *pro*-drop languages allow not only subjects but also other arguments like direct objects and indirect objects to be phonologically null. Consider the following examples.

- (4) a. Taroo-wa Kanako-ni John-o shookaisi-ta.
 Taro-TOP Kanako-DAT John-ACC introduce-PST
 ‘Taro introduced John to Kanako.’
- b. (i) Sosite, Δ_{SUBJ} Ayaka-ni Bill-o shookaisi-ta.
 then Ayaka-DAT Bill-ACC introduce-PST
 (Lit.) ‘Then, Δ_{SUBJ} introduced Bill to Ayaka.’
- (ii) Ziroo-wa Δ_{IO} Bill-o shookaisi-ta.
 Ziroo-TOP Bill-ACC introduce-PST
 (Lit.) ‘Ziro introduced Bill Δ_{IO} .’
- (iii) Ziroo-wa Ayaka-ni Δ_{DO} shookaisi-ta.
 Ziro-TOP Ayaka-DAT introduce-PST
 (Lit.) ‘Ziro introduced Δ_{DO} to Ayaka.’

(4a) contains three arguments, the subject, the indirect object, and the direct object. Each of the sentences in (4b) involves a null argument corresponding to the relevant argument in (4a). Specifically, the null subject in (4b–i) is interpreted as Taro, the null indirect object in (4b–ii) as

Kanako, and the null direct object in (4b–iii) as John. The data in (4) thus indicate that definite/referential arguments can be left phonologically unexpressed in the absence of appropriate agreement in radical *pro*-drop languages like Japanese.⁴

This thesis focuses on radical *pro*-drop languages, aiming to unearth their nature. It has been argued in the literature that the reason why null arguments in radical *pro*-drop languages are extremely productive is because they can be derived via ellipsis. In the following sections, I will review the analyses of null arguments in radical *pro*-drop languages, showing that their interpretive possibilities motivate the ellipsis view. Also, I will provide several diagnostics that can differentiate two major ellipsis analyses of null arguments in radical *pro*-drop languages, namely the Verb-stranding Verb Phrase Ellipsis (VVPE) analysis and the argument ellipsis analysis, arguing for the latter.

2.2 Pronoun-based Approach to Radical Pro-drop

2.2.1 Pronominal Nature of Radical Pro-drop and Related Issues

Already Kuroda (1965) argued that Japanese null arguments are empty pronouns (*pro*). One of the supporting arguments for the pronominal approach comes from condition B of the binding theory, which prohibits pronouns from being bound in their domains (cf. Chomsky 1981, 1986). Consider the following examples.

⁴ Not only nominal arguments but also pre/post-positional arguments and clausal arguments can be phonologically dropped in radical *pro*-drop languages like Japanese (this also holds for Chinese, Korean, Mongolian, and Turkish; see chapter 4 for relevant discussion), as in (i).

- (i) a. Taroo-wa [pp Hanako-kara]_i tegami-o morat-ta. Ziroo-wa [pp Δ]_i kukkii-o morat-ta.
 Taro-TOP Hanako-from letter-ACC receive-PST Ziro-TOP cookie-ACC receive-PST
 (Lit.) ‘Taro received a letter [pp from Hanako]_i. Ziro received cookies [pp Δ]_i.’
- b. Taroo-wa [cp Hanako-ga hasit-ta to]_i omot-te-iru. Ziroo-mo [cp Δ]_i omot-te-iru.
 Taro-TOP Hanako-NOM run-PST C think-PROG-PRES Ziro-also think-PROG-PRES
 (Lit.) ‘Taro thinks [cp that Hanako ran]_i. Ziro also thinks [cp Δ]_i.’

- (5) a. *John_i criticized him_i.
 b. *Everyone_i criticized him_i.
- (6) a. *Taroo_i-ga e_i hihansi-ta.
 Taro-NOM criticize-PST
 (Lit.) ‘Taro_i criticized e_i.’
 b. *Dono gakusei-mo e_i hihansi-ta.
 which student-MO_∇ criticize-PST
 (Lit.) ‘Every student_i criticized e_i.’

English (5a) and (5b) are ungrammatical under the interpretation where the subject and the object pronouns are co-indexed. The ungrammaticality of these sentences is generally attributed to a violation of condition B of the binding theory. A similar observation holds for Japanese (6a) and (6b): the subject and the null object cannot be co-indexed. If the null object in (6a) and (6b) is pronominal, the ungrammaticality of these sentences under the intended co-indexed interpretation follows from condition B of the binding theory, as in (7a) and (7b), respectively, on a par with English (5a) and (5b).

- (7) a. *Taro_i *pro*_i criticized
 b. *Every student_i *pro*_i criticized

The similarity between English (5a–b) and Japanese (6a–b) can thus be taken as an argument for the pronominal view on Japanese null arguments.

As illustrated by (3) and (4), referential arguments can be left unexpressed in Japanese. Hoji (1985) observes that Japanese null arguments can also function as bound variables. Consider the following examples.

- (8) a. Dono gakusei-mo_i [CP *e_i* tensai da to] omot-te-iru.
 which student-mo_∇ genius COP.PRES C think-PROG-PRES
 (Lit.) ‘Every student_{*i*} thinks [CP that *e_i* is a genius].’
- b. Taroo-dake_{*i*}-ga [CP *e_i* tensai da to] omot-te-iru.
 Taro-only-NOM genius COP.PRES C think-PROG-PRES
 (Lit.) ‘Only Taro_{*i*} thinks [CP that *e_i* is a genius].’

Here, the null subject within the embedded clause serves as a bound variable bound by the matrix Quantificational Phrase (QP) subject. Thus, (8a) is interpreted as follows: for every *x*, *x* a student, *x* thinks that *x* is genius. That Japanese null arguments can be referential and that they can behave as bound variables can be captured if they are phonologically empty pronouns since pronouns can accommodate these two functions, as shown below.

- (9) a. John kissed Mary_{*i*}, but Bill hit her_{*i*}.
 b. Everyone_{*i*} thinks that he_{*i*} is a genius.

The pronoun *her* in (9a) can be interpreted as referential in that it can refer to *Mary*. The pronoun *he* in (9b) can function as a bound variable, so (9b) can mean that for every *x*, *x* a person, *x* thinks that *x* is a genius.

However, if we consider other interpretations that Japanese null arguments can yield, the situation becomes complicated. For example, Whitman (1988), Otani and Whitman (1991), among many others, show that Japanese null arguments can yield the sloppy reading. Consider the following examples.

- (10) a. Taroo-wa zibun-no kuruma-o kaizoosi-ta.
 Taro-TOP self-GEN car-ACC modify-PST
 (Lit.) ‘Taro modified self’s car.’
- b. Ziroo-mo Δ kaizoosi-ta.
 Ziro-also modify-PST
 (Lit.) ‘Ziro also modified Δ .’ strict; sloppy
- b’. Ziroo-mo sore-o kaizoosi-ta.
 Ziro-also it-ACC modify-PST
 ‘Ziro also modified it.’ strict;*sloppy

With (10a) as its antecedent, (10b) is ambiguous in that the null object can be interpreted as either Taro’s car or Ziro’s car. The former interpretation is referred to as the strict interpretation and the latter interpretation as the sloppy interpretation (cf. Sag 1976, Williams 1977, among others). Although the strict interpretation can be straightforwardly captured under the empty pronoun analysis with the simple co-indexation of *zibun-no kuruma* ‘self’s car’ in (10a) and the null object in (10b) because they refer to the same entity, the sloppy interpretation cannot be captured under this analysis because they refer to a different entity: the object in (10a) is interpreted as Taro’s car and the null object in (10b) as Ziro’s car. Also note that the sloppy reading in (10b) becomes impossible if the null object is replaced by an overt pronoun *sore* ‘it’, as in (10b’). Specifically, (10b’) can only mean that Ziro also modified Taro’s car, not his own car. Given that empty pronouns are silent counterparts of overt pronouns, the availability of the sloppy reading of the null object in (10b) suggests that Japanese must employ a strategy other than empty pronouns (at least as an additional option) to derive the null object in question.⁵

⁵ Overt pronouns that generally behave as referential/definite pronouns are sometimes capable of accommodating the sloppy reading. One such case involves paycheck pronouns. Consider (i).

(i) The man_i who gave his_i paycheck to his wife is wiser than the man_j who gave it to his mistress.

2.2.2 Radical Pro-drop as Null Indefinite Pronoun

So far, we have seen that the availability of the sloppy reading of Japanese null arguments poses an issue for the pronoun-based analysis. However, it is well-known that pronouns are not always referential/definite; there are also indefinite pronouns, e.g. *one* in English, which can accommodate the sloppy reading (cf. Bach, Bresnan, and Wasow 1972). In the following subsections, I will discuss the possibility that Japanese null arguments can be a null counterpart of indefinite pronouns, which could capture their sloppy reading without taking recourse to a strategy other than pronouns. It will be shown that postulating a silent variant of indefinite pronouns still cannot cover the whole paradigm concerning interpretive possibilities of Japanese null arguments and would also face

(Karttunen 1969:114)

Here, the pronoun *it* can be interpreted sloppily: it can mean his_j own paycheck. This kind of pronouns are referred to as pronouns of laziness. Then, one might wonder whether adopting a null counterpart of English pronouns of laziness in Japanese could capture the sloppy reading of null arguments. However, it is well-known that pronouns of laziness are typically found in the ‘paycheck’ environment. For example, pronouns of laziness cannot easily appear in a sentence uttered by a different speaker or in a backward anaphora context, as in (i) and (ii), respectively (Tomioka (2003) notes that pronouns of laziness in German and Dutch are also highly restricted with respect to their distribution).

- (i) A: I heard that Gary totaled his car.
 B: #Did you know his brother also totaled it only a week ago? (Tomioka 2003:327)
- (ii) The man_j who gave it to his wife is wiser than the man_i who gave his_i paycheck to his mistress.
 (Takahashi 1996b:266)

In none of the above sentences is the sloppy reading available. For example, (ii) cannot have the interpretation where the pronoun *it* refers to the first man’s paycheck. By contrast, Japanese null arguments allow the reading in question much more easily. The following sentences illustrate this point.

- (iii) A: Dan-wa zibun-no kuruma-o sugoku taisetuni si-te-iru n-da-tte.
 Dan-TOP self-GEN car-ACC very.much importantly do-PROG-PRES C-COP.PRES-SFP
 ‘I heard that Dan treasures his car.’
- B: Aasoo. Oniisan-ga △ somatuni si-te-iru no-to-wa erai tigail da.
 really brother-NOM roughly do-PROG-PRES NML-C-TOP very different COP.PRES
 (Lit.) ‘Really? How different from his brother, who abuses △.’ (Tomioka 2003:328)
- (iv) Mary-ga △ seme-ta atode, John-mo zibun-no sensei-o seme-ta.
 Mary-NOM blame-PST after John-also self-GEN teacher-ACC blame-PST
 (Lit.) ‘After Mary blamed △, Ziro also blamed self’s teacher.’ (Takahashi 1996b:266)

In both (iii) and (iv), the null argument can yield the sloppy reading. For example, (iv) can mean that after Mary blamed her own teacher, Ziro also blamed his own teacher. Therefore, while English referential pronouns can occasionally yield the sloppy reading, the availability of such a reading with the relevant pronouns is much more restricted than with Japanese null arguments. Importantly, it is not available for pronouns of laziness in English in the examples in the text (see Takahashi 1996b and Tomioka 1998, 2003 for relevant discussion). In light of this, I conclude that the availability of the sloppy reading of Japanese null arguments cannot be attributed to the availability of a null counterpart of English paycheck pronouns in Japanese.

overgeneration issues, which means that a non-pronoun-based strategy is still required.

2.2.2.1 Null Bare Noun

Ishii (1991) observes that Japanese null arguments can be indefinite, based on the following kind of examples.

- (11) a. Taroo-wa hon-o san-satu kat-ta.
Taro-TOP book-ACC three-CL buy-PST
(Lit.) ‘Taro bought three book.’
- b. Hanako-wa △ go-satu kat-ta.
Hanako-TOP five-CL buy-PST
(Lit.) ‘Hanako bought five △.’
- b’. Hanako-wa hon-o go-satu kat-ta.
Hanako-TOP book-ACC five-CL buy-PST
(Lit.) ‘Hanako bought five book.’

With (11a) as its antecedent, (11b) can be naturally interpreted as Hanako bought five books, i.e. (11b) can receive the same interpretation as (11b’). This suggests that the null argument in (11b) is indefinite: it means *hon* ‘book’ without any further specification.

Ishii’s observation (11) led Hoji (1998) to conclude that bare nouns like *hon* ‘book’ can be left unexpressed in Japanese: Japanese employs null indefinite arguments, namely silent proforms that stand for bare nouns. Specifically, (11b) is analyzed as in (12b) under Hoji’s analysis.

- (12) a. Taroo-wa hon-o san-satu kat-ta.
Taro-TOP book-ACC three-CL buy-PST
(Lit.) ‘Taro bought three book.’

- b. Hanako-wa *pro*_{BOOK} go-satu kat-ta.
 Hanako-TOP five-CL buy-PST
 (Lit.) ‘Hanako bought five *pro*_{BOOK}.’

In (12b), the object position is occupied by a null indefinite pronoun, which stands for the bare noun *hon* ‘book’. This provides us with the appropriate interpretation in (11b).

Then, Hoji (1998) argues that the sloppy reading of Japanese null arguments, cf. (10b), repeated here as (13b), does not involve a true sloppy reading, and that it is just a sloppy-like reading that null indefinite pronouns allow. Consider the following examples.

- (13) a. Taroo-wa zibun-no kuruma-o kaizoosi-ta.
 Taro-TOP self-GEN car-ACC modify-PST
 (Lit.) ‘Taro modified self’s car.’
- b. Ziroo-mo Δ kaizoosi-ta.
 Ziroo-also modify-PST
 (Lit.) ‘Ziroo also modified Δ .’ strict; sloppy
- b’. Ziroo-mo kuruma-o kaizoosi-ta.
 Ziroo-also car-ACC modify-PST
 ‘Ziroo also modified a car.’

As noted in (10), the null object in (13b) is ambiguous in that it can be interpreted as either Taro’s car (strict) or Ziroo’s car (sloppy). Interestingly, (13b’), where the object position is occupied by a bare noun *kuruma* ‘car’, can yield the reading which is compatible with the situation where Ziroo modified his own car: the statement ‘Ziroo modified a car’ is compatible with ‘Ziroo modified his car’ (Hoji dubs the sloppy reading that is obtained through the use of bare nouns in (13b’) sloppy-like reading). Then, Hoji analyzes (13b) as involving a null indefinite pronoun standing for a bare

noun *kuruma* ‘car’, as in (14b).

- (14) a. Taroo-wa zibun-no kuruma-o kaizoosi-ta.
 Taro-TOP self-GEN car-ACC modify-PST
 (Lit.) ‘Taro modified self’s car.’
- b. Ziroo-mo *pro*_{CAR} kaizoosi-ta.
 Ziro-also modify-PST
 (Lit.) ‘Ziro also modified *pro*_{CAR}.’

In (14b), a null indefinite pronoun occupies the object position, providing us with the relevant sloppy-like reading. Hoji claims pragmatics plays a crucial role in licensing sloppy-like readings like the one in (13b). Therefore, if Hoji’ (1998) null indefinite pronoun, which is a silent counterpart of bare nouns, is available in Japanese, the sloppy reading of Japanese null arguments would not pose an issue for the pronominal approach.

However, Hoji’s (1998) null indefinite pronoun analysis cannot fully capture the available interpretations of Japanese null arguments. There are at least two interpretations that cannot be captured by the null indefinite pronoun analysis under consideration: the sloppy reading in negative contexts (Saito 2007) and the quantificational reading (cf. Shinohara 2004, Saito 2007, Takahashi 2008a, b).⁶

⁶ In addition to these two readings, Tomioka (1998) claims that Hoji’s (1998) null indefinite pronoun approach to Japanese null arguments faces a difficulty if the antecedent of the relevant null pronoun is complex, as in (i).

- (i) a. Ken-wa [[zibun-ga sotugyoosi-ta] daigaku]-ga kirai da.
 Ken-TOP self-NOM graduate-PST college-NOM hateful COP.PRES
 Erika-mo Δ kirai da.
 Erika-also hateful COP.PRES
 (Lit.) ‘Ken hates [college [that self graduated from]]. Erika also hates Δ .’ (Tomioka 1998:523)
- b. #Ken-wa [[zibun-ga sotugyoosi-ta] daigaku]-ga kirai da.
 Ken-TOP self-NOM graduate-PST college-NOM hateful COP.PRES
 Erika-mo daigaku-ga kirai da.
 Erika-also college-NOM hateful COP.PRES
 (Lit.) ‘Ken hates [college [that self graduated from]]. Erika also hates college.’

First, Saito (2007) claims that we can differentiate the true sloppy reading and the sloppy-like reading by using negation. Consider the following examples.

- (15) a. Taroo-wa zibun-no kuruma-o kaizoosi-ta.
 Taro-TOP self-GEN car-ACC modify-PST
 (Lit.) ‘Taro modified self’s car.’
- b. Ziroo-wa △ kaizoosi-nakat-ta.
 Ziro-TOP modify-NEG-PST
 (Lit.) ‘Ziro did not modify △.’ strict; sloppy
- b’. Ziroo-wa kuruma-o kaizoosi-nakat-ta.
 Ziro-TOP car-ACC modify-NEG-PST
 (Lit.) ‘Ziro did not modify car.’

In (15b) and (15b’), the negation is attached to the verbal complex. With (15a) as its antecedent, (15b) is ambiguous in that it can mean either that Ziro did not modify Taro’s car (strict) or that Ziro did not modify his own car (sloppy). On the other hand, (15b’), where the object position is occupied by the bare noun *kuruma* ‘car’, can only mean that Ziro did not modify any cars. Therefore, Hoji’s null indefinite pronoun analysis, which would provide the null object position in (15b) with the null bare noun *pro*_{CAR}, cannot capture the sloppy reading available for (15b).

Second, Hoji’s (1998) null indefinite pronoun analysis cannot capture the quantificational reading of Japanese null arguments. Specifically, Shinohara (2004), Saito (2007), Takahashi

The null object in (ia) can easily yield the sloppy reading: the second sentence of (ib) can mean that Erika also hates the college that she graduated from. On the other hand, (ib), where the object position of the second sentence is occupied by the bare noun *daigaku* ‘college’, is almost non-sensical presumably due to the presence of the particle *mo* ‘also’ on the subject *Erika*. Specifically, without the particle in question, the interpretation that can be most naturally obtained from the second sentence of (ib) is that Erika hates colleges in general. This interpretation is incompatible with the particle *mo* ‘also’, as we can see that the sequence of the English sentence *Ken hates the college that he graduated from and Erika also hates a college* is ill-formed (cf. Tomioka 1998:523). Therefore, Hoji’s null indefinite pronoun seems unlikely to be responsible for the sloppy reading of the null object in (ia).

(2008a, b), among others, observe that QP arguments can be phonologically dropped in Japanese, regardless of whether a quantifier involved in the relevant QP argument is strong or weak, as the following examples demonstrate.

- (16) a. Taroo-wa taitei/san-dai-no kuruma-o kaizoosi-ta.
 Taro-TOP most/three-CL-GEN car-ACC modify-PST
 ‘Taro modified most/three cars.’
- b. Ziroo-mo Δ kaizoosi-ta.
 Ziroo-also modify-PST
 (Lit.) ‘Ziro also modified Δ .’ E-type; quantificational
- b’. Ziroo-mo sorera-o kaizoosi-ta.
 Ziroo-also they-ACC modify-PST
 ‘Ziro also modified them.’ E-type;*quantificational

Let us use the numeral classifier *sandai* ‘three’ in (16a) for illustration. With (16a) as its antecedent, (16b) can be interpreted in two ways. First, the null object can be paraphrased as *the cars*. In other words, it can be interpreted as an E-type pronoun (cf. Evans 1980), semantically a definite description ‘disguised’ as a pronoun. Under this interpretation, it follows that the set of cars that Ziro modified is identical to the set of cars that Taro modified. Second, the null object can retain the quantificational meaning of the antecedent object: the set of cars that Ziro modified can be different from the set of cars that Taro modified. Although the E-type reading is generally obtained with overt pronouns, the quantificational reading poses an issue for the pronoun-based analysis of Japanese null arguments because it is generally believed that quantificational pronouns, i.e. anaphoric expressions that themselves are quantificational, do not exist (cf. Saito 2007, Tomioka 2014). This can be confirmed by the fact that if we replace the null object in (16b) by an overt pronoun *sorera* ‘they’ as in (16b’), the quantificational reading becomes unavailable: in (16b’), the

pronominal object can only be assigned the E-type interpretation. The following data show that Hoji's (1998) null indefinite pronoun approach does not account for the quantificational reading of the null object in (16b).

- (17) a. Taroo-wa taitei/san-dai-no kuruma-o kaizoosi-ta.
 Taro-TOP most/three-CL-GEN car-ACC modify-PST
 (Lit.) 'Taro modified most/three car.'
- b. Ziroo-mo kuruma-o kaizoosi-ta.
 Ziroo-also car-ACC modify-PST
 (Lit.) 'Ziro also modified car.'

In (17b), the object position is occupied by a bare noun *kuruma* 'car'. Importantly, with (17a) as its antecedent, (17b) cannot yield the quantificational interpretation: it can only mean that Ziro also washed a car, not that Ziro also washed three cars. The difference between the indefinite reading and the quantificational reading becomes clearer if we attach the negation to the verb in (17b), as shown in (18) (cf. Otaki 2014:21).

- (18) a. Taroo-wa taitei/san-dai-no kuruma-o kaizoosi-ta.
 Taro-TOP most/three-CL-GEN car-ACC modify-PST
 'Taro modified most/three cars.'
- b. Ziroo-wa Δ kaizoosi-nakat-ta.
 Ziroo-TOP modify-NEG-PST
 (Lit.) 'Ziro did not modify Δ .' E-type; quantificational
- b'. Ziroo-wa kuruma-o kaizoosi-nakat-ta.
 Ziroo-TOP car-ACC modify-NEG-PST
 (Lit.) 'Ziro did not modify car.' *quantificational

With (18a) as its antecedent, (18b) is three-way ambiguous: it can mean that Ziro did not modify the cars that Taro modified (E-type), Ziro did not modify three cars that may be different from the cars that Taro modified (quantificational), and Ziro did not modify any cars (indefinite). By contrast, (18b'), which involves a bare nominal object *kuruma* 'car', can only yield the indefinite reading. Therefore, it seems difficult for Hoji's null indefinite pronoun analysis to account for the quantificational reading of Japanese null arguments.

To sum up, although Hoji's (1998) null indefinite pronoun approach would be able to accommodate certain cases of sloppy readings of Japanese null arguments, it cannot cover the full range of interpretations that they exhibit, namely the sloppy reading in negative contexts and the quantificational reading. Thus, the availability of these readings of Japanese null arguments calls for another strategy for deriving Japanese null arguments.

2.2.2.2 Null Counterpart of English *One*

Before moving onto the analysis of the two readings that Hoji's (1998) null indefinite pronoun cannot accommodate, let us consider another potential approach to Japanese null arguments based on the English indefinite pronoun *one*. Bach, Bresnan, and Wasow (1972) observe that *one* allows sloppy interpretations, as in (19).

(19) Harry found a place to park his car before Harriet could find one.

(Bach, Bresnan, and Wasow 1972:612)

Importantly, the pronoun *one* within the adjunct clause can be interpreted as a place to park her (= Harriet's) car. The availability of the sloppy reading with *one* is rather productive (compared with referential pronouns such as *it*; see footnote 5 for relevant discussion), so one might wonder

whether the interpretations that Hoji's (1998) null indefinite pronoun cannot cover could be captured if Japanese employs a silent counterpart of English *one* (see Tomioka 2014 for relevant discussion). It is worth noting here that English *one* does not suffer from the issue with the sloppy reading in negative contexts, unlike Hoji's null indefinite pronoun. Consider the following data.

(20) John washed a car of his. Mary did not wash one.

With the first sentence as its antecedent, the second sentence of (20) is three-way ambiguous: the indefinite pronoun *one* can be interpreted as John's car (strict), a car of hers (sloppy), and a car (indefinite). Hence, if a null counterpart of English *one* were available in Japanese, the sloppy reading in the negative context in (15b), repeated here as (21b), which was shown to pose an issue for Hoji's null indefinite pronoun analysis, could be analyzed as in (21b').

- (21) a. Taroo-wa zibun-no kuruma-o kaizoosi-ta.
 Taro-TOP self-GEN car-ACC modify-PST
 (Lit.) 'Taro modified self's car.'
- b. Ziroo-wa Δ kaizoosi-nakat-ta.
 Ziro-TOP modify-NEG-PST
 (Lit.) 'Ziro did not modify Δ .' strict; sloppy
- b'. Ziroo-wa pro_{ONE} kaizoosi-nakat-ta.
 Ziro-TOP modify-NEG-PST
 (Lit.) 'Ziro did not modify pro_{ONE} .'

In (21b'), the null counterpart of the English indefinite pronoun *one*, pro_{ONE} , occupies the object position. Under the analysis in question, the second sentence of (20) and (21b) would be handled in the same way, so that (21b') should be able to accommodate the relevant sloppy interpretation.

Therefore, if a silent counterpart of English *one* were operative in Japanese grammar, the sloppy reading of Japanese null arguments in negative contexts would no longer be an argument against the pronoun-based analysis.⁷

However, there is an empirical argument against the existence of a null version of English *one* in Japanese grammar. Let us consider a particular instance of indefinite interpretations based on disjunction. Simons (1996, 1998) observes that English referential pronouns which are anaphoric on disjunctive arguments can only yield what she calls the disjunctive E-type reading. Consider the following example.⁸

(22) John scolded Mary or Nancy. Bill scolded her too.

The first sentence involves a disjunctive object. In the second sentence, the object pronoun *her* takes the disjunctive object from the first sentence as its antecedent. What is of interest to us here is that the pronoun in the second sentence is interpreted as the one who John scolded (disjunctive E-type) but not as a disjunctive argument as a whole, namely either Mary or Nancy (disjunctive). In contrast to English referential pronouns, Japanese null arguments can yield the disjunctive

⁷ However, it is not clear how the null counterpart of English *one* could capture the quantificational reading of Japanese null arguments. Thus, although the relevant null proform might be able to capture the sloppy reading in negative contexts, it still may not capture the full range of interpretations that Japanese null arguments exhibit. See also chapter 3, footnote 25, for the observation that English *one* exhibits a different extraction pattern from Japanese null arguments, which indicates that a strategy other than a silent counterpart of English *one* is required to derive null arguments in Japanese.

⁸ Simons (1996, 1998) in fact argues that pronouns cannot take disjunctive arguments that contain a proper name as their antecedents. In (i), I give her judgments.

- (i) a. Either a soprano or an alto will sing. She will stand on that platform.
- b. #Either Jane or Maud will sing. She will stand on that platform.

(Simons 1996:250)

However, my informants (four linguists) all accept the disjunctive E-type reading but reject the disjunctive reading in (22). I will leave this matter for future research, but the issue does not affect the discussion here.

reading, as the following data demonstrate.⁹

- (23) a. Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-iru.
Taro-TOP Kanako-or Ayaka-ACC respect-PROG-PRES
'Taro respects Kanako or Ayaka.'
- b. Ziroo-mo Δ sonkeisi-te-iru.
Ziroo-also respect-PROG-PRES
(Lit.) 'Ziro also respects Δ .'

The null object in (23b) can be interpreted as a disjunctive argument as a whole, namely either Kanako or Ayaka. This reading cannot be obtained by a simple co-indexation of the antecedent disjunctive object in (23a) and the null object in (23b) since they can refer to a different entity.

Interestingly, the disjunctive reading can be obtained by using a 'variant' of the indefinite pronoun *one*, namely the indefinite expression *one of them*, in English. Consider (24).

- (24) John scolded Mary or Nancy. Bill scolded one of them too.

Here, the second sentence can be paraphrased as Bill scolded either Mary or Nancy. Then, the proponents of a silent counterpart of English *one*, *pro*_{ONE}, could analyze the disjunctive reading of the null object in (23b) by positing *pro*_{ONE} in the object position, as in (25b).

- (25) a. Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-iru.
Taro-TOP Kanako-or Ayaka-ACC respect-PROG-PRES
'Taro respects Kanako or Ayaka.'

⁹ See Sakamoto (2015b) for discussion of cross-linguistic interaction of disjunction and null arguments.

- b. Ziroo-mo *pro*_{ONE} sonkeisi-te-iru.
 Ziro-also respect-PROG-PRES
 (Lit.) ‘Ziro also respects *pro*_{ONE}.’

Under the analysis in question, the second sentence of (24) and (25b) is treated in the same manner, so that (25b) should allow the relevant disjunctive interpretation. Then, if a null counterpart of English *one*, i.e. *pro*_{ONE}, is available in Japanese, not only the sloppy reading in negative contexts but also the disjunctive reading of Japanese null arguments could be captured by the pronominal-based analysis. However, such a null indefinite pronoun causes an issue with respect to interactions between disjunction and null arguments in negative contexts. Funakoshi (2013) observes that if negation is attached to the verb in the target clause (23b), disjunction obligatorily takes scope under negation, as illustrated in (26).

- (26) a. Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-iru.
 Taro-TOP Kanako-or Ayaka-ACC respect-PROG-PRES
 ‘Taro respects Kanako or Ayaka.’
- b. Ziroo-wa Δ sonkeisi-te-ina-i.
 Ziro-TOP respect-PROG-NEG-PRES
 (Lit.) ‘Ziro does not respect Δ .’ *OR \gg NEG; NEG \gg OR

With (26a) as its antecedent, (26b) can only mean that Ziro respects neither Kanako nor Ayaka: (26b) cannot be uttered under the context where Ziro respects either Kanako or Ayaka. This restriction on the interpretation of disjunction within null arguments is not ‘replicated’ with the English indefinite expression *one (of them)*. Consider (27).

- (27) John scolded Mary or Nancy. Bill did not scold one of them. $\exists \gg$ NEG; NEG \gg \exists

Here, the second sentence is ambiguous in that the indefinite object can take scope under negation and vice versa: this sentence is felicitous when Bill scolded either Mary or Nancy. Therefore, if a silent counterpart of English *one* exists in Japanese, (26b) should be analyzable as in (28b), which would incorrectly predict the wide scope reading of the indefinite object to be available in (26b).

- (28) a. Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-iru.
 Taro-TOP Kanako-or Ayaka-ACC respect-PROG-PRES
 ‘Taro respects Kanako or Ayaka.’
- b. Ziroo-wa *pro*_{ONE} sonkeisi-te-ina-i.
 Ziro-TOP respect-PROG-NEG-PRES
 (Lit.) ‘Ziro does not respect *pro*_{ONE}.’

The above observations lead to the conclusion that if a null counterpart of English *one*, i.e. *pro*_{ONE}, is available in Japanese, unavailable interpretations of Japanese null arguments, e.g. the higher scope of the disjunctive null object with respect to negation in (26b), would be incorrectly ruled in, which would cause an overgeneration issue.¹⁰ Thus, I claim that Japanese does not employ the

¹⁰ The overgeneration issue discussed here would also hold for Hoji’s (1998) null bare noun analysis of Japanese null arguments. A bare noun *dotiraka* ‘one of the two’ can yield the disjunctive reading, as in (i).

- (i) a. Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-iru.
 Taro-TOP Kanako-or Ayaka-ACC respect-PROG-PRES
 ‘Taro respects Kanako or Ayaka.’
- b. Ziroo-mo dotiraka-o sonkeisi-te-iru.
 Ziro-also one.of.the.two-ACC respect-PROG-PRES
 ‘Ziro also respects one of the two.’

With (ia) as its antecedent, (ib) can be interpreted as Ziro also respects either Kanako or Ayaka. Thus, Hoji’s null indefinite pronoun approach would analyze (23b) as (ii), which would provide us with the relevant disjunctive interpretation.

- (ii) Ziroo-mo *pro*_{DOTIRAKA} sonkeisi-te-iru.
 Ziro-also respect-PROG-PRES
 (Lit.) ‘Ziro also respects *pro*_{DOTIRAKA}.’

However, once we assume that there is a null counterpart of *dotiraka* ‘one of the two’ in Japanese, as Hoji’s analysis would expect, the obligatory low scope of the null object with respect to negation in (26b) would not be captured because *dotiraka* ‘one of the two’ obligatorily takes higher scope than negation, as in (iii).

- (iii) a. Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-iru.

null indefinite pronoun in question, which means that the sloppy reading in negative contexts is still an issue for the pronoun-based approach of Japanese null arguments.

2.2.3 Interim Summary

In section 2.2, it has been shown that the availability of the sloppy reading in negative contexts and the quantificational reading of Japanese null arguments are difficult to capture under the pronoun-based analysis of Japanese null arguments. Specifically, Japanese overt pronouns generally cannot yield the relevant readings, which means that under the standard assumption that empty pronouns are different from overt pronouns only in the presence/absence of a phonological

Taro-TOP Kanako-or Ayaka-ACC respect-PROG-PRES
 ‘Taro respects Kanako or Ayaka.’

- b. Ziroo-wa dotiraka-o sonkeisi-tei-na-i.
 Ziro-TOP one.of.the.two-ACC respect-PROG-NEG-PRES
 ‘Ziro does not respect one of the two.’

(iii) can be uttered when Ziro respects either Kanako or Ayaka. Therefore, if Japanese adopts a null counterpart of *dotiraka* ‘one of the two’, it is expected that (26b) would allow the null disjunctive object to take scope over negation, contrary to the fact.

In Sakamoto (2015b, 2016b), I discussed another overgeneration issue that the indefinite-pronoun-based analyses of Japanese null arguments face. Consider the following example.

- (iv) Taro-wa Kanako-ka Ayaka-ni [_{CP} sensei-ga △ ai-tagat-te-iru to] it-ta.
 Taro-TOP Kanako-or Ayaka-DAT teacher-NOM meet-want.to-PROG-PRES C say-PST
 (Lit.) ‘Taro told Kanako or Ayaka [_{CP} that the teacher wanted to see △].’

Here, the null object within the embedded clause is c-commanded by its antecedent within the matrix clause, *Kanako-ka Ayaka* ‘Kanako or Ayaka’, and it can only be assigned the disjunctive E-type reading: (iv) can only mean that Taro told Kanako or Ayaka that the teacher wanted to see whoever Taro told, not that Taro told Kanako or Ayaka that the teacher wanted to see Kanako or Ayaka. However, if the embedded object position in (iv) is replaced by the indefinite expressions under consideration, the disjunctive reading becomes available. Consider the following data.

- (v) Taro-wa Kanako-ka Ayaka-ni [_{CP} sensei-ga dotiraka-ni ai-tagat-te-iru to]
 Taro-TOP Kanako-or Ayaka-DAT teacher-NOM one.of.the.two-DAT meet-want.to-PROG-PRES C
 it-ta.
 say-PST
 (Lit.) ‘Taro told Kanako or Ayaka [_{CP} that the teacher wanted to see one of the two].’

- (vi) Taro told Kanako or Ayaka [_{CP} that the teacher wanted to see one of them].

In (v), the embedded object position is occupied by the bare noun *dotiraka* ‘one of the two’, and the disjunctive reading is available. In English (vi), the relevant position is occupied by *one*, and the reading in question is obtainable. This indicates that both the bare noun *dotiraka* ‘one of the two’ and English *one* can yield the disjunctive reading even if they are c-commanded by their disjunctive antecedents, unlike Japanese null arguments. In other words, if a silent counterpart of the expressions in question were available in Japanese, (iv) should be able to yield the relevant disjunctive reading, contrary to the fact.

matrix, the non-referential readings in question need to be captured by a non-pronominal-based strategy. It was also shown that adopting a silent counterpart of indefinite pronouns, namely Japanese bare nouns and English *one*, cannot capture the whole paradigm of interpretations that Japanese null arguments exhibit, and also leads to several overgeneration problems. Then, I take the availability of the readings in question to indicate that Japanese must have a strategy other than empty pronouns. It has been a standard assumption in the literature that the relevant readings are derived via ellipsis. In the following sections, I will discuss two major ellipsis approaches to Japanese-type null arguments, namely VVPE and argument ellipsis, providing several arguments that favor the latter over the former.¹¹

2.3 Ellipsis-based Approach to Radical Pro-drop

2.3.1 Verb-stranding Verb Phrase Ellipsis and Argument Ellipsis

Building on Huang (1987, 1991a), Otani and Whitman (1991) argue that VVPE is responsible for the sloppy reading of Japanese null arguments (see Abe 2014, Hayashi 2015, Hayashi and Fujii 2015, and Funakoshi 2016 for more arguments for VVPE). It has been well-known since early studies of anaphora/ellipsis (cf. Sag 1976, Williams 1977) that English VP-ellipsis can accommodate sloppy interpretations. Consider the following example.

(29) John will [_{VP} wash his car]. Bill will [_{VP} Δ] too. strict; sloppy

Here, the second sentence contains an elliptic VP with the strict/sloppy ambiguity. Specifically, the sentence can mean either that Bill will wash John's car (strict) or that Bill will wash his own

¹¹ Additional arguments against the empty pronoun analysis will be given in section 2.4.

car (sloppy). Otani and Whitman (1991) take the availability of the sloppy reading in English VP-ellipsis to indicate that a similar mechanism should be responsible for the relevant reading of Japanese null arguments: they claim that Japanese adopts VVPE, where V overtly moves out of the VP-domain, which is followed by VP-ellipsis.¹² Schematically, the VVPE analysis accounts for the sloppy reading of the null object in (10b), repeated here as (30b), as in (31).

(30) a. Taroo-wa zibun-no kuruma-o kaizoosi-ta.

Taro-TOP self-GEN car-ACC modify-PST

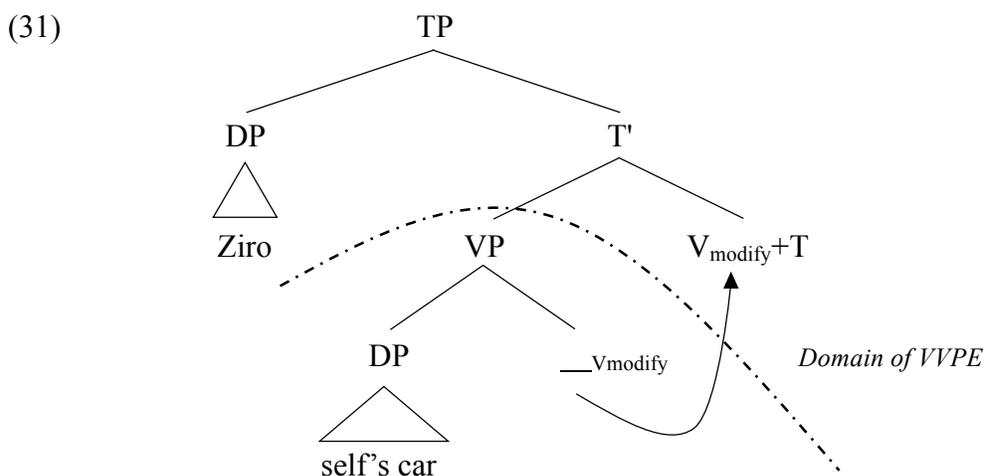
(Lit.) ‘Taro modified self’s car.’

b. Ziroo-mo △ kaizoosi-ta.

Ziro-also modify-PST

(Lit.) ‘Ziro also modified △.’

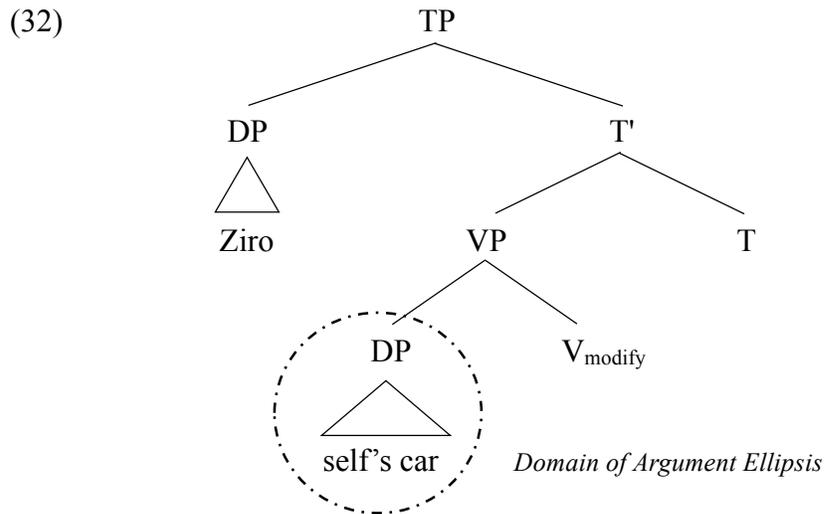
strict; sloppy



In (31), the verb *kaizoos-* ‘modify’ moves out of the VP-domain, and the VP containing the gap of the verb in question undergoes ellipsis. Since the ellipsis site involves a *self* anaphor *zibun* ‘self’, the availability of the sloppy reading in (30b) straightforwardly follows.

¹² VVPE is attested in a number of languages including Hebrew (Doron 1990, 1999), Irish (McCloskey 1991), Ndendeule (Ngonyani 1996), and Swahili (Ngonyani 1996). See Goldberg (2005) for an extensive discussion of VVPE.

On the other hand, Oku (1998) argues that sloppy interpretations of Japanese null arguments should be derived via argument ellipsis, where arguments can directly undergo ellipsis (see also Kim 1999, Saito 2004a, b, 2007, Takahashi 2006, 2008a, b, Takita 2010, 2011a, b, to appear, Otaki 2014, Sakamoto 2015a, b, 2016a, b, Sugisaki to appear, among others, for more arguments for argument ellipsis). For example, the null object in (30b) is then analyzed as in (32).



Here, the direct object containing a *self* anaphor is elided, which provides us with the intended sloppy interpretation.¹³

Both the VVPE analysis and the argument ellipsis analysis can capture the sloppy reading in negative contexts as well as the quantificational reading of Japanese null arguments that were shown to be problematic for indefinite-pronoun-based analyses. Specifically, the sloppy reading

¹³ Argument ellipsis is also attested in a number of other languages including American Sign Language (Koulidobrova 2012, to appear), Bangla (Simpson, Choudhury, Menon 2013), Basque (Duguine 2008, 2012, Otaki 2014), Burmese (Lee 2016), Chinese (Cheng 2013), Colloquial Singapore English (Sato 2015), Hindi (Simpson, Choudhury, and Menon 2013, Otaki 2014), Javanese (Sato 2014), Korean (Kim 1999, Takahashi 2007), Malayalam (Takahashi 2013a), Mongolian (Takahashi 2007, Sakamoto 2012), Persian (Sato and Karimi 2016), and Turkish (Şener and Takahashi 2010). See also Bošković (2017, to appear) for an analysis of a clitic construction in Serbo-Croatian as involving argument ellipsis.

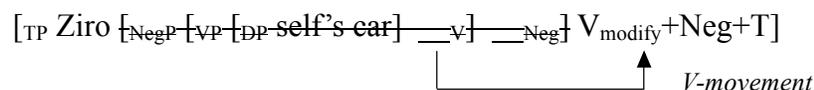
of null arguments in the negative context in (21b), repeated here as (33b), is analyzed under the VVPE analysis and the argument ellipsis analysis as in (34a) and (34b) respectively.

(33) a. Taroo-wa zibun-no kuruma-o kaizoosi-ta.
 Taro-TOP self-GEN car-ACC modify-PST
 (Lit.) ‘Taro modified self’s car.’

b. Ziroo-wa △ kaizoosi-nakat-ta.
 Ziro-TOP modify-NEG-PST
 (Lit.) ‘Ziro did not modify △.’

strict; sloppy

(34) a. VVPE



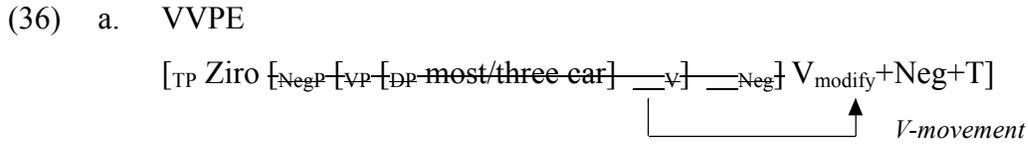
b. Argument Ellipsis



The *self* anaphor is included in the ellipsis domain in (34a) and (34b), so the sloppy reading can be accommodated under the analyses in question. The availability of the quantificational reading of Japanese null arguments can be handled in a similar way. Specifically, (16b), repeated here as (35b), is analyzed under the VVPE analysis and the argument ellipsis as in (36a) and (36b), respectively.

(35) a. Taroo-wa taitei/san-dai-no kuruma-o kaizoosi-ta.
 Taro-TOP most/three-CL-GEN car-ACC modify-PST
 ‘Taro modified most/three cars.’

- b. Ziroo-mo \triangle kaizoosi-ta.
 Ziroo-also modify-PST
 (Lit.) ‘Ziro also modified \triangle .’ E-type; quantificational



- b. Argument Ellipsis
 [TP ZIRO [_{NegP} [_{VP} [_{DP} ~~most/three car~~] V_{modify}] Neg] T]

Here, the ellipsis domain includes the relevant quantifier, so the fact that (35b) allows the quantificational reading can be accommodated.

Furthermore, the disjunction data (26), repeated here as (37), can also be accommodated under the ellipsis analyses.

- (37) a. Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-iru.
 Taro-TOP Kanako-or Ayaka-ACC respect-PROG-PRES
 ‘Taro respects Kanako or Ayaka.’
 b. Ziroo-wa \triangle sonkeisi-te-ina-i.
 Ziro-TOP respect-PROG-NEG-PRES
 (Lit.) ‘Ziro does not respect \triangle .’ *OR » NEG; NEG » OR

Crucial for our discussion is that the disjunctive null argument must take scope under negation, which I claimed poses an overgeneration issue for the null indefinite pronoun analyses. Importantly, Goro (2007) claims that Japanese disjunction *-ka* is a positive polarity item on the basis of its interaction with negation.¹⁴ Consider (38).

¹⁴ Szabolsci (2002, 2004) observes that positive polarity items like English *some* exhibits a so-called rescuing effect,

- (38) Taroo-wa Kanako-ka Ayaka-o sonkeisi-te-ina-i.
 Taro-TOP Kanako-or Ayaka-ACC respect-PROG-NEG-PRES
 ‘Taro does not respect Kanako or Ayaka.’ OR » NEG; *NEG » OR

Here, the disjunctive object obligatorily takes scope over negation. Specifically, (38) can only mean that Taro either does not respect Kanako or does not respect Ayaka, not that Hanako respects neither Kanako nor Ayaka. Given that Japanese disjunction *-ka* is a positive polarity item, the fact that the disjunctive null object must take scope under negation can be accommodated under the ellipsis analyses, on a par with the English example (39) (cf. Klima 1964).¹⁵

- (39) John [_{VP} bought something]. Mary didn’t [_{VP} Δ].

In the first sentence, the VP contains a positive polarity item *something*. Crucial for the current discussion is that with the first sentence as its antecedent, the second sentence means that Mary did not buy anything. This means that the positive polarity item *someone* loses its positive polarity

as illustrated in (i).

- (i) a. John didn’t call someone. *NEG » SOME
 b. I don’t think that John didn’t call someone. NEG » NEG » SOME
 (Goro 2007:265–266)

In (ia), *someone* cannot take scope under negation. However, in (ib), where there is another downward entailing operator, i.e. negation, in the matrix clause, *someone* can take scope under the local negation (i.e. two downward entailing operators cancel each other out). Keeping this in mind, consider the following Japanese sentence.

- (ii) John-wa [_{CP} Taroo-ga piza-ka pasuta-o tabe-nakat-ta to] omowa-nakat-ta.
 John-TOP Taro-NOM pizza-or pasta-ACC eat-NEG-PST C think-NEG-PST
 (Lit.) ‘John didn’t think [_{CP} that Taro didn’t eat either pizza or pasta].’
 NEG » SOME » NEG; *NEG » NEG » SOME (Goro 2007:65)

Although there are two downward entailing operators in (ii) on a par with (ib), the rescuing effect is not observed: the disjunctive object within the embedded clause must take scope over the local negation. Based on the absence of the rescuing effect of Japanese disjunction *-ka*, Goro (2007) concludes that Japanese disjunction *-ka* is a different type of a positive polarity item from English *some*. Shibata (2015), however, takes the absence of the rescuing effect to indicate that Japanese disjunction *-ka* is not a positive polarity item. I have nothing new to add regarding this issue, simply assuming with Goro (2007) that Japanese disjunction *-ka* is a positive polarity item that does not exhibit the rescuing effect.

¹⁵ The disjunction data in question can also be accommodated by the definite/referential pronoun analysis. For example, Funakoshi (2013) proposes that the null object in (37b) is *pro* that is interpreted as ‘the two languages/them’.

nature, functioning as a negative polarity item, under ellipsis. Then, if Japanese disjunction *-ka* is a positive polarity item and the null object in (37b) is derived via ellipsis, the fact that the null disjunctive object must take scope under negation can be captured: it loses its positive polarity feature under ellipsis, instead obtaining the negative polarity feature, which results in the obligatory scope under negation in (37b).¹⁶

Another argument for the ellipsis analysis comes from condition B of the binding theory. As noted in (6), repeated here as (40), subjects and objects in the same clause cannot be co-indexed in an out-of-the-blue context.

- (40) a. *Taroo_i-ga e_i hihansi-ta.
 Taro-NOM criticize-PST
 (Lit.) ‘Taro_i criticized e_i.’
- b. *Dono gakusei-mo e_i hihansi-ta.
 which student-MO_∀ criticize-PST
 (Lit.) ‘Every student_i criticized e_i.’

We have seen in section 2.2.1 that the ungrammaticality of the above sentences follows if the null objects are empty pronouns since the configuration would then cause a violation of condition B of the binding theory. Importantly, the above sentences become grammatical once they are preceded by appropriate antecedent sentences, as the following examples demonstrate (see Xu 1986 and

¹⁶ Shinohara (2004), Tanaka and Tsulas (2006), and Saito (2007) note that cases like (39) are also independently observed in Japanese, as in (i).

(i) Sono toki, Taroo-wa nani-ka kat-ta-ga, Hanako-wa △ kawa-nakat-ta.
 that time Taro-TOP what-KA_∃ buy-PST-but Hanako-TOP buy-NEG-PST
 (Lit.) ‘At that time, Taro bought something, but Hanako did not buy △.’ (Saito 2007:208)

Here, the null object is interpreted as a negative polarity item *nanimo* ‘anything’. As Saito (2007) points out, this kind of examples may be taken as an argument for the ellipsis view of Japanese null arguments since there seem to be no pronouns that themselves function as negative polarity items.

Takahashi 2008a, b for relevant discussion).

- (41) A: Dare-ga zibun-o hihansi-ta no?
 who-NOM self-ACC criticize-PST Q
 (Lit.) ‘Who criticized self?’
- B¹: Taroo-ga e hihansi-ta.
 Taro-NOM criticize-PST
 (Lit.) ‘Taro criticized *e*.’
- B²: Dono gakusei-mo e hihansi-ta.
 which student-MO_v criticize-PST
 (Lit.) ‘Every student criticized *e*.’

With (41A) as its antecedent, (41B¹) can mean that Taro criticized himself, and (41B²) can mean that every student criticized himself: the subject and the null object can be co-indexed. If the null objects in the (B) examples were empty pronouns, the sentences would be incorrectly ruled out as violations of condition B of the binding theory. However, if the null objects in question are derived via ellipsis (this option becomes available for (41) because of the antecedent sentence A), the grammaticality of the (B) sentences with the intended interpretation trivially follows. Specifically, the (B) sentences are analyzed under the VVPE analysis and the argument ellipsis analysis as in (42a) and (42b) respectively.

- (42) a. VVPE Analysis
 [TP Taro/Everyone [_{VP} [_{DP} self] ~~—_v~~] V_{criticize}+T]
- b. Argument Ellipsis Analysis
 [TP Taro/Everyone [_{VP} [_{DP} self] V_{criticize}] T]

Under both the VVPE analysis and the argument ellipsis analysis, the object position in the (B)

examples of (41) can be occupied by a *self* anaphor, so that condition B of the binding theory does not matter. Therefore, the grammaticality of the (B) sentences in (41) provides a strong argument for the ellipsis view of Japanese null arguments.

Above, I have shown that both the VVPE analysis and the argument ellipsis analysis of Japanese null arguments succeed in capturing the availability of the sloppy reading in negative contexts and the quantificational reading that were shown to be difficult to be accommodated by the indefinite-pronoun-based analyses. Based on the above discussion, it is now a standard assumption that the availability of the sloppy reading and the quantificational reading indicates ellipsis for Japanese-type null arguments. I will also follow the assumption in question: the availability of the relevant readings of Japanese null arguments requires ellipsis. Once the existence of an ellipsis strategy is taken for granted, a question arises as to which ellipsis strategy Japanese adopts to derive the readings in question. It has in fact been controversial in the literature how the VVPE analysis and the argument ellipsis analysis can be teased apart. In the following sections, I will introduce several (novel) diagnostics that favor one over the other, showing that argument ellipsis is operative in Japanese.

2.3.2 Verb-stranding Verb Phrase Ellipsis versus Argument Ellipsis

2.3.2.1 Ellipsis of Subject

Oku (1998) argues that ellipsis of subjects is a potential argument that favors argument ellipsis over VVPE because subjects are generally taken to occupy a higher position than the VVPE domain, as illustrated in (43).

- (45) a. Taroo-wa [CP [DP taitei/san-nin-izyoo-no gakusei]-ga Amerika-ni
 Taro-TOP most/three-CL-or.more-GEN student-NOM America-in
 ryuugakusi-ta to] omot-te-iru.
 study.abroad-PST C think-PROG-PRES
 ‘Taro thinks [CP that [DP most/more than three students] studied abroad in the
 US].’
- b. Ziroo-wa [CP [DP Δ] Huransu-ni ryuugakusi-ta to] omot-te-iru.
 Ziro-TOP France-to study.abroad-PST C think-PROG-PRES
 (Lit.) ‘Ziro thinks [CP that [DP Δ] studied abroad in France].’

E-type; quantificational

The antecedent sentence (45a) involves an embedded subject with a quantifier. With (45a) as its antecedent, (45b) is ambiguous in that the set of students that Ziro thinks studied abroad in France can be either identical to the set of students that Taro thinks studied abroad in the US (E-type) or different from it (quantificational).

Given that the sloppy reading and the quantificational reading of Japanese null arguments indicate ellipsis, the data in (44) and (45) favor the argument ellipsis analysis over the VVPE analysis because the null argument that yields the relevant readings in question is a subject, an argument which occupies a higher position than the domain that the VVPE affects, cf. (43).

2.3.2.2 Manner Adverb

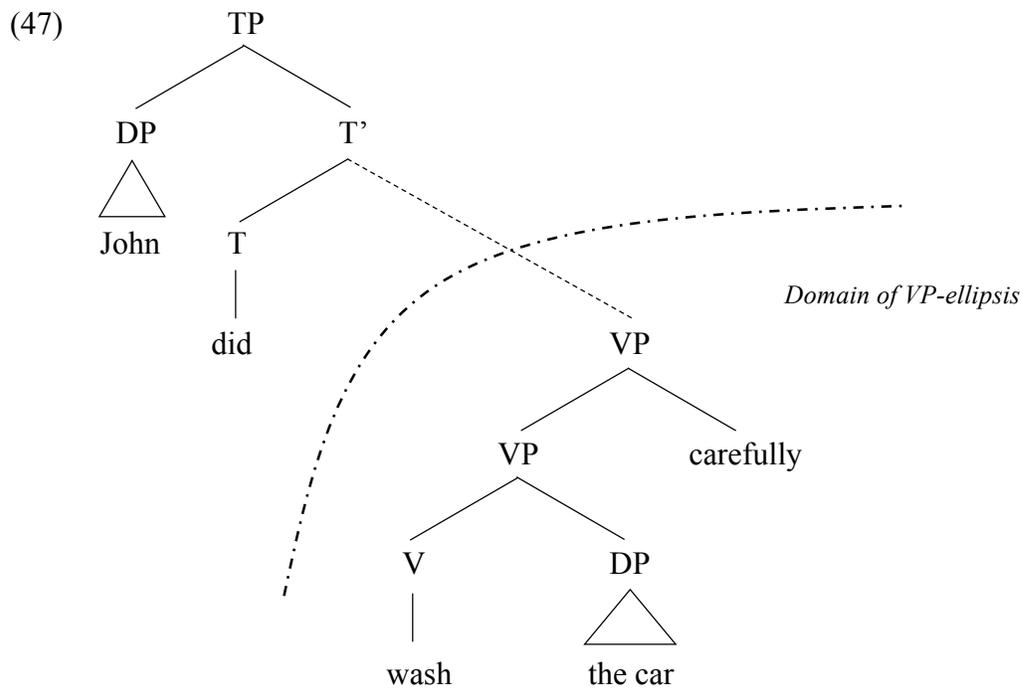
The interpretation of manner adverbs is also relevant to the argument ellipsis versus VVPE debate. Park (1994, 1997) and Oku (1998) argue against positing VVPE in Korean and Japanese based on the distribution of manner adverbs. Specifically, Oku observes that VP-ellipsis in English and ‘VVPE’ in Japanese behave differently regarding the availability of manner adverb interpretation. In English, manner adverbs, which are standardly assumed to adjoin to VP, in the antecedent clause

can modify a VP-ellipsis target clause, as shown in (46).

- (46) a. Bill washed the car carefully.
 b. But John didn't Δ .

(Oku 1998:171–172)

The most salient interpretation in (46b) is that John did not wash the car carefully, which implies that John did wash the car but not in a careful manner. This is straightforward if we assume that manner adverbs such as *carefully* are part of the elided VP, as in (47).



On the other hand, manner adverbs in antecedent clauses cannot be interpreted in target clauses of what should be ‘VVPE’ in Japanese, as in (48).

- (48) a. Bill-wa kuruma-o teineini arat-ta.
 Bill-TOP car-ACC carefully wash-PST
 ‘Bill washed the car carefully.’
- b. John-wa △ arawa-nakat-ta.
 John-TOP wash-NEG-PST
 (Lit.) ‘John did not wash △.’

(Oku 1998:171)

In (48b), it is difficult to obtain the interpretation that would include the manner adverb in the missing part. Specifically, (48b) can only mean that John did not wash the car at all: it cannot mean that John washed the car but not carefully.¹⁷ This appears to be mysterious if VVPE is available in Japanese, since we should then be able to derive the empty domain in (48b) as in (49).

¹⁷ There actually seems to be speaker variation with respect to the possibility of the manner adverb interpretation in cases like (48b) (see Funakoshi 2016). However, even for the speakers who allow the manner adverb interpretation in question in (48b), the following examples do not allow the interpretations in question.

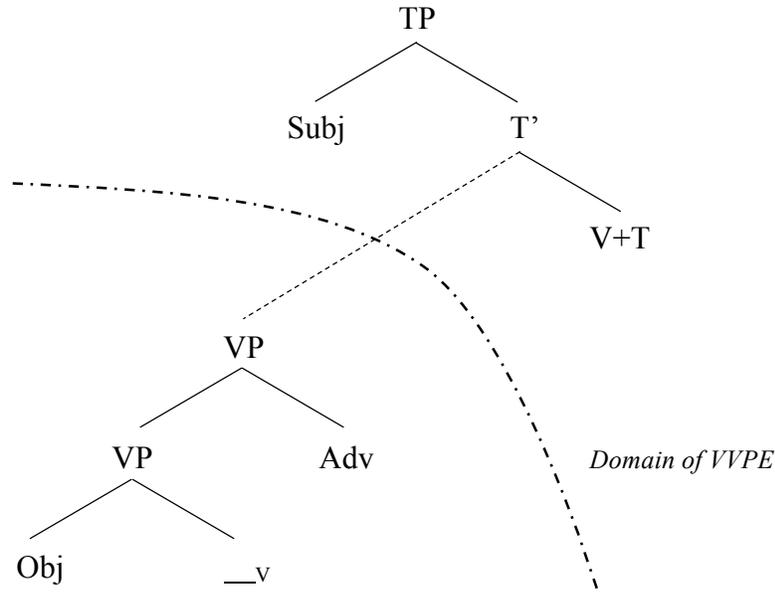
- (i) a. Taroo-wa △ arawa-nakat-ta-kedo, Hanako-wa kuruma-o teineini arat-ta.
 Taro-TOP wash-NEG-PST-though Hanako-TOP car-ACC carefully wash-PST
 (Lit.) ‘Although Taro did not wash △, Hanako washed the car carefully.’
- b. Taroo-wa [_{CP} sono kuruma-ga teineini araw-are-ta to] omot-te-iru-kedo,
 Taro-TOP that car-NOM carefully wash-PASS-PST C think-PROG-PRES-though
 Hanako-wa [_{CP} sono kuruma-ga △ araw-are-nakat-ta to] omot-te-iru.
 Hanako-TOP that car-NOM wash-PASS-NEG-PST C think-PROG-PRES
 (Lit.) ‘Although Taro thinks [_{CP} that that car was washed carefully], Hanako thinks [_{CP} that that car was not washed].’

(ia) involves backward anaphora and it can only mean that although Taro did not wash the car at all, Hanako washed the car carefully: it cannot mean that although Taro did not wash the car carefully, Hanako washed the car carefully. (ib) involves passive and it can only be interpreted as although Taro thinks that that car was washed carefully, Hanako thinks that that car was not washed at all: the second conjunct of (ib) cannot mean that Hanako thinks that that car was not washed carefully. Importantly, the corresponding English VP-ellipsis cases allow the relevant manner adverb interpretation as in (ii).

- (ii) a. Although John did not [_{VP} △], Bill [_{VP} washed the car carefully].
 b. Although John thinks [_{CP} that that car was [_{VP} washed carefully]], Bill thinks [_{CP} that that car wasn’t [_{VP} △]].

In both (iia) and (iib), the VP-ellipsis site can include the manner adverb *carefully*, in contrast to Japanese in (ia) and (ib).

(49)



Here, the ellipsis site includes a manner adverb adjoined to the VP, so it is expected that the adverb should be interpreted in (48b), on a par with the English VP-ellipsis case in (46b), which is however not the case. In other words, the VVPE analysis faces an overgeneration problem regarding manner adverb interpretation. Argument ellipsis, however, correctly captures the absence of the manner adverb interpretation in the relevant case because the ellipsis site never involves the VP-adjoined adverb, so manner adverbs must be overtly present to be interpreted. The adverb data noted above thus favor the argument ellipsis analysis over the VVPE analysis.¹⁸

2.3.2.3 The Verb-identity Requirement

The verb-identity requirement developed by Goldberg (2005) can also be taken as an argument for argument ellipsis. It has been well-established that stranded Vs must be identical in the antecedent clause and the target clause of VVPE. The following is cited from Goldberg (2005).

¹⁸ See Oku (1998), Saito (2007), and chapter 6 for discussion regarding why argument ellipsis cannot target manner adverbs.

- (50) The antecedent- and target-clause Vs of VP-ellipsis must be identical, minimally, in their root and derivational morphology.¹⁹ (Goldberg 2005:171)

Goldberg (2005) maintains that this identity requirement on stranded Vs holds for Irish, Hebrew, and Swahili, all of which have been claimed to have VVPE (see Gribanova 2013 for relevant discussion of Russian). Consider the following examples from Irish to illustrate this requirement.

(51) Irish

Q: Ar [cheannaigh siad teach]?
 c bought they house
 ‘Did they buy a house?’

A: Creidim gur [cheannaigh Δ].
 believe c bought
 (Lit.) ‘Believe (I) that [bought Δ].’

(McCloskey 1991:274)

Irish is a VSO language where null subjects are possible only with the synthetic form of V and null direct objects are not allowed with finite Vs (cf. McCloskey 1991). In (51), the stranded V *cheannaigh* ‘bought’ is an analytic form, so that the elided subject in the Answer cannot be an instance of a null subject. Moreover, the second elided argument is a direct object (*teach* ‘house’) to a finite V, so this elided object cannot be an instance of a null object. Therefore, the surface string of the Answer in (51) is taken to be an instance of VVPE, as illustrated in (52).

(52) Q: Ar [TP cheannaigh₁ [VP siad ___₁ teach]]

A: Creidim gur [TP cheannaigh₂ [~~VP siad~~ ___₂ teach]]

¹⁹ Goldberg (2005) deduces this requirement based on Merchant’s (2001) Isomorphism requirement on ellipsis.

Here, the verb *cheannaigh* ‘bought’ undergoes overt movement to T followed by VP-ellipsis of its complement domain. The elided part includes the subject and the direct object in question, yielding the surface string (51A). According to Goldberg (2005), VVPE in (51) is allowed since the stranded V matches the V in the antecedent clause. Next, consider the following case where the stranded V cannot count as identical under (50).

(53) Irish

*[Léigh mé an dán] ach níor [thuig Δ].

read I the poem but not understand

(Int.) ‘I read the poem, but I didn’t understand it.’

(Goldberg 2005:168)

(54) * $[_{TP} \text{Léigh}_1 [_{VP} \text{mé} \text{ ___}_1 \text{an dán}]] \text{ ach níor } [_{TP} \text{thuig}_2 [_{VP} \text{mé} \text{ ___}_2 \text{an dán}]]$

In contrast to (51), VVPE in (53) is impossible. The ungrammaticality of (53) argues for the verb identity requirement on the stranded V in (50): the stranded V in (53), i.e. *léigh* and *thuig*, do not count as identical, and (53) is ungrammatical. The verb identity requirement is thus one of the crucial aspects of VVPE.²⁰

Returning now to Japanese, in contrast to VVPE in Irish, Hebrew, and Swahili, Japanese constructions which would be analyzed as VVPE under the VVPE analysis of null arguments do not obey the requirement in question, as shown below (see Otaki 2014 and Sugisaki to appear for relevant discussion).

²⁰ See Goldberg (2005) for the observation that English VP-ellipsis also respects the verb identity requirement on the stranded V.

- (55) a. Taroo-wa zibun-no ronbun-o shoosansi-nakat-ta.
 Taro-TOP self-GEN paper-ACC praise-NEG-PST
 (Lit.) ‘Taro did not praise self’s paper.’
- b. Hanako-wa Δ hihansi-nakat-ta.
 Hanako-TOP criticize-NEG-PST
 (Lit.) ‘Hanako did not criticize Δ .’ strict; sloppy
- (56) a. Taroo-wa taitei/san-nin-no sensei-o sonkeisi-te-iru.
 Taro-TOP most/three-CL-GEN teacher-ACC respect-PROG-PRES
 ‘Taro respects most/three teachers.’
- b. Hanako-wa Δ keibetusi-te-iru.
 Hanako-TOP despise-PROG-PRES
 (Lit.) ‘Hanako despises Δ .’ E-type; quantificational

In the above examples, the stranded Vs in the (a) sentences and the (b) sentences do not count as identical under (50), so VVPE should not be an option. However, the sentences are all grammatical and the readings which would indicate ellipsis are available, which suggests that Japanese needs to be able to exploit an ellipsis strategy other than VVPE to derive the elliptic arguments here. Under the argument ellipsis analysis, these sentences are not problematic, since this strategy is not subject to the verb identity requirement in (50). Therefore, the data here also favor argument ellipsis over VVPE.

To sum up, I have discussed the diagnostics reported in the literature that can tease apart the VVPE analysis and the argument ellipsis analysis. By testing the behavior of Japanese null arguments against the relevant diagnostics, we have seen that argument ellipsis is favored over VVPE as the ellipsis strategy in the relevant cases in Japanese. In the remainder of this chapter, I will provide novel arguments that favor argument ellipsis over VVPE in light of ‘immobile’

elements and complex predicates.

2.4 More Arguments for Argument Ellipsis

2.4.1 ‘Immobile’ Element

Kim (1999) is the first study to note that constructions which involve ‘immobile’ elements provide an ellipsis context where VVPE cannot apply but argument ellipsis can. Consider Korean (57).

(57) Korean

- a. Mike-nun [_{DP1} James]-lul [_{DP2} tali]-lul ketecha-ss-ta.
Mike-TOP James-ACC leg-ACC kick-PST-DECL
‘Mike kicked James on the leg.’
- b. *Mike-nun [_{DP2} tali]-lul [_{DP1} James]-lul ketecha-ss-ta.
Mike-TOP leg-ACC James-ACC kick-PST-DECL
‘Mike kicked James on the leg.’

In (57a), *James* is the whole argument (DP₁) and *tali* is the part argument (DP₂). What is interesting in this construction is that the order between the two arguments is rigid: (57b), where the part argument precedes the whole argument, is ungrammatical. Kim (1999) observes that the whole argument can be independently dropped, allowing the sloppy reading, as in (58).

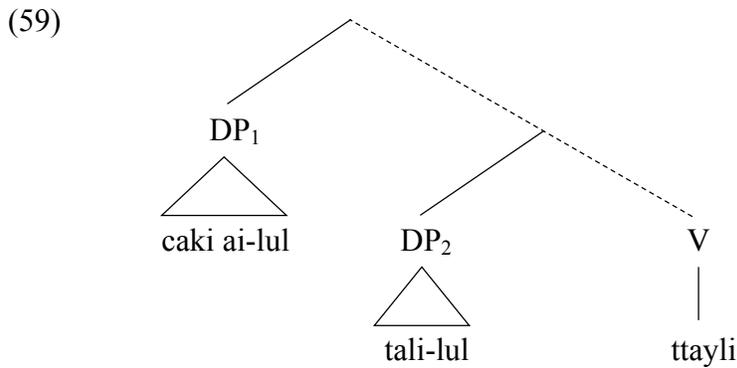
(58) Korean

- a. Mike-nun [_{DP1} caki ai]-lul [_{DP2} phal]-lul ttayli-ci an-h-ass-ta.
Mike-TOP self child-ACC arm-ACC hit-CI NEG-do-PST-DECL
(Lit.) ‘Mike did not kick [_{DP1} self’s child] on the arm.’

- b. James-nun [DP₁ △] [DP₂ tali]-lul ttayli-ci an-h-ass-ta.
 James-TOP leg-ACC hit-CI NEG-do-PST-DECL
 (Lit.) ‘James did not kick [DP₁ △] on the leg.’ strict; sloppy

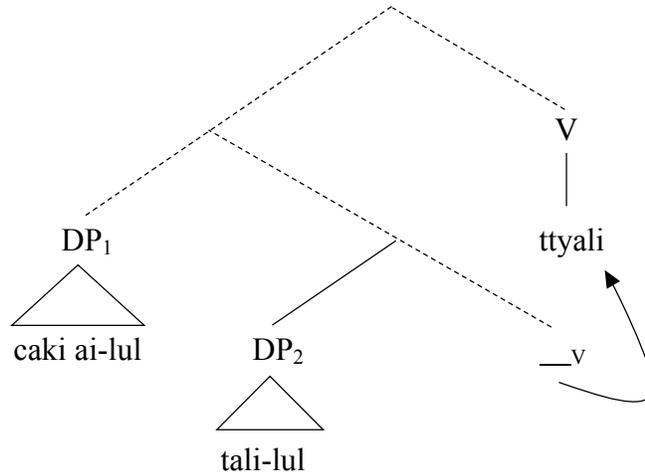
With (58a) as its antecedent, (58b) is ambiguous: it can mean either that James did not kick Mike’s child on his/her leg (strict reading) or that James did not kick his own child on his/her leg (sloppy reading). Therefore, the null argument in (58b) should be derived via ellipsis.

Important for the current discussion is the fact that the part argument *tali* ‘leg’ phonologically survives in (58b). Consider the following schematic structure of the relevant part in (58b).



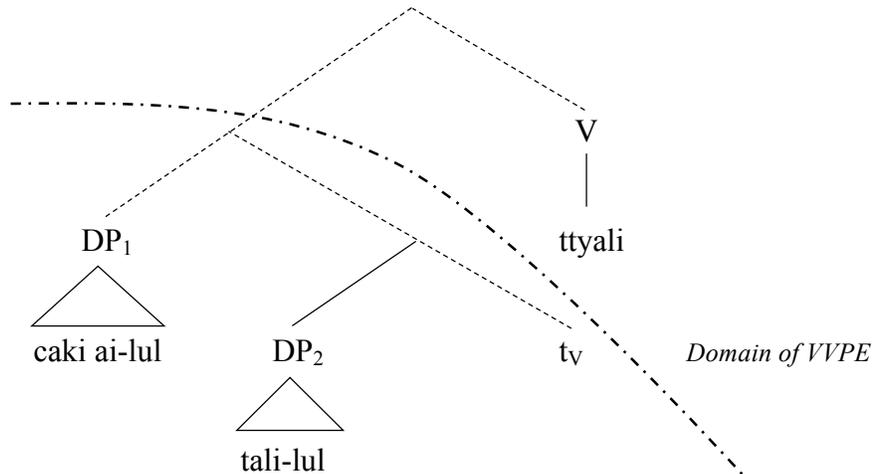
Here, DP₁ occupies a higher position than DP₂, and this hierarchical relation is rigid (cf. the ungrammaticality of (57b)). In order to elide DP₁, the VVPE analysis must raise the V *ttayli* ‘hit’ to a higher position than DP₁, as in (60).

(60)



The problem with the VVPE analysis here is that, not only DP₁ but also DP₂ must be affected by ellipsis. For the examples in question to be derived via VVPE, both the verb and DP₂ must move out of the VP, with DP₁ remaining inside of the VP to be elided under VVPE. The problem is that DP₂ cannot move here, as discussed above. Therefore, the phonological realization of DP₂ is not expected if VVPE is responsible for ellipsis of DP₁ in the relevant configuration, as in (61).

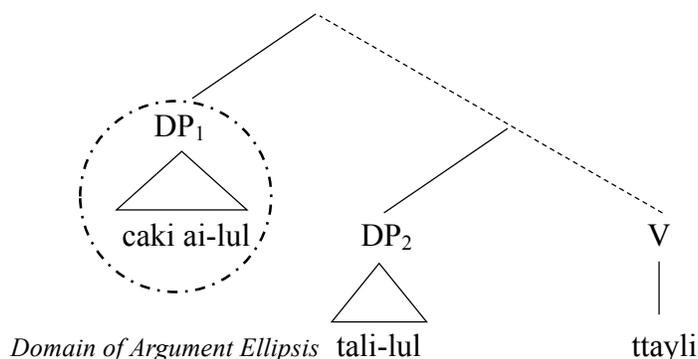
(61)



On the other hand, the argument ellipsis analysis does not suffer from the above problem since it can directly target an argument: argument ellipsis can apply to only DP₁, leaving DP₂ intact, as in

(62).

(62)



Therefore, the fact that the null argument in (58b) allows the sloppy reading with the phonological realization of the part argument (i.e. DP₂ in the above tree diagrams) argues for argument ellipsis: we are dealing here with a context where argument ellipsis can apply but VVPE cannot. What the above discussion indicates is that we can get an argument for argument ellipsis over VVPE if we can find a configuration which satisfies the following conditions: (i) there are two arguments whose order is rigid, and (ii) only the higher argument undergoes ellipsis, leaving the lower argument phonologically overt.

Turning to Japanese, Miyagawa and Tsujioka (2004) and Kishimoto (2009) observe that the accusative part of certain idiomatic expressions resists movement by itself, as illustrated in (63).²¹

- (63) a. Taroo-wa kono ryoori-ni keti-o tuke-ta.
Taro-TOP this dish-DAT meanness-ACC attach-PST
(Lit.) ‘Taro attached meanness to this dish.’
≈ ‘Taro criticized this dish.’

²¹ The judgment in (63) may not be quite as robust for some speakers. For example, Miyagawa (1997) finds examples such as (63b) grammatical, though Miyagawa and Tsujioka (2004) report contrasts as in (63a–b). I leave open how this potential speaker variation could be captured.

- b. *Taroo-wa keti-o kono ryoori-ni take-ta.
 Taro-TOP meanness-ACC this dish-DAT attach-PST

In (63a), *keti* ‘meanness’ and *tuketa* ‘attached’ form an idiomatic expression ‘criticized’. Interestingly, if the accusative part of the idiomatic expression is moved across the dative phrase, the sentence becomes ungrammatical, as in (63b). This shows that the order between the two is rigid.

Keeping this in mind, consider the following examples.

- (64) a. Taroo-wa zibun-no ryoori-ni keti-o take-ta.
 Taro-TOP self-GEN dish-DAT meanness-ACC attach-PST
 (Lit.) ‘Taro attached meanness to self’s dish.’
 ≈ ‘Taro criticized his dish.’

- b. Hanako-wa △ keti-o take-nakat-ta.
 Hanako-TOP meanness-ACC attach-NEG-PST
 (Lit.) ‘Hanako did not attach meanness △.’ strict; sloppy

With (64a) as its antecedent, (64b) can yield both the strict and the sloppy readings: the null argument in (64b) can be interpreted as either Taro’s dish (strict) or Hanako’s dish (sloppy). This poses a difficulty for the empty pronoun analysis since this analysis would only predict the strict reading. The null argument in (64b) also seems not to be derivable via VVPE since under such a strategy the accusative part of the idiomatic expression *keti-o* ‘meanness’ which must remain within the VP domain should be affected by VP-ellipsis as well, as shown in (65).

- (65) [TP Hanako [_{NegP} [_{VP} [_{DP} self’s dish] [_{DP} meanness] _{Neg}] V_{attach+Neg+T}]
└──────────────────┘ ↑ V-movement

Here, V overtly moves to T, which is followed by VP-ellipsis. The issue here is that in order for VVPE to elide the dative argument *self's dish*, it must elide the accusative argument *meanness* as well. However, the option to move the accusative argument out of the VVPE domain should not be available here since such movement, namely movement of an accusative argument across a dative argument, is independently excluded in this context, as in (63b). Therefore, VVPE should not be responsible for the sloppy reading of the null argument in (64b). On the other hand, the argument ellipsis analysis correctly derives the null argument in question since it allows only the dative argument *self's dish* to undergo ellipsis, leaving the relevant accusative argument intact, as in (66).

(66) [TP Hanako [NegP [VP [~~DP self's dish~~] [DP meanness] V_{attach}] Neg] T]

Therefore, the availability of the sloppy reading in (64b) favors the argument ellipsis analysis over the VVPE analysis.²²

²² The same argument applies to the quantificational test, as in the following.

- (i) a. Taroo-wa taitei/mi-ttu-no resutoran-ni keti-o take-ta.
 Taro-TOP most/three-CL-GEN restaurant-DAT meanness-ACC attach-PST
 (Lit.) 'Taro attached meanness to most/three restaurants.'
- b. Hanako-mo △ keti-o take-ta.
 Hanako-also meanness-ACC attach-PST
 (Lit.) 'Hanako also attached meanness △.'

Here, the set of restaurants that Hanako criticized can be either identical to the set of restaurants that Taro criticized or different from it. The latter reading argues for argument ellipsis in the same way as (64b). Also, idiomatic expressions like *X-ni tuba-o taker-* 'prevent others from taking X' provide an argument that favors argument ellipsis over VVPE from a different perspective. Consider (ii).

- (ii) a. Taroo-wa kono kuruma-ni tuba-o take-ta.
 Taro-TOP this car-DAT spit-ACC attach-PST
 (Lit.) 'Taro attached spit on this car.' (literal/idiomatic)
- b. Taroo-wa tuba-o kono kuruma-ni take-ta.
 Taro-TOP spit-ACC this car-DAT attach-PST
 (Lit.) 'Taro attached spit on this car.' (literal/*idiomatic)

(iia) allows the idiomatic reading, i.e. "Taro prevented others from taking this car", in addition to the literal meaning. By contrast, (iib), where the accusative argument has undergone movement across the dative argument, only allows the literal meaning. This leads to the conclusion that the accusative argument is 'immobile' when it functions as a part

One might argue that the accusative part and the verb of idiomatic expressions form a complex predicate, which might still make VVPE an option for deriving the null argument in (64b): the complex predicate consisting of *keti-o* ‘meanness’ and the verb *tuker-* ‘attach’ would overtly move to T, which would be followed by ellipsis of the VP that contains the dative argument *zibun-no ryoori-ni* ‘self’s dish’. However, there are at least three arguments against such a view.

First, focus particles can intervene between the accusative part and the verb in (64b), as shown in (67b).

- (67) a. Taroo-wa zibun-no ryoori-ni keti-o take-ta.
 Taro-TOP self-GEN dish-DAT meanness-ACC attach-PST
 (Lit.) ‘Taro attached meanness to self’s dish.’
 ≈ ‘Taro criticized his dish.’
- b. Hanako-wa △ keti-sae/-wa/-mo take-nakat-ta.
 Hanako-TOP meanness-even/-TOP/-also attach-NEG-PST
 (Lit.) ‘Hanako did not attach meanness-even/-TOP/-also △.’ strict; sloppy

In (67b), the focus particle is attached to the accusative argument of the idiomatic expression, and

of the idiomatic expression. Keeping this in mind, consider (iii).

- (iii) a. Taroo-wa san-dai-no kuruma-ni tuba-o take-ta.
 Taro-TOP three-CL-GEN car-DAT spit-ACC attach-PST
 (Lit.) ‘Taro attached spit on three cars.’
- b. Hanako-mo △ tuba-o take-ta.
 Hanako-also spit-ACC attach-PST
 (Lit.) ‘Hanako also attached spit △.’

(iiia) allows the idiomatic interpretation, namely “Taro prevented others from taking three cars”. Importantly, with (iiia) as its antecedent, (iiib), which involves a null object anaphoric on the object QP in (iiia), allows the quantificational reading as well as the idiomatic interpretation. Specifically, (iiib) can be uttered when Hanako prevented others from taking the three cars that are different from the three cars that Taro prevented others from taking. The availability of the quantificational reading is problematic for the empty pronoun analysis, as has been discussed above. Crucially, the VVPE analysis is also unlikely to be the source of the null argument in (iiib) because of the availability of the idiomatic interpretation. To be more specific, the VVPE analysis requires the accusative argument *tuba-o* ‘spit’ to move out of the VP-domain across the dative argument *san-dai-no kuruma-ni* ‘three cars’, but such movement would deprive (iiib) of the idiomatic reading on a par with (iib). Therefore, the fact that (iiib) allows the quantificational reading as well as the idiomatic interpretation also provides an argument for argument ellipsis.

the sentence is grammatical with the relevant sloppy reading. This shows that the accusative argument and the verb do not form a complex predicate because focus particles cannot intervene between elements that form a typical complex predicate, as illustrated in (68) (cf. Kishimoto 2005b, 2008, 2009).

- (68) a. Taroo-wa kusuri-o nomi-wasure-ta.
 Taro-TOP medicine-ACC drink-forget-PST
 ‘Taro forgot to take medicine.’
- b. *Taroo-wa kusuri-o nomi{-sae/-wa/-mo}-wasure-ta.
 Taro-TOP medicine-ACC drink{-even/-TOP/-also}-forget-PST

In (68a), *nom-* ‘drink’ and *wasurer-* ‘forget’ form a complex predicate ‘forget to drink’. The ungrammaticality of (68b) then shows that focus particles cannot be attached to the first element of a complex predicate. Therefore, that the sloppy reading is available in (67b) suggests that VVPE is not an option for deriving the null argument in question.

Second, if the accusative part can be modified by another phrase, it would be difficult to analyze the accusative part and the verb as a complex predicate. In fact, the accusative part in (64b) can be modified by a genitive phrase such as *ooku-no* ‘much’, as the following data show.

- (69) a. Taroo-wa zibun-no ryoori-ni keti-o take-ta.
 Taro-TOP self-GEN dish-DAT meanness-ACC attach-PST
 (Lit.) ‘Taro attached meanness to self’s dish.’
 ≈ ‘Taro criticized his dish.’
- b. Hanako-wa △ amari ooku-no keti-o take-nakat-ta.
 Hanako-TOP not.so much-GEN meanness-ACC attach-NEG-PST
 (Lit.) ‘Hanako did not attach much meanness △.’ strict; sloppy

Importantly, even if the accusative part is modified by another phrase, the sentence is still grammatical with the sloppy reading. Then, (69b) provides another argument against the complex predicate view of the accusative argument and the verb in the relevant idiomatic formation, which in turn argues against the VVPE analysis of the sloppy reading of the null argument in (64b).

Third, as Mamoru Saito (personal communication) points out, the particle *ne*, which cannot intervene between elements that form a typical complex predicate, as in (70), can intervene between the accusative part and the verb in (64b), as in (71).

(70) Taroo-wa (ne) kusuri-o (ne) nomi(*-ne)-wasure-ta (ne).
 Taro-TOP NE medicine-ACC NE drink(-NE)-forget-PST NE
 ‘Taro forgot to take medicine.’

(71) a. Taroo-wa zibun-no ryoori-ni keti-o take-ta.
 Taro-TOP self-GEN dish-DAT meanness-ACC attach-PST
 (Lit.) ‘Taro attached meanness to self’s dish.’
 ≈ ‘Taro criticized his dish.’

b. Hanako-wa ne Δ keti-o ne take-nakat-ta ne.
 Hanako-TOP NE meanness-ACC NE attach-NEG-PST NE
 (Lit.) ‘Hanako did not attach much meanness Δ .’ strict; sloppy

Therefore, the accusative argument and the verb seem not to constitute a complex predicate in (71b). Then, the null argument in (71b) cannot be derived via VVPE, which provides another argument that favors argument ellipsis over VVPE. The idiomatic expression thus provides an argument that argument ellipsis is operative in Japanese grammar.

2.4.2 Complex Predicate and Anti-reconstruction

In this subsection, I will discuss interactions of null arguments and complex predicates in Japanese. Koizumi (1995) (for later discussions, see Bobaljik and Wurmbrand (2005, 2007), Takahashi (2012), Shimamura and Wurmbrand (2014), among others) observes that QP objects obligatorily take scope over negation in Japanese complex predicate constructions with e.g. *wasureru*- ‘forget’ (namely, control-type complex predicates in Koizumi’s (1995) sense and lexical restructuring in Wurmbrand’s (2001) sense), as the following examples demonstrate.

- (72) a. John-wa ringo-dake-o tabe-wasure-ta.
 John-TOP apple-only-ACC eat-forget-PST
 ‘John forgot to eat only apples.’ ONLY » FORGET; *FORGET » ONLY
 (Koizumi 1995:62)
- b. John-wa subete-no ringo-o tabe-wasure-ta.
 John-TOP all-GEN apple-ACC eat-forget-PST
 ‘John forgot to eat all the apples.’ \forall » FORGET; *FORGET » \forall
 (Bobaljik and Wurmbrand 2007:28)

In (72a), the QP object with *-dake* ‘only’ must take scope over *wasureru*- ‘forget’ (scope-wise, *wasureru*- ‘forget’ functions as negation; see Bobaljik and Wurmbrand 2007:28). Specifically, (72a) means that among many things John was supposed to eat, it is only apples that he forgot to eat; it cannot mean that it is eat only apples that John forgot to do. A similar observation applies to the universal QP object in (72b): it obligatorily takes scope over *wasureru*- ‘forget’. To be more specific, (72b) lacks the partial-negation interpretation where John may have eaten some but not all apples: (72b) is paraphrasable as ‘all the apples are such that John did not eat them’. Following Bobaljik and Wurmbrand (2005, 2007), I will refer to the obligatory wide scope of QPs over negation in

cases like (72) as the anti-reconstruction effect. The following examples demonstrate that the anti-reconstruction effect in the relevant complex predicate construction cannot be attributed to the nature of the QPs in question since the object QPs with *-dake* ‘only’ and universal quantifier can take scope under negation in other contexts, i.e. non-complex-predicate contexts. Consider (73).

(73) a. John-wa ringo-dake-o tabe-nakat-ta.
 John-TOP apple-only-ACC eat-NEG-PST
 ‘John did not eat only apples.’ ONLY » NEG; NEG » ONLY
 (cf. Kato 2011)

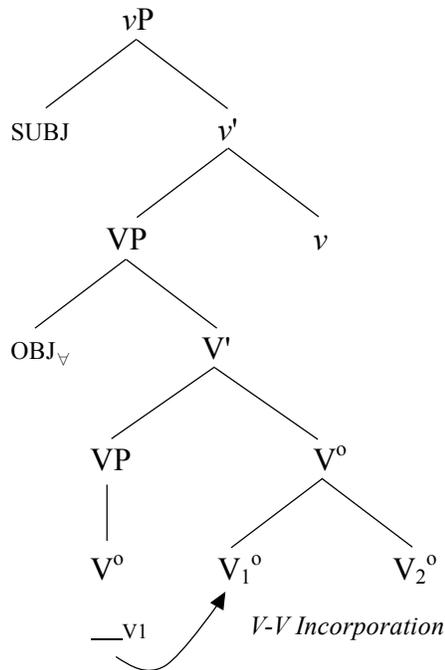
b. John-wa subete-no ringo-o tabe-nakat-ta.
 John-TOP all-GEN apple-ACC eat-NEG-PST
 ‘John forgot to eat all the apples.’ \forall » NEG; NEG » \forall
 (cf. Miyagawa 2001, Shibata 2015)

In both (73a) and (73b), the object QP can take scope under negation, in contrast to the complex predicate constructions in (72a) and (72b).

Although the exact analysis of the complex predicate construction is still under debate (see Koizumi 1995, 2008, Saito and Hoshi 1998, Hoshi 1999, Saito 2000, Kato 2003, Takano 2003, Bobaljik and Wurmbrand 2005, 2007, Nomura 2005, Takahashi 2011, 2012, Sugimura 2011, Shimamura and Wurmbrand 2014, Keine and Bhatt 2016, among many others), what seems to be agreed on in the previous literature is that the structural position of the QP and the scope-bearing predicate is crucial for scope interpretations given the standard assumption that scope is read off the syntactic structure. In the following, I will briefly discuss two major approaches to the complex predicate construction under consideration, showing how the two analyses in question capture the anti-reconstruction effect noted in (72).

The first analysis of the complex predicate construction that I will discuss is the derived complex predicate analysis (cf. Saito and Hoshi 1998, Hoshi 1999, Saito 2000, Kato 2003). Under this analysis, the VP domain of (72b) is schematically represented as in (74).

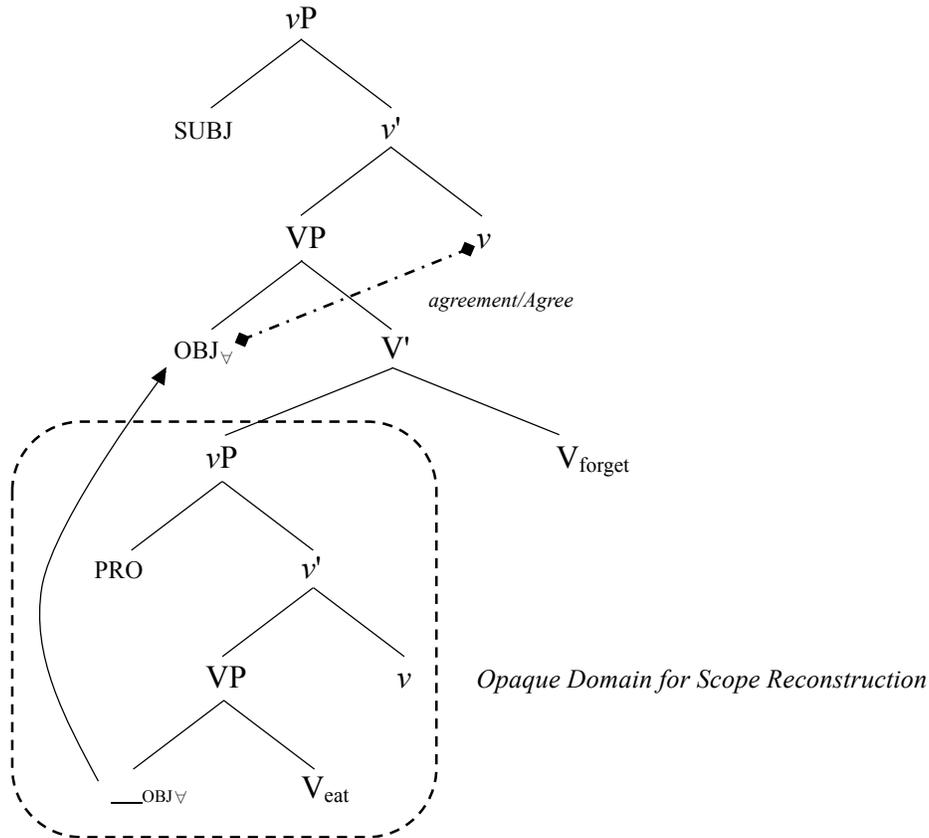
(74) Derived Complex Predicate Analysis (V–V Incorporation)



Here, the V_1 *taber-* ‘eat’ is incorporated into V_2 *wasurer-* ‘forget’, forming a complex predicate, and the object QP is base-generated as an object of the complex predicate. This analysis can straightforwardly explain the lack of the narrow scope of the object QP with respect to V_2 because there is no point in the derivation where V_2 occupies a higher position than the object QP, namely a position where the former would c-command the latter. Therefore, the anti-reconstruction effect in (72) trivially follows under the derivational complex predicate analysis.

The second analysis of the complex predicate construction that I will consider is the VP-complementation analysis (cf. Bobaljik and Wurmbrand 2005, 2007, Takahashi 2012, Shimamura and Wurmbrand 2014). Under this analysis, (72b) is schematically represented as in (75).

(75) VP-complementation Analysis



Under the VP-complementation analysis, the object QP is base-generated as a direct object of the *V taber-* ‘eat’. The object QP then moves out of the lower *vP* to enter into an agreement/Agree relation with the higher *v*. Although there are several implementations proposed for this effect, the consensus seems to be that the complement domain of the higher verb, here *wasurer-* ‘forget’, constitutes an opaque domain for scope reconstruction. Thus, the object QP extracted out of the opaque domain in question occupies a higher position than the verb *wasurer-* ‘forget’ in light of scope interpretations, hence the former obligatorily takes scope over the latter. Therefore, the anti-reconstruction effect observed in (72b) can be captured under the VP-complementation analysis as well, given the derivation in (75).

Regarding the anti-reconstruction effect, what is shared by the derived complex predicate analysis and the VP-complementation analysis is that the structural position of a QP and a scope-bearing predicate is crucial to the effect in question. Specifically, both analyses claim that a QP syntactically occupies a higher position than a scope-bearing predicate, thus the former takes scope over the latter. This argumentation has an interesting consequence for verb raising in Japanese. It has been well-established in the literature that syntactic verb movement has interpretive effects (cf. Ladusaw 1979, 1980, McCloskey 1996, Lechner 2005, Vicente 2007, Roberts 2010, Szabolcsi 2011, Funakoshi 2014, Gribanova and Harizanov 2017, among others).²³ Then, if the complex predicate containing the scope-bearing verb *wasurer-* ‘forget’ in (72) could move to a higher position than the QP, the anti-reconstruction effect should disappear because such movement would provide us with a point in the derivation where the relevant predicate occupies a higher position than the QP, which should allow the former to take scope over the latter. This in turn means that, given the anti-reconstruction effect, the verb in complex predicate constructions like (72) does not raise to a higher position than the relevant QP argument, as illustrated in (76).

²³ For example, in Shupamem, movement of aspectual raising verbs to a clause-initial position yields a new scope interpretation with respect to a lower adverbial, as shown in (i) (cf. Szabolcsi 2011, Gribanova and Harizanov 2017).

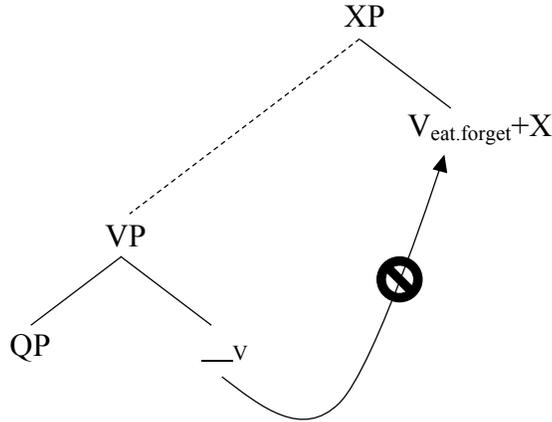
- (i) a. Ndúú Maria ká jéǰǎ jingét ndáá li?
 only Maria PST begin have.INF good roles
 ‘Only Mary is such that she began to get good roles.’ ONLY » BEGIN (Szabolcsi 2011:10)
- b. Á ká jéǰǎ ndúú Maria jingét ndáá li?
 it PST begin only Maria have.INF good roles
 ‘It began to be the case that only Mary god good roles.’ BEGIN » ONLY (Szabolcsi 2011:11)

In (ia), the QP subject *ndúú Maria* ‘only Maria’ takes scope over the aspectual verb *jéǰǎ* ‘begin’, and in (ib), the latter takes scope over the former. This indicates that syntactic verb movement can affect scope interpretations. Also, syntactic verb movement affects the NPI licensing, as in (ii) (cf. Ladusaw 1979, 1980, McCloskey 1996).

- (ii) a. *Which one of them does anybody not like?
 b. Which one of them doesn’t anybody like?

The grammaticality of (iib) indicates that the head movement of T to C carrying negation along can license the NPI *anyone*, which in turn means that syntactic head movement can have interpretational effects. See the references cited above for more discussion of this issue.

(76)



Keeping the above discussion in mind, consider the following examples.

- (77) a. Taroo-wa subete-no zibun-no ronbun-o inyoosi-wasure-ta.
Taro-TOP all-GEN self-GEN paper-ACC cite-forget-PST
(Lit.) ‘Taro forgot to cite all of self’s paper.’ $\nabla \gg \text{FORGET}; * \text{FORGET} \gg \nabla$
- b. Hanako-mo Δ inyoosi-wasure-ta.
Hanako-also cite-forget-PST
(Lit.) ‘Hanako also forgot to cite Δ .’ $\nabla \gg \text{FORGET}; * \text{FORGET} \gg \nabla$
- (78) a. Taroo-wa [_{CP} subete-no zibun-no gakusei-ga eego-no siken-o
Taro-TOP all-GEN self-GEN student-NOM English-GEN exam-ACC
uke-wasure-ta to] omot-te-iru.
take-forget-PST C think-PROG-PRES
(Lit.) ‘Taro thinks [_{CP} that all of self’s students forgot to take the English exam].’
 $\nabla \gg \text{FORGET}; * \text{FORGET} \gg \nabla$
- b. Hanako-wa [_{CP} Δ huransugo-no siken-o uke-wasure-ta to] omot-te-iru.
Hanako-TOP French-GEN exam-ACC take-forget-PST C think-PROG-PRES
(Lit.) ‘Hanako thinks [_{CP} that Δ forgot to take the French exam].’
 $\nabla \gg \text{FORGET}; * \text{FORGET} \gg \nabla$

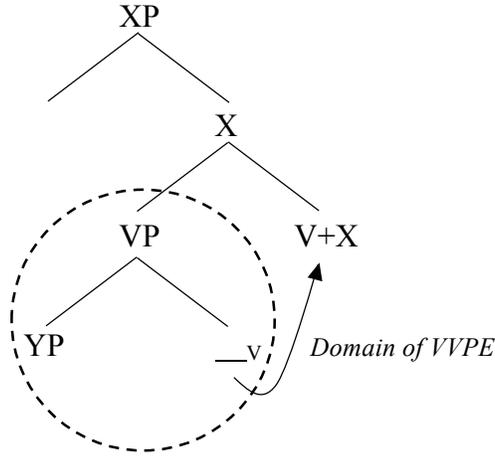
In (77a), the object QP which contains a *self* anaphor obligatorily takes scope over negation: the sentence can only mean that for all of his papers, Taro forgot to cite them. Therefore, the anti-reconstruction effect is at work in (77a). Important for the current discussion is (77b), where the null object is taken to be anaphoric on the object QP in (77a). There are two important points here. First, the null object QP obligatorily takes scope over negation; in other words, the anti-reconstruction effect is observed in (77b) as well. Second, the null object can be interpreted sloppily. (77b) thus means that for all of her papers, Hanako forgot to cite them. A similar observation applies to (78). Specifically, with (78a), where the QP containing a *self* anaphor is a transitive subject, as its antecedent, the null subject in (78b) obligatorily takes scope over negation and can yield the sloppy reading. To be more specific, (78b) can only mean that for all of her students, Hanako thinks that they forgot to take the French exam.²⁴ The empty pronoun analysis seems unlikely to be responsible for the source of the null arguments in (77b) and (78b) due to the availability of the sloppy reading. More interesting for us here is that the null arguments in question are not derivable via VVPE either. As we have already seen, VVPE is an operation which overtly moves V out of the VP domain, which is followed by VP-ellipsis. This analysis tacitly presupposes that elements that are affected by VVPE must be in the domain of the raised V. To illustrate this point, let us reconsider the schematic structure in (79), which shows how the VVPE analysis derives a null argument.

²⁴ Universal QP subjects can take scope under negation in non-complex-predicate contexts, as in (i) (cf. Saito 2006).

(i) [Zen'in-no gakusei-ga siken-o uke-nakat-ta to] omow-u.
all-GEN student-NOM exam-ACC take-NEG-PST C think-PRES
'I think that every student did not take the exam.'

$\forall \gg \text{NEG}; \text{NEG} \gg \forall$

(79)



Suppose that YP is the target argument of VVPE. In order for VVPE to elide YP, V overtly moves out of the VP which contains YP, which is followed by ellipsis of the VP. Therefore, in order to be elided by VVPE, elements affected by ellipsis must be located in the complement domain of the raised V. In other words, elements that are affected by VVPE must be in a lower position than the raised V, i.e. they must be in a position c-commanded by the raised V. Given the discussion here, the VVPE analysis then faces a difficulty in deriving the null arguments in (77b) and (78b): in order to elide the relevant QPs, the VVPE analysis must raise the complex predicate to a higher position than the QPs in question, but this predicts the raised complex predicate to be able to take scope over the QPs, which loses the explanation of the anti-reconstruction effect in (77b) and (78b). To paraphrase, the VVPE analysis faces a paradoxical situation where the complex predicate must raise to a higher position than the QP for ellipsis reason, but the complex predicate must stay in a lower position than the QP for scope reason. In light of this, I conclude that it is unlikely that the VVPE analysis is responsible for the sloppy reading of the null arguments in (77b) and (78b). The argument ellipsis analysis, on the other hand, does not face this paradox because the analysis in question does not require the relevant complex predicate to move to a higher position than the QPs in question, unlike the VVPE analysis: argument ellipsis can directly apply to the object QP in

(77b) and the subject QP in (78b). Therefore, the fact that (77b) and (78b) simultaneously exhibit the sloppy reading and the anti-reconstruction effect provides a strong argument that favors argument ellipsis over VVPE, which in turn supports the existence of argument ellipsis as an ellipsis strategy in Japanese grammar.

2.5 Summary

In this chapter, I have discussed the interpretive possibilities of radical *pro*-drop languages with special attention to Japanese, also reviewing the proposed analyses of Japanese-type null arguments in the literature.

In the first half of this chapter, I provided several arguments that Japanese null arguments can be derived via ellipsis. First, I introduced the null pronoun analysis of Japanese null arguments. Based on the fact that Japanese null arguments exhibit condition B effects, it was shown that there are contexts where Japanese null arguments behave as empty pronominals. However, at the same time, I provided several arguments for a non-pronominal behavior of Japanese null arguments, including the sloppy identity reading in negative contexts, the quantificational reading, and the flip-flop phenomenon of disjunction, also showing that these properties of Japanese null arguments can be successfully accommodated under the ellipsis analysis.

In the second half of this chapter, I have provided several diagnostics that can tease apart two ellipsis-based analyses of Japanese null arguments, the VVPE analysis and the argument ellipsis analysis. The diagnostics attested in the literature involve ellipsis of subjects, manner adverb interpretations, and the verb-identity requirement. All of these diagnostics favor the argument ellipsis analysis over the VVPE analysis. I also provided new arguments for argument ellipsis in Japanese on the basis of ‘immobile’ elements and the anti-reconstruction effect. The

investigation of the behavior of Japanese null arguments in these contexts has provided us with ellipsis contexts where argument ellipsis is applicable but VVPE is not, which in turn supports the existence of argument ellipsis in Japanese.

Although it was shown in this chapter that the argument ellipsis analysis is supported in light of the interpretive possibilities of Japanese null arguments, a question arises as to whether we can support the argument ellipsis analysis based on their syntactic properties. In the next chapter, I will take up this issue, showing that Japanese null arguments in fact exhibit the syntactic properties that are exclusively available with ellipsis, not with pronouns.

Chapter 3

The Silent Syntax of Silent Arguments

In this chapter, I will examine the issue of whether null arguments in Japanese have internal structure, exploiting a widely-adopted diagnostic in the anaphora literature, namely that the possibility of extraction signals the presence of internal structure in an anaphora site. In section 3.1, I will introduce Hankamer and Sag's (1976) surface anaphora versus deep anaphora distinction, providing a diagnostic for the former concerning extraction possibilities out of anaphoric domains. In section 3.2, I will investigate whether overt extraction is possible out of Japanese null arguments, using long-distance scrambling, pseudoraising/Raising-to-Object (RtO), and PP left-branch extraction. It will be shown that overt extraction is uniformly disallowed out of Japanese null arguments. In section 3.3, I will examine whether covert extraction, more precisely, extraction that does not affect word order (e.g. QR and null operator movement), is possible out of Japanese null arguments. The conclusion that will be reached is that covert extraction is uniformly allowed out of Japanese null arguments, unlike overt extraction. Section 3.4 summarizes the chapter, also discussing theoretical consequences/implications of the overt/covert extraction asymmetry out of Japanese null arguments.

3.1 Diagnosing Anaphora

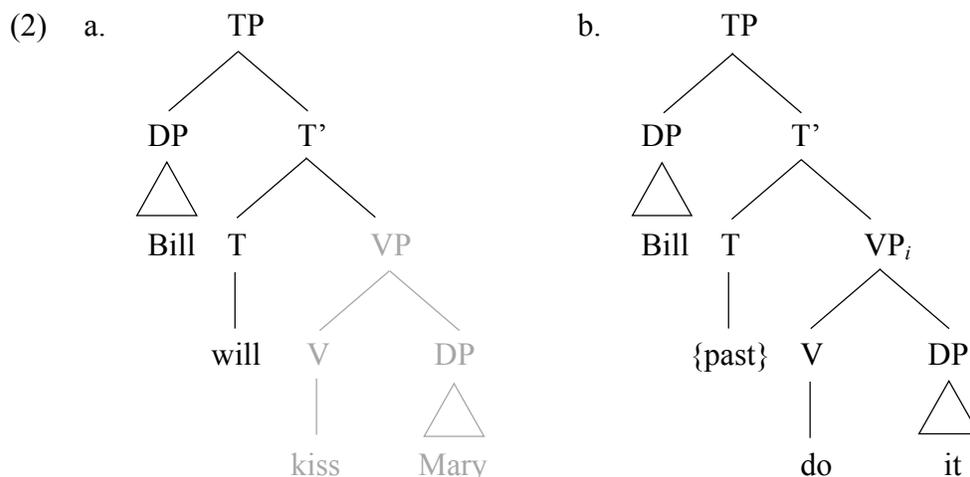
Since Hankamer and Sag (1976), it has been widely assumed that there are two types of anaphora: surface anaphora and deep anaphora (model-interpretive anaphora/ellipsis and record-interpretive anaphora in Sag and Hankamer's 1984 sense). For example, in English, VP-ellipsis in (1a) and *do*

it in (1b) are considered to illustrate surface anaphora and deep anaphora, respectively.

- (1) a. John will [_{VP} kiss Mary], and Bill will [_{VP} △] too.
 b. John will [_{VP} kiss Mary], and Bill will [_{VP} do it] too.

Although the second conjunct in (1a) and (1b) is “incomplete” in that the VP is phonologically missing in the former and the VP is replaced by *do it* in the latter, both can be interpreted as Bill will kiss Mary: the phonologically “incomplete” VPs can refer to the antecedent VP *kiss Mary*.

The difference between surface anaphora and deep anaphora is generally claimed to involve the presence/absence of internal structure: only the former includes internal structure. Specifically, the second conjunct of (1a) and (1b) is generally analyzed as in (2a) and (2b), respectively (the gray part means that the part in question is phonologically empty).



The missing VP in (1a) has full-fledged internal structure (at least in LF), and the interpretation of the missing VP is taken to result from the presence of this structure, as in (2a). On the other hand, the VP in (1b) consists of *do it* throughout the derivation, as in (2b), and its interpretation is taken

to be obtained through the assignment function (cf. Heim and Kratzer 1998), e.g. [$i \rightarrow \lambda x. x \text{ kiss Mary}$]. While a number of diagnostics have been proposed to differentiate these two types of anaphora (cf. Grinder and Postal 1971, Bresnan 1971, Hankamer and Sag 1976, Sag 1976, Sag and Hankamer 1984, Haïk 1987, Tomioka 1997, Depiante 2000, Johnson 2001, among many others), Merchant (2013b) observes that the possibility of extraction is one of the most reliable tests for surface anaphora: if extraction is possible, there must be something to be extracted out of in the syntax. Consider the following examples.

- (3) a. I know which book₁ Mary [_{VP} read ___₁], and which book₂ Bill didn't [_{VP} read ___₂].
 b. *I know which book₁ Mary [_{VP} read ___₁], and which book₂ Bill didn't [_{VP} do it].

(Fiengo and May 1994:247)

(3a) and (3b) show that overt *wh*-movement (overt \bar{A} -movement) is possible from a VP-ellipsis site but not from a *do it* 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 the origin of *wh*-movement (see Shuyler 2001 for discussion of *wh*-extraction out of VP-ellipsis sites).

Other types of extraction, i.e. overt A-movement, null operator (Op) movement, and QR, are also used as diagnostics for surface anaphora, as in the examples below.

- (4) a. John₁ might be visited ___₁ by Sally, and Fred₂ might be visited ___₂ by Sally too.
 b. *John₁ might be visited ___₁ by Sally, and Fred₂ might be done it too.

(Abels 2012:30)

- (5) a. Max talked to everyone Op₁ that Bill did talk to ___₁.

b. *Max talked to everyone Op₁ that Bill did it.

((5b) from Fiengo and May 1994:247)

(6) a. I have read more books Op₁ than Joe has read __₁.

b. *I have read more books Op than Joe has done it. (Abels 2012:30)

(7) a. One of the boys met every teacher and one of the girls did meet every teacher too.

$\exists \gg \forall ; \forall \gg \exists$

b. One of the boys met every teacher and one of the girls did it too. $\exists \gg \forall ; * \forall \gg \exists$

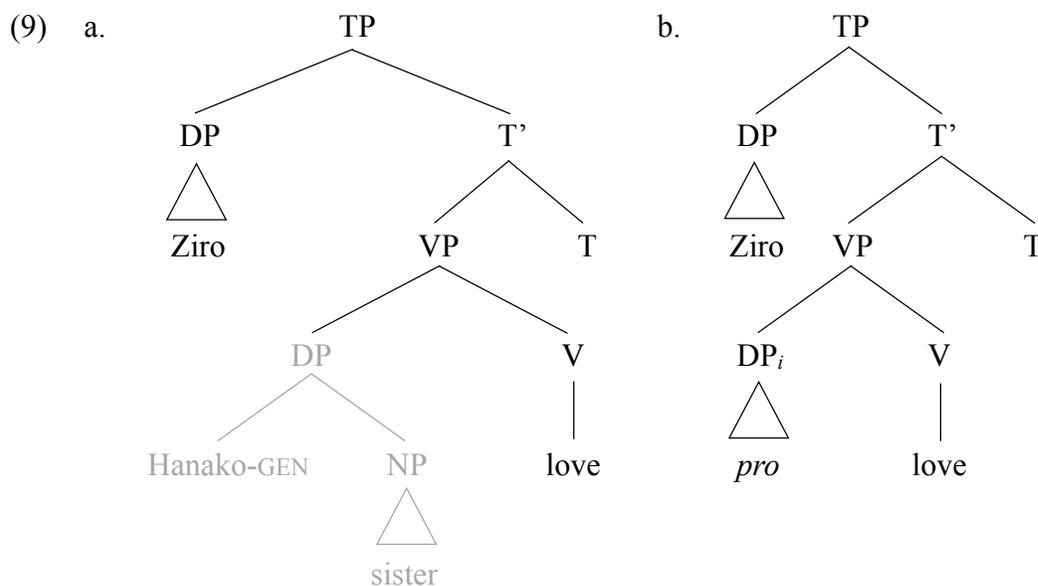
(Depiante 2000:95)

In (4), *Fred* is passivized (overtly A-moved) out of the VP-anaphora sites, and only (4a) is grammatical. In (5) and (6), relative Op and comparative Op are extracted out of the relevant anaphora sites, and only the VP-ellipsis case in (5a) and (6a) is grammatical. In (7), although both the VP-ellipsis case in (7a) and the *do it* case in (7b) are grammatical, inverse scope, which requires QR out of the phonologically empty site, is available only in the former (cf. Hirschbühler 1982, Fox 1995, 2000, Tomioka 1997, among others). The data from (4) to (7) thus show that extraction is possible only out of VP-ellipsis (surface anaphora) sites but not from *do it* (deep anaphora) sites: only surface anaphora includes internal structure so that it can provide an appropriate position for the origin of moved elements.

In chapter 2, I argued that Japanese null arguments can be derived via not only *pro* but also argument ellipsis. In light of the distinction between surface anaphora and deep anaphora, the argument ellipsis analysis entails that null arguments should be able to involve surface anaphora, which in turn entails that null arguments should be able to include internal structure. To be more specific, a simple null object construction such as (8b) is analyzed as in (9a) and (9b) under the

argument ellipsis analysis and the *pro* analysis, respectively.

- (8) a. Taroo-wa [DP Hanako-no imooto]-o aisi-te-iru.
 Taro-TOP Hanako-GEN sister-ACC love-PROG-PRES
 ‘Taro loves [DP Hanako’s sister].’
- b. Ziroo-mo [DP Δ] aisi-te-iru.
 Ziro-also love-PROG-PRES
 (Lit.) ‘Ziro also loves [DP Δ].’



Under the argument ellipsis analysis in (9a), the null object includes internal structure, receiving the relevant interpretation because of the presence of that internal structure. On the other hand, under the *pro* analysis, the null object does not include internal structure, and its interpretation is generally assumed to be obtained through the assignment function with the index *i*. Then, in light of the extraction possibilities discussed above, the argument ellipsis analysis predicts extraction to be possible here: surface anaphora includes internal structure, thereby being able to accommodate a position for the origin of movement. In the following, I will show that the prediction is in fact

borne out: Japanese null arguments allow certain types of extraction out of them. The extraction possibility provides a strong argument that Japanese null arguments cannot be uniformly *pro* since *pro* is by assumption an instance of deep anaphora, which disallows all types of movement, as shown by the *do it* data in (3)–(7). However, it will also be shown that Japanese null arguments exhibit a non-uniform behavior regarding extraction out of them. Specifically, they exhibit an overt/covert asymmetry regarding extraction out of them: they uniformly disallow overt extraction, whereas they uniformly allow covert extraction, more precisely, extraction which does not affect word order.

3.2 Overt Extraction out of Japanese Null Arguments

3.2.1 Long-Distance Scrambling

Extraction out of Japanese null arguments has been mainly discussed in the context of null CPs in the literature (cf. Shinohara 2006, Saito 2007, Tanaka 2008, Takita 2010, Takahashi 2013b, Bošković 2014, Kasai 2014). Recall that not only nominal arguments but also clausal arguments can be dropped in Japanese, as in (10b’).

- (10) a. Taroo-wa [CP Hanako-ga hon-o yon-da to] omot-ta.
 Taro-TOP Hanako-NOM book-ACC read-PST C think-PST
 ‘Taro thought [CP that Hanako read a book].’
- b. Ziroo-mo [CP Hanako-ga hon-o yon-da to] omot-ta.
 Ziroo-also Hanako-NOM book-ACC read-PST C think-PST
 ‘Ziroo also thought [CP that Hanako read a book].’
- b’. Ziroo-mo [CP Δ] omot-ta.
 Ziroo-also think-PST
 (Lit.) ‘Ziroo also thought [CP Δ].’

With (10a) as its antecedent, (10b') involves a null CP, but the sentence receives exactly the same interpretation as (10b), namely that Ziro also thought that Hanako read a book.

First, let us consider the possibility of overt \bar{A} -extraction out of Japanese null arguments. Since Saito (1985) scrambling has been claimed to involve syntactic movement that is sensitive to islands, as in (11b).

- (11) a. Taroo-wa [[relative clause Hanako-ni sono hon-o age-ta] hito]-o
 Taro-TOP Hanako-DAT that book-ACC give-PST person-ACC
 hihansi-ta.
 criticize-PST
 'Taro criticized [the person [relative clause who gave that book to Hanako]].'
- b. *Sono hon₁-o Taroo-wa [[relative clause Hanako-ni ___₁ age-ta] hito]-o
 that book-ACC Taro-TOP Hanako-DAT give-PST person-ACC
 hihansi-ta.
 criticize-PST
 (Lit.) 'That book₁, Taro criticized [the person [relative clause who gave ___₁ to Hanako]].'

In (11b), the object *sono hon* 'that book' has been extracted out of the relative clause via scrambling, and the ungrammaticality of the sentence sharply contrasts with the non-scrambled case in (11a). This can be taken to indicate that scrambling involves movement.

Importantly, it is also well-known that there are many asymmetries between clause-internal scrambling and long-distance scrambling in Japanese (cf. Oka 1989, Tada 1990, 1993, Saito 1992, Abe 1993, Nemoto 1993, Takano 2010, among others): e.g. the former can create a new binding relation but the latter cannot, as shown in (12) and (13).

- (12) a. **Soitu*_{*i*}-no hahaoya-ga [*san-nin-izyoo-no gakusei*]_{*i*}-o sikat-ta.
the.guy-GEN mother-NOM three-CL-or.more-GEN student-ACC scold-PST
(Lit.) ‘Their_{*i*} mothers scolded [three or more students]_{*i*}.’
- b. [*San-nin-izyoo-no gakusei*]_{1/*i*}-o *soitu*_{*i*}-no hahaoya-ga ___₁ sikat-ta.
three-CL-or.more-GEN student-ACC the.guy-GEN mother-NOM scold-PST
(Lit.) ‘[Three or more students]_{1/*i*}, their_{*i*} mothers scolded ___₁.’
- (13) a. **Soitu*_{*i*}-no hahaoya-ga [_{CP} Taro-ga [*san-nin-izyoo-no gakusei*]_{*i*}-o
the.guy-GEN mother-NOM Taro-NOM three-CL-or.more-GEN student-ACC
sikat-ta to] omot-ta.
scold-PST C think-PST
(Lit.) ‘Their_{*i*} mothers thought [_{CP} that Taro scolded [three or more students]_{*i*}.’
- b. *[*San-nin-izyoo-no gakusei*]_{1/*i*}-o *soitu*_{*i*}-no hahaoya-ga
three-CL-or.more-GEN student-ACC the.guy-GEN mother-NOM
[_{CP} Taro-ga ___₁ sikat-ta to] omot-ta.
Taro-NOM scold-PST C think-PST
(Lit.) ‘[Three or more students]_{1/*i*}, their_{*i*} mothers thought [_{CP} that Taro scolded ___₁.’

Soitu ‘the guy’ can function as a bound pronoun (cf. Hoji 1985). In (12a), the anaphor *soitu* ‘the guy’ is inside of the subject. It is not c-commanded by the QP *san-nin-izyoo-no gakusei* ‘three or more students’, and the bound variable interpretation is not available: (12a) cannot be interpreted as ‘there are three or more x, x a student, such that x’s mother scolded x’. On the other hand, (12b), where the object QP has undergone clause-internal scrambling over the subject containing *soitu*, allows the relevant bound variable interpretation. This kind of examples are taken as evidence that clause-internal scrambling can behave as A-movement since binding relations are generally assumed to be established in A-positions (cf. Lasnik and Stowell 1991, Hornstein 1995). (13a), where *soitu* is not c-commanded by the QP, also disallows the intended bound variable

interpretation, i.e. there are three or more x , x a student, such that x 's mother thought that Taro scolded x . Important for us here is the fact that the bound variable interpretation in question is disallowed in (13b), where the embedded object QP is scrambled long-distance over the matrix subject containing *soitu*, which means that the former c-commands the latter on the surface. This is generally taken to indicate that long-distance scrambling uniformly counts as \bar{A} -movement, unlike clause-internal scrambling.

Given the discussion above, let us consider whether long-distance scrambling, i.e. overt \bar{A} -movement, is possible out of null CPs in Japanese. It has actually been observed in the literature that the movement in question is disallowed out of them, as in (14) (see Shinohara 2006, Saito 2007, Tanaka 2008, Takita 2010, Cheng 2013, Bošković 2014, and Kasai 2014 for relevant discussion).

- (14) a. Sono hon₁-o Taroo-wa [_{CP} Hanako-ga ___₁ kat-ta to] it-ta.
 that book-ACC Taro-TOP Hanako-NOM buy-PST C say-PST
 (Lit.) ‘That book₁, Taro said [_{CP} that Hanako bought ___₁].’
- b. Sono hon₂-o Ziroo-wa [_{CP} Hanako-ga ___₂ kat-ta to] it-ta.
 that book-ACC Ziro-TOP Hanako-NOM buy-PST C say-PST
 (Lit.) ‘That book₂, Ziro said [_{CP} that Hanako bought ___₂].’
- b’. *Sono hon₂-o Ziroo-wa [_{CP} Δ] it-ta.
 that book-ACC Ziro-TOP say-PST
 (Lit.) ‘That book₂, Ziro said [_{CP} Δ].’

(cf. Saito 2007:210)

With (14a) as its antecedent, (14b), where no extraction has taken place, is grammatical, whereas (14b’), where *sono hon* ‘that book’ is extracted out of the null CP via long-distance scrambling, is ungrammatical. This indicates that null arguments in Japanese disallow overt \bar{A} -movement out of

their domains.¹

It is also worth noting here Takahashi's (1993) claim that long-distance scrambling in Japanese behaves as *wh*-movement in certain contexts. Consider the following examples.

¹ Note that Shinohara (2006) observes that long-distance scrambling is disallowed out of null CPs in Japanese even if elements scrambled long-distance out of them are different in the antecedent sentence and the target sentence, as in (i) (see also Bošković 2014).

- (i) a. Hon₁-o John-wa [_{CP} Mary-ga ___₁ kat-ta to] omot-ta-si,
 book-ACC John-TOP Mary-NOM buy-PST C think-PST-and
 zassi₂-o Ken-wa [_{CP} Mary-ga ___₂ kat-ta to] omot-ta.
 magazine-ACC Ken-TOP Mary-NOM buy-PST C think-PST
 (Lit.) 'A book₁, John thought [_{CP} that Mary bought ___₁], and a magazine₂, Ken thought [_{CP} that Mary bought ___₂].'
- b. *Hon₁-o John-wa [_{CP} Mary-ga ___₁ kat-ta to] omot-ta-si,
 book-ACC John-TOP Mary-NOM buy-PST C think-PST-and
 zassi₂-o Ken-wa [_{CP} Δ] omot-ta.
 magazine-ACC Ken-TOP think-PST
 (Lit.) 'A book₁, John thought [_{CP} that Mary bought ___₁], and a magazine₂, Ken thought [_{CP} Δ].'

(Shinohara 2006:2)

In (ib), what has been extracted out the null CP, i.e. *zassi* 'magazine', is different from what has been extracted out of the embedded clause in the antecedent clause, i.e. *hon* 'book', and the sentence is still ungrammatical. It is also worth noting here Goto's (2011) claim that examples like (14b') and (ib) become improved if the topic particle *-wa* is attached to the extracted elements, as in (ii).

- (ii) a. Hon_i-wa Taroo-ga [_{CP} Hanako-ga e_i kat-ta to] it-ta-ga,
 book-TOP Taro-NOM Hanako-NOM buy-PST C say-PST-but
 (Lit.) 'Although, book_i, Taro said [_{CP} that Hanako bought e_i].'
- b. Zassi_j-wa Ziroo-ga [_{CP} Δ] it-ta.
 magazine-TOP Ziro-NOM say-PST
 (Lit.) 'Magazine_j, Ziro said [_{CP} Δ].'

(Goto 2011:245)

In (iib), the topicalized object *zassi* 'magazine' is associated with the gap within the embedded null CP, and the sentence is acceptable. This seems to be a counterexample to the claim that overt \bar{A} -movement out of Japanese null arguments is banned; however, it has been well-known since Saito (1985) that DP topicalization does not exhibit subjacency effects so that it need not involve movement. By contrast, Saito shows that PP topicalization is subject to subjacency effects, hence involving movement in the creation of the relevant dependency. As is expected, PP topicalization out of Japanese null arguments is disallowed, unlike DP topicalization, as in (iii).

- (iii) a. Kono ginkoo-kara₁-wa Taroo-ga [_{CP} Hanako-ga ___₁ okane-o kari-ta to] it-ta-ga
 this bank-from-TOP Taro-NOM Hanako-NOM money-ACC borrow-PST C say-PST-but
 (Lit.) 'Although, from this bank₁, Taro said [_{CP} that Hanako borrowed money ___₁].'
- b. *Ano ginkoo-kara₂-wa Ziroo-ga [_{CP} Δ] it-ta.
 that bank-from-TOP Ziro-NOM say-PST
 (Lit.) 'From that bank₂, Ziro said [_{CP} Δ].'

In (iiia), the PP *kono ginkoo-kara* 'from this bank' has been topicalized out of the embedded CP. With (iiia) as its antecedent, (iiib), which involves topicalization of the PP *ano ginkoo-kara* out of the embedded null CP, is ungrammatical. In light of the above discussion, I conclude that overt \bar{A} -movement out of Japanese null arguments is banned.

- (15) Nani₁-o John-wa [_{CP} Mary-ga ___₁ tabe-ta ka] siritagat-te-iru.
 what-ACC John-TOP Mary-NOM eat-PST Q want.to.know-PROG-PRES
 (Lit.) ‘What₁, John wants to know [_{CP} Q Mary ate ___₁].’
- (16) a. John-wa [_{CP} Mary-ga nani-o tabe-ta ka] siritagat-te-iru no?
 John-TOP Mary-NOM what-ACC eat-PST Q want.to.know-PROG-PRES Q
 (Lit.) ‘Q John wants to know [_{CP} Q Mary ate what]?’
 = Does John want to know what Mary ate?
 = What does John want to know Mary ate?
- b. Nani₁-o John-wa [_{CP} Mary-ga ___₁ tabe-ta ka] siritagat-te-iru
 what-ACC John-TOP Mary-NOM eat-PST Q want.to.know-PROG-PRES
 no?
 Q
 (Lit.) ‘What₁ Q John wants to know [_{CP} Q Mary ate ___₁]?’
 ≠ Does John want to know what Mary ate?
 = What does John want to know Mary ate?

(Takahashi 1993:657)

(15) illustrates the radical reconstruction property of scrambling (cf. Saito 1989). Specifically, the *wh*-phrase *nani* ‘what’ is scrambled out of the embedded CP, occupying a position in the matrix clause, but the sentence is interpreted as an embedded question, namely Taro wants to know what Mary ate. Given that *wh*-phrases must be included within the scope of the relevant Q element in LF (cf. Harada 1972), the grammaticality of (15) suggests that the relevant *wh*-phrase undergoes total reconstruction in LF so that it is embedded within the scope of the embedded Q-particle *ka* in LF. What Takahashi (1993) observes, however, is that scrambled elements do not always undergo radical reconstruction. In (16a), the *wh*-phrase is located within the embedded CP, and it can take scope either in the matrix clause or the embedded clause: (16a) is ambiguous in that it can

be interpreted as either a matrix *wh*-question or an embedded *wh*-question. Importantly, (16b), where the *wh*-phrase is scrambled across a clause boundary, is unambiguous in that it can only be interpreted as a matrix *wh*-question. In other words, the scrambled *wh*-phrase in (16b) does not reconstruct into the embedded CP, creating an operator-variable relation with its ‘trace’. This type of scrambling has been argued to involve actual *wh*-movement because of that.² Given the above discussion, consider the following examples (cf. Cheng 2013:233).

² *Wh*-movement is known to fix the scope of moved *wh*-phrases, as in (i) (cf. Baker 1970).

- (i) ?What₁ do you wonder who₂ ___₂ bought ___₁ where?

Here, the in-situ *wh*-phrase *where* can take either matrix or embedded scope, whereas the moved *wh*-phrases *what* and *who* can only take surface scope, i.e. the former can only take the matrix scope and the latter the embedded scope. Therefore, it seems reasonable to attribute the lack of the embedded scope of *nani* ‘what’ in cases like (16b) to the presence of *wh*-movement. Takahashi also argues for *wh*-movement in Japanese on the basis of superiority effects (cf. Chomsky 1973, Pesetsky 1982, Lasnik and Saito 1992, Kitahara 1997, Bošković 1999). Consider (ii) and (iii).

- (ii) a. Who saw what?
 b. *What₁ did who see ___₁?
- (iii) a. John-ga dare-ni [CP Mary-ga nani-o tabe-ta to] it-ta no?
 John-NOM who-DAT Mary-NOM what-ACC eat-PST C say-PST Q
 (Lit.) ‘Q John told who [CP that Mary ate what]?’
 b.??Nani₁-o John-ga dare-ni [CP Mary-ga ___₁ tabe-ta to] it-ta no?
 what-ACC John-NOM who-DAT Mary-NOM eat-PST C say-PST Q
 (Lit.) ‘What₁, Q John told who [CP that Mary ate ___₁]?’

(Takahashi 1993:664)

In (iib), the *wh*-phrase *what* originally located in a lower position than the other *wh*-phrase *who* has undergone movement, crossing the latter, and the sentence is ungrammatical. In (iiib), the *wh*-phrase *nani* ‘what’ within the embedded CP has undergone movement, crossing the other *wh*-phrase *dare* ‘who’ in the matrix clause. The ungrammaticality of (iiib) indicates that long-distance scrambling of *wh*-phrases induces a superiority effect, which is generally considered to be a hallmark of *wh*-movement. That *wh*-movement is responsible for the ungrammaticality of (iiib) is further confirmed by the fact that (iiib) becomes grammatical if the long-distance scrambled *wh*-phrase is replaced by a non-*wh*-phrase, as in (iv).

- (iv) Pizza₁-o John-ga dare-ni [CP Mary-ga ___₁ tabe-ta to] it-ta no?
 pizza-ACC John-NOM who-DAT Mary-NOM eat-PST C say-PST Q
 (Lit.) ‘Pizza₁, Q John told who [CP that Mary ate ___₁]?’ (Takahashi 1993:664)

Here, the non-*wh*-phrase *pizza* originally located within the embedded CP has undergone long-distance scrambling, crossing the *wh*-phrase in the matrix clause, and the sentence is grammatical, contrary to (iiib). The grammaticality of (iv) thus provides evidence that the ungrammaticality of (iiib) is caused by *wh*-movement.

(17) A¹: Nani₁-o John-wa [CP Mary-ga ___₁ tabe-ta ka] siritagat-te-iru
 what-ACC John-TOP Mary-NOM eat-PST Q want.to.know-PROG-PRES
 no?

Q

(Lit.) ‘What₁ Q John wants to know [CP Q Mary ate ___₁]?’

= What does John want to know Mary ate?

B: Pan da yo.

bread COP.PRES SFP

‘Bread.’

A²: (i) Zyaa, nani₂-o Peter-wa [CP Mary-ga ___₁ tabe-ta ka]
 then what-ACC Peter-TOP Mary-NOM eat-PST Q
 siritagat-te-iru no?

want.to.know-PROG-PRES Q

(Lit.) ‘Then, what₂ Q did Peter want to know [CP Q Mary ate ___₁]?’

= ‘Then, what does Peter want to know Mary ate?’

(ii) *Zyaa, nani₂-o Peter-wa [CP Δ] siritagat-te-iru no?

then what-ACC Peter-TOP want.to.know-PROG-PRES Q

(Lit.) ‘Then, what₂ Q did Peter want to know [CP Δ]?’

(Int.) ‘Then, what does Peter want to know Mary ate?’

With (17A¹) as its antecedent, (17A²-ii) with the intended interpretation is unacceptable (the sentence is acceptable only with the interpretation, ‘What does Peter want to know?’). Given that the movement involved in (17A¹) and (17A²) is an instance of *wh*-movement, the ungrammaticality of (17A²-ii) shows that *wh*-movement as well as ordinary long-distance scrambling, both of which count as overt \bar{A} -movement, is banned out of Japanese null arguments.

3.2.2 Pseudoraising and Raising-to-Object

A-movement out of CPs in Japanese has been widely discussed in the literature. In this section, I will discuss two relevant constructions: pseudoraising (Takahashi and Uchibori 2003) and Raising-to-Object (RtO) (cf. Kuno 1976a, Kaneko 1988, Bruening 2001, Hiraiwa 2001, 2005, Tanaka 2002, 2004, Takano 2003, among others). Typical examples of pseudoraising and RtO are shown in (18) and (19).³

(18) Pseudoraising

- a. Taroo-ni(-wa) [CP John-ga Nihon-ni ryuugakusu-ru to] omoe-ta.
 Taro-to(-TOP) John-NOM Japan-in study.abroad-PRES C seem-PST
 ‘It seemed to Taro [CP that John will study abroad in Japan].’
- b. John₁-ga Taroo-ni(-wa) [CP ___₁ Nihon-ni ryuugakusu-ru to] omoe-ta.
 John-NOM Taro-to(-TOP) Japan-in study.abroad-PRES C seem-PST
 (Lit.) ‘John₁ seemed to Taro [CP that ___₁ will study abroad in Japan].’

³ Although Kuno (1976a) claims that verbs such as *say* and *claim* do not license RtO in Japanese, most native speakers of Japanese including me accept the relevant cases, e.g. (19). In this section, I will consistently use the verb *shutyoos-* ‘claim’, which cannot take nominal arguments like *Hanako*, as in (ia). Verbs like *omow-* ‘think’ can take a nominal argument, as in (ib), which makes it in principle possible to analyze a potential RtO example like (iia) in terms of the prolepsis analysis, as in (iib).

- (i) a. #Taroo-wa Hanako-o shutyoosi-ta.
 Taroo-TOP Hanako-ACC claim-PST
 (Lit.) ‘Taro claimed Hanako.’
- b. Taroo-wa Hanako-o omot-te-iru.
 Taro-TOP Hanako-ACC think-PROG-PRES
 ‘Taro thinks of Hanako.’
- (ii) a. Taroo-wa Hanako-o tensai da to omot-te-iru.
 Taro-TOP Hanako-ACC genius COP.PRES C think-PROG-PRES
 ‘Taro thinks that Hanako is genius.’
- b. [TP Taro [VP Hanako_i [CP *pro*_i genius COP C] V] T]

(19) RtO

- a. Taroo-ga orokanimo [CP Hanako-o tensai da to] shutyoosi-ta.
Taro-NOM stupidly Hanako-ACC genius COP.PRES C claim-PST
'Taro stupidly claimed [CP that Hanako is a genius].'
- b. Taroo-ga Hanako₁-o orokanimo [CP ___₁ tensai da to] shutyoosi-ta.
Taro-NOM Hanako-ACC stupidly genius COP.PRES C claim-PST
(Lit.) 'Taro, Hanako₁, stupidly claimed [CP that ___₁ is a genius].'

It is standardly assumed that *John* in (18b) and *Hanako* in (19b) have undergone long-distance movement out of the embedded clause: the connection between the gap and *John/Hanako* is not mediated via binding.⁴ One of the arguments for the movement view, for example, concerns the ability of idiom chunks to appear in these constructions, as in (20) and (21) (cf. Kuno 1976a, Bruening 2001, Takahashi and Uchibori 2003).

(20) Pseudoraising

- a. Taroo-ni(-wa) [CP Hanako-no me-ga husiana da to] omoe-ta.
Taro-to-(-TOP) Hanako-GEN eye-NOM knothole COP.PRES C seem-PST
(Lit.) 'It seemed to Taro [CP that Hanako's eyes are knothole].'
≈ 'It seemed to Taro that Hanako does not see the nature of things.'
- b. Hanako-no me₁-ga Taroo-ni(-wa) [CP ___₁ husiana da to] omoe-ta.
Hanako-GEN eye-NOM Taro-to-(-TOP) knothole COP.PRES C seem-PST
(Lit.) 'Hanako's eyes₁ seemed to Taro [CP that ___₁ are knothole].'
≈ 'It seemed to Taro that Hanako does not see the nature of things.'

⁴ In (19b), *orokanimo* 'stupidly' is a matrix adverb, which can only modify the matrix predicate *shutyoosita* 'claimed', not the embedded predicate *tensai* 'genius', as in (i) (cf. Kuno 1976a, Takeuchi 2010).

(i) #Taroo-wa orokanimo tensai da.
Taro-TOP r stupidly genius COP.PRES
(Lit.) 'Taro is stupidly a genius.'

It then follows that *Hanako* in (19b) is located in the matrix clause.

(21) RtO

- a. Taroo-ga orokanimo [_{CP} Hanako-no me-o husiana da to]
Taro-NOM stupidly Hanako-GEN eye-ACC knothole COP.PRES C
shutyoosi-ta.
claim-PST
(Lit.) ‘Taro stupidly claimed [_{CP} that Hanako’s eyes are knothole].’
≈ ‘Taro stupidly claimed that Hanako does not see the nature of things.’
- b. Taroo-ga Hanako-no me₁-o orokanimo [_{CP} __₁ husiana da to]
Taro-NOM Hanako-GEN eye-ACC stupidly knothole COP.PRES C
shutyoosi-ta.
claim-PST
(Lit.) ‘Taro, Hanako’s eyes₁, stupidly claimed [_{CP} that __₁ are knothole].’
≈ ‘Taro stupidly claimed that Hanako does not see the nature of things.’

Here, *me* ‘eye’ and *husiana* ‘knothole’ constitute an idiom meaning that one does not see the nature of things. In (20b) and (21b), *me* ‘eye’ and *husiana* ‘knothole’ do not form a constituent, but the idiomatic meaning in question is still obtained, which indicates that the former is base-generated with the latter, with the former undergoing movement, under the standard assumption that the availability of idiomatic interpretations in this type of cases indicates a movement dependency (cf. Brame 1968, Kayne 1994, Postal 2004, among many others). This then leads us to conclude that *John* in (18b) and *Hanako* in (19b) have undergone movement from the gap position within the embedded clause (see Kuno 1976a, Hiraiwa 2001, 2005, Tanaka 2002, Takahashi and Uchibori 2003, Takahashi 2011 for more arguments for the movement view).⁵

Given that movement is involved in pseudoraising and RtO, the question to be asked is

⁵ See Takahashi and Uchibori (2003) for several arguments that movement involved in pseudoraising is not an instance of (long-distance) scrambling.

whether the movement involved in these constructions is an instance of \bar{A} -movement like long-distance scrambling or A-movement. Regarding this issue, Takahashi and Uchibori (2003) and Tanaka (2002) observe that elements that have undergone pseudoraising and RtO can create a new binding relation, as in (22) and (23), respectively.

(22) Pseudoraising

- a. **Soitu_i-no* hahaoya-ni(-wa) [_{CP} [*san-nin izyoo-no* *gakusei*]_i-ga Nihon-ni
the.guy-GEN mother-to(-TOP) three-CL or.more-GEN student-NOM Japan-in
ryuugakusu-ru to] *omoe-ta*.
study.abroad-PRES C seem-PST
(Lit.) ‘It seemed to their_i mothers [_{CP} that [three or more students]_i will study abroad
in Japan].’
- b. [*San-nin izyoo-no* *gakusei*]_{1/i}-ga *soitu_i-no* hahaoya-ni(-wa) [_{CP} ___₁
three-CL or.more-GEN student-NOM the.guy-GEN mother-to(-TOP)
Nihon-ni *ryuugakusu-ru* to] *omoe-ta*.
Japan-in study.abroad-PRES C seem-PST
(Lit.) ‘[Three or more students]_{1/i} seemed to their_i mothers [_{CP} that ___₁ will
study abroad].’

(23) RtO

- a. **Soitu_i-no* hahaoya-ga *orokanimo* [_{CP} [*san-nin izyoo-no* *gakusei*]_i-o
the.guy-GEN mother-NOM stupidly three-CL or.more-GEN student-ACC
tensai da to] *shutyoosi-ta*.
genius COP.PRES C claim-PST
(Lit.) ‘Their_i mothers stupidly claimed [_{CP} that [three or more students]_i are genius].’

- b. [San-nin izyoo-no gakusei]_{1/i}-o soitu_i-no hahaoya-ga orokanimo
 three-CL or.more-GEN student-ACC the.guy-GEN mother-NOM stupidly
 [_{CP} __₁ tensai da to] shutyoosi-ta.
 genius COP.PRES C claim-PST
 (Lit.) ‘[Three or more students]_{1/i}, their_i mothers stupidly claimed [_{CP} that __₁ are
 genius].’

Although (22a) and (23a), where *soitu* ‘the guy’ is not bound by the relevant QP, cannot yield a bound variable interpretation, (22b) and (23b), where the QPs have undergone pseudoraising and RtO over the element containing *soitu*, can. That is, (22b) can be interpreted as there are three or more *x*, *x* a student, such that *x* seemed to *x*’s mother to study abroad in Japan, and (23b) as there are three or more *x*, *x* a student, such that *x*’s mother stupidly considered *x* to be a genius. The availability of the bound variable interpretations in (22b) and (23b) thus constitutes evidence that *san-nin izyoo-no gakusei* ‘three or more students’ in these sentences occupies an A-position, which in turn indicates that it has undergone long-distance A-movement out of the embedded clause.

Given that the movement involved in pseudoraising and RtO is an instance of A-movement, let us then consider whether overt A-movement is allowed out of Japanese null arguments. Tanaka (2008) observes that RtO out of them is disallowed, as in (24).

(24) RtO

- a. Taroo-wa Kanako₁-o orokanimo [_{CP} __₁ tensai da to] shutyoosi-ta.
 Taro-TOP Kanako-ACC stupidly genius COP.PRES C claim-PST
 (Lit.) ‘Taro, Kanako₁, stupidly claimed [_{CP} that __₁ is a genius].’
- b. Ziroo-wa Ayaka₂-o orokanimo [_{CP} __₂ tensai da to] shutyoosi-ta.
 Ziro-TOP Ayaka-ACC stupidly genius COP.PRES C claim-PST
 (Lit.) ‘Ziro, Ayaka₂, stupidly claimed [_{CP} that __₂ is a genius].’

- b'. *Ziroo-wa Ayaka₂-o orokanimo [_{CP} Δ] shutyoosi-ta.
 Ziro-TOP Ayaka-ACC stupidly claim-PST
 (Lit.) 'Ziro, Ayaka₂, stupidly claimed [_{CP} Δ].'

In (24a), *Kanako* has undergone long-distance A-movement out of the embedded CP. With this sentence as its antecedent, (24b) is grammatical, while (24b'), which involves overt A-movement of *Ayaka* out of the null CP, is ungrammatical. Note that embedded CPs in the RtO construction can be in principle phonologically dropped, as in (25).

- (25) a. Taroo-wa orokanimo [_{CP} Kanako-o tensai da to] shutyoosi-ta.
 Taro-TOP stupidly Kanako-ACC genius COP.PRES C claim-PST
 (Lit.) 'Taro stupidly claimed [_{CP} that Kanako is a genius].'
- b. Ziroo-mo orokanimo [_{CP} Δ] shutyoosi-ta.
 Ziro-also stupidly claim-PST
 (Lit.) 'Ziro also stupidly claimed [_{CP} Δ].'

This suggests that what matters for the ungrammaticality of (24b') is in fact extraction out of the embedded null CP, which in turn indicates that RtO is prohibited out of Japanese null arguments.⁶

⁶ It is also worth noting here Tanaka's (2008) observation that control clauses can be phonologically null, as in (i).

- (i) Hanako-wa Taroo_i-ni [_{CP} PRO_i fugu-o tabe-ru yooni] meezi-ta-kedo,
 Hanako-TOP Taro-DAT blowfish-ACC eat-PRES C order-PST-but
 Sachiko-wa Ziroo_j-ni [_{CP} Δ] meezi-ta.
 Sachiko-TOP Ziro-DAT order-PST
 (Lit.) 'Hanako ordered Taro_i [_{CP} PRO_i to eat a blowfish], but Sachiko ordered Ziro_j [_{CP} Δ].' (Tanaka 2008:14)

The grammaticality of (i) can be taken to support the movement account of the RtO construction, because if accusative subjects in RtO in Japanese are base-generated in matrix clauses, being co-indexed with empty pronouns, e.g. *pro*, within embedded CPs, (24b') should be grammatical on a par with (i): the prolepsis analysis of RtO basically treats (24) and (i) in the same way, i.e. in terms of binding/control, so extraction could not be responsible for the ungrammaticality of (24b'). The contrast between (24b') and (i) would then remain mysterious under the prolepsis analysis of the RtO construction. Note also that the grammaticality of (i) can be taken as an argument against the movement theory of control developed by Hornstein (1999, 2001), which connects controllers and controllees, e.g. *Taro* and *PRO* in (i), via movement (see Takano 2010 for relevant discussion). Specifically, under Hornstein's analysis, the controller *Ziro* in the second conjunct must have undergone A-movement out of the embedded null CP, but such movement is banned in Japanese, cf. (24b'). The contrast between (24b') and (i) straightforwardly follows if RtO and

The following data show that pseudoraising is also disallowed out of Japanese null arguments.

- (26) a. Taroo-ni(-wa) [CP John-ga Nihon-ni ryuugakusu-ru to] omoe-ta.
 Taro-to(-TOP) John-NOM Japan-in study.abroad-PRES C seem-PST
 ‘It seemed to Taro [CP that John will study abroad in Japan].’
- b. Ziroo-ni-mo [CP Δ] omoe-ta.
 Ziro-to-also seem-PST
 (Lit.) ‘It seemed to Ziro [CP Δ], too.’

(27) Pseudoraising

- a. John₁-ga Taroo-ni(-wa) [CP $__1$ Nihon-ni ryuugakusu-ru to] omoe-ta.
 John-NOM Taro-to(-TOP) Japan-in study.abroad-PRES C seem-PST
 (Lit.) ‘John₁ seemd to Taro [CP that $__1$ will study abroad in Japan].’
- b. Bill₂-ga Ziroo-ni-wa [CP $__2$ Nihon-ni ryuugakusu-ru to] omoe-ta.
 Bill-NOM Ziro-to-TOP Japan-in study.abroad-PRES C seem-PST
 (Lit.) ‘Bill₂ seemd to Ziro [CP that $__2$ will study abroad in Japan].’
- b’. *Bill₂-ga Ziroo-ni-wa [CP Δ] omoe-ta.
 Bill-NOM Ziro-to-TOP seem-PST
 (Lit.) ‘Bill₂ seemd to Ziro [CP Δ].’

With (26a) as its antecedent, (26b), which involves an embedded null CP from which no raising has taken place, is grammatical. In (27b’), the missing CP is anaphoric on the embedded CP in (27a), and *Bill* has undergone pseudoraising out of it. Therefore, what matters for the ungrammaticality of (27b’) is extraction out of the embedded null CP; the ungrammaticality of (27b’) then indicates that pseudoraising out of Japanese null arguments is banned, just like RtO is.

control clauses in Japanese involve movement and pronominal binding (i.e. PRO), respectively.

The above data thus lead us to conclude that pseudoraising and RtO, both of which are instances of overt A-movement, are uniformly prohibited out of Japanese null arguments, just like long-distance scrambling, i.e. overt \bar{A} -movement, is.

3.2.3 PP Left-branch Extraction

Now, let us turn to overt extraction out of nominal missing arguments. The possibility of such an extraction is hard to test since it is well-known that Japanese generally does not allow left-branch extraction, as in (28b) (cf. Kikuchi 1987, Snyder, Wexler, and Das 1995, Nomura and Hirotsu 2005, Kato 2007).

- (28) a. Taroo-ga [_{DP} Hanako-no tegami]-o sute-ta.
 Taro-NOM Hanako-GEN letter-ACC discard-PST
 ‘Taro discarded [_{DP} Hanako’s letter].’
- b. *Hanako₁-no Taroo-ga [_{DP} ___₁ tegami]-o sute-ta.
 Hanako-GEN Taro-NOM letter-ACC discard-PST
 (Lit.) ‘Hanako’s₁, Taro discarded [_{DP} ___₁ letter].’

In (28b), the left-branch element *Hanako* is extracted out of the object DP. The ungrammaticality of this sentence suggests that left-branch extraction is prohibited in Japanese.

However, Takahashi and Funakoshi (2013) observe that the left-branch extraction ban is obviated if what is extracted from an DP is a PP *wh*-phrase, as in (30). ((29) shows that it is crucial for the PPs to be *wh*-phrases in order for them to be able to extract out of DPs).

- (29) a. Taroo-ga [_{DP} Hanako-kara-no tegami]-o sute-ta no?
 Taro-NOM Hanako-from-GEN letter-ACC discard-PST Q
 ‘Did Taro discard [_{DP} a letter from Hanako]?’

- b. *Hanako-kara₁-no Taroo-ga [DP ___₁ tegami]-o sute-ta no?
 Hanako-from-GEN Taro-NOM letter-ACC discard-PST Q
 (Lit.) ‘From Hanako₁, did Taro discard [DP a letter ___₁].’

(Takahashi and Funakoshi 2013:244)

- (30) a. Taroo-ga [DP dare-kara-no tegami]-o sute-ta no?
 Taro-NOM who-from-GEN letter-ACC discard-PST Q
 (Lit.) ‘Taro discarded [DP a letter from whom]?’

- b. Dare-kara₁-no Taroo-ga [DP ___₁ tegami]-o sute-ta no?
 who-from-GEN Taro-NOM letter-ACC discard-PST Q
 (Lit.) ‘From whom₁, did Taro discard [DP a letter ___₁]?’

(Takahashi and Funakoshi 2013:237)

In (29b) and (30b), the PP *Hanako-kara-no* ‘from Hanako’ and the PP *wh*-phrase *dare-kara-no* ‘from whom’ are extracted out of the object DP, respectively, and only the latter extraction is allowed. Takahashi and Funakoshi provide two arguments for a movement analysis of this construction. First, extracted PPs receive genitive case, which is generally assigned within nominals (cf. Kitagawa and Ross 1982), so it is reasonable to assume that they originate inside of the nominal phrases. Second, PP left-branch extraction exhibits subjacency effects, as in (32). ((31) shows that a long-distance dependency is in principle allowed under the relevant movement).

- (31) a. Hanako-ga [CP Taroo-ga [DP dare-kara-no tegami]-o sute-ta to]
 Hanako-NOM Taro-NOM who-from-GEN letter-ACC discard-PST C
 omot-te-iru no?
 think-PROG-PRES Q
 (Lit.) ‘Does Hanako think [CP that Taro read [DP a letter from whom]]?’

- b. Dare-kara₁-no Hanako-ga [CP Taro-ga [DP __₁ tegami]-o sute-ta to]
 who-from-GEN Hanako-NOM Taro-NOM letter-ACC discard-PST C
 omot-te-iru no?
 think-PROG-PRES Q
 (Lit.) ‘From whom₁, does Hanako think [CP that Taro read [DP a letter __₁]]?’

(Takahashi and Funakoshi 2013:239)

- (32) a. Hanako-ga [[relative clause [DP dare-kara-no tegami]-o sute-ta] hito]-o
 Hanako-NOM who-from-GEN letter-ACC discard-PST person-ACC
 sagasi-te-iru no?
 look.for-PROG-PRES Q
 (Lit.) ‘Is Hanako looking for [a person [relative clause who discarded [DP a letter from whom]]]?’

- b. *Dare-kara₁-no Hanako-ga [[relative clause [DP __₁ tegami]-o sute-ta]
 who-from-GEN Hanako-NOM letter-ACC discard-PST
 hito]-o sagasi-te-iru no?
 person-ACC look.for-PROG-PRES Q
 (Lit.) ‘From whom₁, is Hanako looking for [a person [relative clause who discarded [DP a letter __₁]]]?’

(Takahashi and Funakoshi 2013:239)

In (31b), the left-branch PP *dare-kara* ‘from whom’ has been extracted out of the object DP within the embedded clause. The grammaticality of (31b) indicates that long-distance PP left-branch extraction is allowed here. In (32b), the relevant PP is extracted out of a relative clause, which is an island for movement, and the sentence is ungrammatical. This suggests that PP left-branch extraction involves movement, rather than binding or control.⁷

⁷ Takahashi and Funakoshi (2013) also claim that PP left-branch extraction is an instance of \bar{A} -movement based on the fact that the movement in question exhibits weak crossover violations. Consider the following examples.

Given that movement is involved in PP left-branch extraction, let us then consider whether the relevant movement is possible out of Japanese null arguments. Consider (33).

(33) A¹: Dare-kara₁-no Taroo-wa [DP ___₁ tegami]-o sute-ta no?
 who-from-GEN Taro-TOP letter-ACC discard-PST Q
 (Lit.) ‘From whom₁, did Taro discard [DP a letter ___₁]?’

B: Bill-da yo.
 Bill-PRES SFP
 ‘Bill.’

A²: (i) Zyaa, dare-kara₂-no Ziroo-wa [DP ___₂ tegami]-o sute-ta no?
 then who-from-GEN Ziro-TOP letter-ACC discard-PST Q
 (Lit.) ‘Then, from whom₂, did Ziro scold [DP a letter ___₂]?’

(ii) *Zyaa, dare-kara₂-no Ziroo-wa [DP Δ] sute-ta no?
 then who-from-GEN Ziro-TOP discard-PST Q
 (Lit.) ‘Then, from whom₂, did Ziro scold [DP Δ]?’

-
- (i) a. *Who_{1/i} does his_i mother love ___₁?
 b. Who_{1/i} ___₁ seems to his_i mother [___₁ to be intelligent]?
- (ii) a. *Kinoo soko_i-no shain-ga [DP [dono kaisha]_i-kara-no shootaizyoo]-o uketot-ta no?
 yesterday it-GEN employee-NOM which company-from-GEN invitation-ACC receive-PST Q
 (Lit.) ‘Did its_i employees receive [DP invitations from [which company]_i] yesterday?’
- b. *Dono kaisha_i-kara₁-no kinoo soko_i-no shain-ga [DP ___₁ shootaizyoo]-o
 which company-from-GEN yesterday it-GEN employee-NOM invitation-ACC
 uketot-ta no?
 receive-PST Q
 (Lit.) ‘From which company_{1/i}, did its_i employees receive [DP invitations ___₁] yesterday?’
- c. Dono kaisha-kara₁-no kinoo Toyota-no shain-ga [DP ___₁ shootaizyoo]-o
 which company-from-GEN yesterday Toyota-GEN employee-NOM invitation-ACC
 uketot-ta no?
 receive-PST Q
 (Lit.) ‘From which company₁, did Toyota’s employees receive [DP invitations ___₁] yesterday?’

(Takahashi and Funakoshi 2013:243)

In (ia), *who* crosses over the co-indexed *his*, and the sentence is ungrammatical. This is taken to indicate that \bar{A} -movement induces weak crossover effects. In (ib), *who* crosses over the co-indexed *his* via A-movement (raising), and the sentence is grammatical. This indicates that, unlike \bar{A} -movement, A-movement does not induce weak crossover effects. Given this, consider (ii). (iia) is ungrammatical since the bound pronoun *soko* ‘it’ is not c-commanded by its antecedent *dono kaisha* ‘which company’. In (iib), *dono kaisha* ‘which company’ crosses over the bound pronoun *soko* ‘it’, and the sentence is ungrammatical, cf. (ia). This suggests that PP left-branch extraction involves \bar{A} -movement rather than A-movement. See Takahashi and Funakoshi (2013) for more discussion of the data in (ii).

In (33A¹), the left-branch PP *dare-kara* ‘from whom’ is extracted out of the object DP. (33B) is the answer to (33A¹). Interesting for us here is (33A²). In (33A²-i), the left-branch PP *dare-kara* ‘from whom’ is extracted from the object DP, and the sentence is grammatical. In (33A²-ii), the PP in question is extracted out of the null object DP which is anaphoric on the object DP in (33A¹), and the sentence is ungrammatical. This indicates that PP left-branch extraction is banned out of Japanese null arguments, which in turn means that overt extraction out of null DPs is prohibited in Japanese, just like overt extraction out of null CPs is.

3.2.4 Interim Summary

To sum up, the above observations lead us to conclude that overt extraction is uniformly excluded out of Japanese null argument sites regardless of the type of movement (\bar{A} or A) or the category of null arguments (clausal or nominal). In the following section, I will discuss covert movement, more precisely, movement that does not affect word order. I will show that there is a surprising contrast regarding overt extraction and covert extraction. More precisely, it will be demonstrated that covert extraction is uniformly allowed out of Japanese null arguments, in contrast to overt extraction.⁸

3.3 Covert Extraction out of Japanese Null Arguments

3.3.1 Null Operator Movement

First, I will discuss null operator (Op) movement (see here footnote 8). I will focus here on three constructions which have been argued to involve null operator movement, namely comparative

⁸ The readers should bear in mind that what I mean by covert movement is simply extraction that does not affect word order. I will discuss in chapter 5 how what I call covert movement is implemented in terms of the analysis.

deletion (cf. Kikuchi 1987), PP-*Tough* (PPT) constructions (cf. Takezawa 1987), and *half* relatives (cf. Ishii 1991), the basic examples of which are illustrated in (34a–c).⁹

(34) a. Comparative Deletion

John-ga [Mary-ga *e* mot-te-iru yori(mo)] takusan hon-o
 John-NOM Mary-NOM have-PROG-PRES than many book-ACC
 mot-te-iru.
 have-PROG-PRES

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

b. PPT

Sono dai-kara_{*i*}-ga (John-nitotte) [*e_i* tobikomi]-yasu-i.
 that board-from-NOM John-for jump-easy-PRES

(Lit.) ‘From that board_{*i*} is easy for John [to jump *e_i*].’ (Takezawa 1987:215)

c. *Half* Relative

John-wa [[Bob-ga yatin-ni *e* tuka-u] hanbun]-o gyanburu-ni tuka-u.
 John-TOP Bob-NOM rent-for use-PRES half-ACC gambling-for use-PRES

(Lit.) ‘John uses for gambling [half (the amount) [Bob uses *e* for rent]].’

(Ishii 1991:222)

The gap *e* corresponds to the amount of the books that Mary has in (34a), the matrix PP *sono dai-kara* ‘from that board’ in (34b), and the amount of money that Bob uses for his rent in (34c). Importantly, these constructions exhibit subjacency effects, as shown in (36a–c), though unbounded dependencies are in principle possible here, as (35a–c) demonstrate.

⁹ I will discuss *wh*-in-situ and the Case-marked/PP cleft construction (cf. Hoji 1987, 1990), which are also sometimes claimed to involve null operator movement, in chapter 5, where it will be shown that these constructions also support the claim made in this chapter.

(35) a. Comparative Deletion

[[_{CP} John-ga *e* yon-da to] iw-are-te-iru yori(mo)]

John-NOM read-PST C say-PASS-PROG-PRES than

Mary-wa takusan hon-o yon-de-ita.

Mary-TOP many book-ACC have-PROG-PRES

(Lit.) ‘Mary read more books [than it is said [_{CP} that John read *e*]].’ (Kikuchi 1987:6)

b. PPT

Zibun-no ootoo-kara_i-ga (John-nitotte) [[_{CP} *e*_i okane-o takusan

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

kari-te-iru to] mitome]-nuku-i.

borrow-PROG-PRES C admit-hard-PRES

(Lit.) ‘From self’s brother_i is hard for John [to admit [_{CP} that he has borrowed much money *e*_i]].’ (Takezawa 1987:196)

c. *Half* Relative

John-wa [[Mary-ga [_{CP} zibun-no imooto-ga maituki *e* mora-u to]

John-TOP Mary-NOM self-GEN sister-NOM every.month receive-PRES C

it-te-iru] hanbun]-o tyokinsu-ru.

say-PROG-PRES half-ACC save-PRES

(Lit.) ‘John saves [half (the amount) [Mary says [_{CP} that her sister receives *e* every month]]].’ (adapted from Ishii 1991:225)

(36) a. Comparative Deletion

*[[[relative clause sono tukue-de *e* yon-de-ita] hito]-o John-ga

that desk-on read-PROG-PAST person-ACC John-NOM

nagut-ta yori(mo)] Paul-wa takusan hon-o yon-de-ita.

hit-PST than Paul-TOP many book-ACC read-PROG-PST

(Lit.) ‘Paul read more books [than John hit [the person [relative clause who was reading *e* on that desk]]].’ (Kikuchi 1987:7)

b. PPT

*Sooiu kinyuukikan-kara_i-ga (John-nitotte) [[[relative clause e_i itumo
such financial.agency-from-NOM John-for always
okane-o kari-te-iru] hito]-o sinyoosi]-niku-i.
money-ACC borrow-PROG-PRES person-ACC trust-hard-PRES
(Lit.) ‘From such a financial agency_i is hard for John [to trust [a person [relative clause
who always loans a lot of money e_i]]].’ (Takezawa 1987:216)

c. *Half*Relative

*John-wa [[Bob-ga [[relative clause e kasei-da] hito]-o hihansi-ta]
John-TOP Bob-NOM earn-PST person-ACC criticize-PST
hanbun]-o tyokinsu-ru.
half-ACC save-PRES
(Lit.) ‘John saves [half (the amount) [Bob criticized [the person [relative clause who
earned e]]]].’ (cf. Ishii 1991:226)

In (35a–c), the gap is inside of the embedded CP, and the sentences are grammatical. This indicates that long-distance dependencies are possible in the relevant constructions. By contrast, (36a–c), where the gap is inside of the relative clause, which is an island for movement, are all ungrammatical. Given that the presence of subjacency effects is a hallmark of movement, the ungrammaticality of (36) indicates that the relevant gap is created by movement. Kikuchi (1987), Takezawa (1987), and Ishii (1991) then claim that the above constructions involve Op-movement, i.e. covert \bar{A} -movement, analyzing (34a–c) as in (37a–c), respectively.¹⁰

¹⁰ Takezawa (1987) argues that what is involved in PP *tough* constructions is Op-movement, not overt movement of PPs, based on examples like (i).

(i) *(John-nitotte) [_{CP} okane-o [zibun-no ootoo-kara]-ga takusan kari-te-iru to] hito-ni
John-for money-ACC self-GEN brother-from-NOM many borrow-PROG-PRES C person-to
ii]-niku-i.
say-hard-PRES
(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

(37) a. Comparative Deletion

John-ga [[Op₁ Mary-ga ___₁ mot-te-iru] yori(mo)] takusan hon-o
John-NOM Mary-NOM have-PROG-PRES than many book-ACC
mot-te-iru.

have-PROG-PRES

(Lit.) ‘John has more books [than [Op₁ Mary has ___₁]].’

b. PPT

Sono dai-kara_i-ga (John-nitotte) [Op₁ [____{1/i} tobikomi]]-yasu-i.
that board-from-NOM John-for jump-easy-PRES

(Lit.) ‘From that board_i is easy for John [Op₁ [to jump ____{1/i}]].’

c. *Half* Relative

John-wa [[Op₁ Bob-ga yatin-ni ___₁ tuka-u] hanbun]-o gyanburu-ni
John-TOP Bob-NOM rent-for use-PRES half-ACC gambling-for
tuka-u.

use-PRES

(Lit.) ‘John uses for gambling [half (the amount) [Op₁ Bob uses ___₁ for rent]].’

The ungrammaticality of (36a–c) now follows since Op-movement crosses the relative clause island boundary, resulting in a subjacency violation.

Given that Op-movement is involved in the above constructions, the following data demonstrate that Op-movement is possible out of Japanese null arguments.¹¹

indicates that the PP subject receives nominative case within the matrix clause. Then, Takezawa reasons, given that movement involved in Case-assignment/licensing is A-movement, the PP *tough* constructions such as (35b) cannot involve overt movement of the PP subject out of the embedded clause since that would result in a violation of the condition A of the binding theory. Takezawa then argues that we can ensure that the PP *tough* construction involves Op-movement if we use a matrix subject with nominative case.

¹¹ Kennedy and Merchant (2000) claim that the complement of the verb *thought* in (ia) is not an instance of a missing CP, but an instance of a trace of a phonologically null nominal operator, which is a variant of the overt operators in (ii), as in (ib).

(i) a. Jones published more papers than Smith thought *e*. (Kennedy and Merchant 2000:(1))

b. Jones published more papers than [_{CP} Op_{DP} Smith thought ____{DP}].
(Kennedy and Merchant 2000:(24) with a slight modification)

(38) Comparative Deletion

- a. [[Op₁ [_{CP} Taro-ga ___₁ yon-da to] Kanako-ni iw-are-te-iru] yori(mo)]
 Taro-NOM read-PST C Kanako-by say-PASS-PROG-PRES than
 Hanako_i-wa takusan hon-o yon-de-ita.
 Hanako-TOP many book-ACC have-PROG-PST
 (Lit.) ‘Hanako_i read more books [than [Op₁ it is said by Kanako [_{CP} that Taro read ___₁]]].’
- b. Sarani, [[Op₂ [_{CP} Taro-ga ___₂ yon-da to] Ayaka-ni
 furthermore Taro-NOM read-PST C Ayaka-by
 iw-are-te-iru yori(mo)] kanozyo_i-wa takusan hon-o yon-de-ita.
 say-PASS-PROG-PRES than she-TOP many book-ACC have-PROG-PST
 (Lit.) ‘Furthermore, she_i read more books [than [Op₂ it is said by Ayaka [_{CP} that Taro read ___₂]]].’

-
- (ii) a. What was {necessary/expected/predicted/reported}?
 b. The committee took much longer to decide than what was expected.

(Kennedy and Merchant 2000:(23)(24))

Kasai (2014) argues that the missing CP in (iiia) may be an instance of Kennedy and Merchant’s (2000) null nominal operator rather than an instance of a(n) missing/elided CP, as in (iiib).

- (iii) a. John-wa [Mary-ga *e*_{CP} omot-te-ita yori] takusan hon-o kat-ta.
 John-TOP Mary-NOM think-PROG-PAST than many book-ACC buy-PST
 (Lit.) ‘John bought more books than Mary thought *e*_{CP}.’ (Ishii 1991:164)
- b. John [Op_{DP} Mary ____{DP} thought than] many book bought

Then, one might wonder whether the missing CP in (38b’) could be a trace of null nominal operator, in which case the example may not show that Op-extraction is possible out of Japanese missing CPs. However, the following data show that Kennedy and Merchant’s (2000) null nominal operator can obtain its interpretation only from its matrix clause, but not from its antecedent clause.

- (iv) a. John₁ published more books than Mary thought [_{CP} that Nancy published].
 b. Furthermore, he₁ published more books than [_{CP} Op_{DP} Bill thought ____{DP}].
 = ... than Bill thought that John/he₁ published
 ≠ ... than Bill thought that Nancy published (Michael Yoshitaka Erlewine, p.c.)

Op_{DP} in (iv-b) cannot refer to the CP in (iv-a); it can only refer to the matrix clause. Therefore, even if the null nominal operator in question were available in Japanese comparatives, the phonologically missing complement of *iwareteiru* ‘be.said’ in (38b’) cannot be an instance of a trace of the operator; it must be a missing CP, so the claim that Op-extraction is possible out of Japanese missing arguments made here is not undermined.

- b'. Sarani, [[Op₂ [CP Δ] Ayaka-ni iw-are-te-iru yori(mo)]
 furthermore Ayaka-by say-PASS-PROG-PRES than
 kanozyo_i-wa takusan hon-o yon-de-ita.
 she-TOP many book-ACC have-PROG-PST
 (Lit.) 'Furthermore, she_i read more books [than [Op₂ it is said by Ayaka [CP Δ]]].'

(39) PPT

- a. Hahaoya-kara_i-ga Taroo-nitotte-wa [Op₁ [CP ____{1/i} aizyoo-o uke-te-iru
 mother-from-NOM Taro-for-TOP love-ACC receive-PROG-PRES
 to] kanzi]-yasu-i.
 c feel-easy-PRES
 (Lit.) 'From his mother_i is easy for Taro [Op₁ to feel [CP that he receives love ____{1/i}]].'
- b. Titioya-kara_j-ga Ziroo-nitotte-wa [Op₂ [CP ____{2/j} aizyoo-o uke-te-iru
 father-from-NOM Ziro-for-TOP love-ACC receive-PROG-PRES
 to] kanzi]-yasu-i.
 c feel-easy-PRES
 (Lit.) 'From his father_j is easy for Ziro [Op₂ to feel [CP that he receives love ____{2/j}]].'
- b'. Titioya-kara_j-ga Ziroo-nitotte-wa [Op₂ [CP Δ] kanzi]-yasu-i.
 father-from-NOM Ziro-for-TOP feel-easy-PRES
 (Lit.) 'From his father_j is easy for Ziro [Op₂ to feel [CP Δ]].'

(40) *Half* Relative

- a. Taroo-wa [[Op₁ Kanako-ga [CP daigakukyooyu-ga maituki ___₁
 Taro-TOP Kanako-NOM professor-NOM every.month
 kaseg-u to] sinzi-te-iru] hanbun]-o tyokinsu-ru.
 earn-PRES c believe-PROG-PRES half-ACC save-PRES
 (Lit.) 'Taro saves [half (the amount) [Op₁ Kanako believes [CP that professors earn ___₁ every month]]].'

- b. Ziroo-wa [[Op₂ Ayaka-ga [CP daigakukyooyu-ga maituki ___₂
 Ziro-TOP Ayaka-NOM professor-NOM every.month
 kaseg-u to] sinzi-te-iru] hanbun]-o tyokinsu-ru.
 earn-PRES C believe-PROG-PRES half-ACC save-PRES
 (Lit.) ‘Ziro saves [half (the amount) [Op₂ Ayaka believes [CP that professors earn
 ___₂ every month]]].’
- b’. Ziroo-wa [[Op₂ Ayaka-ga [CP Δ] sinzi-te-iru] hanbun]-o tyokinsu-ru.
 Ziro-TOP Ayaka-NOM believe-PROG-PRES half-ACC save-PRES
 (Lit.) ‘Ziro saves [half (the amount) [Op₂ Ayaka believes [CP Δ]]].’

In the above examples, the (a) sentences involve null operator movement out of the embedded CP. With the (a) sentences as their antecedents, the (b) sentences, where nothing is phonologically dropped, are all grammatical, and the (b’) examples, which involve null operator movement out of the null CP that is anaphoric on the embedded CP in the (a) sentences, are also grammatical, which shows that null operator movement is allowed out of Japanese null arguments, unlike overt movement.

3.3.2 Quantifier Raising

Let us turn now to covert scope-shifting operation, i.e. QR. Based on examples like (41b), much literature has claimed that Japanese is a scope-rigid language (see Kuroda 1970, Hoji 1985, among others; but see Shibata 2015 for an opposing view).

- (41) a. Someone loves everyone. ∃ » ∀ ; ∀ » ∃
- b. Dareka-ga daremo-o aisi-te-iru.
 someone-NOM everyone-ACC love-PROG-PRES
 ‘Someone loves everyone.’ ∃ » ∀ ; *∀ » ∃

Although both the surface scope and the inverse scope are available in English (41a), only the former scope interpretation is available in Japanese (41b). Given this, it does not seem easy to test whether QR is possible out of missing arguments in Japanese. However, it has been noted in the literature that QP objects in Japanese interact with scope bearers attached to the verbal complex, e.g. negation, as in (42) (cf. Kuno 1980, 1983, Kato 1985, Takubo 1985, Miyagawa 2001, Kataoka 2006, among others).

- (42) Taroo-wa subete-no gakusei-o sikara-nakat-ta.
 Taro-TOP all-GEN student-ACC scold-NEG-PST
 ‘Taro did not scold all the students.’ Neg » \forall ; \forall » Neg

(42) can mean either that Taro scolded no teachers or that it is not the case that Taro scolded all the students. Therefore, the object universal quantifier can take scope over negation and vice versa. In light of this, the following ECM construction is a plausible case of QR on the inverse scope interpretation, i.e. the interpretation where the ECMed QP subject takes scope over negation.

- (43) Kyonen-wa Yamada sensei-ga [CP daiamondo-mitaini subete-no sinnyuusei-o
 last.year-TOP Yamada teacher-NOM diamond-like all-GEN freshman-ACC
 kagayai-te-iru to] iwa-nakat-ta.
 shine-PROG-PRES C say-NEG-PST
 (Lit.) ‘Last year, Prof. Yamada did not say [CP that, like a diamond, all the freshman
 students are shining].’ Neg » \forall ; \forall » Neg

- (44) #Yamada sensei-ga daiamondo-mitaini iwa-nakat-ta.
 Yamada teacher-NOM diamond-like say-NEG-PST
 ‘Prof. Yamada did not say like a diamond.’

In (43), the QP is inside of the embedded clause, and the negation is attached to the matrix verb. This sentence is ambiguous in that it can mean either that it is not the case that Taro said that all the freshman students are shining like a diamond last year or that no students are such that Taro said that they are shining like a diamond last year. (44) indicates that the adverb *diamondo-mitaini* ‘like a diamond’ cannot modify the verb *iwanakatta* ‘not said’. This shows that the adverb in question is an embedded adverb in (43), which in turn means that the ECMed subject *subete-no sinnyuusei* ‘all the freshman students’ stays within the embedded clause (see Bruening 2001, Hiraiwa 2001, 2005, among many others for the claim that ECMed subjects can remain within embedded clauses). Therefore, it is plausible that QR is responsible for the inverse scope reading in (43).¹² Given that QR is involved in constructions such as (43), the following data indicate that QR is allowed out of Japanese missing arguments.¹³

¹² It should be noted here that a number of superficially scope rigid languages have been argued to have QR (see, e.g., Sauerland 2001 and Wurmbrand 2008 for German, Oh 2006 for Korean, and Fitzgibbons 2010 for Russian). Many authors have also argued for QR in Japanese (see Sano 1985, Shoji 1986, Harada and Noguchi 1992, Aoyagi 1998, 2006, Futagi 2004, Saito 2005, Bobaljik and Wurmbrand 2007, Goro 2007, Takahashi 2011, among many others). See also Bobaljik (1995, 2002), Diesing (1997), Chierchia (1998), and especially Takahashi (2011) and Bobaljik and Wurmbrand (2012) for discussion related to the question why QR in Japanese is more ‘restricted’ than QR in English, i.e. why QR is possible only in cases like (43), not in cases like (41b). Notice also that the inverse scope in question cannot be obtained by scrambling both the embedded adverb and the ECM subject. One of the major reasons for this is that scrambling of elements to a post-subject position across a clause boundary is independently known to be impossible, as Saito (1985), Nemoto (1993), among many others, demonstrate, as in (i) (Furthermore, adverbs quite generally cannot undergo long-distance scrambling; see e.g. Miyara 1982, Saito 1985, Bošković and Takahashi 1998).

(i)?* John-ga sono hon₁-o minna-ni [_{CP} Hanako-ga ₁ yon-da to] it-ta.
 John-NOM that book-ACC everyone-DAT Hanako-NOM read-PST C say-PST
 (Lit.) ‘John, that book₁, said to everyone [_{CP} that Hanako read ₁].’ (Nemoto 1993:60)

Here, the landing-site of the long-distance scrambled object *sono hon* ‘that book’ is the post-matrix subject position, and the sentence is degraded. Importantly, (43) is fully acceptable with the inverse scope reading, which makes multiple scrambling unlikely to be responsible for the inverse scope in question.

¹³ Note that Fox’s (2000) Scope Parallelism is observed in (45a) and (45b). Specifically, if we get the surface scope in (45a), we can only get the surface scope in (45b); if we get the inverse scope in (45a), we must get the inverse scope in (45b). The same holds in (48a) and (48b) too.

- (45) a. Kyonen-wa Yamada sensei-ga [CP daiamondo-mitaini subete-no
 last.year-TOP Yamada teacher-NOM diamond-like all-GEN
 sinnyuusei-o kagayai-te-iru to] iwa-nakat-ta.
 freshman-ACC shine-PROG-PRES C say-NEG-PST
 (Lit.) ‘Last year, Prof. Yamada did not say [CP that, like a diamond, all the freshman
 students are shining].’ Neg » \forall ; \forall » Neg [cf. (43)]
- b. Kotosi-wa Tanaka sensei-ga [CP Δ] iwa-nakat-ta.
 this.year-TOP Tanaka teacher-NOM say-NEG-PST
 (Lit.) ‘This year, Prof. Tanaka did not say [CP Δ].’ Neg » \forall ; \forall » Neg

With (45a) as its antecedent, (45b), which involves a missing CP, is ambiguous: it can mean either that it is not the case that Prof. Tanaka said that all the students are shining like a diamond this year or that as for all the students Prof. Tanaka did not say that they are shining like a diamond this year. The ambiguity of (45b) then provides evidence for QR out of Japanese missing arguments: the universal quantifier within the missing CP scopes outside of it.¹⁴

¹⁴ That the QP within the missing CP can take scope outside of it is further supported by the following examples with other quantifiers.

- (i) a. Kyonen-wa Yamada sensei-ga [CP daiamondo-mitaini {hotondo/sukunakutomo huta-ri/
 last.year-TOP Yamada teacher-NOM diamond-like most/at.least two-CL/
 ookutomo huta-ri}-no sinnyuusei-o kagayai-te-iru to] iwa-nakat-ta.
 at.most two-CL-GEN freshman-ACC shine-PROG-PRES C say-NEG-PST
 (Lit.) ‘Last year, Prof. Yamada did not say [CP that, like a diamond, {most/at least two/at most two}
 freshman students are shining like a diamond.’ \checkmark QP » Neg
- b. Kotosi-wa Tanaka sensei-ga [CP Δ] iwa-nakat-ta.
 this.year-TOP Tanaka teacher-NOM say-NEG-PST
 (Lit.) ‘This year, Prof. Tanaka did not say [CP Δ].’ \checkmark QP » Neg

In (ia), the QP is inside of the embedded clause and it can take scope over the matrix negation. Importantly, the same scope interpretation is also obtained in (ib), which involves a missing CP anaphoric on the embedded CP in (ia). This also supports the claim that QR is allowed out of Japanese missing arguments.

Notice also that the in-situ approach to inverse scope, namely choice function (cf. Reinhart 1997, Kratzer 1998, Winter 2004, among others) would not account for the inverse scope in (45b) and (ib) since the quantifiers such as *all*, *most*, *at least X*, and *at most X*, are known to be non-choice-functional, as in (ii) and (iii).

- (ii) a. If three experiments succeed, Tom will be happy. *if* » *three* ; *three* » *if*
 b. If every experiment succeed, Tom will be happy. *if* » *every* ; **every* » *if*
 c. If most experiments succeed, Tom will be happy. *if* » *most* ; **most* » *if*
 d. If at least three experiments succeed, Tom will be happy. *if* » *at least three* ; **at least three* » *if*

The claim that QR is possible out of Japanese null arguments gains further support from the scope of focus particles. Consider (46).

- (46) John-wa [_{CP} Mary-ga sinabita ringo-sae tabe-ta to] omot-te-iru.
 John-TOP Mary-NOM wilted apple-even eat-PST C think-PROG-PRES
 ‘John thinks [_{CP} that Mary ate an even wilted apple].’ (Aoyagi 1994:25)

Aoyagi (1994) observes that (46) is ambiguous in that the embedded object QP *sinabita ringo-sae* ‘a wilted apple’ can take either embedded or matrix scope (see also Sano 2001, Abe 2012, among others). Under the embedded scope reading, (46) is interpreted as John thinks that Mary ate a wilted apple in addition to some other thing: the scalar implicature of *-sae* ‘even’ comes from only the embedded clause, i.e. a wilted apple is the least likely thing for Mary to eat. On the other hand, under the matrix scope interpretation, (46) is interpreted as even for a wilted apple, John has an idea that Mary ate it (in addition to some other idea about some other thing): the relevant scalar implicature comes from the entire sentence, i.e. a wilted apple is the least likely thing for John to think that Mary ate it. There is evidence that movement is responsible for the matrix scope

-
- e. If at most three experiments succeed, Tom will be happy. *if* » *at most three*; **at most three* » *if*
- (iii) a. Huta-ri-no zyosei-ga paatii-ni ki-ta-ra, John-wa yoroko-bu daroo.
 two-CL-GEN woman-NOM party-to come-PST-if John-TOP happy-PRES will
 ‘If two women come to the party, John will be happy.’ *if* » *two* ; *two* » *if*
- b. {Subete/hotondo/sukunakutomo huta-ri/ookutomo huta-ri}-no zyosei-ga
 all/most/at least two-CL/at most two-CL woman-NOM
 paatii-ni ki-ta-ra, John-wa yoroko-bu daroo.
 party-to come-PST-if John-TOP happy-PRES will
 ‘If every/most/at most two/at least two wom{a/e}n come(s) to the party, John will be happy.’
if » *every/most/at least two/at most* ; **every/most/at least two/at most two* » *if*
 (cf. Nakanishi 2002:144)

Although adjunct clauses such as *if*-clauses are generally islands for movement, indefinites such as *three experiments* can take scope outside of them, as in (iia), and the same holds for Japanese, as in (iiia). The standard assumption to account for this exceptionally wide scope out of islands is to adopt the choice function analysis, which makes available (long-distance) inverse scope without QR. The unavailability of the wide scope out of islands in (iib–e) and (iiib) indicates that choice function does not apply to strong quantifiers as well as *at least X* and *at most X*. The inverse scope in (45b) and (ib) should then be obtained through QR.

interpretation in (46): the availability of the matrix scope interpretation is regulated by subjacency effects, as in (47).

- (47) Mary-ga [[_{relative clause} gakubusei-zidai-ni Barriers-sae yon-da] hito]-ni
 Mary-NOM undergraduate-time-at Barriers-even read-PST person-DAT
 at-ta.
 meet-PST
 ‘Mary met [a person [_{relative clause} who read even Barriers when he/she was an undergraduate student]].’ (Aoyagi 1994:32)

Here, only the embedded scope interpretation of *Barriers-sae* ‘even Barriers’ is possible. Specifically, (47) can be interpreted as Mary met a person who read Barriers in addition to some other thing when he/she was an undergraduate student, where the scalar implicature of *-sae* ‘even’ comes from only the object DP, i.e. Barriers is the least likely thing for undergraduate students to read; (47) cannot be interpreted as even for Barriers Mary met a person who read it when he/she was an undergraduate student, where the scalar implicature comes from the entire sentence, i.e. Barriers is the least likely thing for Mary to meet a person who read it when he/she was an undergraduate student. Given that the presence of subjacency effects is a hallmark of movement, it follows that covert movement is involved in the matrix scope interpretation in examples such as (46).

Let us then investigate whether the relevant covert movement is possible out of Japanese missing arguments. Consider (48).

- (48) a. John-wa [_{CP} Mary-ga sinabita ringo-sae tabe-ta to] omot-te-iru.
 John-TOP Mary-NOM wilted apple-even eat-PST C think-PROG-PRES
 ‘John thinks [_{CP} that Mary ate even an wilted apple].’ [cf. (46)]

- b. Bill-mo [CP Δ] omot-te-iru.
 Bill-also think-PROG-PRES
 (Lit.) ‘Bill also thinks [CP Δ].’

With (46)/(48a) as its antecedent, (48b) is ambiguous in that the QP within the embedded missing CP can take scope either in the matrix clause or in the embedded clause. Specifically, (48b) can mean either that Bill also thinks that Mary ate a wilted apple in addition to some other thing, where the scalar implicature of *-sae* ‘even’ comes from the embedded CP, i.e. a wilted apple is the least likely thing for Mary to eat, or that even for a wilted apple Bill also has an idea that Mary ate it (in addition to some other idea about some other thing), where the relevant scalar implicature comes from the entire sentence, i.e. a wilted apple is the least likely thing for Bill to think that Mary ate. The availability of the matrix scope interpretation in (48b) then provides further evidence that QR is possible out of Japanese missing arguments.

3.3.3 Covert Possessor Raising

There are two constructions which have been claimed to involve covert extraction out of Japanese nominal arguments: Kikuchi’s (1994) inalienable possessor constructions and Kishimoto’s (2013) possessor raising idioms. In the following, using these constructions, I will investigate whether covert extraction out of Japanese null nominal arguments is allowed.

3.3.3.1 Inalienable Possessor Raising

First, I will discuss Kikuchi’s (1994) inalienable possessor construction (see also Ogawa 2001 and Funakoshi to appear). Kikuchi argues that inalienable possessor constructions like (49a) can involve covert raising of a genitive possessor out of the object DP, as in (49b).

- (49) a. John-ga kinoo [DP Mary-no tume]-o kit-ta.
 John-NOM yesterday Mary-GEN nail-ACC cut-PST
 ‘John clipped Mary’s nails yesterday.’
- b. John-NOM yesterday Mary-GEN [DP Mary-GEN nail]-ACC cut


Specifically, Kikuchi claims that the genitive possessor *Mary* that is located within the inalienable possessum nominal object on the surface can covertly occupy a position outside of it. He bases his argument on an observation regarding the distribution of floating numeral quantifiers (FNQs) and secondary predicates. Consider the following examples.

- (50) a. Gakusei-ga san-nin sake-o non-da.
 student-NOM three-CL alcohol-ACC drink-PST
 ‘Three students drank alcohol.’
- b. Taroo-wa gakusei-o san-nin sikat-ta.
 Taro-TOP student-ACC three-CL scold-PST
 ‘Taro scolded three students.’
- (51) a. *Hito-ga [PP [DP tiisai mura]-kara] huta-tu ki-ta.
 people-NOM small village-from two-CL come-PST
 (Int.) ‘People came from two small villages.’
- b. *Gakusei-tati-wa [PP [DP kuruma]-de] ni-dai ki-ta.
 student-PL-NOM car-in 2-CL come-PST
 (Int.) ‘Students came in two cars.’

(Miyagawa 1989:31)

In (50a–b), the FNQ *san-nin* ‘three-CL’ is associated with the DP *gakusei* ‘student’. In (51a–b), the FNQs *huta-tu* ‘two-CL’ and *ni-dai* ‘two-CL’ are intended to be associated with the DPs *tiisai mura*

‘small town’ and *kuruma* ‘car’, both of which are embedded within the PPs, respectively, and the sentences are both ungrammatical. The contrast in (50) and (51) is generally attributed to the condition on FNQs in (52).

(52) An FNQ or its trace must be c-commanded by an DP which it predicates of.

(Kikuchi 1994:81 with a slight modification)

Under (52), the grammaticality of the sentences in (50) and the ungrammaticality of the ones in (51) follow. Specifically, in (50), the FNQs are c-commanded by their associate DPs, while in (51) the FNQs are not c-commanded by their associate DPs within the PPs. Therefore, under the condition (52), the contrast in (50) and (51) concerns the issue of whether the FNQs are c-commanded by their associate DPs. (52) can also be extended to the licensing of secondary predicates, as (53) and (54) show.

(53) a. Hanako-ga deesuizyootaide odot-ta.
 Hanako-NOM dead.drunk dance-PST
 ‘Hanako danced dead-drunk’

b. Taroo-ga katuo-o namade tabe-ta.
 Taro-NOM bonito-ACC raw eat-PST
 ‘Taro ate the bonito raw.’

(Koizumi 1994:27)

(54) a. *Taroo-ga [_{PP} [_{DP} Hanako]-kara] kimonosugatade ringo-o morat-ta.
 Taro-NOM Hanako-from kimono.dress apple-ACC receive-PST
 (Int.) ‘Taro received an apple from Hanako in kimono.’

- b. *Hanako-ga [PP [DP kuruma]-de] tyuukode ki-ta.
 Hanako-NOM car-by second.hand come-PST
 (Int.) ‘Hanako came by a car used.’

(Koizumi 1994:28)

In (53a–b), the secondary predicates *deesuizyootaide* ‘dead-drunk’ and *namade* ‘raw’ are c-commanded by their associate DPs *Hanako* and *katuo* ‘bonito’, respectively, and the sentences are grammatical. In (54a–b), the secondary predicates *kimonosugatade* ‘kimono dress’ and *tyuukode* ‘used’ are not c-commanded by their associate DPs *Hanako* and *kuruma* ‘car’ embedded within the PPs, and the sentences are ungrammatical. Therefore, (52) can correctly capture the distribution of secondary predicates as well as that of FNQs.

Building on the above observations, Kikuchi (1994) claims that possessors within inalienable possessum nominals and the ones within simple nominals behave differently regarding the licensing of FNQs and secondary predicates. Consider the following data.

(55) Simple Nominal

- a. *John-ga [DP tomodati-no kuruma]-o san-nin norimawasi-ta.
 John-NOM friend-GEN car-ACC three-CL drive.around-PST
 (Int.) ‘John drove his three friends’ cars around.’
- b. *John-ga [DP gakusei-no tukue]-o san-nin kat-ta.
 John-NOM student-GEN desk-ACC three-CL buy-PST
 (Int.) ‘John bought three students’ desks.’
- c. *John-ga [DP kodomo-tati-no omotya]-o san-nin kowasi-ta.
 John-NOM child-PL-GEN toy-ACC three-CL break-PST
 (Int.) ‘John broke three children’s toys.’

(Kikuchi 1994:82)

(56) Simple Nominal

- a. *Hanako-ga [DP katuo-no hako]-o namade hakon-da.
Hanako-NOM bonito-GEN box-ACC raw carry-PST
(Int.) ‘Hanako carried the box of the bonito raw.’ (Koizumi 1994:28)
- b. *Hanako-ga [DP John-no tukue]-o deesuizyootaide tatai-ta.
Hanako-NOM John-GEN desk-ACC dead.drunk hit-PST
(Int.) ‘Hanako hit John’s desk dead-drunk.’ (Kikuchi 1994:86)

(57) Inalienable Possessum Nominal

- a. Hanako-wa [DP kodomotati-no tume]-o san-nin kit-ta.
Hanako-TOP children-GEN nail-ACC three-CL cut-PST
‘Hanako clipped three children’s nails.’
- b. Ano isha-wa [DP zidoo-no me]-o sanzyuu-nin sirabe-ta.
that doctor-TOP pupil-GEN eye-ACC thirty-CL examine-PST
‘That doctor examined thirty pupil’s eyes.’
- c. John-ga [DP kodomotati-no yubi]-o zyuu-nin ot-ta.
John-NOM children-GEN finger-ACC ten-CL break-PST
‘John broke ten children’s fingers.’
- (Kikuchi 1994:86)

(58) Inalienable Possessum Nominal

- a. Hanako-ga [DP katuo-no uroko]-o namade kezuritot-ta.
Hanako-NOM bonito-GEN scale-ACC raw strip.away-PST
‘Hanako stripped away the bonito’s scales raw.’
- b. Hanako-ga [DP John-no kaminoke]-o deesuizyootaide kit-ta.
Hanako-NOM John-GEN hair-ACC dead.drunk cut-PST
‘Hanako cut John’s hair dead-drunk.’
- (Kikuchi 1994:86)

In (55) and (56), the genitive possessors within the simple nominals do not c-command the relevant FNQs and secondary predicates, respectively, and the sentences are ungrammatical, which falls under (52).¹⁵ What Kikuchi (1994) observes is that if the host noun of genitive phrases is an inalienable possessum noun, FNQs and secondary predicates are licensed by genitive possessors, as (57) and (58) demonstrate. Specifically, the genitive possessors in (57) and (58), on the surface, do not c-command the associated FNQs and secondary predicates, respectively, but the sentences are all grammatical.¹⁶ Given the c-command condition on FNQs and secondary predicates in (52), Kikuchi claims that genitive possessors within inalienable possessum nominals can undergo covert possessor raising out of inalienable possessum nominals. (57a) is then analyzed as in (59) under Kikuchi's analysis (see also Ogawa 2001 and Funakoshi to appear for relevant discussion).¹⁷

¹⁵ The c-command condition in (52) is a necessary condition, but not a sufficient condition, as in (i).

- (i) *Gakusei-ga sake-o san-nin non-da.
 student-NOM alcohol-ACC three-CL drink-PST
 (Int.) 'Three students drank alcohol.'

In (i), the DP *gakusei* 'student' c-commands the FNQ *san-nin* 'three-CL', but the sentence is ungrammatical. For relevant discussion regarding examples like (i), see Miyagawa (1989) and Nakanishi (2008).

¹⁶ Kikuchi (1994) claims that not only inalienable possessum nominals but also event nominals can license FNQs and secondary predicates even if possessors apparently do not c-command them, as in (i) and (ii).

- (i) a. Ano daigaku-ga [_{DP} ryuugakusei-no ukeire]-o sanzyuu-nin kotowat-ta.
 that university-NOM foreign.student-GEN acceptance-ACC thirty-CL refuse-PST
 'That university refused the acceptance of thirty foreign students.'
 b. Hitati-ga [_{DP} gakusei-no saiyoo]-o sanbyaku-nin tyuusisi-ta.
 Hitachi-NOM student-GEN employment-ACC three.hundred-CL cancel-PST
 'Hitachi canceled employment of three hundred students.'

(Kikuchi 1994:83)

- (ii) a. John-ga [_{DP} kuruma-no koonyuu]-o tyuukode kime-ta.
 John-NOM car-GEN purchase-ACC used decide-PST
 'John decided the purchase of a car used.'
 b. Byooiin-ga [_{DP} John-no ukeire]-o deesuizyootaide kotowat-ta.
 hospital-NOM John-GEN acceptance-ACC dead.drunk refuse-PST
 'The hospital refused the acceptance of John dead-drunk.'

(Kikuchi 1994:86)

Based on the above data, Kikuchi argues that genitive possessors of event nominals can also undergo covert possessor raising in covert syntax. However, Funakoshi (to appear) notes the possibility that the FNQs and secondary predicates in sentences like (i) and (ii) may be licensed not by the genitive possessors but by the event nominals themselves. Therefore, throughout the discussion here, I will just refer to inalienable possessor nominals for expository purposes.

¹⁷ Funakoshi (to appear) argues that genitive possessors are located within inalienable possessum nominals on the surface since adverbs cannot intervene between them, as in (i).

(59) Hanako-NOM children-GEN [DP children-GEN nail]-ACC FNQ cut
↑
└──────────┘ *covert possessor raising*

Given the derivation in (59), the c-command condition in (52) can be satisfied covertly, i.e. the genitive possessor is covertly located in a position where it can c-command the relevant FNQ, so the grammaticality of the sentences in (57) and (58) can be captured.¹⁸

Given that covert possessor raising can be involved in inalienable possessor constructions,

-
- (i) a. *Anoisha-wa [DP zidoo-no kinoo me]-o sanzyuu-nin sirabe-ta.
that doctor-TOP pupil-GEN yesterday eye-ACC thirty-CL examine-PST
(Int.) ‘That doctor examined thirty pupil’s eyes yesterday.’
b. *Hanako-ga [DP katuo-no kinoo uroko]-o namade kezuritot-ta.
Hanako-NOM bonito-GEN yesterday scale-ACC raw strip.away-PST
(Int.) ‘Hanako stripped away the bonito’s scales raw yesterday.’

(Funakoshi to appear:10)

If genitive possessors are located outside of inalienable possessum nominals on the surface, it is not clear why adverbs cannot intervene between them. Therefore, it seems safe to conclude that the genitive possessors in the relevant examples are internal to the inalienable possessum nominals in overt syntax.

¹⁸ Kikuchi (1994) further makes relevant observations regarding binding. Consider the following examples.

- (i) Condition A
a.?? Taroo-wa [DP [John-to Mary]_i-no tukue]-o otagai_i-no hanmaa-de kowasi-ta.
Taroo-TOP John-and Mary-GEN desk-ACC each.other-GEN hammer-with break-PST
‘Taro broke [DP [John’s and Mary’s]_i desks] with each other_i’s hammers.’
b. ?Taroo-wa [DP [John-to Mary]_i-no kaminoke]-o otagai_i-no hasami-de kit-ta.
Taroo-TOP John-and Mary-GEN hair-ACC each.other-GEN scissor-with cut-PST
‘Taro cut [DP [John’s and Mary’s]_i hair] with each other_i’s scissors.’

(Kikuchi 1994:87)

- (ii) Condition C
a. Mary-ga kagami-de [DP kare_i-no tukue]-o John_i-ni mise-ta.
Mary-NOM mirror-with he-GEN desk-ACC John-DAT show-PST
‘Taro showed [DP his_i desk] to John_i with a mirror.’
b. Mary-ga kagami-de [DP kare_i-no kaminoke]-o John_i-ni mise-ta.
Mary-NOM mirror-with he-GEN hair-ACC John-DAT show-PST
‘Taro showed [DP his_i hair] to John_i with a mirror.’

(Kikuchi 1987:88)

Kikuchi claims that the contrast in (ia) and (ib) can be taken as an argument for covert raising of inalienable possessors. Specifically, in (ib), the possessum nominal is hosted by the inalienable nominal *kaminoke* ‘hair’, so the genitive possessor *John to Mary* ‘John and Mary’ can undergo covert raising out of the relevant nominal, c-commanding the reflexive pronoun *otagai* ‘each other’ (Kikuchi attributes the marginally acceptable status of (ia) to specifier binding developed by, e.g. Reinhart 1976 and Kayne 1994, which is observed in cases like *Everyone_i’s mother loves him_i*, where *everyone* in the specifier position within the subject DP binds out of the DP, licensing the object pronoun *him* as a bound variable). Furthermore, on the basis of the grammaticality of (iia) and (iib), Kikuchi concludes that covert possessor raising is an optional (not obligatory) operation.

the following sentences indicate that the relevant covert movement is possible out of Japanese null arguments.

- (60) a. Ano isha-wa [DP nezumi-no me]-o sanzyu-ppiki sirabe-ta.
 that doctor-TOP mouse-GEN eye-ACC thirty-CL examine-PST
 ‘That doctor examined thirty [DP mice’s eyes].’
- b. Kono isha-wa [DP nezumi-no me]-o gozyu-ppiki sirabe-ta.
 this doctor-TOP mouse-GEN eye-ACC fifty-CL examine-PST
 ‘This doctor examined fifty [DP mice’s eyes].’
- b’. Kono isha-wa [DP Δ] gozyu-ppiki sirabe-ta.
 this doctor-TOP fifty-CL examine-PST
 (Lit.) ‘This doctor examined fifty [DP Δ].’
- (61) a. Hanako-wa [DP katuo-no uroko]-o namade kezuritot-ta.
 Hanako-TOP bonito-GEN scale-ACC raw strip.away-PST
 ‘Hanako stripped away [DP the bonito’s scales] raw.’
- b. Taroo-wa [DP katuo-no uroko]-o hankaitoode kezuritot-ta.
 Taro-TOP bonito-GEN scale-ACC half.frozen strip.away-PST
 ‘Taro stripped away [DP the bonito’s scales] half-frozen.’
- b’. Taroo-wa [DP Δ] hankaitoode kezuritot-ta.
 Taro-TOP half.frozen strip.away-PST
 (Lit.) ‘Taro stripped away [DP Δ] half-frozen.’

In (60a), the DP *nezumi* ‘mouse’ is located inside of the inalienable possessum nominal, but it can license the FNQ *sanzyu-ppiki* ‘thirty-CL’, which indicates that it is located outside of the relevant nominal covertly, after covert possessor raising.¹⁹ With (60a) as its antecedent, both (60b) and

¹⁹ It is worth noting here that covert possessor raising becomes impossible if the whole part of inalienable possessum nominals is replaced by an overt pronoun *sore* ‘it’ or *sorera* ‘they’. For example, with (60a) as its antecedent, (i) is

(60b'), the latter of which involves covert possessor raising out of the null argument since the FNQ *gozyu-ppiki* 'fifty-CL' is licensed, are grammatical. Also, in (61a), *katuo* 'bonito' occupies the internal position of the host nominal, licensing the secondary predicate *namade* 'raw'. Important for us here is the grammaticality of (61b'), where the genitive possessor *katuo* 'bonito' inside of the null argument externally licenses the secondary predicate *hankaitoode* 'half-frozen'. (60) and (61) thus constitute evidence that covert possessor raising is allowed out of Japanese null arguments.

3.3.3.2 Possessor Raising Idiom

Kishimoto (2013) observes a novel type of possessor raising constructions, namely possessor raising idioms, which he claims involve covert A-movement. Consider (62).

- (62) a. [Sono toki-no koto]-ga [DP Taro-no kioku]-ni nokot-te-iru.
 that time-GEN event-NOM Taro-GEN memory-LOC remain-PROG-PST
 (Lit.) '[The event at that time] remains in [DP Taro's memory].'
 ≈ 'Taro remembers the event at that time.'
- b. Taro₁-ni [sono toki-no koto]-ga [DP __₁ kioku]-ni nokot-te-iru.
 Taro-DAT that time-GEN event-NOM memory-LOC remain-PROG-PST
 (Lit.) 'Taro₁, [the event at that time] remains in [DP __₁ memory].'
 ≈ 'Taro remembers the event at that time.'

Although (62a) and (62b) are logically equivalent, *Taro* can either remain in the possessum noun,

ungrammatical.

- (i) *Kono isha-wa sore/sorera-o gozyu-ppiki sirabe-ta.
 this doctor-TOP it/they-ACC fifty-CL examine-PST
 (Lit.) 'This doctor examined fifty it/them.'

This fact can also be taken as an argument for the presence of internal structure within the null argument in (60b').

as in (62a), or be moved out of it, being in dative case, as in (62b).²⁰ Importantly, Kishimoto claims that even the genitive possessor within the possessum noun in (62a) undergoes covert possessor raising, i.e. silent A-movement, out of it. One of his arguments involves variable binding (see Kishimoto 2013 for other arguments to this effect). Consider the following examples.

- (63) a. Dare-mo_i-ga [[e_i at-ta] hito]-o home-ta.
 who-MO_∇-NOM meet-PST man-ACC praise-PST
 (Lit.) ‘Everyone_i praised [the man [who met e_i]].’
- b. *[[e_i at-ta] hito]-ga dare-mo_i-o home-ta.
 meet-PST man-NOM who-MO_∇-ACC praise-PST
 (Lit.) ‘[The man [who met e_i]] praised everyone_i.’
- c. Dare-mo_{1/i}-o [[e_i at-ta] hito]-ga ___₁ home-ta.
 who-MO_∇-ACC meet-PST man-NOM praise-PST
 (Lit.) ‘Everyone_{1/i}, [the man [who met e_i]] praised ___₁.’
- (64) a. *His_i wife admires [every husband]_i.
 b. [Every man]_{1/i} seems to his_i mother ___₁ to be smart.

Hoji (1985) observes that Japanese null arguments can serve as a variable bound by a c-commanding operator, as in (63a).²¹ The ungrammaticality of (63b) is generally attributed to a weak crossover violation, on a par with (64a). Importantly, the grammaticality of (63c) with the relevant bound variable interpretation indicates that a violation of weak crossover effects can be

²⁰ For some speakers overt possessor raising cases with dative possessors such as (62b) are marginal, but most speakers including me do accept them. I have nothing interesting to say here regarding this speaker variation. However, because what is important for the current discussion are cases such as (62a) with genitive possessors, not cases such as (62b) with dative possessors, I put aside the dative possessor case in the following for expository reasons.

²¹ As discussed earlier, 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 (63).

‘rescued’ via clause-internal scrambling, i.e. A-movement (cf. (12b)), on a par with (64b). Kishimoto then claims that the grammaticality of (65a) under the bound variable interpretation signals covert raising, i.e. covert A-movement, of the genitive possessor: he argues that e_i in (65a) is licensed as in (65b).²²

- (65) a. [[Kyonen e_i si-ta] koto]-ga [DP hotondo-no gakusei $_i$ -no kioku]-ni
 last.year do-PST thing-NOM most-GEN student-GEN memory-LOC
 nokot-te-iru.
 remain-PROG-PST
 (Lit.) ‘[The thing [that e_i did last year]] remains in [DP most students’ $_i$ memories].’
 ≈ ‘Most students $_i$ remember what they $_i$ did last year.’
- b. most students $_1/i$ [[last year e_i did] thing] [DP ___ $_1$ memory] remain.
 covert possessor raising

In covert syntax, the possessor *hotondo-no gakusei* ‘most students’ undergoes covert possessor raising, i.e. covert A-movement, from inside of the DP headed by *kioku* ‘memory’ over the nominative theme argument, licensing the null object in question as a bound variable: covert possessor raising obviates the violation of weak crossover effects in (65a), on a par with (63c) and (64b).²³

²² For relevant discussion of covert A-movement, see also Polinsky (2009), Polinsky and Potsdam (2013), Deal (2016), and reference cited therein.

²³ One might wonder whether FNQs could be licensed via the relevant covert possessor raising. (i) shows that the answer is negative.

- (i) *[Sono toki-no koto]-ga [gakusei-no kioku]-ni san-nin nokot-te-iru.
 that time-GEN thing-NOM student-GEN memory-LOC three-CL remain-PROG-PRES
 (Lit.) ‘[The event at that time] remains in [three students’ memories].’
 ≈ ‘Three students remember the event at that time.’

Under Kishimoto’s analysis, the genitive possessor *gakusei* ‘student’ within the possessum nominal should undergo covert possessor raising out of it, c-commanding the FNQ *sannin*, but the sentence is unacceptable. However, even overt possessor raising cases do not license FNQs, as shown in (ii).

- (ii) *Gakusei $_1$ -ni [sono toki-no koto]-ga [___ $_1$ kioku]-ni san-nin nokot-te-iru.
 student-DAT that time-GEN thing-NOM memory-LOC three-CL remain-PROG-PRES

- b. *[[e_i nadame-ta] hito]-ga dare_{*i*}-no okaasan-mo home-nakat-ta.
 sooth-PST person-NOM anyone-GEN mother-MO praise-NEG-PST
 (Lit.) ‘[The person [who soothed him_{*i*}]] did not praise anyone_{*i*}’s mother.’

(Kishimoto 2013:192)

In (67a), the nominative argument undergoes passive movement from a position lower than the argument which involves a quantifier taken to bind the bound pronoun within the nominative argument. Importantly, the relevant bound variable interpretation cannot be obtained on a par with the active voice counterpart in (67b). This suggests that the bound variable interpretation in (65a) 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.

Given that Kishimoto’s (2013) possessor raising idioms involve covert raising of possessors, we can test whether such raising is possible out of Japanese null arguments. Interestingly, with (65a), repeated here as (68a) as its antecedent, (68b), where the possessum nominal is phonologically empty, is grammatical with the bound variable interpretation.

- (68) a. [[Kyonen e_i si-ta] koto]-ga [_{DP} hotondo-no gakusei_{*i*}-no kioku]-ni
 last.year do-PST thing-NOM most-GEN student-GEN memory-LOC
 nokot-te-iru.
 remain-PROG-PST
 (Lit.) ‘[The thing [that e_i did last year]] remains in [_{DP} most students’_{*i*} memories].’
 ≈ ‘Most students_{*i*} remember what they_{*i*} did last year.’
- b. [[Sannenmae-ni e_j si-ta] koto]-mo [_{DP} Δ] nokot-te-iru.
 three.years.ago-in do-PST thing-also remain-PROG-PRES
 (Lit.) ‘[The thing [that e_j did three years ago]] also remains in [_{DP} Δ].’
 ≈ ‘Most students_{*j*} also remember what they_{*j*} did three years ago.’

Here, the possessive operator within the null argument can bind the null object within the nominative theme argument (also note that the quantifier *most* can quantify over a different set in (68a) and (68b)). This can be accounted for if the null argument is derived via ellipsis of the locative DP *hotondo-no gakusei-no kioku* ‘most student’s memory’, with the possessor undergoing covert A-movement out of the ellipsis site. (68b) is then derived in the same way as (65). The grammaticality of (68b) then indicates that covert possessor raising, i.e. silent A-movement, is also possible out of Japanese null arguments.²⁴

3.4 Summary and Implications for Pro and Verb-stranding Verb Phrase

Ellipsis

In this chapter, I investigated the internal structure of Japanese null arguments, exploiting extraction possibilities as a tool to detect it. First, I introduced the distinction between two types of anaphora, i.e. surface anaphora, e.g. VP-ellipsis, and deep anaphora, e.g. *do it* (cf. Hankamer and Sag 1976), on the basis of the (im)possibility of extraction out of anaphora sites. It has been observed in the literature that only surface anaphora includes internal structure, thereby allowing extraction out of its domain, since it can accommodate an appropriate position for the origin of movement. On the other hand, deep anaphora does not include any internal structure, hence it is

²⁴ 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 nokot-te-iru.
adolescence-GEN something-NOM most-GEN adult-GEN memory-LOC remain-PROG-PRES
(Lit.) ‘[Something in their_i adolescence] remains in [DP most adults’_i memories].’
≈ ‘Most adults_i remember something in their_i adolescence.’ ✓ ∃ » *most*; ✓ *most* » ∃
- b. [Yooshooki-no nanika]-mo [DP Δ] nokot-te-iru.
childhood-GEN something-also remain-PROG-PRES
(Lit.) ‘[Something in their_j childhood] also remains in [DP Δ].’
‘Most adults_j remember something in their_j childhood too.’ ✓ ∃ » *most*; ✓ *most* » ∃

unable to accommodate a position for the origin of movement, so extraction is banned out of its domain. In light of the distinction between surface anaphora and deep anaphora, I investigated how Japanese null arguments, which can involve ellipsis, i.e. surface anaphora, via the argument ellipsis strategy, as extensively discussed in chapter 2, fare with respect to the above distinctions. That is, if Japanese null arguments can be elliptic, as is standardly assumed, they should behave as surface anaphora regarding extraction out of them. More specifically, it is then expected that Japanese null arguments should allow extraction out of them, which is an indication of the presence of internal structure. The observations made in this chapter in this respect can be summarized as follows.

(69) Impossible Extraction out of Japanese Null Arguments

- a. Long-distance scrambling, *Wh*-movement (section 3.2.1)
- b. Pseudoraising and Raising-to-Object (section 3.2.2)
- c. PP left-branch extraction (section 3.2.3)

(70) Possible Extraction out of Japanese Null Arguments

- a. Null operator movement (section 3.3.1)
- b. QR (section 3.3.2)
- c. Covert possessor raising (section 3.3.3)

What is important for our purposes is that Japanese null arguments do in fact allow certain types of extraction out of them. On the basis of the types of movement in (69) and (70), I conclude that covert movement, more precisely, movement that does not affect word order (see footnote 8), is allowed out of Japanese null arguments. The fact that certain types of extraction are possible out of Japanese null arguments has an important consequence for the *pro* versus ellipsis debate

regarding the analysis of Japanese null arguments. To be more specific, although it is generally assumed in the literature that Japanese null arguments can be elliptic, as extensively discussed in chapter 2, this assumption is in fact 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 ellipsis analysis should/can be treated via *pro*, this being the only option for Japanese null arguments for them. However, that Japanese null arguments allow extraction out of them, as was shown in the above discussion, is unexpected if they are uniformly *pro* since *pro* is by assumption an instance of deep anaphora such as *do it*, which should not include any internal structure. In other words, the uniform *pro* analysis of Japanese null arguments would wrongly predict extraction to be uniformly banned out of them; that it is not then provides evidence that Japanese null arguments can be derived via ellipsis. However, I have also shown that Japanese null arguments exhibit different behavior from VP-ellipsis, which shows uniform extraction possibilities in that extraction is uniformly allowed out of its domain (i.e. both overt and covert extraction is allowed): Japanese null arguments show an overt/covert extraction contrast, allowing covert, but not overt extraction out of them (in fact, regardless of the type of movement, i.e. A or \bar{A} , or their domain, i.e. clausal or nominal). The discrepancy between Japanese null arguments and VP-ellipsis with respect to the possibility of overt extraction is a problem for the VVPE analysis of Japanese null arguments, on which we would expect that Japanese null arguments and VP-ellipsis should exhibit the same behavior in the relevant respect. Consider in this respect the following examples.

(71) \bar{A} -movement out of a VP-ellipsis Site

I know which book₁ Mary [_{VP} read ___₁], and which book₂ Bill didn't [_{VP} read ___₂].

(72) A-movement out of a VP-ellipsis Site

John₁ might be visited ___₁ by Sally, and Fred₂ might be visited ___₂ by Sally too.

(73) \bar{A} -movement out of a Null CP

a. Sono hon₁-o Taroo-wa [_{CP} Hanako-ga ___₁ kat-ta to] it-ta.
that book-ACC Taro-TOP Hanako-NOM buy-PST C say-PST
(Lit.) ‘That book₁, Taro said [_{CP} that Hanako bought ___₁].’

b. *Sono hon₂-o Ziroo-wa [_{CP} Δ] it-ta.
that book-ACC Ziro-TOP say-PST
(Lit.) ‘That book₂, Ziro said [_{CP} Δ].’ (cf. Saito 2007:210)

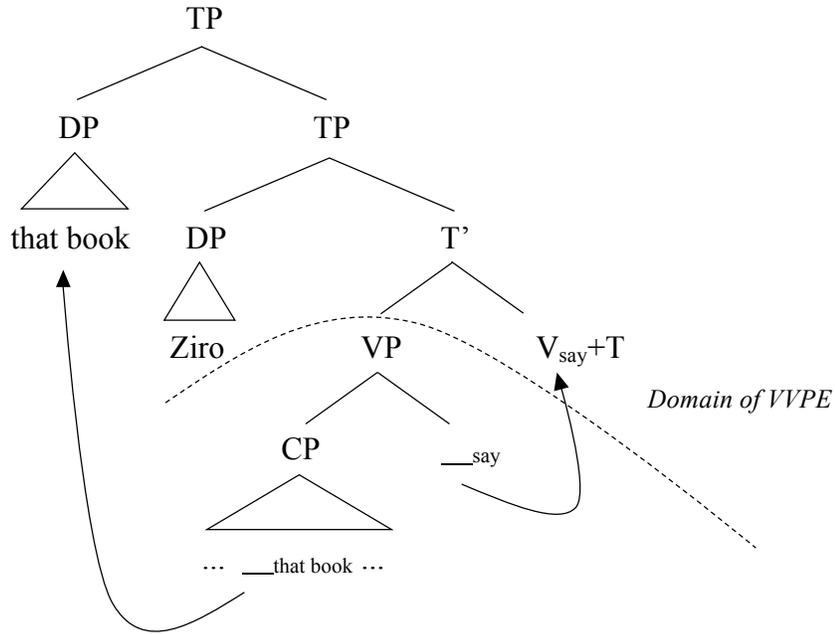
(74) A-movement out of a Null CP

a. Taroo-wa Kanako₁-o orokanimo [_{CP} ___₁ tensai da to] shutyoosi-ta.
Taro-TOP Kanako-ACC stupidly genius COP.PRES C claim-PST
(Lit.) ‘Taro, Kanako₁, stupidly claimed [_{CP} that ___₁ is a genius].’

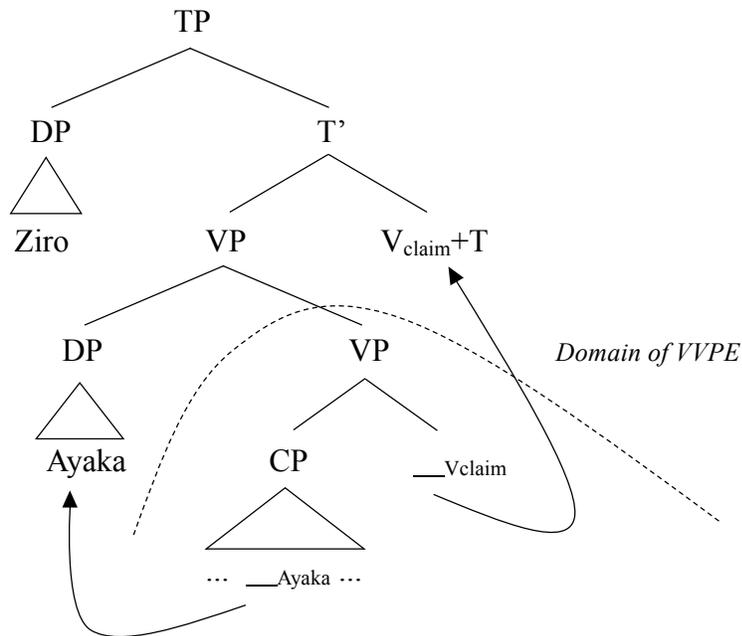
b. *Ziroo-wa Ayaka₂-o orokanimo [_{CP} Δ] shutyoosi-ta.
Ziro-TOP Ayaka-ACC stupidly claim-PST
(Lit.) ‘Ziro, Ayaka₂, stupidly claimed [_{CP} Δ].’

As discussed in section 3.1, both overt \bar{A} - and A-extraction are possible out of English VP-ellipsis sites, as in (71) and (72). On the other hand, neither overt \bar{A} - nor A-movement is allowed out of Japanese null arguments. If VVPE is available in Japanese, nothing seems to prohibit the VVPE derivation for the null arguments in (73b) and (74b), which would then be analyzed as in (75a) and (75b), respectively.

(75) a.



b.



In (75a), the matrix verb *say* undergoes overt movement to T, which is followed by VP-ellipsis, the VP in question containing the embedded CP. The NP *that book* is extracted out of the VP-ellipsis domain via overt \bar{A} -movement. In (75b), the matrix verb *claim* is overtly raised to T followed by VP-ellipsis that includes the embedded CP, and the DP *Ayaka* is extracted out of the

VP-ellipsis domain via overt A-movement. Importantly, both derivations involve overt extraction out of the VP-ellipsis domain, which is independently known to be possible, as in (71) and (72). Thus, under the VVPE analysis, both (73b) and (74b) should be grammatical, on a par with (71) and (72), contrary to the fact. Therefore, the ungrammaticality of (73b) and (74b) can be taken to indicate that Japanese null arguments do not behave as VP-ellipsis regarding the overt extraction possibility: the VVPE analysis of Japanese null arguments faces an overgeneration problem here.

Incorporating extraction possibilities out of typical instances of surface anaphora, e.g. VP-ellipsis, and deep anaphora, e.g. *do it*, into the picture, we obtain the following table regarding extraction out of the anaphora sites in question.²⁵

²⁵ There are other types of ellipsis that exhibit a distinctive pattern of extraction possibilities. For example, Modal Complement ellipsis in Dutch, British English *do*-ellipsis, and certain instances of English VP-ellipsis exhibit an \bar{A}/A -asymmetry regarding overt extraction out of their domain: overt A-extraction is possible out of the relevant domain, while overt \bar{A} -extraction is impossible (cf. Aelbrecht 2010, Abels 2012, Baltin 2012, Bošković 2014, Harwood 2015, Sakamoto 2016c). Also, the extraction pattern out of English NP-ellipsis sites seems to be distinctive. Consider the following examples.

- (i) Overt Movement (*Wh*-movement)
 - *Although I don't know who₁ he's seen [DP many [NP pictures of ___₁]], I do know who₂ he's seen [DP some [NP pictures of ___₂]]. (Baltin 2007:7)
- (ii) Op-movement
 - *It is this train [Op₁ that John bought [DP three [NP pictures of ___₁]], and it is that train [Op₂ that Bill bought [DP five [NP pictures of ___₂]].
- (iii) QR
 - I read [DP a linguist's [NP description of every problem]] before [DP a philosopher's [~~NP description of every problem~~]] $\exists \gg \forall ; \forall \gg \exists$

In (i), *who* is extracted out of the NP-ellipsis site, and the sentence is ungrammatical, which may be taken to indicate that overt *wh*-movement is disallowed out of the domain in question (Saab to appear observes that in cases like (i), if a preposition, e.g. *of* here, is overtly stranded, the sentence becomes grammatical; it is, however, possible that the sentence in question involves gapping rather than NP-ellipsis: ..., *I do know who₂ he's seen some pictures of ___₂*. Also, it has been sometimes claimed that overt movement is possible out of an NP-ellipsis site in light of possessors; e.g. *You like [DP John₁'s [NP ___₁ novel]], but I like [DP Bill₂'s [~~NP ___₂ novel]]~~*, under the assumption that possessors raise from NP (cf. Munn 1995, Radford 2000, Alexiadou 2005, among others). This assumption is, however, controversial. Furthermore, the ungrammaticality of (ii) can be taken to suggest that null operator extraction is disallowed out of an NP-ellipsis site. Although overt *wh*-movement and null operator movement appear not to be possible out of an NP-ellipsis site, QR seems to be possible: the inverse scope reading is possible within the adjunct PP in (iii). NP-ellipsis may then exhibit a null operator/QR asymmetry regarding covert extraction out of its domain, which is not observed with anaphora cases mentioned in table (76).

It is also worth noting here extraction possibilities out of *one*-anaphora sites. Consider (iv) and (v) (the possibility of QR out of a *one*-anaphora site is hard to test because *one* is generally incompatible with a genitive possessor as we can see in examples like **I read a linguist's novel and you read a philosopher's one*).

- (iv) Overt Movement (*Wh*-movement)

(76)

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

As the table here illustrates, the extraction pattern out of Japanese null arguments adds a novel type of ellipsis to the relevant typology in that such elements exhibit non-uniform behavior, i.e. an overt/covert extraction contrast, with respect to extraction out of their domain. A question arises as to how the extraction pattern exhibited by Japanese null arguments should be captured theoretically. Before moving on to a concrete analysis, in the next chapter, I will examine null arguments in other languages where argument ellipsis has been claimed to be available in light of extraction possibilities. The expectation here is that if the overt/covert extraction asymmetry is a by-product of the process which yields elliptic arguments, i.e. the argument ellipsis analysis, null arguments derived via argument ellipsis in other languages should also exhibit the relevant contrast. It will be shown that the expectation is indeed borne out: null arguments which are derived via argument ellipsis cross-linguistically exhibit the relevant overt/covert asymmetry regarding extraction out of them.

*I know what₁ John bought [a large picture of __₁], and I know what₂ Bill bought [a small one].

(v) Op-movement

*It is this train [Op₁ that John bought [a large picture of __₁]], and it is that train [Op₂ that Bill bought [a small one]].

In (iv), the *wh*-phrase *what* has been extracted out of the *one*-anaphora site, and the sentence is ungrammatical; (v) involves null operator extraction out of the *one*-anaphora site, and the sentence is unacceptable. This leads to the conclusion that extraction is banned out of English *one*-anaphora sites, which confirms that Japanese null arguments should not be treated on a par with *one* anaphora (see section 2.2.2).

At any rate, the extraction pattern out of Japanese null arguments discussed in the text, i.e. the overt/covert extraction asymmetry, is unique, which indicates that it is impossible to attribute the properties of Japanese null arguments in this respect to other anaphora constructions discussed here including NP-ellipsis and *one*-anaphora, suggesting that argument ellipsis cannot be reduced to them.

Appendix: Overt Clausal Proform *Soo* ‘So’

In this appendix, I will discuss the overt clausal “proform” *soo* ‘so’, focusing on extraction possibilities. In Japanese, clausal complements can be replaced by *soo* ‘so’, as in (77) (cf. Nakau 1973, Hasegawa 1980, Tanaka 2008).

- (77) a. Taroo-wa [_{CP} Hanako-ga uti-ni kaet-ta to] omot-te-iru.
Taro-TOP Hanako-NOM home-to return-PST C think-PROG-PRES
‘Taro thinks [_{CP} that Hanako returned home].’
- b. Zi-roo-mo [_{CP} soo] omot-te-iru.
Ziro-also so think-PROG-PRES
‘Ziro also thinks [_{CP} so].’

If *soo* ‘so’ is an instance of deep anaphora such as English *do it* (cf. section 3.1), it is expected that extraction should be uniformly disallowed out of its domain. However, this is not the case. Specifically, covert extraction is possible out of a clausal *soo* ‘so’ site in Japanese, as the following examples demonstrate (I will only discuss comparative deletion, PP *tough* constructions, and one case of QR here: the other tests discussed above which show that covert extraction is possible out of Japanese null arguments behave exactly in the same way in the relevant respect).

(78) Comparative Deletion

- a. [[Op₁ [_{CP} Taroo-ga ___₁ yon-da to] Kanako-ni iw-are-te-iru] yori(mo)]
Taro-NOM read-PST C Kanako-by say-PASS-PROG-PRES than
Hanako_i-wa takusan hon-o yon-de-ita.
Hanako-TOP many book-ACC have-PROG-PRES
(Lit.) ‘Hanako_i read more books [than [Op₁ it is said by Kanako [_{CP} that Taro read ___₁]].’

- b. Sarani, [[Op₂ [_{CP} soo] Ayaka-ni iw-are-te-iru yori(mo)]]
 furthermore so Ayaka-by say-PASS-PROG-PRES than
 kanozyo_i-wa takusan hon-o yon-de-ita.
 she-TOP many book-ACC have-PROG-PRES
 (Lit.) ‘Furthermore, she_i read more books [than [Op₂ it is said by Ayaka [_{CP} so]]].’

(79) PPT

- a. Hahaoya-kara_i-ga Taroo-nitotte-wa [Op₁ [_{CP} ___₁_i aizyoo-o uke-te-iru
 mother-from-NOM Taro-for-TOP love-ACC receive-PROG-PRES
 to] kanzi]-yasu-i.
 C feel-easy-PRES
 (Lit.) ‘From his mother_i is easy for Taro [Op₁ to feel [_{CP} that he receives love ___₁]].’
- b. Titioya-kara_j-ga Ziroo-nitotte-wa [Op₂ [_{CP} soo] kanzi]-yasu-i.
 father-from-NOM Ziro-for-TOP so feel-easy-PRES
 (Lit.) ‘From his father_j is easy for Ziro [Op₂ to feel [_{CP} so]].’

(80) QR

- a. Kyonen-wa Yamada sensei-ga [_{CP} daiamondo-mitaini subete-no
 last.year-TOP Yamada teacher-NOM diamond-like all-GEN
 sinnyuusei-o kagayai-te-iru to] iwa-nakat-ta.
 freshman-ACC shine-PROG-PRES C say-NEG-PST
 (Lit.) ‘Last year, Prof. Yamada did not say [_{CP} that, like a diamond, all the freshman
 students are shining].’ Neg » ∇; ∇ » Neg
- b. Kotosi-wa Tanaka sensei-ga [_{CP} soo] iwa-nakat-ta.
 this.year-TOP Tanaka teacher-NOM so say-NEG-PST
 (Lit.) ‘This year, Prof. Tanaka did not say [_{CP} so].’ Neg » ∇; ∇ » Neg

The grammaticality of (78b) and (79b) indicates that null operator movement is possible out of a clausal *soo* ‘so’ site, and the availability of the inverse scope interpretation in (80b) shows that QR

is allowed out of the relevant domain. Then, one might wonder whether the above data would undermine the claim that Japanese null arguments can be elliptic on the basis of the covert extraction possibility out of them. Specifically, one could argue that Japanese null arguments could be a covert instance of the proform *soo* ‘so’, which apparently allows covert extraction out of its domain, using this to argue that the ellipsis strategy is not necessary to account for the possibility of extraction out of Japanese null arguments. However, I maintain that the above data do not undermine the ellipsis view on Japanese null arguments. First, the overt clausal proform *soo* ‘so’ is highly exceptional, i.e. *soo* ‘so’ does not exhibit the general behavior of overt pronouns. For example, other types of overt proforms such as *do it*, *do so*, *do that*, clausal *it*, *so*, *that*, among others, uniformly disallow covert extraction out of their domains (cf. Depiante 2000, Merchant 2013b), as the following examples show.

(81) Null Operator Movement

- a. Max talked to everyone Op that Bill did Δ .
- b. *Max talked to everyone Op that Bill *did it*. (Fiengo and May 1994:247)
- c. *The boys put everything Op that he could *do so* in the car. (Carlson 1977:528)
- d. *I examine every student Op that John *does that*. (Cecchetto and Percus 2006:10)
- e. *This is the book Op₁ that you believe [_{CP} that Nancy has read ___₁], and this is the book Op that I believe [_{CP} *it/so/that*].

(82) QR

- a. Some boy admires every teacher. Some girl does Δ too. $\exists \gg \forall; \forall \gg \exists$ (Fox 2000:4)
- b. One of the boys met every teacher and one of the girls *did it* too.
 $\exists \gg \forall; * \forall \gg \exists$ (Depiante 2000:95)

- c. One of the boys likes every teacher and one of the girls *does so* too.
 $\exists \gg \forall ; * \forall \gg \exists$ (Depiante 2000:94; attributed to Fox 1995)
- d. A security agent inspected every plane and a technician *did that* too.
 $\exists \gg \forall ; * \forall \gg \exists$ (Cecchetto and Percus 2006:10)
- e. Some boy believes everyone to be a genius, and some girl believes *it/so/that* too.
 $\exists \gg \forall ; * \forall \gg \exists$

In (81) and (82), the VP-ellipsis case (a) allows both null operator movement and QR out of the relevant domain, whereas the overt proform cases in (b–e) uniformly disallow these movements out of their domains. The overt clausal proform *soo* ‘so’ thus seems to be highly exceptional in the relevant respect.

One crucial syntactic difference between the overt clausal proform *soo* ‘so’ and the other overt proforms discussed in (81) and (82), which in fact provides a clue for the analysis of the exceptional behavior of *soo* ‘so’, is that the former can co-occur with its ‘associate’ (cf. Tanaka 2008, Sakamoto 2016c), while the latter cannot. Consider the following examples.

(83) Comparative Deletion

- a. [[Op₁ [_{CP} Taro-ga ___₁ yon-da to] Kanako-ni iw-are-te-iru] yori(mo)]
Taro-NOM read-PST C Kanako-by say-PASS-PROG-PRES than
Hanako_i-wa takusan hon-o yon-de-ita.
Hanako-TOP many book-ACC have-PROG-PRES
(Lit.) ‘Hanako_i read more books [than [Op₁ it is said by Kanako [_{CP} that Taro read ___₁]]].’

- b. Sarani, [[Op₂ [CP Taroo-ga ___₂ yon-da to] soo Ayaka-ni
 furthermore Taro-NOM read-PST C so Ayaka-by
 iw-are-te-iru] yori(mo)] kanozyo_i-wa takusan hon-o yon-de-ita.
 say-PASS-PROG-PRES than she-TOP many book-ACC have-PROG-PRES
 (Lit.) ‘Furthermore, she_i read more books [than [Op₂ it is said by Ayaka so, [CP that
 Taro read ___₂]]].’

(84) PPT

- a. Hahaoya-kara_i-ga Taroo-nitotte-wa [Op₁ [CP ____{1/i} aizyoo-o uke-te-iru
 mother-from-NOM Taro-for-TOP love-ACC receive-PROG-PRES
 to] kanzi]-yasu-i.
 C feel-easy-PRES
 (Lit.) ‘From his mother_i is easy for Taro [Op₁ to feel [CP that he receives love ____{1/i}]].’
- b. Titioya-kara_j-ga Ziroo-nitotte-wa [Op₂ [CP ____{2/j} aizyoo-o uke-te-iru
 father-from-NOM Ziro-for-TOP love-ACC receive-PROG-PRES
 to] soo kanzi]-yasu-i.
 C so feel-easy-PRES
 (Lit.) ‘From his father_j is easy for Ziro [Op₂ to feel so, [CP that he receives love
 ____{2/j}]].’

(85) QR

- a. Kyonen-wa Yamada sensei-ga [CP daiamondo-mitaini subete-no
 last-year-TOP Yamada teacher-NOM diamond-like all-GEN
 sinnyuusei-o kagayai-te-iru to] iwa-nakat-ta.
 freshman-ACC shine-PROG-PRES C say-NEG-PST
 (Lit.) ‘Last year, Prof. Yamada did not say [CP that, like a diamond, all the freshman
 students are shining].’
- Neg » ∀; ∀ » Neg

- b. Kotosi-wa Tanaka sensei-ga [CP daiamondo-mitaini subete-no
 this.year-TOP Tanaka teacher-NOM diamond-like all-GEN
 sinnyuusei-o kagayai-te-iru to] soo iwa-nakat-ta.
 freshman-ACC shine-PROG-PRES C so say-NEG-PST
 (Lit.) ‘This year, Prof. Tanaka did not say so, [CP that, like a diamond, all the
 freshman students are shining].’ Neg » ∇; ∇ » Neg

(86) English Overt Pro-forms

- a. *John [kissed Mary], and Bill did it [kiss Mary].
 b. *John [kissed Mary], and Bill did so [kiss Mary].
 c. *John [kissed Mary], and Bill did that [kiss Mary].
 d. *John believes [that Mary is smart], and Bill believes it/so/that [that Mary is smart].

(83b), (84b), and (85b) demonstrate that it is possible to have the overt clausal proform *soo* ‘so’ and the relevant CP at the same time. (86), on the other hand, shows that other types of overt proforms cannot generally co-occur with their ‘associates’. Based on the fact that the overt proform *soo* ‘so’ and its ‘associate’ CP can co-occur, Tanaka (2008) claims that there are two types of *soo* ‘so’, namely the clausal proform *soo* ‘so’ and the adverbial *soo* ‘so’, and Sakamoto (2016c) claims that the overt proform *soo* ‘so’ takes its ‘associate’ CP as its complement and that the CP can optionally undergo ellipsis. What is important here is that the presence of the proform *soo* ‘so’ does not rule out the presence of a clause, as the above examples show. The relevant CP can be elided, which we have seen above is independently possible in Japanese, an analysis which was in fact argued for in Sakamoto (2016c). Whether we take Tanaka’s (2008) analysis or Sakamoto’s (2016c) analysis, crucial for the discussion in the thesis is that the availability of the bound variable interpretation in (78b) and (79b) and the availability of the inverse scope reading in (80b) with the overt proform *soo* ‘so’ do not undermine the claim that covert extraction is allowed out of Japanese

null CPs since they can be derived as in (87a), (87b), and (87c), respectively.

- (87) a. Comparative Deletion
..., she reads more papers [than Op₂ it is said by Ayaka so [CP that Taro read ___₂]]
- b. PP *Tough* Construction
From his father is easy for Ziro [Op₂ to feel so [CP that he receives love ___₂]]
- c. QR
Ziro also did not say so [CP that, like Tokyo, all the cities are lively]

Here, covert movement takes place out of null CPs with the overt proform *soo* ‘so’ outside of it (*soo* ‘so’ thus co-occurs here with a CP, which we know is independently possible). I refer the reader to Tanaka (2008) and Sakamoto (2016c) for more discussion regarding the overt clausal proform *soo* ‘so’ in Japanese. What is important for our current purposes is that *soo* ‘so’ can co-occur with a clause; since this clause can undergo ellipsis, it is not surprising that *soo* ‘so’ constructions appear to behave like argument ellipsis constructions regarding extraction (for another case where a pronominal element co-occurs with a phrase that undergoes argument ellipsis, see Bošković 2017, to appear).

Chapter 4

Cross-linguistic Investigations into Silent Arguments¹

In this chapter, I will investigate null arguments in several languages where argument ellipsis has been independently claimed to be available, namely Chinese (Cheng 2013), Korean (Kim 1999, Takahashi 2007), Mongolian (Takahashi 2007, Sakamoto 2012), and Turkish (Şener and Takahashi 2010), paying special attention to extraction possibilities out of them. In section 4.1, I will provide background on null arguments in the above languages, showing that they pass the usual tests for argument ellipsis. In section 4.2, I will investigate overt extraction possibilities out of null arguments in the relevant languages, using long-distance scrambling, and ECM-movement, among others. In section 4.3, I will examine whether covert extraction is allowed out of null arguments in the relevant languages, using null operator movement and QR, among others. Section 4.4 will summarize the chapter.

4.1 Argument Ellipsis in Chinese, Korean, Mongolian, and Turkish

4.1.1 Background

4.1.1.1 Null Arguments in Chinese, Korean, Mongolian, and Turkish

Chinese, Korean, Mongolian, and Turkish (CKMT, hereafter) are all radical *pro*-drop languages in that arguments such as subjects and objects can be phonologically dropped under an appropriate context even when there is no agreement that could “recover” their interpretations (see Huang

¹ I owe the cross-linguistic data discussed in this chapter to the following linguists either in full or in part (for the relevant languages): Shengyun Gu, Zhen Shen, Shuyan Wang, and Yimei Xiang for Chinese, Jayon Park and YongSuk Yoo for Korean, Chigchi Bai and Lina Bao for Mongolian, and Kadir Gökgöz and Deniz Özyıldız for Turkish.

1984, 1989, 1991a, 1999, Xu 1986, G. Li 2002, Lin 2005, Ting and Huang 2008, Lin and Liao 2011, Sigurðsson 2011, Cheng 2013, A. Li 2014, Liu 2014, among many others, for Chinese, Otani and Whitman 1991, Park 1994, 1997, 2014a, b, J.-S. Kim 1997, J.-S. Lee 1997, 2016, Kim 1999, Ahn and Cho 2009, Um 2011, W. Lee 2014, 2016, Moon 2015, among many others, for Korean, Takahashi 2007 and Sakamoto 2012 for Mongolian, and Erguvanlı-Taylan 1984, Kornfilt 1987, 1997, Özsoy 1988, Turan 1995, Aygen 2001, Öztürk 2004, Şener and Takahashi 2010, among others, for Turkish).² Consider the following examples.

(1) Korean

- a. A: Nwu-ka Chelswu_i-lul piphanha-yss ni?
 who-NOM Chelswu-ACC criticize-PST Q
 ‘Who criticized Chelswu_i?’
- B: Yenghui-ka Δ_i piphanha-yss-ta.
 Yenghui-NOM criticize-PST-DECL
 (Lit.) ‘Yenghi criticized Δ_i .’
- b. A: Chelswu_i-ka nwukwu-ul piphanha-yss ni?
 Chelswu-NOM who-ACC criticize-PST Q
 (Lit.) ‘Chelswu_i criticized who?’
- B: Δ_i Yenghui-lul piphanha-yss-ta.
 Yenghui-ACC criticize-PST-DECL
 (Lit.) ‘ Δ_i criticized Yenghui.’

² Note that Turkish does have subject agreement, but it does not have object agreement.

(2) Mongolian

a. A: Ken-Ø Ulayan_i-i sigümjile-gsen bui?
who-NOM Ulagan-ACC criticize-PST.ADN Q
'Who criticized Ulagan_i?'

B: Bayatur-Ø Δ_i sigümjile-jei.
Bagatur-NOM criticiize-PST.CON
(Lit.) 'Bagatur criticized Δ_i .'

b. A: Bayatur_i-Ø ken-i sigümjile-gsen bui?
Bagatur-NOM who-ACC criticize-PST.ADN Q
(Lit.) 'Bagatur_i criticized who?'

B: Δ_i Ulayan-i sigümjile-jei.
Ulagan-ACC crticize-PST.CON
(Lit.) ' Δ_i criticized Ulagan.'

(3) Turkish

a. A: Kim-Ø Ahmet_i-i eleştir-di?
who-NOM Ahmet-ACC criticize-PST.3SG
'Who criticized Ahmet_i?'

B: Ayşe-Ø Δ_i eleştir-di.
Ayşe-NOM criticize-PST.3SG
(Lit.) 'Ayşe criticized Δ_i .'

b. A: Ahmet_i-Ø kim-i eleştir-di?
Ahmet-NOM who-ACC criticize-PST.3SG
(Lit.) 'Ahmet_i criticized who?'

B: Δ_i Ayşe-yi eleştir-di.
Ayşe-ACC criticize-PST.3SG
(Lit.) ' Δ_i criticized Ayşe.'

(4) Chinese

- a. A: Shui piping-guo Zhangsan?
who criticize-ASP Zhangsan
'Who criticized Zhangsan?'
- B: Mali piping-guo Δ_i .
Mali criticize-ASP
(Lit.) 'Mali criticized Δ_i .'
- b. A: Zhangsan_i piping-guo shui?
Zhangsan criticize-ASP who
(Lit.) 'Zhangsan_i criticized who?'
- B: Δ_i piping-guo Mali.
criticize-ASP Mali
(Lit.) ' Δ_i criticized Mali.'

In the above examples, with the (A) sentences as their antecedents, the (B) sentences all involve null arguments. Among the (B) sentences, the (a) examples involve null objects, and the (b) examples null subjects. Although the (B) sentences in the above examples are all phonologically 'incomplete', they can be interpreted appropriately. For example, the null object and the null subject in the Korean case (1a–B) and (1b–B) can be interpreted as Chelswu.

As in Japanese, CKMT allow not only nominal arguments but also clausal arguments to be phonologically dropped, as the following examples demonstrate.³

³ Li (2005, 2007, 2014) claims that *think*-type verbs such as *yiwei* 'thought' which cannot take DPs as their complements do not allow CP-drop, as in (i) (the judgment here is taken from Li 2014).

(i) *Wo yiwei [_{CP} ta hen congming]; tamen ye yiwei [_{CP} Δ].
I think he very smart they also think
(Lit.) 'I thought [_{CP} he was smart]; they thought [_{CP} Δ], too.' (adapted from Li 2014:62)

However, Cheng (2013) claims that (i) is acceptable for him and other native speakers he consulted. Then, he suggests that CP-drop in Chinese may require contrast so that Li's example (i) sounds degraded to some speakers since the example lacks contrast. Sentences such as (ii), where the antecedent sentence and the target sentence are clearly contrastive, which is confirmed by the presence of *que* 'whereas', uniformly allow CP-drop (the judgment is here

(5) Korean

- a. Chelswu-nun [_{CP} Mia-ka i chayk-ul sa-ss-ta-ko] sayngkakha-n-ta.
Chelswu-TOP Mia-NOM this book-ACC buy-PST-DECL-C think-PRES-DECL
'Chelswu thinks [_{CP} that Mia bought this book].'
- b. Yenghui-to [_{CP} Δ] sayngkakha-n-ta.
Yenghui-also think-PRES-DECL
(Lit.) 'Yenghui also thinks [_{CP} Δ].'

(6) Mongolian

- a. Bayatur-Ø bol [_{CP} Batu-Ø ene šigr-i ide-gsen geju]
Bagatur-NOM TOP Batu-NOM this candy-ACC eat-PST.ADN C
bodoju bai-na.
think COP-PRES
'Bagatur thinks [_{CP} that Batu ate this candy].'
- b. Ulayan-Ø basa [_{CP} Δ] bodoju bai-na.
Ulagan-NOM also think COP-PRES
(Lit.) 'Ulagan also thinks [_{CP} Δ].'

taken from Cheng 2013).

- (ii) Wo renwei [_{CP} Zhangsan hen congming]. Tamen que bu renwei [_{CP} Δ].
I think Zhangsan very smart they whereas NEG think
(Lit.) 'I think [_{CP} Zhangsan is very smart]. On the other hand, they do not think [_{CP} Δ].' (Cheng 2013:180)

It appears that CP-drop in Turkish may also require such contrast. Specifically, if we remove *dün* 'yesterday' and *bugün* 'today' from (7a) and (7b), respectively, the sentences become degraded to my informants (see also Cheng 2013 for a relevant observation). At any rate, for my consultants for Chinese (all of them linguists), *juede* 'feel' easily allows CP-drop without any contrast, so I will use it throughout the discussion of CP-drop in Chinese.

(7) Turkish⁴

- a. Ahmet-Ø [CP Mete-nin araba-sın-ı yıka-dığ-ın]-ı dün
Ahmet-NOM Mete-GEN car-3SG.POSS-ACC wash-NML.3SG-ACC yesterday
düşün-dü.
think-PST.3SG
'Yesterday, Ahmet thought [CP that Mete washed a car].'
- b. Ayşe-Ø de [CP Δ] bugün düşün-dü.
Ayşe-NOM TOP today think-PST.3SG
(Lit.) 'Today, Ayşe thought [CP Δ]'

(8) Chinese

- a. Zhangsan juede [CP Lisi mai-le na-ben shu].
Zhangsan feel Lisi buy-ASP that-CL book
'Zhangsan feels [CP that Lisi bought that book].'
- b. Mali ye juede [CP Δ].
Mali also feel
(Lit.) 'Mali also feels [CP Δ].'

With the (a) examples as their antecedents, the (b) examples can be interpreted as if nothing was omitted: the null CPs in the (b) examples can be assigned the same interpretation as the ones in the

⁴ Embedded clauses in Turkish can be alternatively introduced by the complementizer *diye*, as in (i).

- (i) Ahmet-Ø [CP Mete-Ø bu araba-sın-ı yıka-dı diye] düşün-dü.
Ahmet-NOM Mete-NOM this car-3SG.POSS-ACC wash-PST.3SG C think-PST.3SG
'Ahmet thinks [CP that Mete washed this car].'

Embedded clause with the complementizer *diye* can also be phonologically null, as in (ii).

- (ii) Can-Ø dün-den beri [CP Mete-Ø Ali-yi gör-dü diye] düşün-üyor.
Can-NOM yesterday-ABL since Mete-NOM Ali-ACC see-PST.3SG C think-PRES.3SG
Aylin-Ø de bugün-den beri [CP Δ] düşün-üyor.
Aylin-NOM TOP today-ABL since think-PRES.3SG
(Lit.) 'Can has thought since yesterday [CP that Mete saw Ali]. Can has thought since today [CP Δ].'

In this thesis, unless otherwise noted, I will use *dik*-clauses such as (7), which involve genitive subjects with nominal agreement on embedded verbs, for embedded clauses in Turkish for expository purposes.

(a) examples. For example, taking (5a) as its antecedent, the Korean case (5b) means that Yenghui also thinks that Mia bought this book. Therefore, CP-drop is possible in the relevant languages.

In the literature, null arguments in CKMT have been claimed to be derived via either *pro* or argument ellipsis, on a par with those in Japanese (see Cheng 2013 for Chinese, Kim 1999, Takahashi 2007 for Korean, Takahashi 2007, Sakamoto 2012 for Mongolian, and Şener and Takahashi 2010 for Turkish). In the following, I introduce several arguments for the ellipsis analysis of null arguments in the relevant languages, also providing supporting evidence for the availability of argument ellipsis, on the basis of the diagnostics discussed in chapter 2.

4.1.1.2 Argument for Ellipsis I: Obviation of Condition B

The first diagnostic for ellipsis that I will use is related to the condition B of the binding theory. Specifically, CKMT null arguments can obviate a violation of the binding condition B under an appropriate context.⁵ Consider the following examples.

(9) Korean

*Chelswu_i/Motuwu_i-ka Δ_i piphanha-yss-ta.
Chelswu/everyone-NOM criticize-PST-DECL
(Lit.) ‘Chelswu_i/Everyone_i criticized Δ_i .’

(10) Mongolian

*Bayatur_i/Kümün бүкүн_i-Ø Δ_i sigümjile-jei.
Bagatur/eveyone-NOM criticize-PST.CON
(Lit.) ‘Bagatur_i/Everyone_i criticized Δ_i .’

⁵ For discussion of the binding condition B in the literature in the languages in question, see, e.g. Xu (1986) for Chinese, Park (2014b) for Korean, and Şener and Takahashi (2010) for Turkish.

(11) Turkish

*Ahmet_i/Herkes_i-Ø Δ_i eleştir-di.
Ahmet/everyone-NOM criticize-PST.3SG
(Lit.) ‘Ahmet_i/Everyone_i criticized Δ_i.’

(12) Chinese

*Zhangsan_i/Meigeren_i piping-le Δ_i.
Zhangsan/everyone-NOM criticize-ASP
(Lit.) ‘Zhangsan_i/Everyone_i criticized Δ_i.’

Here, the subjects and the null objects are co-indexed, and the sentences are ungrammatical. The ungrammaticality of these sentences straightforwardly follows if the null object positions are occupied by *pro*. Specifically, if the null objects in the above examples are *pro*, the sentences violate the condition B of the binding theory, as in English **John_i/Everyone_i criticized him_i*. What is important for the current discussion is that the above sentences become grammatical once they are preceded by appropriate sentences, as the following examples illustrate.

(13) Korean

A: Nwu-ka caki-lul piphanha-yss ni?
who-NOM self-ACC criticize-PST Q
(Lit.) ‘Who criticized self?’

B: Chelswu/Motuwu-ka Δ piphanha-yss-ta.
Chelswu/everyone-NOM criticize-PST-DECL
(Lit.) ‘Chelswu/Everyone criticized Δ.’

(14) Mongolian

A: Ken-Ø öber-i-ben sigümjile-gsen bui?

who-NOM self-ACC-RP criticize-PST.ADN Q

(Lit.) ‘Who criticized self?’

B: Bagatur/Kümün бүкүн-Ø △ sigümjile-jei.

Bagatur/everyone-NOM criticize-PST.CON

(Lit.) ‘Bagatur/Everyone criticized △.’

(15) Turkish

A: Kim-Ø kendin-ni eleştir-di?

who-NOM self-ACC criticize-PST.3SG

(Lit.) ‘Who criticized self?’

B: Ahmet/Herkes-Ø △ eleştir-di.

Ahmet/everyone-NOM criticize-PST.3SG

(Lit.) ‘Ahmet/Everyone criticized △.’

(16) Chinese

A: Shui piping-guo ziji?

who criticize-ASP self

(Lit.) ‘Who criticized self?’

B: Zhangsan/Meigeren piping-guo △.

Zhangsan/everyone criticize-ASP

(Lit.) ‘Zhangsan/Everyone criticized △.’

With the (A) sentences as their antecedents, the (B) sentences in (13)–(16), which correspond to the sentences in (9)–(12), are all grammatical with the interpretation where the subjects and the objects refer to the same entity. Thus, the Korean case (13B) receives the interpretation that Chelswu_i/everyone_i criticized himself_i. If the null objects in the (B) sentences were *pro*, the

sentences should be ungrammatical, just like (9)–(12) are, due to a violation of the binding condition B, as in (17a); on the other hand, if the null objects in question are derived via ellipsis, the grammaticality of the (B) sentences above is easy to explain since what occupies the null object position is then an elided *self*-anaphor, as in (17b), so the binding condition B does not matter for the (B) sentences.

- (17) a. *Subject_i *pro*_i V
 b. Subject_i *self*_i V

Therefore, the sentences in (9)–(12) and the ones in (13)–(16) indicate that both *pro* and ellipsis are operative strategies in deriving null arguments in CKMT.

4.1.1.3 Argument for Ellipsis II: ‘Sloppy’ Reading

The second diagnostic for ellipsis is related to interpretive possibilities of CKMT null arguments: they allow ellipsis-indicating readings that (overt) pronouns generally cannot support in the relevant contexts. For example, they can yield the sloppy reading, as the following examples show.⁶

- (18) Korean
 a. Chelswu-nun [_{DP} caki-uy kong]-ul cha-ass-ta.
 Chelswu-TOP self-GEN ball-ACC kick-PST-DECL
 (Lit.) ‘Chelswu kicked [_{DP} self’s ball].’

⁶ For discussion of the availability of the sloppy reading of null arguments in CKMT, see, e.g., Xu (1986), Huang (1987, 1991a), and Cheng (2013) for Chinese, Otani and Whitman (1991) for Korean, Takahashi (2007) for Mongolian, and Şener and Takahashi (2010) for Turkish.

- b. Yenghui-nun [DP Δ] cha-ci anha-ess-ta.
 Yenghui-TOP kick-CI NEG.do-PST-DECL
 (Lit.) ‘Yenghui did not kick [DP Δ].’ strict; sloppy
- b’. Yenghui-nun [DP kukes]-ul cha-ci anha-ess-ta.
 Yenghui-TOP it-ACC kick-CI NEG.do-PST-DECL
 ‘Yenghui did not kick [DP it].’ strict;*sloppy

(19) Mongolian

- a. Bayatur- \emptyset [DP (öber-ün) nom]-iyan ungsi-jai.
 Bagatur-NOM self-GEN book-RP read-PST.CON
 (Lit.) ‘Bagatur read [DP self’s book].’
- b. Ulayan- \emptyset bol [DP Δ] ungsi-γsan ügei.
 Ulagan-NOM TOP read-PST.ADN NEG
 (Lit.) ‘Ulagan did not read [DP Δ].’ strict; sloppy
- b’. Ulayan- \emptyset bol [DP tere]-yi ungsi-γsan ügei.
 Ulagan-NOM TOP it-ACC read-PST.ADN NEG
 ‘Ulagan did not read [DP it].’ strict;*sloppy

(20) Turkish

- a. Ahmet- \emptyset [DP *pro* araba-sın]-ı yıka-dı.
 Ahmet-NOM his car-3SG.POSS-ACC wash-PST.3SG
 (Lit.) ‘Ahmet washed [DP *pro* car].’
- b. Ayşe- \emptyset de [DP Δ] yıka-ma-dı.
 Ayşe-TOP TOP wash-NEG-PST.3SG
 (Lit.) ‘Ayşe did not wash [DP Δ].’ strict; sloppy
- b’. Ayşe- \emptyset de [DP on]-u yıka-ma-dı.
 Ayşe-NOM TOP it-ACC wash-NEG-PST.3SG
 ‘Ayşe did not wash [DP it].’ strict;*sloppy

(21) Chinese

- a. Zhangsan piping-guo [DP ziji-de laoshi].
Zhangsan criticize-ASP self-GEN teacher
(Lit.) ‘Zhangsan criticized [DP self’s teacher].’
- b. Mali mei piping-guo [DP Δ].
Mali NEG criticize-ASP
(Lit.) ‘Mali did not criticize [DP Δ].’ strict; sloppy
- b’. Mali mei piping-guo [DP ta].
Mali NEG criticize-ASP him
(Lit.) ‘Mali did not criticize [DP him].’ strict;*sloppy

With the (a) sentences as their antecedents, the (b) sentences which involve a null object can yield the sloppy reading as well as the strict reading. For example, Korean (18b) is ambiguous in that the null object can be interpreted as either Chelswu’s ball (strict reading) or Yenghui’s ball (sloppy reading). Importantly, if the null objects in the (b) sentences are replaced by overt pronouns as in the (b’) sentences, the sloppy reading becomes unavailable. Thus, Korean (18b’) cannot mean that Yenghui did not kick Yenghui’s ball: this sentence can only mean that Yenghui did not kick Chelswu’s ball. Under the assumption that *pro* is a silent counterpart of overt pronouns so that it cannot yield the sloppy reading as in the (b’) sentences, the above data indicate that the null objects in the (b) sentences cannot be *pro* because the availability of the sloppy reading would not be captured under the *pro* analysis. The same observation holds for the quantificational reading case.⁷ Consider the following examples.

⁷ For discussion of the availability of the quantificational reading of null arguments in CKMT, see, e.g. Cheng (2013) for Chinese, Um (2011) for Korean, Takahashi (2007) for Mongolian, and Şener and Takahashi (2010) for Turkish.

(22) Korean

- a. Chelswu-nun [_{DP} sey pwun-uy sensayngnim]-ul conkyengha-n-ta.
Chelswu-TOP three CL-GEN teacher-ACC respect-PRES-DECL
'Chelswu respects [_{DP} three teachers].'
- b. Yenghui-to [_{DP} △] conkyengha-n-ta.
Yenghui-also respect-PRES-DECL
(Lit.) 'Yenghui also respects [_{DP} △].' E-type; quantificational
- b'. Yenghui-to [_{DP} kutul]-ul conkyengha-n-ta.
Yenghui-also they-ACC respect-PRES-DECL
'Yenghui also respects [_{DP} them].' E-type; *quantificational

(23) Mongolian

- a. Bayatur-Ø [_{DP} yarban debter-un nom]-i ungsi-jai.
Bagatur-NOM three CL-GEN book-ACC read-PST.CON
'Bagatur read [_{DP} three books].'
- b. Ulayan-Ø basa [_{DP} △] ungsi-jai.
Ulagan-NOM also read-PST.CON
(Lit.) 'Ulagan also read [_{DP} △].' E-type; quantificational
- b'. Ulayan-Ø basa [_{DP} teden]-i ungsi-jai.
Ulagan-NOM also they-ACC read-PST.CON
'Ulagan also read [_{DP} them].' E-type; *quantificational

(24) Turkish

- a. Ahmet-Ø [_{DP} üç öğrenci]-yi azarla-dı.
Ahmet-NOM three student-ACC scold-PST.3SG
'Ahmet scolded [_{DP} three students].'
- b. Ayşe-Ø de [_{DP} △] azarla-dı.
Ayşe-NOM also scold-PST.3SG
(Lit.) 'Ayşe also scolded [_{DP} △].' E-type; quantificational

- b'. Ayşe-Ø de [_{DP} onlar]-ı azarla-dı.
 Ayşe-NOM also they-ACC scold-PST.3SG
 'Ayşe also scolded [_{DP} them].'

E-type;*quantificational

(25) Chinese

- a. Zhangsan kanjian-le [_{DP} san-ge xuesheng].
 Zhangsan see-ASP three-CL student
 'Zhangsan saw [_{DP} three students].'

- b. Lisi ye kanjian-le [_{DP} △].
 Lisi also see-ASP
 (Lit.) 'Lisi also saw [_{DP} △].'

E-type; quantificational

- b'. Lisi ye kanjian [_{DP} tamen] le.
 Lisi also see they ASP
 'Lisi also saw [_{DP} them].'

E-type;*quantificational

(Cheng 2013:127–128)

With the (a) sentences as their antecedents, the (b) sentences are ambiguous in that the null object can refer either to the same set of the entities in the (a) sentences (E-type reading) or to a different set of the entities (quantificational reading). For example, Korean (22b) is ambiguous in that the set of teachers that Yenghui respects can be either identical to the set of teachers that Chelswu respects or different from it. By contrast, if the null objects in the (b) sentences are replaced by overt pronouns, as in the (b') sentences, the quantificational reading becomes unavailable. To give an example, Korean (22b') is unambiguous in that the set of teachers that Yenghui respects must be identical to the set of teachers that Chelswu respects. Thus, the proponents of the ellipsis analysis of CKMT null arguments argue that the null objects in the (b) sentence cannot be analyzed as involving *pro* because the availability of the quantificational reading would not be then captured.

Under the assumption that *pro* cannot yield the sloppy or the quantificational reading (see chapter 2), the previous literature has claimed that the relevant interpretations are handled with ellipsis. Specifically, if the null objects of the (b) sentences in (18)–(21) and (22)–(25) are derived via ellipsis, they are analyzed as follows.

- (26) a. Subject [_{DP} ... self ...] V_{NEG}
b. Subject [_{DP} ... quantifier ...] V

Here, the ellipsis sites involve the *self*-anaphor and the quantifier, respectively. Therefore, the availability of the sloppy reading in the (b) sentences of (18)–(21) and the quantificational reading in the (b) sentences of (22)–(25) can be straightforwardly captured under the ellipsis analysis.

To sum up, the fact that null objects in CKMT can obviate a violation of the binding condition B under certain contexts and that they allow sloppy and quantificational readings constitutes evidence that the relevant null arguments can be derived via ellipsis; in other words, they cannot be uniformly *pro*.

4.1.2 Verb-stranding Verb Phrase Ellipsis or Argument Ellipsis?

Once the availability of the ellipsis strategy is taken for granted, the next question to be asked is what kind of ellipsis CKMT exploit to derive null arguments. To be more specific, the question is whether CKMT adopt VVPE or argument ellipsis as their ellipsis strategy. In the following, I will use the diagnostics for the argument ellipsis analysis discussed in chapter 2, showing that argument ellipsis is favored over VVPE in CKMT.

(29) Korean

- a. Olhay-nun [DP say-myeng isang-uy haksayng]-i Kim kyoswu-uy
this.year-TOP three-CL more-GEN student-NOM Kim professor-GEN
swuep-ul tul-ess-ta.
class-ACC listen-PST-DECL
(Lit.) ‘This year, [DP more than three students] took Prof. Kim’s class.’
- b. Caknyen-un [DP △] Park kyoswu-uy swuep-ul tul-ess-ta.
last.year-TOP Park professor-GEN class-ACC listen-PST-DECL
(Lit.) ‘Last year, [DP △] took Prof. Park’s class.’ E-type; quantificational

(30) Mongolian

- a. Batu-Ø [CP [DP (öber-ün) keüked]-yen Mongol kele-Ø
Batu-NOM self-GEN child-RP Mongolian language-ACC
kele-ne ügei gejü] bodoju bai-na.
speak-PRES NEG C think COP-PRES
(Lit.) ‘Batu thinks [CP that [DP self’s child] does not speak Mongolian].’
- b. Bayatur-Ø bol [CP [DP △] Angyili kele-Ø kele-Ø kele-ne
Bagatur-NOM TOP English language-ACC language-ACC speak-PRES
ügei gejü] bodoju bai-na.
NEG C think COP-PRES
(Lit.) ‘Bagatur thinks [CP that [DP △] does not speak English]. strict; sloppy

(31) Mongolian

- a. Nidunun [DP tabu-eče yilegüü suruyčü]-Ø syntax-Ø surulča-jai.
last.year five-than more student-NOM syntax-ACC study-PST.CON
‘Last year, [DP five or more students] studied syntax.’
- b. Ene jil bol [DP △] semantics-Ø surulča-jai.
this year TOP semantics-ACC study-PST.CON
(Lit.) ‘This year, [DP △] studied semantics.’ E-type; quantificational

With the (a) examples as their antecedents, the (b) examples in (28) and (30) and the ones in (29) and (31), all of which involve null subjects, can yield the sloppy reading and the quantificational reading, respectively. For example, Korean (28b) can mean either that Junho thinks that Chlswu’s child hit Mina (strict reading) or that Junho thinks that his own child hit Mina (sloppy reading), and (29b) is also ambiguous in that the set of students who took Prof. Park’s class last year can be either identical to the set of students who took Prof. Kim’s class this year (E-type reading) or different from it (quantificational reading). To the extent that subjects in Korean and Mongolian occupy [Spec, TP], the above examples would constitute evidence for the availability of argument ellipsis in these languages.

In contrast to null subjects in Korean and Mongolian, those in Chinese and Turkish are generally reported to disallow the sloppy reading and the quantificational reading (see Takahashi 2007, 2008a, Cheng 2013 for Chinese and Şener and Takahashi 2010 for Turkish), as shown in (32)–(35) (the judgment is taken from the relevant literature).

(32) Turkish

- a. Can-Ø [CP [DP *pro* oğl-u]-Ø İngilizce öğren-iyor diye]
 Can-NOM son-3SG.POSS-NOM English learn-PRES.3SG C
 bil-iyor.
 believe-PRES.3SG
 (Lit.) ‘Can believes [CP that [DP *pro* son] learns English].’

- b. Filiz-se [[DP Δ] Fransızca öğren-iyor diye] bil-iyor.
 Filiz-however French learn-PRES.3SG C believe-PRES.3SG
 (Lit.) ‘Filiz believes [CP that [DP Δ] learns English].’ strict;*sloppy

(adapted from Şener and Takahashi 2010:91)

(33) Turkish

a. [DP Üç öğretmen] Can-ı eleştir-di.
three teacher Can-ACC criticize-PST.3SG
‘[DP Three teachers] criticized Can.’

b. [DP Δ] Filiz-i-yse öv-dü.
Filiz-ACC-however praise-PST.3SG
(Lit.) ‘[DP Δ] criticized Filiz.’

E-type;*quantificational

(Şener and Takahashi 2010:91)

(34) Chinese

a. Zhangsan renwei [CP [DP ziji de xiaohai] yihou yinggai dang yisheng].
Zhangsan think self DE child later should be doctor
(Lit.) ‘Zhangsan thinks [CP [DP self’s child] should be a doctor in the future].’

b. Lisi zeshi renwei [CP [DP Δ] yinggai dang lushi].
Lisi whereas think should be lawyer
(Lit.) ‘Lisi, on the other hand, thinks [CP [DP Δ] should be a lawyer].’

strict;*sloppy (Cheng 2013:216)

(35) Chinese

a. You [DP san-ge laoshi] renwei [CP Lisi hen congming].
have three-CL teacher think Lisi very smart
‘There are [DP three teachers] who think [CP Lisi is very smart].’

b. Dan [DP Δ] que renwei [CP Zhangsan hen ben].
but whereas think Zhangsan very stupid
(Lit.) ‘But, [DP Δ] think [CP Zhangsan is very stupid].’

E-type;*quantificational (Cheng 2013:217)

With the (a) sentences as their antecedents, the (b) sentences involve null subjects anaphoric on

the relevant subjects in the (a) examples. The null subjects here cannot yield the ellipsis-indicating readings. For example, the Chinese case (34b) cannot mean that Lisi thinks that his own child should be a lawyer: it can only mean that Lisi thinks that Zhangsan's child should be a lawyer. However, it is not the case that the relevant readings are always excluded with null subjects in the relevant languages. Abe and Park (2016) claim that there is an interfering factor which makes the relevant readings in (34b) and (35b) unavailable (i.e. they argue that argument ellipsis of subjects is in principle possible in Chinese), on the basis of their observation that Chinese null subjects allow the readings in question when they are located, e.g. in relative clauses or adjunct clauses, where the well-known topic-hood restriction on subjects in Chinese is not observed (cf. Kuno 1976b), as in (38) and (39) (see also Koulidobrova to appear for relevant discussion). A similar 'amelioration' of the ban on the relevant readings of null subjects may also hold in Turkish, as shown in (36) and (37).⁹

(36) Turkish

- a. Can-Ø [[_{DP} kendi öğrenci-si]-Ø İngilizce öğren-me-diğ-i
 Can-NOM self student-3SG.POSS-NOM English learn-NEG-NML-NOM.3SG
 için] kız-dı.
 because angry-PST.3SG
 (Lit.) 'Can is angry [because [_{DP} self's student] does not learn English].'

⁹ The judgment in Şener and Takahashi's (2010) (32) and (33) has in fact been called into a question (cf. Simpson, Choudhury, and Menon 2013). What is important here, however, is that there are clear cases where null subjects can yield the relevant readings (note that, in (37b), the quantificational reading is even preferred, and the E-type reading is dispreferred).

- b. Filiz-se [[_{DP} △] Fransızca öğren-me-diğ-i için]
 Filiz-however French learn-NEG-NML-NOM.3SG because
 kız-di.
 angry-PST.3SG
 (Lit.) ‘Filiz is angry [because [_{DP} △] does not learn French].’ strict; sloppy

(37) Turkish

- a. Can-Ø [[_{DP} bir-çok öğrenci-si]-Ø İngilizce öğren-diğ-i
 Can-NOM one-many student-3SG.POSS-NOM English learn-NML-NOM.3SG
 için] sevin-di.
 because be.pleased-PST.3SG
 ‘Can is pleased [because [_{DP} many students] learn English].’

- b. Filiz-se [[_{DP} △] Fransızca öğren-diğ-i için]
 Filiz-however French learn-NML-NOM.3SG because
 sevin-di.
 be.pleased-PST.3SG
 (Lit.) ‘Filiz is pleased [because [_{DP} △] learn French].’

??E-type¹⁰; quantificational

¹⁰ My informant notes that if a plural morpheme *ler* is attached to the embedded verb, the E-type reading becomes available, excluding the quantificational reading, as in (i).

- (i) [With (37a) as an antecedent]
 Filiz-se [[_{DP} △] Fransızca öğren-dik-ler-i için] sevin-di.
 Filiz-however French learn-NML-3PL-NOM because be.pleased-PST.3SG
 (Lit.) ‘Filiz is pleased [because [_{DP} △] learn French].’ E-type;*quantificational

(38) Chinese

- a. Zhangsan mei du [[relative clause [DP ziji zhidao de xuesheng] zhege xingqi
Zhangsan NEG read self advised DE student this week
xie de] lunwen].
write DE paper
(Lit.) ‘Zhangsan did not read [the paper [relative clause that [DP self’s student] wrote this
week]].’

- b. Lisi mei du [[relative clause [DP Δ] shangge xingqi xie de] lunwen].
Lisi NEG read last week write DE paper
(Lit.) ‘Lisi did not read [the paper [relative clause that [DP Δ] wrote last week]].’
(??)strict¹¹; sloppy

(adapted from Abe and Park 2016:29)

(39) Chinese

- a. Zhangsan ti-le [[relative clause [DP san-ge pengyou] gei Lisi de] hualan].
Zhangsan hold-ASP three-CL friend gave Lisi REL bouquet
‘Zhangsan held [the bouquet [relative clause that [DP three friends] gave to Lisi]].’

- b. Wangwu ti-le [[relative clause [DP Δ] gei Zhaoliu de] hualan].
Wangwu hold-ASP gave Zhaoliu REL bouquet
(Lit.) ‘Wangwu held [the bouquet [relative clause that [DP Δ] gave to Zhaoliu]].’

E-type; quantificational

(Abe and Park 2016:29)

With the (a) sentences as their antecedents, the null subjects in the (b) sentences in the above cases allow the relevant ellipsis-indicating readings. For example, the Turkish case (36b) can mean that

¹¹ Although Abe and Park (2016) claim that both the strict and the sloppy readings are available in cases like (38b), my informants find the strict reading difficult to obtain. I leave this potential speaker variation for future research, but it is important that even the speakers who disprefer the strict reading in (38b) allow the sloppy reading, which is crucial for the current discussion.

Filiz is angry because his own child does not learn French. If the null subjects here occupy [Spec, TP], which is presumably outside of the VVPE domain, the above data indicate that not all arguments with the ellipsis-indicating readings in CKMT can be derived via the VVPE approach: argument ellipsis should be available as a strategy to derive null arguments in CKMT.

4.1.2.2 ‘Immobile’ Element

Second, as discussed in chapter 2, constructions which involve ‘immobile’ elements provide an ellipsis context where VVPE cannot apply but argument ellipsis can. Recall Kim’s (1999) argument for argument ellipsis on the basis of ‘immobile’ elements. Consider (40).

(40) Korean

- a. Mike-nun [_{DP1} James]-lul [_{DP2} tali]-lul ketecha-ss-ta.
 Mike-TOP James-ACC leg-ACC kick-PST-DECL
 ‘Mike kicked James on the leg.’
- b. *Mike-nun [_{DP2} tali]-lul [_{DP1} James]-lul ketecha-ss-ta.
 Mike-TOP leg-ACC James-ACC kick-PST-DECL
 ‘Mike kicked James on the leg.’

In (40a), *James* is the whole argument (DP₁) and *tali* is the part argument (DP₂). What is interesting in this construction is that the order between the two arguments is rigid: (40b), where the part argument precedes the whole argument, is ungrammatical. Kim (1999) observes that the whole argument can be independently dropped, allowing the sloppy reading, as in (41). The quantificational reading is also allowed in the same context, as in (42).

(41) Korean

- a. Mike-nun [DP₁ caki ai]-lul [DP₂ phal]-lul ttayli-ci an-h-ass-ta.
Mike-TOP self child-ACC arm-ACC hit-CI NEG-do-PST-DECL
(Lit.) ‘Mike did not kick [DP₁ self]’s child] on the arm.’
- b. James-nun [DP₁ △] [DP₂ tali]-lul ttayli-ci an-h-ass-ta.
James-TOP leg-ACC hit-CI NEG-do-PST-DECL
(Lit.) ‘James did not kick [DP₁ △] on the leg.’ strict; sloppy

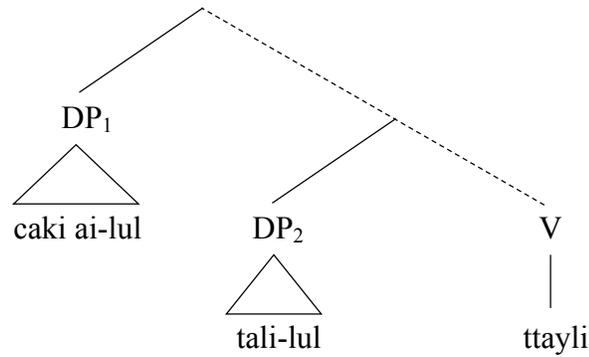
(42) Korean

- a. Mike-nun [DP₁ sey-myeng-uy ai]-lul [DP₂ phal]-lul ttayli-ess-ta.
Mike-TOP three-CL-GEN child-ACC arm-ACC hit-PST-DECL
‘Mike hit [DP₁ three children] on the arm.’
- b. James-nun [DP₁ △] [DP₂ tali]-lul ttayli-ess-ta.
James-TOP leg-ACC hit-PST-DECL
(Lit.) ‘James hit [DP₁ △] on the leg.’ E-type; quantificational

With (41a) and (42a) as their antecedents, (41b) and (42b) are ambiguous: the former can mean either that James did not kick Mike’s child on his/her leg (strict reading) or that James did not kick his own child on his/her leg (sloppy reading), and the latter allows the set of children who James hit on their legs to be either identical to the set of children who Mike hit on their arms (E-type reading) or different from it (quantificational reading). Therefore, the null argument in (41b) and (42b) should be derived via ellipsis.

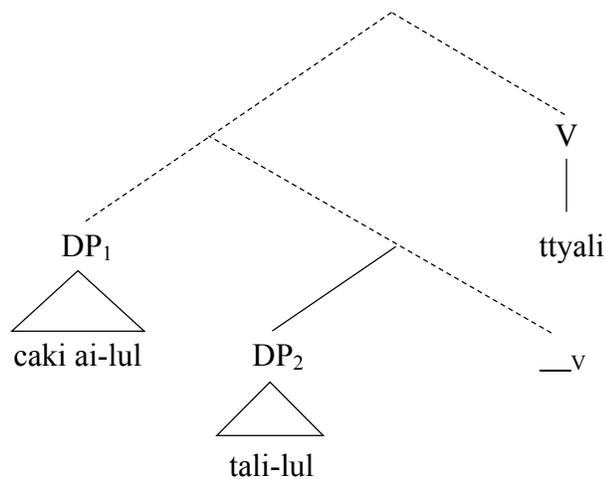
Important for the current discussion is the fact that the part argument *tali* ‘leg’ phonologically survives in (41b) and (42b). Consider the following schematic structure of the relevant part in (41b).

(43)



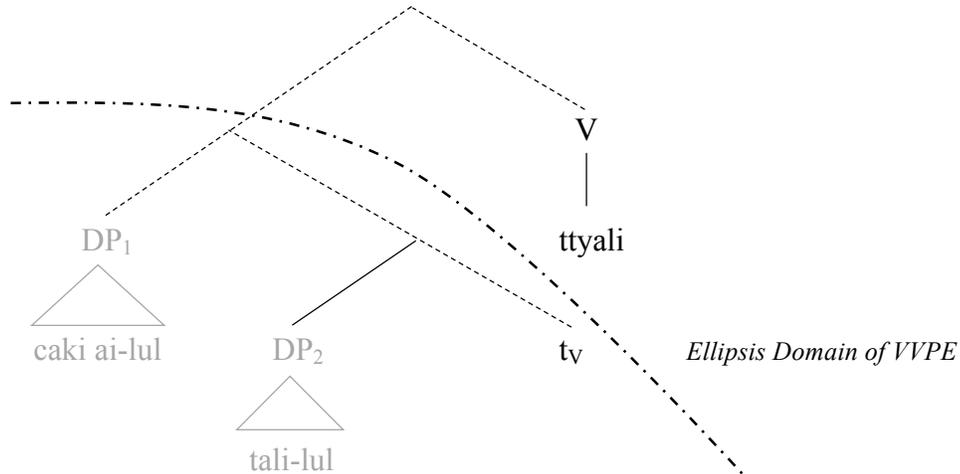
Here, DP₁ occupies a higher position than DP₂, and this hierarchical relation is rigid (cf. the ungrammaticality of (40b)). In order to elide DP₁, the VVPE analysis must raise the V *ttayli* ‘hit’ to a higher position than DP₁, as in (44).

(44)



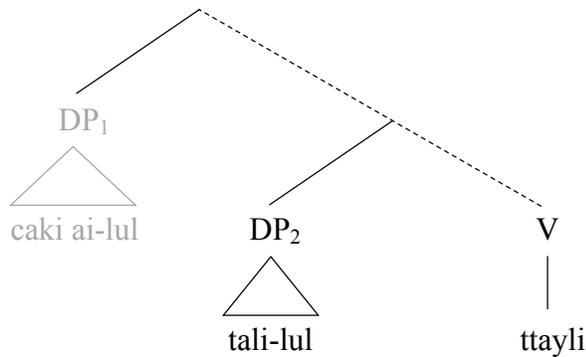
The problem with the VVPE analysis here is that, not only DP₁ but also DP₂ must be affected by ellipsis. For the examples in question to be derived via VVPE, both the verb and DP₂ must move out of the VP, with DP₁ remaining inside of the VP to be elided under VVPE. The problem is that DP₂ cannot move here, as discussed above. Therefore, the phonological realization of DP₂ is not expected if VVPE is responsible for ellipsis of DP₁ in the relevant configuration, as in (45).

(45)



On the other hand, the argument ellipsis analysis does not suffer from the above problem since it can directly target an argument: argument ellipsis can apply to only DP_1 , leaving DP_2 intact, as in (46).

(46)



Therefore, the fact that the null arguments in (41b) and (42b) allow the ellipsis-indicating readings with the phonological realization of the part arguments (i.e. DP_2 in the above tree diagrams) argues for argument ellipsis: we are dealing here with a context where argument ellipsis can apply but VVPE cannot. In sum, we can get an argument for argument ellipsis over VVPE if we can find configurations which satisfy the following conditions: (i) there are two arguments, e.g. DP_1 and DP_2 , whose order is strictly rigid, and (ii) only DP_1 undergoes ellipsis, leaving DP_2 phonologically

overt, which is exactly what happens in the Korean construction discussed above.

Now let us turn to the other languages in light of the ‘immobile’ element argument. Although Mongolian and Turkish do not allow the whole-part construction in ordinary contexts, they allow it in ECM contexts (see Kornfilt 1997 for relevant discussion in Turkish). Consider the following examples.

(47) Mongolian

- a. Batu-Ø [DP₁ Ulayan]-i [DP₂ yar]-ni ebedü-ne gejü bodoju bai-na.
 Batu-NOM Ulagan-ACC arm-3PP hurt-PRES.ADN C think COP-PRES
 ‘Batu thinks that Bagatur’s arm hurts.’
- b. *Batu-Ø [DP₂ yar]-ni [DP₁ Ulayan]-i ebedü-ne gejü bodoju bai-na.
 Batu-NOM arm-3PP Ulagan-ACC hurt-PRES.ADN C think COP-PRES
 (Int.) ‘Batu thinks that Bagatur’s arm hurts.’

(48) Turkish

- a. Ali-Ø [DP₁ Ahmet]-i [DP₂ diş]-i ağrı-yor
 Ali-NOM Ahmet-ACC tooth-POSS.3SG.NOM hurt-PROG.PRES.3SG
 san-ıyor-du.
 believe-PROG-PST.3SG
 ‘Ali believes Ahmet to have a toothache’
- b. *Ali-Ø [DP₂ diş]-i [DP₁ Ahmet]-i ağrı-yor
 Ali-NOM tooth-POSS.3SG.NOM Ahmet-ACC hurt-PROG.PRES.3SG
 san-ıyor-du.
 believe-PROG-PST.3SG
 (Int.) ‘Ali believes Ahmet to have a toothache’

In the Mongolian example (47) and the Turkish example (48), *Ulayan* and *Ahmet* are the whole arguments and *yar* ‘arm’ and *diş* ‘tooth’ are the part arguments, respectively. Crucially, the order

between the two arguments is rigid: (47b) and (48b), where the whole argument is preceded by the part argument, are ungrammatical. Given the rigidity of the word order in question, the following examples involve null arguments which can be analyzed via argument ellipsis, but not via VVPE.

(49) Mongolian

- a. Batu-Ø [DP₁ (öber-ün) baysi]-yi-ban [DP₂ ɣar]-ni ebedü-ne
 Batu-NOM self-GEN teacher-ACC-RP arm-3PP hurt-PRES.ADN
 ügei geju bodoju bai-na.
 NEG C think COP-PRES
 (Lit.) ‘Batu thinks that self’s teacher’s arm does not hurt.’
- b. Bayatur-Ø bol [DP₁ Δ] [DP₂ khöl]-ni ebedü-ne ügei geju
 Bagatur-NOM TOP leg-3PP hurt-PRES.ADN NEG C
 bodoju bai-na.
 think COP-PRES
 (Lit.) ‘Bagatur thinks that Δ leg does not hurt.’ strict; sloppy

(50) Mongolian

- a. Batu-Ø [DP₁ tabu-eče yilegüü baysi]-yi-ban [DP₂ ɣar]-ni ebedü-ne
 Batu-NOM five-from more teacher-ACC-RP arm-3PP hurt-PRES.ADN
 geju bodoju bai-na.
 C think COP-PRES
 ‘Batu thinks that three or more teacher’s arms hurt.’
- b. Bayatur-Ø bol [DP Δ] [DP₂ khöl]-ni ebedü-ne geju bodoju bai-na.
 Bagatur-NOM TOP leg-3PP hurt-PRES.ADN C think COP-PRES
 (Lit.) ‘Bagatur thinks that Δ leg hurt.’ E-type; quantificational

(51) Turkish

- a. Ali-Ø [DP₁ kendi öğrenci-sin]-i [DP₂ diş]-i
Ali-NOM self student-3SG.POSS-ACC tooth-POSS.3SG.NOM
ağrı-mı-yor san-ıyor-du.
hurt-NEG-PROG.PRES.3SG believe-PROG-PST.3SG
(Lit.) ‘Ali believes self’s student to have a toothache’
- b. Ayşe-yse [DP₁ Δ] [DP₂ kol]-u ağrı-mı-yor
Ayşe-however arm-POSS.3SG.NOM hurt-NEG-PROG.PRES.3SG
san-ıyor-du.
believe-PROG-PST.3SG
(Lit.) ‘However, Ayşe believes Δ to have an arm ache’ strict; sloppy

(52) Turkish

- a. Ali-Ø [DP₁ üç-ten çok öğrenci-sin]-i [DP₂ diş]-i
Ali-NOM three-ABL many student-3SG.POSS-ACC tooth-POSS.3SG.NOM
ağrı-yor san-ıyor-du.
hurt-PROG.PRES.3SG believe-PROG-PST.3SG
‘Ali believes more than three students to have a toothache’
- b. Ayşe-yse [DP₁ Δ] [DP₂ kol]-u ağrı-yor
Ayşe-however arm-POSS.3SG.NOM hurt-PROG.PRES.3SG
san-ıyor-du.
believe-PROG-PST.3SG
(Lit.) ‘However, Ayşe believes Δ to have an arm ache’ E-type; quantificational

With the (a) examples as their antecedents, the (b) examples in (49)–(52) allow the ellipsis-indicating readings. For example, the null argument of the Mongolian example (49b) can yield the sloppy reading: the relevant null argument can be interpreted as either Batu’s teacher (strict reading) or Bagatur’s teacher (sloppy reading). That the null arguments in the above examples can

yield the sloppy and the quantificational reading indicates that they are derived via ellipsis. Importantly, it is not clear how the VVPE analysis can derive the relevant null arguments because of the phonological overtiness of the DP₂. Under the VVPE analysis, we would expect both DP₁ and DP₂ to be phonologically null in the relevant configurations; the fact that the DP₂ survives in the above examples provides evidence for argument ellipsis (recall that the movement of the part arguments *khöl* ‘arm’ in the Mongolian examples (49b) and (50b) and *kol* ‘arm’ in the Turkish examples (51b) and (52b) to a higher position than the whole argument, which is a prerequisite for VVPE to apply, is impossible). Therefore, the data in (49)–(52) constitute evidence for the availability of argument ellipsis in Mongolian and Turkish.¹²

Let us turn to the whole-part construction in Chinese, which involves the SVO word order

¹² Another argument for argument ellipsis can be obtained from idiomatic expressions in Turkish. Kural (1992) observes that idiomatic objects need to be adjacent to the verb, as in (i).

- (i) a. Ahmet-Ø o araba-yı göz-den çıkar-dı.
 Ahmet-NOM that car-ACC eye-ABL take.out-PST.3SG
 ‘Ahmet gave up on that car.’
 b. Ahmet-Ø göz-den o araba-yı çıkar-dı.
 ‘Ahmet took that car out of the drawer.’ (Kural 1992:62)

In (ia), *gözden* ‘eye’ is located right in front of the verb *çıkardı* ‘took out’, and they form an idiomatic expression meaning ‘gave up’. By contrast, in (ib), *gözden* is not located in this position, and the idiomatic meaning is lost (note that *gözden* has two meanings, i.e. ‘eye’ or ‘drawer’, and the meaning of ‘eye’ is not available in (ib)). Given this, consider the following examples.

- (ii) a. Ahmet-Ø [_{DP} *pro* araba-sın]-ı göz-den çıkar-dı.
 Ahmet-NOM his car-3SG.POSS-ACC eye-ABL take.out-PST.3SG
 ‘Ahmet gave up on [_{DP} his car].’
 b. Ayşe-yse [_{DP} Δ] göz-den çıkar-ma-dı.
 Ayşe-however eye-ABL take.out-NEG-PST.3SG
 (Lit.) ‘However, Ayşe did not give up on [_{DP} Δ].’ strict; sloppy
- (iii) a. Ahmet-Ø [_{DP} üç araba-sın]-ı göz-den çıkar-dı.
 Ahmet-NOM three car-3SG.POSS-ACC eye-ABL take.out-PST.3SG
 ‘Ahmet gave up on [_{DP} three cars].’
 b. Ayşe-yse [_{DP} Δ] göz-den çıkar-ma-dı.
 Ayşe-however eye-ABL take.out-NEG-PST.3SG
 (Lit.) ‘However, Ayşe did not give up on [_{DP} Δ].’ E-type; quantificational

With (iia) and (iiib) as their antecedents, both (iib) and (iiib) can yield the sloppy and the quantificational reading, with the relevant idiomatic interpretation. Under the VVPE analysis, *gözden* must move to a higher position than the elided DP arguments to get out of the VVPE domain, which should result in the loss of the idiomatic interpretation in question, cf. (ib), contrary to the fact. Therefore, the data in (ii) and (iii) can be taken as another argument for argument ellipsis over VVPE in Turkish.

unlike the other languages investigated here. Cheng (2013) argues that the whole-part construction in Chinese also provides us with a context which favors argument ellipsis over VVPE. Consider the following examples.

(53) Chinese

- a. Zhangsan ba [_{DP} ziji-de juzi] mei bo shang-ceng-de pi.
 Zhangsan BA self-GEN orange NEG peel upper-rim-GEN skin
 (Lit.) ‘Zhangsan did not peel the skin of the upper rim of [_{DP} self’s oranges].’
- b. Lisi zeshi [_{DP} △] mei bo xia-ceng-de pi.
 Lisi whereas NEG peel lower-rim-GEN skin
 (Lit.) ‘On the other hand, Lisi did not peel the skin of the lower rim of [_{DP} △].’
 strict; sloppy

(54) Chinese

- a. Zhangsan ba [_{DP} san-ke juzi] bo-le shang-cheng-de pi.
 Zhangsan BA three-CL orange peel-ASP upper-rim-GEN skin
 ‘Zhangsan peeled the skin of the upper rim of [_{DP} three oranges].’
- b. Lisi zeshi [_{DP} △] bo-le xia-cheng-de pi.
 Lisi whereas peel-ASP lower-rim-GEN skin
 (Lit.) ‘On the other hand, Lisi peeled the skin of the lower rim of [_{DP} △].’
 E-type; quantificational
 (Cheng 2013:132)

(53a) and (54a) are generally referred to as possessor raising constructions (see Kuo 2009 and references cited therein for discussions of this construction). Here, the whole argument precedes the verb and the verb is followed by the part argument. Interestingly, with (53a) and (54a) as their antecedent sentences, the whole argument in (53b) and (54b) can be phonologically dropped,

allowing the sloppy reading and the quantificational reading, respectively. For example, (54b) is ambiguous in that the set of oranges that Lisi peeled the skin of the lower rim of can be either identical to the set of oranges that Zhangsan peeled the skin of the upper rim of or different from it. Cheng claims that VVPE is not a plausible candidate to derive the null arguments in the above cases because, e.g. (54b) would be analyzed under the VVPE analysis as in (55a), where both the verb *bo* ‘peel’ and the part argument *xia-cheng-de pi* ‘the skin of the lower rim’ are moved out of the VP followed by VP-ellipsis involving the whole argument *san-ke juzi* ‘three oranges’. However, the relevant configurations are otherwise unacceptable, as in (55b).

(55) Chinese

- a. Lisi zeshi bo₁-le [xia-cheng-de pi]₁ [_{VP} ~~t₁~~ [_{DP} ~~san-ke juzi~~] ~~t₂~~]
 Lisi whereas peel-ASP lower-rim-GEN skin three-CL orange
- b. *Zhangsan ba bo-le shang-cheng-de pi san-ke juzi.
 Zhangsan BA peel-ASP upper-rim-GEN skin three-CL orange
 ‘Zhangsan peeled the skin of the upper rim of three oranges.’

(Cheng 2013:132)

Therefore, it seems implausible to attribute the availability of the ellipsis-indicating readings of the null arguments in (53b) and (54b) to the VVPE analysis. By contrast, the above issue does not arise under the argument ellipsis analysis. Specifically, argument ellipsis can apply to only the whole arguments in (53b) and (54b), leaving the other material intact. Thus, the data in (53) and (54) can be taken to argue for argument ellipsis in Chinese.

In addition to the whole-part construction, the ditransitive construction with reflexive arguments can also be adopted as an ‘immobile’ construction to argue for argument ellipsis over VVPE (cf. Oku 1998). The argument here applies to Korean, Mongolian, and Turkish (cf. Şener

and Takahashi 2010) (but see Cheng 2013 for several arguments for argument ellipsis in Chinese based on different types of ditransitive constructions). Consider the following examples.

(56) Korean

- a. Chelswu-nun kyosil-eyse [DP1 caki-uy haksayng]-eykey
 Chelswu-TOP class.room-in self-GEN student-DAT
 [DP2 sero]-lul sokayha-yess-ta.
 each.other-ACC introduce-PST-DECL
 (Lit.) ‘Chelswu introduced each other to self’s students in the classroom.’
- b. *Chelswu-nun kyosil-eyse [DP2 sero]-lul
 Chelswu-TOP class.room-in each.other-ACC
 [DP1 caki-uy haksayng]-eykey sokayha-yess-ta.
 self-GEN student-DAT introduce-PST-DECL
 (Lit.) ‘Chelswu introduced each other to self’s students in the classroom.’

(cf. S.–H. Park 1994:99)

(57) Mongolian

- a. Bayatur-Ø [DP1 öber-ün suruyčï]-du-ban [DP2 qarilčan] tanilčayul-jai.
 Bagatur-NOM self-GEN student-DAT-RP each.other introduce-PST.CON
 (Lit.) ‘Bagatur introduced each other to self’s students.’
- b. *Bayatur-Ø [DP2 qarilčan] [DP1 öber-ün suruyčï]-du-ban tanilčayul-jai.
 Bagatur-NOM each.other self-GEN student-DAT-RP introduce-PST.CON
 (Lit.) ‘Bagatur introduced each other to self’s students.’

(58) Turkish

- a. Can-Ø [DP₁ *pro* öğrenciler-in]-i [DP₂ birbirleri]-yle
Can-NOM student-3SG.POSS-ACC each.other.PL-INST
tanıştır-dı.
introduce-PST.3SG
'Can introduced his students to each other.'
- b. *Can-Ø [DP₂ birbirleri]-yle [DP₁ *pro* öğrenciler-in]-i
Can-NOM each.other.PL-INST student-3SG.POSS-ACC
tanıştır-dı.
introduce-PST.3SG
'Can introduced his students to each other.'

In the (a) examples, the binder DP₁ precedes the reflexive anaphor DP₂ and the sentences are grammatical; in the (b) examples, the binder DP₁ is preceded by the reflexive anaphor DP₂, and the sentences are ungrammatical. The contrast in the (a) and (b) examples in (56)–(58) then indicates that the *each other* expression in Korean, Mongolian, and Turkish cannot precede their binders in the ditransitive construction, presumably due to the condition C of the binding theory. Given the above restriction on the word order in question, consider the following examples.

(59) Korean

- a. Chelswu-nun kyosil-eyse [DP *caki-uy* haksayng]-eykey sero-lul
Chelswu-TOP class.room-in self-GEN student-DAT each.other-ACC
sokayha-ci anh-yess-ta.
introduce-CI NEG.do-PST-DECL
(Lit.) 'Chelswu did not introduce each other to self's students in the classroom.'

- b. Yenghui-nun wuntongcang-eyse [_{DP} △] sero-lul sokayha-ci
 Yenghui-TOP ground-on each.other-ACC introduce-CI
 anh-yess-ta.
 NEG.do-PST-DECL
 (Lit.) ‘Yenghui did not introduce each other △ on the ground.’

(60) Mongolian

- a. Bayatur-Ø [_{DP} öber-ün suruýçi]-du-ban qarilčan tanilčayul-jai.
 Bagatur-NOM self-GEN student-DAT-RP each.other introduce-PST.CON
 ‘Bagatur introduced each other to self’s students.’

- b. Ulayan-Ø bol [_{DP} △] qarilčan tanilčayul-ýsan ügei.
 Ulagan-NOM TOP each.other introduce-PST.CON NEG
 (Lit.) ‘Ulagan did not introduce each other △.’ strict; sloppy

(61) Turkish

- a. Can-Ø [_{DP} *pro* öğrenci-ler-in]-i birbirleri-yle
 Can-NOM student-PL-3SG.POSS-ACC each.other.PL-INST
 tanıştıır-ma-dı.
 introduce-NEG-PST.3SG
 ‘Can did not introduce his students to each other.’

- b. Mete-yse [_{DP} △] birbirleri-yle yarış-tır-ma-dı.
 Mete-however each.other.PL-INST race-CAUS-NEG-PST.3SG
 (Lit.) ‘However, Mete did not race △ with each other.’

strict; sloppy (cf. Şener and Takahashi 2010:90)

With the (a) examples as their antecedents, the (b) sentences are grammatical with the sloppy reading. For example, the Korean (59b), where the dative argument is phonologically empty, can mean that Yenghui did not introduce each other to her own students on the ground. The relevant

null argument cannot be derived via VVPE since such an analysis should also affect the accusative argument *sero-lul* ‘each other’, contrary to the fact.

To sum up, the above data involving an elliptic argument located in a higher position than an ‘immobile’ element provide us with ellipsis contexts where VVPE cannot apply but argument ellipsis can, which in turn indicates that argument ellipsis should be available in the languages discussed here.

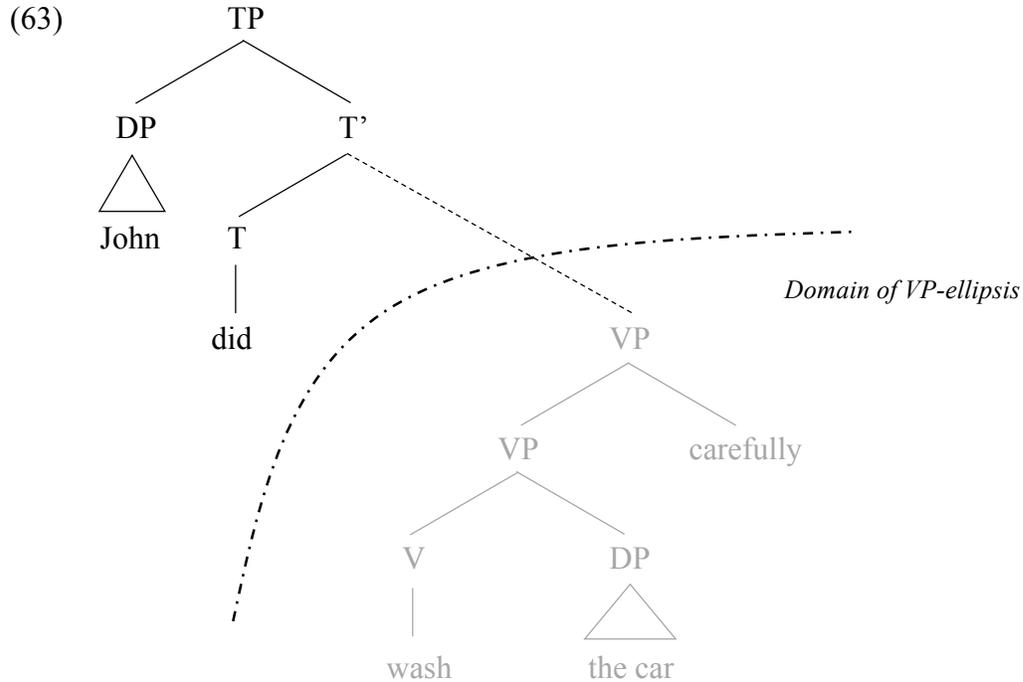
4.1.2.3 Manner Adverb

The interpretation of manner adverbs is also relevant to the argument ellipsis versus VVPE debate. As discussed in chapter 2, Park (1994, 1997) and Oku (1998) argue against the positing of VVPE in Korean and Japanese based on the distribution of manner adverbs. Recall that Oku (1998) observes that VP-ellipsis in English and ‘VVPE’ in Japanese behave differently regarding the availability of manner adverb interpretation. In English, manner adverbs, which are standardly assumed to adjoin to VP, in the antecedent clause can modify the VP-ellipsis target clause as well, as shown in (62).

- (62) a. Bill washed the car carefully.
b. But John didn’t Δ .

(Oku 1998:171–172)

The most salient interpretation in (62b) is that John did not wash the car carefully, which implies that John did wash the car but not in a careful manner. This is straightforward if we assume that manner adverbs such as *carefully* are part of the elided VP, as in (63).



On the other hand, manner adverbs in antecedent clauses cannot be interpreted in target clauses of what should be 'VVPE' in CKMT, on a par with Japanese, as in (64)–(67).¹³

(64) Korean

- a. Chelswu-nun cha-lul chosimsulupkey takk-ass-ta.
 Chelswu-TOP car-ACC carefully wash-PST-DECL
 'Chelswu carefully washed a car.'
- b. Yenghui-nun △ takk-ci an-h-ass-ta.
 Yenghui-TOP wash-CI NEG-do-PST-DECL
 (Lit.) 'Yenghui did not wash △.'

¹³ For discussion regarding the absence of the manner adverb interpretation in the literature on the languages in question, see, e.g. Cheng (2013) for Chinese, Park (1994, 1997) for Korean, and Şener and Takahashi (2010) for Turkish.

(65) Mongolian

- a. Bayatur-Ø üjüm-un ariqi-yi bošiyu uuju-jai.
Bagatur-NOM grape-GEN alcohol-ACC quickly drink-PST.CON
'Bagatur quickly drank wine.'
- b. Ulayan-Ø bol △ uuju-γsan ügei.
Ulagan-NOM TOP drink-PST.ADN NEG
(Lit.) 'Ulagan did not drink △.'

(66) Turkish

- a. Can-Ø sorun-u hızla çoz-dü.
Can-NOM problem-ACC quickly solve-PST.3SG
'Can quickly solved the problem.'
- b. Filiz-se △ çoz-me-di.
Philiz-however solve-NEG-PST
(Lit.) 'However, Philiz did not solve △.'

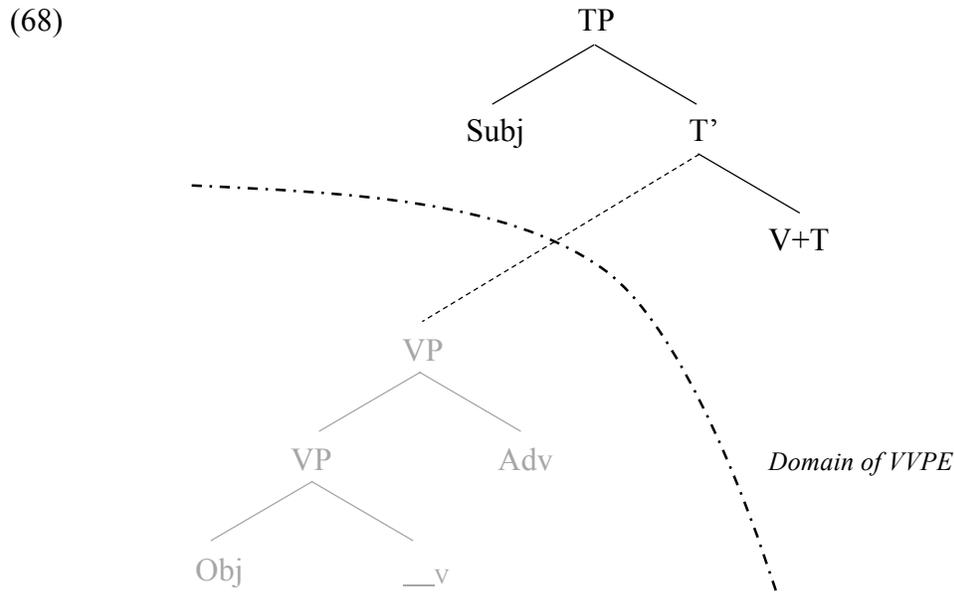
(adapted from Şener and Takahashi 2010:89)

(67) Chinese

- a. Zhangsan henkuaide du-le zhe-ben shu.
Zhangsan quickly read-ASP this-CL book
'Zhangsan read this book quickly.'
- b. Lisi mei du △.
Lisi NEG read
(Lit.) 'Lisi did not read △.'

In the above (b) examples, it is difficult to obtain the interpretation that would include the manner adverb in the missing part of these examples. For example, Korean (64b) can only mean that Yenghui did not wash the car at all: it cannot mean that Yenghui washed the car but not carefully.

This appears to be mysterious if VVPE is available in the above languages, since we should then be able to derive the empty domain as in (68).



Here, the ellipsis site includes the manner adverb adjoined to the VP, so it is expected that the adverb should be interpreted in the (b) examples of (64)–(67), on a par with the English VP-ellipsis case (62b), which is not the case. In other words, the VVPE analysis faces an overgeneration problem regarding manner adverb interpretation. Argument ellipsis, however, correctly predicts the absence of the manner adverb interpretation in the relevant cases because the ellipsis site never involves the VP-adjoined adverb, so manner adverbs must be overtly present to be interpreted. The adverb data noted above thus favor the argument ellipsis analysis over the VVPE analysis.¹⁴

¹⁴ As noted in chapter 2, see Oku (1998), Saito (2007), and Sakamoto (2015a) for the discussion regarding why argument ellipsis cannot target manner adverbs.

4.1.2.4 The Verb-identity Requirement

Finally, the verb-identity requirement developed by Goldberg (2005) can be taken to be a diagnostic for argument ellipsis. As discussed in chapter 2, it has been well-established that stranded Vs must be identical in antecedent clauses and target clauses of VVPE.

- (69) The antecedent- and target-clause Vs of VP-ellipsis must be identical, minimally, in their root and derivational morphology.¹⁵ (Goldberg 2005:171)

Goldberg (2005) maintains that this identity requirement on stranded Vs holds for Irish, Hebrew, and Swahili, all of which have been claimed to have the VVPE. Consider the following examples in Irish to illustrate this requirement.

- (70) Irish

Q: Ar [cheannaigh siad teach]?
c bought they house
'Did they buy a house?'

A: Creidim gur [cheannaigh Δ].
believe c bought
(Lit.) 'Believe (I) that [bought Δ].'

(McCloskey 1991:274)

Recall that Irish is a VSO language where null subjects are possible only with the synthetic form of V and null direct objects are not allowed with finite Vs (cf. McCloskey 1991). In (70), the stranded V *cheannaigh* 'bought' is an analytic form, so that the elided subject in the Answer cannot

¹⁵ As noted in chapter 2, Goldberg (2005) deduces this requirement based on Merchant's (2001) Isomorphism requirement on ellipsis.

be an instance of null subjects. Moreover, the second elided argument is a direct object (*teach* ‘house’) to a finite V, so this elided object cannot be an instance of null objects. Therefore, the surface string of the Answer in (70) is taken to be a pure instance of VVPE, as illustrated in (71).

- (71) Q: Ar [_{TP} cheannaigh₁ [_{VP} siad ___₁ teach]]
 A: Creidim gur [_{TP} cheannaigh₂ [_{VP} ~~siad~~ ___₂ ~~teach~~]]

Here, the verb *cheannaigh* ‘bought’ undergoes overt movement to T followed by VP-ellipsis of its complement domain. The elided part includes the subject and the direct object in question, yielding the surface string (70A). According to Goldberg (2005), VVPE in (70) is allowed since the stranded V matches the V in the antecedent clause. Next, consider the following case where the stranded V cannot count as identical under (69).

- (72) Irish
 *[Léigh mé an dán] ach níor [thuig △].
 read I the poem but not understand
 (Int.) ‘I read the poem, but I didn’t understand it.’ (Goldberg 2005:168)

- (73) *[_{TP} Léigh₁ [_{VP} mé ___₁ an dán]] ach níor [_{TP} thuig₂ [_{VP} ~~mé~~ ___₂ ~~an dán~~]]

In contrast to (70), VVPE in (72) is impossible. The ungrammaticality of (72) argues for the verb identity requirement on the stranded V in (69). The stranded V in (72), i.e. *léigh* and *thuig*, do not count as identical, and (72) is ungrammatical. As shown above (and as already noted in chapter 2), the verb identity requirement is one of the crucial aspects of VVPE.

Returning now to CKMT, in contrast to the VVPE in Irish, Hebrew, and Swahili, the construction in CKMT which would be analyzed as VVPE under the VVPE analysis of missing

arguments does not obey the requirement in question, as shown below.

(74) Korean

- a. Chelswu-nun [_{DP} caki-uy sensayng]-ul conkyengha-ci anha-n-ta.
Chelswu-TOP self-GEN teacher-ACC respect-CI NEG.do-PRES-DECL
(Lit.) ‘Chelswu does not respect [_{DP} self’s teacher].’
- b. Yenghui-nun [_{DP} △] silheha-ci anha-n-ta.
Yenghui-TOP hate-CI NEG.do-PRES-DECL
(Lit.) ‘Yenghui does not hate [_{DP} △].’ strict; sloppy

(75) Korean

- a. Chelswu-nun [_{DP} sey pwun-uy sensayngnim]-ul conkyengha-n-ta.
Chelswu-TOP three CL-GEN teacher-ACC respect-PRES-DECL
(Lit.) ‘Chelswu respects [_{DP} three teachers].’
- b. Yenghui-nun [_{DP} △] silheha-n-ta.
Yenghui-TOP hate-PRES-DECL
(Lit.) ‘Yenghui hates [_{DP} △].’ E-type; quantificational

(76) Mongolian

- a. Bayatur-Ø [_{DP} (öber-ün) nom]-iyan ungsi-γsan ügei.
Bagatur-NOM self-GEN book-RP read-PST.ADN NEG
(Lit.) ‘Bagatur did not read [_{DP} self’s book].’
- b. Ulayan-Ø bol [_{DP} △] biči-γsan ügei.
Ulagan-NOM TOP write-PST.ADN NEG
(Lit.) ‘Ulagan did not write [_{DP} △].’ strict; sloppy

(77) Mongolian

a. Bayatur-Ø [DP *yarban debter-un nom*]-i qualdun-abu-čai.
Bagatur-NOM three CL-GEN book-ACC buy-take-PST.CON
'Bagatur bought [DP three books].'

b. Ulayan-Ø bol [DP Δ] sigümjile-jei.
Ulagan-NOM TOP criticize-PST.CON
(Lit.) 'Ulagan criticized [DP Δ].'

E-type; quantificational

(78) Turkish

a. Ahmet-Ø [DP *pro öğrenci-sin*]-i eleştir-me-di.
Ahmet-NOM his student-3SG-ACC criticize-NEG-PST.3SG
(Lit.) 'Ahmet did not criticize [DP *pro* student].'

b. Ayşe-Ø de [DP Δ] öv-me-di.
Ayşe-NOM TOP praise-NEG-PST.3SG
(Lit.) 'Ayşe did not praise [DP Δ].'

strict; sloppy

(79) Turkish

a. Ahmet-Ø [DP *üç hırsız*] yakala-dı.
Ahmet-NOM three burglars catch-PST.3SG
'Ahmet caught [DP three students].'

b. Ayşe-Ø de [DP Δ] sorgula-di.
Ayşe-NOM TOP interrogate-PST.3SG
(Lit.) 'Ayşe interrogated [DP Δ].'

E-type; quantificational

(cf. Şener and Takahashi 2010:88)

(80) Chinese

a. Zhangsan mei piping-guo [DP *ziji-de xuesheng*].
Zhangsan NEG criticize-ASP self-GEN student
(Lit.) 'Zhangsan did not criticize [DP self's teacher].'

- b. Mali mei zayang-guo [DP Δ].
 Mali NEG praise-ASP
 (Lit.) ‘Mali did not praise [DP Δ].’ strict; sloppy

(81) Chinese

- a. Zhangsan mei xie-guo [DP san-ben shu].
 Zhangsan NEG write-ASP three-CL book
 ‘Zhangsan did not write [DP three books].’
- b. Lisi ye mei jiaodui-guo [DP Δ].
 Lisi also NEG edit-ASP
 (Lit.) ‘Lisi did not edit [DP Δ].’ E-type; quantificational

In all the examples here, the stranded Vs in the (a) sentences and the (b) sentences do not count as identical under (69), so VVPE should not be an option. However, the sentences are all grammatical and the readings which would indicate ellipsis are available, which suggests that CKMT need to be able to exploit an ellipsis strategy other than VVPE to derive the elliptic arguments discussed above.¹⁶ Under the argument ellipsis analysis, these sentences are not problematic, since this strategy is not subject to the verb identity requirement in (69). Therefore, the data here also favor argument ellipsis over VVPE.

¹⁶ In the Chinese example (81b), if negation is taken off, the quantificational reading seems harder to obtain, as in (i).

- (i) a. Zhangsan piping-guo [DP san-ge xuesheng].
 Zhangsan criticize-ASP three-CL student
 ‘Zhangsan criticized [DP three students].’
- b. Lisi zayang-guo [DP Δ].
 Lisi praise-ASP
 (Lit.) ‘However, Lisi praised [DP Δ].’ E-type;*quantificational

I have nothing interesting to say to account for the relevant contrast, leaving it for future research.

4.1.3 Interim Summary

Above, I have shown that CKMT null arguments pass the diagnostics for argument ellipsis discussed in chapter 2, on a par with Japanese null arguments. Specifically, the condition B obviation (section 4.1.1.2) and the availability of the sloppy and the quantificational readings (section 4.1.1.3) provide evidence that not all null arguments in CKMT can be reduced to *pro*, and the data in section 4.1.2 provide several arguments that favor argument ellipsis over VVPE. Once the existence of argument ellipsis is taken for granted in CKMT, a prediction regarding extraction arises. Namely, we would expect that CKMT null arguments to behave like Japanese null arguments regarding extraction possibilities. To be more specific, if null arguments in CKMT can be derived via argument ellipsis, it is expected that they will exhibit an overt/covert contrast regarding extraction out of them, as Japanese null arguments do, as discussed in chapter 3. The following discussion thus investigates both overt and covert extraction possibilities out of CKMT null arguments; it will be shown that the relevant overt/covert extraction asymmetry is indeed obtained with CKMT null arguments, as is expected under the argument ellipsis analysis.

4.2 Overt Extraction out of Null Arguments Cross-linguistically

4.2.1 Long-distance Scrambling: Korean Mongolian, and Turkish

Scrambling is possible both clause-internally and long-distance in Korean (cf. Cho 1994, H.-S. Park 1994, Choe 1995, Tsoulas 1999, McGinnis 2008, among many others), Mongolian (cf. Takahashi 2007, Sakamoto 2012, Bao 2015, among others), and Turkish (cf. Erguvanlı-Taylan 1984, Kural 1993, 1997, Aygen 2001, Kornfilt 2003, Öztürk 2004, Akan 2009, Şener 2010, among

others). Consider the following examples.¹⁷

(82) Korean

- a. Chelswu-nun i chayk-ul piphanha-yss-ta.
Chelswu-TOP this book-ACC criticize-PST-DECL
'Chelswu criticized this book.'
- b. I chayk₁-ul Chelswu-nun ___₁ piphanha-yss-ta.
this book-ACC Chelswu-TOP criticize-PST-DECL
(Lit.) 'This book₁, Chelswu criticized ___₁.'

(83) Mongolian

- a. Bayatur-Ø ene nom-i ungsi-jai.
Bagatur-NOM this book-ACC read-PST.CON
'Bagatur read this book.'
- b. Ene nom₁-i Bayatur-Ø ___₁ ungsi-jai.
this book-ACC Bagatur-NOM read-PST.CON
(Lit.) 'This book₁, Bagatur read ___₁.'

(84) Turkish

- a. Ahmet-Ø bu araba-sın-ı yıka-dı.
Ahmet-NOM this car-3SG.POSS-ACC wash-PST.3SG
'Ahmet washed this car.'
- b. Bu araba-sın₁-ı Ahmet-Ø ___₁ yıka-dı.
this car-3SG.POSS-ACC Ahmet-NOM wash-PST.3SG
(Lit.) 'This car₁, Ahmet washed ___₁.'

¹⁷ Although, as noted in chapter 3, long-distance scrambling in Japanese uniformly counts as \bar{A} -movement, the status of long-distance scrambling in Korean is somewhat controversial. I refer the reader to Cho (1994), H.-S. Park (1994), among many others, for relevant discussion. Long-distance scrambling in Turkish is claimed to uniformly behave as \bar{A} -movement, on a par with long-distance scrambling in Japanese (see Akan 2009 and references cited therein). At any rate, whether long-distance scrambling uniformly counts as \bar{A} -movement in the relevant languages is not crucial in the following discussion, so I will not go into any more details in this respect in this thesis.

(85) Korean

- a. Chelswu-nun [_{CP} Yenghui-ka i chayk-ul piphanha-yss-ta-ko]
Chelswu-TOP Yenghui-NOM this book-ACC criticize-PST-DECL-C
sayngkakha-n-ta.
think-PRES-DECL
'Chelswu thinks [_{CP} that Yenghui criticized this book].'
- b. I chayk₁-ul Chelswu-nun [_{CP} Yenghui-ka ___₁ piphanha-yss-ta-ko]
this book-ACC Chelswu-TOP Yenghui-NOM criticize-PST-DECL-C
sayngkakha-n-ta.
think-PRES-DECL
(Lit.) 'This book₁, Chelswu thinks [_{CP} that Yenghui criticized ___₁].'

(86) Mongolian

- a. Bayatur-Ø [_{CP} Ulayan-Ø ene nom-i ungsi-γsan geju]
Bagatur-NOM Ulagan-NOM this book-ACC read-PST.ADN C
bodoju bai-na.
think COP-PRES
'Bagatur thinks [_{CP} that Ulagan read this book].'
- b. Ene nom₁-i Bayatur-Ø [_{CP} Ulayan-Ø ___₁ ungsi-γsan geju]
this book-ACC Bagatur-NOM Ulagan-NOM read-PST.ADN C
bodoju bai-na.
think COP-PRES
(Lit.) 'This book₁, Bagatur thinks [_{CP} that Ulagan read ___₁].'

(87) Turkish

- a. Ahmet-Ø [_{CP} Mete-nin bu araba-sın-ı yıka-dığ-ın]-ı
Ahmet-NOM Mete-GEN this car-3SG.POSS-ACC wash-NML-3SG-ACC
düşün-dü.
think-PST.3SG
'Ahmet thought [_{CP} Mete washed this car].'

- b. Bu araba-sın₁-ı Ahmet-Ø [CP Mete-nin __₁ yıka-dığ-ın]-ı
 this car-3SG.POSS-ACC Ahmet-NOM Mete-GEN wash-NML-3SG-ACC
 düşün-dü.
 think-PST.3SG
 (Lit.) ‘This car₁, Ahmet thought [CP Mete washed __₁].’

(82)–(84) illustrate clause-internal scrambling: in each of the (b) examples, the object undergoes scrambling over the subject. (85)–(87) illustrate long-distance scrambling: in each of the (b) examples, the object within the embedded clause undergoes scrambling across a clause boundary. That scrambling in the above languages is an instance of movement, not binding/control, is supported by the fact that it is subject to subjacency effects, as shown in (88).¹⁸

(88) Korean

- a. Chelswu-nun [[relative clause Yenghui-eykey i chayk-ul cwu-ess-nun]
 Chelswu-TOP Yenghui-DAT this book-ACC give-PST-REL
 salam]-ul piphanha-yss-ta.
 person-ACC criticize-PST-DECL
 ‘Chelswu criticized [the person [relative clause who gave this book to Yenghui]].’
- b. *I chayk₁-ul Chelswu-nun [[relative clause Yenghui-eykey __₁ cwu-ess-nun]
 this book-ACC Chelswu-TOP Yenghui-DAT give-PST-REL
 salam]-ul piphanha-yss-ta.
 person-ACC criticize-PST-DECL
 (Lit.) ‘This book₁, Chelswu criticized [the person [relative clause who gave __₁ to Yenghui]].’

¹⁸ Although Bao (2015) claims that scrambling in Mongolian is immune to subjacency effects, Öztürk (2013) observes that it does exhibit subjacency effects. I have nothing interesting to say regarding the potential speaker variation (if there is one here), adopting the judgments reported in Öztürk (2013) and my informant.

(89) Mongolian

- a. Bayatur-Ø [[relative clause Oyunaa-du ene šiqir-i ügkü-gsen]
Bagatur-NOM Oyuna-DAT this candy-ACC give-PST.ADN
eregtei]-tei ayulja-jai.
man-with meet-PST.CON
'Bagatur met [the person [relative clause who gave this candy to Oyuna]].'
- b. *Ene šiqir₁-i Bayatur-Ø [[relative clause Oyunaa-du ___₁ ügkü-gsen]
this candy-ACC Bagatur-NOM Oyuna-DAT give-PST.ADN
eregtei]-tei ayulja-jai.
man-with meet-PST.CON
(Lit.) 'This candy₁, Bagatur met [the person [relative clause who gave ___₁ to Oyuna]].'

(90) Turkish

- a. Mete-Ø [[relative clause Ahmet-e bu araba-sın-1 ver-en] adam]-1
Mete-NOM Ahmet-DAT this car-3SG.POSS-ACC give-REL man-ACC
eleştir-di.
criticize-PST.3SG
'Mete criticized [the person [relative clause who gave this car to Ahmet]].'
- b. *Bu araba-sın₁-1 Mete-Ø [[relative clause Ahmet-e ___₁ ver-en] adam]-1
this car-3SG.POSS-ACC Mete-NOM Ahmet-DAT give-REL man-ACC
eleştir-di.
criticize-PST.3SG
(Lit.) 'This car₁, Mete criticized [the person [relative clause who gave ___₁ to Ahmet]].'

In the above (b) examples, the sentence-initial objects have undergone scrambling out of a relative clause island, and the sentences are ungrammatical. Assuming the presence of subjacency effects to be a hallmark of movement, I conclude that scrambling in Korean, Mongolian, and Turkish involves movement, on a par with Japanese scrambling.

Now let us investigate whether scrambling is possible out of null arguments in the relevant languages. Saito and An (2010) observe that scrambling is disallowed out of Korean null arguments, as in (91), and the data in (92) and (93) demonstrate that it is also impossible out of null arguments in Mongolian and Turkish, respectively.¹⁹

(91) Korean

- a. Ku chayk₁-lul Chelswu-nun [_{CP} Yenghi-ka ___₁ ilk-ess-ta-ko]
 that book-ACC Chelswu-TOP Yenghi-NOM read-PST-DECL-C
 sayngkakha-n-ta.
 think-PRES-DECL
 (Lit.) ‘That book₁, Chelswu thinks [_{CP} that Yenghui read ___₁].’
- b. I chayk₂-lul Minswu-nun [_{CP} Yenghi-ka ___₁ ilk-ess-ta-ko]
 this book-ACC Minswu-TOP Yenghi-NOM read-PST-DECL-C
 sayngkakha-n-ta.
 think-PRES-DECL
 (Lit.) ‘This book₂, Minswu thinks [_{CP} that Yenghui read ___₂].’

¹⁹ Even if scrambled elements out of null CPs are the same in the antecedent and the target clause, sentences are still unacceptable, as in (i)–(iii).

(i) Korean

- *Ku chayk₁-ul Chelswu-nun [_{CP} Yenghui-ka ___₁ ilke-ess-ta-ko] sayngkakha-n-ta.
 that book-ACC Chelswu-TOP Yenghui-NOM read-PST-DECL-C think-PRES-DECL
 Ku chayk-ul Minswu-to [_{CP} Δ] sayngkakha-n-ta.
 that book-ACC Minswu-also think-PRES-DECL
 (Lit.) ‘That book₁, Chelswu thinks [_{CP} that Yenghui read ___₁]. That book, Minswu also thinks [_{CP} Δ].’

(ii) Mongolian

- *Ene šiqir₁-i Bayatur-Ø [_{CP} Batu-Ø ___₁ id-gsen geju] bodoj bai-na.
 this candy-ACC Bagatur-NOM Batu-NOM eat-PST.ADN C think COP-PRES
 Ene šiqir-i Ulayan-Ø basa [_{CP} Δ] bodoj bai-na.
 this candy-ACC Ulagan-NOM also think COP-PRES
 (Lit.) ‘This candy₁, Bagatur thinks [_{CP} that Batu ate ___₁]. This candy, Ulagan also thinks [_{CP} Δ].’

(iii) Turkish

- *Bu araba-sın₁-i Ahmet-Ø [_{CP} Mete-nin ___₁ yıka-dıĝ-ın]-i düşün-dü.
 this car-3SG.POSS-ACC Ahmet-NOM Mete-GEN wash-NML-3SG-ACC think-PST.3SG
 Bu araba-sın-ı Ayşe-Ø de [_{CP} Δ] düşün-dü.
 this car-3SG.POSS-ACC Ayşe-NOM also think-PST.3SG
 (Lit.) ‘This car₁, Ahmet thought [_{CP} Mete washed ___₁]. This car, Ayşe also thought [_{CP} Δ].’

- b'. *I chayk₂-lul Minswu-nun [_{CP} △] sayngkakha-n-ta.
 this book-ACC Minswu-TOP think-PRES-DECL
 (Lit.) 'This book₂, Minswu thinks [_{CP} △].'

(92) Mongolian

- a. Ene šiqir₁-i Bayatur-Ø [_{CP} Batu-Ø ___₁ ide-gsen geju]

this candy-ACC Bagatur-NOM Batu-NOM eat-PST.ADN C

boduju bai-na.

think COP-PRES

(Lit.) 'This candy₁, Bagatur thinks [_{CP} that Batu ate ___₁].'
- b. Ene boyursaγ₂-i Ulayan-Ø bol [_{CP} Batu-Ø ___₂ ide-gsen geju]

this cookie-ACC Ulagan-NOM TOP Batu-NOM eat-PST.ADN C

boduju bai-na.

think COP-PRES

(Lit.) 'This cookie₂, Ulagan thinks [_{CP} that Batu ate ___₂].'
- b'. *Ene boyursaγ₂-i Ulayan-Ø bol [_{CP} △] bodoju bai-na.

this cookie-ACC Ulagan-NOM TOP think COP-PRES

(Lit.) 'This cookie₂, Ulagan thinks [_{CP} △].'

(93) Turkish

- a. Mavi araba-sın₁-i Ahmet-Ø [_{CP} Mete-nin ___₁ yıka-dığ-in]-i

blue car-3SG.POSS-ACC Ahmet-Ø Mete.GEN wash-NML-3SG-ACC

dün düşün-dü.

yesterday think-PST.3SG

(Lit.) 'The blue car₁, yesterday, Ahmet thought [_{CP} Mete washed ___₁].'
- b. Kırmızı araba-sın₂-i *pro* [_{CP} Mete-nin ___₂ yıka-dığ-in]-i

red car-3SG.POSS-ACC he Mete.GEN wash-NML-3SG-ACC

bugün düşün-dü.

today think-PST.3SG

(Lit.) 'The red car₂, today, he thought [_{CP} Mete washed ___₂].'

- b'. *Kırmızı arabas-ın₂-1 *pro* [CP Δ] bugün düşün-dü.
 red car-3SG.POSS-ACC he today think-PST.3SG
 (Lit.) ‘The red car₂, today, he thought [CP Δ].’

With the (a) examples as their antecedents, the (b) sentences are grammatical, while the (b') sentences which involve long-distance scrambling out of the null CPs are ungrammatical. The ungrammaticality of the (b') sentences then leads to the conclusion that null arguments in Korean, Mongolian, and Turkish disallow scrambling out of them, on a par with those in Japanese.

4.2.2 ECM-movement: Korean, Mongolian, and Turkish

Korean, Mongolian, and Turkish have the ECM construction (see J.-S. Lee 1992, Yoon 2007, among many others, for Korean ECM, and Kornfilt 1977, Zidani-Eroğlu 1997, Şener 2008, among others, for Turkish ECM). The (b) examples of (94)–(96) illustrate the basic cases of ECM constructions in Korean, Mongolian, and Turkish, respectively.

(94) Korean

- a. Cheli-nun Yenghi-ka yenglihay-ss-ta-ko mitnu-n-ta.
 Cheli-TOP Yenghui-NOM smart-PST-DECL-C believe-PRES-DECL
 ‘Cheli believes that Yenghui was smart.’
- b. Cheli-nun Yenghi-lul yenglihay-ss-ta-ko mitnu-n-ta.
 Cheli-TOP Yenghui-ACC smart-PST-DECL-C believe-PRES-DECL
 ‘Cheli believes that Yenghui was smart.’

(Yoon 2007:616)

(95) Mongolian

- a. Batu-Ø Bayatur-Ø qurča bai-na geju kele-jei.
Batu-NOM Bagatur-NOM genius COP-PRES C say-PST.CON
'Bat said that Bagatur is a genius.'
- b. Batu-Ø Bayatur-i qurča bai-na geju kele-jei.
Batu-NOM Bagatur-ACC genius COP-PRES C say-PST.CON
'Bat said that Bagatur is a genius.'

(96) Turkish

- a. Pelin-Ø ben-Ø Timbuktu-ya git-ti-m san-iyor.
Pelin-NOM I-NOM Timbuktu-DAT go-PST-1SG believe-PRES.3SG
'Pelin believes that I went to Timbuktu.'
- b. Pelin-Ø ben-i Timbuktu-ya git-ti-m san-iyor.
Pelin-NOM I-ACC Timbuktu-DAT go-PST-1SG believe-PRES.3SG
'Pelin believes that I went to Timbuktu.'

(Şener 2008:1)

In the (a) examples, the embedded subject receives ordinary nominative case. However, in the (b) examples, it receives accusative case. One of the crucial differences between the nominative case examples in (a) and the ECM examples in (b) is that only ECMed subjects can precede matrix adverbs, as illustrated below.

(97) Korean

- a. *John-i Sue₁-ka ecey [CP ___₁ eyppu-ess-ta-ko] sayngkakha-ess-ta.
John-NOM Sue-NOM yesterday pretty-PST-DECL-C think-PST-DECL
(Lit.) 'John, Sue₁, yesterday thought [CP that ___₁ was pretty].'

- b. John-i Sue₁-lul ecey [CP ___₁ eyppu-ess-ta-ko] sayngkakha-ess-ta.
 John-NOM Sue-ACC yesterday pretty-PST-DECL-C think-PST-DECL
 (Lit.) ‘John, Sue₁, yesterday thought [CP that ___₁ was pretty].’

(Hong 2005:81)

(98) Mongolian

- a. *Batu-Ø Bayatur₁-Ø teneg-iyer [CP ___₁ qurča bai-na geju] kele-jei.
 Batu-NOM Bagatur-NOM stupidly genius COP-PRES C say-PST.CON
 (Lit.) ‘Batu, Bagatur₁, stupidly said [CP that ___₁ is genius].’
- b. Batu-Ø Bayatur₁-i teneg-iyer [CP ___₁ qurča bai-na geju] kele-jei.
 Batu-NOM Bagatur-ACC stupidly genius COP-PRES C say-PST.CON
 (Lit.) ‘Batu, Bagatur₁, stupidly said [CP that ___₁ is genius].’

(99) Turkish

- a. *(Siz) Ali₁-Ø sabah-tan beri [CP ___₁ öp-ül-dü] san-iyor-sunuz.
 you Ali-NOM morning-ABL since kiss-PASS-PST.3SG believe-PROG-2PL
 (Lit.) ‘You have been believing, Ali₁, since this morning [CP ___₁ was kissed].’
- b. (Siz) Ali₁-yi sabah-tan beri [CP ___₁ öp-ül-dü] san-iyor-sunuz.
 you Ali-ACC morning-ABL since kiss-PASS-PST.3SG believe-PROG-2PL
 (Lit.) ‘You have been believing, Ali₁, since this morning [CP ___₁ was kissed].’

(Zidani-Eroğlu 1997:222)

In the (a) examples of (97)–(99), the nominative subjects are located in front of a matrix adverbial, and the sentences are ungrammatical. On the other hand, the (b) examples of (97)–(99), where the ECMed subjects precede a matrix adverbial, are grammatical. This suggests that only ECMed subjects can undergo raising out of embedded CPs, occupying a position in the matrix clause.²⁰

²⁰ A number of arguments for the (optional) raising analysis and also against the prolepsis analysis of the relevant

Now let us consider whether movement involved in the ECM construction is possible out of null arguments in the relevant languages. The data in (100)–(102) indicate that embedded CPs including ECMed subjects can be phonologically null.

(100) Korean

- a. Chelswu-nun papokathi [CP Mia-lul chencayla-ko] sayngkakha-n-ta.
 Chelswu-TOP stupidly Mia-ACC genius-C think-PRES-DECL
 ‘Chelswu stupidly thinks [CP that Mia is genius].’
- b. Yenghi-to papokathi [CP Mia-lul chencayla-ko] sayngkakha-n-ta.
 Yenghi-also stupidly Mia-ACC genius-C think-PRES-DECL
 ‘Yenghi also stupidly thinks [CP that Mia is genius].’
- b’. Yenghi-to papokathi [CP Δ] sayngkakha-n-ta.
 Yenghi-also stupidly think-PRES-DECL
 (Lit.) ‘Yenghi also stupidly thinks [CP Δ].’

(101) Mongolian

- a. Batu- \emptyset [CP Bayatur-i qurča bai-na geju] kele-jei.
 Batu-NOM Bagatur-ACC genius COP-PRES C say-PST.CON
 ‘Bat said [CP that Bagatur is a genius].’
- b. Ulayan- \emptyset basa [CP Bayatur-i qurča bai-na geju] kele-jei.
 Ulagan-NOM also Bagatur-ACC genius COP-PRES C say-PST.CON
 ‘Ulagan also said [CP that Bagatur is a genius].’
- b’. Ulayan- \emptyset basa [CP Δ] kele-jei.
 Ulagan-NOM also say-PST.CON
 (Lit.) ‘Ulagan also said [CP Δ].’

ECM constructions have been offered in the literature. For relevant discussion, see Lee (1990), Hong (2005), Yoon (2007), Hong and Lasnik (2010), among others, for Korean, and Zidani-Eroğlu (1997), Kural (1997), Moore (1998), Özsoy (2001), Şener (2008), among others, for Turkish.

(102) Turkish

- a. Zeynep-Ø dün-den beri [_{CP} Can-1 araba-sın-1 yıka-dı]
Zeynep-NOM yesterday-ABL since Can-ACC car-3SG.POSS-ACC wash-PST.3SG
san-ıyor.
believe-PROG.PRES.3SG
'Zeynep has believed since yesterday [_{CP} Can washed the car].'
- b. Mete-Ø de bugün-den beri [_{CP} Can-1 araba-sın-1 yıka-dı]
Mete-NOM TOP today-ABL since Can-ACC car-3SG.POSS-ACC wash-PST.3SG
san-ıyor.
believe-PROG.PRES.3SG
'Mete has believed since today [_{CP} Can washed the car].'
- b'. Mete-Ø de bugün-den beri [_{CP} Δ] san-ıyor.
Mete-NOM TOP today-ABL since believe-PROG.PRES.3SG
(Lit.) 'Mete has believed since today [_{CP} Δ].'

Although the (b') sentences are phonologically incomplete in that the embedded CPs are not PF-realized, they can be interpreted as if nothing were dropped: they receive the same interpretations as the (b) sentences. The following data show that if the relevant null embedded CPs involve a gap created by raising of the ECMed subjects, the sentences become ungrammatical.

(103) Korean

- a. Chelswu-nun Mia₁-lul papokathi [_{CP} ___₁ chencayla-ko] sayngkakha-n-ta.
Chelswu-TOP Mia-ACC stupidly genius-C think-PRES-DECL
(Lit.) 'Chelswu, Mia₁, stupidly thinks [_{CP} that ___₁ is genius].'
- b. Yenghi-nun Swuni₂-lul papokathi [_{CP} ___₂ chencayla-ko] sayngkakha-n-ta.
Yenghi-TOP Swuni-ACC stupidly genius-C think-PRES-DECL
(Lit.) 'Yenghi, Swuni₂, stupidly thinks [_{CP} that ___₂ is genius].'

- b'. *Yenghi-to Swuni₂-lul papokathi [_{CP} △] sayngkakha-n-ta.
 Yenghi-also Swuni-ACC stupidly think-MOOD-DECL
 (Lit.) 'Yenghi, Swuni₂, stupidly thinks [_{CP} △].'

(104) Mongolian

- a. Batu-Ø Bayatur₁-i teneg-iyer [_{CP} ___₁ qurča bai-na gejü] kele-jei.
 Batu-NOM Bagatur-ACC stupidly genius COP-PRES C say-PST.CON
 (Lit.) 'Batu, Bagatur₁, stupidly said [_{CP} that ___₁ is genius].'
- b. Ulayan-Ø bol Oyunaa₂-yi teneg-iyer [_{CP} ___₂ qurča bai-na gejü]
 Ulagan-NOM TOP Oyuna-ACC stupidly genius COP-PRES C
 kele-jei.
 say-PST.CON
 (Lit.) 'Ulagan, Oyuna₂, stupidly said [_{CP} that ___₂ is genius].'
- b'. *Ulayan-bol Oyunaa₂-yi teneg-iyer [_{CP} △] kele-jei.
 Ulagan-TOP Oyuna-ACC stupidly say-PST.CON
 (Lit.) 'Ulagan, Oyuna₂, stupidly said [_{CP} △].'

(105) Turkish

- a. Zeynep-Ø Can₁-i dün-den beri [_{CP} ___₁ araba-sın-ı
 Zeynep-NOM Can-ACC yesterday-ABL since car-3SG.POSS-ACC
 yıka-dı] san-ıyor.
 wash-PST.3SG believe-PROG.PRES.3SG
 (Lit.) 'Zeynep has believed, Can₁, since yesterday [_{CP} ___₁ washed the car].'
- b. Mete-Ø de Ali₂-yi bugün-den beri [_{CP} ___₂ araba-sın-ı
 Mete-NOM TOP Ali-ACC today-ABL since car-3SG.POSS-ACC
 yıka-dı] san-ıyor.
 wash-PST.3SG believe-PROG.PRES.3SG
 (Lit.) 'Mete has believed, Ali₂, since today [_{CP} ___₂ washed the car].'

b'. **Mete-Ø de Ali₂-yi bugün-den beri* [_{CP} Δ] *san-ıyor.*
Mete-NOM TOP Ali-ACC today-ABL since believe-PROG.PRES.3SG
 (Lit.) ‘*Mete has believed, Ali₂, since today* [_{CP} Δ].’

With the (a) sentences as their antecedents, the (b) sentences are grammatical, but the (b') sentences which involve ECM-movement out of the embedded null CPs are ungrammatical. Given that the embedded CPs in the ECM construction can in principle be empty as shown in (100)–(102), what seems to be responsible for the ungrammaticality of the (b') sentences in (103)–(105) is extraction out of the embedded null CPs. Therefore, the data in (103)–(105) lead to the conclusion that ECM-movement, which is an instance of overt movement, is banned out of null arguments in Korean, Mongolian, and Turkish, on a par with ECM-movement out of Japanese null arguments.²¹

²¹ It is worth noting here that control clauses can be phonologically dropped in the relevant languages, as in (i)–(iii).

- (i) Korean
Chelswu-nun Mia_i-ykey [_{CP} *PRO_i ttena-tolok*] *yaksokha-yess-ta.*
Chelswu-TOP Mia-DAT leave-C persuade-PST-DECL
Yenghui-nun Swuni-ykey [_{CP} Δ] *yaksokha-yess-ta.*
Yenghui-TOP Swuni-DAT persuade-PST-DECL
 (Lit.) ‘*Chelswu persuaded Mia_i [_{CP} *PRO_i* to leave]. Yenghui persuaded Swuni [_{CP} Δ].’*
- (ii) Mongolian
Bayatur-Ø Ulagan_i-du [_{CP} *PRO_i surɣayuli-du oči geju*] *kele-jei.*
Bagatur-NOM Ulagan-DAT school-to go C tell-PST.CON
Batu-Ø bol Oyunaa-du [_{CP} Δ] *kele-jei.*
Batu-NOM TOP Oyunaa-DAT tell-PST.CON
 (Lit.) ‘*Bagatur told Ulagan_i [_{CP} *PRO_i* to go to school]. Batu told Oyunaa [_{CP} Δ].’*
- (iii) Turkish
Ahmet-Ø Ayşe_i-ye [_{CP} *PRO_i okul-a git-me-sin*]-i *söyle-di.*
Ahmet-NOM Ayşe-DAT school-to go-NML-3SG-ACC say-PST.3SG
Mete-yse Can-a [_{CP} Δ] *söyle-di.*
Mete-however Can-DAT say-PST.3SG
 (Lit.) ‘*Ahmet told Ayşe_i [_{CP} *PRO_i* to go to school]. However, Mete told Can [_{CP} Δ].’*

These data indirectly support the raising analysis of the ECM construction in Korean, Mongolian, and Turkish because if ECMed subjects in the relevant languages are base-generated in matrix clauses with co-indexed empty pronouns, e.g. *pro*, within embedded CPs, the (b') examples in (103)–(105) should be grammatical, on a par with (i)–(iii), because the prolepsis analysis basically treats (103)–(105) and (i)–(iii) in the same way, i.e. in terms of binding/control, so extraction cannot be responsible for the ungrammaticality of (103)–(105): the contrast between (103)–(105) and (i)–(iii) would remain mysterious under the prolepsis analysis of the ECM construction (recall also that, as discussed in chapter 3, examples like (i)–(iii) argue against the movement analysis of control).

4.2.3 Topicalization and Superraising: Chinese

As for Chinese, I will employ topicalization and superraising to investigate whether overt extraction is possible out of null arguments because Chinese does not have either scrambling or ECM movement.

Let us first discuss topicalization. Although the basic word order in Mandarin Chinese is SVO, as in (106a), the OSV order is also allowed, as in (106b).

- (106) a. Wo hen xihuan yinyue.
I very like music
'I like music.'
- b. Yinyue_i, wo hen xihuan *e_i*.
music I very like
(Lit.) 'Music_i, I like *e_i*.'

(Huang, Li, and Li 2009:199)

The configuration where objects are fronted over subjects, e.g. (106b), is generally taken to involve topicalization in Chinese (cf. Li and Thompson 1976, 1981, Tang 1977, Paris 1979, Huang 1982, Huang, Li, and Li 2009, among many others). It has been reported in the literature that topicalization in Chinese exhibits subjacency effects, as in (107b), though a long-distance dependency is in principle possible, as in (107a).

- (107) a. Zhangsan_i, wo zhidao [_{CP} Lisi juede [_{CP} nimen dou hui xihuan *e_i*]].
Zhangsan I know Lisi feel you all will like
(Lit.) 'Zhangsan_i, I know [_{CP} that Lisi feels [_{CP} that you will all like *e_i*]].'

(Huang, Li, and Li 2009:207)

- b. *Lisi_i, wo renshi [henduo [_{relative clause} e_i xihuan de] ren].
 Lisi I know many like DE person
 (Lit.) ‘Lisi_i, I know [many people [_{relative clause} who likes e_i]].’

(Huang, Li, and Li 2009:208)

In (107a), the gap related to the topicalized element *Zhangsan* is deeply embedded, but the sentence is grammatical. However, (107b), where the gap related to the topicalized element *Lisi* is located inside of a relative clause, is ungrammatical, which can be considered as an instance of a violation of Ross’s (1967) complex NP constraint.²² This indicates that topicalization in Chinese involves movement (see Tang 1977, among many others).

Given that movement is involved in topicalization, we can test whether overt movement is possible out of null arguments in Mandarin Chinese. It has been already observed by Li (2014) that topicalization is disallowed out of them. Consider the following examples.

- (108) a. Na-ben shu₁, Lisi juede [_{CP} Zhangsan mai-le __₁].
 that-CL book Lisi feel Zhangsan buy-ASP
 (Lit.) ‘That book₁, Lisi feels that [_{CP} Zhangsan bought __₁].’
- b. Na-ben shu₂, Wangwu ye juede [_{CP} Zhangsan mai-le __₂].
 that-CL book Wangwu also feel Zhangsan buy-ASP
 (Lit.) ‘That book₂, Wangwu also feels [_{CP} that Zhangsan bought __₂].’

²² Not all instances of topicalization in Chinese are subject to subjacency effects. For example, Huang, Li, and Li (2009:209) mention, “[...] island effects seem to be nullified when a given island occurs in a subject or pre-subject position”, on the basis of the examples like (i).

(i) Zhangsan_i, [[_{relative clause} e_i xihuan de] ren] hen duo.
 Zhangsan like DE person very many
 (Lit.) ‘Zhangsan_i, [people [_{relative clause} who e_i likes]] are many.’ (Huang, Li, and Li 2009:209)

Thus, in the following discussion, I will restrict my attention to the cases where a phrase including the relevant gap is not located in a subject or pre-subject position.

- b'. *Na-ben shu₂, Wangwu ye juede [CP Δ].
 that-CL book Wangwu also feel
 (Lit.) 'That book₂, Wangwu also feels [CP Δ].'

In (108a), *na-ben shu* 'that book' is topicalized out of the embedded CP. With (108a) as its antecedent, (108b) is grammatical, while (108b'), which involves topicalization out of a null CP, is ungrammatical. As shown above, the CP-drop itself is possible (cf. (8)), so topicalization should be responsible for the ungrammaticality of (108b'), which in turn means that topicalization, i.e. an instance of overt movement, is disallowed out of null arguments in Chinese.

Let us turn now to superraising. It has been reported in the literature that Chinese has several raising modals with clausal complements that can optionally implement raising out of a clausal boundary. Consider the following examples.

- (109) a. Keneng [_{clause} Zhangsan reng-le nei kuai rou gei ta].
 likely Zhangsan toss-ASP that piece meat to he
 'It is likely [_{clause} that Zhangsan tossed that piece of meat to him].'
 b. Ta₁ keneng [_{clause} Zhangsan reng-le nei kuai rou ___₁].
 he likely Zhangsan toss-ASP that piece meat
 (Lit.) 'He₁ is likely [_{clause} that Zhangsan tossed ___₁ that piece of meat].'

(Ura 1994:16)

Here, *keneng* 'likely' is a raising modal taking a clausal complement (see Li 1990, Lin and Tang 1995, Huang, Li, and Li 2009, among many others for relevant discussion). Although nothing has been raised out of the clausal complement in (109a), *ta* 'he' has been raised out of it in (109b).²³

²³ As Ura (1994) notes, (109b) may not be as acceptable as (109a) for some speakers. The discussion in this section is based on the judgments of the native speakers of Mandarin Chinese who accept (109a) and (109b) equally.

Li (1990) claims that that (109b) involves raising is supported by the ability of idioms to occur in the relevant configuration, using *you-mo*, which is a V+O idiom chunk (cf. Huang 1983) historically transliterated from the English word *humor* (see Li (1990) for more arguments for the raising analysis). Consider the following example.

(110) Wo you le ta yi mo.
 I hu- ASP him one -mor
 ‘I humored him.’ (Li 1990:126)

Here, *you* ‘hu-’ and *mo* ‘-mor’ constitute an idiomatic expression meaning ‘humor’ with the latter being modified by *yi* ‘one’. Li notes that *you* ‘hu-’ and *mo* ‘-mor’ must co-occur, as in (111), and that *mo* ‘-mor’ can undergo passivization, as in (112).

(111) a. *Wo bu xihuan zheige mo.
 I NEG like this -mor
 b. *Wo bu hui you.
 I NEG can hu- (Li 1990:126)

(112) Zheige mo₁ bei ta you-huai __₁ le.
 this -mor by him hu-bad ASP
 (Lit.) ‘This -mor₁ was hu-ed bad __₁ by him.’
 ≈ ‘This joke was ruined by him.’ (Li 1990:127)

(111a) and (111b) are unacceptable because the former only involves *mo* ‘-mor’ and the latter *you* ‘hu-’. In (112), *zheige mo* ‘this -mor’ has been displaced under passivization. Importantly, Li observes that *mo* ‘-mor’ can occur in front of raising modals, as in (113).

- (113) *Zheig mo*₁ *keneng* [_{clause} *bei ta you-huai* ___₁] *ma*?
 this -mor likely by him hu-bad Q
 (Lit.) ‘Is this -mor likely to be hu-ed bad by him?’
 ≈ ‘Is it likely that this joke will be ruined by him?’ (Li 1990:127)

Here, *zheig mo* ‘this -mor’ occupies the matrix subject position, leaving its gap within the embedded clause. Given the standard assumption that parts of an idiomatic expression must be base-generated ‘adjacently’, the grammaticality of (113) with the intended interpretation indicates that elements placed in front of modals such as *keneng* ‘likely’ have been moved out of embedded clauses: a gap within clausal complements of raising modals related to fronted elements cannot be mediated via binding/control.

Given that movement is involved in superraising in Chinese, let us investigate whether the relevant movement is possible out of null arguments. Clausal complements of raising modals themselves can be phonologically dropped, as illustrated in (114).

- (114) a. *Xu juede keneng* [_{clause} *Zhangsan reng-le nei kuai rou gei ta*].
 Xu feel likely Zhangsan toss-ASP that piece meat to he
 ‘Xu feels that it is likely [_{clause} that Zhangsan tossed that piece of meat to him].’
 b. *Lisi ye juede keneng* [_{clause} Δ].
 Lisi also feel likely
 (Lit.) ‘Lisi also feels that it is likely [_{clause} Δ].’

Here, nothing has been raised out of the relevant clausal complement. With (114a) as its antecedent, (114b), where the embedded CP is phonologically null, is grammatical: the null clausal complement in (114b) can be successfully anaphoric on the clausal complement in (114a). The following examples then indicate that superraising is impossible out of null arguments in Chinese.

- (115) a. Xu juede ta₁ keneng [_{clause} Zhangsan reng-le nei kuai rou __₁].
 Xu feel him likely Zhangsan toss-ASP that piece meat
 (Lit.) ‘Xu feels that he₁ is likely [_{clause} that Zhangsan tossed that piece of meat __₁].’
- b. Lisi ye juede ta₂ keneng [_{clause} Zhangsan reng-le nei kuai rou __₂].
 Lisi also feel he likely Zhangsan toss-ASP that piece meat
 (Lit.) ‘Lisi also feels that he₂ is likely [_{clause} that Zhangsan tossed that piece of meat __₂].’
- b’. *Lisi ye juede ta₂ keneng [_{clause} △].
 Lisi also feel he likely
 (Lit.) ‘Lisi also feels that he₂ is likely [_{clause} △].’

In (115a), *ta* ‘he’ has been raised out of the clausal complement. With (115a) as its antecedent, (115b) is grammatical, while (115b’), which involves raising of *ta* ‘he’ out of the embedded null clausal complement, is ungrammatical. Given that the relevant CP can be phonologically null without raising, cf. (114b), the ungrammaticality of (115b’) indicates that what matters here is in fact superraising, which in turn means that superraising as well as topicalization, both of which involve overt movement, are banned out of null arguments in Chinese.

4.2.4 Interim Summary

In this section, I have investigated overt extraction possibilities out of null arguments in CKMT. It has been shown that long-distance scrambling and ECM-movement are disallowed out of null arguments in Korean, Mongolian, and Turkish, and that topicalization and superraising are disallowed out of null arguments in Chinese. The above observations thus lead us to conclude that overt extraction is uniformly disallowed out of CKMT null arguments, on a par with overt extraction out of Japanese null arguments. If, as discussed in section 4.1, null arguments can be

derived via argument ellipsis in CKMT in the same way as in Japanese, it is expected that they should exhibit the same behavior regarding not only overt extraction but also covert extraction out of them as Japanese null arguments. CKMT null arguments should then allow covert extraction out of them, on a par with Japanese null arguments. The following discussion demonstrates that this is indeed the case: CKMT null arguments uniformly allow covert extraction out of them.

4.3 Covert Extraction out of Null Arguments Cross-linguistically

4.3.1 Null Operator Movement

4.3.1.1 Cleft and Comparative Deletion: Korean, Mongolian, and Turkish

Now let us turn to the possibility of covert extraction out of CKMT null arguments, starting with null operator movement.²⁴ For Korean, Mongolian, and Turkish, I will use the cleft construction (see Sohn 2000, Yoon 2005, Kang 2006, Cho, Whitman, and Yanagida 2008, among others, for Korean clefts, Bao 2015 for Mongolian clefts, and İnce 2006 for Turkish clefts) and comparative deletion (see Lee 2002, Park 2008, Choe 2011 for Korean comparative deletion, Bao 2015 for Mongolian comparative deletion, and İşsever 2009 for Turkish comparative deletion) to test the possibility of null operator movement out of null arguments in the languages in question.

Let us first consider the cleft construction. (116a–c) illustrate the basic example of the cleft construction in Korean, Mongolian, and Turkish, respectively.²⁵

²⁴ Recall that by covert extraction I mean extraction that does not affect word order.

²⁵ Although Kang (2006) claims that case-marked clefts such as (116a) are not acceptable in Korean, some such examples are reported to be grammatical in much literature (see, e.g. Cho, Whitman, and Yanagida 2008, and also my informants (all of them linguists) accept (116a)). I have nothing interesting to say to account for this speaker variation, putting aside the issue in the following discussion.

(116) a. Korean

[Op_{1/i} Chelswu-ka ____{1/i} sa-n kes]-un chayk_i-ul (sey-kwen) i-ta.
Chelswu-NOM buy-REL KES-TOP book-ACC three-CL COP-DEC

‘It is (three) books_i [Op_{1/i} that Chelswu bought ____{1/i}].’

b. Mongolian

[Op_{1/i} nidunun Ulayan-Ø ___₁ biči-gsen]-ni-bol ene nom₁-i.
last.year Ulagan-NOM write-PST.ADN-3PP-TOP this book-ACC

‘It is this book_i [Op_{1/i} that Ulagan wrote ____{1/i} last year].’ (Bao 2015:34)

c. Turkish

[Op_{1/i} Ahmet-in ____{1/i} sev-diğ]-i Ayşe-Ø.
Ahmet-GEN love-NML-POSS.3SG Ayşe-NOM

‘It is Ayşe_i [Op_{1/i} that Ahmet loves ____{1/i}].’ (İnce 2006:287)

Here, the focused elements are related to a gap within the presupposed part. For example, in Korean (116a), the focused element *chayk* ‘book’ is related to a gap in the complement of the verb *sa* ‘buy’. That the gap within the presupposed parts in the cleft construction in the relevant languages is created via null operator movement is supported by the fact that the construction in question is subject to subjacency effects, as in the (b) examples of (117)–(119) though it in principle allows a long-distance dependency, as in the (a) examples of (117)–(119).²⁶

²⁶ In the Turkish example (119a), if the embedded clause within the presupposed part is replaced by a *dik*-clause without the overt complementizer *diye*, the sentence becomes marginal to my informants. I will leave this matter for future research.

(117) Korean

- a. [Op_{1/i} Chelswu-ka [CP Yenghi-ka ____{1/i} sa-ss-ta-ko] sayngkakha-n-un
Chelswu-NOM Yenghi-NOM buy-PST-DECL-C think-PRES-REL
kes]-un i kulim_i-ul i-ta.
KES-TOP this picture-ACC be-DEC
'It is this picture_i [Op_{1/i} that Chelswu thinks [CP that Yenghi bought ____{1/i}]].'
- b. *[Op_{1/i} Chelswu-ka [[relative clause ____{1/i} ssu-n] salam]-ul piphanha-n
Chelswu-NOM write-REL person-ACC criticize-REL
kes]-un ku nonmwun_i-ul i-ta.
KES-TOP the article-ACC be-COP
(Lit.) 'It is the article_i [Op_{1/i} that Chelswu criticized [the person [relative clause who
wrote ____{1/i}]].'

(118) Mongolian

- a. [Op_{1/i} John-Ø [CP Bayatur-Ø ____{1/i} jodu-γsan gejü]
John-NOM Bagatur-NOM hit-PST.ADN C
bodu-γsan]-ni-bol Ulayan_i-i.
think-PST.ADN-3PP-TOP Ulagan-ACC
'It is Ulagan_i [Op_{1/i} that John thought [CP that Bagatur hit ____{1/i}]].'
- b. *[Op_{1/i} Batu-Ø [[relative clause ____{1/i} jodu-γsan] kümün]-i
Batu-NOM hit-PST.ADN person-ACC
sigümjile-gsen]-ni-bol Ulayan_i-i.
criticize-PST.ADN-3PP-TOP Ulagan-ACC
(Lit.) 'It is Ulagan_i [Op_{1/i} that Batu criticized [the person [relative clause who hit
____{1/i}]].'

(119) Turkish

- a. [Op_{1/i} Ahmet-in [CP Mete-Ø ____{1/i} gör-dü diye] düşün-düğ]-ü
Ahmet-GEN Mete-NOM see-PST.3SG C think-NML-POSS.3SG
Ayşe-Ø.
Ayşe-NOM
'It is Ayşe_i [Op_{1/i} that Ahmet thought [CP that Mete saw ____{1/i}]].'
- b. *[Op_{1/i} Hasan'in [[relative clause ____{1/i} okuy-an] adam-a bağır-dığ]-ı
Hasan-GEN read-REL man-DAT yell-NML-POSS.3SG
dergi-Ø(-dir).
magazine-NOM-COP
(Lit.) 'It is the mag_i [Op_{1/i} that Hasan yelled at [the man [relative clause who read ____{1/i}]].'
(İnce 2006:288)

In the (a) examples, the gap associated with the focused element is located within the embedded clause of the presupposed part, and the sentences are grammatical. In the (b) examples, the relevant gap is inside of a relative clause, and the sentences are ungrammatical. The contrast in the (a) examples and the (b) examples of (117)–(119) thus indicates that null operator movement is involved in the cleft construction in Korean, Mongolian, and Turkish. Given this, the following data demonstrate that null operator movement is possible out of null arguments in Korean, Mongolian, and Turkish.

(120) Korean

- a. [Op_{1/i} Chelswu-ka [CP Yenghi-ka ____{1/i} sa-ss-ta-ko] sayngkakha-nun
Chelswu-NOM Yenghi-NOM buy-PST-DECL-C think-REL
kes]-un i kulim_i-ul i-ta.
KES-TOP this picture-ACC be-DEC
'It is this picture_i [Op_{1/i} that Chelswu thinks [CP that Yenghi bought ____{1/i}]].'

- b. [Op_{2/j} Mia-ka [CP Yenghi-ka ____{2/j} sa-ss-ta-ko] sayngkakha-nun
Mia-NOM Yenghi-NOM buy-PST-DECL-C think-REL
kes]-un i nonmwun_j-ul i-ta.
KES-TOP this article-ACC be-DEC
‘It is this article_j [Op_{2/j} that Mia thinks [CP that Yenghi bought ____{2/j}]].’
- b’. [Op_{2/j} Mia-ka [CP Δ] sayngkakha-nun kes]-un i nonmwun_j-ul i-ta.
Mia-NOM think-REL KES-TOP this article-ACC be-DEC
(Lit.) ‘It is this article_j [Op_{2/j} that Mia thinks [CP Δ]].’

(121) Mongolian

- a. [Op_{1/i} John-Ø [CP Bayatur-Ø ____{1/i} jodu-γsan geǰü]
John-NOM Bagatur-NOM hit-PST.ADN C
bodu-γsan]-ni-bol Ulayan_i-i.
think-PST.ADN-3PP-TOP Ulagan-ACC
‘It is Ulagan_i [Op_{1/i} that John thought [CP that Bagatur hit ____{1/i}]].’
- b. [Op_{2/j} Bill-Ø [CP Bayatur-Ø ____{2/j} jodu-γsan geǰü]
Bill-NOM Bagatur-NOM hit-PST.ADN C
bodu-γsan]-ni-bol Batu_j-yi.
think-PST.ADN-3PP-TOP Batu-ACC
‘It is Batu_j [Op_{2/j} that Bill thought [CP that Bagatur hit ____{2/j}]].’
- b’. [Op_{2/j} Bill-Ø [CP Δ] bodu-γsan]-ni-bol Batu_j-yi.
Bill-NOM think-PST.ADN-3PP-TOP Batu-ACC
(Lit.) ‘It is Batu_j [Op_{2/j} that Bill thought [CP Δ]].’

(122) Turkish

- a. [Op_{1/i} Ahmet-in [CP Mete-Ø ____{1/i} gör-dü diye] dün
Ahmet-GEN Mete-NOM see-PST.3SG C yesterday
düşün-düğ]-ü Ayşe_i-Ø.
think-NML-POSS.3SG Ayşe-NOM
‘It is Ayşe_i [Op_{1/i} that Ahmet thought [CP that Mete saw ____{1/i}] yesterday].’

- b. [Op_{2/j} *pro* [CP Mete-Ø ____{2/j} gör-dü diye] bugün
 he Mete-NOM see-PST.3SG C today
 düşün-düğ]-ü Can_j-Ø.
 think-NML-POSS.3SG Can-NOM
 ‘It is Can_j [Op_{2/j} that he thought [CP that Mete saw ____{2/i}] today].’
- b’. [Op_{2/j} *pro* [CP Δ] bugün düşün-düğ]-ü Can_j-Ø.
 he today think-NML-POSS.3SG Can-NOM
 (Lit.) ‘It is Can_j [Op_{2/j} that he thought [CP Δ] today].’

In the (a) examples, null operator is extracted out of the embedded clause of the presupposed part. With the (a) sentences as their antecedents, the (b’) sentences which involve null operator movement out of a null CP are grammatical: they receive the same interpretation as the (b) examples. The grammaticality of the (b’) examples thus constitute evidence that null arguments in Korean, Mongolian, and Turkish allow null operator movement out of them.

Let us then turn to comparative deletion. (123a–c) exemplify the basic cases of comparative deletion in Korean, Mongolian, and Turkish, respectively.

- (123) a. Korean
 Chelswu-nun [Op₁ Yenghui-ka ___₁ pel-n kes-pota]
 Chelswu-TOP Yenghui-NOM earn-REL KES-than
 manhun ton-ul pel-ess-ta.
 much money-ACC earn-PST-DECL
 ‘Chelswu earned more money [Op₁ than Yenghui earned ___₁].’

b. Mongolian

Batu-Ø [Op₁ Ulayan-Ø ___₁ ungsi-γsan ača] olan nom-Ø
 Batu-NOM Ulagan-NOM read-PST.ADN than many book-ACC
 ungsi-jai.
 read-PST.CON

‘Batu read more books [Op₁ than Ulagan read ___₁].’ (cf. Bao 2015:45)

c. Turkish

Can-Ø [Op₁ Ali-nin ___₁ oku-düğ-in-dan] daha-çok kitap-Ø
 Can-NOM Ali-GEN read-NML-POSS.3SG-ABL more book-ACC
 oku-yor.
 read-PROG.PRES.3SG

‘Can reads more books [Op₁ than Ali read ___₁].’

That the gap within the *than* clause in the above examples is created by movement of a comparative operator is confirmed by the fact that gaps in comparative deletion can in principle be embedded, as in the (a) examples of (124)–(126), while they cannot occur within islands, e.g. relative clauses, as in the (b) examples of (124)–(126).

(124) Korean

a. [Op₁ Chelswu-ka [CP Mia-ka ___₁ pel-ess-ta-ko] sayngkakha-yess-ta-n
 Chelswu-NOM Mia-NOM earn-PST-DECL-C think-PST-REL
 kes-pota] Bill-un manhun ton-ul pel-ess-ta.
 KES-than Bill-TOP much money-ACC earn-PST-DECL

‘Bill earned more money [Op₁ than Chelswu thought [CP that Mia earned ___₁]].’

- b. *Ku-nun [Op₁ nay-ka [[relative clause ___₁ ssu-n ku] cakka-lul] manna-n
 you-TOP I-NOM write-REL writer-ACC met-REL
 kes-pota] te manhun sosel-ul ss-ess-ta.
 KES-than more many novel-ACC write-PST-DECL
 (Lit.) ‘You wrote more novels [Op₁ than I met [the writer [relative clause who writes ___₁]]].’

(125) Mongolian

- a. John-Ø [Op₁ Ulayan-Ø [CP Bayatur-Ø ___₁ ungsi-γsan gejü]
 John-NOM Ulagan-NOM Bagatur-NOM read-PST.ADN C
 bodu-γsan-eče] olan nom-Ø ungsi-jai.
 think-PST.ADN-than more book-ACC read-PST.CON
 ‘John read more books [Op₁ than Ulagan thought [CP that Bagatur read ___₁]].’
- b. *Batu-Ø [Op₁ [[relative clause alban ger-tü ___₁ ungsi-γsan] kümün]-i
 Batu-NOM office-at read-PST.ADN person-ACC
 Ulayan-Ø sigümjile-gsen-eče] olan nom-Ø ungsi-jai.
 Ulagan-NOM criticize-PST.ADN-than more book-ACC read-PST.CON
 (Lit.) ‘Batu read more books [Op₁ than Ulagan criticized [the person [relative clause who read ___₁ at the office]]].’

(126) Turkish

- a. Can-Ø [Op₁ Ali-nin [CP Mete-nin ___₁ oku-duğ-un]-u
 Can-NOM Ali-GEN Mete-GEN read-NML-POSS.3SG-ACC
 san-dığ-in-dan] daha-çok kitap-Ø oku-yor.
 think-NML-POSS.3SG-ABL more book-ACC read-PROG
 ‘Can reads more books [Op₁ than Ali thinks [CP that Mete read ___₁]].’

- b. *Can-Ø [Op₁ Ahmet-in [[relative clause ___₁ oku-yan] adam]-₁
 Can-NOM Ahmet-GEN read-REL man-ACC
 eleştir-diğ-in-den] daha-çok kitap-Ø oku-yor.
 criticize-NML-3SG-ABL more book-ACC read-PROG
 (Lit.) ‘Can reads more books [Op₁ than Ahmet criticized [the man [relative clause who
 read ___₁]]].’

The contrast in the (a) and the (b) examples of the above cases straightforwardly follows if comparative deletion in the relevant languages involves null operator movement because null operator crosses an island boundary in the (b) examples, causing a violation of subjacency.

Assuming that null operator movement is involved in comparative deletion in Korean, Mongolian, and Turkish, I will examine whether such movement is possible out of null arguments in these languages. Consider the following examples.

(127) Korean

- a. [Op₁ Yenghi-ka [CP Mia-ka ___₁ pel-ess-ko] sayngkakha-ysste-n
 Yenghi-NOM Mia-NOM earn-PST-C think-PST-REL
 kes-pota] John-un manhun ton-ul pel-ess-ta.
 KES-than John-TOP much money-ACC earn-PST-DECL
 ‘John earned more money [Op₁ than Yenghi thought [CP that Mia earned ___₁]].’
- b. [Op₂ Chelswu-ka [CP Mia-ka ___₂ pel-ess-ko] sayngkakha-ysste-n
 Chelswu-NOM Mia-NOM earn-PST-C think-PST-REL
 kes-pota] Bill-un manhun ton-ul pel-ess-ta.
 KES-than Bill-TOP much money-ACC earn-PST-DECL
 ‘Bill earned more money [Op₂ than Chelswu thought [CP that Mia earned ___₂]].’

- b'. [Op₂ Chelswu-ka [CP Δ] sayngkakha-ysste-n kes-pota]
 Chelswu-NOM think-PST-REL KES-than
 Bill-un manhun ton-ul pel-ess-ta.
 Bill-TOP much money-ACC earn-PST-DECL
 (Lit.) 'Bill earned more money [Op₂ than Chelswu thought [CP Δ]].'

(128) Mongolian

- a. John-Ø [Op₁ Ulayan-Ø [CP Bayatur-Ø __₁ ungsi-γsan gejü]
 John-NOM Ulagan-NOM Bagatur-NOM read-PST.ADN C
 bodu-γsan-eče] olan nom-Ø ungsi-jai.
 think-PST.ADN-than more book-ACC read-PST.CON
 'John read more books [Op₁ than Ulagan thought [CP that Bagatur read __₁]].'
- b. Bill-Ø bol [Op₂ Batu-Ø [CP Bayatur-Ø __₂ ungsi-γsan gejü]
 Bill-NOM TOP Batu-NOM Bagatur-NOM read-PST.ADN C
 bodu-γsan-eče] olan nom-Ø ungsi-jai.
 think-PST.ADN-than more book-ACC read-PST.CON
 'Bill read more books [Op₂ than Batu thought [CP that Bagatur read __₂]].'
- b'. Bill-Ø bol [Op₂ Batu-Ø [CP Δ] bodu-γsan-eče] olan nom-Ø
 Bill-NOM TOP Batu-NOM think-PST.ADN-than more book-ACC
 ungsi-jai.
 read-PST.CON
 (Lit.) 'Bill read more books [Op₂ than Batu thought [CP Δ]].'

(129) Turkish

- a. Can-Ø [Op₁ Ali-nin [CP Mete-nin __₁ oku-duğ-un]-u
 Can-NOM Ali-GEN Mete-GEN read-NML-POSS.3SG-ACC
 san-dığ-in-dan] daha-çok kitap-Ø oku-yor.
 think-NML-POSS.3SG-ABL more book-ACC read-PROG.PRES.3SG
 'Can reads more books [Op₁ than Ali thinks [CP that Mete read __₁]].'

- b. Hasan-Ø da [Op₂ Ahmet-in [CP Mete-nin ___₂ oku-duğ-un]-u
 Hasan-NOM TOP Ahmet-GEN Mete-GEN read-NML-POSS.3SG-ACC
 san-dığ-in-dan] daha-çok kitap-Ø oku-yor.
 think-NML-POSS.3SG-ABL more book-ACC read-PROG.PRES.3SG
 ‘Hasan reads more books [Op₂ than Ahmet thinks [CP Mete read ___₂]].’
- b’. Hasan-Ø da [Op₂ Ahmet-in [CP Δ] san-dığ-in-dan]
 Hasan-NOM TOP Ahmet-GEN think-NML-POSS.3SG-ABL
 daha-çok kitap-Ø oku-yor.
 more book-ACC read-PROG.PRES.3SG
 (Lit.) ‘Hasan reads more books [Op₂ than Ahmet thinks [CP Δ]].’

With the (a) sentences as their antecedents, both the (b) and the (b’) examples are grammatical. Important for our current discussion is the grammaticality of the (b’) examples, which involve comparative operator movement out of a null CP. Specifically, that the (b’) sentences are grammatical constitutes evidence that comparative operator movement, an instance of covert movement, is allowed out of null arguments in Korean, Mongolian, and Turkish, on a par with null operator movement in the cleft construction in these languages.

4.3.1.2 Relative Clause: Chinese

Now, let us turn to null operator movement in Chinese. As has been pointed out in the literature, it is not clear whether Chinese has the cleft construction or comparative deletion involving \bar{A} -movement dependencies. The following is cited from Huang, Li, and Li (2009).

(130) Other constructions that have been claimed to involve “*wh*-movement” or “A’-movement” are cleft structures, pseudo-clefts, comparatives, etc. in English [...] It is not clear Chinese has a pseudo-cleft construction, distinct from a relative structure. Nor it is clear that A’-movement is involved in all these structures in Chinese.

(Huang, Li, and Li 2009:197)

Therefore, examining whether null operator movement is allowed out of Chinese null arguments on the basis of the cleft construction and comparative deletion may not be appropriate/possible. However, Huang, Li, and Li (2009) note that there is a clear case where \bar{A} -movement is involved, a relative clause structure (see also Huang 1982, 1990, Ning 1993, Del Gobbo 1999, 2007, Li 1997, Huang, Li, and Li 2000, Aoun and Li 2003 for discussion of Chinese relative clauses). (131) exemplifies a case of a relative structure in Chinese.

(131) [Op₁ Lisi mai ___₁ de] neixie shu
 Lisi buy DE those book
 ‘the books [that Lisi bought]’

The claim that \bar{A} -movement is involved in the relative clause structure in Chinese is supported by the fact that the construction in question exhibits subjacency effects, as in (132b), though it in principle allows a long-distance dependency, as in (132a).

(132) a. [[Op₁ wo zhidao [CP Lisi juede [CP nimen dou hui xihuan ___₁]] de] ren]
 I know Lisi feel you all will like DE person
 lai-le.
 come-ASP
 ‘[The person [Op₁ that I know [CP that Lisi feels [CP that you all will like ___₁]]]
 came.’ (Del Gobbo 2007:183)

- b. *[[Op₁ wo renshi [henduo [relative clause xihuan __₁ de] ren] de]
 I know many like DE person DE
 nei-ge laoshi] xing Wang.
 that-CL professor call Wang
 (Lit.) ‘[The teacher [Op₁ that I know [many people [relative clause who likes __₁]]]]
 has the surname Wang.’ (Del Gobbo 2007:183)

In (132a), the gap is deeply embedded within the lowest CP, and the sentence is grammatical. By contrast, (132b), where the gap is located within a relative clause island, is ungrammatical. The data above thus indicate that \bar{A} -movement, more precisely null operator movement, is in fact involved in the relative clause structure in Chinese.

Given this, let us investigate whether such movement is possible out of Chinese null arguments. Consider the following examples.

- (133) a. [[Op₁ Lisi juede [CP nimen dou xihuan __₁] de] ren] lai-le.
 Lisi feel you all like DE people come-ASP
 ‘[The person [Op₁ that Lisi feels [CP that you all will like __₁]]] came.’
- b. Dan [[Op₂ Zhangsan juede [CP nimen dou xihuan __₂] de] ren]
 but Zhangsan feel you all like DE people
 mei lai.
 NEG come
 ‘But, [the person [Op₂ that Zhangsan feels [CP that you all will like __₂]]] did not come.’
- b’. Dan [[Op₂ Zhangsan juede [CP Δ] de] ren] mei lai.
 but Zhangsan feel DE people NEG come
 (Lit.) ‘But, [the person [Op₂ that Zhangsan feels [CP Δ]]] did not come.’

In (133a), relative operator is extracted out of the embedded CP. With (133a) as its antecedent,

(133b’), which involves relative operator movement out of an embedded null CP, is grammatical: (133b’) receives the same interpretation as (133b). This indicates that null operator movement, i.e. an instance of covert movement, is allowed out of null arguments in Chinese, on a par with Japanese, Korean, Mongolian, and Turkish.

4.3.2 Scope-shifting Movement

4.3.2.1 Quantifier Raising: Korean and Turkish

Although Korean and Turkish are generally classified as scope-rigid languages in the literature, it is not the case that quantifiers in these languages are always scopally rigid. This is, e.g. illustrated in (134) for an object QP and negation.²⁷

²⁷ Not all types of object QPs in Turkish seem to interact with negation in this way. Consider the following examples.

- (i) a. Ali-Ø bütün test-ler-e gir-me-di.
 Ali-NOM all test-PL-DAT take-NEG-PST
 ‘Ali did not take all the tests.’ NEG » \forall ; * \forall » NEG (Özterk 2005:171)
- b. Can-Ø Pelin-i ya-da Cem-i azarla-ma-mış.
 Can-NOM Pelin-ACC or Cem-ACC scold-NEG-EVID.PST
 ‘Can did not scold Pelin or Cem.’ NEG » OR; *OR » NEG

(ia) and (ib) show that negation obligatorily takes scope over universal and disjunctive QP objects, respectively. Thus, I will use *en az üç* ‘at least three’, which can take scope over negation, in the following discussion. It is also worth noting here that scope interactions between QP objects and negation in Mongolian are mediated by different negative markers as the following examples show.

- (ii) a. Bağatur-Ø бүкү күмүн-и майта-γсан үгеи.
 Bagatur-NOM all people-ACC praise-PST.ADN NEG
 ‘Bagatur did not praise all the people.’ *NEG » \forall ; \forall » NEG
- b. Bağatur-Ø бүкү күмүн-и майта-γсан биси.
 Bagatur-NOM all people-ACC praise-PST.ADN NEG
 ‘Bagatur did not praise all the people.’ NEG » \forall ; * \forall » NEG
- (Maki, Bao, and Hasebe 2015:89)

(iia) involves a negative marker *ügei*, and the QP object *bükü kümün* obligatorily takes scope over negation. By contrast, (iib) involves a negative marker *bisi*, and the QP object in question must take scope under negation. Therefore, it seems difficult to investigate whether QR would be possible out of Mongolian null arguments by using QP arguments and negation.

- (134) a. Korean
 John-i motun chayk-ul ilk-ci ani-ha-yss-ta.
 John-NOM every book-ACC read-CI NEG-do-PST-DECL
 ‘John did not read all the books.’ NEG » \forall ; \forall » NEG (Hagstrom 2000:135)
- b. Turkish
 Ahmet-Ø en az üç bebeğ-i azarla-ma-mış.
 Ahmet-NOM at.least three baby-ACC scold-NEG-EVID.PST
 ‘Ahmet did not scold at least three babies.’ NEG » AT LEAST 3; AT LEAST 3 » NEG

In the Korean example (134a), the universal object QP *motun chayk-ul* ‘every book’ can take scope over negation: (134a) can mean that John read no books. In the Turkish example (134b), the QP object *en az üç bebeğ-i* ‘at least three babies’ can also take scope over negation: (134b) can mean that there are at least three babies that Ahmet did not scold (the sentence is true in the situation where there are three babies that Ahmet did not scold and there are five babies that Ahmet scolded).

Given the possibility of object QPs taking scope over negation in Korean and Turkish, the following ECM examples (135a) and (135b) are plausible cases where QR is responsible for the inverse scope interpretation.

- (135) Korean
- a. Chelswu-nun [_{CP} Seoul-kathi motun tosi-lul hwalkicha-ta-ko]
 Chelswu-TOP Seoul-like all city-ACC lively-DECL-C
 malhayss-ci anh-ess-ta.
 say-CI NEG.do-PST-DECL
 ‘Chelswu did not say [_{CP} that, like Seoul, all the cities are lively].’
 NEG » \forall ; \forall » NEG

- b. Yenghui-to [CP Δ] malhayss-ci anh-ess-ta.
 Yenghui-also say-CI NEG.do-PST-DECL
 (Lit.) ‘Chelswu did not say [CP Δ], either.’ NEG » ∇; ∇ » NEG

(136) Turkish

- a. On yıl önce Ali-Ø [CP Ayşe-den en az üç bebeğ-i güzel]
 ten year before Ali-NOM Ayşe-ABL at.least three baby-ACC pretty
 ilan et-me-di.
 declaration do-NEG-PST.3SG
 ‘Ten years ago, Ali did not declare [CP that, more than Ayşe, at least three babies
 are pretty].’ NEG » AT LEAST 3; AT LEAST 3 » NEG
- b. Geçen yıl Ahmet-Ø de [CP Δ] ilan et-me-di.
 last year Ahmet-NOM also declaration do-NEG-PST.3SG
 (Lit.) ‘Last year, Ahmet did not declare [CP Δ], either.’
 NEG » AT LEAST 3; AT LEAST 3 » NEG

Let us first consider the Korean examples in (135). In (135a), the ECMed QP subject *motun tosi-lul* ‘all the cities’ stays within the embedded CP on the surface, as shown by the presence of the embedded clause adverb *Seoul-kathi* ‘like Seoul’, which modifies the embedded predicate *hwalkicha* ‘lively’, in front of the ECMed subject in question. Specifically, that the embedded clause adverb *Seoul-kathi* ‘like Seoul’ precedes the relevant ECMed QP subject indicates that the latter is located within the embedded CP (see Yoon 2007 for the possibility of Korean ECMed subjects staying overtly within embedded CPs). Therefore, the inverse scope interpretation where the ECMed subject QP *motun tosi-lul* ‘all the cities’ takes scope over the matrix negation should be implemented via a covert operation, i.e. QR. Importantly, with (135a) as its antecedent, (135b) is also ambiguous in that the ECMed QP subject within the embedded null CP can take scope over the matrix negation: it can take scope outside of the null embedded CP. A similar observation also

applies to the Turkish examples (136). Specifically, in (136a), the presence of the embedded clause adverb *Ayşe-din* ‘more than Ayşe’ in front of the ECMed subject QP *en az üç bebeğ-i* ‘at least three babies’ indicates that the latter stays inside of the embedded CP on the surface (see Şener 2008 for the possibility that ECMed subjects in Turkish can stay within embedded CPs). Therefore, QR seems to be responsible for the inverse scope reading in (136a), i.e. the interpretation where the relevant ECMed subject QP takes scope over the matrix negation. Crucially, with (136a) as its antecedent, (136b) also allows the inverse scope interpretation. In other words, in (136b), the ECMed subject QP *en az üç bebeğ-i* ‘at least three babies’ within the embedded null CP can take scope over the matrix negation. Therefore, the availability of the inverse scope in the (b) examples of (135) and (136) indicates that QR, i.e. an instance of covert movement, is possible out of null arguments in Korean and Turkish.

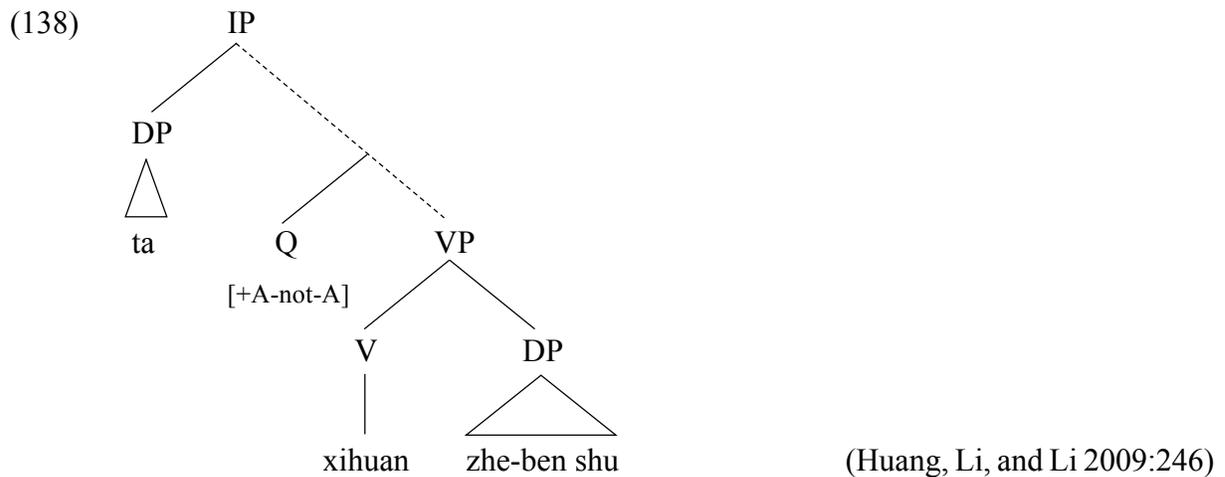
4.3.2.2 A-not-A Question: Chinese

Let us turn to covert scope-shifting movement in Chinese. There is a particular disjunctive question construction called an “A-not-A” question, which is a type of question that has a function similar to that of a yes-no question. The basic example of the construction in question is illustrated in (137) (see Wang 1967, Li and Thompson 1979, Huang 1982, 1991b, Dai 1990, Ernst 1994, Lin 1994, McCawley 1994, Wu 1997a, b, Hsieh 2001, Hagstrom 2006, Law 2006, Huang, Li, and Li 2009, among many others, for discussion of this construction).

- (137) Ta xihuan-bu-xihuan zhe-ben shu?
 he like-NEG-like this-CL book
 ‘Does he like or not like this book?’

(Huang, Li, and Li 2009:246)

The “A-not-A” question involves two copies of a predicate with one copy negated. In (137), we have two copies of the verb *xihuan* ‘like’, and the second copy is negated with *bu*. The “A-not-A” question is different from the ordinary yes/no question in that only the latter question can be answered yes or no; the former question can be answered by repeating the affirmative predicate or the negative predicate, e.g. *xihuan* or *bu xihuan*. It has been standardly assumed since Huang’s (1982, 1991b) influential work that the “A-not-A” question involves reduplication. Thus, Huang, Li, and Li (2009) claim that (137) involves a simplex sentence with an interrogative functional head as its underlying source, as in (138).



Huang, Li, and Li (2009) claim that the Q morpheme first reduplicates the initial portion of the VP constituent, and then turns the second of the identical parts into its appropriate negative form. The process is taken to yield the surface string of the sentence (137), i.e. *ta xihuan-bu-xihuan zhe-ben shu*, on the basis of the structure in (138).

Generally, the Q-morpheme in question is considered akin to a *wh*-word, undergoing LF-movement to the CP domain to take scope. For example, (137) is generally analyzed as in (139a–b), receiving the interpretation in (139c).

- (139) a. Overt Syntax: [CP [TP ta ... Q_[+A-not-A] ... [VP xihuan zhe-ben shu]]]
 b. LF: [CP Q_[+A-not-A] [TP ta ... ___Q ... [VP xihuan zhe-ben shu]]]
 c. For which x , $x \in \{\text{affirmative, negative}\}$, (ta x xihuan zhe-ben shu)

Importantly, the “A-not-A” question can be embedded, taking scope either within an embedded clause or within a matrix clause, depending on the type of matrix verbs. Consider the following examples.

- (140) a. Zhangsan bu xiaode [CP ni lai-bu-lai].
 Zhangsan NEG know you come-NEG-come
 ‘Zhangsan does not know whether you will come or not.’
 b. Ni juede [CP ta hui-bu-hui lai] (ne)?
 you feel he will-NEG-will come Q
 ‘Do you think he will come or will not come?’

(Huang, Li, and Li 2009:246)

In (140a), *lai-bu-lai* ‘come-not-come’ is embedded, taking scope within the embedded clause: (140a) is interpreted as an indirect question. By contrast, in (140b), *hui-bu-hui lai* ‘will-not-will come’ is embedded, taking scope within the matrix clause: (140b) is interpreted as a matrix question. The above data thus show that the “A-not-A” question is not a root phenomenon. Under the LF-movement analysis of the Q-morpheme, the relevant scope readings can be derived by raising the Q-morpheme to the embedded CP in (140a) and to the matrix CP in (140b), as determined by the matrix verb.²⁸ The movement approach to the Q-morpheme in the “A-not-A”

²⁸ In cases such as (140a) and (140b), Huang, Li, and Li (2009) actually claim that a coordinate structure [[VP] & [not VP]] with & being a null coordinator with a feature [+A-not-A] is base-generated, and the coordinate structure as a whole undergoes LF-movement to the relevant CP domain. I adopt the Q-morpheme movement view for ease of

question is supported by the fact that the relevant Q-morpheme cannot be embedded within an island, as shown in (141).

- (141) a. *Ni bijiao xihuan [[relative clause lai-bu-lai de] nei-ge ren] (ne)?
you more like come-NEG-come DE that-CL person Q
(Int.) ‘Do you prefer the person who will come or the one who will not come?’
(Huang, Li, and Li 2009:246)
- b. Ni xiang-zhidao [_{wh-island} shei gao-bu-gaoxing]?
you wonder who hap-not-happy
‘Who is the person x such that you wonder whether x is happy or not?’
*‘Are you wondering who is happy or are you wondering who is unhappy?’
(Huang, Li, and Li 2009:256)

In (141a), the A-not-A constituent is embedded within the relative clause, and the sentence is ungrammatical with the intended interpretation, i.e. the interpretation that would be expected if the Q-morpheme can be interpreted in the matrix CP. In (141b), the A-not-A constituent is located within the *wh*-island, and the sentence can only be interpreted as a question such that the Q-morpheme takes scope in the embedded CP, not in the matrix CP. Given that the Q-morpheme undergoes LF-movement to the relevant CP domain, the above data can be accounted for in terms of a locality-of-movement effect (referred to below as the Empty Category Principle (ECP) for expository reasons). Specifically, both (141a) and (141b) involve movement of non-arguments out of islands, so the sentences should be unacceptable, on a par with the following example.

exposition.

- (142) *Ni zui xihuan [[relative clause Zhangsan shuo [Lisi weisheme piping] de] ren].
 you most like Zhangsan say Lisi why criticize DE man
 (Int.) ‘Why₁ do you like best [the man [relative clause Zhangsan said [Lisi criticized ___₁]]]’
 (Lasnik and Saito 1992:35)

In (142), the non-argumental *wh*-phrase *weisheme* ‘why’ is embedded within the relative clause island, and the intended interpretation is not obtained, due to an ECP violation. Therefore, under the LF-movement approach to the “A-not-A” question, the unavailability of the intended interpretations in (141a) and (141b) can be attributed to the ECP, on a par with (142).

Given that covert movement is involved in the “A-not-A” question in Chinese, the following examples demonstrate that the relevant covert movement is allowed out of Chinese null arguments.

- (143) A¹: Zhangsan juede [CP Lisi lai-bu-lai] ne?
 Zhangsan feel Lisi come-NEG-come Q
 ‘Did Zhangsan feel that Lisi will come or did Zhagsan feel that Lisi will not?’
- B¹: Ta juede Lisi lai.
 he feel Lisi come
 ‘He feels that Lisi would come.’
- A²: (i) Na Mali juede [CP Lisi lai-bu-lai] ne?
 then Mali feel Lisi come-NEG-come Q
 ‘Then, did Mali feel that Lisi will come, or did Mali think that Lisi will not come?’
- (ii) Na Mali juede [CP Δ] ne?
 then Mali feel Q
 (Lit.) ‘Then, did Mali feel that Lisi will come, or did Mali think that Lisi will not come?’

B²: Ta juede Lisi bu lai.
 she feel Lisi NEG come
 ‘She feels that Lisi will not come.’

In (143A²-ii), the null CP is taken to be anaphoric on the antecedent CP in (143A¹). Despite the phonological emptiness of the embedded CP, (143A²-ii) is interpreted as if nothing were dropped: it receives the same interpretation as (143A²-i), which is confirmed by the fact that (143A²-ii) can be followed by the answer (143B²). That (143A²-ii) can yield the “A-not-A” interpretation indicates that the relevant Q-morpheme within the null CP has undergone movement out of it, targeting the matrix CP domain to take its scope, as in (144).

(144)  *Covert Movement*
 Na [CP Q_[+A-not-A] [TP Mali juede [CP △]]] ne?
 then Mali feel Q

Therefore, the grammaticality of (143A²-ii) with the “A-not-A” interpretation indicates that the Q-morpheme movement in question, which is an instance of covert movement, is possible out of null arguments in Chinese.

4.4 Summary

In this chapter, I first provided arguments for the ellipsis analysis of null arguments in CKMT. The evidence comes from the obviation of condition B of the binding theory and the availability of ellipsis-indicating readings, i.e. the sloppy and the quantificational readings, both of which are unavailable with overt pronouns in the relevant contexts in the languages under consideration. Then, I showed that there are several contexts that can tease apart argument ellipsis and VVPE,

since VVPE cannot apply in these contexts. The diagnostics that favor argument ellipsis over VVPE in this respect which were used in this chapter involve ellipsis of subjects, ‘immobile’ elements, the absence of manner adverb interpretation, and the verb-identity requirement, all of which were discussed in chapter 2. All the tests in question favor the argument ellipsis analysis over the VVPE analysis as the ellipsis strategy for deriving null arguments in CKMT. In the second half of this chapter, assuming that argument ellipsis is available in CKMT, I investigated extraction possibilities out of null arguments in the relevant languages. In particular, I investigated whether null arguments in CKMT behave in the same manner as Japanese null arguments with respect to extraction in that they would exhibit an overt/covert extraction asymmetry which was discussed for Japanese null arguments in chapter 3. It was shown that CKMT indeed behave like Japanese in the relevant respect: they allow covert but not overt extraction out of null arguments. That CKMT null arguments allow extraction is important because it provides evidence for the ellipsis view of null arguments in these languages since *pro*, which is by assumption an instance of deep anaphora, i.e. anaphora that uniformly disallows extraction, cannot explain why extraction is possible out of CKMT null arguments. That CKMT null arguments exhibit an overt/covert extraction asymmetry just like Japanese in turn indicates that the null arguments in all these languages should be analyzed in the same way, which means that these languages employ argument ellipsis.

To sum up the discussion so far, in the preceding two chapters, I have shown that argument ellipsis is available in the relevant languages, and that null arguments derived via argument ellipsis are different from both English VP-ellipsis and deep anaphora cases like *do it* in that they exhibit non-uniform behavior regarding extraction out of them: they exhibit an overt/covert asymmetry with respect to extraction out of their domains. This curious pattern of extraction not found with

other instances of surface/deep anaphora noted in the thesis is apparently a ‘deep’ property of argument ellipsis given that all argument ellipsis languages investigated here exhibit it. In the following chapter, I will therefore focus on providing an account for this overt/covert extraction asymmetry, also exploring theoretical and empirical consequences of the proposed analysis.

Chapter 5

Silent Arguments = Overtly Empty but Covertly Complex

In this chapter, I will provide an account of the overt/covert asymmetry regarding extraction out of null arguments in Chinese, Japanese, Korean, Mongolian, and Turkish, which was established in chapter 3 and 4, on the basis of the LF-copy analysis of ellipsis. In section 5.1, I will discuss two major approaches to ellipsis in general, i.e. PF-deletion and LF-copying. In section 5.2, I will show that the LF-copy analysis of argument ellipsis can explain in a principled way the overt/covert extraction asymmetry in question. In later sections, I will, however, argue that PF-deletion is also available as a strategy for deriving ellipsis structures and propose a principled criterion which determines whether an ellipsis operation involves LF-copying or PF-deletion based on Bošković's (2014) phase-based approach to ellipsis, where ellipsis can target either phases or phasal complements. I will also discuss the consequences of the proposed analysis for a number of constructions and phenomena, including the proper analysis of *wh*-in-situ in the languages under consideration (argument ellipsis will be shown to provide a novel diagnostic for investigating the nature of *wh*-in-situ), the timing of null operator movement, the theory of control, and the proper analysis of case-marked clefts and split QP constructions in Japanese.

5.1 PF-deletion versus LF-copying

As mentioned in the preceding chapters, whether anaphora sites involve internal structure has been a hotly debated issue. In chapter 3, I introduced the distinction between surface anaphora and deep anaphora: surface anaphora is an instance of anaphora that involves internal structure and is

assumed to be derived via ellipsis, and deep anaphora is the one that does not involve any internal structure and is claimed to be an instance of proforms (i.e. it does not involve ellipsis). It has been shown in chapter 3 and chapter 4 that null arguments in Chinese, Japanese, Korean, Mongolian, and Turkish allow certain types of extraction, which indicates that they are derivable via ellipsis (more precisely, argument ellipsis, as discussed in the preceding chapters) because if they were uniformly silent proforms, i.e. deep anaphora, they should uniformly disallow extraction out of their domain.

Once the existence of argument ellipsis is taken for granted as the strategy to derive null arguments in the relevant languages, a question arises regarding how argument ellipsis should be theoretically implemented. There are two major approaches to ellipsis: PF-deletion (cf. Ross 1969, Sag 1976, Tancredi 1992, Johnson 2001, Merchant 2001, Goldberg 2005, Aelbrecht 2010, among many others) and LF-copying (cf. Williams 1977, Fiengo and May 1994, Chung, Ladusaw, and McCloskey 1995, Fortin 2007, 2011, among many others). Under the PF-deletion analysis, an ellipsis site involves full-fledged internal structure both in overt syntax and covert syntax/LF, but the structure is deleted at PF so that the relevant site is phonologically null. On the other hand, under the LF-copy analysis, an ellipsis site is empty both in overt syntax and PF, but it has full-fledged internal structure in LF via copying of its antecedent (see Wasow 1972, Shopen 1972, Williams 1977, Fiengo and May 1994, Chung, Ladusaw, and McCloskey 1995, Lappin 1999, Fortin 2007). For example, consider the following VP-ellipsis example.

- (1) John will [_{VP} visit UConn], and Bill will [_{VP} Δ] too.

Here, the VP in the second conjunct is elided, taking the VP in the first conjunct as its antecedent.

(2) illustrates how the PF-deletion analysis and the LF-copy analysis treat the elliptic VP in (1).¹

(2) PF-deletion versus LF-copying

	PF-deletion	LF-copying
Overt Syntax	<pre> graph TD VP --> V[V] VP --> DP[DP] V --- visit[visit] DP --- UConn[UConn] </pre>	<pre> graph TD VP --> e[e] </pre>
PF		
Covert Syntax/LF		

What is important for us is that under the PF-deletion analysis, the VP involves internal structure in both overt and covert syntax, while under the LF-copy analysis, it has internal structure only in covert syntax. The PF-deletion analysis has been quite influential for VP-ellipsis in the literature. One of the reasons is that, as noted in chapter 3, both overt and covert movement are possible out of English VP-ellipsis sites, as in (3a) and (3b).

¹ Whether an ellipsis site is literally empty or it involves a null element/null elements (cf. Wasow 1972 and Ludlow 2005) in overt syntax under the LF-copy analysis of ellipsis is not crucial for the current discussion, so I will just use *e* for the relevant ellipsis domain. However, see chapter 6 for relevant discussion.

- (3) a. I know which book₁ Mary [_{VP} read ___₁], and which book₂ Bill didn't [_{VP} Δ].
 (Fiengo and May 1994:247)
- b. One of the boys [_{VP} met every teacher], and one of the girls did [_{VP} Δ] too.
 $\exists \gg \forall; \forall \gg \exists$ (Depiante 2000:95)

In (3a), *which book* is extracted out of the VP-ellipsis site, and the sentence is grammatical; in (3b), *every teacher* within the VP-ellipsis site can take scope over *one of the girls* outside of it, which means that QR is possible out of a VP-ellipsis site. The grammaticality of (3a) and the availability of inverse scope in (3b) straightforwardly follow under the PF-deletion analysis since this analysis provides the elided VP with internal structure in both overt and covert syntax, thus being able to accommodate an appropriate position for the 'trace' of *wh*-movement and QR in (3). By contrast, the LF-copy analysis does not provide the elided VP with internal structure in overt syntax, so that overt extraction in (3a) should be banned, contrary to the fact (see also Aelbrecht 2010, Thompson 2014, Lee to appear for relevant discussion).² Therefore, the availability of overt extraction out of English VP-ellipsis sites is generally taken to argue for the PF-deletion analysis of the construction in question.

In the following, I will argue that, unlike English VP-ellipsis, argument ellipsis is best analyzed in terms of LF-copying on the basis of extraction possibilities out of its domain: as discussed above, only covert extraction is allowed out of argument ellipsis sites, and this is exactly what the LF-copy analysis predicts since the analysis in question provides an ellipsis domain with internal structure only in covert syntax/LF.

² More precisely, additional assumptions would be needed under the LF-copy analysis to handle the cases involving overt extraction. I discuss what these assumptions would be in section 5.3.2, also pointing out problems for these assumptions (see also footnote 4 in chapter 1).

5.2 Elliptic Arguments via LF-copying

Regarding the issue whether argument ellipsis involves PF-deletion or LF-copying, both views have actually been espoused in the literature: the LF-copy analysis is adopted in Oku (1998), Shinohara (2006), Takahashi (2006), Saito (2007), Takita (2010), Sato (2014, 2015), among others, but Takahashi (2013b) proposes a PF-deletion analysis. To illustrate, the null argument construction (4b) is analyzed under the PF-deletion and the LF-copy analyses as in (5) and (6) respectively.

- (4) a. Taroo-wa [_{CP} Hanako-ga uti-ni kaet-ta to] omot-te-iru.
 Taro-TOP Hanako-NOM home-to return-PST C think-PROG-PRES
 ‘Taro thinks [_{CP} that Hanako returned home].’
- b. Ziroo-mo [_{CP} Δ] omot-te-iru.
 Ziroo-also think-PROG-PRES
 (Lit.) ‘Ziroo also thinks [_{CP} Δ].’

(5) PF-deletion Analysis

- a. Overt Syntax:
 Ziroo-also [_{CP} Hanako home-to returned C] think
- b. PF:
 Ziroo-also [~~_{CP} Hanako home-to returned C~~] think *Deletion of the CP*
- c. Covert Syntax/LF:
 Ziroo-also [_{CP} Hanako home-to returned C] think

(6) LF-copy Analysis

- a. Overt Syntax:
 Ziroo-also [_{CP} e] think

- b. PF:
Ziro-also [_{CP} e] think
- c. Covert Syntax/LF:
Ziro-also [_{CP} Hanako home-to returned C] think *LF-copying*

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

Keeping this in mind, let us reconsider the extraction pattern out of null arguments in Chinese, Japanese, Korean, Mongolian, and Turkish, using Japanese examples for illustration (the other languages in question behave like Japanese in the relevant respect). Recall that overt extraction is uniformly excluded out of the relevant domains, as has already been discussed with respect to, e.g. the long-distance scrambling and the RtO cases as in (7) and (8) respectively.

(7) Long-distance Scrambling

- a. Sono hon₁-o Taroo-wa [_{CP} Hanako-ga ___₁ kat-ta to] it-ta.
that book-ACC Taro-TOP Hanako-NOM buy-PST C say-PST
(Lit.) ‘That book₁, Taro said [_{CP} that Hanako bought ___₁].’
- b. Sono hon₂-o Ziroo-wa [_{CP} Hanako-ga ___₂ kat-ta to] it-ta.
that book-ACC Ziro-TOP Hanako-NOM buy-PST C say-PST
(Lit.) ‘That book₂, Ziro said [_{CP} that Hanako bought ___₂].’
- b’. *Sono hon₂-o Ziroo-wa [_{CP} Δ] it-ta.
that book-ACC Ziro-TOP say-PST
(Lit.) ‘That book₂, Ziro said [_{CP} Δ].’

(8) RtO

- a. Taroo-wa Kanako₁-o orokanimo [CP ___₁ tensai da to] shutyoosi-ta.
Taro-TOP Kanako-ACC stupidly genius COP.PRES C claim-PST
(Lit.) ‘Taro, Kanako₁, stupidly claimed [CP that ___₁ is a genius].’
- b. Ziroo-wa Ayaka₂-o orokanimo [CP ___₂ tensai da to] shutyoosi-ta.
Ziro-TOP Ayaka-ACC stupidly genius COP.PRES C claim-PST
(Lit.) ‘Ziro, Ayaka₂, stupidly claimed [CP that ___₂ is a genius].’
- b’. *Ziroo-wa Ayaka₂-o orokanimo [CP Δ] shutyoosi-ta.
Ziro-TOP Ayaka-ACC stupidly claim-PST
(Lit.) ‘Ziro, Ayaka₂, stupidly claimed [CP Δ].’

The ungrammaticality of (7b’) and (8b’) indicates that overt extraction is excluded out of Japanese null arguments. On the other hand, silent extraction, i.e. movement that does not affect word order, is possible out of Japanese null arguments, as has been discussed with regard to, e.g. the QR and the covert possessor raising cases in (9) and (10).³

(9) QR

- a. Kyonen-wa Yamada sensei-ga [CP daiamondo-mitaini subete-no
last.year-TOP Yamada teacher-NOM diamond-like all-GEN
sinnyuusei-o kagayai-te-iru to] iwa-nakat-ta.
freshman-ACC shine-PROG-PRES C say-NEG-PST
(Lit.) ‘Last year, Prof. Yamada did not say [CP that, like a diamond, all the freshman
students are shining].’ Neg » ∀; ∀ » Neg
- b. Kotosi-wa Tanaka sensei-ga [CP Δ] iwa-nakat-ta.
this.year-TOP Tanaka teacher-NOM say-NEG-PST
(Lit.) ‘This year, Prof. Tanaka did not say [CP Δ].’ Neg » ∀; ∀ » Neg

³ I will return to the null operator movement case separately in section 5.3.1.

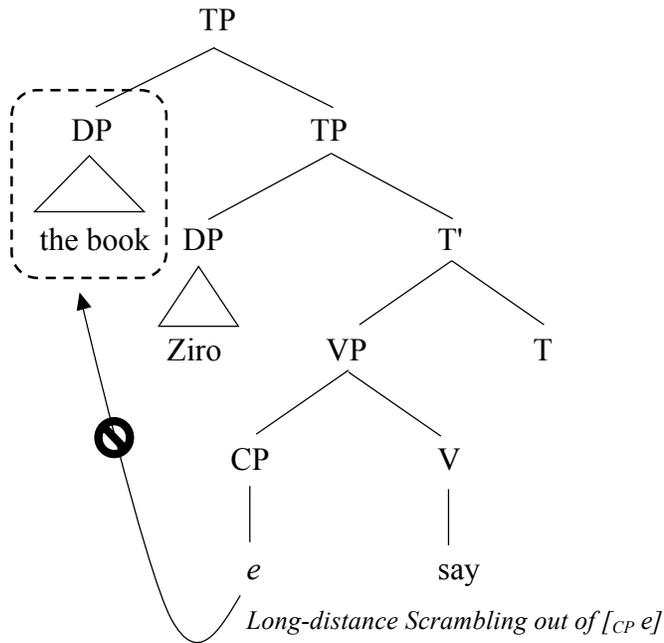
(10) Covert Possessor Raising

- a. [[Kyonen e_i si-ta] koto]-ga [_{DP} hotondo-no gakusei _{i} -no kioku]-ni
last.year do-PST thing-NOM most-GEN student-GEN memory-LOC
nokot-te-iru.
remain-PROG-PST
(Lit.) ‘[The thing [that e_i did last year]] remains in [_{DP} most students’ _{i} memories].’
≈ ‘Most students _{i} remember what they _{i} did last year.’
- b. [[Sannenmae-ni e_j si-ta] koto]-mo [_{DP} Δ] nokot-te-iru.
three.years.ago-in do-PST thing-also remain-PROG-PRES
(Lit.) ‘[The thing [that e_j did three years ago]] also remains in [_{DP} Δ].’
≈ ‘Most students _{j} also remember what they _{j} did three years ago.’

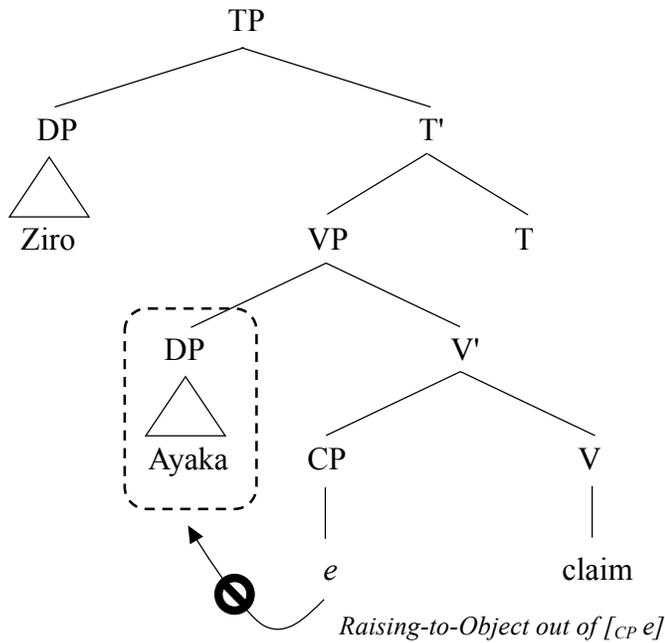
As discussed in chapter 3, the availability of the inverse scope in (9b) and the grammaticality of (10b) on the bound variable interpretation indicate that covert extraction is allowed out of Japanese null arguments.

The extraction pattern noted above can be explained in a principled way under the LF-copy analysis of argument ellipsis. First, the impossibility of overt extraction in (7b’) and (8b’) leads us to conclude that Japanese null arguments do not include internal structure in overt syntax. This is exactly what the LF-copy analysis predicts since it does not provide the ellipsis domain with internal structure in overt syntax, cf. (6a). Specifically, (7b’) and (8b’) are analyzed as in (11) and (12) respectively.

(11) Long-distance Scrambling: Overt Syntax



(12) RtO: Overt Syntax



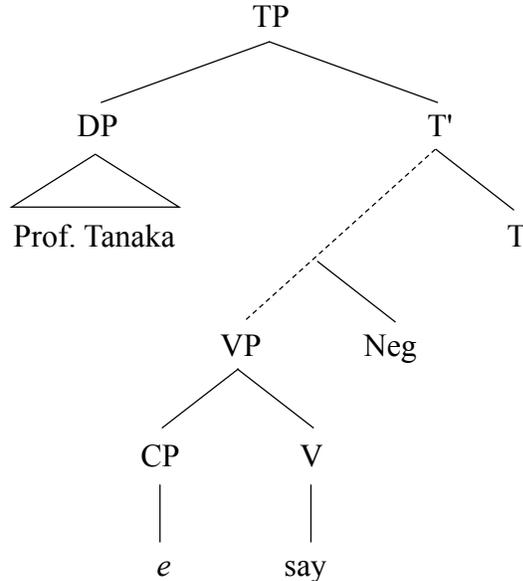
The null CPs do not include internal structure in overt syntax, so we cannot implement long-distance scrambling of *sono hon* ‘the book’ and RtO of *Ayaka* out of the relevant null CPs, which

is the reason for the ungrammaticality of (7b') and (8b'): there can be no extraction since there is nothing to extract from. The fact that overt extraction is uniformly disallowed out of null arguments in the argument ellipsis languages thus straightforwardly follows if argument ellipsis is implemented by LF-copying.

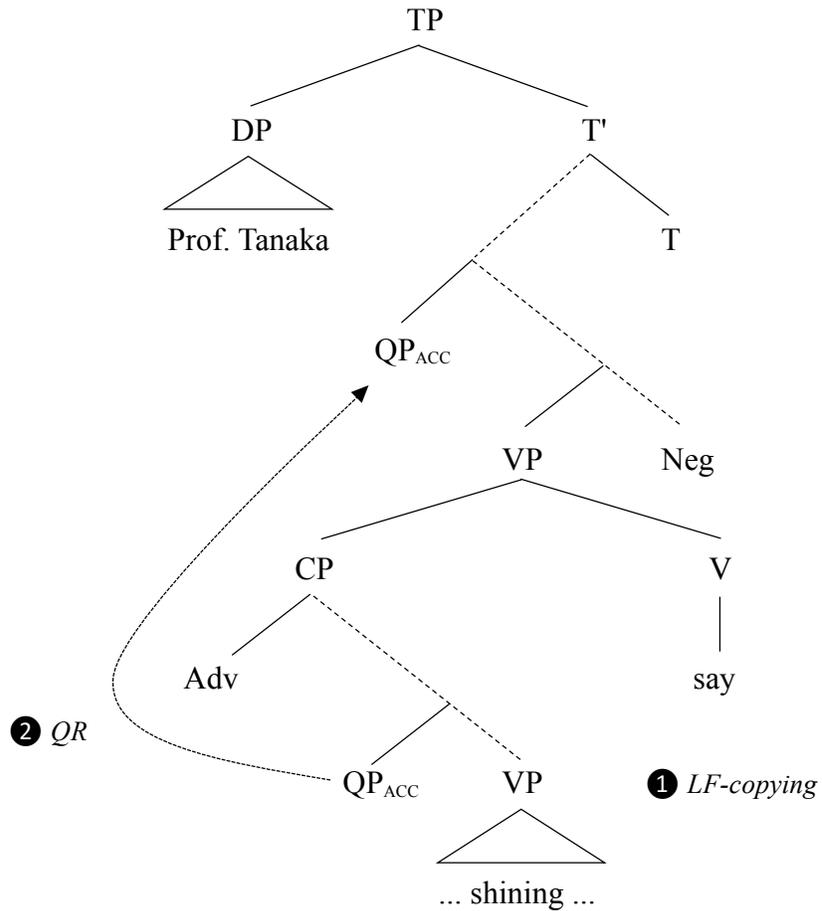
Recall, however, that covert extraction is possible out of an argument ellipsis site. This indicates that this ellipsis domain has internal structure in LF, which is in fact exactly what the LF-copy analysis predicts. Consider the possibility of QR and covert possessor raising out of Japanese null arguments in (9b) and (10b). They can be easily accommodated under the LF-copy analysis. (13) illustrates how the inverse scope in (9b) can be accounted for under the current proposal.

(13) QR:

a. Overt Syntax



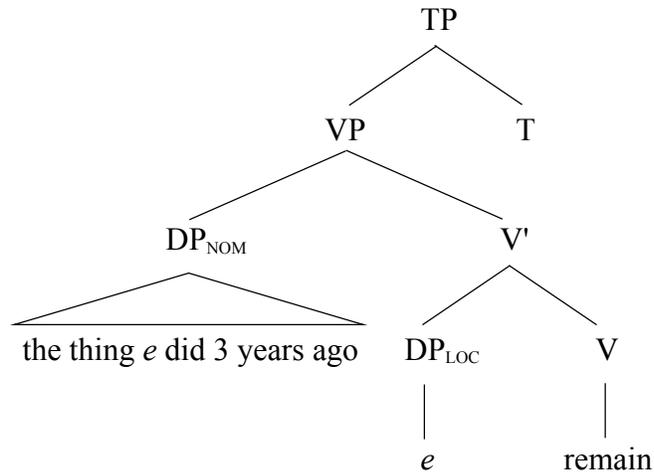
b. Covert Syntax/LF



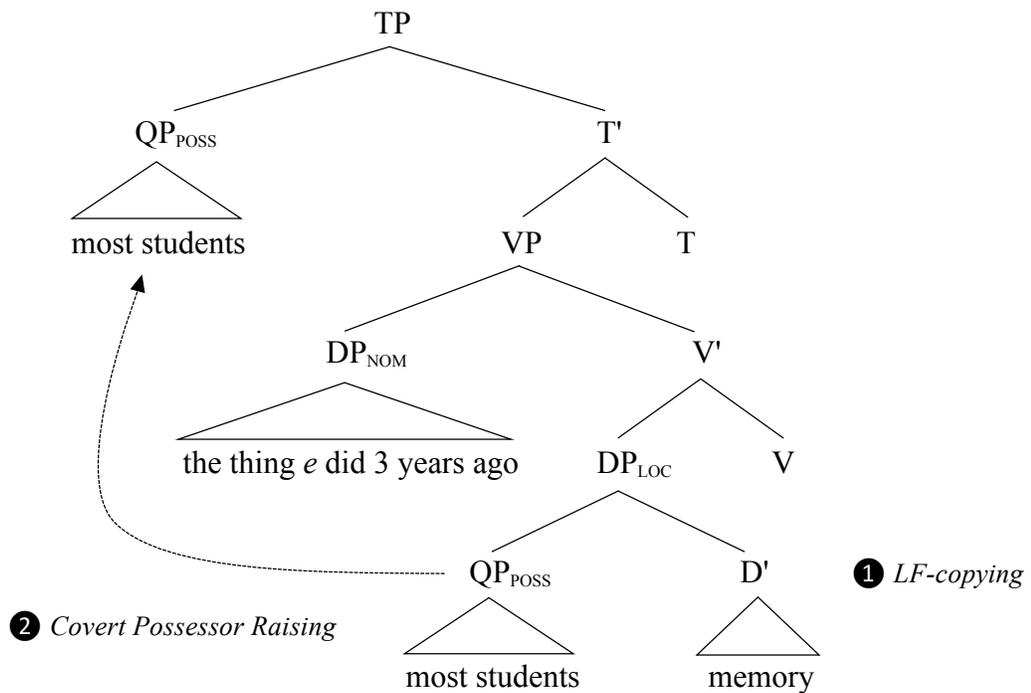
As illustrated in (13a), the embedded null CP does not include internal structure in overt syntax. However, it does in covert syntax after copying of its antecedent, as in (13b). Given the presence of the relevant structure in covert syntax, covert syntactic operations such as QR can successfully apply, which explains the possibility of inverse scope in (9b). A similar explanation also applies for the covert possessor raising case in (10b), as illustrated in (14).

(14) Covert Possessor Raising:

a. Overt Syntax



b. Covert Syntax/LF



Although the null locative argument does not involve internal structure in overt syntax, as in (14a), it does in covert syntax via LF-copying of its antecedent, as in (14b). After the relevant copying operation, covert possessor raising can apply into the null locative argument, moving the QP

possessor to [Spec, TP], which in turn licenses the bound variable inside of the nominative theme argument. Thus, the grammaticality of (10b) can be captured under the LF-copy analysis of argument ellipsis.

Recall now that null arguments in the other argument ellipsis languages discussed in this thesis also disallow extraction in overt syntax out of them, while allowing extraction in covert syntax. The above analysis of Japanese can then be extended to these languages as well. Therefore, the claim that argument ellipsis involves LF-copying is cross-linguistically supported.

To sum up, under the LF-copy analysis of argument ellipsis, LF operations like QR and covert possessor raising can successfully apply out of null arguments, as in (13) and (14), which explains the possibility of inverse scope in (9b) and the grammaticality of (10b), respectively.⁴ The LF-copy analysis can also capture the fact that null arguments in the relevant languages uniformly disallow overt extraction out of them, attributing this ban to the absence of internal structure in the relevant ellipsis domains in overt syntax.

⁴ If we assume that LF-copying and operations like QR and covert possessor raising are in principle freely ordered, nothing prohibits covert operations such as QR and covert possessor raising from applying before LF-copying of antecedents (within the antecedents). If that order is chosen, copied material includes a variable which would not be bound by anything, giving rise to an instance of a free variable. This is illustrated for the covert possessor raising case from (10) in (i).

- (i) a. LF①: Covert Possessor Raising
 Antecedent: most students' _x [[last.year *e_x* did] thing]-NOM [*x* memory]-LOC remain
- b. LF②: LF-copying
 Antecedent: most students' _x [[last.year *e_x* did] thing]-NOM [*x* memory]-LOC remain
 Target: *[[3.years.ago *e_y* did] thing]-also [*x* memory]-LOC remain

Therefore, if covert syntactic operations precede LF-copying, as in (i), the derivation would not converge. However, what is important is that nothing prohibits LF-copying from applying before other covert syntactic operations, which allows us to explain the covert extraction possibility out of null arguments on the basis of the LF-copy analysis of argument ellipsis.

5.3 Theoretical Implications

5.3.1 Null Operator Movement = LF-movement

5.3.1.1 Chomsky (1995): Strong Feature versus Weak Feature

Consider now the possibility of null operator extraction out of null arguments in the relevant languages. As discussed in chapter 3 and 4, null operator extraction is possible out of argument ellipsis sites. For example, consider the following Japanese data (I will only discuss the comparative deletion case for expository purposes).

(15) Comparative Deletion

- a. [[Op₁ [_{CP} Taro-ga ___₁ yon-da to] Kanako-ni iw-are-te-iru] yori(mo)]
Taro-NOM read-PST C Kanako-by say-PASS-PROG-PRES than
Hanako_i-wa takusan hon-o yon-de-ita.
Hanako-TOP many book-ACC have-PROG-PRES
(Lit.) ‘Hanako_i read more books [than [Op₁ it is said by Kanako [_{CP} that Taro read ___₁]]].’
- b. Sarani, [[Op₂ [_{CP} Taro-ga ___₂ yon-da to] Ayaka-ni
furthermore Taro-NOM read-PST C Ayaka-by
iw-are-te-iru] yori(mo)] kanozyo_i-wa takusan hon-o yon-de-ita.
say-PASS-PROG-PRES than she-TOP many book-ACC have-PROG-PRES
(Lit.) ‘Furthermore, she_i read more books [than [Op₂ it is said by Ayaka [_{CP} that Taro read ___₂]]].’
- b’. Sarani, [[Op₂ [_{CP} Δ] Ayaka-ni iw-are-te-iru] yori(mo)]
furthermore Ayaka-by say-PASS-PROG-PRES than
kanozyo_i-wa takusan hon-o yon-de-ita.
she-TOP many book-ACC have-PROG-PRES
(Lit.) ‘Furthermore, she_i read more books [than [Op₂ it is said by Ayaka [_{CP} Δ]]].’

In (15b'), comparative operator is extracted out of the null CP within the *than*-clause, and the sentence is grammatical: (15b') receives the same interpretation as (15b), where the embedded CP is overtly realized. Given the grammaticality of (15b'), the current analysis provides evidence that null operator movement is implemented in LF, not in overt syntax. The issue itself is somewhat controversial (both views can be found in the literature). Thus, Kennedy (2002) and Cecchetto and Percus (2006) argue for the former possibility, which is also confirmed by the current discussion. Chomsky's (1995, chapter 4) view on movement is also worth noting here. Chomsky claims that there are two types of features that drive movement: strong features, which drive movement in overt syntax and can only be "satisfied" by overt movement, i.e. movement that affects word order, and weak features, which drive movement in LF and can be "satisfied" by covert movement, i.e. movement that does not affect word order. For Chomsky (Chomsky 1995, chapter 4), overt movement is driven by strong features but strong features can be present in the numeration only if their presence causes a change in word order. More generally, α can be present in the numeration only if its presence results in affecting either the PF or the LF output. Chomsky argues that strength never affects the latter: hence, strength, and overt syntax movement in general, must affect word order in his system (see also here Bošković 2000). Under this system, null operator movement cannot in principle be driven by strong features since null operator does not involve phonological features, hence its movement does not affect word order: null operator movement then must be LF-movement in Chomsky's (1995) system.⁵

In the following, I will discuss two potential arguments against the covert syntax movement

⁵ Holmberg's (2000) approach to strong features/overt movement in terms of a P-feature which can only be deleted by elements with phonological features may also be implementable here. Null operators do not involve any phonological features, so they cannot satisfy a P-feature which is the trigger for overt movement in Holmberg's analysis. This also entails that null operator movement must be implemented covertly. Under the current analysis, it may be expected that other phonologically empty elements such as *pro* and PRO should not move in overt syntax, and this is exactly what Takahashi (1996c, 1997, 2000, 2001) argues for (see also Ochi 2005 for relevant discussion).

approach to null operator movement found in the literature, i.e. subjacency effects and the licensing of parasitic gaps, showing that these arguments do not refute the view of null operator movement as an instance of LF-movement.

5.3.1.2 Subjacency

One potential argument against taking null operator movement as an instance of movement in covert syntax is related to subjacency effects. Developing ideas from Chomsky (1976), Huang (1982), Lasnik and Saito (1984, 1992), among many others, claim that constructions or languages that do not move *wh*-words overtly move them to [Spec, CP] covertly, i.e. in LF. They further claim that movement in LF is not subject to subjacency effects, unlike movement in overt syntax, on the basis of the following paradigm.⁶

- (16) a. *What₁ did Mary meet [the man [_{relative clause} who gave ___₁ to John]]?
 b. *What₁ did Mary leave [_{adjunct} before John read ___₁]?

- (17) a. Mary-wa [[_{relative clause} John-ni nani-o age-ta] hito]-ni at-ta no?
 Mary-TOP John-DAT what-ACC give-PST man-DAT meet-PST Q
 (Lit.) ‘Mary met [the person [_{relative clause} who gave what to John]]?’

⁶ *Wh*-in-situ in English does not exhibit subjacency effects either, as in (i) (cf. Baker 1970).

- (i) a. Who wonders [_{wh-island} whether John saw what]?
 b. Who read [_{complex NP} a report [that John bought what]]?
 c. Who went to class [_{adjunct} after he read which book]?

(Lasnik and Saito 1992:12)

In the above examples, the *wh*-phrases inside of the islands can take scope in the matrix [Spec, CP]. For example, (ia) can be answered with “Bill wonders whether John saw Nancy”.

- b. Mary-wa [_{adjunct} John-ga nani-o yom-u mae-ni] dekake-ta no?
 Mary-TOP John-NOM what-ACC read-PRES before leave-PST Q
 (Lit.) ‘Mary left [_{adjunct} before John read what]?’

(16) shows that overt *wh*-movement is subject to subjacency effects. Interesting for the current discussion is (17). In (17a), the *wh*-phrase *nani* ‘what’ is located inside of a relative clause island, and in (17b), it is embedded within an adjunct island, but both sentences are grammatical. If *wh*-in-situ in (17) undergoes movement to the matrix [Spec, CP], it must cross the relevant islands, causing a violation of subjacency. Thus, Huang (1982), Lasnik and Saito (1984, 1992), among others, conclude that covert movement is not subject to subjacency, unlike overt movement. In light of this, the following data could be taken to indicate that null operator movement takes place in overt syntax, not in covert syntax/LF.

- (18) a. *This is the book [Op₁ that Bill knows [the person [_{relative clause} who bought ___₁]]].
 b. *This is the book [Op₁ that Bill left [_{adjunct} before Mary read ___₁]].
- (19) a. *John read more books [than Op₁ Bill criticized [the person [_{relative clause} who read ___₁]]].
 b. *John read more books [than Op₁ Bill left [_{adjunct} before Mary read ___₁]].

In (18), the relative operator is extracted out of an island, and the sentences are ungrammatical; in (19), comparative operator has undergone movement out of an island, and the sentences are unacceptable. This indicates that null operator movement is subject to subjacency effects (also recall that null operator constructions in Chinese, Japanese, Korean, Mongolian, and Turkish are subject to subjacency effects, as extensively discussed in chapter 3 and 4). Under the assumption

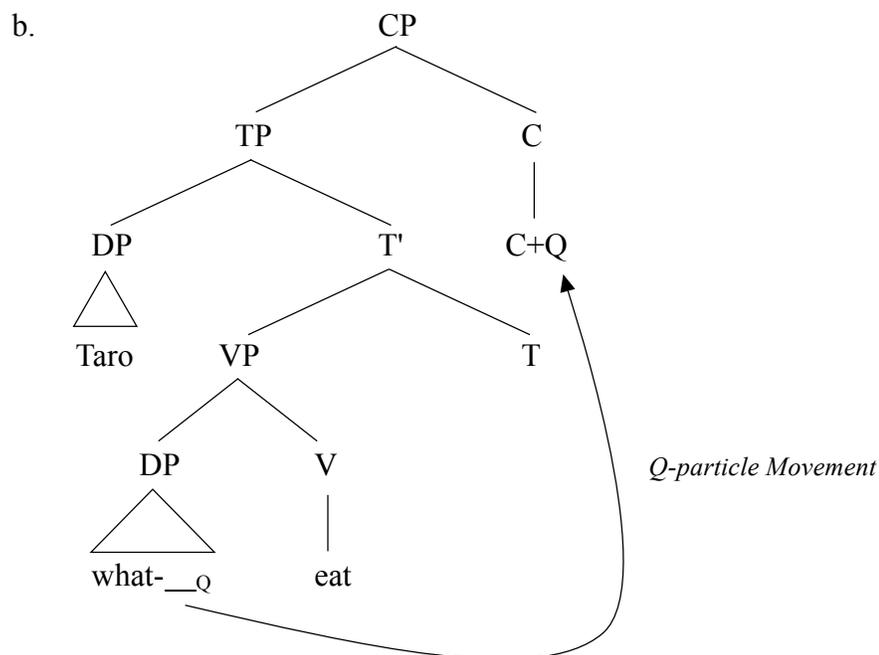
that only movement in overt syntax exhibits subjacency effects, (18) and (19) suggest that null operator movement is an instance of overt syntax movement.

However, the status of the presence of subjacency effects as a hallmark of overt syntax movement is far from clear in the current theories. There are also alternative analyses for *wh*-in-situ in Japanese (as well as English). For example, Shimoyama (2001) argues that *wh*-in-situ does not undergo movement, and in-situ *wh*-phrases are appropriately interpreted via unselective binding (see also Cheng 1991, Tsai 1994, 1997, Reinhart 1997, among others for non-movement approaches to *wh*-in-situ). Under this analysis, *wh*-in-situ is just a variable unselectively bound by Q. If *wh*-in-situ does not move and can be interpreted in-situ via unselective binding, the fact that *wh*-in-situ in (17) does not exhibit subjacency effects trivially follows without making recourse to the assumption that covert movement is not subject to subjacency effects.⁷ This makes the LF-movement approach to null operator movement compatible with the presence of subjacency effects in (18) and (19) under the assumption that subjacency holds not only in overt syntax but also in covert syntax/LF (cf. Nishigauchi 1986, 1990, Pesetsky 1987, Kishimoto 2005a, among others). In fact, not all *wh*-in-situ languages behave like Japanese in the relevant respect. Thus, as shown in Bošković (1998, 2000), argumental *wh*-in-situ in French, which Bošković analyzes in terms of LF-movement, is locality-sensitive, i.e. it is subject to subjacency effects. It should also be noted that Hagstrom (1998) proposes an alternative analysis of *wh*-in-situ in languages like Japanese where *wh*-in-situ in Japanese involves movement of Q-particles (see also Miyagawa 2001, Kishimoto 2005a, Cable 2007, 2010). Under the Q-particle movement analysis, a simple *wh*-in-

⁷ It is well-known that adjunct *wh*-in-situ is subject to island effects. Under the unselective binding analysis, this is accounted for by assuming that adjuncts cannot be unselectively bound, hence they undergo movement in covert syntax/LF, their movement being island-sensitive. It should also be noted here that traditional subjacency/ECP effects are essentially treated in the same way in the current theory (see e.g. Chomsky and Lasnik 1991), which means that the islandhood effect with adjunct *wh*-in-situ indicates that LF movement is locality-sensitive.

situ construction (20a) is analyzed as in (20b).

- (20) a. Taroo-wa nani-o tabe-ta no?
 Taro-TOP what-ACC eat-PST Q
 (Lit.) ‘Taro ate what?’



In (20b), the *wh*-phrase and the Q-particle are base-generated together, and the latter undergoes movement to C, yielding the surface string in (20a). Hagstrom claims that the *wh*-in-situ in (17) does not induce a violation of subadjacency because the Q-particles can be base-generated in the ‘edge’ position of the relevant islands.⁸ Specifically, under Hagstrom’s analysis, (17a) and (17b),

⁸ The analysis here is supported by the fact that base-generation of Q-particles outside of an island in fact obviates a violation of subadjacency in Sinhala, as in (i).

- (i) a. *Oyaa [[kau də liyəpu] potə] kieuwe?
 you who Q wrote book read-E
 ‘You read [the book [that who wrote]]?’
 b. Oyaa [[kauru liyəpu] potə] də kieuwe?
 you who wrote book Q read-E
 ‘You read [the book [that who wrote]]?’

repeated here as (21a) and (21b), are analyzed as in (22a) and (22b), respectively.

- (21) a. Mary-wa [[_{relative clause} John-ni nani-o age-ta] hito]-ni at-ta no?
 Mary-TOP John-DAT what-ACC give-PST man-DAT meet-PST Q
 (Lit.) ‘Mary met [the person [_{relative clause} who gave what to John]]?’
- b. Mary-wa [_{adjunct} John-ga nani-o yom-u mae-ni] de-kake-ta no?
 Mary-TOP John-NOM what-ACC read-PRES before leave-PST Q
 (Lit.) ‘Mary left [_{adjunct} before John read what]?’

- (22) a. [CP [TP Mary [VP [DP [_{relative clause} John-to what gave] person] Q V_{meet}] T] C+Q]?
Q-particle Movement 
- b. [CP [TP Mary [VP [_{adjunct} John what read before] Q V_{leave}] T] C+Q]?
Q-particle Movement 

In (22a) and (22b), the Q-particle is base-generated in the ‘edge’ of the relative clause island and the adjunct island, respectively, undergoing overt movement to C. Importantly, movement of the Q-particle does not cross any island boundaries, so the lack of subjacency effects in (17a) and (17b) can be accounted for.⁹

To sum up, there are several analyses where *wh*-in-situ does not undergo movement in covert syntax/LF, which also indicates that *wh*-in-situ and null operator movement can be handled in a

(Kishimoto 1992:56)

In (ia), the Q-particle *da* is inside of a complex NP, and the sentence is unacceptable. On the other hand, in (ib), the relevant Q-particle occupies a position outside of the complex NP, more precisely an ‘edge’ position of the island, and the sentence is grammatical. Therefore, the grammaticality of (17a) and (17b) can be treated in the same way as that of (ib) under Hagstrom’s analysis.

⁹ In contrast to relative clause and adjunct islands, *wh*-in-situ in Japanese has sometimes been claimed to exhibit *wh*-island effects, as in (i) (the judgment here is taken from Watanabe 1992).

- (i)(?) John-wa [_{CP} Mary-ga nani-o kat-ta kadooka] siritagat-te-iru no?
 John-TOP Mary-NOM what-ACC buy-PST whether want.to.know-PROG-PRES Q
 (Lit.) ‘Q John wants to know [_{CP} whether Mary bought what]?’ (Watanabe 1992:257)

For the (potential) contrast in (i) and (21a–b), see Nishigauchi (1986, 1990), Pesetsky (1987), Watanabe (1992), Ochi (1999), Bošković (2000), Shimoyama (2001), among many others.

different way even if the latter is implemented in covert syntax/LF. Once we follow one of the relevant alternative analyses, we can implement null operator movement in covert syntax/LF, also explaining the presence of subjacency effects under the assumption that subjacency holds in LF as well as in overt syntax, which is also theoretically more appealing (see also footnote 7) (although the choice of the relevant analysis is not crucial at this point, I will argue for Hagstrom's (1998) Q-particle movement analysis on the basis of interactions of *wh*-in-situ and null arguments in section 5.4.4). Thus, that null operator movement shows subjacency effects does not undermine the LF-movement approach to null operator movement.

5.3.1.3 Parasitic Gap

The second potential argument against implementing null operator movement in covert syntax comes from the licensing of parasitic gaps. Traditionally, the contrast in (23a) and (23b) is taken to indicate that parasitic gaps (represented as ____{PG}) can be licensed only by overt movement: they cannot be licensed by movement in covert syntax.

- (23) a. Which articles₁ did John file ___₁ without reading ____{PG1}? (Engdahl 1983:5)
 b. *John filed which articles₁ without reading ____{PG1}? (Engdahl 1983:12)

In (23a), the *wh*-phrase *which articles* has undergone overt movement to [Spec, CP], licensing the parasitic gap within the adjunct clause. In (23b), the *wh*-phrase stays in-situ, and it cannot license the relevant parasitic gap. Under the assumption that *wh*-in-situ undergoes covert movement to [Spec, CP], the ungrammaticality of (23b) suggests that covert movement does not have the ability

to license parasitic gaps.¹⁰

Given the above discussion, consider the following data.

- (24) a. This is [the kind of food [Op₁ you must cook ___₁ before you eat ____{PG1}].
(Engdahl 1983:5)
- b. I threw away more books [than Op₁ I kept ___₁ without reading ____{PG1}].
(Kennedy 2002:561)

In (24a), relative operator moves within the relative clause, licensing a parasitic gap; in (24b), comparative operator has undergone movement within the *than* clause, licensing a parasitic gap. Given the contrast in (23a) and (23b), the grammaticality of (24a) and (24b) suggests that null operator movement exhibits similar behavior to overt *wh*-movement, not *wh*-in-situ, in that it can license parasitic gaps.

However, the above discussion does not necessarily mean that null operator movement must be an instance of movement in overt syntax, since, as discussed above, there are a number of approaches to *wh*-in-situ where *wh*-in-situ does not undergo movement (cf. Hagstrom 1998, Shimoyama 2001). Also, the assumption that *wh*-in-situ cannot license parasitic gaps in English is in fact quite controversial in the literature. For example, Nissenbaum (2000) observes that *wh*-in-situ does license parasitic gaps in certain contexts, as the following examples show.¹¹

¹⁰ In addition to the *wh*-in-situ data discussed above, the following QR example has also been claimed to argue for the ‘S-structure’ licensing of parasitic gaps.

(i) *John filed every article_i without reading ____{PGi}.

Assuming that *every article* undergoes QR, the ungrammaticality of (i) may be interpreted as indicating that covert movement cannot license parasitic gaps. See, however, Kim and Lyle (1996) for the claim that (i) is independently excluded by the chain uniformity condition holding in LF.

¹¹ Another relevant case concerns Bošković’s (2002) observation that *wh*-in-situ in Romanian can license parasitic gaps, as shown in (ia).

(i) a. Cine a citit CE fără să claseze ____{PG}?
who has read what without SUB.PART files

- (25) a. ?Which senator₁ did you persuade ___₁ to borrow which car₂ [after getting an opponent of ____{PG1} to put a bomb in ____{PG2}]?
- b. ?Which kid₁ did you give which candy bar₂ to ___₁ [without first telling a parent of ____{PG1} about the ingredients in ____{PG2}]?

(Nissenbaum 2000:12)

In (25a), the *wh*-in-situ phrase *which car* licenses the parasitic gap within the *after* clause, and in (25b), the *wh*-in-situ phrase *which candy bar* licenses the parasitic gap within the *without* clause. Therefore, the status of *wh*-in-situ with respect to parasitic gap licensing (and what is involved in such licensing) is far from clear.¹² In light of the above discussion, I conclude that the ability of null operator movement to license parasitic gaps does not undermine the LF-movement analysis of null operator movement.

In sum, the fact that null operator movement is subject to subjacency effects and that null operator movement can license parasitic gaps does not exclude the possibility that null operator movement is an instance of movement in covert syntax/LF in the current theoretical framework. Therefore, on the basis of the possibility of null operator movement out of null arguments in Chinese, Japanese, Korean, Mongolian, and Turkish, I claim that null operator movement is best analyzed as an instance of LF-movement (as in fact it would be in Chomsky's (1995) system as

'Who read what without filing ____{PG}?'

- b. *Cine a citit cartea fără să claseze ____{PG}?
 who has read the.book without SUB.PART files
 (Int.) 'Who read the book without filing ____{PG}?'

(Bošković 2002:374–375)

That (ib) is ungrammatical indicates that non-*wh*-phrases such as *cartea* 'the book' cannot license parasitic gaps. Given this, the grammaticality of (ia) can be taken to indicate that *wh*-in-situ in Romanian can license parasitic gaps.

¹² Nunes (2004) claims that parasitic gaps are derived via sideward movement, attributing the 'S-structure' effect on parasitic gap licensing to PF considerations. This analysis may also be compatible with the claim that null operator movement licenses parasitic gaps and involves covert movement.

well as Holmberg's (2000) system), which can straightforwardly explain the relevant extraction possibility.

5.3.2 Against Base-generation + Merger

5.3.2.1 Chung, Ladusaw, and McCloskey (1995) and Related Issues

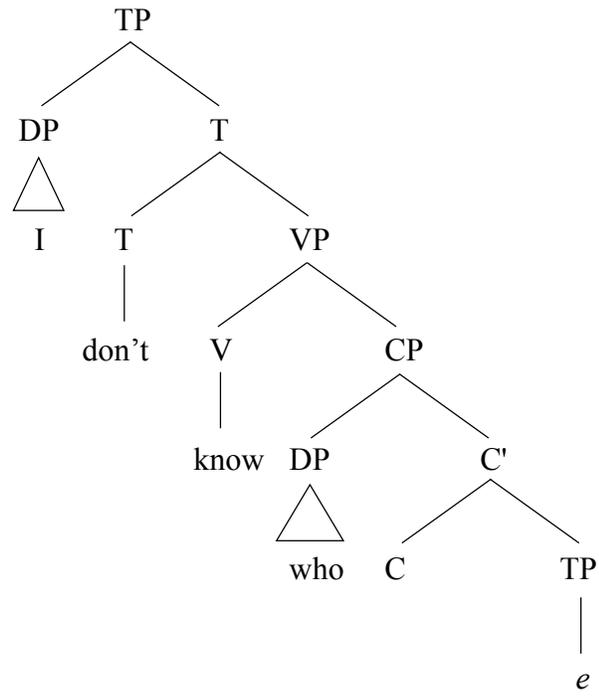
In section 5.2, I argued for the LF-copy analysis of argument ellipsis on the basis of the fact that although overt extraction is disallowed out of an argument ellipsis site, covert extraction is allowed. It is now worth noting Chung, Ladusaw, and McCloskey's (1995) LF-copy-based approach to English sluicing (cf. Ross 1969, Merchant 2001, among many others). Consider the following example.

(26) [_{TP} John met someone], but I don't know [_{CP} who [_{TP} △]].

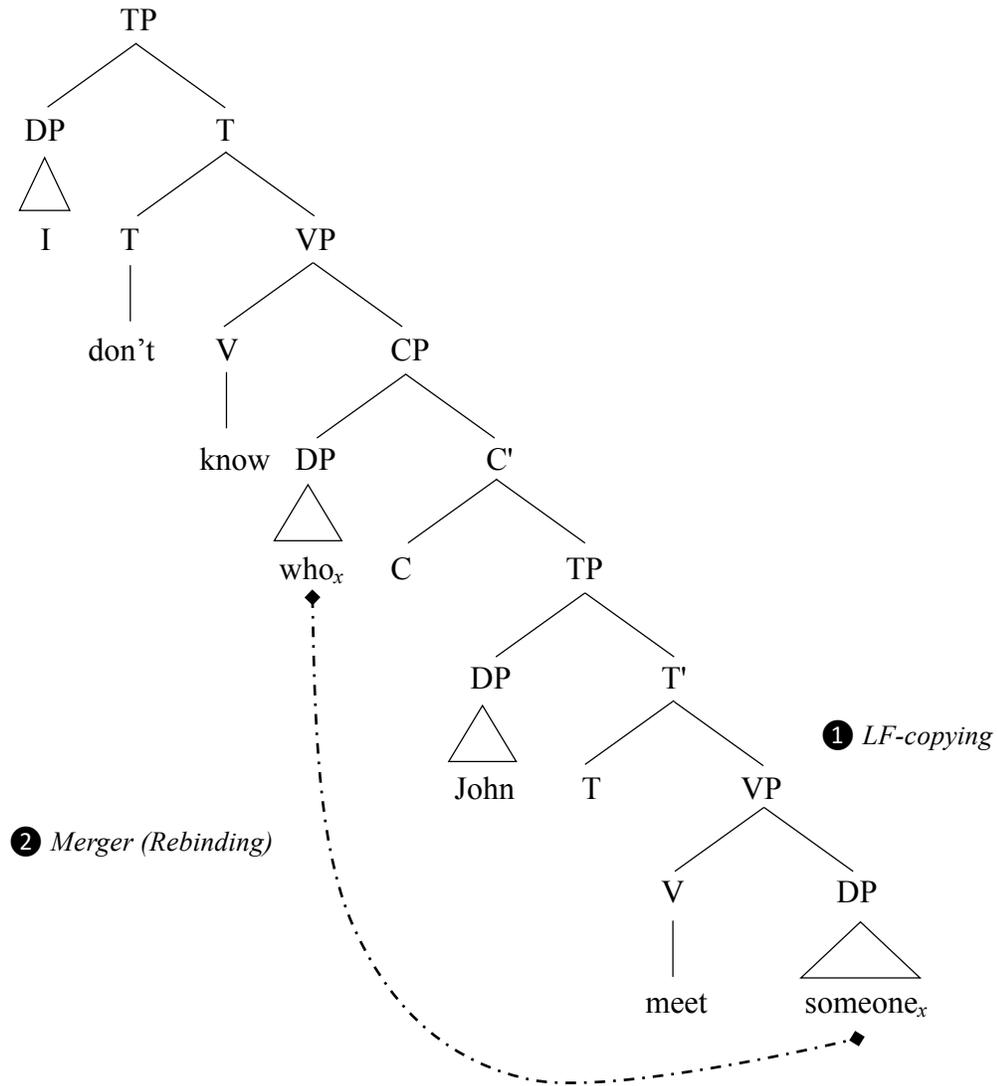
In (26), the *wh*-phrase *what* which corresponds to its correlate *someone* in the antecedent clause occupies [Spec, CP], the TP complement being elided. Chung, Ladusaw, and McCloskey (1995) argue that sluicing involves LF-copying.¹³ Specifically, they analyze (26) as involving base-generation of the *wh*-remnant in [Spec, CP] and LF-copying of the antecedent TP. (27) illustrates the derivation of the target clause of (26) under their LF-copy-based analysis.

¹³ I will actually argue for a very different analysis of sluicing in section 5.3.3.

(27) a. Overt Syntax



b. Covert Syntax/LF



The *wh*-remnant *who* is base-generated in [Spec, CP] in overt syntax. In covert syntax/LF, the antecedent TP is copied onto the relevant ellipsis site, and then the base-generated *wh*-phrase *who* and the indefinite pronoun *someone* within the copied TP form a chain via what Chung, Ladusaw, and McCloskey (1995) call Merger, a rebinding operation which ‘mimics’ movement (they assume with Heim (1982), among others, that indefinites such as *someone* are treated as variables in LF). As a result, the second clause of (26) receives the interpretation “I don’t know, for *x*, *x* is a person,

John met x”. Importantly, Chung, Ladusaw, and McCloskey’s (1995) base-generation + Merger approach to sluicing, which “mimics” movement, makes the possibility of overt extraction, e.g. *wh*-movement, compatible with the LF-copy analysis of ellipsis, which would in turn pose an issue for the current claim that the possibility of overt extraction signals the presence of internal structure in overt syntax (see section 5.1 and 5.2).

However, as Chung, Ladusaw, and McCloskey (1995) themselves note, their analysis would incorrectly predict sentences like (28) to be ruled in.

(28) *Who did they see someone? (Chung, Ladusaw, and McCloskey 1995:280)

The Merger process should make it possible to make *someone* a variable bound by *who*, which may result in a grammatical sentence (see also e.g. Merchant 2001 for arguments against the Merger approach to sluicing).

Also, the base-generation + Merger analysis makes a wrong prediction regarding interactions of scrambling and scope interpretations. Oka (1989) and Tada (1993) observe that long-distance scrambling does not create a new scope relation, as in (29) (see also Saito 1992 and Bošković and Takahashi 1998).

- (29) a. Dare-ka-ga [CP Taro-ga dare-mo-ni at-ta to] omot-te-iru.
 who-KA_∃-NOM Taro-NOM who-MO_∀-DAT meet-PST C think-PROG-PRES
 ‘Someone thinks [CP that Taro met everyone].’ $\exists \gg \forall; * \forall \gg \exists$
- b. Dare-mo₁-ni dare-ka-ga [CP Taro-ga ₁ at-ta to] omot-te-iru.
 who-MO_∀-DAT who-KA_∃-NOM Taro-NOM meet-PST C think-PROG-PRES
 (Lit.) ‘Everyone₁, someone thinks [CP that Taro met ₁].’ $\exists \gg \forall; * \forall \gg \exists$

(29a) only allows the surface scope reading. The inverse scope reading is still absent in (29b), in spite of the embedded object QP undergoing long-distance scrambling over the matrix subject QP. If we assume the base-generation + Merger process, (29b) could involve the derivation illustrated in (30).

- (30) a. Overt Syntax: Base-generation of *everyone*
everyone_x, someone thinks [CP that Taro met e_y]
- b. Covert Syntax/LF: Merger
everyone_x, someone thinks [CP that Taro met e_x]


In overt syntax, *daremo* ‘everyone’ is base-generated in the ‘scrambled’ position, as in (30a). In covert syntax/LF, Merger would apply, making the base-generated QP and a free variable within the embedded CP form a chain. If this derivation were available, (29b) should be able to yield the inverse scope interpretation, contrary to the fact. Therefore, the absence of inverse scope in (29b) raises a problem for the base-generation + Merger process, unless there is a principled way of blocking this option completely if there is no ellipsis.

More importantly, if we were to apply Chung, Ladusaw, and McCloskey’s (1995) base-generation + Merger process to extraction out of argument ellipsis sites, we would not be able to account for the impossibility of what is standardly considered to be overt movement out of argument ellipsis sites. Thus, we would have the derivation in (32) for the long-distance scrambling case.¹⁴

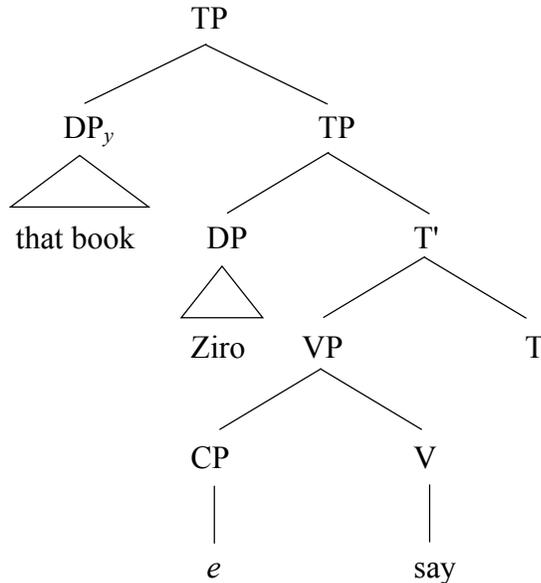
¹⁴ Replacing the definite object *sono hon* ‘that book’ in (31) by an indefinite object *nanika* ‘something’ does not improve the sentence, as in (ib’).

- (i) a. Nani-ka_x-o Taro_o-wa [CP Hanako-ga ____x kat-ta to] it-ta.
 what-KA₃-ACC Taro-TOP Hanako-NOM buy-PST C say-PST

(31) Long-distance Scrambling

- a. Sono hon_x-o Taro_o-wa [CP Hanako-ga ____x kat-ta to] it-ta.
 that book-ACC Taro-TOP Hanako-NOM buy-PST C say-PST
 (Lit.) ‘That book_x, Taro said [CP that Hanako bought ____x].’
- b. *Sono hon_y-o Ziro_o-wa [CP Δ] it-ta.
 that book-ACC Ziro-TOP say-PST
 (Lit.) ‘That book_y, Ziro said [CP Δ].’

(32) a. Overt Syntax

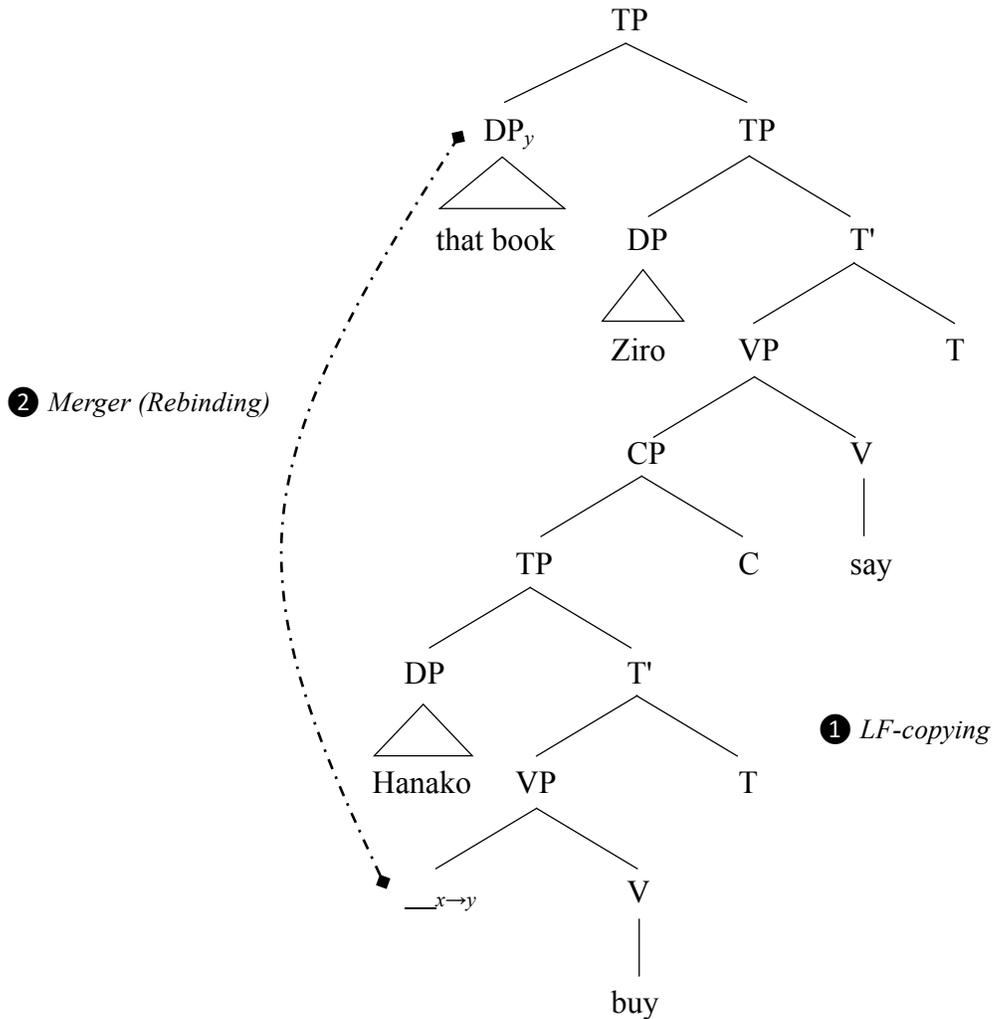


(Lit.) ‘Something_x, Taro said [CP that Hanako bought ____x].’

- b. Nani-ka_y-o Ziro_o-mo [CP Hanako-ga ____y kat-ta to] it-ta.
 what-KA₃-ACC Ziro-also Hanako-NOM buy-PST C say-PST
 (Lit.) ‘Something_y, Ziro also said [CP that Hanako bought ____y].’
- b’. *Nani-ka_y-o Ziro_o-mo [CP Δ] it-ta.
 what-KA₃-ACC Ziro-also say-PST
 (Lit.) ‘Something_y, Ziro also said [CP Δ].’

With (ia) as its antecedent, (ib) is grammatical, whereas (ib’), which involves extraction of the indefinite object *nanika* ‘something’ out of the null CP, is ungrammatical with the intended interpretation (the sentence is grammatical with the interpretation, “Ziro also said something”).

b. Covert Syntax/LF



In overt syntax, the object *sono hon* ‘that book’ would be base-generated outside of the null CP, as illustrated in (32a). In covert syntax/LF, the antecedent CP would be copied onto the null CP site, as in (32b). Crucially, the copied TP includes the ‘trace’ of the scrambled object, $_x$, created in the antecedent sentence. Then, Merger applies to the base-generated object and the ‘trace’ in question, having them form a chain (the original index x is ‘replaced’ by y). Therefore, if LF-copying involved in argument ellipsis could involve Chung, Ladusaw, and McCloskey’s (1995) base-generation + Merger combination, we would not be able to explain why overt extraction out

of argument ellipsis sites is impossible. In other words, the analysis fails to account for one of the defining properties of argument ellipsis. This indicates that the relevant combination is not available in LF-copying involved in argument ellipsis (a possibility not at all).¹⁵

5.3.2.2 Argument Ellipsis and Locality

Applying Chung, Ladusaw, and McCloskey's (1995) analysis to argument ellipsis would also prevent us from capturing locality effects observed in the argument ellipsis construction. Crucial to Chung, Ladusaw, and McCloskey's LF-copy analysis is that a chain consisting of a base-generated element and a variable inside of ellipsis domains is formed via binding, not movement: movement is not involved in the relevant LF-copy process. Chung, Ladusaw, and McCloskey claim that this chain-formation process can capture the amelioration effect of island violations that sluicing exhibits (cf. Ross 1969, Merchant 2001).¹⁶ Consider the following examples.

¹⁵ The claim here is also supported by the ungrammaticality of (i-A²), which involves *wh*-movement out of a null CP (cf. section 3.2.1).

- (i) A¹: Nani₁-o John-wa [_{CP} Mary-ga ₁ tabe-ta ka] siritagat-te-iru no?
 what-ACC John-TOP Mary-NOM eat-PST Q want.to.know-PROG-PRES Q
 (Lit.) 'What₁ Q John wants to know [_{CP} Q Mary ate ₁]?'
 = What does John want to know Mary ate?

B: Pan da yo.
 bread COP.PRES SFP
 'Bread.'

- A²: *Zyaa, nani₂-o Peter-wa [_{CP} Δ] siritagat-te-iru no?
 then what-ACC Peter-TOP want.to.know-PROG-PRES Q
 (Lit.) 'Then, what₂ Q does Peter want to know [_{CP} Δ]?'
 (Int.) 'Then, what does Peter want to know Mary ate?'

With (i-A¹) as its antecedent, (i-A²) with the intended interpretation is unacceptable (the sentence is acceptable only with the interpretation, 'What does Peter want to know?'). If LF-copying involved in argument ellipsis could make use of the base-generation + Merger combination, we would not be able to account for the ungrammaticality of (i-A²).

It may also be worth noting here that it is not quite clear how Bošković and Takahashi's (1998) base-generation analysis of scrambling can capture the impossibility of overt extraction out of argument ellipsis sites, so I will simply assume that Bošković and Takahashi's approach to scrambling is not an option (see also Shinohara 2006 for relevant discussion).

¹⁶ There are other ways of capturing the amelioration effect in light of rescue by PF-deletion (cf. Chomsky 1972, Merchant 2001, 2008, Bošković 2011b, among many others), as discussed below. The amelioration effect is actually controversial: several authors have argued against its existence (see Abels 2011 and Barros, Eliot, and Thoms 2014).

- (33) a. They want to hire someone who speaks a Balkan language, but I don't remember
 [CP which [TP Δ]].
- b. *They want to hire someone who speaks a Balkan language, but I don't remember
 [CP which (Balkan language)_i [TP they want to hire [someone [relative clause who speaks
 ___i]]]].

(Merchant 2001:114)

(33a) is a sluicing case where the *wh*-phrase *which* occupies [Spec, CP], the TP complement domain being elided. (33b) is a non-sluiced counterpart of (33a). Crucially, (33b) is ungrammatical due to a subjacency effect. Chung, Ladusaw, and McCloskey (1995) argue that their LF-copy analysis can capture the contrast in (33a) and (33b) since the sluicing case (33a) does not involve movement. Specifically, (33a) is analyzed as in (34).

- (34) They want to hire someone who speaks a Balkan language, but I don't remember
 [CP which_y [TP they want to hire [someone [relative clause who speaks *y*]]]].
- 
- Merger (Rebinding)

Here, the *wh*-remnant *which* is base-generated in [Spec, CP] in overt syntax. In covert syntax/LF, the antecedent TP is copied. Then, Merger applies, as a result of which the *wh*-phrase in question and the variable within the copied TP (recall that Chung, Ladusaw, and McCloskey assume that indefinites (here, *a Balkan language*) are interpreted as variables, following Heim (1982)) form a chain, yielding the appropriate configuration. This derivation does not involve any movement, which accounts for the absence of the island effect in (33a). In other words, the chain-formation process is implemented by 'binding' not movement so an island can intervene between a base-generated element and its corresponding variable.

Now let us turn to the argument ellipsis case again. Given the above discussion, it is expected

that if LF-copying involved in argument ellipsis can make use of the combination of base-generation and Merger, an island should be able to intervene between a ‘moved’ element and a variable inside of argument ellipsis sites.

We can test this prediction by using null operator movement out of argument ellipsis sites.¹⁷

Let us first consider the following examples.

- (35) a. Ooku-no hito-ga orokanimo [_{CP} Hanako-ga tensai da to]
 many-GEN person-NOM stupidly Hanako-NOM genius COP.PRES C
 shutyoosi-ta.
 claim-PST
 ‘Many people stupidly claimed [_{CP} that Hanako is genius].’
- b. Dakara, boku-wa [[_{relative clause} [_{CP} △] shutyoo-sita] hito]-ni
 therefore I-TOP claim-PST person-DAT
 tyuui-o yobikake-te-iru.
 caution-ACC call-PROG-PRES
 (Lit.) ‘Therefore, I give a warning to [the people [_{relative clause} who claimed [_{CP} △]]].’

With (35a) as its antecedent, (35b), where the null CP inside of a relative clause is anaphoric on the embedded CP in (35a), is grammatical. This shows that a CP which is not embedded within a relative clause can serve as an antecedent for a null CP which is embedded inside of a relative clause. Keeping this in mind, consider the following comparative deletion examples.

¹⁷ We can test the above prediction only by using covert movement since overt movement is never possible out of argument ellipsis sites, as discussed in chapter 3 and 4.

- (36) a. [[Op_x Kanako-ga [CP Taro-ga ____x yon-da to] shutyoosi-ta] yori(mo)]
 Kanako-NOM Taro-NOM read-PST C claim-PST than
 Hanako-wa ronbun-o takusan yon-de-ita.
 Hanako-TOP paper-ACC many read-PROG-PST
 (Lit.) ‘Hanako read more books [than [Op_x Kanako claimed [CP that Taro read ____x]]].’
- b. *Sarani, [[Op_y Ayaka-ga [[relative clause [CP Taro-ga ____y yon-da to] shutyoosi-ta] hito]-o hihansi-ta] yori(mo)] Hanako-wa ronbun-o claim-PST person-ACC criticize-PST than Hanako-TOP paper-ACC takusan yon-de-ita.
 many read-PROG-PST
 (Lit.) ‘Hanako read more books [than [Op_y Ayaka criticized [the person [relative clause who claimed [CP that Taro read ____y]]]]].’
- b’. *Sarani, [[Op_y Ayaka-ga [[relative clause [CP Δ] shutyoosi-ta] hito]-o hihansi-ta] yori(mo)] Hanako-wa ronbun-o takusan yon-de-ita.
 criticize-PST than Hanako-TOP paper-ACC many read-PROG-PST
 (Lit.) ‘Hanako read more books [than [Op₂ Ayaka criticized [the person [relative clause who claimed [CP Δ]]]]].’

In (36a), comparative operator is extracted out of the embedded CP within the *than* clause. With (36a) as its antecedent, (36b), which involves movement of comparative operator out of the relative clause island, is ungrammatical. Crucial for the current discussion is the ungrammaticality of (36b’), which involves ‘extraction’ of comparative operator out of the null CP anaphoric on the embedded CP within the *than* clause in the antecedent sentence (36a). Under the base-generation + Merger-based LF-copy analysis, the ungrammaticality of (36b’) is problematic because in covert

syntax/LF, the *than* clause in (36b') should be able to involve the following derivations.¹⁸

- (37) a. Overt Syntax
 ... [than [Op_y Ayaka criticized [the person [who claimed [CP *e*]]]]]
- b. Covert Syntax/LF ①: LF-copying
 ... [than [Op_y Ayaka criticized [the person [who claimed [CP that Taro read ____x]]]]]
- c. Covert Syntax/LF ②: Merger
 ... [than [Op_y Ayaka criticized [the person [who claimed [CP that Taro read ____y]]]]]
-

In overt syntax (37a), the comparative operator is base-generated outside of the null CP. In covert syntax/LF, the antecedent CP including the variable *x* is first copied onto the null CP, and then the base-generated comparative operator and the variable in question form a chain via Merger/rebinding. Although there is a relative clause island boundary between them, the configuration should be well-formed given that binding does not respect islands. Therefore, if LF-copying involved in argument ellipsis can involve base-generation and Merger, (36b') would be incorrectly ruled in: the relevant LF-copy analysis of argument ellipsis under consideration faces an overgeneration issue regarding cases like (36b').

By contrast, if LF-copying involved in argument ellipsis does not involve the combination of base-generation and Merger but covert movement, which takes place after LF-copying, as has been argued for in the preceding sections, the ungrammaticality of (36b') can be captured, as in (38).

¹⁸ Given that null operator movement is an instance of movement in covert syntax/LF, the derivation here presupposes that null operator movement had taken place before LF-copying applied in the antecedent sentence. As mentioned in footnote 4, the relevant LF-operations can be taken to be freely ordered, so the derivational steps here which would incorrectly rule in (36b') should in principle be allowed under the LF-copy analysis of ellipsis.

- (38) a. Overt Syntax
 ... [than [Ayaka criticized [the person [who claimed [_{CP} e]]]]]
- b. Covert Syntax/LF ①: LF-copying
 ... [than [Ayaka criticized [the person [who claimed [_{CP} that Taro read Op]]]]]
- c. Covert Syntax/LF ②: Covert Op-movement
 ... [than [_{Op}₂ Ayaka criticized [the person [who claimed [_{CP} that Taro read ___₂]]]]]
- 

In covert syntax/LF, the antecedent CP, including comparative operator, is copied, as in (38b). Then, comparative operator within the copied CP undergoes covert movement to the relevant [Spec, CP] as in (38c). Crucially, this movement crosses the relative clause island boundary. Therefore, the ungrammaticality of (36b') straightforwardly follows under the current LF-copy analysis of argument ellipsis, which in turn supports the idea that covert movement takes place after LF-copying.

The above discussion can also be 'replicated' for the other argument ellipsis languages discussed in this thesis. Consider the following examples.¹⁹

- (39) Korean
- a. Manhun salam-i papokathi [_{CP} Mia-ka chen kayla-ko]
 many person-NOM stupidly Mia-NOM genius-C
 cwucangha-n-ta.
 claim-PRES-DECL
 'Many people stupidly claim [_{CP} that Mia is a genius].'

¹⁹ My consultants for Turkish and Chinese prefer to have an overt proform in the null CP site in the (b') examples of (41) and (42). In fact, it is better to have an overt proform *soo* 'so' in the Japanese case (35b) as well. It is not clear what extent Japanese and Turkish/Chinese differ regarding the acceptability of the relevant (b') examples, but what is important for the current discussion is that my Turkish and Chinese consultants do not see any amelioration effect in (45b') and (46b').

- b. Kulemuro, cho-nun [[relative clause [CP Δ] cwucangha-n] salem]-ekey
 therefore I-TOP claim-REL person-DAT
 cwuuy-lul cwu-ta.
 warning-ACC give-DECL
 (Lit.) ‘Therefore, I give a warning to [the people [relative clause who claimed [CP Δ]].’

(40) Mongolian

- a. Olangqi kümüs teneg-iyer [CP Ulayan- \emptyset qurča bai-na gejü]
 many people stupidly Ulagan-NOM genius COP-PRES C
 medere-ju bai-na.
 claim-CVS COP-PRES
 ‘Many people stupidly claim [CP that Ulagan is a genius].’
- b. Teimü bolqor, bi- \emptyset [[relative clause [CP Δ] medere-ju bai-ya]
 therefore I-NOM claim-CVS COP-PRES.ADN
 kümüs]-eče kičiye-jü bai-na.
 people-from warn-CVS COP-PRES
 (Lit.) ‘Therefore, I pay attention to [the people [relative clause who claimed [CP Δ]].’

(41) Turkish

- a. Bi-çok kişi- \emptyset aptalca [CP Ahmet-in bi dahi oldu-ğu-n]-u
 one-many person-NOM stupidly Ahmet-GEN one genius be-NML.3SG-ACC
 iddia etti.
 claim do.PST.3SG
 ‘Many people stupidly claimed [CP Ahmet is a genius].’
- b. Bu yüzden *pro* [[relative clause [CP Ahmet-in bi dahi oldu-ğu-n]-u
 therefore I Ahmet-GEN one genius be-NML.3SG-ACC
 iddia ed-en] kişi-ler]-i uyar-dı-m.
 claim do-REL person-PL-ACC warn-PST-1SG
 (Lit.) ‘Therefore, I give a warning to [the people [relative clause who claimed [CP Ahmet
 is a genius]]].’

b'??Bu yüzden *pro* [[relative clause [CP Δ] iddia ed-en] kişi-ler]-i
 therefore I claim do-REL person-PL-ACC
 uyar-dı-m.
 warn-PST-1SG
 (Lit.) ‘Therefore, I give a warning to [the people [relative clause who claimed [CP Δ]]].’

(42) Chinese

- a. Xuduo ren dou yuchunde juede [CP Mali shi ge tiancai].
 many people DOU stupidly feel Mali COP CL genius.
 ‘Many people stupidly feel [CP Mali is a genius].’
- b. Suoyi, wo jinggao [naxie [relative clause juede [CP Mali shi ge tiancai] de]
 therefore I warn those feel Mali COP CL genius DE
 ren].
 people
 ‘Therefore I warn [those [relative clause who feel [CP Mali is genius]]].’
- b'??Suoyi, wo jinggao [naxie [relative clause juede [CP Δ] de] ren].
 therefore I warn those feel DE people.
 (Lit.) ‘Therefore I warn [those [relative clause who feel [CP Δ]]].’

The above data indicate that an embedded CP that is not inside of a relative clause can be an antecedent for a null CP that is located within a relative clause in the relevant languages, just as in Japanese. For example, with (39a) as its antecedent, the Korean example (39b) can mean that I give a warning to the people who claimed that Mia is a genius. Given this, the following examples demonstrate that there cannot be an intervening island boundary between a ‘moved’ null operator and its ‘trace’ within the copied elements (I use comparative deletion for Korean, Mongolian, and Turkish, and relative clauses for Chinese for purposes of exposition).

(43) Korean

- a. [[Op₁ Yenghui-ka [CP Mia-ka ___₁ pel-ess-ko] cwucangha-ess-ten]
Yenghui-NOM Mia-NOM earn-PST-C claim-PST-TEN
kes-pota] John-un manhun ton-ul pel-ess-ta.
KES-than John-TOP much money-ACC earn-PST-DECL
(Lit.) ‘John earned more money [than [Op₁ Yenghui claimed [CP that Mia earned ___₁]]].’
- b. *Tougi, [[Op₂ Chelswu-ka [[relative clause [CP Mia-ka ___₂ pel-ess-ko]
furthermore Chelswu-NOM Mia-NOM earn-PST-C
cwucangha-n] salam]-ul piphanha-yesse-n] kes-pota] John-un ton-ul
claim-REL person-ACC criticize-PST-REL KES-than John-TOP money-ACC
manhun pel-ess-ta.
much earn-PST-DECL
(Lit.) ‘John earned more money [than [Op₂ Chelswu criticized [the person [relative clause
who claimed [CP that Mia earned ___₂]]]]].’
- b’.*Tougi, [[Op₂ Chelswu-ka [[relative clause [CP △] cwucangha-n] salam]-ul
furthermore Chelswu-NOM claim-REL person-ACC
piphanha-yesse-n] kes-pota] John-un ton-ul manhun pel-ess-ta.
criticize-PST-REL KES-than John-TOP money-ACC much earn-PST-DECL
(Lit.) ‘John earned more money [than [Op₂ Chelswu criticized [the person [relative clause
who claimed [CP △]]]]].’

(44) Mongolian

- a. John-Ø [Op₁ Ulayan-Ø [CP Bayatur-Ø ___₁ ungsi-γsan gejü]
John-NOM Ulagan-NOM Bagatur-NOM read-PST.ADN C
bodu-γsan-eče] olan nom-Ø ungsi-jai.
think-PST.ADN-than many book-ACC read-PST.CON
(Lit.) ‘John read more books [than Op₁ Ulagan thought [CP that Bagatur read ___₁]].’

- b. *Bill-Ø bol [Op₂ [[relative clause [CP Bayatur-Ø ___₂ ungsi-γsan geγü]
 Bill-NOM TOP Bagatur-NOM read-PST.ADN C
 medere-ju bai-γa] kümün]-i Ulagan-Ø sigümjile-gsen-eçe]
 claim-CVS COP-PRES.ADN person-ACC Ulagan-NOM criticize-PST.ADN-than
 olan nom-Ø ungsi-jai.
 many book-ACC read-PST.CON
 (Lit.) ‘Bill read more books [than Op₂ Ulagan criticized [the person [relative clause who
 claimed [CP that Bagatur read ___₂]]].’
- b’. *Bill-Ø bol [Op₂ [[relative clause [CP Δ] medere-ju bai-γa] kümün]-i
 Bill-NOM TOP claim-CVS COP-PRES.ADN person-ACC
 Ulagan-Ø sigümjile-gsen-eçe] olan nom-Ø ungsi-jai.
 Ulagan-NOM criticize-PST.ADN-than many book-ACC read-PST.CON
 (Lit.) ‘Bill read more books [than Op₂ Ulagan criticized [the person [relative clause who
 claimed [CP Δ]]].’

(45) Turkish

- a. Can-Ø [Op₁ Ali-nin [CP Mete-nin ___₁ oku-duğ-un]-u
 Can-NOM Ali-GEN Mete-GEN read-NML-POSS.3SG-ACC
 san-dığ-in-dan] daha-çok kitap-Ø oku-yor.
 think-NML-POSS.3SG-ABL more book-ACC read-PROG.PRES.3SG
 (Lit.) ‘Can reads more books [than Op₁ Ali thinks [CP that Mete read ___₁]].’
- b. *Hasan-Ø da [Op₂ Ahmet-in [[relative clause [CP Mete-nin ___₁
 Hasan-NOM TOP Ahmet-GEN Mete-GEN
 oku-duğ-un]-u iddia ed-en] kişi]-yi eleştir-diğ-in-den]
 read-NML-POSS.3SG-ACC claim do-REL person-ACC criticize-NML-3SG-ABL
 daha-çok kitap-Ø oku-yor.
 more book-ACC read-PROG.PRES.3SG
 (Lit.) ‘Hasan reads more books [than Op₂ Ahmet criticized [the person [relative clause
 who claimed [CP that Mete read ___₂]]].’

b'. *Hasan-Ø da [Op₂ Ahmet-in [[relative clause [CP Δ] iddia ed-en]
 Hasan-NOM TOP Ahmet-GEN claim do-REL
 kişi]-yi eleştir-diğ-in-den] daha-çok kitap-Ø oku-yor.
 person-ACC criticize-NML-3SG-ABL more book-ACC read-PROG.PRES.3SG
 (Lit.) 'Hasan read more books [than Op₂ Ahmet criticized [the person [relative clause
 who claimed [CP Δ]]]].'

(46) Chinese

a. [[Op₁ Lisi juede [CP nimen dou xihuan ___1] de] ren] lai-le.
 Lisi feel you all like DE people come-ASP
 (Lit.) 'The people [Op₁ Lisi feels [CP you all like ___1]] came.'

b. *Dan, [[Op₂ Zhangsan piping-guo [[relative clause juede [CP nimen dou
 but Zhangsan criticize-ASP feel you all
 xihuan ___2] de] ren] de] laoshi] mei lai.
 like DE people DE teacher NEG come
 (Lit.) 'But, [the teacher [Op₂ that Zhangsan criticized [the person [relative clause who
 feel [CP you all will like ___2]]]] did not come.'

b'. *Dan, [[Op₂ Zhangsan piping-guo [[relative clause juede [CP Δ]
 but Zhangsan criticize-ASP feel
 de] ren] de] laoshi] mei lai.
 DE people DE teacher NEG come
 (Lit.) 'But, [the teacher [Op₂ that Zhangsan criticized [the person [relative clause who
 feel [CP Δ]]]] did not come.'

In the (a) sentences, null operator is extracted out of the embedded CPs. With the (a) sentences as their antecedents, the (b) sentences that involve null operator movement out of the relative clauses are ungrammatical due to a violation of subjacency, and the (b') sentences where a relative clause island boundary intervenes between the relevant operators and the null CPs that include the relevant variables are still unacceptable. Therefore, the ungrammaticality of the (b') examples in

(43)–(46) provides us with cross-linguistic evidence that LF-copying involved in argument ellipsis does not involve the base-generation + Merger combination, also supporting the idea that covert movement takes place out of copied elements in covert syntax/LF.

In contrast to Chung, Ladusaw, and McCloskey’s (1995) analysis of LF-copying, the LF-copy analysis of argument ellipsis defended in this thesis can correctly capture the facts regarding extraction possibilities out of argument ellipsis sites without facing any overgeneration issues with respect to island effects, and it does not need any of rebinding and chain formation via Merger, possibly making these mechanisms dispensable.

5.3.2.3 Argument Ellipsis and Absence of Island-repair

Above, I have argued against applying Chung, Ladusaw, and McCloskey’s (1995) LF-copy analysis of ellipsis to argument ellipsis, also supporting the claim that covert movement takes place after LF-copying. This has consequences for the absence of island-repair effects with argument ellipsis. Inoue (1976) and Takahashi (1993, 1994) note that a phenomenon similar to English sluicing is observed in Japanese, as in (47).

- (47) a. Mary-ga nani-ka-o kat-ta rasii-ga,
 Mary-NOM what-KA_∃-ACC buy-PST likely-but
 ‘Although it is likely that Mary bought something, ...’
- b. Boku-wa [_{CP} Mary-ga nani-o kat-ta ka] wakara-na-i.
 I-TOP Mary-NOM what-ACC buy-PST Q know-NEG-PRES
 (Lit.) ‘I don’t know [_{CP} Q Mary bought what].’

- b'. Boku-wa [CP nani-o ka] wakara-na-i.
 I-TOP what-ACC Q know-NEG-PRES
 (Lit.) 'I don't know [CP Q what].'

(Takahashi 1994:266)

(47b') contains an incomplete embedded clause which consists of a remnant *wh*-phrase and a Q-particle, but we can interpret (47b') in the same way as (47b), which contains a full indirect question. Takahashi (1993, 1994) treats (47b') as an instance of genuine sluicing, analyzing it as involving (47b) as its underlying source, with syntactic *wh*-movement followed by TP-deletion, as illustrated in (48).

- (48) Boku-wa [CP nani₁-o [~~TP Mary-ga _____ tabe-ta~~] ka] wakara-na-i.
 I-TOP what-ACC Mary-NOM eat-PST Q know-NEG-PRES
 'I don't know [CP what₁ [~~TP Mary ate _____~~]].'

However, there are two problems that have been reported for the sluicing analysis in (48): the optional presence of the copula *da* and the possibility of non-*wh*-remnants.

First, as Takahashi (1994) himself notes, the copula *da* can optionally appear in the Japanese sluicing-like construction, as shown in (49).

- (49) a. Mary-ga nani-ka-o kat-ta rasii-ga,
 Mary-NOM what-KA₃-ACC buy-PST likely-but
 'Although it is likely that Mary bought something, ...'
- b. Boku-wa [CP nani-o (da) ka] wakara-na-i.
 I-TOP what-ACC COP.PRES Q know-NEG-PRES
 (Lit.) 'I don't know [CP Q what].'

However, the underlying source of the Japanese sluicing-like construction under the sluicing analysis, cf. (48), cannot accommodate the copula in question, as the following example shows.

- (50) Boku-wa [_{CP} nani₁-o [_{TP} Mary-ga ___₁ tabe-ta] (*da) ka] wakara-na-i.
 I-TOP what-ACC Mary-NOM eat-PST COP.PRES Q know-NEG-PRES
 ‘I don’t know [_{CP} what₁ [_{TP} Mary ate ___₁]].’

Therefore, the sluicing analysis cannot account for the fact that the copula *da* can optionally appear in Japanese sluicing-like constructions, as in (49b).

Second, the sluicing-like construction in Japanese can involve non-*wh*-remnants, as the following examples demonstrate (cf. Nishiyama, Whitman, and Yi 1996).

- (51) a. Mary-ga dare-ka-ni at-ta rasii-kedo,
 Mary-NOM who-KA₃-DAT meet-PST likely-but
 ‘Although it is likely that Mary met someone, ...’
 b. Boku-wa [_{CP} John-ni (da) kadooka] wakara-na-i.
 I-TOP John-DAT COP.PRES Q know-NEG-PRES
 ‘I don’t know [_{CP} whether it was John].’

(51b), where the remnant is a non-*wh*-phrase *John*, can be interpreted as “I don’t know whether Mary met John”. Given that sluicing presupposes *wh*-movement (cf. Ross 1969, Lobeck 1990, 1995), the fact that Japanese sluicing-like constructions can accommodate non-*wh*-remnants raises an issue for the sluicing analysis.

Based on the above problems for the sluicing analysis, it is now widely assumed that sentences like (47b’) involve a different structure from sluicing (see Shimoyama 1995, Nishiyama, Whitman, and Yi 1996, Kuwabara 1996, 1997, Kizu 1997, 2005, Merchant 1998, 2001, Fukaya

and Hoji 1999, Fukaya 2003, Saito 2004a, Nakao and Yoshida 2005, Hasegawa 2006, 2008, Sugawa 2008, Takita 2010, Hiraiwa and Ishihara 2012, among many others). More precisely, sluicing-like constructions in Japanese are assumed to be derived from cleft sentences by ‘omitting’ a presupposed CP and a copula. For example, (47b’) is derived with the following cleft structure as its underlying source.

- (52) Boku-wa [CP ([CP Op₁ [TP Mary-ga ___₁ kat-ta] no]-ga) nani-o (da)
 I-TOP Mary-NOM buy-PST C-NOM what-ACC COP.PRES
 ka] wakara-na-i.
 Q know-NEG-PRES
 (Lit.) ‘I don’t know [CP what it is [CP Op₁ that [TP Mary bought ___₁]]].’

The cleft analysis can straightforwardly capture the optional presence of the copula *da* in (49b) because the copula in question is in fact optional, as we can see in (52). The possibility of non-*wh*-remnants in (51b) can also be captured because the cleft source for (51b) is grammatical, as in (53).

- (53) Boku-wa [CP ([CP Op₁ [TP Mary-ga ___₁ at-ta] no]-ga) John-ni (da)
 I-TOP Mary-NOM meet-PST C-NOM John-DAT COP.PRES
 kadooka] wakara-na-i.
 whether know-NEG-PRES
 ‘I don’t know whether it was John’

Here, the non-*wh*-phrase *John* occupies the pivot of the embedded cleft clause. Therefore, the cleft analysis is empirically favored over the sluicing analysis.

There are two approaches that have been proposed to the omission of the presupposed CP, which is needed to derive the surface string of Japanese sluicing-like constructions: replacing the presupposed CP with an empty pronoun (cf. Nishiyama, Whitman, and Yi 1996) or eliding the

relevant CP via argument ellipsis (cf. Saito 2004a, Sugawa 2008, Takita 2010). The empty pronoun approach and the argument ellipsis approach analyze (47b') as in (54a) and (54b), respectively.

- (54) a. Replacement by *pro*
 Boku-wa [_{CP} sore-ga/*pro* nani-o (da) ka] wakara-na-i.
 I-TOP it-NOM what-ACC COP.PRES Q know-NEG-PRES
 'I don't know [_{CP} what it is].'
- b. Argument Ellipsis
 Boku-wa [_{CP} [_{CP} Op_i [_{TP} Mary-ga ~~kat-ta~~ ~~no~~]-ga] nani-o (da)
 I-TOP Mary-NOM buy-PST C-NOM what-ACC COP.PRES
 ka] wakara-na-i.
 Q know-NEG-PRES
 (Lit.) 'I don't know [_{CP} what it is [_{CP} Op_i that [_{TP} Mary bought ~~_____~~]]].'

The option of omitting the presupposed CP via argument ellipsis is motivated by the fact that Japanese sluicing-like constructions can yield the sloppy reading. Consider the following example.

- (55) a. John-wa [_{CP} zibun-ga naze sikar-are-ta ka] wakat-te-na-i-ga,
 John-TOP self-NOM why scold-PASS-PST Q know-PROG-NEG-PRES-but
 (Lit.) 'Although John does not know [_{CP} Q self was scolded why], ...'
- b. Mary-wa [_{CP} naze ka] wakat-te-iru.
 Mary-TOP why Q know-PROG-PRES
 (Lit.) 'Mary knows [_{CP} Q why].' strict; sloppy
- (Takahashi 1994:268)

With (55a) as its antecedent, (55b) is ambiguous in that it can mean either that Mary knows why John was scolded (strict) or that Mary knows why she was scolded (sloppy). Importantly, the cleft base for (55b) with the overt pronoun *sore* 'it' cannot yield the sloppy reading, as in (56).

(56) [With (55a) as its antecedent]

..., Mary-wa [CP sore-ga naze (da) ka] wakat-te-iru.
 Mary-TOP it-NOM why COP.PRES Q know-PROG-PRES

(Lit.) ‘Mary knows [CP Q why it is].’

strict;*sloppy

(cf. Takahashi 1994:272)

In light of the above discussion, the possibility of the sloppy reading in (55b) indicates that it involves ellipsis, not *pro*. (55b) can then be analyzed as involving argument ellipsis of the presupposed CP, as illustrated in (57).

(57) [With (55a) as its antecedent]

..., Mary-wa [CP [~~CP-Op_i [TP zibun-ga —_i sikar-are-ta]—no]~~-ga naze (da)
 Mary-TOP self-NOM scold-PASS-PST C-NOM why COP.PRES

ka] wakat-te-iru.

Q know-PROG-PRES

(Lit.) ‘Mary knows [CP Q why it is [~~CP-Op_i that [TP self was scolded —_i]]].’~~

Here, the presupposed CP containing a *self* anaphor is elided via argument ellipsis, so the availability of the sloppy reading follows.

Interestingly, Saito (2004a) observes that argument ellipsis involved in Japanese sluicing-like constructions does not ameliorate subjacency effects on the basis of the following example.

(58) a. [DP [_{relative clause} Dare-ka-ga dare-ka-ni kai-ta] tegami]-ga mitukat-ta
 who-KA_∅-NOM who-KA_∅-to buy-PST letter-NOM be.found-PST
 sooda.

I.heard

‘I heard that they found a letter that someone wrote to someone.’

- b. #Demo, boku-wa [CP (sore-ga) Tanaka san-ga Nakasone san-ni
 but I-TOP it-NOM Tanaka Mr./Ms.-NOM Nakasone Mr./Ms.-to
 kadooka] sira-na-i.
 whether know-NEG-PRES
 (Lit.) ‘But, I don’t know [CP whether it was Mr./Ms. Tanaka to Mr./Ms. Nakasone].’
 (Saito 2004a:47)

With (58a) as its antecedent, (58b) is incompatible with a pronominal subject. This leaves us with the argument ellipsis option, cf. (54b). (58b) is structurally represented under the argument ellipsis analysis as in (59).

- (59) Demo, boku-wa [CP [~~Op₁~~ Op₂ [_{TP} [_{DP} [_{relative clause} —₁ —₂ kai ta] ~~tegami~~]-ga
 but I-TOP buy-PST letter-NOM
 mitukat ta] ~~no~~]-ga Tanaka san-ga Nakasone san-ni kadooka]
 be.found-PST that-NOM Tanaka Mr./Ms.-NOM Nakasone Mr./Ms.-to whether
 sira-na-i.
 know-NEG-PRES
 (Lit.) ‘But, I don’t know [CP whether it was Mr./Ms. Tanaka₁ to Mr./Ms. Nakasone₂ [_{CP}
 that [_{TP} [_{DP} the letter [_{relative clause} that —₁ wrote —₂]] was found]]].’

Here, the moved operators and the relative clause island are all included within the argument ellipsis domain. The unacceptability of (58b) then indicates that argument ellipsis does not exhibit island-repair effects, unlike sluicing, cf. (33). The absence of island-repair effects with argument ellipsis is far from clear if argument ellipsis involves PF-deletion because PF-deletion is generally claimed to rescue subjacency violations through the well-known *-marking mechanism (cf.

Chomsky 1972, Lasnik 2001, Merchant 2001, 2008, Bošković 2011b, among many others).²⁰ Furthermore, the base-generation + Merger LF-copy analysis would not account for the ungrammaticality of (58b): the null operators would be base-generated outside of the relative clause, and Merger would have the operators in question and the variable within the relative clause form a chain without movement. On the other hand, under the LF-copy analysis of argument ellipsis developed in this thesis, the ungrammaticality of (58b) can be straightforwardly captured: the analysis in question provides the presupposed CP of (58b) with the following derivation.

- (60) a. Overt Syntax
 ... (whether it was Mr./Ms. Tanaka₁ to Mr./Ms. Nakasone₂) [CP *e*]
- b. Covert Syntax/LF ❶: LF-copying
 ... [CP that [TP [DP the letter [relative clause that Op₁ wrote Op₂]] was found]]
- c. Covert Syntax/LF ❷: Covert Op-movement
 ... [CP Op₁ Op₂ that [TP [DP the letter [relative clause that ___₁ wrote ___₂]] was found]]
-

In overt syntax, the presupposed CP is not present, as in (60a). In covert syntax/LF, the CP in question is copied, and then the null operators undergo covert movement out of the relative clause island, causing a subjacency violation.²¹ The fact that argument ellipsis does not exhibit island-repair effects thus provides us with further evidence that argument ellipsis involves LF-copying, not PF-deletion, and also that it does not involve base-generation + Merger.

²⁰ Putting aside the technical details, the *-marking-based rescue-by-PF-deletion analysis of the amelioration effect should work in cases like (59) (if such cases were to be treated in terms of PF-deletion), where both the moved element, i.e. null operator, and the island are included within the ellipsis domain.

²¹ See Saito (2004a) for the claim that indefinites can be turned into null operators via a process inspired by Fiengo and May's (1994) vehicle change.

5.3.3 PF-deletion versus LF-copying Revisited: A View from Phases

There has been a great deal of debate in the literature regarding whether ellipsis should be treated in terms of PF-deletion or LF-copying. Observing that the dichotomy between PF-deletion and LF-copying concerns the presence/absence of internal structure in overt syntax, I have argued that argument ellipsis should be implemented by LF-copying rather than PF-deletion since null arguments in Chinese, Japanese, Korean, Mongolian, and Turkish 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, as has already been noted in the previous discussion. For example, consider the following examples.

- (61) a. John met someone, but I don't know [_{CP} who₁ [_{TP} ~~he met~~]].
b. I know which book₁ Mary [_{VP} [_{VP} read]], and which book₂ Bill didn't [_{VP} [_{VP} ~~read~~]].

(61a) is a sluicing construction, and (61b) is a VP-ellipsis construction. Importantly, these cases involve overt extraction out of the ellipsis domain. Given that these cases involve overt extraction out of the ellipsis domain, the reasoning employed above leads us to the conclusion that the above constructions involve PF-deletion: since sluicing in (61a) and VP-ellipsis in (61b) involve internal structure in overt syntax, overt extraction out of the relevant domains is possible. This conclusion, taken together with the preceding discussion, which focused on extraction possibilities out of argument ellipsis sites, then leads us to the further conclusion that both PF-deletion and LF-copying are available as strategies for deriving ellipsis.

A question then arises whether we can predict for any particular instance of ellipsis whether it involves PF-deletion or LF-copying. I suggest that we can. What is shared by (61a) and (61b) is

that they are instances of phasal complement ellipsis, not phasal ellipsis. Consider in this respect sluicing, which involves ellipsis of the TP complement of C, and argument ellipsis, which involves ellipsis of the entire DP/CP. Interestingly, Bošković (2014) argues that ellipsis is phase-constrained and that both phases and phasal complements can undergo ellipsis. In fact, sluicing and argument ellipsis are two of the cases Bošković considers in this respect. Bošković proposes that the difference between argument ellipsis and sluicing is the phasal status of the ellipsis domain. Specifically, sluicing is an instance of phasal complement ellipsis: CP is a phase and the sluicing site, TP, is a phasal complement (note also that VP-ellipsis involves ellipsis of the complement domain of the *v*P phase). By contrast, argument ellipsis is an instance of phasal ellipsis given that DPs as well as CPs are phases (cf. Bošković 2014).²² All things being considered, the following generalization can be deduced regarding ellipsis.

- (62) Phasal ellipsis is implemented by LF-copying, while phasal complement ellipsis is implemented by PF-deletion.

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

²² Bošković (2014, 2015) actually argues that highest clausal projection is a phase (if the highest clausal projection is a TP, then TP is a phase for Bošković). Regarding nominal arguments, Bošković argues that Japanese lacks DP but that the highest projection in the nominal domain, which is KP in the case of Japanese for Bošković, is a phase. I ignore this point here, simply assuming DP for Japanese. However, see chapter 6 for relevant discussion.

operations like LF-copying (where considerations of spell-out do not apply).²³ Therefore, the implementation of argument ellipsis via LF-copying is not only supported by the empirical data discussed in the preceding sections, where null arguments in the relevant languages only allow covert extraction out of them, but also quite naturally follows from the phase-based theory of ellipsis.

5.4 Consequences for Other Syntactic Phenomena

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

5.4.1 Case-marked Cleft

I will first discuss the consequence of the current analysis of Japanese null arguments regarding cleft constructions (cf. Hoji 1987, 1990, Kuroda 1992, 1999a, b, Koizumi 1995, Kuwabara 1996, 2000, Matsuda 1997, Takano 2002, Hiraiwa and Ishihara 2002, Kizu 2005, Cho, Whitman, and Yanagida 2008, Miura 2011, among many others), in particular Case-Marked Clefts (CMCs), where a focused element is followed by a case particle. (63) exemplifies a typical case of the construction in question.

²³ As noted in Bošković (2016a), a great deal of effort has gone into coming up with a proper unified definition of what counts as a phase; by contrast, there has been nothing like that for phasal complements. The reason is simple: only phases have a theoretical status.

- (63) [Taroo-ga e_i kai-ta no]-wa kono ronbun _{i} -o da.
 Taro-NOM write-PST C-TOP this paper-ACC COP.PRES
 (Lit.) ‘It is this paper _{i} [that Taro wrote e_i].’

Here, the presupposed part is headed by the complementizer *no*, and the focused element *kono ronbun-o* ‘this paper’ is followed by the copula *da*. Hoji (1990) proposes that CMCs in Japanese involve null operator movement: (63) is analyzed as in (64), under Hoji’s analysis.²⁴

- (64) [Op_{1/ i} Taroo-ga ____{1/ i} kai-ta-no]-wa kono ronbun _{i} -o da.
 Taro-NOM write-PST-C-TOP this paper-ACC COP.PRES
 ‘It is this paper _{i} [Op_{1/ i} that Taro wrote ____{1/ i}].’

Here, the gap within the presupposed part is treated as a trace of null operator movement, and the relevant chain is co-indexed with the focused element. Hoji bases the postulation of null operator movement on the fact that CMCs exhibit subjacency effects as in (65b), though unbounded dependencies are in principle possible as in (65a).

- (65) a. [John-ga [CP Mary-ga e_i kai-ta to] omot-te-iru no]-wa
 John-NOM Mary-NOM write-PST C think-PROG-PRES C-TOP
 kono ronbun _{i} -o da.
 this paper-ACC COP.PRES
 ‘It is this paper _{i} [that John thinks [CP that Mary wrote e_i]].’

²⁴ Hoji (1990) claims that not only CMCs but also PP clefts such as (i) involve null operator movement.

- (i) [Op_{1/ i} Taroo-ga ____{1/ i} okane-o kari-ta-no]-wa kono ginkoo-kara _{i} da.
 Taro-NOM money-ACC borrow-PST-NML-TOP this bank-from COP.PRES
 ‘It is from this bank _{i} [Op_{1/ i} that Taro borrowed money ____{1/ i}].’

In this thesis, I will only discuss the CMCs for expository purposes. The observations regarding CMCs in the following discussion also hold for PP clefts.

- b. *[John-ga [[relative clause e_i kai-ta] hito]-o sit-te-iru no]-wa
 John-NOM write-PST person-ACC know-PROG-PRES C-TOP
 kono ronbun_{*i*}-o da.
 this paper-ACC COP.PRES
 ‘It is this paper_{*i*} [that John knows [the person [relative clause who wrote e_i]].’

In (65a), the gap is embedded, and the sentence is grammatical. On the other hand, in (65b), the gap is inside of a relative clause, and the sentence is unacceptable. If null operator movement is involved in CMCs, the ungrammaticality of (65b) follows since the movement in question crosses the relative clause island boundary. Therefore, the contrast in (65a) and (65b) can be taken to support Hoji’s claim that CMCs in Japanese involve null operator movement.²⁵

However, Hiraiwa and Ishihara (2002, 2012) propose an alternative focus movement analysis of CMCs in Japanese. Specifically, they argue that CMCs involve what is referred to as the *no-da* in-situ focus construction (cf. Kuno 1973, Noda 1997, Tanomura 2002) as their base structure. (66) exemplifies a typical case of the construction in question.

- (66) [Taroo-ga kono ronbun-o kai-ta no] da.
 Taro-NOM this paper-ACC write-PST C COP.PRES
 (Lit.) ‘It was [that Taro wrote this paper].’

The *no-da* in-situ focus construction is generally analyzed as involving a simplex sentence headed by the complementizer *no* followed by the copula *da*. Assuming Rizzi’s (1997) cartographic

²⁵ In contrast to CMCs, non-case-marked cleft sentences in Japanese do not exhibit subjacency effects, as in (i).

- (i) [John-ga [[relative clause e_i kai-ta] hito]-o sit-te-iru no]-wa kono ronbun_{*i*} da.
 John-NOM write-PST person-ACC know-PROG-PRES C-TOP this paper COP.PRES
 (Lit.) ‘It is this paper_{*i*} [that John knows [the person [relative clause who wrote e_i]].’

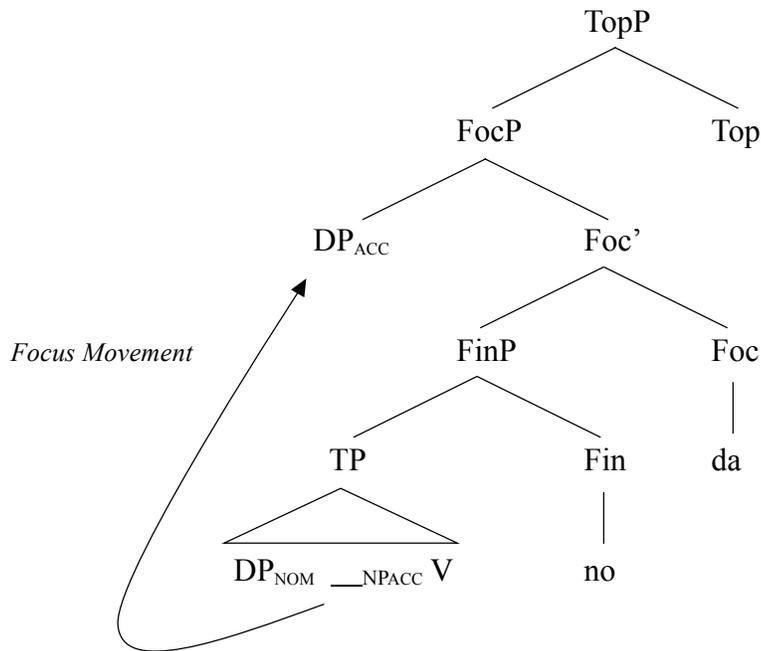
Based on the absence of subjacency effects, Hoji (1987, 1990) concludes that non-case-marked clefts need not involve null operator movement, unlike CMCs.

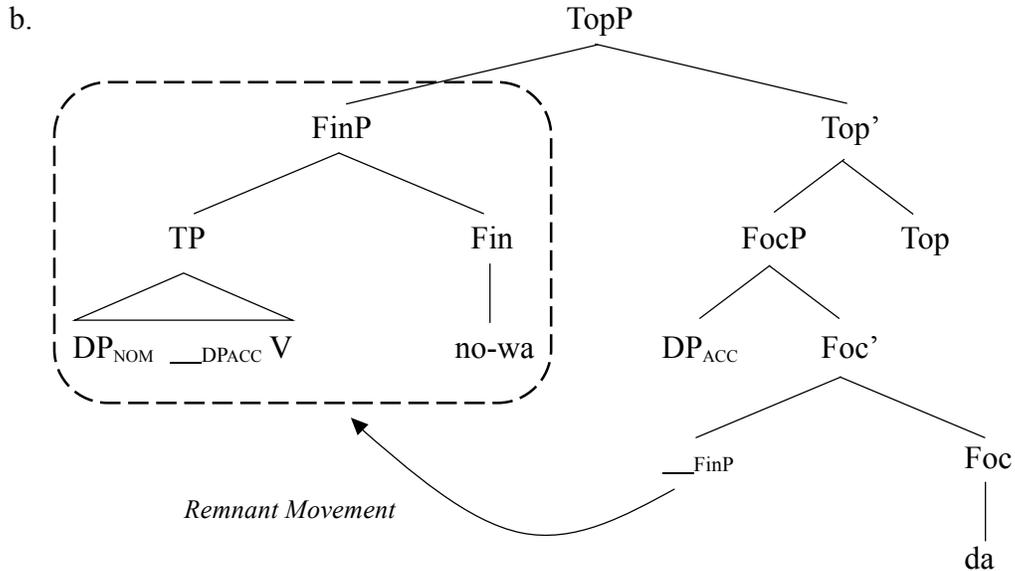
approach to the left periphery, Hiraiwa and Ishihara analyze the *no-da* in-situ focus construction as follows: the complementizer *no* occupies the head of FinP and the copula *da* is the head of FocP, as illustrated in (67).

- (67) [TopP [FocP [FinP [TP Taro-ga kono ronbun-o kai-ta] no] da]].
 Taro-NOM this paper-ACC write-PST C COP.PRES
 (Lit.) ‘It was that Taro wrote this paper.’

Then, Hiraiwa and Ishihara argue that the *no-da* in-situ focus construction underlies CMCs with two particular instances of movement: movement of a focused element to [Spec, FocP] and remnant movement of FinP, which includes the trace of the focused element, to [Spec, TopP]. (68) illustrates the derivation of CMCs under Hiraiwa and Ishihara’s proposal.

(68) a.





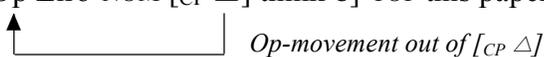
Let us consider the derivations in (68), using the example (67) for illustration. In (68a), *kono ronbun* ‘this paper’ undergoes focus movement to [Spec, FocP]. In (68b), FinP, which contains the trace of focus movement, undergoes remnant movement to [Spec, TopP], yielding the word order in (63). The fact that CMCs exhibit subjacency effects also follows under this analysis because of the movement of the focused phrase. For example, in (65b), *kono ronbun-o* ‘this paper’ undergoes focus movement out of the relative clause island, yielding a violation of subjacency.

Although it has been controversial which analysis should be preferred and not much attention has been paid to teasing apart the two analyses summarized above, the current perspective on Japanese null arguments provides us with a tool to tease apart the null operator movement analysis (64) and the focus movement + remnant movement analysis (68) of CMCs. Importantly, Takahashi (2013b) observes that the gap involved in CMCs can exist inside of null arguments, as in (69b’).

- (69) a. [Taroo-ga [CP Hanako-ga e_i kai-ta to] omot-te-iru no]-wa
 Taro-NOM Hanako-NOM write-PST C think-PROG-PRES C-TOP
 kono ronbun_{*i*}-o da.
 this paper-ACC COP.PRES
 (Lit.) ‘It is this paper_{*i*} [that Taro thinks [CP that Hanako wrote e_i]].’
- b. [Ziroo-ga [CP Hanako-ga e_j kai-ta to] omot-te-iru no]-wa
 Ziro-NOM Hanako-NOM write-PST C think-PROG-PRES C-TOP
 kono ronbun_{*j*}-o da.
 this paper-ACC COP.PRES
 (Lit.) ‘It is this paper_{*j*} [that Ziro thinks [CP that Hanako wrote e_j]].’
- b’. [Ziroo-ga [CP Δ] omot-te-iru no]-wa kono ronbun_{*j*}-o da.
 Ziro-NOM think-PROG-PRES C-TOP this paper-ACC COP.PRES
 (Lit.) ‘It is this paper_{*j*} [that Ziro thinks [CP Δ]].’

With (69a) as its antecedent, (69b’), where the gap in question is embedded within a null argument, is grammatical. Given that Japanese null arguments can involve internal structure only in covert syntax, the grammaticality of (69b’) suggests that movement that creates the gap in CMCs in Japanese is an instance of covert movement, not overt movement. Specifically, (69b’) is analyzed as in (70) and (71) under the null operator movement analysis and the focus movement + remnant movement analysis respectively.

(70) Null Operator Movement

[Op Ziro-NOM [CP Δ] think C]-TOP this paper-ACC COP
 *Op-movement out of [CP Δ]*

(71) Focus Movement + Remnant Movement

a. [TopP [FocP this paper-ACC [FinP [TP Ziro-NOM [CP Δ] think] C] COP]]
 *Focus Movement out of [CP Δ]*

- b. [TopP [FinP [TP Ziro-NOM [CP Δ] think] C-TOP]₁ [FocP this paper-ACC ___₁ COP]]
Remnant Movement of FinP

Under the null operator movement analysis, what is extracted out of the null CP in (69b') is a null operator. As discussed above, silent extraction out of Japanese null arguments, including null operator movement, is possible. This analysis is thus compatible with (69b'). By contrast, under the focus movement + remnant movement analysis, (69b') involves overt extraction, i.e. overt focus movement of *this paper*, out of a null CP. As discussed above, overt extraction out of Japanese null arguments is otherwise impossible, which raises a problem for the focus movement + remnant movement analysis of CMCs. The proposed analysis of Japanese null arguments thus provides us with a tool to tease apart the null operator movement and the focus movement + remnant movement analyses of CMCs in Japanese, favoring the former.

5.4.2 Split QP

Wh-phrases in Japanese such as *dare* 'who' and *nani* 'what' are widely referred to as indeterminate pronouns (cf. Kuroda 1965) because they do not always function as *wh*-words: they are interpreted as quantificational phrases (QPs) when they are associated with quantificational 'particles', as in (72) and (73).²⁶

- | | | | | | | |
|------|----|---------------------|----|-----------------------|----|---------------------|
| (72) | a. | dare-ka | b. | dare-mo | c. | dare-mo |
| | | who-KA _∃ | | who-MO _{ANY} | | who-MO _∀ |
| | | 'someone' | | 'anyone' | | 'everyone' |

²⁶ Interestingly, the sequence *nani-mo* cannot mean 'everything': *nani* and *mo*_∀ cannot be combined. See Hiraiwa (2016) for relevant discussion.

- (73) a. nani-ka b. nani-mo
 what-KA_∃ what-MO_{ANY}
 ‘something’ ‘anything’

One of the distinctive properties of Japanese QPs is that, despite their intimate relation, indeterminate pronouns and quantificational particles associated with them can be split, as noted by Kuroda (1965), Hoji (1985), Nishigauchi (1990), Watanabe (1991), Takahashi (2002), among many others. Consider the following examples.

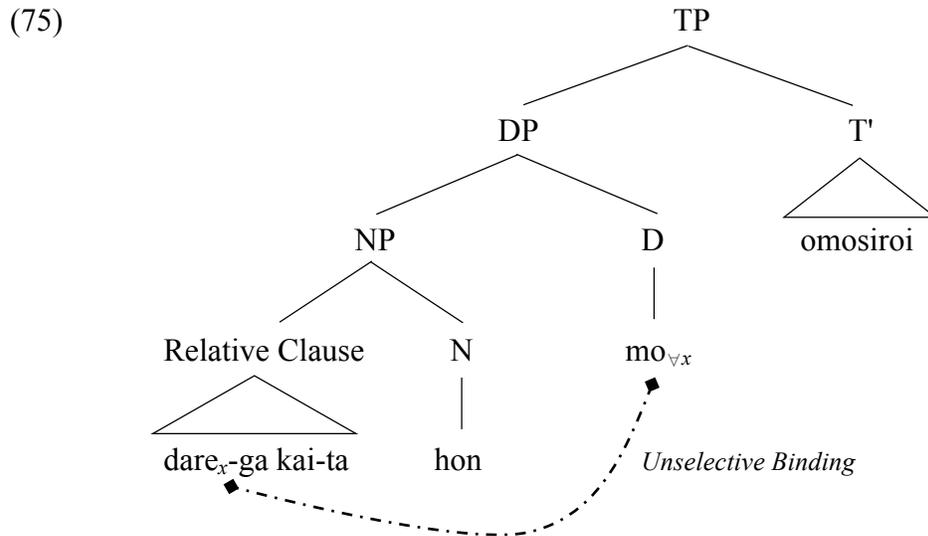
- (74) a. Dare-mo-ga kai-ta hon-ga omosiro-i.
 who-MO_∇-NOM write-PST book-NOM interesting-PRES.
 (Lit.) ‘The book that who-MO_∇ wrote is interesting.’
 ≈ ‘The book that everyone wrote is interesting.’
- b. Dare-ga kai-ta hon-mo omosiro-i.
 who-NOM write-PST book-MO_∇ interesting-PRES.
 (Lit.) ‘The book-MO_∇ that who wrote is interesting.’
 ≈ ‘The book that everyone wrote is interesting.’

(Takahashi 2002:577)

In (74a), the indeterminate pronoun *dare* and the quantificational particle *mo* are adjacent. By contrast, in (74b), they are split: the relevant indeterminate pronoun is located within the relative clause, but the particle associated with it is attached to the head noun of the relativized DP *hon* ‘book’. Following Takahashi (2002), I will refer to cases such as (74b) as the split QP construction in the following discussion.

Nishigauchi (1990) and Watanabe (1991) propose an analysis of the split QP phenomenon in terms of unselective binding (cf. Heim 1982). Under their analysis, indeterminate pronouns are

treated as variables bound by the relevant quantificational ‘particles’.²⁷ Specifically, (74b) is analyzed, as in (75).

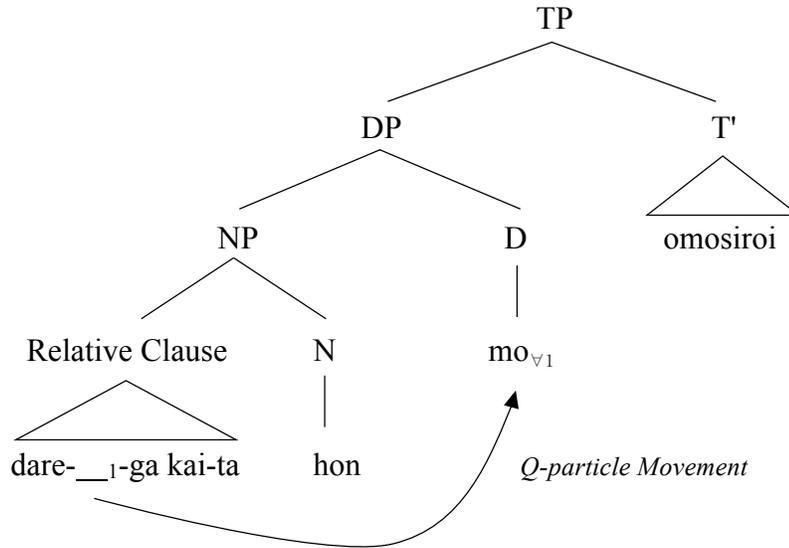


Here, the quantificational ‘particle’ *mo* is base-generated as a D head, and is taken to be associated with the indeterminate pronoun *dare* within the relative clause via unselective binding (to be more precise, the particle in question is also associated with the N head *hon* ‘book’). Because of the relevant binding association, the indeterminate pronoun *dare* receives the universal quantificational force, being interpreted as ‘everyone’.

However, Takahashi (2002) proposes an alternative account for the split QP construction in light of what he dubs determiner raising. Specifically, he analyzes (74b) as follows.

²⁷ Nishigauchi (1990) in fact proposes an additional requirement that indeterminate pronouns must move to a specifier position of the relevant particles in covert syntax/LF. I will continue to refer to Nishigauchi (1990) as an unselective binding analysis because whether indeterminate pronouns undergo covert movement does not affect the following discussion.

(76)



Here, the quantificational ‘particle’ *mo* is base-generated with the indeterminate pronoun *dare*, undergoing overt movement to the D head. Therefore, under Takahashi’s analysis, the non-split QP sentence (74a) and its split QP counterpart (74b) differ only in the presence/absence of overt movement of the relevant quantificational particle to D.

Now let us consider how the split QP phenomenon interacts with the current analysis of Japanese null arguments. What has gone unnoticed in the literature is that non-split QPs can be phonologically dropped, whereas split QPs cannot be, as shown in (77) and (78), respectively.

- (77) a. Taroo-wa [[[DP dare-mo]-ga kaikosa-re-ru toyuu] uwasa]-ga
Taro-TOP who-MO_∀-NOM fire-PASS-PRES that rumor-NOM
hontoo da to] omot-te-iru.
true COP.PRES C think-PROG-PRES
(Lit.) ‘Taro thinks [that [the rumor [that [DP who-MO_∀] will be fired]] is true].’
≈ ‘Taro thinks that the rumor that everyone will be fired is true.’

b. Ziroo-wa [[[[DP dare-mo]-ga shoosinsu-ru toyuu] uwasa]-ga
 Ziro-TOP who-MO_v-NOM promote-PRES that rumor-NOM
 hontoo da to] omot-te-iru.
 true COP.PRES C think-PROG-PRES
 (Lit.) ‘Ziro thinks [that [the rumor [that [DP who-MO_v] will be promoted]] is true].’
 ≈ ‘Ziro thinks that the rumor that everyone will be promoted is true.’

b’. Ziroo-wa [[[[DP Δ] shoosinsu-ru toyuu] uwasa]-ga
 Ziro-TOP promote-PRES that rumor-NOM
 hontoo da to] omot-te-iru.
 true COP.PRES C think-PROG-PRES
 (Lit.) ‘Ziro thinks [that [the rumor [that [DP Δ] will be promoted]] is true].’
 ≈ ‘Ziro thinks that the rumor that everyone will be promoted is true.’

(78) a. Taroo-wa [[[[DP dare]-ga kaikosa-re-ru toyuu] uwasa]-mo
 Taro-TOP who-NOM fire-PASS-PRES that rumor-MO_v
 hontoo da to] omot-te-iru.
 true COP.PRES C think-PROG-PRES
 (Lit.) ‘Taro thinks [that [the rumor-MO_v [that [DP who] will be fired]] is true].’
 ≈ ‘Taro thinks that the rumor that everyone will be fired is true.’

(Takahashi 2002:603)

b. Ziroo-wa [[[[DP dare]-ga shoosinsu-ru toyuu] uwasa]-mo
 Ziro-TOP who-NOM promote-PRES that rumor-MO_v
 hontoo da to] omot-te-iru.
 true COP.PRES C think-PROG-PRES
 (Lit.) ‘Ziro thinks [that [the rumor-MO_v [that [DP who] will be promoted]] is true].’
 ≈ ‘Ziro thinks that the rumor that everyone will be promoted is true.’

b'. *Ziroo-wa [[[[DP Δ] shoosinsu-ru toyuu] uwasa]-mo
 Ziro-TOP promote-PRES that rumor-MO_v
 hontoo da to] omot-te-iru.
 true COP.PRES C think-PROG-PRES
 (Lit.) 'Ziro thinks [that [the rumor-MO_v [that [DP Δ] will be promoted]] is true].'
 ≈ (Int.) 'Ziro thinks that the rumor that everyone will be promoted is true.'

In (77a), the indeterminate pronoun *dare* and the quantificational 'particle' *mo* are adjacent to each other. With (77a) as its antecedent, (77b'), where the non-split QP is phonologically dropped, is grammatical: (77b') receives the same interpretation as (77b). This indicates that the amalgam of the indeterminate pronoun and the quantificational 'particle' can be phonologically null. Important for the current discussion is (78). (78a) is a split QP construction in that the indeterminate pronoun and the quantificational 'particle' are split from each other. With (78a) as its antecedent, (78b) is grammatical, while (78b'), where the indeterminate pronoun is inside of the null argument and the relevant particle is located outside of it, is ungrammatical. Under the current proposal regarding null arguments, where they do not involve any internal structure in overt syntax, the contrast in (77b') and (78b') straightforwardly follows under Takahashi's (2002) determiner raising analysis of the split QP construction. Specifically, the ungrammaticality of (78b') can be explained because the relevant null subject within the relative clause does not involve any internal structure in overt syntax, so the quantificational 'particle' *mo* cannot be extracted out of it. By contrast, under the unselective binding approach to the split QP phenomenon, it is not clear why (78b') is unacceptable. Therefore, the current analysis of null arguments provides us with a tool to tease apart the unselective binding analysis and the determiner raising analysis of the split QP phenomenon in Japanese: the contrast in (77) and (78) argues for the latter.

5.4.3 Control

The current analysis of Japanese-type null arguments also has consequences for control constructions (see also footnote 6 of chapter 3). It has been highly controversial how control constructions should be analyzed. The traditional approach to such constructions claims that the controllee is PRO, a null pronominal element coindexed with its controller (see Landau 2003, Bobaljik and Landau 2009, among others, for recent arguments for the PRO analysis). However, Hornstein (1999, 2001), Boeckx and Hornstein (2003, 2004, 2006), Boeckx, Hornstein, and Nunes (2010), among others, claim that controllees are derived via A-movement. A typical case of the English control construction in (79a) is analyzed as in (79b) under the PRO analysis and as in (79c) under the movement analysis.

- (79) a. John tried [_{Clause} *e* to understand argument ellipsis].
b. John_{*i*} tried [_{Clause} PRO_{*i*} to understand argument ellipsis].
c. John_{*1*} tried [_{Clause} ___{*1*} to understand argument ellipsis].

In (79b), the gap within the embedded clause is PRO that is coindexed with the matrix subject *John*. In (79c), the gap in question is the trace of A-movement of *John* out of the embedded clause.

Whether the control construction involves PRO or movement has also been an issue in Japanese syntax. Although the PRO analysis has been influential in the literature (cf. Nemoto 1993), Takano (2010) argues for the movement analysis. To illustrate, the control construction in (80a) is analyzed as in (80b) under the PRO analysis and as in (80c) under the movement analysis.

- (80) a. Taroo-wa Ayaka-ni [_{Clause} *e* hakaseronbun-o kaku yoo(ni)] meizi-ta.
Taro-TOP Ayaka-DAT dissertation-ACC write C.INF order-PST
(Lit.) ‘Taro ordered Ayaka [_{Clause} *e* to write her dissertation].’

- b. Taro Ayaka_i [_{Clause} PRO_i dissertation write C] ordered
- c. Taro Ayaka₁ [_{Clause} ___₁ dissertation write C] ordered

The two analyses of the control in question make different predictions with respect to extraction possibilities out of Japanese null arguments. Specifically, under the PRO analysis, nothing is overtly extracted out of control clauses, so it is expected that control clauses can be phonologically dropped; on the other hand, under the movement analysis, control constructions like (80a) involve overt movement out of control clauses, so that control clauses should not be phonologically droppable in light of the preceding discussions. The following data indicate that the current perspective favors the PRO analysis over the movement analysis.

- (81) a. Taro_o-wa Ayaka_{ni} [_{Clause} *e* hakaseronbun-o kaku yoo(ni)] meizi-ta.
 Taro-TOP Ayaka-DAT dissertation-ACC write C.INF order-PST
 (Lit.) ‘Taro ordered Ayaka [_{Clause} *e* to write her dissertation].’
- b. Ziro_o-wa Kanako_{ni} [_{Clause} *e* hakaseronbun-o kaku yoo(ni)] meizi-ta.
 Ziro-TOP Kanako-DAT dissertation-ACC write C.INF order-PST
 (Lit.) ‘Ziro ordered Kanako [_{Clause} *e* to write her dissertation].’
- b’. Ziro_o-wa Kanako_{ni} [_{Clause} Δ] meizi-ta.
 Ziro-TOP Kanako-DAT order-PST
 (Lit.) ‘Ziro ordered Kanako [_{Clause} Δ].’

With (81a) as its antecedent, both (81b) and (81b’), the latter of which involves a control clause that undergoes argument ellipsis, are grammatical (control clauses can be elided in other languages as well; see footnote 21 of chapter 4). Given that overt extraction is impossible out of Japanese-type null arguments, the grammaticality of (81b’) 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.

5.4.4 Wh-in-situ

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

Consider the following examples.

- (82) a. Taroo-wa [_{CP} Hanako-ga nani-o tabe-ta ka] tazune-ta.
Taro-TOP Hanako-NOM what-ACC eat-PST Q ask-PST
(Lit.) ‘Taro asked [_{CP} Q Hanako ate what].’
- b. Taroo-wa [_{CP} Hanako-ga nani-o tabe-ta to] omot-te-iru no?
Taro-TOP Hanako-NOM what-ACC eat-PST C think-PROG-PRES Q
(Lit.) ‘Q Taro thinks [_{CP} Hanako ate what]?’

In (82a), the Q-particle *ka* is located within the embedded clause, and the sentence is interpreted as an embedded *wh*-question; in (82b), the Q-particle is located in the matrix clause, and the sentence is interpreted 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 (83) and (84).

- (83) a. Taroo-wa [_{CP} Hanako-ga nani-o tabe-ta ka] tazune-ta.
Taro-TOP Hanako-NOM what-ACC eat-PST Q ask-PST
(Lit.) ‘Taro asked [_{CP} Q Hanako ate what].’

b. Ziro-mo [CP Δ] tazune-ta.
 Ziro-also ask-PST
 (Lit.) ‘Ziro also asked [CP Δ].’

(84) A¹: Taroo-wa [CP Hanako-ga nani-o tabe-ta to] omot-te-iru no?
 Taro-TOP Hanako-NOM what-ACC eat-PST C think-PROG-PRES Q
 (Lit.) ‘Q Taro thinks [CP Hanako ate what]?’

B: Pan da yo.
 bread COP.PRES SFP
 ‘Bread.’

A²: (i) Zyaa, Ziroo-wa [CP Hanako-ga nani-o tabe-ta to]
 then Taro-TOP Hanako-NOM what-ACC eat-PST C
 omot-te-iru no?
 think-PROG-PRES Q
 (Lit.) ‘Then, Q Ziro thinks [CP Hanako ate what]?’

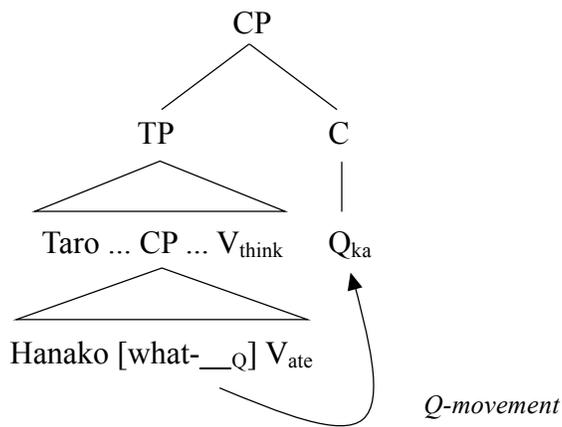
(ii) *Zyaa, Ziroo-wa [CP Δ] omot-te-iru no?
 then Ziro-TOP think-PROG-PRES Q
 (Lit.) ‘Then, Q Ziro thinks [CP Δ]?’

In (83a), the *wh*-phrase *nani* ‘what’ takes its scope within the embedded clause. With (83a) as its antecedent, (83b), where the embedded question CP is phonologically null, is grammatical. (84A¹) involves the embedded *wh*-phrase *nani* ‘what’ taking its scope in the matrix clause. With (84A¹) as its antecedent, (84A²-ii), which involves a matrix question with a *wh*-phrase in an embedded CP that is phonologically null, is ungrammatical. In the following, it will be shown that the data noted above can also be accommodated under the analysis developed in the preceding sections.

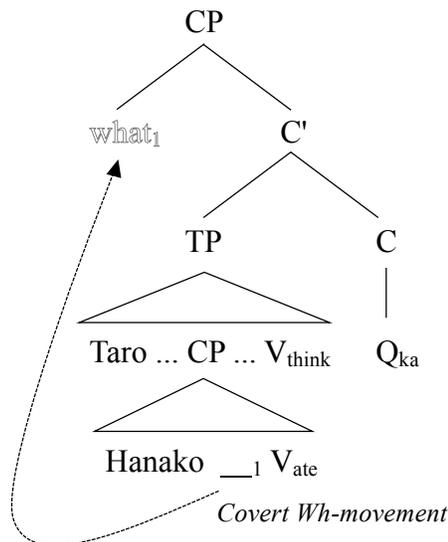
The syntax of *wh*-in-situ has been discussed in some depth in the literature. There are three major approaches: movement in overt syntax (which can be implemented in very different ways;

see Watanabe 1992, Hagstrom 1998, Miyagawa 2001, Kishimoto 2005a, Cable 2007, 2010, among others), movement in LF (cf. Huang 1982, Lasnik and Saito 1984, 1992, among others), and no movement, i.e. unselective binding (cf. Cheng 1991, Tsai 1994, 1997, Shimoyama 2001, among others). For example, (82b) can be analyzed as in (85), (86), and (87), respectively.

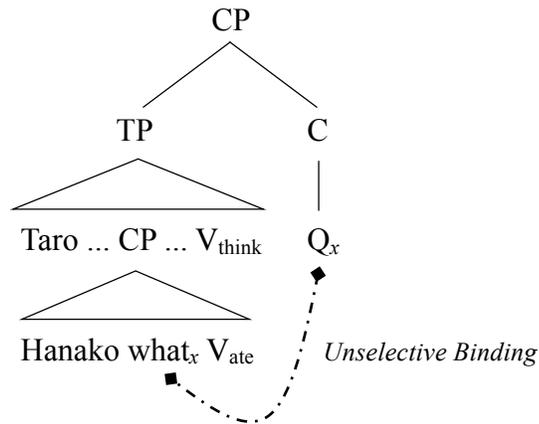
(85) Movement in Overt Syntax



(86) Movement in LF



(87) Non-movement/Unselective Binding



In (85), I take Hagstrom's (1998) Q-movement analysis as a representative of the overt movement approach. Under this analysis, the Q-particle undergoes overt movement. (86) illustrates the LF-movement approach, where the *wh*-phrase undergoes LF-movement. In (87), the relevant licensing is obtained without any movement, i.e. it is obtained through unselective binding, where the *wh*-element is taken to be a variable bound by the Q-particle. Although the choice among these analyses has been controversial, the current discussion provides us with a tool to tease them apart. In particular, it provides evidence that Japanese *wh*-questions do involve overt movement, in fact of a phonologically realized element, as in the Q-movement analysis (Hagstrom 1998, Miyagawa 2001, Kishimoto 2005a, Cable 2007, 2010), where Q-particles are base-generated with *wh*-phrases and undergo overt movement to the relevant C head, cf. (85). This analysis fits most straightforwardly with the data noted above under the analysis proposed in the previous sections, where null CPs are derived via LF-copying. Specifically, if *wh*-in-situ involves overt movement to the relevant CP-domain, the ungrammaticality of (84A²-ii) follows since null CPs do not include any internal structure in overt syntax: hence, overt extraction out of them is not possible.²⁸

²⁸ As noted above, discussing how the analysis argued for here fares with respect to other aspects of the phenomena discussed in this section is beyond the scope of this thesis.

It should also be noted here that not only matrix *wh*-questions but also *wh*-phrases themselves cannot be dropped, as in (88) (cf. Sugisaki 2012 and Ikawa 2013).

- (88) A¹: Taroo-wa nani-o tabe-ta no?
 Taro-TOP what-ACC eat-PST Q
 (Lit.) ‘Taro ate what?’
- B: Pan da yo.
 bread COP.PRES SFP
 ‘Bread.’
- A²: (i) Zyaa, Ziroo-wa nani-o tabe-ta no?
 then Ziro-TOP what-ACC eat-PST Q
 (Lit.) ‘Then, Ziro ate what?’
- (ii) *Zyaa, Ziroo-wa Δ tabe-ta no?
 then Ziro-TOP eat-PST Q
 (Lit.) ‘Then, Ziro ate Δ ?’
 (Int.) ‘Then, what did Ziro eat?’

The null object in (88A²-ii) is intended to be anaphoric on *nani* ‘what’ in (88A¹), and the sentence is ungrammatical. The ungrammaticality of (88A²-ii) also follows given the overt movement analysis of *wh*-in-situ and the current perspective on argument ellipsis, i.e. the LF-copy analysis: the null object in question does not involve any internal structure in overt syntax, so nothing can be extracted out of it in overt syntax. The Q-particle then could not have been 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 *wh*-in-situ in Japanese.

5.5 Summary

In this chapter, I have claimed that argument ellipsis should be implemented via LF-copying on the basis of extraction possibilities out of argument ellipsis sites. Specifically, in chapter 3 and 4, it was shown that overt extraction is uniformly disallowed out of argument ellipsis sites, whereas covert extraction, i.e. extraction that does not affect word order, including QR, is uniformly allowed out of the relevant domains. This extraction pattern nicely fits the LF-copy analysis of ellipsis since the analysis in question provides an ellipsis domain with internal structure only in covert syntax/LF so that only movement operations that apply in covert syntax/LF should be able to affect the relevant domain. I have also shown that analyzing argument ellipsis as involving LF-copying has several theoretical consequences. For example, I argued that null operator movement is an instance of LF-movement because such movement is allowed out of argument ellipsis sites on a par with other instances of LF-movement, like QR. Also, I have shown that given the extraction properties of argument ellipsis, argument ellipsis can be used as a diagnostic for determining the proper treatment of several phenomena in (Japanese) syntax. In this respect, I discussed Case-Marked Clefts, *wh*-in-situ, control, and split QP constructions, all of which have been quite controversial regarding what analysis would be the most appropriate for them, in light of their interaction with null arguments. I showed that Case-Marked Clefts are best analyzed as involving covert movement, control is best analyzed as involving PRO, and *wh*-in-situ and split QP are best analyzed as involving overt movement. More importantly, I have argued that both PF-deletion and LF-copying are in principle available as strategies for deriving ellipsis. In particular, I have proposed that whether ellipsis involves PF-deletion or LF-copying is related to phases. Building on Bošković's (2014) phase-based analysis of ellipsis, where both phases and phasal complements can undergo ellipsis, I claimed that ellipsis of phases, e.g. argument ellipsis, involves

LF-copying, while ellipsis of phasal complements, e.g. sluicing, involves PF-deletion, also showing that this distribution falls out naturally from the phase theory.

Appendix: Wh-in-situ and Null Arguments Cross-linguistically

In section 5.4.4, we reached the conclusion that the Q-particle movement approach to *wh*-in-situ is supported by data regarding interaction between null arguments and *wh*-in-situ, including the fact that embedded clauses with a *wh*-in-situ cannot be elided as matrix *wh*-questions, while this can be as embedded (i.e. indirect) *wh*-questions. Other languages that were investigated in chapter 4, namely Chinese, Korean, Mongolian, and Turkish, are also well-known to be *wh*-in-situ languages. In the appendix of this chapter, I will then examine whether the relevant observation regarding Japanese *wh*-in-situ is replicated in the other argument ellipsis languages, in the attempt to contribute to our understanding of *wh*-in-situ in these languages.

I will first discuss Korean and Mongolian.²⁹ The following examples demonstrate that embedded (i.e. indirect) *wh*-questions can be elided in both languages.

(89) Korean

- a. Chelswu-nun [CP Mia-ka mwues-lul sa-ss-nunchi] a-n-ta.
 Chelswu-TOP Mia-NOM what-ACC buy-PST-Q know-PRES-DECL
 (Lit.) ‘Chelswu knows [CP Q Mia bought what].’
- b. Yenghi-to [CP Mia-ka mwues-lul sa-ss-nunchi] a-n-ta.
 Yenghi-also Mia-NOM what-ACC buy-PST-Q know-PRES-DECL
 (Lit.) ‘Yenghi also knows [CP Q Mia bought what].’

²⁹ Note that Korean has an overt Q-particle in both matrix and embedded clauses, while Mongolian has it in matrix but not embedded clauses.

b'. Yenghi-to [CP Δ] a-n-ta.
 Yenghi-also know-PRES-DECL
 (Lit.) 'Yenghi also knows [CP Δ].'

(90) Mongolian

a. Ulayan- \emptyset [CP Bayatur- \emptyset yayu- \emptyset qudaldun-abu-y \ddot{s} an]-i mede-ne.
 Ulagan-NOM Bagatur-NOM what-ACC buy-take-PST-ACC know-PRES
 (Lit.) 'Ulagan knows [CP Bagatur bought what].'

b. Batu- \emptyset basa [CP Bayatur- \emptyset yayu- \emptyset qudaldun-abu-y \ddot{s} an]-i mede-ne.
 Batu-NOM also Bagatur-NOM what-ACC buy-take-PST-ACC know-PRES
 (Lit.) 'Batu also knows [CP Bagatur bought what].'

b'. Batu- \emptyset basa [CP Δ] mede-ne.
 Batu-NOM also know-PRES
 (Lit.) 'Batu also knows [CP Δ].'

With the (a) examples as their antecedents, both the (b) examples and the (b') examples, where the embedded CP is phonologically null, are grammatical. Then, let us consider whether embedded clauses with *wh*-in-situ taking matrix scope can be phonologically null in Korean and Mongolian. Consider the following examples.

(91) Korean

A¹: Chel \ddot{s} wu-nun [CP Mia-ka mwues-lul sa-ss-ta-ko] sayngkakha-ni?
 Chel \ddot{s} wu-TOP Mia-NOM what-ACC buy-PST-DECL-C think-Q
 (Lit.) 'Q Chel \ddot{s} wu thinks [CP that Mia bought what]?'

B: I kulim.
 this picture
 'This picture.'

A₂: (i) Yenghi-nun [_{CP} Mia-ka mwues-lul sa-ss-ta-ko] sayngkakha-ni?
 Yenghi-TOP Mia-NOM what-ACC buy-PST-DECL-C think-Q
 (Lit.) ‘Q Yenghi thinks [_{CP} that Mia bought what]?’

(ii) *Yenghi-nun [_{CP} Δ] sayngkakha-ni?
 Yenghi-TOP think-Q
 (Lit.) ‘Q Yenghi thinks [_{CP} Δ]?’

(92) Mongolian

A¹: Batu-Ø [_{CP} Bayatur-Ø yayu-Ø qudaldun-abu-γsan geǰü]
 Batu-NOM Bagatur-NOM what-ACC buy-take-PST.ADN C
 bodoju bai-qu bui?
 think COP-PRES.ADN Q
 (Lit.) ‘Q Batu thinks [_{CP} that Bagatur bought what]?’

B: Almurad.
 apple
 ‘Apple.’

A²: (i) Ulayan-Ø bol [_{CP} Bayatur-Ø yayu-Ø qudaldun-abu-γsan geǰü]
 Ulagan-NOM TOP Bagatur-NOM what-ACC buy-take-PST.ADN C
 bodoju bai-qu bui?
 think COP-PRES.ADN Q
 (Lit.) ‘Q Ulagan thinks [_{CP} that Bagatur bought what]?’

(ii) *Ulayan-Ø bol [_{CP} Δ] bodoju bai-qu bui?
 Ulagan-NOM TOP think COP-PRES.ADN Q
 (Lit.) ‘Q Ulagan thinks [_{CP} Δ]?’

In (91) and (92), the (A²-ii) sentences include the null CP anaphoric on the embedded CP in the (A¹) sentences, and the sentences are ungrammatical. Korean and Mongolian then behave like Japanese in the relevant respect, which can be interpreted as indicating that the Q-movement

analysis should be extended to these languages. Under the Q-particle movement analysis, the Q-particle *ni* in the Korean example (91A²-ii) and the Q-particle *bui* in the Mongolian example (92A²-ii) are overtly ‘moved’ out of the relevant null CPs, which is disallowed under the current perspective on null arguments because these null arguments do not involve internal structure in overt syntax: Q-particles cannot be extracted out of the null arguments, which causes the ungrammaticality here. Therefore, the Q-particle movement analysis of *wh*-in-situ is also supported by the data regarding interaction between null arguments and *wh*-in-situ in Korean and Mongolian.

Let us turn to Turkish. Interestingly, Turkish does not have overt Q-particles either for embedded or matrix *wh*-questions, as in (93a) and (93b), respectively.³⁰

(93) Turkish

- a. Ali-Ø [CP Mete-nin kim-i gör-düğ-ün]-ü dün sor-du.
 Ali-NOM Mete-GEN who-ACC see-NML-ACC yesterday ask-3SG.PST
 (Lit.) ‘Yesterday Ali asked [CP Mete saw who].’
- b. Ali-Ø dün [CP Mete-nin kim-i gör-düğ-ün]-ü soyle-di?
 Ali-NOM yesterday Mete-GEN who-ACC see-NML-ACC say-3SG.PST
 (Lit.) ‘Yesterday Ali said [CP Mete saw who]?’

(93a) is an embedded *wh*-question, being interpreted as ‘Ali asked who Mete saw yesterday’; (93b) is a matrix *wh*-question, being interpreted as ‘Who did Ali say that Mete saw yesterday’. Importantly, there is no overt Q-particle in either (93a) or (93b). Despite the absence of Q-particles, *wh*-in-situ in Turkish shows exactly the same distribution regarding where it can be phonologically

³⁰ More precisely, Q-particles are present only in echo-questions in Turkish (see, e.g. Aygen 2007 for relevant discussions).

dropped as in Japanese, Korean, and Mongolian: embedded *wh*-questions can be dropped, whereas matrix *wh*-questions with a *wh*-in-situ in an embedded clause cannot be, as the following examples show.

(94) Turkish

- a. Ali-Ø [CP Mete-nin kim-i gör-düğ-ün]-ü dün sor-du.
 Ali-NOM Mete-GEN who-ACC see-NML-ACC yesterday ask-3SG.PST
 (Lit.) ‘Yesterday Ali asked [CP Mete saw who].’
- b. Can-Ø de [CP Mete-nin kim-i gör-düğ-ün]-ü bugün sor-du.
 Can-NOM TOP Mete-GEN who-ACC see-NML-3SG today ask-3SG.PST
 (Lit.) ‘Today Can asked [CP Mete saw who].’
- b’. Can-Ø de [CP Δ] bugün sor-du.
 Can-NOM TOP today ask-3SG.PST
 (Lit.) ‘Today Can asked [CP Δ].’

(95) Turkish

- A¹: Ali-Ø dün [CP Mete-nin kim-i gör-düğ-ün]-ü soyle-di?
 Ali-NOM yesterday Mete-GEN who-ACC see-NML-3SG say-3SG.PST
 (Lit.) ‘Yesterday Ali said [CP Mete saw who]?’
- B: Ahmet-i.
 Ahmet-ACC
 ‘Ahmet.’
- A²: (i) Can-Ø de bugün [CP Mete-nin kim-i gör-düğ-ün]-ü soyle-di?
 Can-NOM TOP today Mete-GEN who-ACC see-NML-3SG say-3SG.PST
 (Lit.) ‘Today Can said [CP Mete saw who]?’

- (ii) *Can-Ø de bugün [_{CP} Δ] soyle-di?
 Can-NOM TOP today say-3SG.PST
 (Lit.) ‘Today Can said [_{CP} Δ]?’
 (Int.) ‘Today, who did Can say Mete saw?’

With (94a) as its antecedent, (94b’), where the embedded CP is phonologically dropped, is grammatical with the same interpretation as (94b). By contrast, with (95A¹) as its antecedent, (95A²-ii) is ungrammatical with the intended matrix *wh*-question interpretation. The grammaticality of (94b’) and the ungrammaticality of (95A²-ii) thus indicate that embedded *wh*-questions can be dropped, while matrix *wh*-questions with an embedded *wh*-phrase cannot be. Under the current perspective on null arguments, the above facts straightforwardly follow if Turkish *wh*-in-situ involves movement of null Q-particles in overt syntax. This is in fact exactly what Aygen (2007) proposes. Aygen shows that a number of syntactic properties of Turkish *wh*-in-situ can be accounted for under the null Q-particle movement analysis. Therefore, the contrast between (94b’) and (95A²-ii) can be taken to support Aygen’s analysis.³¹

Finally, let us turn to interactions of null arguments and *wh*-in-situ in Chinese. Consider the following examples.

³¹ That a phonologically null Q-particle undergoes movement in overt syntax seems to be incompatible with Chomsky’s (1995) claim that movement in overt syntax must affect word order, as discussed in section 5.3.1 (where I applied this to null operator movement). I suggest that such movement may be possible only with head movement. In fact, it can be constrained even further. It is possible that this situation arises as a phonologically null head is a PF affix which has to undergo movement to its host (a position where it can be phonologically supported), so there may be an independent driving force for a phonologically null head to move in overt syntax in this case.

(96) Chinese

A¹: Zhangsan qing-le [_{CP} Lisi mai-le shenme] ma?

Zhangsan ask-ASP Lisi buy-ASP what Q

(Lit.) ‘Zhangsan ask [_{CP} Lisi bought what]?’

B: Dui.

yes

‘Yes.’

A²: (i) Xu qing-le [_{CP} Lisi mai-le shenme] ma?

Xu ask-ASP Lisi buy-asp what Q

(Lit.) ‘Xu ask [_{CP} Lisi bought what]?’

(ii) Xu qing-le [_{CP} Δ] ma?

Xu ask-ASP Q

(Lit.) ‘Xu ask [_{CP} Δ]?’

(97) Chinese

A¹: Zhangsan juede [_{CP} Lisi mai-le shenme] ne?

Zhangsan feel Lisi buy-ASP what Q

(Lit.) ‘Zhangsan feel [_{CP} Lisi bought what]?’

B: Chomsky de shu.

Chomsky DE book

‘Chomsky’s book.’

A²: (i) Na Mali juede [_{CP} Lisi mai-le shenme] ne?

then Mali feel Lisi buy-ASP what Q

(Lit.) ‘Mali feel [_{CP} Lisi bought what]?’

(ii) Na Mali juede [_{CP} Δ] ne?

then Mali feel Q

(Lit.) ‘Mali feel [_{CP} Δ]?’

On a par with the other languages investigated above, Chinese allows embedded *wh*-questions to be dropped, as in (96A²-ii). Specifically, with (96A¹) as its antecedent, (96A²-ii) is grammatical, receiving the same interpretation as (96A²-i). What is interesting for the current discussion is the grammaticality of (97A²-ii), which indicates that Chinese allows not only embedded *wh*-questions but also matrix *wh*-questions with a *wh*-phrase in an embedded clause to be phonologically null, unlike the other languages discussed above. To be more specific, with (97A¹) as its antecedent, (97A²-ii) can be interpreted as a matrix *wh*-question: it can receive the same interpretation as (97A²-i). The current perspective on null arguments leads us to conclude that the particle *ne* in Chinese, which is assumed to be a Q-particle for *wh*-questions, is not actually an instance of the Q-particle (or at least not the kind of a Q-particle that Hagstrom is concerned with). In fact, Constant (2014) extensively discusses the particle *ne* in Chinese, reaching the conclusion that it is not a Q-particle; instead, he claims that it is a contrastive topic marker. The fact that matrix *wh*-questions with an embedded *wh*-phrase as well as indirect *wh*-questions can be phonologically empty thus supports Constant's conclusion.

Of course, discussing how the above conclusions regarding *wh*-in-situ in each language discussed here fares with respect to other aspects of the phenomenon in question is beyond the scope of this thesis. However, I have shown that investigating interactions between null arguments and *wh*-in-situ provides a novel window into the proper analysis of the latter.³²

³² Ellipsis of *wh*-in-situ itself is uniformly banned in the languages discussed here, on a par with Japanese. Consider the following examples.

(i) Korean

A: Chelswu-nun mwues-lul sa-ss-ni? Chelswu-TOP what-ACC buy-PST-Q (Lit.) 'Chelswu bought what?'	B: I chayk. this book 'This book.'	A: *Yenghui-nun Δ_{what} sa-ss-ni? Yenghui-TOP buy-PST-Q (Lit.) 'Yenghui bought Δ_{what} ?'
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(ii) Mongolian

A: Batu- \emptyset yayu- \emptyset ide-gsen bui? Batu-NOM what-ACC eat-PST.ADN Q (Lit.) 'Batu ate what?'	B: Almurad. apple 'Apple.'	A: *Ulayan- \emptyset Δ_{what} ide-gsen bui? Ulagan-NOM eat-PST.ADN Q (Lit.) 'Ulagan ate Δ_{what} ?'
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(iii) Turkish

A: Hasan-Ø ne-Ø ye-di? B: Pizza. A: *Ali-Ø de Δ_{what} ye-di?
Hasan-NOM what-ACC eat-PST.3SG pizza Ali-NOM TOP eat-PST.3SG
(Lit.) 'Hasan ate what?' 'Pizza.' (Lit.) 'Ali ate Δ_{what} ?'

(iv) Chinese

A: Zhangsan mai-le shenme? B: Lasnik de shu. A: *Lisi mai-le Δ_{what} ne?
Zhangsan buy-ASP what Lasnik DE book Lisi buy-ASP Q
(Lit.) 'Zhangsan bought what?' 'Lasnik's book.' (Lit.) 'Lisi bought Δ_{what} ?'

The ungrammaticality of the second A sentences in the above examples, which involve null objects anaphoric on *wh*-phrases, indicates that *wh*-phrases cannot be phonologically dropped in the relevant languages. I leave examining this issue in more detail for future research.

Chapter 6

Concluding Remarks and Additional Issues

6.1 Summary

In this thesis, I have examined the nature of null arguments in radical *pro*-drop languages where null arguments have been claimed to be derivable via argument ellipsis (namely, Chinese, Japanese, Korean, Mongolian, and Turkish), paying special attention to extraction possibilities out of them. It has been shown that null arguments in the languages under consideration allow certain types of extraction out of them, which was taken to argue for the ellipsis/surface anaphora view of the null arguments in question on the basis of the hypothesis that proforms/deep anaphora disallow extraction out of them. In other words, the possibility of extraction out of Japanese-type null arguments indicates that they cannot be uniformly empty pronouns/*pro*. Furthermore, I have shown that Japanese-type null arguments exhibit a hitherto unnoticed pattern of extraction out of ellipsis domains, which is not observable with either Hankamer and Sag's (1976) surface anaphora such as VP-ellipsis or deep anaphora such as *do it* and NCA. Specifically, it has been demonstrated that Japanese-type null arguments uniformly disallow overt extraction out of them, while they uniformly allow covert extraction (more precisely, extraction that does not affect word order) out of them. I have claimed that the overt/covert extraction asymmetry out of Japanese-type null arguments not only adds a novel type of ellipsis to the ellipsis typology in the literature but also provides a novel window into the PF-deletion versus LF-copying debate regarding ellipsis. To be more specific, based on the hypothesis that the possibility of overt extraction out of an ellipsis domain indicates the presence of internal structure in overt syntax and that the possibility of covert

extraction out of an ellipsis domain signals the presence of internal structure in covert syntax/LF, I have argued that the overt/covert asymmetry regarding extraction out of Japanese-type null arguments is best analyzed under the LF-copy analysis of ellipsis. Specifically, the LF-copy analysis of ellipsis provides an ellipsis domain with internal structure only in covert syntax/LF, so overt extraction out of it is impossible because there is nothing to extract out of in overt syntax, while covert extraction out of the site in question is possible because the relevant ellipsis domain involves internal structure in covert syntax/LF, which makes covert extraction operations applicable to that domain. Although I have argued that the extraction possibility out of Japanese-type null arguments can be taken as a novel argument for the LF-copy analysis, I have also claimed that PF-deletion is an available strategy for deriving ellipsis on the basis of, e.g. sluicing, where overt extraction such as *wh*-movement is possible. In particular, given that the possibility of overt extraction out of an ellipsis domain indicates the presence of internal structure in overt syntax, sluicing is best analyzed as involving PF-deletion, not LF-copying, since the former provides an ellipsis domain with internal structure in both overt and covert syntax. I have argued that the dichotomy between PF-deletion versus LF-copying can be captured under Bošković's (2014) phase-based analysis of ellipsis, where only phases and phasal complements can undergo ellipsis. To be more specific, under Bošković's theory, the difference between argument ellipsis and sluicing is the phasal status of the ellipsis domain: argument ellipsis is an instance of ellipsis of phases (e.g. DPs, CPs) and sluicing is an instance of ellipsis of phasal complements (i.e. TP). I have generalized the above difference by proposing that ellipsis of phases, e.g. argument ellipsis, is quite generally implemented via LF-copying, whereas ellipsis of phasal complements, e.g. sluicing, is quite generally implemented via PF-deletion, which was shown to be a natural by-product of the phase theory. Finally, I have shown that the LF-copy analysis of argument ellipsis

in the languages discussed in this thesis provides a novel window into the proper treatment of a number of syntactic phenomena (especially in Japanese), including *wh*-in-situ, control, case-marked clefts, and split QP phenomena. Specifically, investigations into interactions between null arguments and these syntactic phenomena provides novel arguments for the Q-movement analysis of *wh*-in-situ (cf. Hagstrom 1998), the PRO analysis for control (as opposed to the movement analysis), the null operator movement analysis of case-marked clefts (cf. Hoji 1987, 1990), and the Q-movement analysis of split QP phenomena (Takahashi 2002).

6.2 When Is Argument Ellipsis Available?

The last issue that I would like to address in the remainder of this thesis is related to what determines the availability of argument ellipsis in a language. Argument ellipsis is obviously not available in every language. Interestingly, the argument ellipsis languages that I investigated in the previous chapters, i.e. Chinese, Japanese, Korean, Mongolian, and Turkish, are all radical *pro*-drop languages, which means that the languages in question have both the *pro* and the argument ellipsis strategy for deriving null arguments (see chapter 2 and 4 for evidence that the *pro* option is available in addition to the argument ellipsis option in these languages). Also, all other languages that have been claimed to allow argument ellipsis, e.g. American Sign Language (Koulidobrova 2012, to appear), Colloquial Singapore English (Sato 2014), Javanese (Sato 2015), Persian (Sato and Karimi 2016), are radical *pro*-drop languages. At this point, it is worth noting Bošković's (2012) generalization regarding radical *pro*-drop and Cheng's (2013) generalization regarding argument ellipsis. Specifically, in terms of Bošković's (2008, 2009, 2011a, 2012, and *seq.*) DP/NP parameter, where languages without definite articles lack DP, Bošković (2012) reaches the generalization that radical *pro*-drop is possible only in NP languages, i.e. languages without articles,

Japanese being one such language. Furthermore, Cheng (2013) reaches the generalization that argument ellipsis is possible only in NP languages (Japanese is again an example of such a language).¹ What these generalizations indicate is that languages which allow radical *pro*-drop and languages that allow argument ellipsis share a property, namely the absence of articles. In light of Bošković's and Cheng's generalizations, we can obtain another generalization which overarches radical *pro*-drop and argument ellipsis.

- (1) Argument ellipsis is possible only in radical *pro*-drop languages.

As far as I can see, there is no language which allows argument ellipsis but disallows radical *pro*-drop.² This suggests that radical *pro*-drop and argument ellipsis should not be disconnected. In light of this, I will briefly explore in this section the possibility that Japanese-type null arguments, i.e. radical *pro*-drop, are uniformly *pro* in overt syntax but they can be replaced by an appropriate antecedent in covert syntax/LF via LF-copying. This would mean that given an appropriate context, *pro* in radical *pro*-drop languages can be assigned its interpretation in two ways: co-indexation and LF replacement. If such an approach to Japanese-type null arguments is on the right track, it follows that the presence of argument ellipsis requires the presence of radical *pro*-drop, which captures the generalization in (1). To give an example, the null object in (2b) is interpreted in covert syntax/LF, as in either (3b–i) or (3b–ii) (in the following, I will use NP instead of DP for nominal arguments in Bošković's NP languages, including Japanese).

¹ Saito (2007) attributes the availability of argument ellipsis in a language to the absence of obligatory ϕ -agreement. Specifically, it has been a traditional assumption (cf. Fukui 1986, 1988, Kuroda 1988) that Japanese lacks obligatory ϕ -agreement unlike English, which Saito claims licenses argument ellipsis. I will return to this analysis below.

² Whether radical *pro*-drop languages all allow argument ellipsis is not quite clear, but this appears to be the case. (If this is correct, both options for the interpretation of radical *pro*-drop discussed below would have to be available.)

- (2) a. Taroo-wa [_{NP} zibun-no kuruma]-o arat-ta.
 Taro-TOP self-GEN car-ACC wash-PST
 (Lit.) ‘Taro washed [_{NP} self’s car].’
- b. Hanako-wa arawa-nakat-ta.
 Hanako-TOP wash-NEG-PST
 (Lit.) ‘Hanako did not wash.’
- (3) a. Overt Syntax
 Hanako [_{NP} *pro*] not.washed
- b. Covert Syntax/LF
 (i) Co-indexation: Hanako [_{NP} *pro*]_{*i*} not.washed
 (ii) Replacement: Hanako [_{NP} self’s car] not.washed

Under the co-indexation option, *pro* is assigned the index, e.g. *i*, being interpreted under the assignment function [$i \rightarrow$ Taro’s car] (cf. Heim and Kratzer 1998), which yields the strict reading; under the replacement option, *pro* is a surface anaphor and it is replaced by the antecedent *self’s car* in covert syntax/LF, which yields the sloppy reading.³

The analysis explored here may connect two otherwise independent generalizations: Bošković’s (2012) generalization regarding radical *pro*-drop and Cheng’s (2013) generalization regarding argument ellipsis. That is, the availability of radical *pro*-drop underlies the availability of argument ellipsis (i.e. in a sense that it is a pre-requisite for it), which captures the generalization in (1), i.e. argument ellipsis is possible only in radical *pro*-drop languages. Under the analysis explored here, the unavailability of argument ellipsis in e.g. English, a non-radical-*pro*-drop language, is then a trivial matter: there is no *pro* in English. That is, there is no *pro* to be replaced

³ Under the analysis explored here, it is expected that agreement-licensed *pro* in languages like Italian and Spanish (see chapter 2 for relevant discussion) cannot be replaced in covert syntax/LF because, e.g., it cannot yield the ellipsis-indicating readings including the sloppy reading (cf. Oku 1998, Sakamoto 2015a). I will return to this issue below.

in covert syntax/LF in the first place, so argument ellipsis is not an option in English.

If Japanese-type *pro* can be replaced by an appropriate antecedent in covert syntax/LF, it would then be expected that the distribution of argument ellipsis/LF-replacement corresponds to the distribution of *pro* since the relevant replacement option presupposes the existence of *pro*. Interestingly, Saito (2007) independently claims that the distribution of these two is in fact quite similar, also suggesting that argument ellipsis and radical *pro*-drop should be somehow ‘unified’. To illustrate, it has been established in the literature that temporal PPs and locative PPs in addition to NPs and CPs can be elliptic but manner adverbs and reason adverbs cannot be, as illustrated in (4) and (5) (cf. Saito 2007, Takahashi 2008b, Takita 2010).

(4) a. Temporal PP Ellipsis

Taroo-wa [_{temporal PP} zibun-ga nayanda hi-ni] biiru-o no-mu-ga,
 Taro-TOP self-NOM be.troubled day-on beer-ACC drink-PRES-but
 Hanako-wa [_{temporal PP} △] karaoke-ni i-ku.
 Hanako-TOP karaoke-to go-PRES

(Lit.) ‘Taro drinks beer [_{temporal PP} on the day when self is troubled], but Hanako goes to karaoke [_{temporal PP} △].’

b. Locative PP Ellipsis

Taroo-wa [_{locative PP} zibun-no oya-no ie-ni] sun-de-iru-ga,
 Taro-TOP self-GEN parent-GEN house-in live-PROG-PRES-but
 Hanako-wa [_{locative PP} △] sun-dei-na-i.
 Hanako-TOP live-PROG-NEG-PRES

(Lit.) ‘Taro lives [_{locative PP} in self’s parents’ house], but Hanako does not live [_{locative PP} △].’

(5) a. Manner Adverb Ellipsis

*Taroo-wa [_{manner PP} zibun-no hoohoo-de] mondai-o toi-ta-ga,
Taro-TOP self-GEN way-by problem-ACC solve-PST-but
Hanako-wa [_{manner PP} △] mondai-o toka-nakat-ta.
Hanako-TOP problem-ACC solve-NEG-PST
(Lit.) ‘Taro solved a problem [_{manner PP} by self’s method], but Hanako did not solve a
problem [_{manner PP} △].’

b. Reason Adverb Ellipsis

*Watasi_i-wa [_{CP} Taroo-ga [_{reason PP} zibun-no sippai-de] kubininat-ta to]
I-TOP Taro-NOM self-GEN mistake-for be.fired-PST C
kii-ta-ga, *pro*_i [_{CP} Hanako-ga [_{reason PP} △] kubininat-ta to]-wa
hear-PST-but Hanako-NOM be.fired-PST C-TOP
kii-tei-na-i.
hear-PROG-NEG-PRES
(Lit.) ‘I heard [_{CP} that Taro was fired [_{reason PP} for self’s mistake]], but I did not hear
[_{CP} that Hanako was fired [_{reason PP} △]].’

(4) shows that locative/temporal adverbs can undergo ellipsis. Specifically, (4a) can mean that Hanako drinks beer on the day when she is troubled, and (4b) can mean that Hanako does not live in her parents’ house.⁴ By contrast, (5) demonstrates that manner/reason adjuncts are not elidable.

⁴ The quantificational reading is also available for null temporal and locative PPs, as the following data show.

- (i) a. Taroo-wa [_{temporal PP} mi-ttu-izyoo-no sigoto-o oe-ta hi-ni] biiru-o
Taro-TOP three-CL-or.more-GEN work-ACC finish-PST day-on beer-ACC
no-mu-ga, Hanako-wa [_{temporal PP} △] wain-o no-mu.
drink-PRES-but Hanako-TOP wine-ACC drink-PRES
(Lit.) ‘Taro drinks beer [_{temporal PP} on the day when he finishes three or more works], but Hanako
drinks wine [_{temporal PP} △] (= on the day when she finishes three or more works).’
- b. Taroo-wa [_{locative PP} hyakuman-nin-izyoo-no hito-ga sun-de-iru mati-ni]
Taro-TOP one.million-CL-or.more-GEN person-NOM live-PROG-PRES city-in
sun-de-iru. Hanako-mo [_{temporal PP} △] sun-de-iru.
live-PROG-PRES Hanako-also live-PROG-PRES
(Lit.) ‘Taro lives [_{locative PP} in a city where more than one million people live]. Hanako also lives [<sub>temporal
PP</sub> △] (= in a city where more than one million people live).’

That is, (5a) can only be interpreted as Hanako did not solve a problem at all, and (5b) as I did not hear that Hanako was fired: manner/reason adjuncts cannot be interpreted in the empty site. Saito (2007) observes that the dichotomy between temporal PPs and locative PPs on the one hand and manner adverbs and reason adverbs on the other hand also holds with the distribution of *pro*. He bases his observation on Murasugi's (1991) claim that Japanese *pro* can stand not only for nominals but also for locative/temporal PPs. Assuming that the gap in Japanese relative clauses is *pro* (cf. Perlmutter 1972), Murasugi (1991) examines the following data.⁵

(6) a. Temporal PP *Pro*

[[NP [relative clause *pro*_i *pro*_j mensetu-o uke-ta] gakusei_i]-ga minna
interview-ACC receive-PST student-NOM everyone
uka-ru] hi_j
pass-PRES day

(Lit.) 'the day_j [that [NP all the students_i [relative clause that *pro*_i received the job interview *pro*_j]] passes]'

b. Locative PP *Pro*

[Taroo-ga [NP [relative clause *pro*_i *pro*_j sun-de-iru] hito_i]-o
Taro-NOM live-PROG-PRES person-ACC
sit-te-iru] mati_j
know-PROG-PRES city

(Lit.) 'the town_j [that Taro knows [NP a person_i [relative clause that *pro*_i lives *pro*_j]]]'

⁵ The claim that Japanese relative clauses involve *pro* is supported by the observation that they do not exhibit subjacency effects, as the following example demonstrates (cf. Kuno 1973).

- (i) [[[*e*_i ki-te-iru] yoohuku]-ga yogore-te-iru] sinsi_i
wear-PROG-PRES suit-NOM dirty-PROG-PRES gentleman
(Lit.) 'the gentleman_i [such that [the suit [that *e*_i is wearing]] is dirty]'

The gap *e* is embedded within a relative clause island, and it can be connected to the head nominal of the relative clause *sinsi* 'gentleman'. This entails that the gap in question cannot be treated as a trace of movement, which in turn indicates that it is an instance of *pro*.

(7) a. Manner Adverb *Pro*

*[[_{NP} [_{relative clause} *pro*_i *pro*_j mondai-o toi-ta] gakusei_i]-ga
problem-ACC solve-PST student-NOM
minna siken-ni oti-ru] hoohoo_j
everyone exam-DAT fail-PRES way

(Lit.) ‘the method_j [that [_{NP} all the students_i [_{relative clause} that *pro*_i solved the problem *pro*_j]] fail the examination]’

b. Reason Adverb *Pro*

*[Taroo-ga [_{NP} [_{relative clause} *pro*_i *pro*_j kubininat-ta] hito_i]-o
Taro-NOM be.fired-PST person-ACC
sit-te-iru] riyuu_j
know-PROG-PRES reason

(Lit.) ‘the reason_j [that Taro knows [_{NP} a person_i [_{relative clause} that *pro*_i was fired *pro*_j]]]’

The grammaticality of (6a–b) indicates that there is no subjacency effect with the relativization of locative/temporal PPs, suggesting that locative/temporal PP *pro* is available in Japanese. On the other hand, (7a–b) are both ungrammatical, showing that manner/reason PP *pro* is not an option in Japanese. Thus, if we assume that Japanese null elements are (initially) *pro*, the contrast between locative/temporal adverbs and manner/reason adverbs regarding their elidability then follows: the unavailability of manner/reason adjunct ellipsis can be attributed to the unavailability of manner/reason adjunct *pro*, and the availability of locative/temporal adverb ellipsis to the availability of locative/temporal adverb *pro*. The above discussion then indicates that argument ellipsis/LF-replacement and *pro* should not be disconnected.

Under the analysis explored here, a question arises as to why only discourse-licensed *pro* (radical *pro*-drop), not agreement-licensed *pro* in languages like Italian and Spanish, is replaceable. Oku (1998) observes that, unlike Japanese-type null subjects, Spanish null subjects do not allow the ellipsis-indicating readings, including the sloppy reading, as in (8).

- (8) a. Maria cree [CP que [DP su propuesta] será aceptada].
 Maria believe C her proposal will.be accepted
 ‘Maria believes [CP that [DP her proposal] will be accepted].’
- b. Juan también cree [CP que [DP Δ] será aceptada].
 Juan also believe C will.be accepted
 (Lit.) ‘Juan believes [CP that [DP Δ] will be accepted].’

(Oku 1998:165)

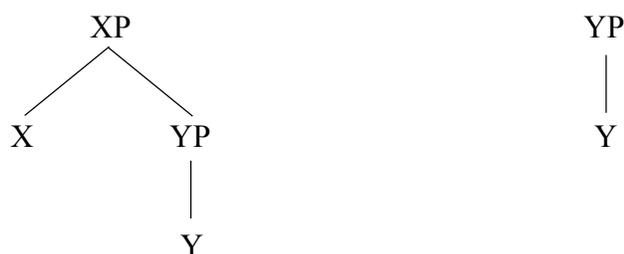
In (8b), the embedded null subject can only be assigned the strict reading: Maria’s proposal but not Juan’s proposal. Therefore, one might wonder why only Japanese-type *pro* (radical *pro*-drop) allows the sloppy reading unlike Spanish-type *pro* (agreement *pro*-drop). To be more specific, the question to be answered under the analysis explored here is why only radical *pro*-drop can be replaced by an appropriate antecedent in covert syntax/LF.

There is in fact a long-standing tradition where there is no *pro* in Spanish-type languages, with verbal morphology being the argument, presumably in [Spec, TP] (see Saab 2013 and references therein for relevant discussion). Regarding this analysis, it may actually be the case that verbal morphology is an incorporated pronoun (hence not in [Spec, TP], but in T/V) and that such incorporated material cannot be a target for replacement, which can be nicely subsumed under Bošković’s (2001) claim that it is not possible to elide part of a complex head. In other words, the unavailability of argument ellipsis, more precisely LF-replacement of null subjects, in Spanish-type languages can then be attributed to the absence of *pro*, on a par with the unavailability of argument ellipsis in languages like English.

Another possibility that I would like to explore to capture the dichotomy between radical *pro*-drop and agreement *pro*-drop with respect to its replacability in covert syntax/LF is related to the structural richness of pronouns. Cardinaletti and Starke (1999) claim that there are at least two

types of pronouns: strong pronouns and weak pronouns. One of the differences between strong pronouns and weak pronouns is the richness of internal structure: strong pronouns involve more internal structure than weak pronouns. Suppose then that agreement-licensed *pro* has more internal structure than discourse-licensed *pro* in that the former encodes the information regarding ϕ -features. More specifically, let us assume that agreement-licensed *pro* is a branching element, while discourse-licensed *pro* is a non-branching element, as e.g. in (9).

- (9) a. Agreement-licensed *Pro* b. Discourse-licensed *Pro*



The above assumptions lead us to a generalization with respect to the possibility of LF-replacability of pronouns in (10).

- (10) Only non-branching pronouns can be replaced by an appropriate antecedent in LF.

Under (10), it follows that the sloppy reading is not available in (8b) because Spanish subject *pro* is agreement-licensed hence it involves rich internal structure as in (9a) (i.e. a branching structure), which prohibits LF-replacement from applying to the *pro* in question.⁶

Let us consider the branching versus non-branching dichotomy of agreement-licensed *pro*

⁶ Koulidobrova (2012) argues that what undergoes argument ellipsis in American Sign Language (ASL) must be non-branching, which can be interpreted as indicating that in ASL both what is replaced and what is replacing it must be non-branching.

and discourse-licensed *pro*, i.e. (9), in light of a claim made in section 5.3.3, namely that only ellipsis of phases (which includes argument ellipsis) is implemented by LF-copying/replacement. I assume with Bošković (2014) that the highest projection of a lexical head functions as a phase (as well as the highest clausal projection). This means that XP is a phase in (9a) and YP is a phase in (9b). Since in the radical *pro*-drop case (9b), YP is a phase and a non-branching element, YP is replaceable in covert syntax/LF. On the other hand, YP is not a phase in Spanish. XP is a phase in Spanish but it cannot undergo LF-replacement since it is a branching element in light of (10). If (10) is on the right track, we can then capture why discourse-licensed *pro* is different from agreement-licensed *pro* in that only the former can be replaced by an appropriate antecedent in covert syntax/LF.⁷

There are two potential advantages that we may obtain from (10). First, it may account for why overt pronouns in Japanese-type languages are not replaceable on a par with agreement-licensed *pro* (recall that overt pronouns cannot yield the ellipsis-indicating readings in relevant contexts). Camacho (2013) argues that overt pronouns involve more internal structure than covert pronouns. Overt pronouns would then be branching elements (in particular non-clitic overt pronouns; see below), which makes LF-replacement inapplicable to them, so that overt pronouns even in languages like Japanese cannot yield the ellipsis-indicating readings, including the sloppy reading.

Second, (10) may also be extendable to Runić's (2014) discussion of object clitics in Slavic languages. Specifically, following up on an observation by Franks (2013), Runić observes that object clitics in NP languages, i.e. languages without articles under Bošković's DP/NP parameter,

⁷ Consider why (10) would hold. I assume that what is in principle replaceable is what agreement-licensed *pro* and discourse-licensed *pro* have in common, which is YP (i.e. the "base" pronominal part). Only with discourse-licensed *pro*, YP is a phase, as discussed above, so it is replaceable only with this type of *pro* (given that LF replacement must target a phase).

like Serbo-Croatian (SC), can yield the ellipsis-indicating readings under an appropriate context, as illustrated by SC (11).

(11) a. The Context:

Nikola and Danilo are brothers and their family celebrates St. Nicholas, the patron saint's feast day in Orthodox tradition that is celebrated annually on December 19. It is a common practice among Serbs to invite a boyfriend/girlfriend to a family celebration. Both Nikola and Danilo have a girlfriend (thus, in this context, there are two girlfriends) and they invited their girlfriends to their family celebration.

b. Nikola je pozvao (svoju) djevojku na slavu,
 Nikola.NOM AUX invited his girlfriend on slava
 a pozvao ju je i Danilo.
 and invited her.CL AUX and Danilo

'Nikola invited his girlfriend to the slava, and Danilo also invited her.'

strict; sloppy (Runić 2014:98–99)

In (11b), the object clitic *ju* 'her' can yield the sloppy reading: it can mean Danilo's girlfriend. Runić (2014) attributes the availability of the ellipsis-indicating readings in question to the pronominal status of object clitics. Specifically, she claims that object clitics in NP languages are structurally poorer than in DP languages in that they are non-branching Ns (see also Bošković 2016b), which enables them to yield the relevant readings. Under the analysis that I have explored here, the availability of the sloppy reading in (11b) may be treated as follows: object clitics in NP languages are structurally 'poor', i.e. non-branching pronouns (as in fact argued by Runić 2014 and Bošković 2016b), so that they can be replaced by appropriate antecedents in covert syntax/LF, yielding the ellipsis-indicating readings.⁸

⁸ If the availability of the ellipsis-indicating readings of object clitics in SC can be derived via LF-replacement, it would be expected that covert extraction is possible out of them. I will leave this issue for future research.

Interestingly, Runić (2014) also observes that the ellipsis-indicating readings of object clitics are available only in languages without articles, showing that Slovenian, Czech, and Slovak, the Slavic languages without articles, behave like SC in this respect, but Bulgarian and Macedonian, the Slavic languages with articles, disallow the relevant readings in this context. Consider the following example.

(12) Macedonian

a. The Context: (11a)

b. Nikola ja povika devojka si na slava,
 Nikola her.CL.ACC invited girl him.CL.DAT.REFL at slava
 a Daniel ja povika isto.
 and Daniel her.CL.ACC invited same

‘Nikola invited his girlfriend to the slava, and Danilo also invited her.’

strict;*sloppy (Runić 2014:99–100)

In (12b), the object clitic *ja* ‘her’ cannot be assigned the sloppy interpretation: it cannot mean Daniel’s girlfriend, and it can only mean Nikola’s girlfriend. Therefore, the availability of the ellipsis-indicating readings of object clitics is independent of their status as a clitic, and it seems more relevant to the DP/NP status of nominal domains. Furthermore, Runić observes that strong pronouns cannot yield the readings in question even in NP languages like SC, as the following examples demonstrate (see also Bošković 2017, to appear).

(13) Serbo-Croatian

a. The Context:

Nikola and Danilo are cousins who live in two different cities in Serbia. Specifically, Nikola lives in Belgrade, while Danilo lives in Niš. They are both five years old and their parents take them to circus performances whenever a circus is in town. A circus is in both Belgrade and Niš at the same time. Both Nikola and Danilo saw an interesting clown in the circus, albeit not the same one.

b. Nikola je vidio zanimljivog klovna,

Nikola AUX saw interesting clown

a vidio ga je i Danilo.

and saw it.CL.ACC AUX and Danilo

(Lit.) ‘Nikola saw an interesting clown and Danilo saw him.’ strict; sloppy

b’. Nikola je vidio zanimljivog klovna,

Nikola AUX saw interesting clown

a njega je vidio i Danilo.

and him.ACC AUX saw and Danilo

(Lit.) ‘Nikola saw an interesting clown and Danilo saw him.’ strict;*sloppy

(Runić 2014:99–100)

The second conjunct of (13b) is ambiguous in that the object clitic *ga* can yield both the strict and the ‘sloppy’ reading: the clown that Danilo saw can be either identical to the clown that Nikola saw or different from him. By contrast, the second conjunct of (13b’), where the object position is occupied by a strong pronoun *njega* ‘him’, is unambiguous in that only the strict reading is available: the object in question can only be interpreted as the clown that Nikola saw. The above data suggest that not only the DP/NP status of nominal domains but also the strong versus clitic status of pronouns matters for the availability of the ellipsis-indicating readings of object pronouns in Slavic languages. Given the condition in (10), this may be captured. Specifically, the sloppy

reading of object clitics in DP languages like Macedonian should not be available because of the presence of DP. To be more specific, let us assume that the DP layer makes nominal domains branching (in other words, object clitics in DP languages are branching) so that LF-replacement cannot apply to the object clitics in question (recall that object clitics in NP languages are ‘poor’, i.e. non-branching pronouns, so that they are replaceable by appropriate antecedents in covert syntax/LF, yielding the ellipsis-indicating readings). Furthermore, the fact that in contrast to weak pronouns, strong pronouns in NP languages like SC cannot yield the sloppy reading may also be accounted for under the analysis explored here because of the structural richness of strong pronouns. Recall that strong pronouns are generally assumed to involve more structure than weak pronouns, which in turn means that strong pronouns are branching, making LF-replacement inapplicable to them, so that the sloppy reading should not be available.

If the above approach turns out to be tenable, it may be possible to unify Saito’s (2007) generalization in (14) (cf. footnote 1) and Cheng’s (2013) generalization with respect to the cross-linguistic availability of argument ellipsis.

(14) Agreement blocks argument ellipsis.

(15) Argument ellipsis is available only in NP languages (i.e. languages without articles).

Specifically, if we assume that agreement and DP make arguments branching, which in turn makes them unreplaceable by their antecedents in covert syntax/LF, the condition in (10) may provide a novel window into the unification of the otherwise unrelated generalizations in (14) and (15).

In summary, in this section I have made a suggestion regarding what is responsible for cross-linguistic variations in the availability of argument ellipsis, which captures the generalization that

argument ellipsis is possible only in radical *pro*-drop languages and which has consequences for the internal structure of various pronominal elements.

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