

Phases and Argument Ellipsis in Japanese

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Abstract This article investigates the nature of Japanese null arguments. Although it has been more or less standardly assumed that Japanese null arguments are empty pronouns, recent literature has shown that they can be also derived via argument ellipsis based on the fact that they can yield readings that pronouns generally cannot support (Oku 1998; Saito 2007; Takahashi 2008a, b, among others). Most of the literature on argument ellipsis has discussed its availability, paying less attention to the issue under what conditions ellipsis of arguments is possible. This article focuses on this issue. Specifically, building on Abe's (2009) observation that argument ellipsis is not freely available, I argue that argument ellipsis is locally phase-constrained (cf. Chomsky 2000, 2001, and *seq.*), developing a particular phase-based approach to argument ellipsis which is shown to have consequences for Abe's (2009) anti-c-command generalization regarding the availability of argument ellipsis and Takahashi's (1996a, b) "Antecedent-Contained Deletion" in Japanese. The

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approach developed in this article thus provides a tool which contributes to our understanding of the context in which the ellipsis-indicating readings are/are not available with Japanese null arguments.

Keywords Phases, Argument ellipsis, Antecedent-contained deletion, Pro

1 Introduction

The syntax of Japanese null arguments has been investigated in some depth within the study of generative grammar. While Kuroda (1965) (see also Ohso 1976; Hoji 1985; Saito 1985; and Nakamura 1987) analyzed Japanese null arguments as empty pronouns (*pro*), the current standard assumption is that they cannot always be pronominal. Specifically, Japanese null arguments can yield readings that are generally unavailable with pronouns, e.g. sloppy identity. The main line of research regarding the readings in question involves the argument ellipsis analysis (Oku 1998; Saito 2007; Takahashi 2008a, b, among others), where arguments can directly undergo ellipsis.

Most of the literature on argument ellipsis has focused on arguing for the availability of this mechanism, but it has paid less attention to the issue of the conditions under which this ellipsis strategy can apply to arguments, once its existence is taken for granted. In this article, I focus on this issue and argue that the notion of phase (Chomsky 2000, 2001, and *seq.*) plays an important role in understanding the mechanism of argument ellipsis. To be more specific, I maintain that only an argument which has already been

transferred can be an antecedent of elliptic arguments. I will demonstrate that this constraint on argument ellipsis has important consequences for Abe's (2009) anti-c-command generalization regarding the availability of argument ellipsis and Takahashi's (1996a, b) "Antecedent-Contained Deletion (ACD)" in Japanese: the former (more precisely, a modified version of the former) is given a principled account and the latter is shown to support the main proposal of this article, which is that argument ellipsis is locally phase-constrained.

The organization of this article is as follows. In section 2, I introduce Oku's (1998) argument ellipsis analysis and provide an empirical argument for it, using idiomatic expressions. In section 3, I first discuss Abe's (2009) observation that argument ellipsis is unavailable in certain intra-sentential contexts, and then argue that the observation in question can be given a principled account given the basic minimalist hypotheses, in particular the notion of phase. Furthermore, I will demonstrate that the proposed analysis has empirical advantages over Abe's (2009) anti-c-command generalization on argument ellipsis. In section 4, I show that the configuration which Takahashi (1996a, b) refers to as ACD in Japanese provides further supporting evidence for the proposed phase-based analysis of argument ellipsis. Section 5 concludes the article.

2 Argument Ellipsis

Most recent literature claims that, in addition to *pro*, the ellipsis strategy is available for deriving Japanese null arguments because they can yield readings that pronouns generally

cannot support.

First, Whitman (1988), Huang (1991), and Otani & Whitman (1991) show that some instances of Japanese-type null arguments allow both strict and sloppy readings, as in (1) (the symbol Δ will be used to indicate null elements theory-neutrally).¹

- (1) a. Taroo-wa zibun-no kuruma-o aratta.

Taro-TOP self-GEN car-ACC washed

lit: ‘Taro washed self’s car.’

- b. Hanako-wa Δ arawanakatta.

Hanako-TOP not.washed

lit: ‘Hanako did not wash Δ .’

✓ strict; ✓ sloppy

With (1a) as its antecedent, (1b) is ambiguous in that it can mean either that Hanako did not wash Taro’s car (strict) or that Hanako did not wash her own car (sloppy). (1b) then patterns in the relevant respect with (2b), which involves VP-ellipsis, rather than with (2a), which involves a pronoun.

- (2) a. Peter likes his picture, and Joan likes it too.

✓ strict; ✗ sloppy

- b. Peter likes his picture, and Joan does Δ too.

✓ strict; ✓ sloppy

¹ Hoji (1998) argues that “sloppy identity” of Japanese null arguments is a result of the use of null indefinite pronouns, i.e. a null counterpart of bare nouns. For example, depending on the context, *kuruma* ‘car’ can be interpreted in various ways, including “sloppy identity”. However, Saito (2007) convincingly shows that a true sloppy reading that Hoji’s approach cannot explain is obtained in negative sentences like (1b). Due to space limitations, I simply refer the reader to Saito’s work for relevant discussion. Based on this concern, I use negative sentences throughout the discussion of sloppy identity in the article.

The *pro* analysis would then incorrectly predict (1b) to pattern with (2a), not (2b).²

Secondly, Shinohara (2004) and Takahashi (2008a, b, 2014) argue that the *pro* analysis faces a problem with the interpretation of quantifiers. Consider (3).

(3) a. Taro-wa sandai-no kuruma-o aratta.

Taro-TOP three-GEN car-ACC washed

‘Taro washed three cars.’

b. Hanako-mo Δ aratta.

Hanako-also washed

lit: ‘Hanako also washed Δ.’

✓ E-type; ✓ quantificational

With (3a) as its antecedent, (3b) is ambiguous in that the set of cars that Hanako washed can be either identical to the set of cars that Taro washed or different from it; call the former the E-type reading (cf. Evans 1980) and the latter the quantificational reading. If null arguments were always pronominal, the possibility of the second interpretation would not be expected since pronouns cannot yield such a reading, unlike ellipsis as in (4).

² The sloppy reading can be obtained in some cases in English, e.g. in pay-check sentences, which do not involve ellipsis. This means that the availability of such a reading does not necessarily indicate ellipsis (see Merchant 2013 and references cited therein).

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

✓ sloppy (Karttunen 1969:114)

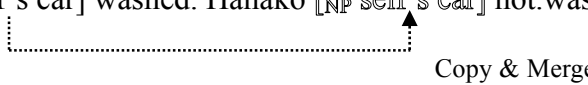
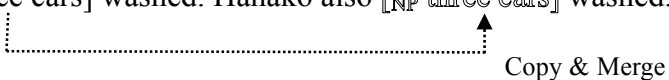
While English pronouns can occasionally yield the sloppy reading, the availability of such a reading with English pronouns is much more restricted than with Japanese null arguments. Importantly, it is not available for English pronouns in the examples discussed in the text (see Tomioka 1998, 2003 for relevant discussion). The ellipsis analysis takes these differences to be significant.

- (4) a. John respects three teachers. Mary respects them too. ✓ E-type; ✗ quantificational
 b. John respects three teachers. Mary does Δ too. ✓ quantificational

(Şener and Takahashi 2010:82)

(4a), which involves a pronoun, disallows the quantificational reading, whereas (4b), which involves VP-ellipsis, allows it. The *pro* analysis would then incorrectly predict that (3b) cannot yield the quantificational reading along with (4a).

The availability of sloppy and quantificational readings of Japanese null arguments has led many researchers to conclude that, in addition to *pro*, they can be derived via Oku's (1998) argument ellipsis, where arguments can directly undergo ellipsis. Specifically, Oku argues that at LF, arguments can be copied from the discourse and covertly Merged into missing argument sites. (see also Shinohara 2006; Takahashi 2006; Saito 2007; Şener and Takahashi 2010; Takita 2010; Sato 2014, 2015; and Sakamoto 2015b). Under this analysis, the sloppy reading for (1b) and the quantificational reading for (3b) can easily be explained, as in (5a) and (5b), respectively.³

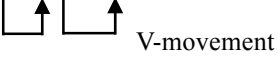
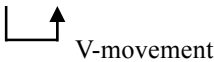
- (5) a. Overt Syntax: Taro [_{NP} self's car] washed. Hanako [_{NP} Δ] not.washed.
 LF: Taro [_{NP} self's car] washed. Hanako [_{NP} self's car] not.washed.

 b. Overt Syntax: Taro [_{NP} three cars] washed. Hanako also [_{NP} Δ] washed.
 LF: Taro [_{NP} three cars] washed. Hanako also [_{NP} three cars] washed.


Although the object position of the second sentence is empty in overt syntax, the

³ Throughout this article, I use outline characters to indicate ellipsis sites.

antecedent containing the anaphor *zibun-no kuruma* ‘self’s car’ or the quantificational argument *sandai-no kuruma* ‘three cars’ is copied and covertly Merged into the empty site at LF. (5a) and (5b) can then naturally yield sloppy and quantificational readings, both of which pose an issue for the *pro* analysis.⁴

A major alternative to the argument ellipsis analysis is Otani and Whitman’s (1991) V-stranding VP-ellipsis analysis, where V overtly moves to T, followed by VP-ellipsis (see also Abe 2014 and Funakoshi to appear). Under this strategy, the sloppy reading in (1b) and the quantificational reading in (3b) are analyzed as in (6a) and (6b), respectively.

- (6) a. [TP Hanako [NegP [VP [NP self’s car] t_v] t_{Neg}] V(wash)+Neg+T]

V-movement
- b. [TP Hanako [VP [NP three cars] t_v] V(wash)+T]

V-movement

The elided VP here includes the *self*-anaphor and the quantifier, so that the relevant readings can be obtained, just as in the argument ellipsis analysis.

A number of empirical arguments that favor the argument ellipsis analysis over the V-stranding VP-ellipsis analysis have already been reported in the literature (cf. Oku 1998; Saito 2004; Goldberg 2005; Takahashi 2008a, b; Takita 2011a, b; Sakamoto 2015a, among others). I refer the reader to these works for the relevant discussion, adding here one more argument favoring the argument ellipsis analysis based on idiomatic expressions.

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

⁴ I assume that strict and E-type readings of Japanese null arguments are obtained from *pro*.

(7).⁵

- (7) a. Taroo-wa kono ryoori-ni keti-o tuketa.
 Taro-TOP this dish-DAT meanness-ACC attached
 lit: ‘Taro attached meanness to this dish.’

- b. *Taroo-wa keti_i-o kono ryoori-ni t_i tuketa.
 Taro-TOP meanness-ACC this dish-DAT attached (Kishimoto 2009:46)

In (7a), *keti* ‘meanness’ and *tuketa* ‘attached’ form an idiomatic expression ‘criticize’. Interestingly, if the accusative part of the idiomatic expression is moved across the dative phrase, the sentence becomes ungrammatical, as in (7b). This shows that the order of the two is rigid. Keeping this fact in mind, consider the following examples.

- (8) a. Taroo-wa zibun-no ryoori-ni keti-o tuketa.
 Taro-TOP self-GEN dish-DAT meanness-ACC attached
 lit: ‘Taro attached meanness to self’s dish.’

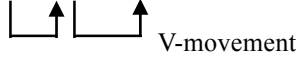
- b. Hanako-wa Δ keti-o tukenakatta.
 Hanako-TOP meanness-ACC not.attached
 lit: ‘Hanako did not attach meanness Δ.’

✓ strict; ✓ sloppy

The null argument in (8b) can be assigned the sloppy reading: it can be interpreted as

⁵ That immobile elements can be used to construct an argument for argument ellipsis was originally noted by Kim (1999), who provides an argument of this kind based on Korean whole-part constructions (this particular argument cannot be reproduced for Japanese due to the double-*o* constraint; see Kuno 1973). As an anonymous reviewer points out, the judgment in (7) may not be quite as robust for some speakers. For example, Miyagawa (1997) finds examples such as (7b) grammatical, though Miyagawa and Tsujioka (2004) report contrasts as in (7a-b). I leave open how this potential speaker variation could be captured.

Hanako's dish. This poses a difficulty for the *pro* analysis since this analysis would only predict the strict reading. The null argument in (8b) also seems not to be derivable via V-stranding VP-ellipsis since under such a strategy the accusative part of the idiomatic expression *keti-o* 'meanness', which must remain within VP, should be affected by ellipsis as well, as in (9a). On the other hand, the argument ellipsis analysis correctly derives the null argument in question since it allows only the dative phrase *zibun-no ryoori-ni* 'self's dish' to undergo ellipsis, so that *keti-o* 'meanness' can survive in (8b), as in (9b).⁶

- (9) a. [TP Hanako [_{NegP} [_{VP} [_{NP} self's dish] [_{NP} meanness] _{tv}] _{t_{Neg}}] V(attach)+Neg+T]

 b. [TP Hanako [_{NegP} [_{VP} [_{NP} self's dish] [_{NP} meanness] V(attach)] Neg] T]

One might argue that the accusative part and the verb of idiomatic expressions form a complex predicate and that V-stranding VP-ellipsis is still an option to derive the null argument in (8b), e.g. the complex predicate consisting of *keti-o* 'meanness' and the verb *tuke* 'attach' would overtly move to T, followed by ellipsis of the VP that includes the dative phrase *zibun-no ryoori-ni* 'self's dish'. However, there are at least three arguments

⁶ The same argument applies to the quantificational case as follows.

- (i) a. Taro-wa mittu-no resutoran-ni keti-o tuketa.
 Taro-TOP three-GEN restaurant-DAT meanness-ACC attached
 lit: 'Taro attached meanness to three restaurants.'
- b. Hanako-mo Δ keti-o tuketa.
 Hanako-also meanness-ACC attached
 lit: 'Hanako also attached meanness Δ.' ✓ E-type; ✓ quantificational

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 favors argument ellipsis in the same way as (8) does.

against such a view. First, focus particles can intervene between the accusative part and the verb in (8b), as shown by (10) (cf. Kishimoto 2005, 2008, 2009).

(10) Hanako-wa Δ keti-sae/-wa/-mo tukenakatta.

Hanako-TOP meanness-even/-TOP/-also not.attached

lit: ‘Hanako did not attach meanness-even/-Top/-also Δ .’ ✓ strict; ✓ sloppy

Second, if the accusative part could 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 (8b) can be modified by a genitive phrase such as *ooku-no* ‘many’ as in (11).

(11) Hanako-wa Δ amari ooku-no keti-o tukenakatta.

Hanako-TOP not.so many-GEN meanness-ACC not.attached

lit: ‘Hanako did not attach so much meanness Δ .’ ✓ strict; ✓ sloppy

Third, as Mamoru Saito (p.c.) points out, the particle *ne*, which cannot intervene between elements that form a typical complex predicate, can intervene between the accusative part and the verb in (8b), as in (12).

(12) Hanako-wa ne Δ keti-o ne tukenakatta yo.

Hanako-TOP PART meanness-ACC PART not.attached PART

lit: ‘Hanako did not attach meanness Δ .’ ✓ strict; ✓ sloppy

Based on these facts, I argue that the accusative part and the verb of idiomatic expressions mentioned here do not form a complex predicate. This in turn means that V-stranding VP-ellipsis is not an option for deriving the null argument in (8b), and that argument ellipsis is operative in Japanese grammar.

3 Argument Ellipsis under Phase Theory

3.1 Abe's (2009) Generalization

Most studies on argument ellipsis have focused on inter-sentential contexts. Abe (2009), however, conducts a very interesting investigation of Japanese elliptic arguments in intra-sentential contexts. Consider (13).⁷

⁷ The null argument and its antecedent in (13a) do not have the same θ -role (grammatical function), which might conceivably affect the availability of argument ellipsis here. However, Saito (2007) and Takahashi (2006, 2012) show that such a mismatch (even a case mismatch) is irrelevant to the possibility of argument ellipsis as shown by (i) and (ii).

(i) θ -role mismatch (e.g. THEME and RECIPIENT)

- a. Taroo-wa zibun-no hahaoya-ni ainiitta ga,
Taro-TOP self-GEN mother-DAT went.to.see but
Hanako-wa zibun-no hahaoya-ni tegami-sae okuranakatta.
Hanako-TOP self-GEN mother-DAT letter-even not.sent
lit: 'Taro went to see self's mother, but Hanako did not send self's mother even a letter.
- b. Taroo-wa zibun-no hahaoya-ni ainiitta ga, Hanako-wa Δ tegami-sae okuranakatta.
Taro-TOP self-GEN mother-DAT went.to.see but Hanako-TOP letter-even not.sent
lit: 'Taro went to see self's mother, but Hanako didn't send Δ even a letter.

(ii) Case mismatch

- a. Taroo-wa zibun-no hahaoya-ni atta ga, Hanako-wa zibun-no hahaoya-o oikaesita.
Taro-TOP self-GEN mother-DAT met but Hanako-TOP self-GEN mother-ACC chased.away
lit: 'Taro met self's mother, but Hanako chased self's mother away.'
- b. Taroo-wa zibun-no hahaoya-ni atta ga, Hanako-wa Δ oikaesita.

- (13) a. John-wa zibun-no musume-ni [sensei-ga Δ aitagatteiru to] itta.
 John-TOP self-GEN daughter-DAT teacher-NOM want.to.see C said
 lit: ‘John told self’s daughter that the teacher wanted to see Δ.’

✓ strict; ✗ sloppy (Abe 2009:151)

- b. Sannin-no gakusei-ga tuisakki [Δ syukudai-o kyoo oeta to] itta.
 three-GEN student-NOM just.now homework-ACC today finished C said
 lit: ‘Three students just now said that Δ finished their homework today.’

✗ quantificational (cf. Abe 2009:148)

In (13a), the antecedent *zibun-no musume* ‘self’s daughter’ c-commands the null argument in the embedded clause and the sloppy reading is unavailable: (13a) can only mean that John told John’s daughter that the teacher wanted to see John’s daughter, not the teacher’s daughter. Also in (13b), the antecedent *sannin-no gakusei* ‘three students’ c-commands the null argument in the embedded clause and the quantificational reading is not available: (13b) can only mean that three students just now said that they finished their homework today, not that three students just now said that three students finished their homework today.⁸ This suggests that the configurations in (14) are impossible, i.e. that argument

Taro-TOP self-GEN mother-DAT met but Hanako-TOP chased.away

lit: ‘Taro met self’s mother, but Hanako chased Δ away.’ (Saito 2007:217)

(ib) and (iib) can both yield the sloppy reading, which indicates that argument ellipsis is available even if null arguments and their antecedents do not have the same θ -role or Case.

⁸ Abe (2009) provides the following example instead of (13b).

- (i) Taitei-no sensei-ga [Δ kyoo-no gogo kuru to] itta.
 most-GEN teacher-NOM today-GEN afternoon come C said

ellipsis is not available here; otherwise, sloppy and quantificational readings should be available in (13a-b).

- (14) a. *John-wa zibun-no musume-ni [sensei-ga zibun-no musume-ni
 John-TOP self-GEN daughter-DAT teacher-NOM self-GEN daughter-DAT
 aitagatteiru to] itta.
 want.to.see C said
 lit: ‘John told self’s daughter that the teacher wanted to see self’s daughter.’
- b. *Sannin-no gakusei-ga tuisakki [sannin-no gakusei-ga syukudai-o
 three-GEN student-NOM just.now three-GEN student-NOM homework-ACC
 kyoo oeta to] itta.
 today finished C said
 lit: ‘Three students just now said that three students finished their homework today.’

Interestingly, if null arguments are not c-commanded by their antecedents, argument ellipsis becomes applicable even in intra-sentential contexts, as illustrated in (15).

- (15) a. [NP [RC Zibun-no gakusei-o sikatta] sensei]-ga Yamada sensei₁-ni
 self-GEN student-ACC scolded teacher-NOM Yamada teacher-DAT
 [PRO₁ Δ sikaranai yooni] tyuukokusita.
 not.scolded C.INF advised

lit: ‘Most teachers said that Δ would come this afternoon.’ ✗ quantificational (Abe 2009:148)

However, a potential problem here is that it is not clear whether the subject *taitei-no sensei* ‘most teachers’ is located in the matrix clause or the embedded clause. Therefore, I use (13b) instead of (i).

lit: ‘A teacher who scolded self’s student advised Prof. Yamada not to scold Δ.’

✓ strict; ✓ sloppy (cf. Abe 2009:152)

- b. [NP [RC Kyonen sannin-no gakusei-o suisensita] sensei]-ga
 last.year three-GEN student-ACC recommended student-NOM
 kotosi-mo Δ suisensita.
 this.year-also recommended

lit: ‘A teacher who recommended three students last year recommended Δ this year too.’
 ✓ E-type; ✓ quantificational (cf. Abe 2009:150)

In (15a), the antecedent *zibun-no gakusei* ‘self’s student’ is embedded within a relative clause, so that it does not c-command the null argument and the sloppy reading is available: (15a) can mean that a person who scolded his own student advised Prof. Yamada not to scold his (= Prof. Yamada’s) student. Also in (15b), the antecedent *sannin-no gakusei* ‘three students’ does not c-command the null argument since the former is embedded within the relative clause, and the quantificational reading is available: (15b) can mean that a teacher who recommended three students last year recommended three students this year too. Based on the contrast between (13) and (15) regarding the availability of sloppy and quantificational readings, Abe (2009) proposes the following generalization.

- (16) Argument ellipsis does not apply to an argument when it is c-commanded by its antecedent. (adapted from Abe 2009:150)

Although (16) can correctly accommodate the contrast between (13) and (15), I will propose an alternative interpretation of the contrast, which will be shown not only to provide us with a principled account for the contrast in question that also has some

empirical advantages over (16) (to be discussed in section 3.3), but also to support the phase theory of the syntactic derivation.

3.2 Proposal


My proposal regarding argument ellipsis to be developed in this section is based on the basic minimalist hypotheses in (17).

- (17) a. Derivations proceed from the bottom to top. (cf. Chomsky 1995)
- b. Syntactic derivations are cyclically transferred.
(cf. Uriagereka 1999; Chomsky 2000)
- c. Syntactic operations are applied in a phase-by-phase fashion.
(cf. Chomsky 2000)

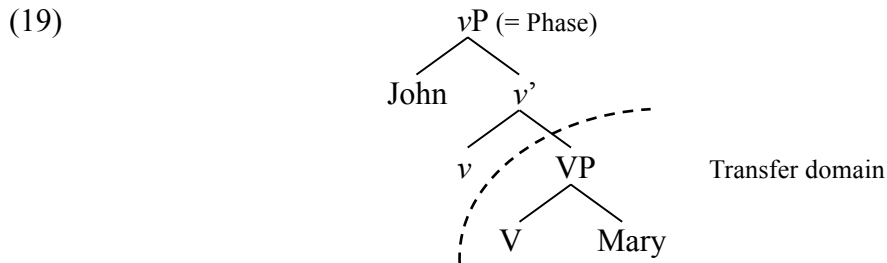
Regarding (17a), under the minimalist program, syntactic objects are built in a bottom-up fashion via External Merge (Merge), which combines two syntactic objects and creates a new syntactic object, and Internal Merge (Move), which takes α in the syntactic object K and merges it in another position in K, leaving a copy of α in the original position. For example, (18a) is derived as illustrated from (18b) to (18g).

- (18) a. John loves Mary.
- b. [_{VP} loves [_{DP} Mary]] Merge (*love*, *Mary*)
- c. [_v [_{VP} loves [_{DP} Mary]]] Merge (*v*, VP)
- d. [_{VP} John [_v [_{VP} loves [_{DP} Mary]]]] Merge (*John*, *v*+VP)
- e. [T [_{VP} John [_v [_{VP} loves [_{DP} Mary]]]]] Merge (T, *v*P)

g. [TP John [T [_{VP} <John> [_v [_{VP} loves [_{DP} Mary]]]]]] Move (*John*)



Regarding (17b), Cyclic Transfer means that syntactic derivation is transferred to the interfaces (PF and LF) in a chunk-by-chunk fashion, not all at once (cf. Uriagereka 1999, Chomsky 2000 and *seq.*). The chunk in question is called phase. Chomsky (2000, 2001) assumes that phases are propositions, namely CP and ν P. Crucially, he maintains that the transfer domain of a phase is not a phase itself but the complement of a phase. For example, when the ν P phase is completed, the domain which undergoes Transfer is the complement of the ν P, namely VP, but not ν P itself. Let us illustrate the Cyclic Transfer model by considering part of the derivation of (18a), as shown in (19).



In (18c-d), the functional head ν is merged with VP, and then the external argument *John* is merged with the already formed syntactic object. As a result, the ν P phase is completed, and its complement, VP, undergoes Transfer. In what follows, I will assume cyclic spell-out of this sort. Lastly, as for (17c), Chomsky (2000) and his sequential works claim that all the applicable operations in a phase must be implemented within the phase. The effect of (17c) for the current perspective on argument ellipsis is then that copies can be covertly Merged into missing sites only within the cycle of the first phase that includes the relevant site.

Given (17a-c), I propose the following condition on elliptic arguments and their

antecedents.

- (20) Only an argument which has already been transferred can be an antecedent for elliptic arguments.

Under (17c), (20) is taken to mean that a potential target position for argument ellipsis must have an appropriate (already transferred) antecedent when the phase that includes it is computed.⁹

(20) can be considered to be a consequence of the LF-copy analysis of argument ellipsis, which I assume throughout the article. Specifically, what can be copied and covertly Merged into empty sites, i.e. an antecedent of elliptic arguments, must be an LF object (cf. Saito 2007), i.e. an object without phonetic features, which means that elements must be sent to the interfaces to become LF objects. Therefore, (20) is not a stipulation but a by-product of the LF-copy analysis of argument ellipsis.¹⁰

Now let us consider how the hypotheses in (17) and the condition in (20) interact

⁹ Regarding an issue raised by an anonymous reviewer, I speculate that what is available as an antecedent is what is in the speaker's "extended" workspace. Specifically, though the general workspace only includes the syntactic objects that are being constructed, I assume that the "extended" workspace also includes the representation of the salient discourse (however that is constructed) and any constituents already transferred in the current derivation (even if not yet uttered).

¹⁰ This does not mean that the current proposal is incompatible with the PF-deletion analysis of argument ellipsis (cf. Takahashi 2013). Under the PF-deletion analysis, a target is deleted under identity with its antecedent. Therefore, under (20), if there is no antecedent that has already been transferred within the cycle of the relevant phase, a potential target cannot undergo argument ellipsis since the identity condition cannot be satisfied at that point (see, however, Shinohara 2006, Saito 2007, and Sakamoto 2015b for arguments favoring the LF-copy analysis of argument ellipsis over the PF-deletion analysis).

to account for the data discussed above. First, consider the basic inter-sentential case (1), repeated here as (21).¹¹

- (21) a. Taro-o-wa zibun-no kuruma-o aratta.

Taro-TOP self-GEN car-ACC washed

lit: ‘Taro washed self’s car.’

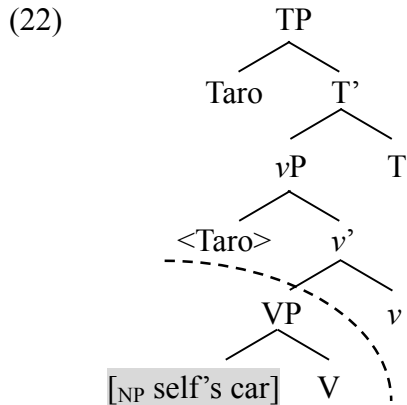
- b. Hanako-wa Δ arawanakatta.

Hanako-TOP not.washed

lit: ‘Hanako did not wash Δ.’

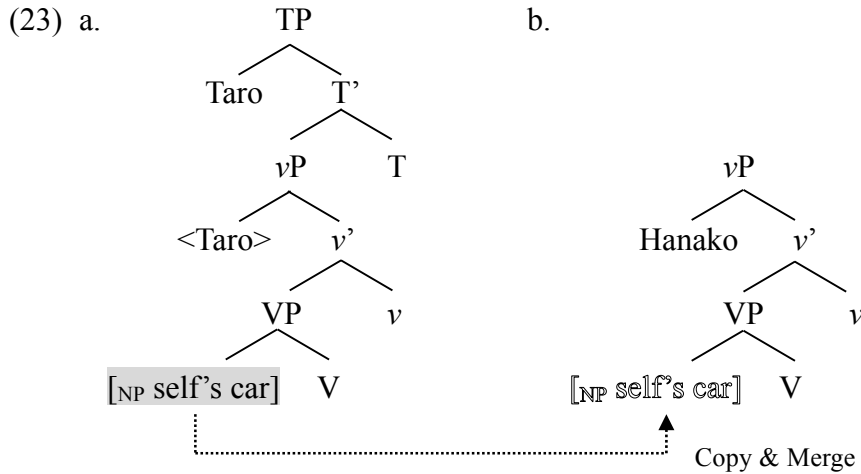
✓ strict; ✓ sloppy

What is of interest is that (21b) allows sloppy identity, which means that the null object in (21b) is (at least, can be) an elliptic argument but not a *pro*. Under the current proposal, the derivation of the antecedent clause (21a) can be illustrated as follows.



When the *vP* phase is completed, the phasal complement *VP* undergoes Transfer and the NP *self's car* becomes an available antecedent, i.e. an LF object (I omit the subsequent steps of the derivation for expository purposes). Next, consider (23b), which illustrates the *vP* phase of the target clause (21b).

¹¹ The discussion throughout this section also applies to quantificational null arguments.

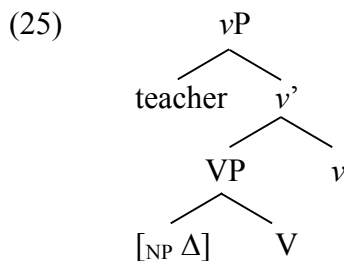


In (23b), argument ellipsis can be applied to the object position since there is an appropriate (already transferred) antecedent in the antecedent clause (23a). Therefore, (21b) can yield the sloppy reading.

Next, let us consider the intra-sentential case (13), where a null argument is c-commanded by its antecedent and cannot yield the sloppy reading, repeated here as (24).

- (24) John-wa zibun-no musume-ni [sensei-ga Δ aitagatteiru to] itta.
 John-TOP self-GEN daughter-DAT teacher-NOM want.to.see C said
 lit: 'John told self's daughter that the teacher wanted to see Δ .' ✓ strict; ✗ sloppy

The unavailability of the sloppy reading here can be accounted for under the current proposal. The relevant parts of the derivation of (24) are illustrated in (25).



Under the hypothesis in (17a) that derivations proceed bottom up, the embedded clause must be constructed first. When the embedded vP phase is computed, *zibun-no musume*

‘self’s daughter’ in the matrix clause is not an appropriate antecedent that can be copied and covertly Merged into the object position of the ν P since it has not been transferred yet. Therefore, argument ellipsis cannot apply, and (24) cannot yield the sloppy reading.¹²

Finally, let us consider the intra-sentential case (15), where a null argument is not c-commanded by its antecedent and the sloppy reading is obtained, repeated here as (26).

- (26) [NP [RC Zibun-no gakusei-o sikatta] sensei]-ga Yamada sensei₁-ni
 self-GEN student-ACC scolded teacher-NOM Yamada teacher-DAT
 [PRO₁ Δ sikaranai yooni] tyuukokusita.
 not.scolded C.INF advised

lit: ‘A teacher who scolded self’s student advised Prof. Yamada not to scold Δ.’

✓ strict; ✓ sloppy

The availability of the sloppy reading here is also accounted for under the current proposal.

Let us start the derivation of (26) with the embedded clause as in (27).

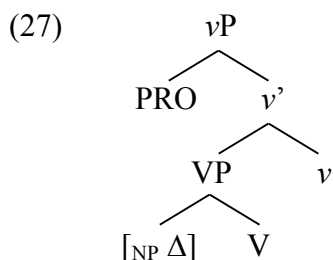
¹² Note here that nothing seems to prohibit Hoji’s (1998) null indefinite pronoun from occupying the empty position in (24). Importantly, the overt bare NP *musume* ‘daughter’ can occur in the position in question.

- (i) John-wa zibun-no musume-ni [sensei-ga musume-ni aitagatteiru to] itta.

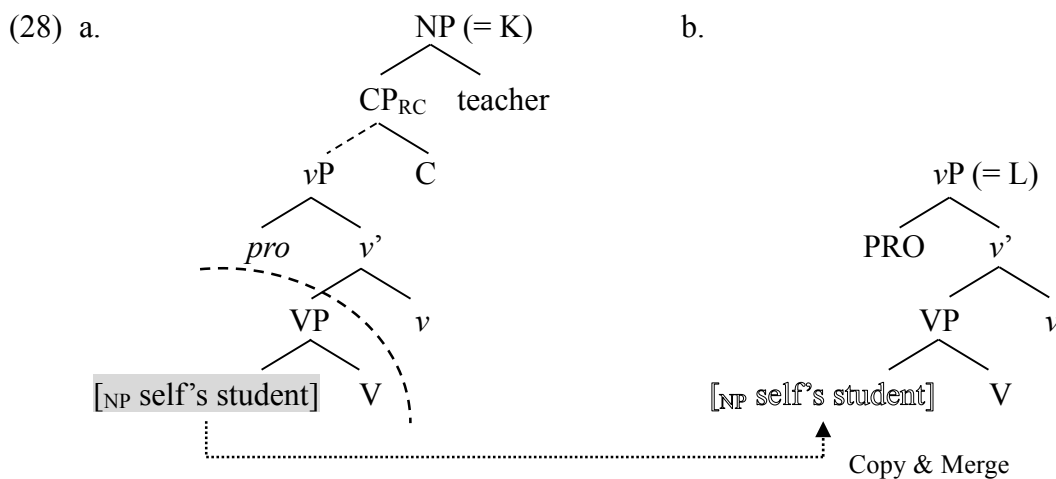
John-TOP self-GEN daughter-DAT teacher-NOM daughter-DAT want.to.see C said

lit: ‘John told self’s daughter that the teacher wanted to see daughter.’

Under Hoji’s analysis, (24) should be able to have the same meaning as (i), which is contrary to the fact. Specifically, unlike (24), (i) allows the sloppy interpretation: it can mean that John told John’s daughter that the teacher wanted to see the teacher’s daughter. Therefore, Hoji’s (1998) null indefinite pronoun analysis would incorrectly predict (13a)/(24) to yield the sloppy reading. At any rate, what is important for our purposes is that the argument ellipsis analysis under the current phase-based approach can correctly predict in which contexts sloppy and quantificational readings are/are not possible.



When the vP phase is computed, *zibun-no gakusei* ‘self’s student’ within the matrix complex subject has not been transferred yet, so it cannot be copied and covertly Merged into the empty object position. Therefore, the derivation (27) incorrectly predicts (26) not to yield sloppy identity. However, we can alternatively construct the complex subject NP *a teacher who scolded self’s student* first. Let us consider the derivation of (26) under this scenario.



Here, the syntactic object K stands for the complex subject NP and the syntactic object L for the embedded clause. Let us suppose that we start to construct L after we finish constructing K.^{13,14} When the vP phase in K is completed, the phasal complement VP

¹³ Actually, we can start to construct the syntactic object L after the vP phase in the syntactic object K is completed. In addition, the syntactic object K and L can also be constructed in parallel.

¹⁴ Throughout the article, I assume with Perlmutter (1972), Fukui and Takano (2000), and Murasugi (2000)

undergoes Transfer and the NP *self's student* becomes an appropriate antecedent. Let us suppose that the derivation proceeds and the whole complex NP becomes full-fledged as in (28a). Now consider the derivation of L, i.e. the embedded clause, in (28b). When the vP phase in L is computed, argument ellipsis can apply to the null object position since there is an appropriate antecedent in K. Therefore, the null object in (26) can yield the sloppy reading.¹⁵

that the gap in Japanese relative clauses is *pro* for expository purposes.

¹⁵ A potential issue here is that the current analysis might incorrectly predict backward ellipsis in (i) to be possible.

- (i) a. Δ sannin-no gakusei-o hihansita.

three-GEN student-ACC criticized

lit: 'Δ criticized three students.'

- b. John-wa Δ [sensei-ga zibun-no musume-ni aitagatteiru to] itta.

John-TOP teacher-NOM self-GEN daughter-DAT want.to.meet C said

lit: 'John told Δ that the teacher wanted to see self's daughter.'

The analysis might predict (ia) to mean that three students criticized three students and (ib) to mean that John told John's daughter that the teacher wanted to see the teacher's daughter, but these interpretations cannot be obtained. On the other hand, as the current analysis correctly predicts, backward ellipsis is allowed in cases like (ii).

- (ii) a. [[kyonen Δ suisensita] sensei]₁-ga [kotosi-mo PRO₁ sannin-no

last.year recommended teacher-NOM this.year-also three-GEN

gakusei-o suisensuru to] itta.

student-ACC recommend C said

lit: 'The teacher who recommended Δ last year said that PRO would recommend three students this year too.'

✓ E-type; ✓ quantificational

3.3 Empirical Advantages

Recall that based on the contrast between (13) and (15), Abe (2009) reaches (16), i.e. that null arguments cannot be elliptic when they are c-commanded by their antecedents. I have shown in the previous section that (16) and the contrast between (13) and (15) can be

-
- b. Mary-ga Δ semeta atode, John-mo zibun-no sensei-o semeta.
 Mary-NOM criticized after John-also self-GEN teacher-ACC criticized
 lit: ‘After Mary scolded Δ , John also scolded self’s teacher.’

✓ strict; ✓ sloppy (Takahashi 1996b:270)

The difference between (i) and (ii) is that in the former, the “ellipsis” site c-commands the antecedent, whereas in the latter, no c-command relation holds between the ellipsis site and the antecedent. The generalization induced from (i) and (ii) is as follows.

- (iii) In Japanese, backward ellipsis is impossible if the ellipsis site c-commands the antecedent.

This actually is not surprising. We are simply dealing here with an instance of Backward Anaphora Constraint in (iv) (cf. Ross 1967, 1969; Langacker 1969), which is illustrated in (v).

- (iv) Anaphoric elements (of which ellipsis sites are a special case) may not simultaneously command and linearly precede their antecedents. (Barros and Vicente 2009:1)

- (v) a. I didn’t drink wine because Steve told me not to Δ .

- b.* I didn’t Δ because Steve told me not to drink wine.

- c. Because Steve told me not to Δ , I didn’t drink wine. (Barros and Vicente 2009:1)

As discussed in Barros and Vicente (2009), the ungrammaticality of (vb) is generally attributed to (iv): the VP-ellipsis site simultaneously commands and linearly precedes the VP-antecedent in the adjunct clause. Therefore, the unavailability of the relevant readings in (i) can also be attributed to (iv), though I leave open here whether the well-known constraint in (iv) follows from something else.

captured under the analysis presented here. In this section, I will discuss two configurations that are problematic for the generalization in (16), and show that they can also be correctly captured under the current analysis. In other words, what we have here is a situation that often obtains when a generalization is deduced: the deduction does not have exactly the same empirical scope as the generalization itself. I will show that this is a desirable outcome in the case under consideration.

The first configuration concerns possessive phrases. Let us first consider how Japanese possessives behave with respect to the binding theory. Saito (1983), Hoji (1985), and Whitman (1986) argue that possessive pronouns within a noun phrase do not c-command out of the phrase, based on the following example.

- (29) [Kare₁-no hahaoya]-ga John₁-o semeta.
 he-GEN mother-NOM John-ACC criticized
 ‘His mother criticized John’ (Hoji 1985:4)

The possessive pronoun *kare-no* ‘his’ and *John* can be coindexed here, which indicates that the former does not c-command the latter since otherwise the sentence would violate Condition C of the binding theory. I then assume that the possessive occupies the specifier of the head noun throughout this article.¹⁶ Keeping this in mind, consider (30).

¹⁶ Takahashi (2011) argues that possessives in Japanese c-command out of the noun phrase based on examples like (i).

- (i) *[Kare₁-no saisin-no eiga]-wa hontouni Kurosawa₁-o rakutansasetea.
 he-GEN latest-GEN movie-TOP really Kurosawa-ACC disappointed
 ‘His₁ latest movie really disappointed Kurosawa₁.’ (Takahashi 2011:196)

He also argues that the contrast between (i) and (29) comes from whether the head noun is a relational noun

(30) a. Hanako-wa [kare₁-no hahaoya]-ni [sensei-ga Taroo₁-ni

Hanako-TOP he-GEN mother-DAT teacher-NOM Taro-DAT

aitagatteiru to] itta.

wants.to.see C said

‘Hanako told his₁ mother that the teacher wanted to see Taro₁.’

b. Hanako-wa [[zibun-no tomodati]-no hahaoya]-ni [sensei-ga

Hanako-TOP self-GEN friend-GEN mother-DAT teacher-NOM

Δ aitagatteiru to] itta.

wants.to.see C said

lit: ‘Hanako told the mother of self’s friend that the teacher wanted to see Δ.’

The grammaticality of (30a), where the possessive pronoun *kare-no* within the matrix dative phrase can be coindexed with *Taro* within the embedded clause, shows that the former does not c-command the latter here. Under (16), the possessive phrase *zibun-no tomodati* ‘self’s friend’ in (30b) should then be able to serve as an antecedent for the null object within the embedded clause. This, however, is not the case. (30b) cannot be interpreted as Hanako told the mother of self’s (= Hanako’s) friend that the teacher wanted to see self’s (= the teacher’s) friend. Furthermore, Abe (2009) himself notes the quantificational case of this kind, as in (31).

(31) [[Takusan-no gakusei]-no sidoukyouin]-ga [Δ sotugyousiki-ni

many-GEN student-GEN supervisor-NOM graduation.ceremony-DAT

or not. I simply refer the reader to Takahashi (2011) for this issue, and use relational nouns throughout the discussion of possessives in the article.

syussekisuru to] omotteiru.

attend C think

lit: ‘The major advisors of many students think that Δ will attend the graduation ceremony.’ (Abe 2009:151)

Under (16), we would expect (31) to be able to mean that the major advisors of many students think that many students will attend the graduation ceremony, but this interpretation cannot be obtained.¹⁷

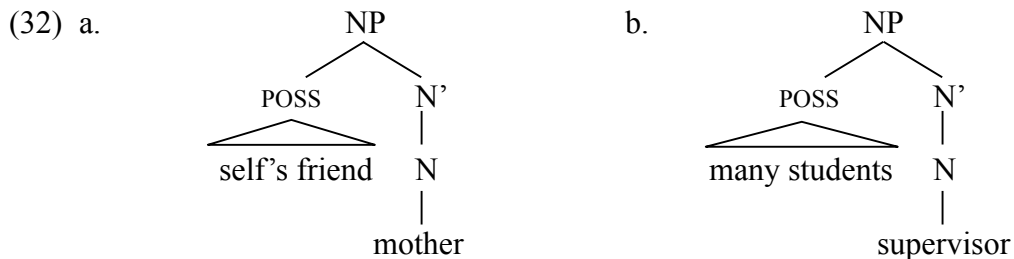
Nevertheless, the current analysis straightforwardly explains the impossibility of the relevant readings in (30b) and (31). Specifically, under (20), elements must undergo Transfer to be appropriate antecedents for null arguments. However, in (30b), the possessive phrase *zibun-no tomodati* ‘self’s friend’ within the matrix dative phrase cannot undergo Transfer before the phase that includes the object within the embedded clause becomes completed. Also in (31), the possessive phrase *takusan-no gakusei* ‘many students’ within the matrix subject cannot undergo Transfer before the phase that includes the subject within the embedded clause becomes completed. Specifically, even if we first construct the phrases within the matrix clause, the possessive phrases cannot become appropriate

¹⁷ That the possessive phrase within the matrix subject does not c-command the embedded subject is confirmed by the following.

- (i) [Kare₁-no hahaoya]-ga [Taroo₁-ga sotugyousiki-ni syussekisuru to] omotteiru.
 he-GEN mother-NOM Taro-NOM graduation.ceremony-DAT attend C think
 ‘His₁ mother thinks that Taro₁ will attend the graduation ceremony.’

The possessive *kare-no* ‘his’ can be coindexed with *Taro* here, which suggests the former does not c-command the latter since otherwise (i) would violate Condition C.

antecedents for the null arguments in question as in (32).



As discussed above, the possessive phrase occupies the specifier of the head noun. Then, even if NP is a phase (see Bošković 2014), the possessive phrase cannot be transferred until a phrase which includes the NP undergoes Transfer, since the specifier position of a phasal head is not affected by Transfer when the NP phase is completed. Therefore, under the current analysis, the possessive phrase cannot serve as an antecedent for the null argument, as desired.¹⁸

¹⁸ Notice also that, assuming that NP is a phase (see Bošković 2014), the current perspective predicts an NP complement of a noun to be able to serve as an antecedent for an elliptic argument. (i) is a potentially relevant case here.

- (i) Taroo-wa [[zibun-no himitukiti-no kensetu]-ga [Hanako-no Δ kensetusinai toiu
Taro-TOP self-GEN secret.base-GEN building-NOM Hanako-GEN not.build C
isi]-o tuyokusita to] omotteiru.
intention-ACC strengthen C think
lit: 'Taro thinks that building of self's secret base strengthens Hanako's intention that she will not build Δ.'

Given that *zibun-no himitukiti* 'self's secret base' occupies the complement position of the head noun *kensetu* 'building', if we first construct the object NP in question, it should be able to serve as an antecedent for the empty object in (i). This prediction is borne out: (i) can mean that Taro thinks that building of his secret base strengthens Hanako's intention that she will not build her secret base.

The second relevant configuration involves scrambling. Abe (2011) observes that sloppy and quantificational readings do not become available even if the embedded clause is scrambled as in (33).

(33) a. [Sensei-ga Δ aitagatteiru to]_i John-wa zibun-no musume-ni _{t_i} itta.

teacher-NOM want.to.see C John-TOP self-GEN daughter-DAT said

lit: ‘That the teacher wanted to see Δ , John told self’s daughter.’

✓ strict; ✗ sloppy (Abe 2011:213)

b. [Δ syukudai-o oeta to]_i sannin-no gakusei-ga _{t_i} itta.

homework-ACC finished C three-GEN student-NOM said

lit: ‘That Δ finished their homework, three students said.’ ✗ quantificational

In (33a) and (33b), the null arguments are not c-commanded by their potential antecedents. Under (16), we would expect that they should be able to yield sloppy and quantificational readings, respectively. However, this is not the case.¹⁹ Abe (2011) mentions that this problem could be avoided if we assume that the null arguments in question can be c-commanded by their antecedents via reconstruction of the embedded clause. However, this approach faces a problem in a situation where the embedded clause cannot reconstruct into the original position. The relevant example can be constructed by making use of the focus particle *-mo* ‘also’.

¹⁹ An anonymous reviewer points out that he/she finds (33), (35), and (36) grammatical with sloppy and quantificational readings, contrary to Abe’s (2011) and my judgments. I rechecked the relevant data with three native speakers of Japanese (all of them linguists), and they all agreed with Abe’s and my judgments. I will leave this potential speaker variation open here.

Hasegawa (1991) argues that the focus particle *-mo* behaves as a positive polarity item as in (34).

(34) John-mo konakatta.

John-also not.came

‘John also didn’t come.’ ✓ *also* » Neg; ✗ Neg » *also* (Hasegawa 1991:279)

(34) presupposes that there is at least one individual besides John who did not come; it cannot be interpreted as someone came but it is not the case that John also came. This means the focus particle *-mo* must scope over negation. This in turn suggests that when it interacts with negation regarding scope, the element to which this particle is attached must occupy a higher position than negation at LF. Keeping this in mind, consider (35).

(35) [Sensei-ga Δ aitagatteiru to]_i-mo John-wa zibun-no musume-ni
 teacher-NOM want.to.see C-also John-TOP self-GEN daughter-DAT
 t_i iwanakatta.
 not.said

lit: ‘That the teacher wanted to see Δ, John also didn’t tell self’s daughter.’

✓ strict; ✗ sloppy

(i) ✓ *also* » Neg: There is at least one thing, besides that the teacher wanted to see Δ, that John didn’t tell self’s daughter.

(ii) ✗ Neg » *also*: John told something to self’s daughter but it is not the case that John also told self’s daughter that the teacher wanted to see Δ.

In (35), the embedded clause does not reconstruct into the original position in terms of

scope, so that even at LF the antecedent *zibun-no musume* ‘self’s daughter’ does not c-command the null argument. Under (16), we would then expect the sloppy reading to be available in (35); however, this is not the case. This argument also extends to the quantificational reading as in (36).

- (36) [Δ syukudai-o oeta to]_i-mo sannin-no gakusei-ga t_i iwanakatta.
 today-GEN finished C-also three-GEN student-NOM not.said

lit: ‘That Δ finished their homework, three students also didn’t say.’

✗ quantificational

- (i) ✓ *also* » Neg: There is at least one thing, besides that Δ finished their homework, that three students didn’t say.
 (ii) ✗ Neg » *also*: Three students said something but it is not the case that they also said that Δ finished their homework.

Since the embedded clause does not reconstruct into the original position in terms of scope, even at LF the antecedent *sannin-no gakusei* ‘three students’ does not c-command the null argument. The quantificational reading is then incorrectly expected to be available in (36) under (16).

On the other hand, the current analysis correctly captures the unavailability of the relevant readings in (33), (35), and (36) since the embedded clause has to be constructed first regardless of whether there is scrambling of the embedded clause or whether the focus particle *-mo* is attached to the embedded clause. That is, we cannot obtain the situation where the relevant matrix phrases are transferred before the phases which include the relevant embedded phrases become completed.

3.4 Abe's (2011) Last Resort Strategy of Argument Ellipsis

I now turn to Abe's (2011) deduction of the generalization in (16). An anonymous reviewer points out that the counterarguments for Abe's (2009) generalization mentioned above could be resolved if we assume with Abe (2011) that argument ellipsis is blocked where variable binding is possible, i.e. that argument ellipsis is a last resort operation. Specifically, Abe (2011) posits two entities for null arguments in Japanese, bound *pro* and elliptic arguments, and then argues that there is a preference between these two: the former preempts the latter.²⁰ The following quote from Abe (2011) is relevant here: "[W]henver null arguments are available in a given language, they may function as bound *pro*, but this is not the case with argument ellipsis. Given this, the generalization given in [16] follows, since when a null argument and its antecedent are in a c-command relationship, the bound *pro* strategy must be chosen" (Abe 2011:212–213). Therefore, under Abe's (2011) analysis, the c-commanded null arguments are always identified as bound *pro*, excluding the sloppy and the quantificational reading. The anonymous reviewer then notes that it is well known that bound variables can be licensed by being almost c-commanded as in the possessor case in *Every boy_i's mother thinks he_i is smart* (cf. Reinhart 1983), so that the unavailability of the relevant readings in (30b) and (31) could be captured because the possessors within the matrix clause can be the binders of bound variables within the embedded clause. As for the

²⁰ By bound *pro*, Abe (2011) means A-bound *pro*, cf. (13), and variables bound by a null topic (cf. Huang 1982, 1984; Hasegawa 1984/85).

reconstruction case, we independently know that scrambling does not affect an already established bound variable relation (cf. Hoji 1985) so that the null arguments in (35) and (36) would have to be identified as bound *pro*; thereby, the relevant readings would not be obtained.

Abe's (2011) conjecture is quite interesting. However, there are still some conceptual and empirical issues with it. Conceptually, it remains unclear why argument ellipsis is more marked than bound *pro* in Japanese. Abe claims that this is the case, cf. (13a-b), but does not really give an explanation as to why this would hold. Empirically, the availability of the sloppy reading in (37) remains as a problem even if the preference between the argument ellipsis strategy and the bound *pro* strategy in terms of markedness and the generalization in (16) are both adopted.

- (37) Taroo-ga zibun_i-o [Hanako-ga Δ homeru mae]-ni t_i hometa.
 Taro-NOM self-ACC Hanako-NOM praised before praised
 lit: 'Before Hanako praised Δ, Taro praised self.'

✓ strict; ✓ sloppy (adapted from Abe 2011:204)

Here, the antecedent *zibun* 'self' in the matrix clause c-commands the null object within the adjunct clause, but the null object in question can be assigned the sloppy reading: it is (at least, can be) an elliptic argument not bound *pro*. Abe (2011) does not give much discussion regarding cases like (37). Under his analysis, argument ellipsis should be inapplicable here since the null object in question is c-commanded by its antecedent. Also, the relevant element cannot be a bound *pro* since the sloppy reading is obtained.²¹ The

²¹ The *pro* option is also excluded due to Condition B of the binding theory if we take sloppy identity into

only way left seems to be to analyze the null object in question as a parasitic gap (see Abe 2011 for discussion), but such an approach also turns out to be not quite successful since, as Abe himself notes, Haik (1985) observes that parasitic gaps within adjunct clauses cannot yield the sloppy reading, as in (38) (*pg* stands for a parasitic gap).

(38) I wonder [what picture of himself]_i John looked at _{t_i} before Peter threw out *pg*.

(Haik 1985:357)

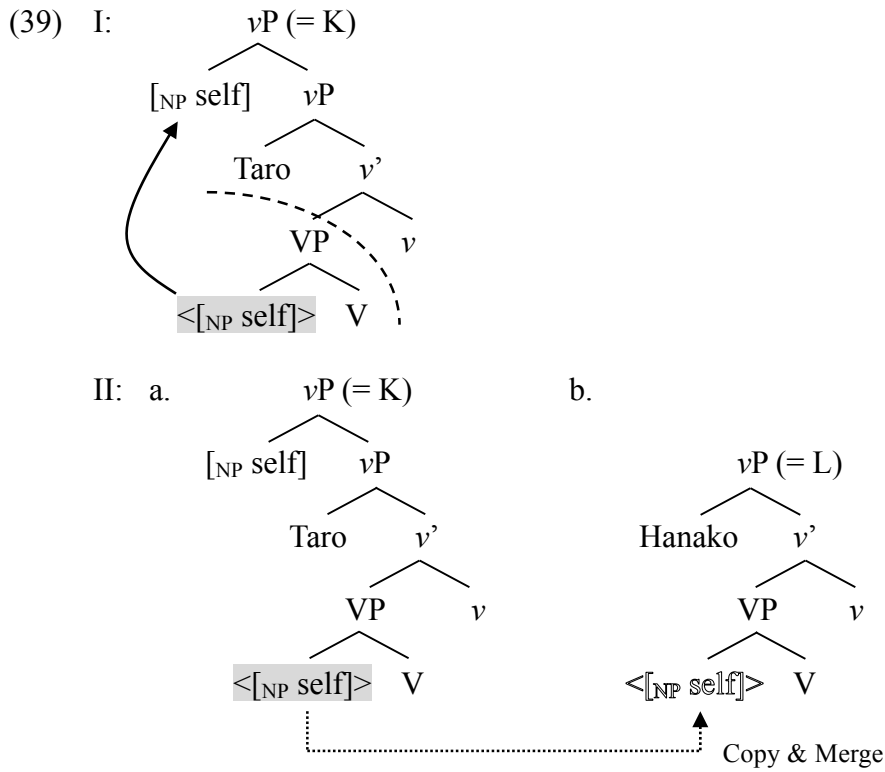
This sentence only has the reading where *himself* is interpreted as John not Peter. Therefore, the null object in (37) cannot be an instance of a parasitic gap either.²²

The current proposal, on the other hand, resolves the conceptual and empirical issues that Abe's (2011) deduction of his generalization faces. The conceptual issue was that it was left unexplained why the argument ellipsis strategy is more marked than the bound *pro* strategy. Under the current analysis, this is given a principled account: there must be an appropriate antecedent, i.e. an object that has already been transferred, for the former to apply, so that the distribution of elliptic arguments is more restricted than that of bound *pro*. As for the empirical issue (37), the current proposal can straightforwardly explain the sloppy reading in question as follows.

consideration (cf. Xu1986; Takahashi 2008a), which is schematically illustrated in (i).

(i) * Taro self_i [Hanako₁ *pro*₁ praised before] _{t_i} praised

²² Also note that the movement involved in (37), i.e. short scrambling under Tada's (1993) sense, is generally considered to be an instance of A-movement, which cannot license parasitic gaps (cf. Engdahl 1983).



Here, K stands for the matrix clause and L for the adjunct clause. In (39-I), the NP *self* moves to the edge of vP, leaving its copy in the object position. The vP phase is then completed, and the phasal complement VP, which includes the copy of *self*, gets transferred. Then, we construct the adjunct clause L as in (39-IIb). When the vP phase in L is computed, argument ellipsis can apply to the empty object position since there is an appropriate antecedent in K.²³ Therefore, (37) can yield the sloppy reading.

In summary, I argued that the basic minimalist hypotheses in (17) in concert with the condition on argument ellipsis in (20) provide us with a principled explanation of the variable behavior of Japanese null arguments regarding the availability of sloppy and quantificational readings. Specifically, I maintained that the current approach to argument

²³ See Takahashi (2006) for an argument that the copy left by movement of *self*-anaphors can be LF-copied onto empty sites, yielding the sloppy reading.

ellipsis can account both for the data that motivated Abe's (2009) generalization in (16) and for the additional data which were discussed here as being problematic for it. In other words, we are dealing here with a situation where a deduction of a generalization does not have exactly the same coverage as the generalization itself, which I have argued is desirable in the case under consideration here. I have shown that the current analysis also overcomes the problems that Abe's (2011) deduction of his generalization faces. In the following, assuming that the current phase-based analysis of argument ellipsis is on the right track, I will discuss a configuration that Takahashi (1996a, b) refers to as ACD in Japanese, which will turn out to provide another piece of supporting evidence for the current proposal.

4 Apparent Antecedent-Contained Deletion

4.1 Takahashi's (1996a, b) Observation and Analysis

Takahashi (1996a, b) makes a very interesting observation concerning a case where scrambling affects the availability of the sloppy reading. Consider (40).^{24,25}

²⁴ To exclude the possibility that a null indefinite pronoun (cf. Hoji 1998) occupies the empty position within the complex NP, I modified Takahashi's (1996a, b) examples here; particularly, I put negation on the verb within the complex NP. See footnote 1 and Saito (2007) for this issue.

²⁵ Actually, Takahashi (1996a, b) only refers to the case where the complex NP is scrambled to the sentence-initial position. A similar contrast to the one in (40a) and (40b-c) is observed in Korean; see Lee (1997) and Cho (2001).


- (40) a. Taroo-wa zibun-no inu-ni [NP [RC Hanako-ga Δ tuketeagenakatta]
 Taro-TOP self-GEN dog-DAT Hanako-NOM not.put
 kubiwa]-o tuketeageta].
 collar-ACC put
 lit: ‘Taro put on self’s dog a collar which Hanako didn’t put Δ.’ ✓ strict; ✗ sloppy
- b. Taroo-wa [NP [RC Hanako-ga Δ tuketeagenakatta] kubiwa]_i-o
 Taro-TOP Hanako-NOM not.put collar-ACC
 zibun-no inu-ni _{t_i} tuketeageta
 self-GEN dog-DAT put ✓ strict; ✓ sloppy
- c. [NP [RC Hanako-ga Δ tuketeagenakatta] kubiwa]_i-o Taroo-wa
 Hanako-NOM not.put collar-ACC Taro-TOP
 zibun-no inu-ni _{t_i} tuketeageta
 self-GEN dog-DAT put ✓ strict; ✓ sloppy

In (40a), the complex NP involving a gap stays in-situ, and only the strict reading is available: (40a) can only mean that Taro put on his dog a collar that Hanako did not put on his dog, not her own dog. By contrast, in (40b-c), where the complex NP in question is scrambled, the sloppy reading becomes available: (40b-c) can mean that Taro put on his own dog a collar that Hanako did not put on her own dog.²⁶

²⁶ The contrast regarding the availability of the sloppy reading in (40a) and (40b-c) carries over to the quantificational case, as in (i).

- (i) a. Taroo-mo [sannin-no hito]-ni [NP [RC Hanako-ga Δ ageta] hon]-o ageta.
 Taro-also three-GEN person-DAT Hanako-NOM gave book-ACC gave

Adopting V-stranding VP-ellipsis, Takahashi (1996a, b) analyzes the configurations in (40) as an instance of ACD in Japanese. Specifically, he argues that the sloppy reading is not available in (40a) since the elliptic VP (VP_e) is contained within the antecedent VP (VP_a), causing the infinite regress problem (cf. May 1985; Hornstein 1995), as in (41).

- (41) a. [TP Taro put [VP_a t_v on self's dog [NP a collar which Hanako didn't put Δ_{VP_e}]]]

 b. [TP Taro put [VP t_v on self's dog [NP a collar which Hanako didn't put [VP t_v on self's dog [NP a collar which Hanako didn't put [VP ...]]]]]]]]]

Regardless of whether VP-ellipsis involves deletion of VP_e under identity with VP_a or copying of VP_a into the position of VP_e , the structural representation in (41a) has the configuration in (41b), which contains an infinitely large VP. V-stranding VP-ellipsis then cannot be applied in (40a); therefore, the sloppy reading is not available.²⁷ By contrast, in (40b-c), V-stranding VP-ellipsis is applicable since the complex NP involving VP_e is scrambled out of VP_a , resolving the infinite regress problem as in (42).

| | | | | | | | | |
|----|---|----------|--------|---------------|-----------|---------------------|------------|--------------------|
| | lit: 'Taro also gave three people the book that Hanako gave Δ .' | | | | | | | ✗ quantificational |
| b. | [NP [RC Hanako-ga | Δ | ageta] | hon]-o | Taroo-mo | [sannin-no hito]-ni | t_i | ageta. |
| | Hanako-NOM | | | gave book-ACC | Taro-also | three-GEN | person-DAT | |
| | | | | | | | | ✓ quantificational |

²⁷ Takahashi's (1996a, b) ACD analysis was presented before argument ellipsis was proposed; hence, he assumed that the sloppy reading of Japanese null arguments is obtained from V-stranding VP-ellipsis.

- (42) a. [NP a collar which Hanako didn't put Δ_{VPe}] _i [TP Taro put [_{VP*a*} t_v on self's dog t_i]]
- Scrambling ↑ _____ |
- b. [NP a collar which Hanako didn't put [_{VP} t_v on self's dog t_i]] _i [TP Taro put [_{VP} t_v on self's dog t_i]]

Unlike (41a), (42a) has the configuration in (42b) because of scrambling. V-stranding VP-ellipsis can then apply, yielding the sloppy reading in (40b-c). Therefore, once we analyze the configurations in (40) as involving V-stranding VP-ellipsis, the fact that scrambling affects the availability of the sloppy reading in (40) is explained.

However, the following sentences indicate that (40b-c) turn out not to involve V-stranding VP-ellipsis (see Oku 1998 for the diagnostic employed here).

- (43) a. Taro-wa [NP [RC Hanako-ga Δ tuketeagenakatta] kubiwa]_i-o
 Taro-TOP Hanako-NOM not.put collar-ACC
 zibun-no inu-ni t_i subayaku tuketeageta
 self-GEN dog-DAT quickly put
 lit: 'Taro quickly put on self's dog a collar which Hanako didn't put Δ.'
 ✓ strict; ✓ sloppy
- b. [NP [RC Hanako-ga Δ tuketeagenakatta] kubiwa]_i-o Taro-wa
 Hanako-NOM not.put collar-ACC Taro-TOP
 zibun-no inu-ni t_i subayaku tuketeageta
 self-GEN dog-DAT quickly put
 ✓ strict; ✓ sloppy

(43a-b) can only mean that Taro quickly put on his dog a collar that Hanako didn't put on her dog at all, not that Taro quickly put on his dog a collar that Hanako didn't quickly put

on her dog. This is not expected if the null arguments here are derived via V-stranding VP-ellipsis since Soh (2003) observes that in English ACD configurations, the manner adverb which modifies the matrix VP can be interpreted in the elided VP as in (44).

(44) He has [_{VP_a} convincingly argued every point that I haven't Δ_{VP_e}] (Soh 2003:371)

(44) can mean that he has convincingly argued every point that I haven't convincingly argued. Therefore, the sloppy reading in (40b-c) seems not to be derived via V-stranding VP-ellipsis; otherwise, the manner adverb should be interpreted in the empty site in (43). On the other hand, if the sloppy reading in (43) is derived via argument ellipsis, the absence of the manner adverb interpretation in question follows since the manner adverb cannot be included in the empty site under this strategy (see Oku 1998).

However, given that what is involved in deriving sloppy identity in (40b-c) is argument ellipsis, the contrast between (40a) and (40b-c) gets still more surprising since, as mentioned in section 3.3, scrambling of the complement clause involving a gap does not affect the availability of argument ellipsis as in (33a), repeated here as (45b).

(45) a. John-wa zibun-no musume-ni [sensei-ga Δ aitagatteiru to] itta.

John-TOP self-GEN daughter-DAT teacher-NOM want.to.see C said

lit: 'John told self's daughter that the teacher wanted to see Δ .'

✓ strict; ✗ sloppy

b. [Sensei-ga Δ aitagatteiru to]_i John-wa zibun-no musume-ni _{t_i} itta.

teacher-NOM want.to.see C John-TOP self-GEN daughter-DAT said

lit: 'That the teacher wanted to see Δ , John told self's daughter.'

✓ strict; ✗ sloppy

In (45b), the complement clause is scrambled, but the sloppy reading cannot be obtained unlike (40b-c), which indicates that argument ellipsis is not applicable here.

In the following, I nevertheless argue that the variable behavior of scrambling with respect to its effect on the availability of the sloppy reading in Takahashi's (40) and Abe's (45) falls within the scope of explanation of the phase-based analysis of argument ellipsis developed in section 3, which in turn provides further support for this analysis.

4.2 Japanese “ACD” via Argument Ellipsis

Let us first focus on how the phase-based approach to argument ellipsis can explain the unavailability of the sloppy reading in (40a), where the complex NP remains in-situ.²⁸ Under the current approach, the fact that the sloppy reading is not obtained in (40a) indicates that the configuration in (46), where argument ellipsis has applied to the dative object in the complex NP, is not allowed.

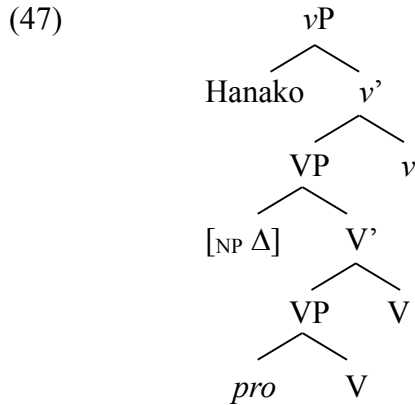
- (46) *Taroo-wa [NP zibun-no inu]-ni [NP [RC Hanako-ga [NP zibun-no inu]-ni
 Taro-TOP self-GEN dog-DAT Hanako-NOM self-GEN dog-DAT
 tuketeagenakatta] kubiwa]-o tuketeageta.
 not.put collar-ACC put
 lit: ‘Taro put on self’s dog a collar that Hanako didn’t put on self’s dog.’

Let us consider the derivation of (46) under the phase-based analysis of argument ellipsis.²⁹

²⁸ I owe the development of this subsection to a discussion with Mamoru Saito.

²⁹ I adopt Larson's (1988) VP-shells for double object constructions.

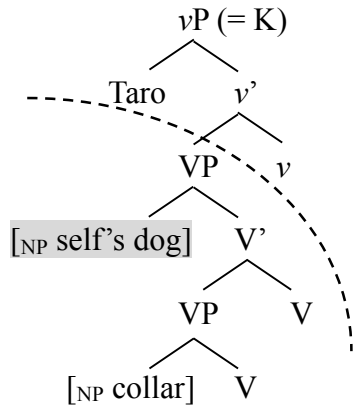
If we first construct the relative clause, we immediately face a situation where argument ellipsis cannot apply.



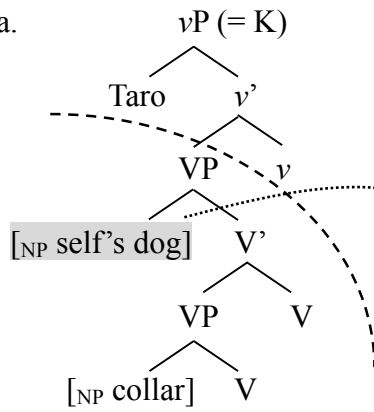
Within the cycle of the vP phase in the relative clause, *zibun-no inu-ni* ‘self’s dog’ within the matrix clause has not yet been transferred, so it cannot be copied and covertly Merged into the empty object position. In other words, there is no appropriate antecedent for argument ellipsis here.

However, this is not the end of the story. One might assume with Lebeaux (1988) that adjuncts can be inserted at a later stage of the derivation, and argue that the alternative late insertion derivation would posit a problem for the current proposal. However, this is not the case. If late insertion of adjuncts is available, (46) can be derived as in (48), where the object *collar* without the relative clause can be merged with the V.

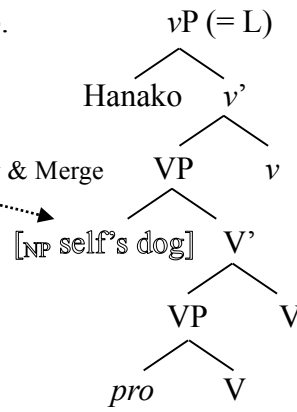
(48) I:



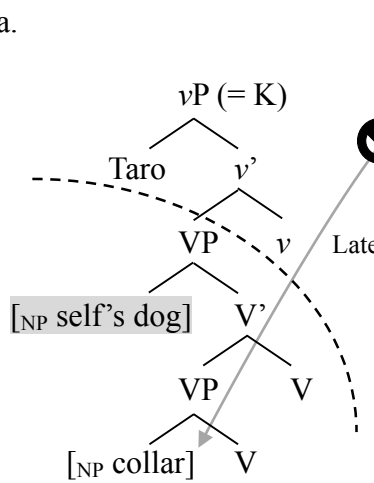
II: a.



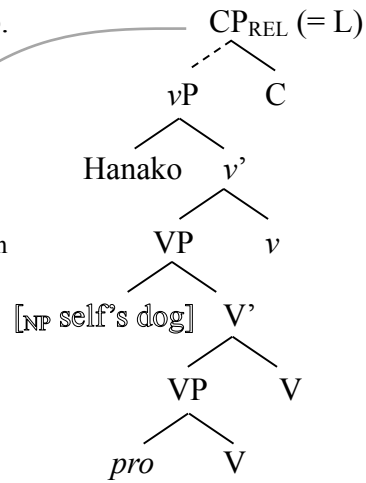
b.



III: a.



b.



Here, K stands for the matrix clause and L for the relative clause. In (48-I), the vP phase in K is completed, so the phasal complement VP undergoes Transfer and the indirect object *self's dog* becomes a potential antecedent for elliptic arguments. Let us then construct the

vP phase in L, i.e. the adjunct relative clause, as in (48-IIb). Here, argument ellipsis can apply to the empty position since there is an appropriate antecedent in K. However, we face a serious problem with the late insertion of the adjunct relative clause. Suppose that the relative clause becomes complete as in (48-IIIb). What is problematic here is that the late insertion of the relative clause is impossible since the host NP *collar* in K has already been transferred. The derivation (48) is thus untenable and the sloppy reading is still excluded.³⁰

Let us next consider whether the current proposal can capture the fact that scrambling affects the availability of the sloppy reading in (40b-c). Under the argument ellipsis approach to Japanese “ACD”, the configuration in (49a) and (49b), where the complex NP scrambles to the middle field and the sentence-initial position, respectively, should be allowed.

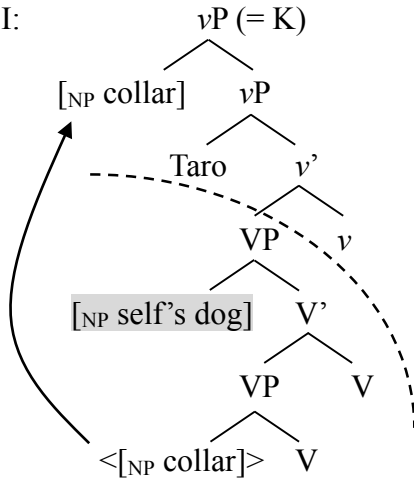
- (49) a. Taroo-wa [NP [RC Hanako-ga [NP zibun-no inu]-ni tuketeagenakatta]
 Taro-TOP Hanako-NOM self-GEN dog-DAT not.put
 kubiwa]_i-o [NP zibun-no inu]-ni t_i tuketeageta.
 collar-ACC self-GEN dog-DAT put
- b. [NP [RC Hanako-ga [NP zibun-no inu]-ni tuketeagenakatta] kubiwa]_i-o
 Hanako-NOM self-GEN dog-DAT not.put collar-ACC
 Taroo-wa [NP zibun-no inu]-ni t_i tuketeageta.
 Taro-TOP self-GEN dog-DAT put

Given Lebeaux’s (1988) late insertion of adjuncts, let us consider the derivation of (49a)

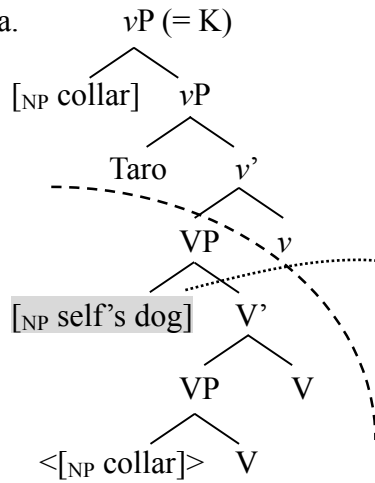
³⁰ It should be noted here that late insertion is typically taken to apply only within a particular domain; the discussion here suggests that it is restricted to the non-transferred elements. For more discussion about the domain where late insertion can apply, see Stepanov (2001).

and (49b) in a step-by-step manner.

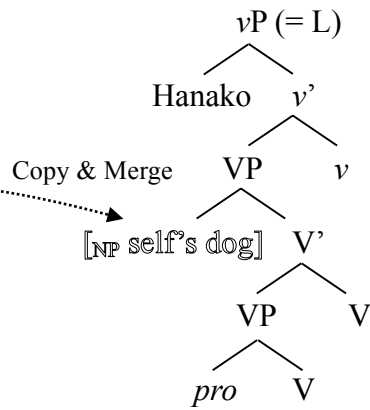
(50) I:



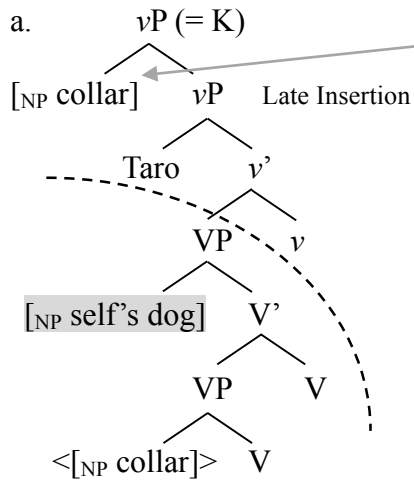
II: a.



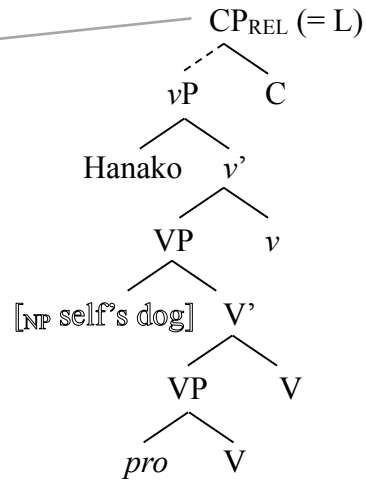
b.



III: a.



b.



What is crucial here is that the NP *collar* in K occupies the edge of ν P because of scrambling, as illustrated in (50-I). Therefore, when the ν P phase in K is completed, the NP *collar* (more precisely, the head of its chain) is outside of the Transfer domain. On the other hand, the phasal complement VP undergoes Transfer at this point and the NP *self's dog* then becomes an appropriate antecedent for elliptic arguments. Let us then construct the syntactic object L, i.e. the adjunct relative clause, in (50-IIb). When the ν P phase in L is computed, argument ellipsis can apply to the null argument position since there is an appropriate antecedent in the syntactic object K. Then, suppose that the syntactic object L, i.e. the adjunct relative clause, becomes complete as in (50-IIIb). At this point, the late insertion of the relative clause into the syntactic object K is possible since the host NP *collar* has not been transferred to the interfaces, unlike the case in (48). Therefore, the configurations in (49a) and (49b) are allowed and the availability of the sloppy reading in (40b-c) is captured. Furthermore, the current analysis does not depend on V-stranding VP-ellipsis, so we correctly predict that the manner adverb in the matrix clause of Japanese “ACD” is not interpreted within the complex NP in (43) since it cannot be included in the ellipsis site.³¹

³¹ Using quantificational null arguments, an anonymous reviewer points out the following data, which complete the missing piece of the paradigm of Japanese “ACD”.

- (i) a. Taroo-mo Δ [_{NP} [_{RC} Hanako-ga [sannin-no hito]-ni ageta] hon]-o ageta.
Taro-also Hanako-NOM three-GEN person-DAT gave book-ACC gave
lit: ‘Taro also gave Δ the book that Hanako gave to three people.’ ✓ E-type; ✗ quantificational
- b. [_{NP} [_{RC} Hanako-ga [sannin-no hito]-ni ageta] hon]_i-o Taroo-mo Δ t_i ageta.
Hanako-NOM three-GEN person-DAT gave book-ACC Taro-also gave

Lastly, let us return to Abe's case in (45). Unlike the "ACD" configuration, scrambling of the complement clause in (45a) does not affect the availability of the sloppy reading as in (45b). As discussed in section 3, in Abe's case, we must first construct the embedded clause, whether or not scrambling applies to it. As a result, the null argument never gets an appropriate antecedent when the phase that includes it is computed, so that it cannot be derived via argument ellipsis. This in turn means that the sloppy reading is always ruled out in Abe's case, as desired.

5 Conclusion

This article has investigated the nature of argument ellipsis, exploring under what conditions this ellipsis strategy can apply. Building on Abe's (2009, 2011) and Takahashi's (1996a, b) observations that there are contexts in which sloppy and quantificational readings are not available for Japanese null arguments, which means that the availability of argument ellipsis needs to be controlled, I argued that argument ellipsis is locally phase-constrained. Specifically, I claimed that elliptic arguments are licensed only if they

✓ E-type; ✓ quantificational

The reviewer finds the quantificational reading in (ia) difficult to get in contrast to (ib). The current approach should handle (ia) and (ib) in the same way: late insertion of adjuncts does not make a difference in this case, so the quantificational reading should apparently be allowed in both cases. However, (ia) and (ib) are crucially different in that the former is a configuration where the Backward Anaphora Constraint matters but the latter is not (see footnote 15). The contrast regarding the availability of the quantificational reading in (ia) and (ib) then does not undermine the current approach to Takahashi's (1996a, b) "ACD".

have appropriate antecedents within the cycle of the first phase that includes them, which was also shown to give a principled explanation for the fact that the distribution of elliptic arguments is more restricted than that of bound *pro*. I demonstrated that this phase-based analysis of argument ellipsis can correctly capture the variable behavior of Japanese null arguments regarding the availability of sloppy and quantificational readings in both Abe's and Takahashi's cases, as well as in the novel cases introduced in this article.

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References

- Abe, Jun. 2009. Identification of null arguments in Japanese. In *The dynamics of the language faculty: Perspectives from linguistics and cognitive neuroscience*, ed. Hiroto Hoshi, 135–162.

- Tokyo: Kuroshio Publishers.
- Abe, Jun. 2011. Real parasitic gaps in Japanese. *Journal of East Asian Linguistics* 20: 195–218.
- Abe, Jun. 2014. Antecedent-contained deletion in Japanese: Support for the VP ellipsis analysis. ms., Tohoku Gakuin University.
- Barros, Matt, and Luis Vicente. 2009. Backward...ellipsis? Paper presented at ZAS, Berlin.
- Bošković, Željko. 2014. Now I'm a phase, now I'm not a phase: On the variability of phases with extraction and ellipsis. *Linguistic Inquiry* 45: 27–89.
- Cho, Jai-Hyoung. 2001. Scrambling and antecedent contained deletion. In *Proceedings of the 5th conference of Pan-Pacific association of applied linguistics*, ed. Kyung-Ja Park and Michiko Nakano, 175–186. Tokyo: Waseda University.
- Chomsky, Noam. 1995. *The minimalist program*. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2000. Minimalist inquiries: The framework. In *Step by step: Essays on minimalist syntax in honor of Howard Lasnik*, ed. Roger Martin, David Michaels, and Juan Uriagereka, 89–155. Cambridge, MA: MIT Press.
- Chomsky, Noam. 2001. Derivation by phase. In *Ken Hale: A life in language*, ed. Michael Kenstowicz, 1–52. Cambridge, MA: MIT Press.
- Engdahl, Elisabet. 1983. Parasitic gaps. *Linguistics and Philosophy* 6: 5–34.
- Evans, Gareth. 1980. Pronouns. *Linguistic Inquiry* 11: 337–362.
- Fukui, Naoki, and Yuji Takano. 2000. Nominal structure: An extension of the symmetry principle. In *The derivation of VO and OV*, ed. Peter Svenonius, 219–254. Amsterdam: John Benjamins Publishing Company.
- Funakoshi, Kenshi. To appear. Verb-stranding verb phrase ellipsis in Japanese. *Journal of East Asian Linguistics*.
- Goldberg, Lotus. 2005. *Verb-stranding VP-ellipsis: A cross-linguistic study*. Ph.D. dissertation, McGill University, Montréal.

- Haïk, Isabelle. 1985. *The syntax of operators*. Ph.D. dissertation, MIT, Cambridge.
- Hasegawa, Nobuko. 1984/85. On the so-called “zero pronouns” in Japanese. *The Linguistic Review* 4: 289–341.
- Hasegawa, Nobuko. 1991. Affirmative polarity items and negation in Japanese. In *Interdisciplinary approach to language: Essays in honor of S.-Y. Kuroda*, ed. Carol Georgopoulos and Roberta Ishihara, 271–285. Dordrecht: Kluwer Academic Press.
- Hoji, Hajime. 1985. *Logical form constraints and configurational structures in Japanese*. Ph.D. dissertation, University of Washington, Seattle.
- Hoji, Hajime. 1998. Null object and sloppy identity in Japanese. *Linguistic Inquiry* 29: 127–152.
- Hornstein, Nobert. 1995. *Logical form: From GB to minimalism*. Oxford: Blackwell.
- Huang, C.-T. James. 1982. *Logical relations in Chinese and the theory of grammar*. Ph.D. dissertation, MIT, Cambridge.
- Huang, C.-T. James. 1984. On the distribution and reference of empty pronouns. *Linguistic Inquiry* 15: 531–574.
- Huang, C.-T. James. 1991. Remarks on the status of the null object. In *Principles and parameters in comparative grammar*, ed. Robert Freidin, 56–76. Cambridge, MA: MIT Press.
- Karttunen, Lauri. 1969. Pronouns and variables. In *Proceedings from the 5th regional meeting of the Chicago linguistic society*, ed. Robert Binnick, Alice Davison, Georgia Green, and Jerry Morgan, 108–116. Chicago: Chicago Linguistic Society, University of Chicago.
- Kim, Soowon. 1999. Sloppy/strict identity, empty objects, and NP ellipsis. *Journal of East Asian Linguistics* 8: 255–284.
- Kishimoto, Hideki. 2005. *Tougokouzou to bunpou kankei* ‘Syntactic structure and grammatical relation’. Tokyo: Kuroshio Publishers.
- Kishimoto, Hideki. 2008. Ditransitive idioms and argument structure. *Journal of East Asian Linguistics* 17: 141–179.

- Kishimoto, Hideki. 2009. Syntactic status of idiomatic subjects in Japanese. *Nanzan Linguistics* 5: 41–60.
- Kuno, Susumu. 1973. *The structure of the Japanese language*. Cambridge, MA: MIT Press.
- Kuroda, Shige-Yuki. 1965. *Generative grammatical studies in the Japanese language*. Ph.D. dissertation, MIT, Cambridge.
- Langacker, Robert. 1969. On pronominalization and the chain of command. In *Modern studies in English*, ed. David A. Reibel and Sanford A. Schane, 160–186. Englewood Cliffs, NJ: Prentice-Hall.
- Larson, Richard. 1988. On the double object construction. *Linguistic Inquiry* 19: 335–391.
- Lebeaux, David. 1988. *Language acquisition and the form of grammar*. Ph.D. dissertation, University of Massachusetts, Amherst.
- Lee, Jeong-Shik. 1997. Antecedent-contained deletion constructions in Korean. In *Harvard studies in Korean linguistics*, ed. Susumu Kuno, Ik-Hwan Lee, John Whitman, Joan Mailing, Young-Se Kang, and Young-Jo Kim, Vol. 7, 399–413. Cambridge, MA: Department of Linguistics, Harvard University.
- May, Robert. 1985. *Logical form*. Cambridge, MA: MIT Press.
- Merchant, Jason. 2013. Diagnosing ellipsis. In *Diagnosing syntax*, ed. Lisa Lai-Shen Cheng and Norbert Cover, 537–542. Oxford: Oxford University Press.
- Miyagawa, Shigeru. 1997. Against optional scrambling. *Linguistic Inquiry* 28: 1–25.
- Miyagawa, Shigeru, and Takae Tsujioka. 2004. Argument structure and ditransitive verbs in Japanese. *Journal of East Asian Linguistics* 13: 1–38.
- Murasugi, Keiko. 2000. An antisymmetry analysis of Japanese relative clauses. In *The syntax of relative clauses*, ed. Artemis Alexiadou, 231–263. Amsterdam: John Benjamins Publishing Company.
- Nakamura, Masaru. 1987. Japanese as a *pro* language. *The Linguistic Review* 6: 281–296.

- Ohso, Mieko. 1976. *A study of zero pronominalization in Japanese*. Ph.D. dissertation, Ohio State University, Columbus.
- Oku, Satoshi. 1998. *A theory of selection and reconstruction in the minimalist program*. Ph.D. dissertation, University of Connecticut, Storrs.
- Otani, Kazuyo, and John Whitman. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry* 22: 345–358.
- Perlmutter, David. 1972. Evidence for shadow pronouns in French relativization. In *The Chicago Witch Hunt*, ed. Paul Peranteau, Judith Levi, and Gloria Phales, 73–105. Chicago: Chicago Linguistic Society, University of Chicago.
- Reinhart, Tanya. 1983. Coreference and bound anaphora: A restatement of the anaphora questions. *Linguistics and Philosophy* 6: 47–88.
- Ross John Robert. 1967. *Constraints on variables in syntax*. Ph. D. dissertation, MIT, Cambridge.
- Ross, John Robert. 1969. Guess who. In *Papers from the 5th regional meeting of the Chicago linguistic society*, ed. Robert Binnick, Alice Davison, Georgia Green, and Jerry Morgan, 252–286. Chicago: Chicago Linguistic Society, University of Chicago.
- Saito, Mamoru. 1983. Comments on the papers on generative syntax. In *Studies in generative grammar and language acquisition*, ed. Yukio Otsu, Henk van Riemsdijk, Kazuko Inoue, Akio Kamio, and Noriko Kawasaki, 79–89. Tokyo: International Christian University.
- Saito, Mamoru. 1985. *Some asymmetries in Japanese and their theoretical implications*. Ph.D. dissertation, MIT, Cambridge.
- Saito, Mamoru. 2004. Ellipsis and pronominal reference in Japanese clefts. *Nanzan Linguistics* 1: 21–50.
- Saito, Mamoru. 2007. Notes on East Asian argument ellipsis. *Language Research* 43: 203–227.
- Sakamoto, Yuta. 2015a. Disjunction as a new diagnostic for (argument) ellipsis. In *Proceedings of the 45th annual meeting of the north east linguistic society*, ed. Thuy Buy and Deniz Ozyildiz,

- Vol. 3, 15–28. Amherst, MA: GLSA, University of Massachusetts, Amherst.
- Sakamoto, Yuta. 2015b. Overtly empty but covertly complex: An argument for the LF-copy analysis. Paper presented at the 46th annual meeting of the north east linguistic society, Concordia University, Montréal.
- Sato, Yosuke. 2014. Argument ellipsis in Colloquial Singapore English and the anti-agreement hypothesis. *Journal of Linguistics* 50: 365–401.
- Sato, Yosuke. 2015. Argument ellipsis in Javanese and voice agreement. *Studia Linguistica* 69: 58–85.
- Şener, Serkan, and Daiko Takahashi. 2010. Ellipsis of arguments in Japanese and Turkish. *Nanzan Linguistics* 6: 79–99.
- Shinohara, Michie. 2004. *Nihongo-no sakuzyogensyoo-nituite* ‘On the deletion phenomena in Japanese’. B.A. thesis, Nanzan University.
- Shinohara, Michie. 2006. On some differences between the major deletion phenomena and Japanese argument ellipsis. ms., Nanzan University.
- Soh, Hooi Ling. 2003. Antecedent-contained deletion constructions in Mandarin Chinese. In *Proceedings of the 33rd annual meeting of the north east linguistic society*, ed. Makoto Kadowaki and Shigeto Kawahara, 367–378. Amherst, MA: GLSA, University of Massachusetts, Amherst.
- Stepanov, Arthur. 2001. Late adjunction and minimalist phrase structure. *Syntax* 4: 94–125.
- Tada, Hiroaki. 1993. *A/A-bar partition in derivation*. Ph.D. dissertation, MIT, Cambridge.
- Takahashi, Daiko. 1996a. On antecedent-contained deletion. In *University of Connecticut working papers in linguistics* 5, ed. Elizabeth Laurençot, Rhang Lee, Myung-Kwan Park, 65–80. Storrs, CT: University of Connecticut.
- Takahashi, Daiko. 1996b. Antecedent-contained deletion in Japanese. In *University of Connecticut working papers in linguistics* 7: *Papers in honor of Mamoru Saito*, ed. Asako Uchibori and

- Kazuko Yatsushiro, 263–278. Storrs, CT: University of Connecticut.
- Takahashi, Daiko. 2006. Apparent parasitic gaps and null arguments in Japanese. *Journal of East Asian Linguistics* 15: 1–35.
- Takahashi, Daiko. 2008a. Noun phrase ellipsis. In *The Oxford handbook of Japanese linguistics*, ed. Shigeru Miyagawa and Mamoru Saito, 394–422. New York: Oxford University Press.
- Takahashi, Daiko. 2008b. Quantificational null objects and argument ellipsis. *Linguistic Inquiry* 39: 307–326.
- Takahashi, Daiko. 2012. Parallelism for elliptic arguments. Paper presented at Formal Approaches to Japanese Linguistics 6, ZAS, Berlin.
- Takahashi, Daiko. 2013. Comparative syntax of argument ellipsis. Paper presented at the NINJAL project meeting: Linguistic variations within the confines of the language faculty: A study in Japanese first language acquisition and parametric syntax, NINJAL, Tokyo.
- Takahashi, Daiko. 2014. Argument ellipsis, anti-agreement, and scrambling. In *Japanese syntax: Comparative perspective*, ed. Mamoru Saito, 88–116. Oxford: Oxford University Press.
- Takahashi, Masahiko. 2011. *Some theoretical consequences of Case-marking in Japanese*. Ph.D. dissertation, University of Connecticut, Storrs.
- Takita, Kensuke. 2010. *Cyclic linearization and constraints on movement and ellipsis*. Ph.D. dissertation, Nanzan University.
- Takita, Kensuke. 2011a. Argument ellipsis in Japanese right dislocation. In *Japanese/Korean Linguistics*, ed. William McClure and Marcel den Dikken, Vol. 18, 380–391. Stanford: CSLI Publications.
- Takita, Kensuke. 2011b. An argument for argument ellipsis from *-sika* NPIs. In *Proceedings of the 39th annual meeting of the north east linguistic society*, ed. Susi Lima, Kevin Mullin, and Brian Smith, 771–784. Amherst, MA: GLSA, University of Massachusetts, Amherst.
- Tomioka, Satoshi. 1998. The laziest pronouns. In *Japanese/Korean Linguistics*, ed. Noriko

- Akatsuka, Hajime Hoji, Shoichi Iwasaki, and Susan Strauss, Vol. 7, 515–532. Stanford: CSLI Publications.
- Tomioka, Satoshi. 2003. The semantics of null arguments and its cross-linguistic investigations. In *Interfaces*, ed. Schwabe, Kerstin and Susanne Winkler, 321–339. Amsterdam: John Benjamin Publishing Company.
- Uriagereka, Juan. 1999. Multiple spell out. In *Working Minimalism*, ed. Samuel David Epstein and Nobert Hornstein, 251–282. Cambridge, MA: MIT Press.
- Whitman, John. 1986. Configurationality parameters. In *Issues in Japanese syntax*, ed. Takashi Imai and Mamoru Saito, 351–374. Dordrecht: Foris.
- Whitman, John. 1988. Discourse ellipsis and the identity of zero pronouns. *Linguistics in the morning calm* 2: 149–175. Seoul: The Linguistic Society of Korea.
- Xu, Liejiong. 1986. Free empty category. *Linguistic Inquiry* 17: 75–93.