Draft (September 2015)
To appear in *Journal of East Asian Linguistics*

Verb-Stranding Verb Phrase Ellipsis in Japanese

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Abstract The main aim of this article is to argue that Japanese allows verb-stranding verb phrase ellipsis (VVPE). For this purpose, I examine data involving null adjuncts, and propose a new generalization about the distribution of null adjuncts, which can easily be accounted for if VVPE is available in Japanese. Furthermore, I demonstrate that null adjunct sentences with overt objects are subject to the same constraint as pseudogapping sentences in English are. Given that pseudogapping is a particular instance of VP-ellipsis (Jayaseelan 1990 and Lasnik 1995, 1999), this strongly suggests that null adjunct sentences involve VP-ellipsis.

Keywords V-stranding VP-ellipsis, Argument Ellipsis, null adjuncts, verb movement, Japanese

1 Introduction

In Japanese, arguments can be dropped relatively freely, as illustrated in (1) (Δ means that something is

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null).[1]

(1) a. Hanako-wa Taroo-o nagut-ta kedo, Ziroo-wa Δ nagur-anak-atta.
Hanako-TOP Taroo-ACC hit-PAST but Ziroo-TOP hit-NEG-PAST
(intended) 'Hanako hit Taroo, but Ziroo didn't hit Taroo.'

b. Hanako-wa gakkoo-ni it-ta kedo, Taroo-wa Δ ik-anak-atta.
Hanako-TOP school-to go-PAST but Taroo-TOP go-NEG-PAST
(intended) `Hanako went to the school, but Taroo didn't go to the school.'

In the second conjunct in (1a), the object is null and the null object can refer to Taroo. In (1b), PP *gakkoo-ni* 'school-to' is null. Sentences like (1a) can potentially be derived at least in three ways, i.e. by employing *pro*, Argument Ellipsis, or verb-stranding verb phrase ellipsis (VVPE). This is illustrated in (2).

(2) a. Ziroo-TOP *pro* hit-NEG-PAST (the *pro* analysis)

b. Ziroo-TOP ~~Taroo-ACC~~ hit-NEG-PAST (the Argument Ellipsis analysis)

c. Ziroo-TOP ~~[$_{VP}$ Taroo-ACC t_{hit}]~~ hit-NEG-PAST (the VVPE analysis)

The *pro* analysis is illustrated in (2a), where the object position is occupied by the null pronoun referring to Taroo (see Kuroda 1965, Ohso 1976, Hoji 1985, among many others). In (2b), the full noun phrase *Taroo* is in the object position, and the object NP is elided (see Oku 1998, Kim 1999, Saito 2007, Takahashi 2006, 2008a, Takita 2011, Sakamoto to appear, Sugisaki to appear, among many others). Null object sentences like (1a) could also be derived by VP-ellipsis, as illustrated in (2c), where the verb *hit* moves out of VP,[2] and the remnant VP containing only the object *Taroo* is elided (see Otani and Whitman 1991, Goldberg 2005, Funakoshi 2012, 2014, Abe 2013, Hayashi 2015, and Hayashi and Fujii 2015).

Among a number of different analyses of null arguments in Japanese, there is a consensus that

[1]Abbreviations: ACC = accusative, Adj = adjunct, BEN = benefactive, C = complementizer, CONT = contrastive marker, COP = copula, DAT = dative, GEN = genitive, NEG = negation, NOM = nominative, Obj = object, PAST = past tense, PRES = present tense, Q = question marker, Subj = subject, TOP = topic marker.

[2] See Koizumi 2000, Takita 2010, Funakoshi 2014, Hayashi 2015, and Hayashi and Fujii 2015, to appear for independent evidence for the existence of verb movement in Japanese.

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Japanese has *pro*. An argument for the existence of a null pronoun can be constructed on the basis of Condition B, as discussed in Takahashi 2008b. Without any linguistic antecedent, sentences like (3) are unacceptable under the reading where the null object takes the subject *Taroo* as its antecedent.

(3) *Taroo$_1$-ga Δ$_1$ seme-ta.
Taroo-NOM criticize-PAST
(intended) 'Taroo criticized himself'

If the null object in (3) is a null pronoun, *pro*, (3) can be reduced to a Condition B violation on a par with (4), where the overt pronoun *him* occupies the object position.

(4) *Taroo$_1$ criticized him$_1$.

Given this, it is reasonable to conclude that Japanese has *pro*.

Then, an important question in Japanese syntax is whether Japanese has other strategies to derive null arguments than *pro*. Otani and Whitman (1991) argue that it does, based on examples like (5).

(5) a. Taroo-wa [zibun-no booru]-o ket-ta.
Taroo-TOP self-GEN ball-ACC kick-PAST
'Taroo kicked his ball.'

b. Hanako-mo Δ ket-ta.
Hanako-also kick-PAST
(intended) 'Hanako kicked her ball too.'

Given sentence (5a) as the antecedent, (5b) has at least two interpretations. It can mean either that Hanako kicked Taroo's ball (the strict identity reading) or that Hanako kicked her ball (the sloppy identity reading). Otani and Whitman (1991) argue that if the null object in (5b) is *pro*, it is a mystery why the sentence has the sloppy identity reading because an overt pronoun cannot induce the sloppy identity reading in the same context, as (6) shows.

(6) a. Taroo-wa [zibun-no booru]-o ket-ta.
Taroo-TOP self-GEN ball-ACC kick-PAST
'Taroo kicked his ball.'

b. *Hanako-mo **sore-o** ket-ta.
Hanako-also **it-ACC** kick-PAST
(intended) 'Hanako kicked her ball too.'

On the other hand, if either VVPE or Argument Ellipsis can be used to derive (5b), the sentence can have structures like (7).

(7) a. Hanako-also ~~[$_{VP}$ [self's ball] t_{kick}]~~ kicked (VVPE)
b. Hanako-also ~~[self's ball]~~ kicked (Argument Ellipsis)

(7a) is derived by VVPE while (7b) is derived by Argument Ellipsis. Crucially, both structures include the elided anaphor that is bound by *Hanako*, yielding the sloppy identity reading. Thus, in order to account for the fact that null object sentences like (5b) have the sloppy identity reading, some ellipsis strategy must be available in Japanese.

However, the validity of this argument is challenged by Hoji (1998). He argues that the sloppy identity reading in sentences like (5) can be obtained without positing ellipsis strategies if we assume that Japanese has an indefinite *pro* as well as the definite *pro*. According to Hoji's (1998) analysis, the sloppy identity reading in (5b), which Hoji (1998) calls the sloppy-like reading, is available since the relevant reading can be easily inferred from the meaning of (8), where the object position is occupied by the indefinite NP *booru-o* 'ball-ACC'.

(8) Hanako-mo **booru-o** ket-ta.
Hanako-also **ball-ACC** kick-PAST
'Hanako kicked a ball too.'

The reading that Hanako kicked her own ball is compatible with the situation that (8) describes. As a result, the sloppy-like reading is available in (5b) because it can be inferred from (8) without postulating ellipsis strategies to derive null arguments.

However, as Saito (2007) points out, the indefinite *pro* analysis cannot cover all data involving null arguments. Saito (2007) observes that sentences like (9) can be true if Hanako did not kick her own ball but kicked other balls.

(9) Taroo-wa [zibun-no booru]-o ket-ta kedo, Hanako-wa Δ ker-anak-atta.

Taroo-TOP self-GEN ball-ACC kick-PAST but Hanako-TOP kick-NEG-PAST

(intended) 'Taroo kicked his ball, but Hanako didn't kick her ball.'

This interpretation cannot be inferred from sentences like (10), where the object is an indefinite NP.

(10) Hanako-wa **booru-o** ker-anak-atta.

Hanako-TOP **ball-ACC** kick-NEG-PAST

'Hanako didn't kick a ball.'

This sentence can only mean that Hanako did not kick any ball. Thus, indefinite *pro* cannot capture the range of interpretations available for (9). On the other hand, if either VVPE or Argument Ellipsis is available, the relevant reading can be obtained from the following structures:

(11) a. Hanako-TOP ~~[$_{VP}$ [self's ball] t_{kick}]~~ kick-NEG-PAST (VVPE)

b. Hanako-TOP ~~[self's ball]~~ kick-NEG-PAST (Argument Ellipsis)

Given this discussion, it is reasonable to conclude that Japanese has some ellipsis strategy to derive null arguments. The question arises, which strategy is it, VVPE, Argument Ellipsis, or both? In this article, I present an argument that Japanese allows at least VVPE, being agnostic about the possibility of Argument Ellipsis.

Most of the alleged arguments against the VVPE analysis of null arguments in Japanese are actually arguments against the claim that VVPE is the only way to derive null arguments in Japanese. These arguments lose their force if other ways such as indefinite *pro* and/or Argument Ellipsis are available in addition to VVPE. Because the main aim of this paper is to argue that Japanese allows VVPE rather than that VVPE is the only way to derive null arguments, I do not consider these arguments.[3] As far as I know, the sole direct argument against the very existence of VVPE in Japanese concerns null adjuncts. Thus, I will consider this argument, and show that the observation on which the argument is based is not accurate. I will then provide a more accurate generalization about null adjuncts:

(12) In Japanese, an adjunct can be null only if the clause-mate object (or other VP-internal elements),

[3] These arguments have to do with null subjects (Oku 1998), *otagai*-binding in the ditransitive construction (Oku 1998), and whole-part constructions (Kim 1999, Takahashi 2008b).

if any, is also null.

I will show that this generalization is hard to account for if VVPE is unavailable, and that it can easily be accounted for if we assume that VVPE is available.

This article is organized as follows. In section 2, I will consider the sole direct argument against the existence of VVPE in Japanese, which is concerned with null adjuncts. Running counter to the widely held assumption that adjuncts cannot be null at all in Japanese, I will argue that there are some cases where adjuncts can be null, and propose a new generalization about the distribution of null adjuncts. Section 3 will illustrate that this generalization is hard to account for if VVPE is unavailable. In section 4, I will consider an apparent problem with the VVPE analysis of null adjuncts: the fact that scrambling out of the VVPE site appears to be prohibited. I will argue that the relevant data can be analyzed as verb-stranding pseudogapping, and that the apparent problem can be attributed to a constraint on pseudogapping in general. Section 5 is a conclusion.

2. Null Adjuncts and VVPE

2.1 Distribution of Null Adjuncts

Oku's (1998) argument against the existence of VVPE in Japanese is based on the following examples.

(13) a. Bill-wa kuruma-o teineini arat-ta.
Bill-TOP car-ACC carefully wash-PAST
'Bill washed the car carefully.'

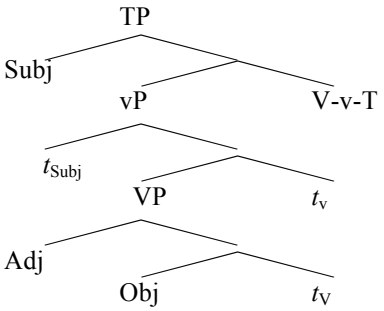
b. (*)John-wa Δ araw-anak-atta.
John-TOP wash-NEG-PAST
(intended) 'John didn't wash the car carefully.' (Oku 1998:171)

(13a) is the antecedent clause, which contains the object *kuruma-o* 'car-ACC' and the manner adverb *teinei-ni* 'carefully'. (13b) is an ellipsis clause. Oku (1998) claims that (13b) is acceptable under the reading that John didn't wash the car at all, which is obtained if (13b) does not involve the null adjunct meaning *teineini*

'carefully' while it is unacceptable under the reading (the null adjunct reading[4]) that John did not wash the car carefully, which is yielded if the sentence contains the null adjunct as well as the null object.

Oku (1998) argues that this is problematic if Japanese has VVPE. This is so because VVPE should be able to elide VP adjuncts like *teineini* 'carefully' as well as objects when it applies to a structure like (14).

(14)



Thus, if the data in (13) is real, it poses an apparent problem for the analysis in which VVPE is posited.

However, the facts are not so straightforward. In fact, not a few Japanese speakers, including the author, accept the null adjunct reading in (13) although it is true that the other reading is preferred in these examples. Actually, Oku (1998:171) himself mentions that in (13) "it is *hard (or impossible, for some speakers)* to get the interpretation in which the adverb is understood in the elliptic site" (emphasis by the author). To put differently, it is not impossible, at least for some speakers, to get the null adjunct reading in (13). Furthermore, Takahashi (2008c) mentions that "I have occasionally encountered speakers of Japanese who accept the readings that would be possible if adjuncts were somehow included in ellipsis sites." This indicates that the observed facts are not so robust. In what follows, I will show that the null adjunct reading is in fact available when an example is presented in an appropriate context that supports the null adjunct reading.

Takahashi (2008c) observes that if the antecedent sentence is negated, the null adjunct reading in (13) becomes easier to obtain. This is illustrated in (15). [5]

[4] I borrow this term from Hayashi 2015.

[5] It seems that relative word order between an adjunct and an object also affects the availability of the null

(15) a. Bill-wa teineini kuruma-o araw-**anak**-atta.
Bill-TOP carefully car-ACC wash-**NEG**-PAST
'Bill didn't wash the car carefully.'

b. John-**mo** Δ araw-anak-atta.
John-**also** wash-NEG-PAST
(intended.) 'John didn't wash the car carefully either.'

In contrast with (13), the null adjunct reading is available (actually even preferred over the other reading) in (15). It does not sound contradictory if (15b) is followed by a sentence like "he did wash the car but he did it in a sloppy fashion." The crucial difference between (13) and (15) is that in (15) a particle *–mo* 'also' strongly favors the null adjunct reading due to the parallelism requirement imposed by *–mo* 'also'.

Furthermore, as Funakoshi (2014) observes, the null adjunct reading becomes much easier to get once the antecedent sentence and the ellipsis sentence are combined by a disjunction connective like *kedo* 'but', as shown in (16).

(16) Bill-wa teineini kuruma-o arat-ta **kedo**, John-wa Δ araw-anak-atta.
Bill-TOP carefully car-ACC wash-PAST **but** John-TOP wash-NEG-PAST
(intended) 'Bill washed the car carefully, but John didn't wash the care carefully.'

In this sentence, *kedo* 'but' sets a context favoring the null adjunct reading, requiring the second conjunct sentence is contrasted with the first conjunct sentence.

I take these facts as an indication that the null adjunct reading is available if a sentence is presented in an appropriate context favoring the null adjunct reading. If this is correct, we expect that the null adjunct reading is acceptable even with an affirmative antecedent sentence and without the disjunction connective if a context makes the null adjunct reading appropriate. This is indeed the case, as shown by

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adjunct reading at least for some speakers. For some speakers, it becomes easier to get the null adjunct reading in the adjunct-object order than in the object-adjunct order. For this reason, I use sentences with the adjunct-object order in what follows. I thank Andrew Simpson and a reviewer for bringing my attention to this interfering factor.

(17).

(17) Context: Taroo and Hanako washed their parents' cars to get allowance. Taroo was thorough in his work while Hanako was not.

a. Taroo-wa teineini kuruma-o arat-ta.
Taroo-TOP carefully car-ACC wash-PAST
'Taroo washed the car carefully.'

b. Hanako-wa Δ araw-anak-atta. Hanako-ga arat-ta ato-no kuruma-wa
Hanako-TOP wash-NEG-PAST Hanako-NOM wash-PAST after-GEN car-TOP
kitanak-atta.
dirty-PAST
'Hanako did not wash the car carefully. The car that Hanako washed was dirty.'

(17) is different from (13) only in that the latter is presented without any context while the former comes with the context and the follow-up sentence supporting the null adjunct reading. Crucially (17) is perfectly acceptable under the null adjunct reading. The same holds for sentences with a different type of adjuncts: (18) with *Word-de* 'Word-with' and (19) with *kenkyuuhi-de* 'research.fund-with'.[6, 7]

(18) Context: Taroo and Hanako are graduate students. So they often write papers. Taroo likes Microsoft Office while Hanako does not.

a. Taroo-wa Word-de ronbun-o kak-u.

[6] A reviewer points out that we should not use instrumental adjuncts like *Word-de* 'Word-with' in test examples since it is not clear whether they count as adjuncts in terms of the applicability of Argument Ellipsis. However, if instrumental adjuncts were regarded as arguments for Argument Ellipsis, it would be a mystery why they cannot be elided by themselves, as we will see below (see (20)-(27)). The fact that instrumental adjuncts, like manner adverbs, cannot be elided by themselves indicates that they count as adjunct for the Argument Ellipsis purpose. Therefore, I argue that instrumental adjuncts as well as manner adverbs serve the intended purpose in this paper.

[7] See Hayashi 2015 and Hayashi and Fujii 2015 for similar data with different types of adjuncts.

Taroo-TOP Word-with paper-ACC write-PRES

'Taroo writes papers with Word.'

b. Hanako-wa Δ kak-ana-i. Itumo LaTeX-de kak-u.

Hanako-TOP buy-NEG-PRES always LaTeX-with write-PRES

'Hanako does not write papers with Word. She always writes with LaTeX.'

(19) Context: Taroo and Hanako are faculties of a linguistic department. They both like comic books as well as linguistics. .

a. Odoroitakotoni Taroo-wa kenkyuuhi-de manga-o ka-u.

surprisingly Taroo-TOP research.fund-with comic.book-ACC buy-PRES

'Surprisingly enough, Taroo buys comic books with his research fund.'

b. Motiron Hanako-wa Δ kaw-ana-i. Manga-wa zibun-no okane-de ka-u.

of.course Hanako-TOP buy-NEG-PRES comic.book-TOP self-GEN money-with buy-PRES

'Of course, Hanako does not buy comic books with her research fund. She buys comic books with her own money.'

In all these examples with the contexts and the follow-up sentences designed to favor the null adjunct reading, the null adjunct reading is not only acceptable but also preferable to the other reading. This leads us to conclude, contrary to Oku's (1998) claim, that Japanese allows null adjuncts in principle.

More strikingly, there is a significant contrast between sentences like (17)-(19), where objects as well as adjuncts are null, and sentences like (20)-(22) that are different from (17)-(19) only in that an object is overtly expressed. [8]

(20) Context: Same as (17)

a. Taroo-wa teineini kuruma-o arat-ta.

Taroo-TOP carefully car-ACC wash-PAST

'Taroo washed the car carefully.'

b. #Hanako-wa Δ **kuruma-o** araw-anak-atta. Hanako-ga arat-ta ato-no

[8] Abe (2013) makes a similar observation.

Hanako-TOP **car-ACC** wash-NEG-PAST Hanako-NOM wash-PAST after-GEN
kuruma-wa kitanak-atta.
car-TOP dirty-PAST
'Hanako did not wash the car. The car that Hanako washed was dirty.'

(21) Context: Same as (18)

a. Taroo-wa Word-de ronbun-o kak-u.
Taroo-TOP Word-with paper-ACC write-PRES
'Taroo writes papers with Word.'

b. #Hanako-wa Δ **ronbun-o** kak-ana-i. Itumo LaTeX-de kak-u.
Hanako-TOP **paper-ACC** write-NEG-PRES always LaTeX-with write-PRES
'Hanako does not write papers. She always writes with LaTeX.'

(22) Context: Same as (19)

a. Odoroitakotoni Taroo-wa kenkyuuhi-de manga-o ka-u.
surprisingly Taroo-TOP research.fund-with comic.book-ACC buy-PRES
'Surprisingly enough, Taroo buys comic books with his research fund.'

b. #Motiron Hanako-wa Δ **manga-o** kaw-ana-i. Manga-wa zibun-no
of.course Hanako-TOP **comic.books-ACC** buy-NEG-PRES comic.book-TOP self-GEN
okane-de ka-u.
money-with buy-PRES
'Of course, Hanako does not buy comic books. She buys comic books with her own money.'

In these examples, the null adjunct reading is simply impossible (hence the b-sentences sound contradictory) even though the context and the follow-up sentence force the null adjunct reading. This indicates that adjuncts cannot be null when the clause-mate object is overt. The same holds even when the antecedent sentence is negative rather than affirmative, as shown in (23)-(25).

(23) Context: Taroo and Hanako washed their parents' cars to get allowance. But they both did careless work.

a. Taroo-wa teineini kuruma-o araw-anak-atta.
Taroo-TOP carefully car-ACC wash-NEG-PAST
'Taroo did not wash the car carefully.'

b. #Hanako-mo Δ **kuruma-o** araw-anak-atta. Karera-ga arat-ta ato-no
Hanako-also **car-ACC** wash-NEG-PAST they-NOM wash-PAST after-GEN
kuruma-wa kitanak-atta.
car-TOP dirty-PAST
'Hanako did not wash the car either. The cars that they washed were dirty.'

(24) Context: Taroo and Hanako are graduate students. So they often write papers. They do not like Microsoft Office.

a. Taroo-wa Word-de ronbun-o kak-ana-i.
Taroo-TOP Word-with paper-ACC write-NEG-PRES
'Taroo does not write papers with Word.'

b. #Hanako-mo Δ **ronbun-o** kak-ana-i. Karera-wa itumo LaTeX-de kak-u.
Hanako-also **paper-ACC** buy-NEG-PRES they-TOP always LaTeX-with write-PRES
'Hanako does not write papers. They always write with LaTeX.'

(25) Context: Same as (18).

a. Taroo-wa kenkyuuhi-de manga-o kaw-ana-i.
Taroo-TOP research.fund-with comic.book-ACC buy-NEG-PRES
'Taroo does not buy comic books with his research fund.'

b. #Motiron Hanako-mo Δ **manga-o** kaw-ana-i. Manga-wa zibun-no
of.course Hanako-also **comic.books-ACC** buy-NEG-PRES comic.book-TOP self-GEN
okane-de ka-u.
money-with buy-PRES
'Of course, Hanako does not buy comic books with her research fund either. They buy comic books with their own money.'

One might argue that the impossibility of null adjuncts in sentences like (20)-(25) can be attributed to a functional reason. Let us assume that the most important communicative function of ellipsis is to avoid repetition by eliding elements conveying old information so that we can communicate efficiently. Notice that in the b-sentences in (20)-(25), the objects as well as the (alleged null) adjuncts are old information. Given that the speakers apply ellipsis to these sentences because they want to avoid repetition, it is weird to apply ellipsis to a part of old information rather than to apply it to all elements conveying old information (i.e. to both the adjuncts and the objects). The unacceptability of these sentences under the null adjunct reading might come from this inconsistency.[9]

However, I argue against this functional account on the basis of the following examples, where the ellipsis clauses (i.e. the b-sentences) contain objects (and also predicates) that are different from those in the antecedent clauses:[10]

(26) Context: Taroo and Hanako decided to wash a car together. After Taroo washed the body of the car, Hanako wiped the windows. Taroo was thorough in his work but Hanako was not.

a. Taroo-wa teineini syatai-o arat-ta.
Taroo-TOP carefully body.of.car-ACC wash-PAST
'Taroo washed the body of the car carefully.'

b. #Demo Hanako-wa Δ **madogarasu-o** huk-anak-atta. Hanako-ga hui-ta ato-no
but Hanako-TOP **window-ACC** wipe-NEG-PAST Hanako-NOM wipe-PAST after-GEN
madogarasu-wa kitanak-atta.
window-TOP dirty-PAST
'But Hanako did not wipe the windows. The windows that Hanako wiped was dirty.'

[9] Funakoshi (2014) proposes a version of a functional account that is based on Kuno's (1982) functional constraint called *Ban Against Partial Discourse Deletion*. Data below (i.e. (26)-(27)) are problematic for Funakoshi's (2014) account.

[10] I do not use as test examples an antecedent-ellipsis pair in which objects are distinct but predicates are identical, in order to avoid an interfering factor caused by contrastiveness. See section 3.2 for this.

(27) Context: Taroo is a graduate student. He gave his paper to his advisor, expecting him to add his comments to the paper with the Comments feature of Microsoft Word. But unfortunately, his advisor does not like Microsoft Office.

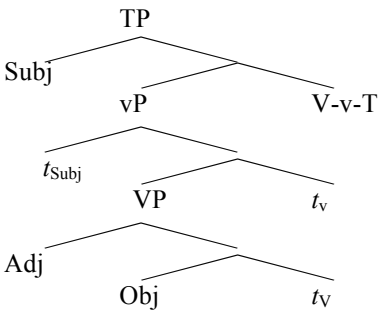
a. Taroo-wa Word-de ronbun-o kai-ta
Taroo-TOP Word-with paper-ACC write-PAST
'Taroo wrote the paper with Word.'

b. #Demo sensei-wa Δ **komento-o** irete-kure-nanak-atta. Kare-no komento-wa
But teacher-TOP **comment-ACC** put-BEN-NEG-PAST he-GEN comment-TOP
tegaki dat-ta.
handwriting cop-PAST
'But his teacher did not write his comments on the paper. His comments were handwritten.'

In the b-examples, the (alleged null) adjuncts are the sole elements conveying old information. Thus, the functional account expects that the null adjunct reading is available in the b-sentences, contrary to fact; These sentences do not allow the null adjunct reading, as shown by the fact that the contexts and the follow-up sentences forcing the null adjunct reading make the sentences contradictory.

Given this argument, I conclude that although adjuncts cannot be null by themselves ((20)-(27)), they can be null when the clause-mate objects are also null ((15)-(19)).[11] This fact can easily be accounted for if we assume that Japanese allows VVPE but not adjunct ellipsis: In structures like (28), a null adjunct can be derived by applying ellipsis to vP (or VP), which results in a null object as well as a null adjunct.

(28)



[11] Simpson et al. (2013) observe that the same generalization holds in Bangla, Hindi, and Malayalam.

On the other hand, a null adjunct cannot be derived without eliding the object since ellipsis cannot apply exclusively to adjuncts by hypothesis. Thus, it follows that null adjuncts hinge on null objects (or null VP-internal elements in general). Questions that immediately arises are: (i) what about intransitive sentences in which an adjunct is the sole VP-internal element?; (ii) what if objects escape VVPE sites by scrambling? I postpone discussing these questions until section 3.2 for (i) and section 4 for (ii).

2.2 Argument for the VVPE Analysis of Null Adjuncts

In this subsection, I provide evidence for the VVPE analysis of null adjuncts. Given the VVPE analysis of null adjuncts, it is predicted that adjuncts that are outside of vP cannot be null. Although it is not easy to see which adjuncts are outside of vP in head-final languages like Japanese, I argue that reason adverbial clauses are higher than vP. I then show that reason adverbial clauses cannot be null even if the clause-mate objects are also null, confirming that the prediction under the VVPE analysis is correct.

A reason adverbial clause cannot take scope under clause-mate negation, as shown in the following:

(29) Taroo-wa [*pro* baka-da kara] kaisya-o yame-nak-atta.
Taroo-TOP *pro* fool-COP because company-ACC quit-NEG-PAST
= 'Taroo didn't quit the company because he was a fool.'
= *'Taroo quit the company not because he was a fool.'

This sentence can be true only under the situation where Taroo didn't quit the company. If the adverbial clause were able to be under the scope of negation, the sentence must be true even when Taroo quit the company. Furthermore, when the wide scope reading of a reason adverbial clause with respect to negation is pragmatically weird, the sentence becomes unacceptable, as shown in the following:

(30) #Taroo-wa [*pro* benkyoo-ga suki-da kara] gakkoo-ni ik-anak-atta.
Taroo-TOP *pro* study-NOM like-COP because school-DAT go-NEG-PAST
= #'Taroo didn't go to school because he likes studying.'

= *'Taroo went to school not because he likes studying.'

If the adverbial clause were able to take scope under negation, the sentence must be acceptable.

I conclude from these observations that a reason adverbial clause cannot take scope under clause-mate negation. Given that hierarchical relations at the surface structure determine scope relations in Japanese (scope rigidity), I assume from this that reason adverbial clauses are higher than NegP. Because NegP is higher than vP, it follows that reason adverbial clauses are outside of vP.

Note that a reason adverbial clause can take scope under the higher clause negation, as shown in the following:

(31) Boku-wa [Taroo-ga [*pro* baka-da kara] kaisya-o yame-ta to]
I-TOP Taroo-NOM *pro* fool-COP because company-ACC quit-PAST C
omottei-**na**-i.
think-**NEG**-PRES
'I don't think that the reason why Taroo quit the company is because he was a fool'

This sentence is true even when the speaker thinks that Taroo quit the company. With this in mind, let us consider the following sentence:

(32) a. Boku-wa [Taroo-wa [*pro* baka-da kara] kaisya-o yame-ta to] omottei-ru
I-TOP Taroo-TOP *pro* fool-COP because company-ACC quit-PAST C think-PRES
'I think that Taroo quit the company because he was a fool.'

b. #Ippou *pro* [Hanako-wa Δ yame-ta to] omottei-na-i. Kanozyo-wa
on.the.other.hand *pro* Hanako-TOP quit-PAST C think-NEG-PRES she-TOP
kazoku-no tameni yame-tanda to omo-u.
family-GEN for quit-PAST C think-PRES
'On the other hand, I don't think that Hanako quit. I think that she quit the company for her family.'

(32b) is an ellipsis sentence, which, unlike (31), does not have the narrow scope reading of the adverbial clause with respect to the matrix negation. However, the follow-up sentence forces the relevant reading. This is why the sentence sounds contradictory. If (32b) contained the null adjunct, it should sound coherent,

like (31).[12] I conclude from this observation that reason adverbial clauses cannot be null.

This fact can be accounted for under the VVPE analysis because reason adverbial clauses are outside of vP; vP/VP-ellipsis cannot elide an adjunct outside of vP. One might argue that (32b) sounds contradictory because reason adverbial clauses cannot take scope under negation for some unknown reasons when they are null. However, a null reason adverbial clause can take scope under negation if a larger domain than vP is elided, as shown by the following:

(33) a. John-wa [Taroo-wa [*pro* baka-da kara] kaisya-o yame-ta to] omottei-ru.
John-TOP Taroo-TOP *pro* fool-COP because company-ACC quit-PAST C think-PRES
'John thinks that Taroo quit the company because he was a fool.'

b. Boku-wa Δ omottei-na-i. Kare-wa kazoku-no tameni yame-tanda to omo-u.

[12] This contrasts with an instrumental adjunct like *Word-de* 'Word-with'. Consider the following example:

(i) Boku-wa [Taroo-ga **Word-de** ronbun-o kai-ta to] omottei-na-i.
I-TOP Taroo-NOM **Word-with** paper-ACC write-PAST C think-NEG-PRES
'I don't think that Taroo wrote a paper with Word.'

(ia) shows that *Word-de* ' Word-with' can be under the scope of the matrix negation: the sentence is true even if the speaker thinks that Taroo wrote a paper. The same meaning can obtain even in an ellipsis clause, as (iib) shows. There is a significant contrast between (32b) and (iib).

(ii) a. Boku-wa [Taroo-wa Word-de ronbun-o kai-ta to] omottei-ru.
I-TOP Taro-TOP Word-with paper-ACC write-PAST C think-PRES
'I think that Taroo wrote a paper with Word.'

b. Ippou *pro* [Hanako-wa Δ kai-ta to] omottei-na-i. Kanozyo-wa
on.the.other.hand *pro* Hanako-TOP write-PAST C think-NEG-PRES she-TOP
LaTeX-de kai-tanda to omo-u.
LaTeX-with write-PAST C think-PRES
'On the other hand, I don't think that Hanako wrote a paper with Word. I think that she wrote a paper with LaTeX.'

I-TOP think-NEG-PRES he-TOP family-GEN for quit-PAST C think-PRES

'I don't think that he quit the company because he was a fool. I think that he quit the company for his family.'

In (33b), the entire CP complement is missing,[13] and it does not sound contradictory even if accompanied by the follow-up sentence favoring the narrow scope reading of the reason adverbial clause with respect to the matrix negation. This means that the reason adjunct can take scope under the matrix negation even though it is null.

To sum up, we have seen that reason adverbial clauses, which are evidently outside of vP, cannot be null. This fact is expected under the VVPE analysis of null adjuncts.

2.3 Interim Summary

In this section, I showed that although in Japanese adjuncts cannot be null by themselves, they can be null when the clause-mate objects (or other VP-internal elements) are also null, running counter to the long-standing assumption that adjuncts cannot be null at all in Japanese. I argued that this observation can be easily accounted for if we assume that VVPE is available in Japanese. Furthermore, I presented evidence for the VVPE analysis of null adjuncts, based on the distribution of null reason adverbial clauses. In the next section, I will consider a possible way to reconcile the Argument Ellipsis analysis with the observation in this section, and conclude that the analysis in which Argument Ellipsis is the sole ellipsis strategy to derive null objects is empirically insufficient (i.e. VVPE must be available).

3. Possible Explanation under the Argument Ellipsis Analysis

[13] In principle, null CP complements could be derived either by Argument Ellipsis or by VVPE. See Funakoshi 2014 for an argument that null CP complements can only be derived by VVPE, running counter to the widespread assumption that Argument Ellipsis can apply to CP complements (see Shinohara 2006, Saito 2007, Tanaka 2008, and Takita 2010).

Argument Ellipsis cannot apply to adjuncts since it can only apply to arguments by hypothesis (see Oku 1998 and Saito 2007 for an explanation for this assumption). Therefore, if Argument Ellipsis is the sole way to derive null arguments in Japanese, the question arises, how can adjuncts be null when the clause-mate objects are also null? An idea that Takahashi (2008c) suggests might provide a possible way to derive null adjuncts by Argument Ellipsis. In this section, I consider Takahashi's (2008c) idea, and turn it down because it both overgenerates and undergenerates.

3.1 Oblique Movement Analysis

Takahashi's (2008c) analysis is based on so-called oblique movement (Saito 1994, Sohn 1994, Takano 2002, see also Koizumi 2000 for the relevant discussions). In Japanese, argument wh-phrases can be contained in an island such as the complex NP island while adverbial wh-phrases cannot, as shown in (34) (Lasnik and Saito 1984, see also Huang 1982).

(34) a. John-wa [[nani-o kat-ta] hito]-o sagasitei-ru no?
John-TOP what-ACC buy-PAST person-ACC be.looking.for-PRES Q
(Lit.) 'John is looking for a person who bought what ?'

b. *John-wa [[sono hon-o naze kat-ta] hito]-o sagasitei-ru no?
John-TOP that book-ACC why buy-PAST person-ACC be.looking.for-PRES Q
(Lit.) 'John is looking for a person who bought that book why ?'

In (34a), the object wh-phrase *nani-o* 'what-ACC' is contained in a complex NP island. The sentence is acceptable. On the other hand, in (34b), the relevant wh-phrase is an adverb, *naze* 'why', yielding an unacceptable sentence.

Saito (1994) observes that sentences like (34b) improve if another argument wh-phrase is added inside the island, as shown in (35).

(35) ??John-wa [[nani-o naze kat-ta] hito]-o sagasitei-ru no?

John-TOP what-ACC why buy-PAST person-ACC be.looking.for-PRES Q

(Lit.) 'John is looking for a person who bought what why?'

In (35), the object as well as the adverb is a wh-phrase and the sentence becomes better than (34b). Saito (1994) proposes that (35) is acceptable since the adverbial wh-phrase can adjoin to the additional argument wh-phrase in LF (oblique movement). This oblique movement makes it possible for the adverbial wh-phrase *naze* 'why' to covertly move out of the complex NP island together with the argument wh-phrase *nani-o* 'what-ACC' since argument wh-phrases are allowed to move out of a complex NP island at LF, as indicated by (34a).

Extending Saito's (1994) idea to overt syntax, Sohn (1994) accounts for the contrast between (36a) and (36b).

(36) a. *Taroo-wa [[Hanako-ga sono hito-o naze uttae-ta toyuu] uwasa]-o kii-ta
Taroo-TOP Hanako-NOM that person-ACC why sue-PAST that rumor-ACC hear-past
no?
Q

(Lit.) 'Taroo heard the rumor that Hanako sued that person why?'

b. ??Naze$_1$ sono hito-o$_2$ Taroo-wa [[Hanako-ga t_1 t_2 uttae-ta toyuu] uwasa]-o
why that person-ACC Taroo-TOP Hanako-NOM sue-PAST that rumor-ACC
kii-ta no?
hear-PAST Q

(Lit.) 'Why that person, Taroo heard the rumor that Hanako sued?'

(36a) is unacceptable since the adverbial wh-phrase *naze* 'why' cannot move out of the complex NP to take scope over the matrix clause at LF. On the other hand, as (36b) shows, if *naze* 'why' overtly moves (via scrambling) out of the complex NP together with the object *sono hito-o* 'that person-acc', the sentence is improved. Sohn (1994) proposes that oblique movement is not limited to LF, and that in (36b), *naze* 'why' overtly adjoins to the object *sono hito-o* 'that person-ACC', and then the newly created constituent undergoes scrambling. As shown in (37), objects can be scrambled out of a complex NP island while *naze* 'why' cannot.

(37) a. Sono hito-o$_1$ Taroo-wa [[Hanako-ga t_1 uttae-ta toyuu] uwasa]-o kii-ta.
that person-ACC Taroo-TOP Hanako-NOM sue-PAST that rumor-ACC hear-PAST
(Lit.) 'That person, Taroo heard the rumor that Hanako sued.'

b. *Naze$_1$ Taroo-wa [[Hanako-ga t_1 sono hito-o uttae-ta toyuu] uwasa]-o
why Taroo-TOP Hanako-NOM that person-ACC sue-PAST that rumor-ACC
kii-ta no?
hear-PAST Q
(Lit.) 'Why, Taroo heard the rumor that Mary sued that person?'

Takahashi (2008c) applies the oblique movement analysis to data involving null adjuncts. The analysis is illustrated in (38).

(38) a. [$_{VP}$ Obj Adj V]

b. [$_{VP}$ [$_{NP}$ Adj [$_{NP}$ Obj]] t_{Adj} V] (Oblique Movement)

c. [$_{VP}$ ~~[$_{NP}$ Adj [$_{NP}$ Obj]]~~ t_{Adj} V] (Argument Ellipsis)

In (38a), the verbal projection contains an object and an adjunct. In (38b), the adjunct undergoes oblique movement, adjoining to the object. In (38c), Argument Ellipsis applies to the newly created constituent, which is an argument, deriving a null adjunct sentence. Under this analysis, thus, we can explain why null adjuncts are contingent on null objects.

Although this analysis nicely captures the fact that null adjuncts depend on null objects, I reject it since it both undergenerates and overgenerates, as I will show in the following subsections.

3.2 Undergeneration

First, let us look at an undergeneration case. As shown in (39), the null adjunct reading is available even if the sentence is intransitive.

(39) a. Densya-wa zikandoorini ki-ta.
train-TOP on.time come-PAST

'The train came on time.'

b. Basu-wa Δ ko-nak-atta. 10-punokurede ki-ta.
Bus-TOP come-NEG-PAST 10-minutes.late come-PAST
'The bus didn't come on time. It was ten minutes late.'

The follow-up sentence in (39b) forces the null adjunct reading. Thus, the fact that (39b) sounds coherent indicates that it allows the null adjunct reading. However, in (39b) there is no null argument NP that the adjunct *zikandoorini* 'on.time' can adjoin to via oblique movement. Therefore, the oblique movement analysis cannot explain why (39b) has the null adjunct reading. This indicates that we need other ellipsis strategy than Argument Ellipsis to cover all data involving null adjuncts.

Before proceeding to overgeneration cases, a remark is in order concerning a difference among different adverbs in terms of elidability. Takahashi (2008c) judges an example similar to (39) with a different adverb as being unacceptable under the null adjunct reading. As (40) shows, *okurete* 'late' cannot be null in an intransitive clause.

(40) a. Sinkansen-wa **okurete** ko-nak-atta.
super.express-TOP **late** come-NEG-PAST
'The super-express did not come late.'

b. #Basu-mo Δ ko-nak-atta. Basu-wa 2-hun mae-ni ki-ta.
bus-also come-NEG-PAST bus-TOP two-minute before-DAT come-PAST
'The bus didn't come either. The bus arrived two minutes ahead of time.'

A reviewer suggests that the difference between *zikandoorini* 'on.time' and *okurete* 'late' in this respect could be accounted for under the Argument Ellipsis analysis if we assume that *zikandoorini* 'on.time' is a quasi-argument of tense while *okurete* 'late' is a pure adjunct; Argument Ellipsis can elide the former because it is a kind of arguments. If this analysis is correct, we cannot conclude from (39) that an adjunct can be null in an intransitive sentence.

However, I doubt that the two phrases are different in their argumental status for the purpose of Argument Ellipsis since both cannot be null by themselves in a transitive sentence, as shown in the fol-

lowing examples:

(41) a. Taroo-wa {zikandoorini / okurete} shukudai-o dasi-ta.
Taroo-TOP on.time / late homework-ACC submit-PAST
'Taroo submitted the homework on time/late.'

b. #Hanako-wa Δ shukudai-o das-anak-atta. {1-niti okurete
Hanako-TOP homework-ACC submit-NEG-PAST one-day late
dasi-ta./ zikandoorini dasi-ta.}
submit-PAST/ on.time submit-PAST
'Hanako did not submit the homework. She submitted it one day late./She submitted it on time.'

Given this, I assume that these two phrases are both adjuncts at least for the purpose of Argument Ellipsis. Thus, we can take (39) as evidence that an adjunct can be null in an intransitive sentence. [14]

[14] A remaining question is, why are these two adjuncts different in the possibility of ellipsis? Although I do not have a satisfactory answer to this question, I would like to point out that one of factors that makes (40b) more degraded than a sentence like (39b) might be related to the fact that the adjunct *okurete* 'late', unlike *zikandoorini* 'on.time', makes a sentence degraded even in non-ellipsis contexts when it is used in a negative sentence. This is illustrated by the following:

(i) a. Basu-ga **zikandoorini** ko-nak-atta.
bus-NOM **on.time** come-NEG-PAST
'The bus didn't come on time.'

b. ?Basu-ga **okurete** ko-nak-atta.
bus-NOM **late** come-NEG-PAST
'The bus didn't come late.'

Although (ib) is not completely unacceptable, it seems that the sentence requires a richer context to be felicitously uttered than (ia). In contrast, (ia) sounds fine without any contexts. Whatever makes (ib) degraded must also make ellipsis sentences like (40b) degraded.

3.3 Overgeneration

Let us next consider overgeneration cases. Other things being equal, the oblique movement analysis predicts that adjuncts can be null when the clause-mate subjects are also null even if the clause-mate objects remain overt. Consider the following schematic structures:

(42) a. Subj [$_{VP}$ Adj Obj V]

b. [$_{NP}$ Adj [$_{NP}$ Subj]] [$_{VP}$ t_{Adj} Obj V]

c. ~~[$_{NP}$ Adj [$_{NP}$ Subj]]~~ [$_{VP}$ t_{Adj} Obj V]

In (42b), oblique movement applies to the adjunct, adjoining it to the subject rather than the object. If Argument Ellipsis applies to the newly created subject NP, as shown in (42c), a null adjunct sentence results.

This prediction is not borne out, as shown in the following examples:

(43) Context: Taroo washed his car. He had thought that he would wipe the windows of the car after washing the body of the car. But he felt tired after washing the body.

a. Taroo-wa teineini shatai-o arat-ta.
Taroo-TOP carefully body.of.the.car-ACC wash-PAST
'Taroo washed the body of the car carefully.'

b. #Demo Δ madogarasu-o huk-anak-atta. Kare-ga hui-ta ato-no
But window-ACC wipe-NEG-PAST he-NOM wipe-PAST after-GEN

A reviewer points out that *okurete* 'late' has a negative meaning, and hence (ib) sounds like a sentence with double-negation. He/she suggests that the unacceptability of (40b) might be related to this negative meaning of *okurete* 'late'. He/she points out that negative indefinites cannot be contained in VP-ellipsis sites in English, as shown in (ii).

(ii) I could find **no solution**, but Holly might Δ
Δ = find a solution
≠ find no solution (Johnson 2001:107)

madogarasu-wa kitanak-atta.

window-TOP dirty-PAST

'But he did not wipe the windows. The windows that he wiped were dirty.'

(44) Context: Taroo is a faculty of a linguistic department. He writes his own paper and looks at his students' papers everyday.

a. Taroo-wa Word-de zibun-no ronbun-o kak-u.

Taroo-TOP Word-with self-GEN paper-ACC write-PRES

'Taroo writes his own papers with Word.'

b. #Demo Δ gakusei-no ronbun-o naos-ana-i. Gakusei-no ronbun-wa

but student-GEN paper-ACC revise-NEG-PRES student-GEN paper-TOP

tegaki-de naos-u.

handwriting-with rivise-PRES

'He does not revise his students' papers. He revises his students' papers by hand.'

In these examples, the contexts and the follow-up sentences force the b-sentences to have the null adjunct readings. Thus, the unacceptability of the b-sentences indicates that adjuncts cannot be null when the clause-mate objects are overt even if the clause-mate subjects are null.

Note that there is no subject-object asymmetry in oblique movement, as illustrated by the following examples:

(45) a. John-wa [[**dare-ga** kat-ta] e]-o sagasitei-ru no?

John-TOP **who-NOM** buy-PAST painting-ACC be.looking.for-PRES Q

(Lit.) 'John is looking for a painting that who bought?'

b. *John-wa [[Bill-ga **naze** kat-ta] e]-o sagasitei-ru no?

John-TOP Bill-NOM **why** buy-PAST painting-ACC be.looking.for-PRES Q

(Lit.) 'John is looking for a painting that Bill bought why ?'

(46) ??John-wa [[**dare-ga** **naze** kat-ta] e]-o sagasitei-ru no?

John-TOP **who-NOM** **why** buy-PAST painting-ACC be.looking.for-PRES Q

(Lit.) 'John is looking for a painting that who bought why?'

(45a) shows that a subject wh-phrase can undergo covert wh-movement out of a complex NP island while an adverbial wh-phrase by itself cannot, as shown in (45b). Thus, the relatively acceptable status of (46) indicates that oblique movement can adjoin *naze* 'why' to the subject *dare-ga* 'who-NOM' if Saito's (1984) argument is correct. This means that oblique movement does not discriminate subjects from objects. Then, the unacceptability of the b-sentences in (43) and (44) casts doubt on the oblique movement analysis of null adjuncts.

Furthermore, as a reviewer points out, the example involving a reason adverbial clause that I discussed in section 2.2 is also hard to accommodate under the oblique movement analysis. The relevant example is repeated below.

(47) a. Boku-wa [Taroo-wa [*pro* baka-da kara] kaisya-o yame-ta to] omottei-ru
I-TOP Taroo-TOP *pro* fool-COP because company-ACC quit-PAST C think-PRES
'I think that Taroo quit the company because he was a fool.'

b. #Ippou *pro* [Hanako-wa Δ yame-ta to] omottei-na-i. Kanozyo-wa
on.the.other.hand *pro* Hanako-TOP quit-PAST C think-NEG-PRES she-TOP
kazoku-no tameni yame-tanda to omo-u.
family-GEN for quit-PAST C think-PRES
'On the other hand, I don't think that Hanako quit. I think that she quit the company for her family.'

From the unacceptability of (47b), I concluded that reason adverbial clauses cannot be null even if the clause-mate object (*kaisya-o* 'company-ACC' in (47b)) is also null. The VVPE analysis can account for this fact because reason adverbial clauses are outside of vP, as we saw in section 2.2. On the other hand, under the oblique movement analysis, it is unclear why Argument Ellipsis cannot apply to the NP consisting of the object and the reason adverbial clause that adjoins to the object: oblique movement overgenerates (47b) with the null adjunct reading.

Given that it faces the undergeneration and overgeneration problems, I reject the oblique movement analysis of null adjuncts. Because I do not have other alternative ways to reconcile the Argument El-

lipsis analysis with the observations in section 2, I conclude that Argument Ellipsis is not sufficient to cover ellipsis phenomena in Japanese: VVPE must be available.

4 Verb-Stranding Pseudogapping

4.1. Scrambling out of Ellipsis

When I explained why adjuncts cannot be null if the clause-mate objects are overt in section 2, I intentionally ignored a potential alternative derivation for the relevant examples ((20)-(27)), a derivation involving scrambling of the objects. For example, let us consider (20), repeated here as (48) (the context is omitted).

(48) a. Taroo-wa teineini kuruma-o arat-ta.
Taroo-TOP carefully car-ACC wash-PAST
'Taroo washed the car carefully.'

b. #Hanako-wa Δ **kuruma-o** araw-anak-atta. Hanako-ga arat-ta ato-no
Hanako-TOP **car-ACC** wash-NEG-PAST Hanako-NOM wash-PAST after-GEN
kuruma-wa kitanak-atta.
car-TOP dirty-PAST
'Hanako did not wash the car. The car that Hanako washed was dirty.'

In section 2, I pretended that (49) is the only possible underlying structure under the null adjunct reading for (48b).

(49) $[_{TP}$ Subj $[_{vP}$ t_{Subj} $[_{VP}$ Adj Obj $t_V]$ $t_v]]$ V-v-T]

Given that ellipsis cannot apply exclusively to an adjunct, it follows that VVPE cannot derive (48b) from (49). However, as Takita (2011) points out, there is another possible derivation. Suppose that the object scrambles out of VP, adjoining to vP, as illustrated by the following schematic structure:

(50) $[_{TP}$ Subj $[_{vP}$ Obj $[_{vP}$ t_{Subj} $[_{VP}$ Adj t_{Obj} $t_V]$ $t_v]]$ V-v-T]

If VVPE applies to the VP (or the lower segment of vP), which contains only the adjunct, a null adjunct sentence with an overt object results. Thus, if a structure like (50) is a possible underlying structure for

(48b), the VVPE analysis cannot account for the unacceptability of (48b).

One might argue that a derivation like (50) violates the ban on string-vacuous scrambling because scrambling of the object does not affect word order as a result of deletion of VP. Thus, if the ban on string-vacuous scrambling is a representational rather than a derivational condition, the unacceptability of (48b) might be attributed to this condition. However, the same explanation cannot apply to the following examples, where the objects are scrambled to in front of the subjects:

(51) Context: Taroo and Hanako washed their parents' cars to get allowance. But Taroo was thorough in his work while Hanako was not.

a. Kuruma-o$_1$ Taroo-wa teineini t_1 arat-ta.
car-ACC Taroo-TOP carefully wash-PAST
'Taroo washed the car carefully.'

b. #**Kuruma-o$_1$** Hanako-wa Δ t_1 araw-anak-atta. Hanako-ga arat-ta ato-no
car-ACC Hanako-TOP wash-NEG-PAST Hanako-NOM wash-PAST after-GEN
kuruma-wa kitanak-atta.
car-TOP dirty-PAST
'Hanako did not wash the car. The car that Hanako washed was dirty.'

(52) Context: Taroo and Hanako washed their parents' cars to get allowance. But they both do careless work.

a. Kuruma-o$_1$ Taroo-wa teineini t_1 araw-anak-atta.
car-ACC Taroo-TOP carefully wash-NEG-PAST
'Taroo did not wash the car carefully.'

b. #**Kuruma-o$_1$** Hanako-mo Δ t_1 araw-anak-atta. Karera-ga arat-ta ato-no
car-ACC Hanako-also wash-NEG-PAST they-NOM wash-PAST after-GEN
kuruma-wa kitanak-atta.
car-TOP dirty-PAST
'Hanako did not wash the car either. The cars that they washed were dirty.'

(53) Context: Taroo and Hanako washed a car together. After Taroo washed the body of the car, Hanako wiped the windows. Taroo was thorough in his work but Hanako was not.

a. Syatai-o$_1$ Taroo-wa teineini t_1 arat-ta.
body.of.car-ACC Taroo-TOP carefully wash-PAST
'Taroo washed the body of the car carefully.'

b. #Demo **madogarasu-o$_1$** Hanako-wa Δ t_1 huk-anak-atta. Hanako-ga hui-ta ato-no
but **window-ACC** Hanako-TOP wipe-NEG-PAST Hanako-NOM wipe-PAST after-GEN
madogarasu-wa kitanak-atta.
window-TOP dirty-PAST
'But Hanako did not wipe the windows. The windows that Hanako wiped was dirty.'

In the b-sentences of these examples, scrambling of the objects crosses the subjects, as illustrated by the following schematic structure:

(54) [$_{TP}$ Obj [$_{TP}$ Subj [$_{vP}$ t_{Subj} [$_{VP}$ Adj t_{Obj} t_V] t_v] V-v-T]

This scrambling affects word order, hence not string-vacuous scrambling. Still, the null adjunct reading is not available, as the unacceptability of the b-sentences indicates. Thus, the ban on string-vacuous scrambling is not sufficient to account for this fact. Then, the unacceptability of these examples poses a potential problem with the VVPE analysis of null adjuncts. In what follows, I demonstrate that the data involving scrambling in fact turns out to constitute a good argument for the VVPE analysis of null adjuncts.

4.2. Contrastiveness Requirement

First, I would like to point out that there are cases in which an object can be overt but still an adjunct can be null. Let us consider (55), in which the overt objects in the ellipsis sentences ((55b) and (55b')) are clearly contrasted with the object in the antecedent sentence ((55a)) (the capitals indicate stress).

(55) Context: Taroo ordered Ziroo to wash his two cars clean. But Ziroo washed one car sloppily although he washed the other carefully.

a. Taroo: Kimi-wa teineini kotti-no kuruma-o araw-anak-atta daro?
you-TOP carefully this-GEN car-ACC wash-NEG-PAST did.you
'You didn't wash this car carefully, did you?'

b. Ziroo: Iya, boku-wa/*pro* Δ **ATTI-no kuruma-o** araw-anak-attanda.
no I-TOP/*pro* **that-GEN car-ACC** wash-NEG-PAST
'No, I didn't wash that car carefully.'

b'. Ziroo: Iya, **ATTI-no kuruma-o** boku-wa/*pro* Δ araw-anak-attanda.
no **that-GEN car-ACC** I-TOP/*pro* wash-NEG-PAST
'No, that car, I didn't wash carefully.'

(55b) and (55b') sound coherent even if they are followed by a sentence like "I washed that car in a sloppy manner", indicating that the adjunct can be null in these sentences. (56) makes the same point even more clearly. In (56), the overt objects in the ellipsis sentences are marked with the contrastive maker *–wa,* and they allow the null adjunct reading.

(56) Context: Same as (55)

a. Taroo: Kimi-wa teineini kono kuruma-o arat-ta no?
you-TOP carefully this car-ACC wash-PAST Q
'Did you wash this car carefully?'

b. Ziroo: Iya, boku-wa/*pro* **kono kuruma-WA** araw-anak-attayo.
No, I-TOP/*pro* **this car-CONT** wash-NEG-PAST.
'No, I didn't wash this car carefully.'

b'. Ziroo: Iya, **kono kuruma-WA** boku-wa/*pro* araw-anak-attayo.
No, **this car-CONT** I-TOP/*pro* wash-NEG-PAST.
'No, this car, I didn't wash carefully.'

I argue that the crucial difference between sentences like (55) and (56) on the one hand and sentences like (48) and (51)-(53) on the other is attributed to contrastive focus on the overt objects since (55) and (56) lose the null adjunct reading once the overt objects in the ellipsis sentences are not contrastively focused, as il-

lustrated by the following (near) minimal pairs with (55) and (56):

(57) Context: Same as (55):

a. Taroo: Kimi-wa teineini kotti-no kuruma-o araw-anak-atta daro?
you-TOP carefully this-GEN car-ACC wash-NEG-PAST did.you
'You didn't wash this car carefully, did you?'

b. Ziroo: #Un, boku-wa/*pro* Δ **kotti-no kuruma-o** araw-anak-attayo.
yes I-TOP/*pro* **this-GEN car-ACC** wash-NEG-PAST
'Yes, I didn't wash this car.'

b'. Ziroo: #Un, **kotti-no kuruma-o** boku-wa/*pro* Δ araw-anak-attayo.
Yes **this-GEN car-ACC** I-TOP/*pro* wash-NEG-PAST
'Yes, this car, I didn't wash.'

(58) Context: Same as (55)

a. Taroo: Kimi-wa teineini kono kuruma-o arat-ta no?
you-TOP carefully this car-ACC wash-PAST Q
'Did you wash this car carefully?'

b. Ziroo: #Iya, boku-wa/*pro* **kono kuruma-o** araw-anak-attayo.
No, I-TOP/*pro* **this car-ACC** wash-NEG-PAST.
'No, I didn't wash this car.'

b'. Ziroo: #Iya, **kono kuruma-o** boku-wa/*pro* araw-anak-attayo.
No, **this car-ACC** I-TOP/*pro* wash-NEG-PAST.
'No, this car, I didn't wash.'

To sum up, overt objects in null adjunct sentences in Japanese are subject to the following generalization:

(59) An object can be overt in a null adjunct sentence only if it is contrastively focused.

Under the VVPE analysis of null adjuncts, this generalization can be restated as that in null adjunct sentences, objects can be extracted out of the ellipsis site only if it is contrastively focused.

I argue that this generalization naturally follows under the VVPE analysis, on the basis of comparison of the data involving null adjuncts in Japanese with English pesudogapping data. A number of authors have argued that pseudogapping is a particular instance of VP-ellipsis (Jayaseelan 1990, Lasnik 1995, 1999, among many others). Under this analysis, pseudogapping sentences like (60a) are derived as in (60b).

(60) a. Mary hasn't dated Bill, but she has Harry.

b. … but she has Harry$_1$ ~~[$_{VP}$ dated t_1]~~ (Lasnik 1999:147)

In (60b), the object is moved out of VP. If ellipsis applies to the VP, a pseudogapping sentence results. Notice that the derivation of the pseudogapping sentence in (60b) is similar to that of the null adjunct sentence with an overt object in Japanese (see (50)). In both derivations, an object is moved out of the elided VP. They are different in that a verb is stranded in Japanese while it is contained in the ellipsis site in English. Thus, under the VVPE analysis of null adjuncts, we can consider a null adjunct sentence with an overt object in Japanese as an instance of pseudogapping (i.e. verb-stranding pseudogapping).

A crucial observation in favor of this analysis is that English pseudogapping is subject to the same generalization as Japanese null adjunct sentences are. A number of authors such as Levin 1986, Jayaseelan 1990, Gengel 2007, and Winkler 2014 observe that in a pseudogapping sentence, an object that is extracted out of the ellipsis site must be contrastively focused, as illustrated by (61).

(61) a. 'Gerard Logan!' The tall dog-walker, astounded, bending to look at me, knew me by sight, as I did HIM/?*him. (Gengel 2007:151)

b. John invited him$_1$ more often than Bill did HIM$_2$/*him$_1$. (Gengel 2007:178)

In (61), the pronouns *HIM* or *him* are remnants of pseudogapping (i.e. they are elements that are extracted out of elided VPs). (61) shows that the remnants of pseudogapping must be contrastively focused as overt objects in Japanese null adjunct sentences. This similarity between English pseudogapping setences and Japanese null adjunct sentences can be nicely captured if we assume that both are derived by VP-ellipsis. Under the VVPE analysis of null adjuncts, the generalization (59) can be explained by whatever principle explains the contrastiveness requirement on remnants of pseudogapping.[15] On the other hand, under an al-

[15] The contrastiveness requirement might be a more general requirement that ellipsis in general is subject to,

ternative analysis such as the oblique movement analysis, the similarity between pseudogapping and null adjunct sentences is just a coincidence. Given this, I take the contrastiveness requirement on overt objects in null adjunct sentences as a strong indication that null adjuncts are derived by VVPE.

4.3 Adverbial -*Sika* NPIs

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as Gengel 2007, Goto 2011, and Winkler 2014 argue. The following examples show that remnants of gapping and sluicing are also must be contrastively focused:

(i) a. Some gave the men peanuts and others CHOCOLATES/?*chocolates. (Gapping)

b. Jack bought something, but I don't know WHAT/?*what. (Sluicing)

(Gengel 2007:151-152)

Furthermore, clausal complement ellipsis in Japanese also seems to be constrained by the contrastiveness requirement. It has been observed that scrambling out of elided clausal complements is impossible in Japanese (Shinohara 2006, Saito 2007, and Tanaka 2008), as illustrated by (ii).

(ii) *Hon-o_1 Taroo-wa [$_{CP}$ Hanako-ga t_1 kat-ta to] it-ta ga,
book-ACC Taroo-TOP Hanako-NOM buy-PAST C say-PAST but
Zassi-o Ziroo-wa Δ it-ta.
magazine-ACC Ziroo-TOP say-PAST
(Lit.) 'A book, Taroo said that Hanako bought, but a magazine, Ziroo said.' (Goto 2011:242)

However, Goto (2011) observes that the sentence gets improved once the extracted element is contrastively focused, as (iii) shows.

(iii) Hon-WA_1 Taroo-ga [$_{CP}$ Hanako-ga t_1 kat-ta to] it-ta ga,
book-CONT Taroo-NOM Hanako-NOM buy-PAST C say-PAST but
Zassi-WA Ziroo-ga Δ it-ta.
magazine-CONT Ziroo-NOM say-PAST
(Lit.) 'A BOOK, Taroo said that Hanako bought, but a MAGAZINE, Zrioo said.' (Goto 2011:245)

Before closing this article, I would like to consider Takita's (2011) intriguing argument against the existence of VVPE in Japanese. Takita (2011) uses *-sika* NPIs , especially an adjunct usage of them. Any NP can be turned into NPIs by the suffix *-sika*. In (62a), the object is a *-sika* NPI. A *-sika* NPI can also be associated with another NP. In (62b). the *-sika* NPI, *zyagaimo-sika* 'potatoes-SIKA', is associated with the object, *yasai-o* 'vegetable-ACC'.

(62) a. Taroo-wa **zyagaimo-sika** tabe-nak-atta.
Taroo-TOP potato-SIKA eat-NEG-PAST
'Taroo eat only potatoes.'

b. Taroo-wa **zyagaimo-sika** *yasai-o* tabe-nak-atta.
Taroo-top potato-SIKA vegetable-acc eat-neg-past
'Among vegetables, Taro eat only potatoes.'

Takita (2011) argues, based on data concerning long-distance scrambling, that *-sika* NPIs without associated NPs are arguments while *-sika* NPI with associated NPs are adjuncts.

Given these two types of *-sika* NPIs, he argues that the following data provide evidence that the Argument Ellipsis analysis is superior to the VP-ellipsis analysis.[16] Let us first consider (63), which involves an argumental *-sika* NPI.

(63) a. Taroo-wa [zibun-no tukut-ta ringo]-sika tabe-nak-atta.
Taroo-TOP self-GEN grow-PAST apple-SIKA eat-NEG-PAST
'Taroo ate only the apples that he had grown.'

b. Hanako-mo Δ tabe-nak-atta.
Hanako-also eat-NEG-PAST
(intended) 'Hanako also ate only the apples that she had grown.'

The null object sentence in (63b) allows the intended NPI reading, which means that the argumental *-sika*

[16] By the Argument Ellipsis analysis and the VP-ellipsis analysis, Takita (2011) means the analysis in which Argument Ellipsis is the only way to derive null argument sentences and the analysis in which VVPE is the only way to derive null argument sentences, respectively.

NPI can be null. In contrast with the argumental *-sika* NPI, an adverbial *-sika* NPI cannot be null, as the following sentences indicate:

(64) a. Taroo-wa [zibun-no tukut-ta mono]-sika yasai-o tabe-nak-atta.
Taroo-TOP self-GEN grow-PAST thing-SIKA vegetables-ACC eat-NEG-PAST
'Among vegetables, Taroo ate only the things that he had grown.'

b. *Hanako-wa Δ kudamono-o tabe-nak-atta.
Hanako-TOP fruits-ACC eat-NEG-PAST
(intended) 'Among fruits, Hanako also ate only things that she had grown.'

b'. *Kudamono-o$_2$ Hanako-wa Δ t_2 tabe-nak-atta.
fruits-ACC Hanako-TOP eat-NEG-PAST
(intended) 'Among fruits, Hanako also ate only things that she had grown.'

(64b) and (64b') are ellipsis sentences, and they do not allow the intended NPI reading.

Takita (2011) argues that the Argument Ellipsis analysis can capture this difference between the two types of *-sika* NPIs while the VP-ellipsis analysis cannot. The logic is the same as Oku's (1998). Argument Ellipsis can only elide arguments. This is why argumental *-sika* NPIs can be null while adverbial *-sika* NPIs cannot under the Argument Ellipsis analysis. On the other hand, under the VP-ellipsis analysis, it is unexpected that the adverbial *-sika* NPI cannot be null in (64b) and (64b') since VVPE should be able to apply to VP after the object *kudamono-o* 'fruits-ACC' scrambles out of the VP.

However, I argue that (64) is compatible with the VVPE analysis of null adjuncts: the impossibility of the null adverbial *-sika* NPI in (64b) and (64b') can be attributed to the contrastiveness requirement on remnants on pseudogapping. First of all, (64b) and (64b') get improved once stress is put on the overt object *kudamono-o* 'fruits-ACC'. Even more strikingly, in natural contexts for contrastive focus such as a question-answer pair, the intended NPI reading becomes perfectively acceptable, as illustrated by the following examples:

(65) Context: Ziroo grows vegetables and rice. He is especially picky about rice. So, he eats only rice that he grew.

a. Taroo: Kimi-wa [zibun-no tukut-ta mono]-sika yasai-o tabe-nai ndaro?
you-TOP self-GEN grow-PAST thing-SIKA vegetables-ACC eat-NEG don't.you
'Among vegetables, you eat only things that you grew, don't you?'

b. Ziroo: Iya, boku-wa/*pro* Δ **KOME-o** tabe-nai-ndayo.
no I-TOP/*pro* **rice-ACC** eat-NEG-PAST
(intended) 'No, among rice, I eat only things that I grew.'

b'. Ziroo: Iya, **KOME-o$_1$** boku-wa/*pro* Δ t_1 tabe-nai-ndayo.
no **rice-ACC** I-TOP/*pro* eat-NEG-PAST
(intended) 'No, among rice, I eat only things that I grew.'

(66) Context: Same as (65)

a. Taroo: Kimi-wa [zibun-no tukut-ta mono]-sika kome-o tabe-nai ndaro?
you-TOP self-GEN frow-PAST thing-SIKA rice-ACC eat-NEG don't.you
'Among rice, you eat only things that you grew, don't you?'

b. Ziroo: Un, tasikani boku-wa/*pro* Δ **kome-WA** tabe-na-iyo. (Demo yasai-wa …)
yes actually I-TOP **rice-CONT** eat-NEG-PRES butvegetables-TOP
(intended) 'Yes, actually among rice, I eat only things that I grew. (But, as for vege-talbes …'

b'. Ziroo: Un, tasikani **kome-WA** boku-wa/*pro* Δ t_1 tabe-na-iyo. (Demo yasai-wa …)
yes actually **rice-CONT** I-TOP/*pro* eat-NEG-PRES but vegetables-TOP
(intended) 'Yes, actually among rice, I eat only things that I grew. (But, as for vege-talbes …'

This indicates that there is an independent reason why VVPE cannot derive null adverbial *–sika* NPIs in (64b) and (64b'): it violates the contrastiveness requirement. Therefore, Takita's (2011) argument against the existence of VVPE loses its force.

At first sight the present analysis predicts that the adverbial *-sika* NPI can be null in (64) if the object is also null. The prediction appears to be borne out, as (67) shows.

(67) a. Taroo-wa [zibun-no tukut-ta mono]-sika yasai-o tabe-nak-atta.
Taroo-TOP self-GEN grow-PAST thing-SIKA vegetables-ACC eat-NEG-PAST
'Among vegetables, Taroo ate only the things that he had grown.'

b. Hanako-mo Δ tabe-nak-atta.
Hanako-also eat-NEG-PAST
'Among vegetables, Hanako also ate only things that she had grown.'

(67b) allows the intended NPI reading. However, this does not necessarily mean that the adverbial *-sika* NPI can be null in (67b). This is because the underlying sentence for (67b) might not contain the associated NP *yasai-o* 'vegetable-ACC'. That is, (67b) could be derived from a sentence like (68), in which the *-sika* NPI is an argument.

(68) Hanako-mo [zibun-no tukut-ta mono]-sika tabe-nak-atta.
Hanako-also self-GEN grow-PAST thing-SIKA eat-NEG-PAST
'Hanako ate only things that she had grown.'

Therefore, although (67) is compatible with the present analysis, it does not support it.

In sum, Takita's (2011) counterexamples against the existence of VVPE in Japanese can be accounted for even if VVPE is available in Japanese.

5. Conclusion

In this article, I provided empirical evidence that VVPE is available in Japanese. Given the conclusion that Japanese has VVPE, considerable attention needs to be paid to controlling for VVPE when we investigate properties of *pro* or Argument Ellipsis. I hope that this will contribute to future research of null argument phenomena in Japanese.

This conclusion has a significant implication not only for analyses of null arguments but also for another controversial issue in Japanese syntax, i.e., verb movement. In absolute head-final languages like Japanese, it is highly controversial as to whether verbs raise out of verbal projections. This is so because

verb movement, even if it is overt, does not affect surface word order in such languages. Thus, there has been a lively debate as to whether Japanese has verb movement. Some argue for its existence (Otani and Whitman 1991, Koizumi 2000, Takita 2010, Funakoshi 2014, Hayashi 2015, and Hayashi and Fujii 2015, to appear) while others argue against it (Hoji 1998, Takano 2002, Fukushima 2003, Fukui and Sakai 2003, and Kobayashi 2015). Therefore, whether verbs move in Japanese is still far from settled. As Otani and Whitman (1991) point out, the existence of VVPE presupposes the existence of verb movement. Therefore, if we can attest VVPE in Japanese, it leads us to conclude that there is verb movement in Japanese even though it is string-vacuous.

Acknowledgments This article is a radically revised version of Chapter 6 of my Ph.D. dissertation that was defended at University of Maryland, College Park. I would like to express my thanks for insightful comments and suggestions by anonymous reviewers and editors of *Journal of East Asian Linguistics*. I am also indebted to several other people who contributed to this research at its various stages, including Jun Abe, Tomohiro Fujii, Sayaka Goto, Shintaro Hayashi, Norbert Hornstein, Howard Lasnik, Winfried Lechner, Mamoru Saito, Yuta Sakamoto, Andrew Simpson, Koji Sugisaki, Daiko Takahashi, and Hideaki Yamashita. This work is partially supported by JSPS Grant-in-Aid for Young Scientists (B) (#15K16773). I dedicate this work to memory of Yuki Ito and Yoshiyuki Shibata.

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