



Antecedent-contained argument ellipsis in Japanese

Daiko Takahashi¹

Received: 24 August 2023 / Accepted: 6 November 2023
© The Author(s) 2024

Abstract This article aims to provide new and solid evidence for the observation made in the previous literature that antecedent containment needs to be resolved in overt syntax in cases of antecedent contained deletion in Japanese. The evidence is new in the sense that it is based on argument ellipsis, which the recent literature has convincingly shown to be available in Japanese, rather than verb-stranding VP-ellipsis, the existence of which has been debated. It is shown how to construct relevant data using elliptic clausal arguments in the hope that similar research will be conducted with data from other languages where argument ellipsis is assumed to be available. It is argued that cases of antecedent-contained argument ellipsis in Japanese can be accounted for by the PF deletion analysis or the derivational copying analysis, but not by the LF copying analysis that posits that copying applies at the very end of the LF derivation.

Keywords Antecedent-contained deletion · Argument ellipsis · PF deletion · Copying · Scrambling

Introduction

Does human language allow the kind of ellipsis, schematically shown in (1), where an elided part (XP_2) is contained in its antecedent (XP_1), or what has been called antecedent-contained deletion (ACD) in the literature?

(1) ... [XP_1 ... [XP_2 *e*] ...] ...

✉ Daiko Takahashi
daiko@tohoku.ac.jp

¹ Graduate School of International Cultural Studies, Tohoku University, 41 Kawauchi, Aoba-ku, Sendai, Japan

This configuration is exemplified by cases like (2) cited from May (1985) and Lasnik (1999).¹

(2) Dulles suspected everyone Angleton did.

Here the verb phrase (VP) inside the relative clause is elided and arguably takes the matrix VP as its antecedent. Then, (2) seems to have the following structure (throughout this article, elided elements are indicated with gray shading):

(3) Dulles [_{VP1} suspected everyone Angleton did [_{VP2} suspect *e*]]

Many researchers have studied cases like this (Baltin 1987; Bouton 1970; Fox 2002; Hornstein 1994; Kennedy 1997; Lasnik 1993; May 1985; Sag 1976, among many others). A consensus has been that the elided constituent needs to be dislocated somehow so that it can escape from its antecedent.

One influential analysis by May (1985) claims that quantifier raising (QR) is responsible for resolving antecedent containment, as illustrated below.

(4) [_{TP} [_{NP} everyone Angleton did [_{VP2} suspect *e*]] [_{TP} Dulles [_{VP1} suspected *t*]]]

As the object of the main clause is a quantified phrase, it is subject to QR and is adjoined to TP at LF. In the resulting structure in (4), the elided VP is outside the antecedent VP and importantly, the two VPs have parallel structures, licensing ellipsis of VP₂.

One of the consequences of this analysis is that antecedent containment can be resolved covertly as QR is a covert operation. We can have cases of overt resolution like (5).

(5) How many of the languages that Ron can does Harry speak?

The object of the entire sentence is a *wh*-phrase (*how many of the languages that Ron can*) here and hence undergoes *wh*-movement overtly. The QR analysis claims that QR can serve the same purpose as *wh*-movement though it takes place covertly. An issue arising from this line of analysis is whether resolution of antecedent containment can really be covert.

Baltin (1987) takes issue against the QR analysis, claiming that resolution must be overt as in (5). Baltin (1987) proposes an alternative analysis of (2) making use of extraposition, according to which the example is analyzed as below:

(6) Dulles [_{VP1} suspected everyone] [_{CP} Angleton did [_{VP2} suspect *t*]]

¹ May (1985) considers the example *Dulles suspected everyone who Angleton did*, which minimally differs from (2) in the presence of the relative pronoun *who*. The discussion in the text is not affected by this difference.

In (6), the relative clause undergoes string-vacuous extraposition and is dislocated from the matrix VP. The two VPs, VP₁ and VP₂, are separated, so that the former can license the ellipsis of the latter.²

The purpose of the present article is to consider what Japanese can say about the issue of whether resolution of antecedent containment *can* be covert or *must* be overt. In order to do this, we need to have cases of ACD in Japanese. The previous literature on the topic argues that resolution must take place overtly in Japanese. Takahashi (1996a, b) and Abe (2019) construct cases of what they call ACD in Japanese assuming that some sort of VP-ellipsis is available in the language. Their data, however, must be subject to reconsideration, as explained in detail in section 2. In section 3 of this paper, we present a new kind of ACD in Japanese making use of ellipsis of clausal arguments. As the availability of argument ellipsis in Japanese is firmly grounded, we can provide clearer data for the research on ACD in general. In section 4 we examine whether resolution of antecedent containment can be covert in Japanese, ultimately showing that it must be overt, as argued by Takahashi (1996b) and Abe (2019) on the basis of less clear data. We observe that resolution is independent of quantifier scope, which is unexpected under the QR analysis. In section 5 we consider how cases of ACD in Japanese can be accounted for by the existent approaches to ellipsis, showing that, whereas the PF deletion analysis and the derivational copying analysis can handle them, the LF copying analysis, assuming that copying applies to very final LF representations, cannot. Section 6 concludes the whole discussion.

Background

In order to have a case of antecedent-contained deletion like (2) in a language, that language needs to allow VP-ellipsis. Concerning Japanese, Otani and Whitman (1991) argue that some cases of the null object construction in the language are analyzed as involving VP-ellipsis.³ Takahashi (1996a, b) points out that Otani and Whitman's (1991) idea makes it possible to construct cases of ACD in Japanese.

Otani and Whitman (1991) first observe that (7b), if preceded by (7a), can have the so-called sloppy reading that Mary threw out her own letter, too.

- (7) a. John-wa zibun-no tegami-o sute-ta.
 John-TOP self-GEN letter-ACC throw.out-PAST
 'John threw out his letter.'
- b. Mary-mo [e] sute-ta.
 Mary-also throw.out-PAST
 'lit. Mary threw out, too.'

² See Fox (2002) for an implementation of the extraposition analysis under the copy theory of movement as well as for responses to the arguments against Baltin's (1987) analysis made by Larson and May (1990).

³ Huang (1991) observes that some sentences with null objects in Chinese are analyzed as having empty VPs in disguise.

The verb *sute* ‘throw out’ is a transitive verb in Japanese and hence (7b) contains a null object. Otani and Whitman argue that (7b) in fact involves VP-ellipsis, as shown below.⁴

- (8) a. [TP John-wa [T' [VP zibun-no tegami-o t_V] [T *sute*_V [T ta]]]]
 b. [TP Mary-mo [T' [VP zibun-no tegami-o t_V] [T *sute*_V [T ta]]]]

The crucial assumption here is that verbs move to T in Japanese, so that the main verb survives VP-ellipsis in (8b). The VPs in (8a–b) contain the traces of the verbs, which undergo movement to the position of Tense. Assuming also that (8b) has the object identical to the object in (8a), namely *zibun-no tegami-o* ‘self’s letter,’ we have identical VPs in (8a–b), allowing the VP in (8b) to be elided (ellipsis is indicated with gray shading).⁵ Note that the availability of the sloppy interpretation in (7b) is properly accounted for by the analysis in (8b).

Given this line of analysis, the example in (9b), which superficially appears to have a null indirect object and a null direct object, is also taken to involve VP-ellipsis.⁶

- (9) a. John-wa zibun-no kodomo-ni hon-o yonde-age-ta.
 John-TOP self-GEN child-DAT book-ACC read-give-PAST
 ‘John read his child a book.’
 b. Mary-mo yonde-age-ta.
 Mary-also read-give-PAST
 ‘lit. Mary read, too.’

When (9b) has the sloppy reading that Mary read her own child a book, too, it is analyzed as involving VP-ellipsis, as shown below.

- (10) a. [TP John-wa [T' [VP zibun-no kodomo-ni hon-o t_V] [T yonde-age_V [T ta]]]]
 b. [TP Mary-mo [T' [VP zibun-no kodomo-ni hon-o t_V] [T yonde-age_V [T ta]]]]
- The VP in (10b) is identical to the VP in (10a) and hence is eligible for ellipsis.

Then, Takahashi (1996a, b) points out that cases like (11) can be taken to involve ACD.⁷

⁴ Otani and Whitman (1991) present their analysis in somewhat different terms. My exposition here avoids irrelevant details.

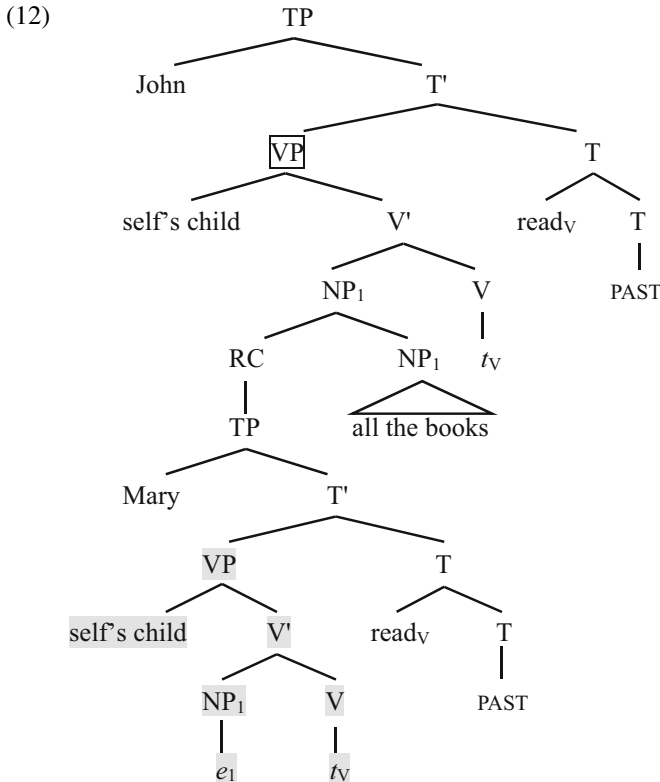
⁵ The kind of VP-ellipsis we have in (8b) is now called V(erb)-stranding VP-ellipsis in the literature (see Goldberg 2015 and the references therein). Otani and Whitman (1991) adopt Williams’s (1977) so-called LF copying analysis, according to which the VP in (8b) is empty in overt syntax and is materialized at LF by copying the VP in the antecedent sentence in (8a) onto it. We abstract away from the issue whether ellipsis involves LF copying or PF deletion until section 5.

⁶ The predicate in (9) is a complex verb comprised of *yonde* ‘reading’ and *age* ‘give,’ meaning ‘reading someone something’ and behaving as a ditransitive predicate.

⁷ To abstract away from the question whether relative clauses are CPs or TPs in Japanese, I label them RC (for relative clause) in most cases in this paper. For related discussions, see Ishii (1991) and Murasugi (1991, 2000).

- (11) John-ga/mo zibun-no kodomo-ni [NP [RC Mary-ga [e] yonde-age-ta]
 John-NOM/also self-GEN child-DAT Mary-NOM read-give-PAST
 subete-no hon]-o yonde-age-ta.
 all-GEN book-ACC read-give-PAST
 ‘lit. John (also) read his child all the books that Mary read.’

This example is supposed to have the following structure, where the Japanese words are indicated with their glosses for the purpose of illustration:



The VP inside the relative clause is intended to take the matrix VP, which is indicated with a box, as its antecedent and be elided as indicated with gray shading. Because the elided VP is contained in the matrix VP, the sentence is a case of ACD. Assuming sloppy interpretation to be a crucial probe for VP-ellipsis, Takahashi (1996a, b) observes that (11) does not have the sloppy reading that John read John’s child all the books that Mary read to Mary’s child, drawing the conclusion that VP-ellipsis of the sort shown in (11) is not possible. This should be contrasted with the English counterpart below.

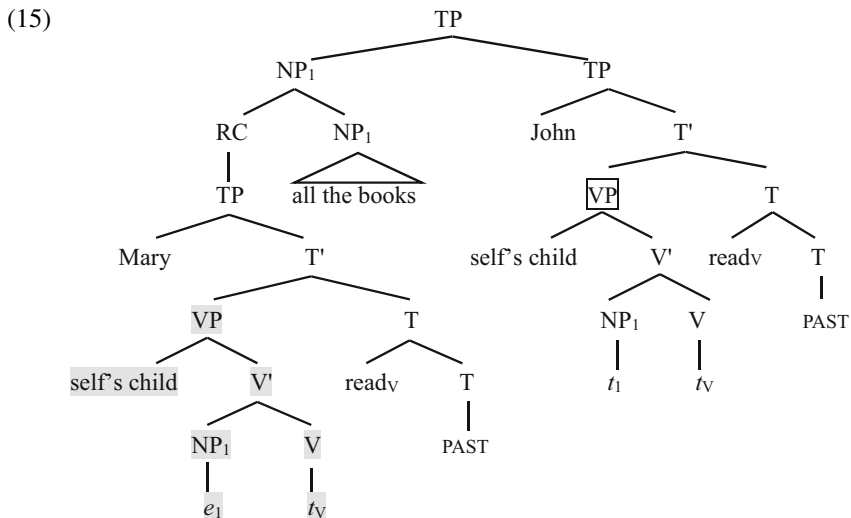
(13) John read his child all the books Mary did.

This is a case of ACD in English and fully acceptable and ambiguous between the strict and sloppy interpretation.

Takahashi (1996a, b) goes on to point out that if the direct object containing the relative clause is preposed by scrambling, the sloppy reading becomes available.

(14) [NP [RC Mary-ga [e] yonde-age-ta] subete-no hon]-o John-ga/mo
 Mary-NOM read-give-PAST all-GEN book-ACC John-NOM/also
 zibun-no kodomo-ni yonde-age-ta.
 self-GEN child-DAT read-give-PAST
 'lit. All the books that Mary read, John (also) read his child.'

The availability of the sloppy reading in (14) means that VP-ellipsis is possible there. The example is assumed to have the following structure:



The NP containing the relative clause is adjoined to TP by scrambling (Saito 1985). As a result, the containment relationship between the two VPs is resolved. Comparing (11) and (14), Takahashi (1996b) concludes that ACD resolution must take place in overt syntax in Japanese.

Takahashi's (1996a, b) argument presented above is based on Otani and Whitman's (1991) hypothesis that VP-ellipsis is available in Japanese and thus is undermined by the reanalysis of the null object construction due to Oku (1998) and Kim (1998), which is now called the argument ellipsis analysis. These authors argue that in languages like Japanese, arguments, rather than verb phrases, are subject to ellipsis, as illustrated below.

- (16) a. [TP John-wa [VP [NP zibun-no tegami]-o sute-ta]]
 John-TOP self-GEN letter-ACC throw.out-PAST
 b. [TP Mary-mo [VP [NP zibun-no tegami]-o sute-ta]]
 Mary-also self-GEN letter-ACC throw.out-PAST

This is the analysis of (7a–b) in terms of argument ellipsis. The object in (16b) is identical to the object in (16a) and hence can be elided. Note that what is elliptic here is just the object NP, a consequence being that the phenomenon in question does not necessitate movement of verbs.

The argument ellipsis analysis is in part motivated by Oku's (1998) observation that the null object construction in question does not allow a reading where an adjunct is understood. Consider the following examples cited from Oku (1998).

- (17) a. Bill-wa kuruma-o teineini arat-ta.
 Bill-TOP car-ACC carefully wash-PAST
 'Bill washed a car carefully.'
 b. John-wa [e] araw-anakat-ta.
 John-TOP wash-NEG-PAST
 'lit. John did not wash.'

Anteceded by (17a), (17b) is a null object construction. Note that (17a) contains the adverb *teineini* 'carefully.' Oku (1998) notes that (17b) does not mean that Bill did not wash a car carefully, but just that Bill did not wash a car. The absence of the adjunct-including reading argues against the VP-ellipsis analysis, which would predict that the reading should be possible just as it is available in the following example in English:

- (18) Bill washed a car carefully, but John didn't.

The second clause in (18) has the VP elided and can mean that John did not wash a car carefully. Under the argument ellipsis analysis, which assumes that arguments but not adjuncts are eligible for ellipsis, (17a–b) are analyzed as follows:

- (19) a. [TP Bill-wa [VP kuruma-o teineini arat] ta]
 b. [TP John-wa [VP kuruma-o araw] anakat-ta]

The object is elided in (19b), where the adverb is simply missing.

With the emergence of the argument ellipsis analysis, the cases that Takahashi (1996a, b) assumes to involve ACD need to be reconsidered. The relevant cases in (11) and (14) are now analyzed as in (20a–b), respectively.

- (20) a. John-ga/mo zibun-no kodomo-ni [NP [RC Mary-ga
 John-NOM/also self-GEN child-DAT Mary-NOM
 [NP zibun-no kodomo]-ni yonde-age-ta] subete-no
 self-GEN child-DAT read-give-PAST all-GEN
 hon]-o yonde-age-ta.
 book-ACC read-give-PAST
 ‘lit. John (also) read self’s child all the books that Mary read self’s child.’
- b. [NP [RC Mary-ga [NP zibun-no kodomo]-ni
 Mary-NOM self-GEN child-DAT
 yonde-age-ta] subete-no hon]-o John-ga/mo zibun-no
 read-give-PAST all-GEN book-ACC John-NOM/also self-GEN
 kodomo-ni yonde-age-ta.
 child-DAT read-give-PAST
 ‘lit. All the books that Mary read self’s child, John (also) read self’s child.’

The indirect objects in the relative clauses are subject to argument ellipsis. Notice that there is no containment relationship between the indirect objects in the main clauses and the ones in the relative clauses and hence that these should have nothing to do with ACD.

In fact, Sakamoto (2016) points out that (20a–b) can be subsumed under the generalization pointed out by Abe (2009) that elided arguments cannot be c-commanded by their antecedents.⁸ This is exemplified by the following sentence:

- (21) Ken-ga zibun-no hahaoya-ni [Hana-ga [e] hon-o okut-ta
 Ken-NOM self-GEN mother-DAT Hana-NOM book-ACC send-PAST
 to] itta.
 that tell-PAST
 ‘lit. Ken told self’s mother that Hana sent a book.’

Here the indirect object is missing from the embedded clause. It might arise from argument ellipsis as shown below, where the indirect object in the embedded clause is intended to be elided under the identity with the matrix indirect object.

- (22) Ken-ga zibun-no hahaoya-ni [Hana-ga [zibun-no hahaoya]-ni
 Ken-NOM self-GEN mother-DAT Hana-NOM self-GEN mother-DAT
 hon-o okut-ta to] itta
 book-ACC send-PAST that tell-PAST
 ‘lit. Ken told self’s mother that Hana sent self’s mother a book.’

If this were possible, the embedded clause should have the sloppy reading that Hana sent her own mother a book. This reading is not available, showing that argument ellipsis cannot apply here. This conforms to the generalization above as the indirect object in the matrix clause c-commands the indirect object in the lower clause.

⁸ Sakamoto (2016) deduces Abe’s generalization from the idea that derivations proceed cyclically, phase by phase (Chomsky 2000). See section 5 for some related discussions.

Returning to (20a–b), we notice that while the matrix indirect object *c*-commands the indirect object in the relative clause in (20a), the former does not *c*-command the latter in (20b). Hence, the contrast between (20a–b), which Takahashi (1996a, b) attributes to the presence or absence of antecedent containment, is subsumed under Abe's (2009) generalization and can be accounted for by the theory of cyclic derivation as proposed by Sakamoto (2016).

Sakamoto's (2016) reanalysis of what seem to be cases of ACD in Japanese is based on the views of Kim (1998) and Oku (1998) that the null object construction in question involves not V-stranding VP-ellipsis, but argument ellipsis. Since Oku (1998) argued against the availability of V-stranding VP-ellipsis on the basis of (17) and other similar data, it has been an issue in Japanese syntax whether it is really absent. Funakoshi (2016) argues that it is available, observing that there are speakers that can have the reading where the adjunct is understood in (17b). The crucial examples in (17) are analyzed as below.

- (23) a. [TP Bill-wa [VP kuruma-o teineini t_V] [T arat_V-ta]]
 Bill-TOP car-ACC carefully wash-PAST
 'Bill washed a car carefully'
- b. [TP John-wa [NegP [VP kuruma-o teineini t_V] t_{Neg}] [T araw_V-anakat_{Neg}-ta]]
 John-TOP car-ACC carefully wash-NEG-PAST
 'John did not wash a car carefully'

Funakoshi (2016) supports his analysis noting that the relevant adjunct-including reading becomes unavailable if the object in (23b) shows up overtly.

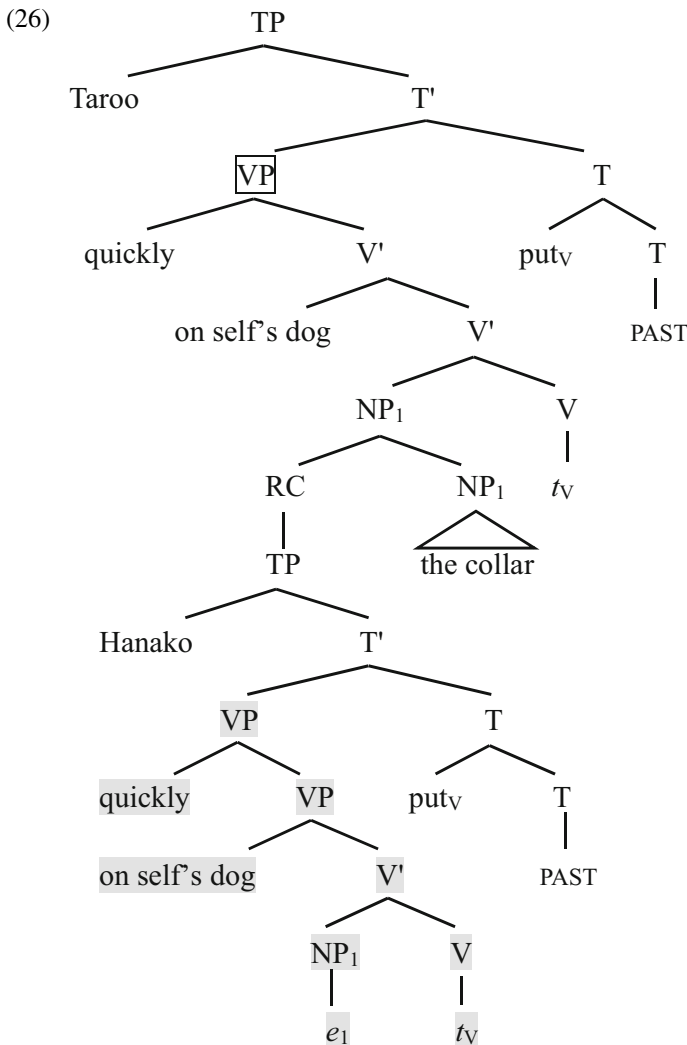
- (24) a. Bill-wa kuruma-o teineini arat-ta.
 Bill-TOP car-ACC carefully wash-PAST
 'Bill washed a car carefully.'
- b. John-wa kuruma-o araw-anakat-ta.
 John-TOP car-ACC wash-NEG-PAST
 'lit. John did not wash a car.'

The object surfaces in (24b), where it is difficult to have the adjunct-including reading. The presence of the object indicates that VP-ellipsis does not apply to (24b) and hence that the sentence cannot be analyzed as involving the adjunct on the premise that adjuncts alone are not eligible for ellipsis (namely, that they are elidable only if they are contained in other constituents eligible for ellipsis).

Following Funakoshi (2016), Abe (2019) points out examples of ACD in Japanese that he assumes to involve V-stranding VP-ellipsis, using adjunct-including readings as a way to ensure its involvement. The following is a case in point:

- (25) Taroo-wa subayaku zibun-no inu-ni [NP [RC
 Taroo-TOP quickly self-GEN dog-DAT
 Hanako-ga tuketeage-nakat-ta] kubiwa]-o tuketeage-ta.
 Hanako-NOM put-NEG-PAST collar-ACC put-PAST
 ‘Taroo put the collar Hanako didn’t on his dog quickly.’

Notice that the main clause contains the adverb *subayaku* ‘quickly.’ Abe (2019) considers whether it is understood in the relative clause as well. (25) is assumed to have the following structure, where the words are indicated with their English glosses for convenience:



The VP (shaded in gray) in the relative clause is intended to take the main VP (indicated with a box). As the former is contained in the latter, this is a case of ACD. And importantly, Abe (2019) observes that the adjunct cannot be understood in the relative clause, concluding that VP-ellipsis is not allowed in (25).

Then Abe (2019) points out that if antecedent containment is resolved by dislocating the NP containing the relative clause by cleft formation, the relevant interpretation becomes possible.

- (27) [CP Taroo-ga subayaku zibun-no inu-ni tuketeage-ta
 Taroo-NOM quickly self-GEN dog-DAT put-PAST
 no]-wa
 that-TOP
 [NP [RC Hanako-ga tuketeage-nakat-ta] kubiwa-o] da.
 Hanako-NOM put-NEG-PAST collar-ACC be
 ‘It was the collar Hanako didn’t that Taroo put on his dog quickly.’

The cleft construction in Japanese consists of the presuppositional clause headed by the complementizer *no* ‘that,’ which is followed by the topic marker, and the focused element, which is followed by the copula (Hoji 1990; Hiraiwa and Ishihara 2012, among others). Abe (2019) observes that (27) can be understood to mean that Taroo quickly put on his dog the collar that Hanako did not quickly put on her dog. Comparing (25) and (27), he concludes that antecedent containment needs to be resolved overtly in Japanese.⁹

(25) and (27) are somewhat unfortunate examples, however, because they are a little too complex in that they need to be judged in terms of the adjunct-including interpretation as well as the sloppy interpretation. In addition, Abe (2019) notes that the antecedent containment in (25) cannot be resolved by scrambling the NP containing the relative clause, as shown below.

- (28) [NP [RC Hanako-ga tuketeage-nakat-ta] kubiwa]-o Taroo-wa
 Hanako-NOM put-NEG-PAST collar-ACC Taroo-TOP
 subayaku zibun-no inu-ni tuketeage-ta.
 quickly self-GEN dog-DAT put-PAST
 ‘lit. The collar Hanako didn’t, Taroo put on his dog quickly.’

Abe observes that this does not have the adjunct-including reading or the sloppy reading, attributing it to his assumption that the relevant ellipsis process, namely V-stranding VP-ellipsis in Japanese, cannot take place backward.

This assumption can be contested as the literature has shown that ellipsis in general can take place forward or backward. Cases of backward ellipsis are found easily.

⁹ Abe (2019) goes on to claim that antecedent containment needs to be resolved in overt syntax even in English. Interested readers are referred to the paper.

- (29) a. Anyone who can [*e*] should speak English.
- b. Ken-ga [*e*] hihansi-nakat-ta node, Hana-ga
 Ken-NOM criticize-PAST because Hana-NOM
 zibunzisin-o hihansi-ta.
 self-ACC criticize-PAST
 'lit. Because Ken didn't criticize, Hana criticized herself.'
- c. Boku-ni-wa [naze [*e*] ka] rikai-deki-nai
 me-to-TOP why Q understand-can-NEG
 ga, Ken-ga taigakusi-ta.
 though Ken-NOM quit.school-PAST
 'Though I cannot understand why, Ken quit school.'
- d. Ken-no [*e*]-wa yoku-nakat-ta ga, Hana-no
 Ken-GEN -TOP good-NEG-PAST though Hana-GEN
 taido-wa rippa dat-ta.
 attitude-TOP good be-PAST
 'Though Ken's was not good, Hana's attitude was good.'

The example in (29a) involves backward VP-ellipsis in English. The first clause in (29b) can have the sloppy reading that Ken did not criticize himself and hence can involve backward argument ellipsis.¹⁰ (29c–d) are cases of sluicing (Takahashi 1994) and NP-ellipsis (Saito and Murasugi 1990) in Japanese, respectively, which take place backward. It is not very clear, therefore, whether the absence of the adjunct-including reading in (28) should be ascribed to backward ellipsis.

We may construct and examine simpler examples instead of (25), (27), and (28). The following examples may be relevant.¹¹

¹⁰ Abe (2019) notes that argument ellipsis cannot take place backward, observing that the following example does not have the sloppy reading:

- (i) Hanako-ga [*e*] homeru maeni Taroo-ga zibun-o hometa.
 Hanako-NOM praise before Taroo-NOM self-ACC praised
 'lit. Before Hanako praised, Taroo praised self.'

I find the sloppy reading to be readily available here.

¹¹ The verb *tikaduk* 'approach' selects dative objects.

- (30) a. Taroo-ga subayaku [NP [RC
 Taroo-NOM quickly
 Hanako-ga tikaduk-e-nakat-ta]
 Hanako-NOM approach-can-NEG-PAST
 hito]-ni tikaduk-e-ta.
 person-DAT approach-can-PAST
 ‘Taroo could quickly approach the person Hanako couldn’t.’
- b. [CP Taroo-ga subayaku
 Taroo-NOM quickly
 tikaduk-e-ta] no-wa [NP [RC
 approach-can-PAST that-TOP
 Hanako-ga tikaduk-e-nakat-ta] hito]-ni da.
 Hanako-NOM approach-can-NEG-PAST person-DAT be
 ‘It was the person Hanako couldn’t that Taroo could quickly approach.’
- c. [NP [RC Hanako-ga tikaduk-e-nakat-ta]
 Hanako-NOM approach-can-NEG-PAST
 hito]-ni Taroo-ga subayaku
 person-DAT Taroo-NOM quickly
 tikaduk-e-ta.
 approach-can-PAST
 ‘lit. The person Hanako couldn’t, Taroo could quickly approach.’

Here the point is whether the adjunct *subayaku* ‘quickly’ can be understood in the relative clauses so that (30a), for instance, can mean that Taroo could quickly approach the person Hanako could not quickly approach. My own judgment is that while it is quite difficult to have the adjunct-including interpretation in (30a) and (30c), it is at best obscure whether the reading is really available in (30b).¹² It would be safe, therefore, to say that the use of adjunct-including construal may not be a very reliable way to construct cases of ACD in Japanese or to examine how ACD is resolved in the language.¹³

Of relevance to our discussion in the next section is Takita’s (2018) argument that null complement clauses can arise through argument ellipsis in Japanese. Takita considers cases of what he calls antecedent-contained clausal argument ellipsis such as the following:

¹² My judgment of (30b) is comparable to my judgment of (17b): I agree with Oku (1998) that it is not very easy to get the adjunct-including reading in (17b). In rather clear contrast, I can find an adjunct-including construal easily in cases of clausal ellipsis like sluicing such as the following:

- (i) Dareka-ga subayaku nige-ta. Boku-wa [dare-ga ka] oboetei-nai.
 someone-NOM quickly escaped-PAST I-TOP who-NOM Q remember-NEG
 ‘Someone escaped quickly. I don’t remember who.’

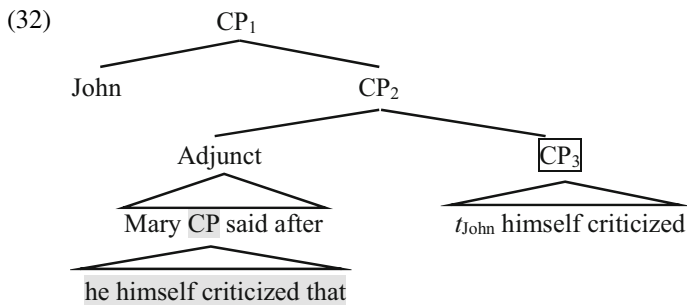
The bracketed part is a sluiced clause, and I can understand the second sentence to mean that ‘I don’t remember who escaped quickly.’

¹³ Tanaka (2023) questions Funakoshi’s (2016) argument for V-stranding VP-ellipsis.

- (31) a. John-wa [Mary-ga [CP *e*] it-ta atode] zibun-o
 John-TOP Mary-NOM say-PAST after self-ACC
 hihansi-ta.
 criticize-PAST
 ‘lit. John criticized himself after Mary said.’
- b. John-wa [Mary-ga [CP kare-ga zibun-o hihansi-ta
 John-TOP Mary-NOM he-NOM self-ACC criticize-PAST
 to] it-ta atode] zibun-o hihansi-ta.
 that say-PAST after self-ACC criticize-PAST
 ‘John criticized himself after Mary said that he criticized himself.’

In (31a), the bracketed part is an adjunct clause modifying the main clause. The verb *itta* ‘said’ in the adjunct clause has a null complement clause, whose content corresponds to the main clause. Thus, if spelled out, (31a) is represented as in (31b), where the complement clause means that he (John) criticized himself.

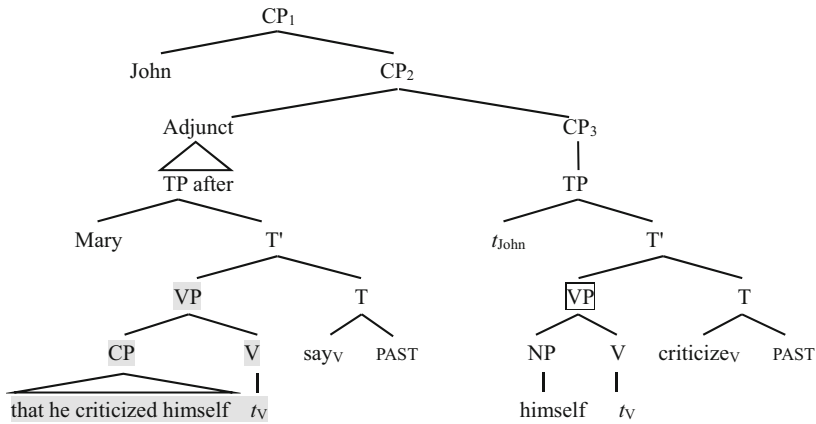
Takita (2018) analyzes (31a) as follows (the words are indicated with their English glosses just for convenience):



The adjunct clause as well as the matrix subject is adjoined to the main clause, so that there are three segments (CP₁, CP₂, and CP₃) of the matrix CP. The complement clause in the adjunct, indicated with gray shading, takes CP₃ as its antecedent and is elided by argument ellipsis.

Takita's (2018) main concern is to argue that null complement clauses like the one in (31a) do not arise through V-stranding VP-ellipsis. Funakoshi (2014) argues that elliptic complement clauses must result from V-stranding VP-ellipsis, but Takita (2018) points out that it could not handle cases like (31a). According to the V-stranding VP-ellipsis analysis, (31a) should be analyzed as below rather than as in (32).

(33)



Inside the adjunct clause in (33), the verb *say* moves to T, and the VP containing the complement CP and the trace of the verb is assumed to be elided. Crucially, Takita (2018) notes, there is no appropriate VP in the main clause that could antecede the elided VP: the matrix VP does not contain a verb (or its trace) selecting a clausal complement.

Takita (2018) does not touch on the issue of antecedent containment directly: he just assumes that it needs to be resolved for relevant sentences to be grammatical, as shown in (32). Nonetheless, his argument that null complement clauses can arise through argument ellipsis will be important in our discussion in the next section.

To sum up, it is at best unclear whether there are clear and convincing cases of ACD in Japanese. The data constructed based on the assumption that V-stranding VP-ellipsis is available in Japanese may not serve the intended purpose. The assumption depends on the possibility of sloppy interpretation and adjunct-including construal, but it has turned out that sloppy interpretation can be handled without recourse to V-stranding VP-ellipsis and that the availability of adjunct-including construal varies among speakers. The lack of reliable empirical support in turn obscures the plausibility of the generalization made by Takahashi (1996b) and Abe (2019) that antecedent containment must be resolved in overt syntax. It is necessary, therefore, to find more reliable data involving ACD in Japanese that enables us to examine whether the generalization in question is really attested. The following two sections are devoted to addressing these issues.

Toward antecedent-contained argument ellipsis

Let us return to the typical case of ACD like (33a) with the relevant structure in (33b).

- (33) a. Harry read every book Ron did.
- b. Harry [_{VP1} read [_{NP} every book_{k1} [_{RC} Ron did [_{VP2} read *e_i*]]]]]

The constituents that are in a containment relationship here are the two VPs: VP₁ and VP₂. When one wishes to construct cases of ACD in Japanese, it is necessary to come up with a category other than VP because it is not clear whether VP is elidable in the language. Then we need to have sentences that have the structure indicated below, where $XP \neq VP$.

(34) ... [XP₁ ... [NP [RC ... [XP₂ ... e_i ...] ...] N_i] ...] ...

The lower occurrence of XP, namely XP₂, contains a gap associate with the head noun of the relative clause and is contained in XP₁. XP₁ and XP₂ need to meet the following conditions:

- (35) a. XP₂ needs to be a constituent out of which relativization is possible.
 b. XP₂ needs to be of the category that can be elided.
 c. XP₂ needs to be contained in XP₁, which is of the same category as XP₂.

I show below that CP meets those conditions in Japanese.

Let us start by confirming that relativization can involve movement in Japanese. Ishii (1991) provides an argument based on reconstruction effects. While Ishii considers examples containing the reflexive *karezisin* ‘himself,’ we can observe the relevant effect with the reciprocal pronoun *otagai* ‘each other.’

(36) [RC Ken to Hana-ga e_i hihansi-ta] otagai-no ronbun_i
 Ken and Hana-NOM criticize-PAST each.other-GEN paper
 ‘each other’s papers Ken and Hana criticized’

The head of the relative clause contains the reciprocal, which can be bound by the subject of the relative clause *Ken to Hana* ‘Ken and Hana.’ Another indication of movement is the possibility of relativization of idiom chunks (see Morita 2013).

(37) a. Ken-ga sono mondai-ni ker_i-o take-ta.
 Ken-NOM that issue-to end-ACC attach-PAST
 ‘Ken put an end to that issue.’
 b. [RC Ken-ga sono mondai-ni e_i take-ta] ker_i
 Ken-NOM That issue-to attach-PAST end
 ‘the end Ken put to that issue’

The expression *keri-o take* ‘attach an end’ in (37a) is an idiomatic verb phrase in Japanese meaning ‘put an end.’¹⁴ The object part of the idiom can be relativized as in (37b).

Let us note that CPs or complement clauses allow relativization out of themselves, meeting condition (35a) (Ishii 1991, among others).

¹⁴ The word *keri* derives from the auxiliary verb in Old Japanese often used at the end of a passage of text.

- (38) a. [RC Ken-ga [CP Hana-ga e_i kai-ta to]
 Ken-NOM Hana-NOM write-PAST that
 omottei-ru/syoogensi-ta] ronbun_i
 think-NPAST/testify-PAST paper
 ‘the paper Ken thinks/testified that Hana wrote’
- b. [RC Ken-ga [CP Hana-ga e_i migak-u no]-o
 Ken-NOM Hana-NOM polish-NPAST that-ACC
 mokugekisi-ta] kabin_i
 witness-PAST vase
 ‘the vase Ken witnessed Hana polish’

In (38a), relativization takes place out of the complement CP headed by the complementizer *to* ‘that.’ In (38b), the complement CP is headed by the complementizer *no*, which appears with perception verbs and factive verbs, and it contains a gap associated with the head noun.

The involvement of movement in cases like (38a–b) can be confirmed with the examples below.

- (39) a. [RC Rei-ga [CP Ken to Hana-ga e_i
 Rei-NOM Ken and Hana-NOM
 hihansi-ta to] it-ta] otagai-no ronbun_i
 criticize-PAST that say-PAST each.other-GEN paper
 ‘each other’s papers Rei said that Ken and Hana criticized’
- b. [RC Rei-ga [CP Ken-ga sono mondai-ni e_i
 Rei-NOM Ken-NOM that issue-to
 take-ta to] omottei-ru] ker_i
 attach-PAST that think-NPAST end
 ‘the end Rei thinks that Ken put to that issue’

(39a) exhibits a reconstruction effect and (39b) is a case of relativization of an idiom chunk.

Complement clause CPs can be elided in Japanese, meeting the condition in (35b) (Takita 2018; Takahashi 2020). Consider (40) first.

- (40) a. Ken-wa [CP Hana-ga sono supai-ni at-tei-ta to]
 Ken-TOP Hana-NOM that spy-DAT meet-ASP-PAST that
 syoogensi-ta.
 testify-PAST
 ‘Ken testified that Hana met that spy.’
- b. Rei-mo [CP Hana-ga sono supai-ni at-tei-ta to]
 Rei-also Hana-NOM that spy-DAT meet-ASP-PAST that
 syoogensi-ta.
 testify-PAST
 ‘Rei testified that Hana met that spy, too.’
- c. Rei-mo [e] syoogensi-ta.
 Rei-also testify-PAST
 ‘lit. Rei testified, too.’

(40a) is intended to antecede (40b–c). While the complement clause is repeated in (40b), it is omitted in (40c), which nonetheless has the same interpretation as (40b): the complement clause *that Hana met that spy* is understood in (40c).

A similar observation can be made with a different sort of complement clause. In (41), the complement clauses are headed by the complementizer *no*, which appears with perception verbs.

- (41) a. Ken-wa [CP Hana-ga sono biru kara
 Ken-TOP Hana-NOM that building from
 deteku-ru no]-o mokugekisi-ta.
 come.out-NPAST that-ACC witness-PAST
 ‘Ken witnessed Hana come out of that building.’
- b. Rei-mo [CP Hana-ga sono biru kara
 Rei-also Hana-NOM that building from
 deteku-ru no]-o mokugekisi-ta.
 come.out-NPAST that-ACC witness-PAST
 ‘Rei witnessed Hana come out of that building, too.’
- c. Rei-mo [e] mokugekisi-ta.
 Rei-also witness-PAST
 ‘lit. Rei witnessed, too.’

(41a) serves to antecede (41b–c). The complement clause is repeated in (41b) but is omitted in (41c).

That the null complements in (40c) and (41c) can involve ellipsis is demonstrated by the fact that extraction is possible out of them. In the examples below, (42a) serves to antecede (42b–c), where the complement CP is repeated in (42b) but omitted in (42c).

- (42) a. Ken-ga [CP Hana-ga at-tei-ta to] syoogensi-ta
 Ken-NOM Hana-NOM meet-ASP-PAST that testify-PAST
 no-wa
 that-TOP
 sono supai-ni da.
 that spy-DAT be
 ‘It was that spy that Ken testified that Hana met.’
- b. Rei-ga [CP Hana-ga at-tei-ta to] syoogensi-ta
 Ken-NOM Hana-NOM meet-ASP-PAST that testify-PAST
 no-wa
 that-TOP
 kono supai-ni da.
 this spy-DAT be
 ‘It was this spy that Rei testified that Hana met.’
- c. Rei-ga [e] syoogensi-ta no-wa kono supai-ni da.
 Ken-NOM testify-PAST that-TOP this spy-DAT be
 ‘lit. It was this spy that Rei testified.’

All the sentences here are cases of the cleft construction in Japanese, which is assumed to involve movement (Hoji 1990; Hiraiwa and Ishihara 2012). The focused elements *sono supai-ni* ‘that spy-DAT’ and *kono supai-ni* ‘this spy-DAT’ are associated with the gaps in the complement clauses in (42a–b), respectively. What is noteworthy is (42c), which minimally differs from (42b) in that the complement clause is omitted but has the same interpretation as (42b): namely, (42c) means that it was this spy that Rei testified that Hana met. This indicates the presence of hidden structure in (42c), as illustrated below.

- (43) Rei-ga [CP Hana-ga t_i at-tei-ta to] syoogensita no-wa
 Ken-NOM Hana-NOM meet-ASP-PAST that testify-PAST that-TOP
 kono supai-ni_i da
 this spy-DAT be
 ‘lit. it was this spy_i that Rei testified that Hana met t_i ’

The complement clause indicated with gray shading contains a trace associated with the focused element and is elided under the identity with the complement clause in the antecedent. This directly explains the fact that the focused element is interpreted as the object of *atteita* ‘met’ in (42c).

An argument of the same sort can be provided for the empty complement in (41c).

- (44) a. Ken-ga [CP Hana-ga deteku-ru no]-o mokugekisi-ta
 Ken-NOM Hana-NOM come.out-NPAST that-ACC witness-PAST
 no-wa sono biru kara da.
 that-TOP that building from be
 ‘It was from that building that Ken witnessed Hana come out.’
- b. Rei-ga [CP Hana-ga deteku-ru no]-o mokugekisi-ta
 Rei-NOM Hana-NOM come.out-NPAST that-ACC witness-PAST
 no-wa kono biru kara da.
 that-TOP this building from be
 ‘It was from this building that Rei witnessed Hana come out.’
- c. Rei-ga [e] mokugekisi-ta no-wa kono biru
 Rei-NOM witness-PAST that-TOP this building
 kara da.
 from be
 ‘lit. It was from this building that Rei witnessed.’

(44a) is obtained by applying cleft formation to (41a) so that the PP *sono biru kara* ‘from that building’ is focused and detached from the complement clause. (44a) can antecede (44b–c), both of which involve cleft formation as well. While the complement clause is realized overtly in (44b), it is omitted in (44c). Of importance is the fact that (44c) has the same meaning as (44b). This is directly accounted for if (44c) is analyzed as follows:

- (45) Rei-ga [CP Hana-ga t_i deteku-ru no]-o mokugekisi-ta
 Rei-NOM Hana-NOM come.out-NPAST that-ACC witness-PAST
 no-wa kono biru kara_i da
 that-TOP this building from be
 ‘lit. it was from this building_i that Rei witnessed Hana come out t_i ’

This shows that the empty complement clause in (44c) arises through ellipsis and has hidden syntactic structure, whereby the interpretation where the focused PP is associated with the predicate *detekuru* ‘come out’ is obtained.

Finally, let us observe that complement clauses (or CPs) can meet condition (35c): namely, that they can be embedded under complement clauses.

- (46) a. Ken-wa/mo [CP₁ Hana_i-ga [NP Rei-ga
 Ken-TOP/also Hana-NOM Rei-NOM
 [CP₂
 kanozyo_i-ga at-tei-ta to] syoogensi-ta
 she-NOM meet-ASP-PAST that testify-PAST
 supai]-ni at-tei-ta to] syoogensi-ta.
 spy-DAT meet-ASP-PAST that testify-PAST
 ‘Ken (also) testified [CP₁ that Hana met the spy Rei testified
 [CP₂ that she met]].’
- b. Ken-wa/mo [CP₁ Hana_i-ga [NP Rei-ga
 Ken-TOP/also Hana-NOM Rei-NOM
 [CP₂
 kanozyo_i-ga migak-u no]-o mokugekisi-ta
 she-NOM polish-NPAST that-ACC witness-PAST
 kabin]-o migak-u no]-o mokugekisi-ta.
 vase-ACC polish-NPAST that-ACC witness-PAST
 ‘Ken (also) witnessed [CP₁ Hana polish the vase Rei witnessed
 [CP₂ her polish]].’

(46a–b) may be difficult to process due to their complex structure: each of them has four clauses and involves center embedding. Nonetheless, they are grammatical and become understandable if they are read slowly, for example. Note that in each of (46a–b), the higher CP (CP₁) contains the lower CP (CP₂).

Having confirmed that complement CPs satisfy all the three conditions in (35), we are now ready to use them to construct cases of antecedent-contained argument ellipsis. The examples in (47a–b) are obtained by eliding the most embedded clauses (CP₂) in (46a–b), respectively.

- (47) a. * Ken-wa/mo [CP₁ Hana-ga [NP Rei-ga
 Ken-TOP/also Hana-NOM Rei-NOM
 [CP₂ e]
 syoogensi-ta supai]-ni at-tei-ta to] syoogensi-ta.
 testify-PAST spy-DAT meet-ASP-PAST that testify-PAST
 ‘lit. Ken (also) testified that Hana met the spy Rei testified.’
- b. * Ken-wa/mo [CP₁ Hana-ga [NP Rei-ga
 Ken-TOP/also Hana-NOM Rei-NOM
 [CP₂ e]
 mokugekisi-ta kabin]-o migak-u no]-o mokugek-isi-ta.
 witness-PAST vase-ACC polish-NPAST that-ACC witness-PAST
 ‘lit. Ken (also) witnessed Hana polish the vase Rei witnessed.’

Significantly, (47a–b) are unacceptable when intended to have the same meanings as (46a–b), respectively.¹⁵ Namely, it is impossible or extremely difficult to

¹⁵ These sentences sound acceptable with the irrelevant (and strange) readings that Ken (also) testified that Hana met the spy that Rei testified (for (47a)) and that Ken (also) witnessed Hana polish the vase that Rei witnessed (for (47b)), according to which the objects in the second highest clauses (CP₁) are taken to

understand (47a) as meaning that Ken (also) testified that Hana met the spy that Rei testified that she (Hana) met and to understand (47b) as meaning that Ken (also) witnessed Hana polish the vase Rei witnessed her (Hana) polish.

Of equal significance is the fact that (47a–b) are turned into acceptable sentences once the NPs containing the elided CPs are dislocated and placed in the initial positions of the sentences by scrambling.

- (48) a. [NP Rei-ga [CP₂ e] syoogensi-ta supai]_i-ni Ken-wa/mo
 Rei-NOM testify-PAST spy-DAT Ken-TOP/also
 [CP₁ Hana-ga *t*_i at-tei-ta to] syoogensi-ta.
 Hana-NOM meet-ASP-PAST that testify-PAST
 ‘lit. The spy Rei testified, Ken (also) testified that Hana met.’
- b. [NP Rei-ga [CP₂ e] mokugekisi-ta kabin]_i-o Ken-wa/mo
 Rei-NOM witness-PAST vase-ACC Ken-TOP/also
 [CP₁ Hana-ga *t*_i migak-u no]-o mokugekisi-ta.
 Hana-NOM polish-NPAST that-ACC witness-PAST
 ‘lit. The vase Rei witnessed, Ken (also) witnessed Hana polish.’

The preposed NPs in (48a–b) can be understood to mean the spy that Rei testified that Hana met and the vase that Rei witnessed Hana polish, respectively, showing that ellipsis is involved in the complement clauses indicated as CP₂.

For the sake of completeness, we may note that there is another possibility of applying scrambling to (47a–b). While the NPs containing the elided CPs are scrambled in (48), the higher CPs (namely, CP₁) may be able to be subject to scrambling. In that case, the following examples are obtained:

- (49) a. * [CP₁ Hana-ga [NP Rei-ga [CP₂ e] syoogensi-ta
 Hana-NOM Rei-NOM testify-PAST
 supai]-ni at-tei-ta to]_i Ken-wa/mo *t*_i syoogensi-ta.
 spy-DAT meet-ASP-PAST that Ken-TOP/also testify-PAST
 ‘lit. That Hana met the spy Rei testified, Ken (also) testified.’
- b. * [CP₁ Hana-ga [NP Rei-ga [CP₂ e] mokugekisi-ta
 Hana-NOM Rei-NOM witness-PAST
 kabin]-o migak-u no]_i-o Ken-wa/mo *t*_i mokugekisi-ta.
 vase-ACC polish-NPAST that-ACC Ken-TOP/also witness-PAST
 ‘lit. Hana polish the vase Rei witnessed, Ken (also) witnessed.’

The results are that (49a–b) do not show improvement in acceptability. This is natural because scrambling does not resolve antecedent containment in (49a–b), where the elliptic complement clauses (CP₂) are contained in their antecedents (CP₁).

Footnote 15 continued

be *the spy that Rei testified* and *the vase that Rei witnessed*, respectively. Because these cases do not involve ellipsis, but rather have gaps of relativization in the object positions of the verbs *testified* and *witnessed*, they are irrelevant and hence put aside here.

We have observed in (48) that scrambling can help resolve antecedent containment. Let us note that cleft formation can do so, too. The following examples are obtained from (47a–b) by applying cleft movement to the NPs containing the elliptic gaps:

- (50) a. Ken-ga [CP₁ Hana-ga t_i at-tei-ta to]
 Ken-NOM Hana-NOM meet-ASP-PAST that
 syoogensi-ta no-wa [NP Rei-ga [CP₂ e] syoogensi-ta
 testify-PAST that-TOP Rei-NOM testify-PAST
 supai]_i-ni da.
 spy-DAT be
 ‘It was the spy Rei testified that Ken testified that Hana met.’
- b. ? Ken-ga [CP₁ Hana-ga t_i migak-u no]-o
 Ken-NOM Hana-NOM polish-NPAST that-ACC
 mokegekisi-ta no-wa [NP Rei-ga [CP₂ e] mokegekisi-ta
 witness-PAST that-TOP Rei-NOM witness-PAST
 kabin]_i-o da.
 vase-ACC be
 ‘It was the vase Rei witnessed that Ken witnessed Hana polish.’

In clear contrast to (47a–b), (50a–b) are acceptable with the relevant readings.¹⁶

Comparison of (47a–b) with (48a–b) and (50a–b) shows that elliptic complement clauses need to escape from their antecedents overtly: if they are contained in the antecedents in overt syntax, it results in unacceptable sentences.

Resolution of Antecedent Containment and Quantifier Scope

We have observed that antecedent containment needs to be resolved overtly in Japanese. The relevant examples considered in the last section have NPs that are interpreted as definite (see the English translations of (47a–b) and (48a–b), where the NPs containing the elliptic CPs are shown as definite expressions). To examine the relationship between resolution of antecedent containment and quantifier scope, let us change those NPs into quantificational expressions. The examples below are obtained by turning *supai* ‘spy’ in (47a) and *kabin* ‘vase’ in (47b) into universal expressions (*every spy* and *all the vases*, respectively).¹⁷

¹⁶ The example in (50b) sounds a little degraded presumably because the accusative-marked NP occurs in the focus position (Nishiyama, Whitman and Yi 1996).

¹⁷ The discontinuous expression *dono ... mo* ‘every ... also’ attaches to a noun and makes it a universal quantifier (Kuroda 1965; Takahashi 1998).

- (51) a. * Ken-wa/mo [CP₁ Hana-ga [NP Rei-ga
Ken-TOP/also Hana-NOM Rei-NOM
[CP₂ e]
syoogensi-ta dono supai]-ni-mo at-tei-ta to]
testify-PAST every spy-DAT-also meet-ASP-PAST that
syoogensi-ta.
testify-PAST
'lit. Ken (also) testified that Hana met every spy Rei testified.'
- b. * Ken-wa/mo [CP₁ Hana-ga [NP Rei-ga
Ken-TOP/also Hana-NOM Rei-NOM
[CP₂ e]
mokugekisi-ta subete-no kabin]-o migak-u no]-o
witness-PAST all-GEN vase-ACC polish-NPAST that-ACC
mokugekisi-ta.
witness-PAST
'Ken (also) witnessed Hana polish all the vases Rei witnessed.'

The modification does not have any consequence on the acceptability of the examples: (51a–b) are still degraded.

Proponents of the QR analysis, according to which antecedent containment can be resolved by the covert operation of quantifier raising, would say that the unacceptability of (51a–b) is expected given that QR is usually clause-bounded. In order to place the elliptic CPs (CP₂) outside of the antecedent CPs (CP₁), the universal NPs would need to move into the matrix clauses. That this sort of long-distance QR is impossible is shown by the following examples:

- (52) a. Darega-ga [CP Hana-ga dono supai-ni-mo
someone-NOM Hana-NOM every spy-DAT-also
at-tei-ta to] syoogensi-ta.
meet-ASP-PAST that testify-PAST
'Someone testified that Hana met every spy.'
- b. Dareka-ga [CP Hana-ga subete-no kabin-o
someone-NOM Hana-NOM all-GEN vase-ACC
migak-u no]-o mokugekisi-ta.
polish-NPAST that-ACC witness-PAST
'Someone witnessed Hana polish all the vases.'

In (52a–b), the universal quantifiers in the embedded object positions cannot take scope over the existential quantifiers in the matrix clauses: the only interpretation available is the one where the latter takes scope over the former. If long-distance QR were possible, the impossible readings would be available.

It turns out that (51a–b) can be improved by moving the quantified NPs into the matrix clauses overtly by scrambling, as shown below.

- (55) a. Dareka-ga [CP Ken-ga dono sensei-ni-mo
 Someone-NOM Ken-NOM every teacher-DAT-also
 at-ta to] omot-tei-ru.
 meet-PAST that think-ASP-NPAST
 ‘Someone thinks that Ken met every teacher.’ ($\exists > \forall$, $*\forall > \exists$)
- b. Dono sensei-ni-mo dareka-ga [CP Ken-ga *t*
 Every teacher-DAT-also someone-NOM Ken-NOM
 at-ta to] omot-tei-ru.
 meet-PAST that think-ASP-NPAST
 ‘lit. Every teacher, someone thinks that Ken met.’ ($\exists > \forall$, $*\forall > \exists$)

In (55a), the existential quantifier in the matrix subject position asymmetrically takes wide scope over the universal quantifier in the embedded object position. (55b) is derived by moving the universal quantifier into the matrix clause by long-distance scrambling. The scopal interpretation does not change, however: the universal quantifier cannot have wide scope over the existential quantifier.

We have so far made two observations about long-distance scrambling: it can resolve antecedent containment but cannot affect quantifier scope. We can now examine whether the two — resolution of antecedent containment and quantifier scope — are related or not. The following examples are obtained from (51a–b) by replacing the matrix subjects with existential quantifiers:

- (56) a. * Dareka-ga [CP1 Hana-ga [NP Rei-ga
 someone-NOM Hana-NOM Rei-NOM
 [CP2 *e*] syoogensi-ta dono supai]-ni-mo at-tei-ta
 testify-PAST every spy-DAT-also meet-ASP-PAST
 to] syoogensi-ta.
 that testify-PAST
 ‘lit. Someone testified that Hana met every spy Rei testified.’
- b. * Dareka-ga [CP1 Hana-ga [NP Rei-ga
 someone-NOM Hana-NOM Rei-NOM
 [CP2 *e*] mokugekisi-ta subete-no kabin]-o migak-u
 witness-PAST all-GEN vase-ACC polish-NPAST
 no]-o mokugekisi-ta.
 that-ACC witness-PAST
 ‘lit. Someone witnessed Hana polish all the vases Rei witnessed.’

As indicated, the modification does not affect the acceptability of the examples. They are as degraded as (51a–b).

Let us then apply long-distance scrambling to the universal quantifiers in (56a–b).

allowing the universal quantifier to have wide scope over the existential quantifier. Grano and Lasnik (2018) argue that when embedded clauses have pronominal subjects bound by the matrix subjects, they cease to function as phases, allowing otherwise local operations to occur across the clausal boundary. Thus, in (58b), the universal quantifier can undergo QR to the matrix clause and have scope over the existential quantifier.

Bearing this in mind, let us consider (59a–b).

- (59) a. Darega-ga [CP Hana-ga dono supai-ni-mo at-tei-ta to]
 someone-NOM Hana-NOM every spy-DAT-also meet-ASP-PAST that
 syoogensi-ta.
 testify-PAST
 ‘Someone testified that Hana met every spy.’ ($\exists > \forall, * \forall > \exists$)
- b. Darega_i-ga [CP zibun_i-ga dono supai-ni-mo at-tei-ta to]
 someone-NOM self-NOM every spy-DAT-also meet-ASP-PAST that
 syoogensi-ta.
 testify-PAST
 ‘lit. Someone testified that self met every spy.’ ($\exists > \forall, * \forall > \exists$)

As observed with (55a), (59a) is scopally unambiguous, limited to the reading in which the existential quantifier has wider scope than the universal quantifier. (59b) is obtained by replacing the embedded subject *Hana* in (59a) with the reflexive pronoun *zibun* ‘self’ bound by the matrix subject. Unlike the English example in (58b), (59b) does not become ambiguous, which is expected because Japanese is a language with scope rigidity (see the discussions about (54) and (55)). Let us now apply scrambling to the embedded object and move it into the matrix clause:

- (60) Dono supai-ni-mo darega_i -ga [CP zibun_i -ga *t* at-tei-ta
 every spy-DAT-also someone-NOM Hana-NOM meet-ASP-PAST
 to] syoogensi-ta.
 that testify-PAST
 ‘lit. Every spy, someone testified that self met.’ ($\exists > \forall, \forall > \exists$)

This example minimally differs from (55b) in that the reflexive pronoun, instead of the name, occurs as the embedded subject. But it now enables the moved universal quantifier to have wide scope.

Bearing this in mind, let us modify (57a) and change the embedded subject into a reflexive pronoun bound by the matrix subject, as follows:

- (61) [NP Rei-ga [CP₂ e] syoogensi-ta dono supai]_i-ni-mo dareka]_j-ga
 Rei-NOM testify-PAST every spy-DAT-also someone-NOM
 [CP₁ zibun]_j-ga *t*_i at-tei-ta to] syoogensi-ta.
 self-NOM meet-ASP-PAST that testify-PAST
 ‘lit. Every spy Rei testified, someone testified that self met.’ ($\exists > \forall, \forall > \exists$)

This example allows the reading in which the universal quantifier takes wide scope over the existential quantifier as well as the reading in which the existential quantifier takes wide scope over the universal quantifier.¹⁸ If we compare (57a) with (61), it is clearly difficult to obtain the construal in which the universal quantifier takes wide scope over the existential quantifier in (57a). Again, (57a) indicates that resolution of antecedent containment can be independent of quantifier scope in Japanese.

Explaining the data

How can we account for the examples in (48), (53), and (57), where long-distance scrambling resolves antecedent containment? We assume with Saito (1989, 2003, 2004, and 2005) and Bošković and Takahashi (1998) that long-distance scrambling is subject to total reconstruction, which explains the fact noted in (55b) that long-distance scrambled quantifiers usually cannot take scope in the positions where they are moved.¹⁹ Let us consider (57a), repeated below as (62), as a representative case.

- (62) [NP Rei-ga [CP₂ e] syoogensi-ta dono supai]_i-ni-mo dareka-ga
 Rei-NOM testify-PAST every spy-DAT-also someone-NOM
 [CP₁ Hana-ga *t*_i at-tei-ta to] syoogensi-ta.
 Hana-NOM meet-ASP-PAST that testify-PAST
 ‘lit. Every spy Rei testified, someone testified that Hana met.’ ($\exists > \forall, * \forall > \exists$)

In the view that ellipsis involves PF deletion, this has the following derivation, which is shown using the English glosses and word order just for convenience:

¹⁸ (61) is ambiguous as to how to interpret the elided CP. The sentence means either that someone_i testified that he_i met every spy that Rei testified that he_i met or that someone_i testified that he_i met every spy that Rei_j testified that she_j met. This is expected because ellipsis generally permits this sort of ambiguity.

¹⁹ The exceptional case in (60) can be explained by Grano and Lasnik’s (2018) assumption that the embedded clause there does not function as a phase coupled with Saito’s (2005) analysis of total reconstruction. Interested readers are referred to those papers.

- (63) a. (the pre-scrambling representation)
 someone testified [_{CP1} that Hana met [_{NP} every spy_i Rei testified [_{CP2} that Hana met t_i]]]
- b. (the post-scrambling representation)
 [_{NP} every spy_i Rei testified [_{CP2} that Hana met t_i]]_j, someone testified [_{CP1} that Hana met t_j]
- c. (the PF representation)
 [_{NP} every spy_i Rei testified [_{CP2} e]]_j, someone testified [_{CP1} that Hana met t_j]
- d. (the LF representation)
 [_{TP} someone_j [_{TP} t_j testified [_{CP1} that Hana [_{VP} [_{NP} every spy_i Rei testified [_{CP2} that Hana met t_i]]]_j [_{VP} met t_j]]]]]

Long-distance scrambling of the embedded object yields (63b), which feeds into the PF and the LF component. The PF representation in (63c) is derived by deleting CP₂, indicated with gray shading in (63b). PF deletion can successfully locate the antecedent of CP₂, namely CP₁, as they are separated.²⁰ The LF representation in (63d) is obtained from (63b) by reconstructing the scrambled NP into the embedded clause and additionally applying QR to the quantified phrases (the matrix subject quantified phrase and the embedded object quantified phrase are adjoined to TP and VP, respectively). Note that (63d) only yields the reading in which the existential quantifier takes wide scope over the universal quantifier. There is nothing wrong with the derivation in (63), which means that the data in question can be explained by PF deletion.

Let us note that the counterpart of (62) without scrambling, namely (56a), can be accounted for easily by the PF deletion analysis. (56a) is repeated as (64), with its schematic derivation given in (65).

- (64) * Dareka-ga [_{CP1} Hana-ga [_{NP} Rei-ga [_{CP2} e]
 someone-NOM Hana-NOM Rei-NOM
 syoogensi-ta dono supai]-ni-mo at-tei-ta to] syoogensi-ta.
 testify-PAST every spy-DAT-also meet-ASP-PAST that testify-PAST
 ‘lit. Someone testified that Hana met every spy Rei testified.’

²⁰ In (63b–d), the moved NP and its trace are indicated with the index j . But the NP is headed by *supai* ‘spy,’ which has the index i , and hence $i = j$. Note also that the base position of the moved NP occupied by t_j is actually occupied by its copy. As a reviewer pointed out correctly, we need to ensure that CP₁ and CP₂ are “identical” (or non-distinct) for the purpose of deletion. Those CPs seem to be different because they contain different elements in the object positions, namely t_i and t_j (or the copy of the moved NP) but this should not cause a problem. The indices of the traces or copies are ultimately considered as identical, so that they can be taken to be non-distinct (for example, via vehicle change (Fiengo and May 1994)).

- (65) a. (the overt syntactic representation)
 someone testified [_{CP1} that Hana met [_{NP} every spy_i Rei testified
 [_{CP2} that Hana met_{t_i}]]]
- b. (the PF representation)
 someone testified [_{CP1} that Hana met [_{NP} every spy_i Rei testified [_{CP2} e]]]
- c. (the LF representation)
 [_{TP} someone_j [_{TP} t_j testified [_{CP1} that Hana [_{VP} [_{NP} every spy_i Rei testified
 [_{CP2} that Hana met t_i]]]_j [_{VP} met t_j]]]]]

The representation in (65a) is obtained in overt syntax and it feeds into PF and LF. Notice that CP₂ is contained in its supposed antecedent (CP₁) in (65a), so that ellipsis of CP₂ cannot be allowed on the premise that antecedent-contained deletion is impossible without containment resolution. The LF representation in (65c) is obtained via QR and ends up as identical to (63d). But the sentence is ruled out because the deletion operation applying between (65a–b) is illicit.

Let us next consider how (62) can be handled by the LF copying analysis. Under the assumption that copying applies to the final output in the LF component (Williams 1977), it is analyzed in the following way:

- (66) a. (the pre-scrambling representation)
 someone testified [_{CP1} that Hana met [_{NP} every spy_i Rei testified [_{CP2} e]]]
- b. (the post-scrambling representation)
 [_{NP} every spy_i Rei testified [_{CP2} e]]_j, someone testified [_{CP1} that Hana met t_j]
- c. (the PF representation)
 [_{NP} every spy_i Rei testified [_{CP2} e]]_j, someone testified [_{CP1} that Hana met t_j]
- d. (the representation after reconstruction and QR)
 [_{TP} someone_j [_{TP} t_j testified [_{CP1} that Hana [_{VP} [_{NP} every spy_i Rei testified
 [_{CP2} e]]]_j [_{VP} met t_j]]]]]
- e. (the representation after copying)
 [_{TP} someone_j [_{TP} t_j testified [_{CP1} that Hana [_{VP} [_{NP} every spy_i Rei testified
 [_{CP2} that Hana [_{VP} [_{NP} every spy_i Rei testified [_{CP} e]]]_j [_{VP} met t_j]]]]
 [_{VP} met t_j]]]]]

The copying analysis assumes that the elliptic part is generated as empty in the syntactic component. Thus, CP₂ is just empty in (66a). It remains so after scrambling applies to the embedded object, as shown in (66b), which feeds into the PF and the LF component. In the PF representation in (66c), CP₂ remains empty. On the LF side, reconstruction and QR apply to (66b), deriving (66d). Now, to recover the empty CP, its antecedent (CP₁) is copied onto CP₂, yielding (66e). Notice that (66e) contains another occurrence of the empty CP, indicated with gray shading, which needs to be recovered by copying, resulting in infinite regress. This shows that the LF copying analysis with the assumption that copying applies to the final LF output cannot account for the cases where antecedent containment is resolved by long-distance scrambling.

Sakamoto (2016) puts forth the idea that copying applies derivationally in a phase-by-phase fashion. Specifically, he assumes that elements included in the domain that undergoes Transfer in the sense of Chomsky (2000) can be reused to construct another structure, and that reused elements do not have phonetic content because they have been transferred. Let us consider how this version of the copying analysis can deal with the relevant example in (62), repeated below as (67) with the English glosses and in the English word order.

(67) $[_{NP} \text{ every spy}_i \text{ Rei testified } [_{CP2} e]_j]$, someone testified $[_{CP1} \text{ that Hana met } t_j]$

As Sakamoto (2016) assumes that different clauses (or more precisely, phases) can be constructed independently and that relative clauses can be late-merged (Lebeaux 1988), we consider the derivations of the main clause and the relative clause separately.

The main clause is constructed as shown in (68).

(68) (construction of the main clause)

- a. $[_{CP1} \text{ that Hana met every spy}]$
- b. $[_{CP1} \text{ every spy}_i \text{ that } [_{TP} \text{ Hana met } t_i]]$
- c. $[_{vP} \text{ someone } v \text{ } [_{VP} \text{ testified } [_{CP1} \text{ every spy}_i \text{ that } [_{TP} \text{ Hana met } t_i]]]]]$
- d. $[_{vP} \text{ every spy}_i \text{ } [_{vP} \text{ someone } v \text{ } [_{VP} \text{ testified } [_{CP1} t_i' \text{ that Hana met } t_i]]]]]$
- e. $[_{TP} \text{ someone}_k \text{ T } [_{vP} \text{ every spy}_i \text{ } [_{vP} t_k \text{ } v \text{ } [_{VP} \text{ testified } [_{CP1} \text{ that Hana met } t_i]]]]]]]$
- f. $[_{TP} \text{ every spy}_i \text{ } [_{TP} \text{ someone}_k \text{ T } [_{vP} t_i' \text{ } [_{vP} t_k \text{ } v \text{ } [_{VP} \text{ testified } [_{CP1} \text{ that Hana met } t_i]]]]]]]]]$

First, the embedded clause (CP_1) is constructed in (68a), which contains just *every spy* in the object position as the relative clause is not introduced at this point. Since the object ultimately undergoes long-distance scrambling, it moves to the edge of the embedded CP in (68b).²¹ Then, the matrix vP is built in (68c), which is followed by (68d), where the embedded object moves to the edge of vP . Since vP is a phase, the matrix VP including CP_1 is transferred at this point. Subsequently, the matrix TP is built with raising of the subject in (68e) and scrambling (or TP adjunction) of the embedded object in (68f).

The relative clause is built as shown below.

(69) (construction of the relative clause)

- a. $[_{VP} \text{ testified } [_{CP1} t_i' \text{ that Hana met } t_i]]$
- b. $[_{vP} \text{ Rei } v \text{ } [_{VP} \text{ testified } [_{CP1} t_i' \text{ that Hana met } t_i]]]$
- c. $[_{TP} \text{ Rei}_m \text{ T } [_{vP} t_m \text{ } v \text{ } [_{VP} \text{ testified } [_{CP1} t_i' \text{ that Hana met } t_i]]]]]$
- d. $[_{CP} \text{ OP } [_{TP} \text{ Rei}_m \text{ T } [_{vP} t_m \text{ } v \text{ } [_{VP} \text{ testified } [_{CP1} t_i' \text{ that Hana met } t_i]]]]]]]$

The verb *testified* needs to be combined with a CP. The occurrence of CP_1 included in the transferred VP in (68d) is reused, as indicated with gray shading in (69a). Note that this instance of copying avoids the problem of antecedent containment

²¹ For the sake of simplicity, we ignore the embedded vP phase here.

precisely because it copies an element in one structure onto a separate structure. Subsequently, ν P and TP are formed in (69b) and (69c), respectively. Let us assume with Ishii (1991) that relativization involves the empty operator *OP* in Japanese. Then, it is directly base-generated at the edge of the relative clause, as indicated in (69d).²² The empty operator is ultimately coindexed with the head NP *every spy* in the main clause and its reused traces.

Then, the relative clause in (69d) is late-merged into the main clause in (68f), yielding (70), where the late-merged relative clause is indicated in boldface.

(70) (late merger of the relative clause)

[_{TP} [_{NP} every spy_i [_{CP} *OP* [_{TP} Rei testified [_{CP1} ***t*' that Hana met *t*_i**]]]]]
 [_{TP} someone testified [_{CP1} that Hana met *t*_i]]]

This feeds into PF and LF. With regard to the PF side, as the gray-shaded CP does not contain phonetic content, it is not pronounced, correctly giving rise to the actual pronunciation of the sentence. On the LF side, the scrambled NP ought to undergo reconstruction and the quantifiers are subject to QR. Therefore, the derivational copying analysis seems to be capable of accounting for the data where antecedent containment is resolved by long-distance scrambling.

One may wonder whether the derivational copying analysis can handle cases of ACD in Japanese where antecedent containment is not resolved overtly, such as (64), repeated below as (71) with the English glosses and word order.

(71) * someone testified [_{CP1} that Hana met [_{NP} every spy_i Rei testified [_{CP2} *e*]]]

The main clause and the relative clause can be built independently, as shown below.

(72) (construction of the main clause)

- a. [_{CP1} that Hana met every spy]
- b. [_{ν P} someone ν [_{VP} testified [_{CP1} that [_{TP} Hana met every spy]]]]]
- c. [_{TP} someone_k T [_{ν P} *t*_k ν [_{VP} testified [_{CP1} that Hana met every spy]]]]]

(73) (construction of the relative clause)

- a. [_{VP} testified [_{CP1} that Hana met every spy]]]
- b. [_{ν P} Rei ν [_{VP} testified [_{CP1} that Hana met every spy]]]]]
- c. [_{TP} Rei_m T [_{ν P} *t*_m ν [_{VP} testified [_{CP1} that Hana met every spy]]]]]]]
- d. [_{CP} *OP* [_{TP} Rei_m T [_{ν P} *t*_m ν [_{VP} testified [_{CP1} that Hana met every spy]]]]]]]]]

As scrambling does not apply to the quantified NP *every spy*, it remains in situ in (72a–c). At the point when the matrix ν P is formed in (72b), its complement VP is transferred. Because CP₁ is part of the transferred VP, it becomes available for

²² For the purpose of illustration, the relative clause is assumed to be a CP in (69d). Nothing hinges on this assumption.

reuse, and it is reused to form the relative clause, as shown in (73a), where it is merged with the verb *testified*. Then, the rest of the relative clause is built as shown in (73b–d). Note that as in (69), the empty operator is directly base-generated at the edge of the relative clause in (73d) and needs to form a chain with *every spy* contained in the reused CP. We can assume this to be permissible because the empty operator is ultimately associated with the head NP *every spy* in the main clause.²³

Now the relative clause in (73d) needs to be late-merged with the NP *every spy* in the main clause. There arises a problem here, according to Sakamoto (2016). At the point of the derivation, when the relative clause is late-merged with *every spy* in the main clause, the latter has already been transferred and hence cannot be targeted. This explains the ungrammaticality of (71) and the other similar cases of ACD in Japanese where antecedent containment is not resolved overtly.

To summarize, among the three approaches to ellipsis, the PF deletion analysis and the derivational copying analysis can explain the cases of ACD in Japanese. Importantly, the LF copying analysis that assumes that copying applies at the very final LF representation cannot account for them.

Conclusion

We have observed that it is at best unclear whether the cases of ACD in Japanese studied in the previous literature really count as involving ACD. As an alternative, we have proposed to take advantage of argument ellipsis, which the recent literature has shown convincingly to be available in the language. We have constructed cases of antecedent-contained argument ellipsis by means of elliptic complement clauses and arrived at the conclusion that antecedent containment must be resolved overtly in Japanese. While this has already been pointed out by Takahashi (1996b) and Abe (2019), we have demonstrated it with more reliable data. We have further argued that cases of antecedent-contained argument ellipsis in Japanese can be accounted for by the PF deletion analysis or the derivational copying analysis, but not by the LF copying analysis that posits that copying applies at the very end of the LF derivation.

Among the empirical contributions of the present article is the demonstration that cases of ACD can be constructed in Japanese by means of argument ellipsis without recourse to any sort of VP-ellipsis. While VP-ellipsis has a limited cross-linguistic distribution, argument ellipsis has been shown to be available more widely (Gribanova 2020; Kim 1999; Landau 2018; Sato 2014, 2015; Sato and Karimi 2016; Şener and Takahashi 2010; Simpson et al. 2013; Takahashi 2007, 2013, 2014, 2020; *etc.*). Hopefully we will be able to examine the findings of this article in a variety of languages with argument ellipsis to advance comparative research on ACD and shed new light on its issues. This is left for future research.

Acknowledgements I am privileged to have this article included in the special issue in honor of Mamoru Saito, to whom I am indebted in many ways. An early draft of this article was read at Theoretical East Asian Linguistics 13, held at National Taiwan Normal University in May, 2023. I would like to thank the

²³ Under the now standard copy theory of movement, traces are actually copies of moved elements.

audience, especially Jim Huang, Audrey Li, and Livy Chiu for their helpful comments and questions. I am also grateful to Andrew Simpson, as well as an anonymous reviewer, and Sayumi Sasha Suzuki Chico for their valuable comments and/or assistance. The research reported here was supported by JSPS KAKENHI Grant Number JP21K00519. Needless to say, any remaining inadequacies are my own.

Declarations

Conflict of interest There are no financial or non-financial interests that are directly or indirectly related to this work.

Open Access This article is licensed under a Creative Commons Attribution 4.0 International License, which permits use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons licence, and indicate if changes were made. The images or other third party material in this article are included in the article's Creative Commons licence, unless indicated otherwise in a credit line to the material. If material is not included in the article's Creative Commons licence and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder. To view a copy of this licence, visit <http://creativecommons.org/licenses/by/4.0/>.

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. 2019. Antecedent-contained deletion in Japanese: Support for the VP-ellipsis analysis. *Studia Linguistica* 73: 106–138.
- Baltin, Mark R. 1987. Do antecedent-contained deletions exist? *Linguistic Inquiry* 18: 579–595.
- Bošković, Željko, and Daiko Takahashi. 1998. Scrambling and last resort. *Linguistic Inquiry* 29: 347–366.
- Bouton, Lawrence F. 1970. Antecedent contained pro-forms. In *Papers from the Sixth Regional Meeting of the Chicago Linguistic Society*, 154–167. University of Chicago: Chicago Linguistic Society.
- 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.
- Fiengo, Robert, and Robert May. 1994. *Indices and identity*. Cambridge, MA: MIT Press.
- Fox, Danny. 2002. Antecedent-contained deletion and the copy theory of movement. *Linguistic Inquiry* 33: 63–96.
- Funakoshi, Kenshi. 2016. Verb-stranding verb phrase ellipsis in Japanese. *Journal of East Asian Linguistics* 25: 113–142.
- Goldberg, Lotus. 2015. *Verb-stranding VP ellipsis: A cross-linguistic study*. PhD dissertation, McGill University.
- Grano, Thomas, and Howard Lasnik. 2018. How to neutralize a finite clause boundary: Phase theory and the grammar of bound pronouns. *Linguistic Inquiry* 49: 465–499.
- Gribanova, Vera. 2020. Predicate formation and verb-stranding ellipsis in Uzbek. *Glossa a Journal of General Linguistics* 5(1): 124. <https://doi.org/10.5334/gjgl.1042>.
- Hiraiwa, Ken, and Shinichiro Ishihara. 2012. Syntactic metamorphosis: Clefts, sluicing, and in situ focus in Japanese. *Syntax* 15: 142–180.
- Hoji, Hajime. 1990. *Theories on anaphora and aspects of Japanese syntax*, Unpublished ms. University of Southern California.
- Hornstein, Nobert. 1994. An argument for minimalism: The case of antecedent contained deletion. *Linguistic Inquiry* 25: 455–480.
- 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.

- Ishii, Yasuo. 1991. *Operators and empty categories in Japanese*. PhD dissertation, University of Connecticut.
- Kennedy, Christopher. 1997. Antecedent-contained deletion and the syntax of quantification. *Linguistic Inquiry* 28: 662–688.
- Kim, Soowon. 1999. Sloppy/strict identity, empty objects, and NP ellipsis. *Journal of East Asian Linguistics* 8: 255–284.
- Kuno, Susumu. 1973. *The structure of the Japanese language*. Cambridge, MA: MIT Press.
- Kuroda, S.-Y. 1971. Remarks on the notion of subjects with reference to words like *also*, *even* and *only* (Part 2). *Annual Bulletin* 4: 127–152. The Research Institute of Logopedics and Phoniatics, University of Tokyo.
- Landau, Idan. 2018. “Missing objects in Hebrew: Argument ellipsis, not VP ellipsis. *Glossa a Journal of General Linguistics* 3(1): 76. <https://doi.org/10.5334/gjgl.560>.
- Larson, Richard K., and Robert May. 1990. Antecedent containment or vacuous movement: Reply to Baltin. *Linguistic Inquiry* 21: 103–122.
- Lasnik, Howard. 1993. Lectures on minimalist syntax. *University of Connecticut Working Papers in Linguistics* 1, MIT Working Papers in Linguistics. Department of Linguistics, MIT.
- Lebeaux, David. 1988. *Language acquisition and the form of grammar*. PhD dissertation, University of Massachusetts, Amherst.
- May, Robert. 1985. *Logical form*. Cambridge, MA: MIT Press.
- Morita, Hisashi. 2013. Optional movements derive Japanese relative clauses. *US-China Foreign Language* 11: 645–658.
- Murasugi, Keiko. 1991. *Noun phrases in Japanese and English: A study in syntax, learnability and acquisition*. PhD dissertation, University of Connecticut.
- Murasugi, Keiko. 2000. An antisymmetry analysis of Japanese relative clauses. In *The syntax of relative clauses*, ed. Artemis Alexiadou, Paul Law, André Meinunger, and Chris Wilder, 231–263. Amsterdam: John Benjamins.
- Oka, Toshifusa. 1989. *On the spec of IP*. Unpublished ms. MIT.
- Oku, Satoshi. 1998. *A theory of selection and reconstruction in the minimalist perspective*. PhD dissertation, University of Connecticut.
- Otani, Kazuyo, and John Whitman. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry* 22: 345–358.
- Sag, Ivan. 1976. *Deletion and logical form*. PhD dissertation, MIT.
- Saito, Mamoru. 1985. *Some asymmetries in Japanese and their theoretical implications*. PhD dissertation, MIT.
- Saito, Mamoru. 1989. Scrambling as semantically vacuous A'-movement. In *Alternative conceptions of phrase structure*, edited by Mark Baltin and Anthony Kroch. Chicago: University of Chicago Press.
- Saito, Mamoru. 2003. A derivational approach to the interpretation of scrambling chains. *Lingua* 113: 481–518.
- Saito, Mamoru. 2004. Japanese scrambling in a comparative perspective. In *Peripheries: Syntactic edges and their effects*, ed. David Adger, Cecil de Cat, and George Tsoulas, 143–163. Dordrecht: Kluwer.
- Saito, Mamoru. 2005. Further notes on the interpretation of scrambling chains. In *The free word order phenomenon: Its syntactic sources and diversity*, edited by Joachim Sabel and Mamoru Saito, 335–376. Mouton de Gruyter.
- Saito, Mamoru, and Keiko Murasugi. 1990. N'-deletion in Japanese. *University of Connecticut Working Papers in Linguistics* 3:87–107. MIT Working Papers in Linguistics. Department of Linguistics, MIT.
- Sakamoto, Yuta. 2016. Phases and argument ellipsis in Japanese. *Journal of East Asian Linguistics* 25: 243–274.
- 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.
- Sato, Yosuke, and Simin Karimi. 2016. Subject-object asymmetries in Persian argument ellipsis and the anti-agreement theory. *Glossa a Journal of general Linguistics* 1(1): 8. <https://doi.org/10.5334/gjgl.60>.
- Şener, Serkan, and Daiko Takahashi. 2010. Ellipsis of arguments in Japanese and Turkish. *Nanzan Linguistics* 6: 79–99.
- Simpson, Andrew, Arumina Choudhury, and Mythili Menon. 2013. Argument ellipsis and the licensing of covert nominals in Bangla, Hindi and Malayalam. *Lingua* 134: 103–128.
- Tada, H. 1993. *A/A-bar partition in derivation*. PhD dissertation, MIT.

- Takahashi, Daiko. 1994. Sluicing in Japanese. *Journal of East Asian Linguistics* 3: 265–300.
- Takahashi, Daiko. 1996a. On antecedent-contained deletion. In *University of Connecticut Working Papers in Linguistics 5: Minimal working papers*, edited by Elizabeth Laurencot, Rhang Lee, and Myung-Kwan Park, 65–80. MIT Working Papers in Linguistics. Department of Linguistics, MIT.
- Takahashi, Daiko. 1996b. Antecedent-contained deletion in Japanese. In *University of Connecticut Working Papers in Linguistics 7: Papers in honor of Mamoru Saito*, edited by Asako Uchibori and Kazuko Yatsushiro, 263–278. MIT Working Papers in Linguistics. Department of Linguistics, MIT.
- Takahashi, Daiko. 2007. *Argument ellipsis from a cross-linguistic perspective: An interim report*. Talk given at GLOW in Asia VI, the Chinese University of Hong Kong.
- Takahashi, Daiko. 2013. Argument ellipsis in Japanese and Malayalam. *Nanzan Linguistics* 9: 173–192.
- Takahashi, Daiko. 2014. Argument ellipsis, anti-agreement, and scrambling. In *Japanese syntax in comparative perspective*, ed. Mamoru Saito, 88–116. New York: Oxford University Press.
- Takahashi, Daiko. 2020. Derivational argument ellipsis. *The Linguistic Review* 37: 47–74.
- Takita, Kensuke. 2018. Antecedent-contained clausal argument ellipsis. *Journal of East Asian Linguistics* 27: 1–32.
- Tanaka, Hidekazu. 2023. Against verb-stranding VP-ellipsis in Japanese: Reply to Funakoshi (2016). *Journal of East Asian Linguistics* 32: 1–28.
- Williams, Edwin. 1977. Discourse and logical form. *Linguistic Inquiry* 8: 103–139.

Publisher's Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.