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Abstract

In recent syntactic literature, some cases of null arguments observed across languages have been analyzed as the result of argument ellipsis. The main observation of this paper is that the distribution of Japanese AE is systematically constrained with respect to its relative position against *wh*-phrases. I will propose what I call the '*wh*-scope generalization', which states that AE is banned if the ellipsis site is c-commanded by a *wh*-phrase at LF. It will also be shown that topicalization exhibits exactly the same distribution as AE in terms of its interaction with *wh*-phrases. Based on these results, I argue that AE induces a topic-related A'-dependency, that is, it involves movement of the target argument to Spec,TopicP.

Argument Ellipsis and Topicalization: A View from Their Interaction with *Wh*-dependencies

Teruyuki Mizuno*

1 Introduction

In recent syntactic literature, some cases of null arguments observed across languages have been analyzed as the result of ‘argument ellipsis’ (henceforth ‘AE’; see Oku 1998, Kim 1999, Saito 2007, Sakamoto 2018, 2020, a.o.), rather than as an instance of silent *pro*. In Japanese (1), the AE analysis achieves the relevant sloppy reading (i.e., ‘Mary threw out hers, not John’s’) by assuming that what is involved in the null object in (1b) is ellipsis of the argument NP, as represented in (1c).

- (1) a. John-wa [zibun-no tegami-o] suteta.
John-TOP self-GEN letter-ACC threw.out
‘John₁ threw out his₁ letter.’
b. Mary-mo ___ suteta.
Mary-also threw.out
‘Mary₂ also threw out (her₂ letter).’
c. Mary-also {self-GEN-letter} threw.out

The literature has extensively shown the advantage of this analysis over the competing V-stranding VP-ellipsis analysis (Huang 1988, 1991, Otani and Whitman 1991, a.o.) in many respects.¹ Furthermore, while this paper confines attention to the ellipsis of NPs, the literature has also extended the AE analysis to null CP arguments (Shinohara 2006, Saito 2007, Sakamoto 2018, 2020, a.o.), which has brought important results that further indicate the validity of the AE analysis. See Sakamoto (2020) for a comprehensive overview of the recent development.

While the literature on AE has so far primarily focused on explicating the independence of AE against *pro* and the advantages of the AE analysis over other analyses of null arguments, not much attention has been paid to the licensing environment of AE and the syntactic behavior of elided arguments themselves. Focusing on Japanese, this paper aims to contribute to these relatively understudied issues with novel data and analysis. The main observation is that the distribution of Japanese AE is systematically constrained with respect to its relative position against *wh*-phrases. I will propose what I call the ‘*wh*-scope generalization’, which states that AE is banned if the ellipsis site is c-commanded by a *wh*-phrase at LF. Together with the recent observation by Fujiwara (2020) that the licensing of AE is constrained by the same locality conditions as movement, this generalization predicts that AE creates some form of syntactic dependency which could interact with other syntactic dependencies. This prediction is shown to be borne out by a striking parallelism between AE and topicalization. It will be shown that topicalization exhibits exactly the same distribution as AE in terms of its interaction with *wh*-phrases. Based on these results, I argue that AE induces a topic-related A’-dependency, that is, it involves movement of the target argument to Spec,TopicP.

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¹See also Funakoshi (2016) for a recent defense of the V-stranding VP-ellipsis account. There are also accounts that do not assume ellipsis. Hoji (1998) argues that what looks like sloppy reading in (1) is an illusion caused by the availability of indefinite interpretation of silent *pro* in Japanese. He suggests that (1b) is interpreted as ‘*Mary, too, threw out some letter*’, and the object could happen to be Mary’s, due to the interpretational leeway of existential quantification. See, however, Saito (2007) and Sakamoto (2018, 2020) for criticism of the analysis solely relying on the indefinite interpretation of *pro*. Kurafuji (2019) has recently proposed an account utilizing choice function to derive a variety of interpretations of null arguments. I leave the discussion of these anti-ellipsis views of null arguments for another occasion.

2 The *Wh*-Scope Generalization for AE

In this section, I establish the following novel generalization for Japanese AE:

(2) **The *wh*-scope generalization for Japanese AE:**

AE is banned if the ellipsis site is c-commanded by a *wh*-phrase at LF.

To illustrate this, I make the following three theoretical/strategic assumptions:

- (i) Following the standard assumption in the relevant literature, I assume the availability of sloppy readings as a principal diagnosis of the presence of AE. We chiefly look into the sloppy reading triggered by the binding of the reflexive pronoun '*zibun (self)*'.
- (ii) I assume that in the canonical word order of Japanese, which aligns subjects, indirect objects (IOs) and direct objects (DOs) in this order, subjects asymmetrically c-command IOs and DOs, and IOs asymmetrically c-command DOs (Hoji 1985, Takano 1998, a.o.). Since Japanese is a *wh*-in-situ language, the c-commanding relation between a *wh*-phrase and the ellipsis site will be considered on the basis of this structural hierarchy.
- (iii) Throughout I target IOs as the relevant ellipsis site. This choice makes the presentation more efficient, since to see the structural impact on ellipsis, we only have to locate a *wh*-phrase in the subject or the DO. The use of IOs, or more precisely the use of 'dative' arguments, will also have an impact on the argumentation in Section 3. The generalization, however, does not hinge on this particular choice of the targeted ellipsis site, which is done only for expository purposes.

2.1 Data

First consider (3), which involves no *wh*-phrase, as a baseline example. The missing IO in (3b) can produce a sloppy reading such that John and Mary gave chocolate to their own teachers respectively.

- (3) a. John₁-wa [zibun₁-no sensee-ni] choko-o watasita.
John-TOP self-GEN teacher-DAT chocolate-ACC gave
'John₁ gave his₁ teacher chocolate.'
- b. Mary-mo ___ choko-o watasita.
Mary-also chocolate-ACC gave
'Mary₂, too, gave (her₂ teacher) chocolate.'

Compare (3) with (4). In (4a), the subject *wh*-phrase c-commands the IO and binds the reflexive inside it. In (4b), the ellipsis site is similarly c-commanded by a *wh*-phrase in the subject. The intended sloppy reading is much harder to obtain in (4b) than in (3b).²

- (4) a. **Dono dansi**₁-ga [zibun₁-no sensee-ni] choko-o watasita no?
which boy-NOM self-GEN teacher-DAT chocolate-ACC gave Q
'Which boy₁ gave his₁ teacher chocolate?'
- b. Ato, **dono zyosi**-ga ___ choko-o watasita no?
and which girl-NOM chocolate-ACC gave Q
'?' 'And, which girl₂ gave (her₂ teacher) chocolate?'

The unavailability of sloppy reading in (4) is contrasted by the possibility of sloppy reading in (5), where a *wh*-phrase is instead located in the DO. The contrast here supports the generalization in (2).

²The sentence only marginally means that the speaker asks which girl gave chocolate to the teacher the boy in the first sentence gave one (i.e., a strict reading), or that the speaker wants to know the girl who engaged in the activity of chocolate-giving, which does not necessitate a particular recipient. The marginality of these readings is plausibly caused by the difficulty of imagining appropriate contexts. A similar remark can be made for the rest of the examples that lack sloppy reading.

- (5) a. John₁-wa [zibun₁-no sensee-ni] **nani**-o watasita no?
 John-TOP self-GEN teacher-DAT what-ACC gave Q
 ‘What did John₁ give his₁ teacher?’
 b. Ato, Mary₁-wa ___ **nani**-o watasita no?
 and Mary₁-TOP what-ACC gave Q
 ‘And, what Mary₂ gave (her₂ teacher)?’

We move on to more complex sentences. In (6), binding is intended between the matrix subject and the embedded IO, but a *wh*-phrase in the embedded subject intervenes between them. Sloppy reading is not obtained in (6b).

- (6) a. Mary₁-wa [**dare**-ga [zibun₁-no musuko-ni] choko-o watasita ka] kyoomigaaru.
 Mary-TOP who-NOM self-GEN son-DAT chocolate-ACC gave Q is.curious
 ‘Mary₁ is curious who gave her₁ son chocolate.’
 b. Nancy-mo [**dare**-ga ___ choko-o watasita ka] kyoomigaaru.
 Nancy-also who-NOM chocolate-ACC gave Q is.curious
 ??‘Nancy₂, too, is curious who gave (her₂ son) chocolate.’

Consider (7), where a *wh*-phrase is located in the embedded DO. Sloppy reading is obtained in (7b).

- (7) a. Mary₁-wa [Taroo-ga [zibun₁-no musuko-ni] **nani**-o watasita ka] kyoomigaaru.
 Mary-TOP Taroo-NOM self-GEN son-DAT what-ACC gave Q is.curious
 ‘Mary₁ is curious what Taroo gave her₁ son.’
 b. Nancy-mo [Taroo-ga ___ **nani**-o watasita ka] kyoomigaaru.
 Nancy-also Taroo-NOM what-ACC gave Q is.curious
 ‘Nancy₂, too, is curious what Taroo gave (her₂ son).’

Further compare (7) with (8), where the matrix subject is replaced by a *wh*-phrase. This *wh*-phrase in the matrix subject c-commands the ellipsis site. Sloppy reading is unavailable in (8b). The contrast here further supports the proposed generalization.

- (8) a. **Dono kyoozyu**₁-ga [Taroo-ga [zibun₁-no musuko-ni] **nani**-o watasita ka]
 which professor-NOM Taroo-NOM self-GEN son-DAT what-ACC gave Q
 kyoomigaaru no?
 is.curious Q
 ‘Which professor₁ is curious what Taroo gave his₁ son?’
 b. Ato, **dono insei**₂-ga [Taroo-ga ___ **nani**-o watasita ka] kyoomigaaru no?
 and which grad.student-NOM Taroo-NOM what-ACC gave Q is.curious Q
 ??‘And, which grad student₂ is curious what Taroo gave (his₂ son)?’

The generalization states that what matters is the LF-position of a *wh*-phrase. To see this, observe first that the *wh*-phrase in (9), which originates in the embedded DO and undergoes long-distance scrambling to the sentence-initial position, is nevertheless construed in-situ. The interpretation of (9) is equivalent to that of (7a).

- (9) **Nani**-o₃ Mary₁-wa [Taroo-ga [zibun₁-no musuko-ni] *t*₃ watasita ka] kyoomigaaru.
 what-ACC Mary-TOP Taroo-NOM self-GEN son-DAT gave Q is.curious
 ‘Mary₁ is curious what Taroo gave her₁ son.’

It is known that long-distance scrambling in Japanese involves radical reconstruction (Saito 1989, 1992, Bošković and Takahashi 1998, a.o.), where the moved phrase obligatorily reconstructs into its base-position at LF. In (9), because the *wh*-phrase reconstructs and is therefore in the scope of the embedded interrogative C at LF, the sentence ends up involving an embedded *wh*-question.

Now observe that the null embedded IO in (10b) can give rise to sloppy reading despite the *wh*-phrase c-commanding it on the surface. Just as in (9), the *wh*-phrase reconstructs into the embedded DO and therefore doesn’t c-command the ellipsis site at LF. This confirms that what matters is the LF position of the *wh*-phrase, not its surface position.

- (10) a. **Nani**-o₃ Mary₁-wa [Taroo-ga [zibun₁-no musuko-ni] t₃ watasita ka] kyoomigaaru.
 what-ACC Mary-TOP T.-NOM self-GEN son-DAT gave Q is.curious
 ‘Mary₁ is curious what Taroo gave his₁ daughter.’
 b. **Nani**-o₄ Nancy-mo [Taroo-ga ___ t₄ watasita ka] kyoomigaaru.
 what-ACC Nancy-also Taroo-NOM gave Q is.curious
 ‘Nancy₂, too, is curious what Taroo gave (his₂ daughter).’

Before we proceed, I make two additional remarks on the present generalization. Firstly, while we have concentrated on the sloppy reading of reflexives, the generalization also extends to the sloppy reading of QPs (see e.g., Takahashi 2008). In (11b), where the ellipsis site is c-commanded by the subject *wh*-phrase, it is hard to obtain the reading where the speaker inquires the identity of the girl who gave chocolate to most teachers. The desired sloppy reading, however, is much easier to obtain in (12b), where there is no *wh*-phrase that c-commands the ellipsis site.

- (11) a. **Dono dansi**-ga [hotondo-no sensee-ni] choko-o watasita no?
 which boy-NOM most-GEN teacher-DAT chocolate-ACC gave Q
 ‘Which boy gave chocolate to most teachers?’
 b. [**Dono zyosi**-ga ___ choko-o watasita ka] mo osiete.
 which girl-NOM chocolate-ACC gave Q also tell
 ??‘Also tell me which girl gave chocolate (to most teachers) as well.’
 (12) a. John-wa [hotondo-no sensee-ni] **nani**-o watasita no?
 John-TOP most-GEN teacher-DAT what-ACC gave Q
 ‘What did John give to most teacher?’
 b. [Mary-ga ___ **nani**-o watasita ka] mo asiete.
 Mary-NOM what-ACC gave Q also tell
 ‘Also tell me what Mary₂ gave (to most teachers), too.’

Secondly, as mentioned above, the validity of the generalization does not hinge on which argument is targeted as the ellipsis site. (13) shows that even the missing object in a simple transitive structure does not give rise to sloppy reading in the scope of a higher *wh*-phrase. (14) shows that the missing embedded subject does not induce sloppy reading with a *wh*-phrase in the matrix subject.

- (13) a. **Dono dansi**₁-ga [zibun₁-no sensee-o] sonkeesiteiru no?
 which boy-NOM self-GEN teacher-ACC respect Q
 ‘Which boy₁ respects his₁ teacher?’
 b. [**Dono zyosi**-ga ___ sonkeesiteiru ka] mo osiete.
 which girl-NOM respect Q also tell
 ??‘Also tell me which girl₂ respects (her₂ teacher) as well.’
 (14) a. **Dono dansi**₁-ga [[zibun₁-no teean-ga] saiyoosareru to] omotteiru no?
 which boy-NOM self-GEN proposal-NOM is.adopted c think Q
 ‘Which boy₁ thinks that his₁ proposal will be adopted?’
 b. [**Dono zyosi**-ga [___ saiyoosareru to] omotteiru ka] mo osiete.
 which girl-NOM is.adopted c think Q also tell
 ??‘Also tell me which girl₂ thinks that (her₂ proposal) will be adopted as well.’

The proposed generalization is thus a robust constraint ruling the licensing of AE, which any theory of AE (to be more precise, any analysis of null arguments, whether it involves AE, VP-ellipsis or a non-elliptical strategy) must account for. Explicating the mechanism behind this is our next task.

2.2 AE and Syntactic Dependency

What accounts for the generalization (2)? The fact that higher *wh*-phrases cause trouble may indicate that they function as ‘interveners’, which in turn implies that AE induces a syntactic dependency that could interact with *wh*-dependencies. In this regard, it is worth introducing a recent proposal by Fujiwara (2020), who argues that AE involves a certain form of movement in its derivation. He

points out that the application of AE is constrained by the same locality constraint as movement: as he observes, when the ellipsis site is located within an adjunct clause and the reflexive is intended to be bound by an element outside the adjunct, sloppy reading is not obtained, as shown in (15).

- (15) a. Taroo₁-wa [[zibun₁-no musuko-ga] **5-sai-ni** natta toki] Tokyo-ni hikkosita.
 Taroo-TOP self-GEN son-NOM 5-y.o.-DAT became when T.-DAT moved
 ‘Taroo₁ moved to Tokyo when his₂ son became five years old.’
 b. Ziroo-wa [___ **6-sai-ni** natta toki] Tokyo-ni hikkosita.
 Ziroo-TOP 6-y.o.-DAT became when Tokyo-DAT moved
 ??‘Ziroo₂ moved to Tokyo when (his₂ son) became seven years old.’

Fujiwara’s observation can be corroborated by (16), which locates the ellipsis site within a complex NP island. The relevant sloppy reading is similarly unavailable in (16b).

- (16) a. Taroo₁-wa [[zibun₁-no musuko-ga] **kaita e**]-o kabe-ni kazatta.
 Taroo-TOP self-GEN son-NOM drew paintings-ACC wall-DAT displayed
 ‘Taroo₁ displayed on the wall the paintings that his₁ son drew.’
 b. Ziroo-wa [___ **totta syasin**]-o kabe-ni kazatta.
 Ziroo-TOP took photo-ACC wall-DAT display
 *‘Ziroo₂ displayed on the wall the photos that (his₂ son) took.’

The unavailability of sloppy reading in (15b) and (16b) correlates with the unacceptability of (17a) and (17b). As Saito (1985) observes, scrambling in Japanese induces island violations just as other movement operations do.

- (17) a. ??[Zibun₁-no musuko-ga]₂, Taroo₁-wa [*t*₂ 5-sai-ni natta toki] Tokyo-ni hikkosita.
 self-GEN son-NOM Taroo-TOP 5-y.o.-DAT became when T.-DAT moved
 lit. ‘His₁ son, Taroo₁ moved to Tokyo when *t* became five years old.’
 b. *[Zibun₁-no musuko-ga]₂ Taroo₁-wa [[*t*₂ kaita] e]-o kabe-ni kazatta.
 self-GEN son-NOM Taroo-TOP drew drawing-ACC wall-DAT displayed
 lit. ‘His₁ son, Taroo₁ displayed on the wall the drawing which *t* drew.’

Based on this and other relevant observations, Fujiwara hypothesizes that arguments undergo movement before ellipsis applies.³ He argues that this movement creates a form of A’-dependency (i.e., movement to a CP specifier), which he suggests correlates in property with long-distance scrambling.⁴ He assumes that the moved argument undergoes PF deletion, which, together with the trace left behind, creates the appearance of a null argument. This is schematically represented in (18).

- (18) a. [CP α_i ... [... *t_i* ...] ... (Before spell-out)
 b. [CP \emptyset_i ... [... *t_i* ...] ... (PF)

What remains unsettled, however, is the precise status of the movement involved in AE. While Fujiwara suggests that the movement correlates with scrambling, this would not correctly capture the interaction between AE and *wh*-phrases. For suppose, as he assumes, that AE involves long-distance scrambling. Then we would naturally attribute the unavailability of AE in the scope of a higher *wh*-phrase to the impossibility of long-distance scrambling crossing a *wh*-phrase. This prediction, however, is not borne out: such long-distance scrambling is in fact possible.

- (19) [Zibun₁-no musuko-ni]₂, Mary₁-wa [**dare**-ga *t*₂ choko-o watasita ka] kyoomigaaru.
 self-GEN son-DAT Mary-TOP who-NOM choc.-ACC gave Q is.curious
 ‘Mary₁ is curious who gave her₁ son chocolate.’

The absence of interaction with a higher *wh*-phrase in (19) is not unexpected given that long-distance

³The relevant observations include those concerning ECM constructions, the binding of reciprocals and local anaphors, and quantifier-scope interactions. I refer the reader to his work for concrete data and discussion.

⁴Fujiwara relates his speculation to Oku’s (1998) hypothesis that the availability of AE correlates with the availability of (Japanese-style) long-distance scrambling. See Oku (1998) for relevant discussion.

scrambling is semantically ‘vacuous’ (Saito 1989, 1992), as evidenced by its radical reconstruction property. Given the behavior of AE with respect to *wh*-phrases, it is more plausible that the movement in AE is semantically *non-vacuous* like English topicalization and *wh*-movement, both of which create meaningful A'-dependencies and are generally not undone at LF. But then what sort of A'-dependency does the movement in AE create? I address this issue in the next section.

3 AE Induces a Topic-Related A'-Dependency

I show that AE shows a striking parallelism with topicalization concerning the behavior with respect to *wh*-phrases. I establish the following generalization for Japanese topicalization.

(20) **The *wh*-scope generalization for Japanese topicalization:**

Topicalization is banned if there is a *wh*-phrase whose LF-position intervenes between the landing site and the launching site: *_[TopicP] α_i ... [*wh* ... [... t_i ...]

Before showing the relevant data, let me first clarify what I mean by ‘topicalization’ here. In Japanese, topics are marked by the particle ‘-*wa*’ (Kuroda 1965, Kuno 1973, a.o.). When the subject is marked by this particle as shown in (21a), it functions as the topic of the sentence with the rest of the sentence taken as adding information for it, in the sense in which Reinhart (1981) analyzed the notion of sentential topics. When the object is *wa*-marked in-situ like in (21b), it doesn’t function as a topic: the *-wa* here functions as a contrast marker, which triggers the implicature that John didn’t praise people other than Bill (Kuno 1973, Vermeulen 2013, a.o.). (21c) shows that preposing of the *wa*-marked object renders it a sentential topic. This implies that for a phrase to be a topic, it must not only be *wa*-marked, but also undergo preposing (see also Maki et al. 1999).

- (21) a. John-**wa** Bill-o hometa.
 John-TOP Bill-ACC praised
 ‘As for John, he praised Bill.’
 b. John-ga Bill-**wa** hometa.
 John-NOM Bill-TOP praised
 ‘John praised Bill (but he didn’t praise others).’
 c. Bill-**wa**₁ John-ga e_1 hometa.
 Bill-TOP John-NOM praised
 ‘As for Bill, John praised him.’

Whether preposing of a ‘-*wa*’-phrase involves base-generation or movement has been controversial (Kuroda 1965, Kuno 1973, Hoji 1985, Saito 1985, a.o.). However, it is at least consensus that topicalization of PPs, including dative objects, involves movement. Saito (1985) observed that when ‘*Pekin (Beijing)*’ is marked only by *-wa* as in (22), the sentence, which involves a complex NP island, is grammatical: the topic is analyzed as base-generated and related to an in-situ *pro* through co-reference. However, with the dative appearing between the NP and *-wa*, the sentence is ungrammatical as shown in (23), hence the evidence for movement in this case.

- (22) Peking-**wa**₁ John-ga [[*pro*₂ *pro*₁ itta koto-ga aru] hito₂]-o mituketa.
 Beijing-TOP John-NOM went fact-NOM have person-ACC found
 ‘As for Beijing₁, John found a person who has been there₁.’
 (23) *Peking-ni-**wa**₁ John-ga [[*pro*₂ t_1 itta koto-ga aru] hito₂]-o mituketa.
 Beijing-DAT-TOP John-NOM went fact-NOM have person-ACC found
 lit. ‘Beijing₁, John found a person who has been to t_1 .’

More relevant here is topicalization involving movement, as I assume that AE involves movement, following Fujiwara (2020). The use of constructions which may involve base-generation appears to add an additional factor. I thus set aside cases that may involve base-generation here, using the term ‘topicalization’ to refer to movement of a *wa*-phrase. I accordingly use dative phrases as the target of topicalization to ensure the existence of movement (notice that this is part of the reason why we

have targeted IOs as the ellipsis site in Section 2).

I continue to assume the same structural hierarchy between subjects, IOs and DOs as in Section 2. To make the parallel with the examples of AE from Section 2, constituents involving the reflexive pronoun will be targeted by topicalization. We test whether binding holds between the reflexive in the topicalized constituent and some antecedent structurally higher than the launching site.

I start with simplex sentences. Consider (24), where the subject *wh*-phrase *c*-commands the launching site of topicalization. Crucially, the desired binding interpretation between the subject and the reflexive pronoun in the topicalized IO is not obtained in (24).

- (24) ??[Zibun₁-no sensee-ni-**wa**]₂, dono dansi₁-ga t₂ choko-o watasita no?
 self-GEN teacher-DAT-TOP which boy-NOM chocolate-ACC gave Q
 ‘His₁ teacher, which boy₁ gave *t* chocolate?’

The unacceptability of (24) contrasts with the acceptability of (25), where the *wh*-phrase is located in the DO and therefore does not *c*-command the launching site of topicalization. The intended binding construal between the subject and the reflexive is available here. The contrast between (24) and (25) supports the generalization in (20).

- (25) [Zibun₁-no sensee-ni-**wa**]₂, John₁-wa t₂ nani-o watasita no?
 self-GEN teacher-DAT-TOP John-TOP what-ACC gave Q
 ‘His₁ teacher, what did John₁ give *t*?’

We proceed to more complex sentences. Consider (26), where the launching site of topicalization is located in the embedded IO and is *c*-commanded by the *wh*-phrase in the embedded subject. The binding interpretation intended between the matrix subject and the reflexive in the topicalized object is not obtained here.

- (26) ??[Zibun₁-no musuko-ni-**wa**]₂, Mary₁-wa [**dare**-ga t₂ choko-o watasita ka]
 self-GEN SON-DAT-TOP Mary-TOP who-NOM choc.-ACC gave Q
 kyoomigaaru.
 is.curious
 lit. ‘Her₁ son, Mary₁ is curious who gave *t* chocolate.’

Compare (26) with (27), where a *wh*-phrase is instead located in the embedded DO. The binding interpretation between the matrix subject and the reflexive is obtained here.

- (27) [Zibun₁-no musuko-ni-**wa**]₂, Mary₁-wa [Taroo-ga t₂ nani-o watasita ka] kyoomigaaru.
 self-GEN SON-DAT-TOP Mary-TOP T.-NOM what-ACC gave Q is.curious
 lit. ‘Her₁ daughter, Mary₁ is curious what Taroo *t* gave.’

Compare (27) with (28), where the matrix subject from (27) is replaced by a *wh*-phrase. This *wh*-phrase *c*-commands the launching site of topicalization. The intended binding interpretation between the matrix subject *wh*-phrase and the reflexive is not obtained here.

- (28) *[Zibun₁-no musuko-ni-**wa**]₂ dare₁-ga [Taroo-ga t₂ nani-o watasta ka] kyoomigaaru no?
 self-GEN SON-DAT-TOP who-NOM T.-NOM what-ACC gave Q is.curious Q
 lit. ‘His₁ daughter, who₁ is curious what Taroo *t* gave?’

Now consider the case involving a *wh*-phrase that undergoes long-distance scrambling. In (29), the *wh*-phrase in the embedded DO undergoes long-distance scrambling and therefore *c*-commands the launching site of topicalization on the surface. This *wh*-phrase, however, does not *c*-command the launching site at LF since it obligatorily reconstructs into its base-position (see Section 2). The binding construal between the matrix subject and the reflexive is available here.

- (29) [Zibun₁-no musuko-ni-**wa**]₂ [nani-o]₃ Mary₁-wa [Taroo-ga t₂ t₃ watasita ka] kyoomigaaru.
 self-GEN SON-DAT-TOP what-ACC Mary-TOP T.-NOM gave Q is.curious
 lit. ‘Her₁ daughter, Nancy₁ is curious what Taroo gave *t*.’

Table 1: The judgment distributions of AE and topicalization.

(4)	AE	[<i>wh</i> ₁ ... { ... SELF ₁ ... } ... Q]	??
(24)	Topicalization	[... SELF ₁ ...] ₂ -TOP ... [<i>wh</i> ₁ ... <i>t</i> ₂ ... Q]	??
(5)	AE	[NP ₁ ... { ... SELF ₁ ... } ... <i>wh</i> ... Q]	✓
(25)	Topicalization	[... SELF ₁ ...] ₂ -TOP ... [NP ₁ ... <i>t</i> ₂ ... <i>wh</i> ... Q]	✓
(6)	AE	[NP ₁ [<i>wh</i> ... { ... SELF ₁ ... } ... Q] ...]	??
(26)	Topicalization	[... SELF ₁ ...] ₂ -TOP ... [NP ₁ [<i>wh</i> ... <i>t</i> ₂ ... Q] ...]	??
(7)	AE	[NP ₁ [{ ... SELF ₁ ... } ... <i>wh</i> ... Q] ...]	✓
(27)	Topicalization	[... SELF ₁ ...] ₂ -TOP ... [NP ₁ [<i>t</i> ₂ ... <i>wh</i> ... Q] ...]	✓
(8)	AE	[<i>wh</i> ₁ ... [{ ... SELF ₁ ... } ... <i>wh</i> ... Q] ... Q]	??
(28)	Topicalization	[... SELF ₁ ...] ₂ -TOP ... [<i>wh</i> ₁ ... [<i>t</i> ₂ ... <i>wh</i> ... Q] ... Q]	*
(10)	AE	[<i>wh</i> ₃ ... [NP ₁ [{ ... SELF ₁ ... } ... <i>t</i> ₃ ... Q] ...] ...]	✓
(29)	Topicalization	[... SELF ₁ ...] ₂ -TOP ... [<i>wh</i> ₃ ... [NP ₁ [<i>t</i> ₂ ... <i>t</i> ₃ ... Q] ...] ...]	✓

Table 1 summarizes the distribution of judgments obtained here, together with the judgments of AE obtained in Section 2. Notice that in each pair with the same base configuration, the ellipsis site of AE corresponds to the launching site of topicalization. The parallelism between them is obvious: the possibility of AE and the possibility of topicalization correlate exactly. This parallelism would remain mysterious unless we assume that AE involves topicalization as part of its derivation.

4 AE as Topic Deletion

Based on the result obtained in the previous sections, I propose that AE is an instance of topic deletion. That is, elided arguments in AE move to Spec,TopicP before spell-out, and they are deleted at PF under identity with the topic in discourse. This is schematically represented in (30).

- (30) a. [_{TopicP} α_i ... [... *t*_i ...] ... (Before spell-out)
 b. [_{TopicP} \emptyset_T ... [... *t*_i ...] ... (PF)

This is fundamentally a revision of Fujiwara’s analysis we saw in Section 2.2, which similarly assumes that arguments undergo scrambling into the CP left periphery. The crucial difference from his analysis is that I identify the movement exactly with topicalization, namely movement to Spec,TopicP. Unlike Fujiwara’s account, the present account correctly captures the parallel behavior of AE and topicalization with respect to *wh*-phrases. I refer the reader to Mizuno (2021, to appear) for more evidence supporting the topic deletion account of AE.

5 Notes on the Interaction with *Wh*-Phrases

One remaining issue is why a higher *wh*-phrase intervenes with topicalization. Although this sort of theoretical concern does not seriously affect the main proposal of this paper, one possibility I would like to highlight is that the interaction arises because *wh*-phrases count as A’-elements even in in-situ positions. The literature on Superiority effects for multiple *wh*-questions (Cinque 1986, Cheng and Demirdache 1990, Bošković 2011, a.o.) has assumed that *wh*-phrases count as A’-elements even when they are located in A-positions due to their inherent operator feature. A topic crossing a *wh*-in-situ is thus an A’-movement across an A’-element, inducing the same effect as a violation of Relativized Minimality (Rizzi 1990). This explains the offending effect of a higher *wh*-phrase on topicalization and AE: the presence of an in-situ *wh*-phrase higher than the launching site of topicalization renders the movement (and the corresponding AE) illicit because the movement ends

up crossing an intervenor; the absence thereof does not cause the same effect because the movement crosses no intervenor. This is represented in (31).

- (31) a.*_{[TopicP α -wa₁ [... [TP ... *wh* ... [... t₁ ...] ...] ...] ...}
 b. _{[TopicP α -wa₁ [... [TP ... t₁ ... [... *wh* ...] ...] ...] ...}

This analysis is supported by the facts concerning embedded topicalization. It has been observed that Japanese allows topicalization within an embedded clause (see Maki et al. 1999 and the references therein; see also Tomioka 2015 for recent work on this topic), as shown in (32).

- (32) Taroo-wa [Mary-ni-wa₁ John-ga t₁ ai-ni itta to] omotteiru.
 Taroo-TOP Mary-DAT-TOP John-NOM meet-to go COMP think
 Taroo thinks that Mary, John went to meet.'

The analysis suggested here predicts that no intervention effect would arise in a configuration like (33), where there is a *wh*-phrase in the matrix clause but topicalization occurs within an embedded clause. This prediction is in fact borne out: (34a), which embodies this schema, is highly acceptable. This is contrasted by the low acceptability of (34b), where the same topic phrase moves into the sentence-initial position by crossing a *wh*-phrase.

- (33) [TP ... *wh* ... [TopicP α -wa₁ [... t₁ ...] ...] ...
- (34) a. **Dare**-ga [Mary-ni-wa₁ John-ga t₁ ai-ni itta to] omotteiru no?
 who-NOM Mary-DAT-TOP John-NOM meet-to go COMP think Q
 'Who thinks that Mary, John went to meet?'
- b. ??Mary-ni-wa₁ **dare**-ga [John-ga t₁ ai-ni itta to] omotteiru no?
 Mary-DAT-TOP who-NOM John-NOM meet-to go COMP think Q
 'Mary, who thinks that John went to meet?'

These data suggest that a higher *wh*-phrase becomes offending only when topicalization has to cross it. In fact, the contrast in (34) brings an interesting implication concerning the topicalization involved in AE. We have seen in Section 2.1 that a *wh*-phrase in the matrix clause blocks AE in an embedded clause, even if there is no *wh*-phrase that c-commands the ellipsis site within the same clause (see (8); see also (14)). This implies that the topicalization in AE patterns with (34b) rather than with (34a). That is, elided arguments in AE must move to Spec,TopicP in the matrix clause, not one in an embedded clause. A relevant remark has actually been made by Fujiwara (2020), an advocate of the movement analysis of AE, who speculates that arguments must move to the matrix left periphery because only in this environment can a null argument take a linguistic antecedent from the preceding discourse.⁵ The claim that AE involves movement to the matrix left periphery is thus made tangible by the observations concerning the interaction with *wh*-phrases.

In-depth research into the relevant issues illustrated here is left for another occasion. However, I emphasize again that my overall proposal regarding AE does not crucially hinge on the exact formulation of the interaction between *wh*-phrases and topicalization.

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⁵A similar remark has also been made for the licensing of Germanic topic drop in Sigurðsson (2011), who argues that V2 Germanic null arguments always raise into the root C-domain to be linked to a discourse-related feature (in his term, 'C/edge-linked').

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