Argument ellipsis as topic deletion

Teruyuki Mizuno
University of Connecticut
teruyuki.mizuno@uconn.edu

Version 1: July 11, 2021
Version 2 (this draft): February 19, 2022
Published: currently under review

Abstract

In recent syntactic literature, argument ellipsis has become a productive perspective of investigation for null arguments in natural language, especially those observed in East Asian languages. This paper aims to deepen our understanding of the underlying syntactic mechanism behind the derivation of argument ellipsis, using Japanese as the main object language. The main empirical claim is that argument ellipsis and topicalization show parallel behavior with respect to their interaction with *wh*-dependencies. Building on this striking parallelism, I argue that argument ellipsis involves movement to Spec,TopicP in its derivation. I maintain that argument ellipsis is an instance of topic deletion, that is, arguments move to Spec,TopicP and get elided there under identity of the topic in discourse. The topic deletion account of argument ellipsis not only offers a principled explanation for what arguments can or cannot undergo ellipsis, but also highlights a tangible link to discourse *pro*-drop.

Keyword: Argument ellipsis, Topicalization, *Wh*-phrases, Discourse *pro*-drop, Japanese

Data Management: Data from Section 2 to 4 collectively constitute the main empirical contribution of this paper. I have confirmed the judgment of each sentence from these sections with at least five Japanese native speakers. All the Japanese data presented in the paper are based on the standard Japanese. The consultants were from various regions of Japan, but as far as my data are concerned I did not find any significant dialectal variation in terms of the acceptability.

1 Introduction

In recent syntactic literature, some cases of null arguments observed across languages have been analyzed as a result of *argument ellipsis* (henceforth 'AE'; see Oku 1998; Kim 1999; Saito 2007; Takahashi 2008; Sakamoto 2018, 2020; a.o.).[1] The classical analysis of null arguments has been to assume the presence of a silent counterpart of an overt pronoun (Kuroda 1965). Consider Japanese (1). The classical analysis assumes that the null object in the second sentence involves *'pro'*, whose interpretation is analyzed in terms of pronominalization (i.e., identification of the referent with an antecedent element).

(1) *John-wa* [*Bill-o*] *hometa. Mary-mo pro hometa.*
John-TOP Bill-ACC praised Mary-also praised
'John praised Bill. Mary praised (him), too.' (*'him' = 'Bill'*)

Some null arguments, however, are known to induce *sloppy readings*, which are considered a hallmark of ellipsis rather than pronominalization (Bresnan 1971; Hankamer and Sag 1976; Sag 1976; a.o.). Consider (2), another Japanese example, which involves the reflexive pronoun *'zibun'* ('self'). When preceded by (2a), the null object in (2b) may refer to *'Mary's letter'*, an entity distinct from the antecedent. This construal is not obtained if the null argument is replaced by an overt pronoun (see (2c)), in which case the sentence can only mean that John and Mary discarded the same letter. The AE analysis accounts for the sloppy reading in (2b) by assuming that the argument NP has undergone ellipsis, as illustrated in (3).[2,3]

[1] AE has terminological competitors, such as 'NP-ellipsis' (Kim 1999; Tomioka 2003) or 'N'-deletion' (Tomioka 2003). While the coverage of each term largely overlaps, it is worth noting that AE encompasses a wider range of phenomena, including clausal arguments (Shinohara 2006; Saito 2007; Sakamoto 2018, 2020; a.o.) and temporal and locational adverbs (Saito 2017). Because my main concern in this paper is ellipsis of NPs, the term 'AE' may be interchangeable with other names listed here, but I still opt for using AE because this term is more prevalent in the field, and in the hope of extending my proposal beyond ellipsis of NPs in future work.

[2] There are in general two views on how ellipsis is derived. The 'PF-deletion' view assumes that an ellipsis site involves a full-fledged structure both in overt syntax and LF but it is deleted in PF (Ross 1969; Sag 1976; Tancredi 1992; Merchant 2001, 2008; a.o.). The 'LF-copying' view assumes that an ellipsis site is empty in overt syntax and PF but is filled by copying the relevant material in LF (Williams 1977; Fiengo and May 1994; Chung et al. 1995; a.o.). The more dominant in the literature on AE is the LF-copying view (Oku 1998; Saito 2007; Sakamoto 2018, 2020; a.o.), but making arguments for or against either view is not my main concern here. See Sakamoto (2018, 2020); Fujiwara (2022) for discussion of how the two views make different predictions.

[3] There are also accounts that do not assume ellipsis. Hoji (1998) argues that what looks like a sloppy reading in (2b) is an illusion caused by the availability of indefinite interpretation of silent *pro* in Japanese. He suggests that the object position in (2b) is occupied by a *pro* which is construed as an indefinite pronoun, so that the sentence is interpreted as *'Mary, too, threw one (letter) out'*; the object then could happen to be Mary's, due to the interpretational leeway of existential quantification. However, as subsequent works have pointed out (Saito 2007; Sakamoto 2018, 2020; a.o.), the approach solely relying on the indefinite interpretation of *pro* to derive sloppy readings of null arguments faces difficulties in explaining null arguments appearing in the scope of negation. In (i) (taken from Saito 2007, 9), (ib) has a sloppy reading on which the teacher let the second-graders kick balls but did not allow them to use their own. While the AE analysis correctly predicts this reading, the indefinite *pro* approach fails to capture this (or at least it is unclear how it explains it), because

(2) a. *John-wa* [*zibun-no tegami-o*] *suteta.*
John-TOP self-GEN letter-ACC threw.out
'John$_1$ threw out his$_1$ letter.'

b. *Mary-mo* ___ *suteta.*
Mary-also threw.out
'Mary$_2$ also threw out (her$_2$ letter).'

c. *Mary-mo sore-o suteta.*
Mary-also it-ACC threw.out
'Mary$_2$ also threw it out.' (*'it' = 'John's letter'*)

(3) Mary-also ~~[self-GEN letter]~~ threw.out

The AE analysis has been extended to *quantificational phrases* (QPs). Takahashi (2008) observes that sloppy readings are similarly obtained in (4); with (4a) being the antecedent, (4b) may mean that Mary, too, respects most teachers, and crucially the teachers respected by John and Mary may differ. This construal, again, is not obtained if the null argument is replaced by an overt pronoun (see (4c)), in which case the sentence can only mean that John and Mary respect the same teachers. Like above, the AE analysis assumes that the null object in (4b) is derived by applying ellipsis to the argument, as shown in (5).

(4) a. *John-wa* [*hotondo-no sensee-o*] *sonkeesiteiru.*
John-TOP most-GEN teacher-ACC respect
'John respects most teachers.'

b. *Mary-mo* ___ *sonkeesiteiru.*
Mary-also respect
'Mary respects (most teachers), too.'

c. *Mary-mo karera-o sonkeesiteiru.*
Mary-also they-ACC respect
'Mary respects them, too.' (*'them' = 'the teachers John respect'*)

(5) Mary-also ~~[most-GEN teacher]~~ respect

---

if the direct object in (ib) simply involved an indefinite *pro*, the sentence would mean that the teacher let the second-graders kick *no balls*.

(i) a. *Sensee-wa subete-no itinensee$_1$-ni* [*zibun$_1$-no booru-o*] *ker-ase-ta.*
teacher-TOP all-GEN first.grader-DAT self-GEN ball-ACC kick-CAUS-PAST.
'The teacher let all first-graders$_1$ kick their$_1$ own balls.'

b. *Demo, ninensee$_1$-ni-wa* ___ *ker-ase-na-katta.*
but second.grader-DAT-TOP kick-CAUS-NEG-PAST.
'But she did not let the second-graders$_2$ kick (their$_2$ own balls).'

I also refer the reader to Kurafuji (2019), who has recently claimed that the use of choice function can derive a variety of interpretations of null arguments without assuming ellipsis. In the present paper I will focus on the accounts that assume ellipsis, leaving the discussion of anti-ellipsis views for another occasion.

The literature has shown that the AE analysis has many advantages over the competing V-stranding VP-ellipsis analysis (Huang 1988, 1991; Otani and Whitman 1991; a.o.), on which sentences like (2b) and (4b) involve VP ellipsis that is preceded by V-movement out of the VP. For instance, the AE analysis has been shown to fare better than the V-stranding VP-ellipsis analysis with respect to the sloppy reading in the subject position (Oku 1998), the unavailability of manner adverb interpretation in the elided site (Oku 1998), the elidability of immobile elements (Kim 1999; Sakamoto 2020) and the anti-reconstruction effect (Sakamoto 2020).[4] Moreover, while this paper confines attention to 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 results that further support the validity of the AE analysis (see Sakamoto 2018, 2020). See Sakamoto (2020) for a comprehensive overview of the recent development.

The aim of this paper is to deepen our understanding of the underlying syntactic mechanism behind the derivation of AE. While the literature has so far focused on explicating the independence of AE against *pro* and arguing for 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 (but see Abe 2009; Sakamoto 2016; Fujiwara 2020, 2022 for recent work). This paper will shed light on these relatively understudied issues by using Japanese as the main object language. The main empirical claim is that the distribution of Japanese AE is systematically constrained with respect to its scope against *wh*-phrases. In Section 2, I will present 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. Combined with the recent observation by Fujiwara (2020, 2022), according to which the licensing of AE is constrained by the same locality conditions as movement, my generalization predicts that AE induces a syntactic dependency which could interact with other dependencies. This prediction is shown to be borne out by a striking parallelism between AE and *topicalization*. I will show in Section 3 that topicalization exhibits exactly the same distribution as AE in terms of its interaction with *wh*-phrases. Building on this observation, I will argue that AE induces a topic-related A'-dependency, i.e., involves movement to Spec,TopicP. I will argue that AE is an instance of *topic deletion*, that is, arguments move to Spec,TopicP and get elided there under identity of the topic in discourse.

The proposed analysis has a variety of implications. First, it makes consistent predictions with respect to what kind of arguments can undergo AE. The literature has documented a range of restrictions on what type of arguments AE can apply to, but there has not been a account that can explain these restrictions in a unified way. The proposed analysis will offer a principled explanation: what cannot be topicalized cannot be elided. In Section 4, I will

[4] I refer the reader to the works listed here for concrete data and discussion. See also Funakoshi (2016) for a recent defense of the V-stranding VP-ellipsis account. Note that the works cited above that argue for the AE analysis do not necessarily rule out the existence of V-stranding VP ellipsis in Japanese; what they show is that even if V-stranding VP ellipsis does exist, AE is still needed to account for the full range of relevant facts.

present four restrictions observed in the literature, and show that these restrictions can be explained in terms of the notion of *anti-topicality*.

Another implication is that the proposed account of AE highlights a tangible link to discourse *pro*-drop, which has traditionally been considered an instance of topic deletion (Tsao 1977; Huang 1984; a.o.). AE and discourse *pro*-drop can thus be unified in this respect: they are different realizations of one and the same phenomenon, namely topic deletion. I will argue in Section 5 that this move is desirable given the deep typological overlap between AE and discourse *pro*-drop languages (Saito 2007; Sakamoto 2017, 2020).

In Section 6, I conclude the paper with speculative remarks on extending my proposal to ellipsis of CP complements and to languages other than Japanese that similarly attest AE.

2 The *wh*-scope generalization for AE

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

(6) **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 introduce the following theoretical/strategic assumptions:

(i) Following the standard assumption in the literature, I assume the availability of sloppy readings as a principal diagnosis for the presence of AE.[5] I will chiefly look into sloppy readings 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.). I will consider the c-commanding relation between a *wh*-phrase and the ellipsis site based on this structural order, exploiting the fact that Japanese is a *wh*-in-situ language.

(iii) Throughout I will apply ellipsis to IOs. 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 3.1. I emphasize, however, that the generalization does not hinge on this particular choice of ellipsis site; this is done only for expository purposes.

[5]The validity of sloppy readings as a trustable diagnosis for ellipsis has recently been questioned (see e.g., Merchant 2013; see Tomioka 2014 for a related remark on AE). Although it is debatable whether the availability of sloppy readings is exclusively due to ellipsis, I emphasize that my aim is rather to identify in what environment sloppy readings are *un*available. The unavailability of sloppy readings, I assume, is quite strong evidence for the *absence* of ellipsis, and is a telling indication that the syntactic environment in question involves a certain characteristic which is not involved in those environments that allow sloppy readings.

2.1 Data

As a baseline, first consider a case that involves no *wh*-phrase. The missing IO in (7b) may induce a sloppy reading on which John and Mary gave chocolate to their respective teachers.

(7) a. *John$_1$-wa* [*zibun$_1$-no sensee-ni*] *choko-o* *watasita.*
John-TOP self-GEN teacher-DAT chocolate-ACC gave
'John$_1$ gave his$_1$ teacher chocolate.'

b. *Mary-mo* ___ *choko-o* *watasita.*
Mary-also chocolate-ACC gave
'Mary$_2$, too, gave (her$_2$ teacher) chocolate.'

Now consider (8). In (8a), the subject *wh*-phrase c-commands the IO and binds the reflexive inside it. In (8b), the ellipsis site is similarly c-commanded by a *wh*-phrase in the subject. Crucially, the intended sloppy reading is much harder to obtain in (8b) than in (7b).[6]

(8) a. ***Dono dansi$_1$-ga*** [*zibun$_1$-no sensee-ni*] *choko-o* *watasita no?*
which boy-NOM self-GEN teacher-DAT chocolate-ACC gave Q
'Which boy$_1$ gave his$_1$ teacher chocolate?'

b. *Ato,* ***dono zyosi-ga*** ___ *choko-o* *watasita no?*
and which girl-NOM chocolate-ACC gave Q
??'And, which girl$_2$ gave (her$_2$ teacher) chocolate?'

In contrast, sloppy readings are much easier to obtain in (9), in which a *wh*-phrase is instead located in the DO. The contrast between (8) and (9) supports the generalization in (6).

(9) a. *John$_1$-wa* [*zibun$_1$-no sensee-ni*] ***nani-o*** *watasita no?*
John-TOP self-GEN teacher-DAT what-ACC gave Q
'What did John$_1$ give his$_1$ teacher?'

b. *Ato, Mary-wa* ___ ***nani-o*** *watasita no?*
and Mary-TOP what-ACC gave Q
'And, what did Mary$_2$ give (her$_2$ teacher)?'

We move on to more complex sentences. In (10), binding is intended between the matrix subject and the embedded IO, and the *wh*-phrase in the embedded subject intervenes between them. Sloppy readings are difficult to obtain in (10b).

[6]The sentence only marginally means that the speaker asks which girl gave chocolate to the teacher the boy in the first sentence gave some (i.e., a strict reading), or that the speaker asks which girl 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 readings.

(10) a. *Mary$_1$-wa* [***dare*-ga** [*zibun$_1$-no musuko-ni*] *choko-o watasita ka*]
Mary-TOP who-NOM self-GEN son-DAT chocolate-ACC gave Q
kyoomigaaru.
is.curious
'Mary$_1$ is curious who gave her$_1$ son chocolate.'

b. *Nancy-mo* [***dare*-ga** ___ *choko-o watasita ka*] *kyoomigaaru.*
Nancy-also who-NOM chocolate-ACC gave Q is.curious
??'Nancy$_2$, too, is curious who gave (her$_2$ son) chocolate.'

In contrast, sloppy readings are much easier to obtain in (11), in which a *wh*-phrase is located in the embedded DO. The contrast between (10) and (11) further supports the proposed generalization.

(11) a. *Mary$_1$-wa* [*Taroo-ga* [*zibun$_1$-no musuko-ni*] ***nani*-o** *watasita ka*]
Mary-TOP Taroo-NOM self-GEN son-DAT what-ACC gave Q
kyoomigaaru.
is.curious
'Mary$_1$ is curious what Taroo gave her$_1$ son.'

b. *Nancy-mo* [*Taroo-ga* ___ ***nani*-o** *watasita ka*] *kyoomigaaru.*
Nancy-also Taroo-NOM what-ACC gave Q is.curious
'Nancy$_2$, too, is curious what Taroo gave (her$_2$ son).'

(12) minimally differs from (11) in that the matrix subject in (11) is replaced by a *wh*-phrase, which, notice, asymmetrically c-commands the ellipsis site here. Sloppy readings are difficult to obtain in (12b). The contrast between (11) and (12) further confirms the proposed generalization.

(12) a. ***Dono kyoozyu*$_1$-*ga*** [*Taroo-ga* [*zibun$_1$-no musuko-ni*] ***nani*-o** *watasita*
which professor-NOM Taroo-NOM self-GEN son-DAT what-ACC gave
ka] *kyoomigaaru no?*
Q is.curious Q
'Which professor$_1$ is curious what Taroo gave his$_1$ son?'

b. *Ato,* ***dono insei*$_2$-*ga*** [*Taroo-ga* ___ ***nani*-o** *watasita ka*]
and which grad.student-NOM Taroo-NOM what-ACC gave Q
kyoomigaaru no?
is.curious Q
??'And, which grad student$_2$ is curious what Taroo gave (his$_2$ son)?'

The generalization states that the 'LF-position' of the *wh*-phrase is what matters. To confirm this, observe first that the *wh*-phrase in (13), which originates in the embedded DO and undergoes long-distance scrambling to the sentence-initial position, is nevertheless construed in-situ. The interpretation of (13) is equivalent to that of (11a).

(13) ***Nani***-o_2 *Mary*$_1$*-wa* [*Taroo-ga* [*zibun*$_1$*-no musuko-ni*] t_2 *watasita ka*]
what-ACC Mary-TOP Taroo-NOM self-GEN son-DAT gave Q
kyoomigaaru.
is.curious
'Mary$_1$ is curious what Taroo gave her$_1$ son.'

It is known that long-distance scrambling in Japanese involves radical reconstruction (Saito 1989, 1992; Bošković and Takahashi 1998; a.o.), whereby the moved phrase obligatorily reconstructs into its base-position at LF. (13) therefore involves an embedded *wh*-interrogative clause, because the *wh*-phrase ends up in the scope of the embedded interrogative C after reconstruction.

Now observe that the null embedded IO in (14b) can give rise to sloppy readings despite the *wh*-phrase c-commanding it on the surface. Just as in (13), the *wh*-phrase reconstructs into the embedded DO and therefore doesn't c-command the ellipsis site at LF. The availability of sloppy readings in (14) confirms that what matters is the LF position of the *wh*-phrase, not its surface position.

(14) a. ***Nani***-o_3 *Mary*$_1$*-wa* [*Taroo-ga* [*zibun*$_1$*-no musuko-ni*] t_3 *watasita ka*]
what-ACC Mary-TOP Taroo-NOM self-GEN son-DAT gave Q
kyoomigaaru.
is.curious
'Mary$_1$ is curious what Taroo gave his$_1$ daughter.'

b. ***Nani***-o_4 *Nancy-mo* [*Taroo-ga* ___ t_4 *watasita ka*] *kyoomigaaru.*
what-ACC Nancy-also Taroo-NOM gave Q is.curious
'Nancy$_2$, too, is curious what Taroo gave (his$_2$ daughter).'

Table 1 summarizes the (un)acceptability of the data we have seen above. They all confirm the proposed generalization, i.e., that AE is banned if the ellipsis site is c-commanded by a *wh*-phrase at LF.

(8)	[***wh***$_1$ ... ~~[... SELF$_1$ ...]~~ ... Q]	??
(9)	[NP$_1$ ... ~~[... SELF$_1$ ...]~~ ... ***wh*** ... Q]	✓
(10)	[NP$_1$ [***wh*** ... ~~[... SELF$_1$ ...]~~ ... Q] ...]	??
(11)	[NP$_1$ [~~[... SELF$_1$ ...]~~ ... ***wh*** ... Q] ...]	✓
(12)	[***wh***$_1$ ... [~~[... SELF$_1$ ...]~~ ... ***wh*** ... Q] ... Q]	??
(14)	[***wh***$_3$ ... [NP$_1$ [~~[... SELF$_1$ ...]~~ ... t_3 ... Q] ...] ...]	✓

Table 1: Summary of the (un)acceptability for AE data.

Let me make two additional remarks on the generalization in (6) before moving on. Firstly, while we have concentrated on the sloppy reading of reflexives, the generalization

also extends to the sloppy reading of QPs. In (15b), where the ellipsis site is c-commanded by the subject *wh*-phrase, it is difficult to obtain the reading on which the speaker asks which girl gave chocolate to most teachers. Such reading is much easier to obtain in (16b), where no *wh*-phrase c-commands the ellipsis site.

(15) 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.'

(16) 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 Mary$_2$ 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. (17) shows that even the missing object in a simple transitive structure does not give rise to sloppy readings in the scope of a higher *wh*-phrase. (18) shows that the missing embedded subject does not induce sloppy readings in the scope of the *wh*-phrase in the matrix subject.

(17) a. ***Dono dansi**$_1$-ga* [*zibun$_1$-no sensee-o*] *sonkeesiteiru no?*
which boy-NOM self-GEN teacher-ACC respect Q
'Which boy$_1$ respects his$_1$ teacher?'

b. [***Dono zyosi**-ga* ___ *sonkeesiteiru ka*] *mo osiete.*
which girl-NOM respect Q also tell
??'Also tell me which girl$_2$ respects (her$_2$ teacher) as well.'

(18) a. ***Dono dansi**$_1$-ga* [[*zibun$_1$-no teean-ga*] *saiyoosareru to*] *omotteiru no?*
which boy-NOM self-GEN proposal-NOM is.adopted C think Q
'Which boy$_1$ thinks that his$_1$ 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 girl$_2$ thinks that (her$_2$ proposal) will be adopted as well.'

Thus, the generalization in (6) is 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. The next task is to explicate

what syntactic mechanism underlies this empirical generalization.

2.2 AE and syntactic dependency

What accounts for the generalization in (6)? The fact that higher *wh*-phrases cause trouble suggests that they function as *intervenors*, 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, 2022), who argues that AE involves a certain form of movement in its derivation. Fujiwara 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 readings are not obtained, as shown in (19).

(19) a. *Taroo$_1$-wa* [[*zibun$_1$-no musuko-ga*] ***5-sai-ni*** *natta toki*] *Tokyo-ni*
Taroo-TOP self-GEN son-NOM 5-y.o.-DAT became when Tokyo-DAT
hikkosita.
moved
'Taroo$_1$ moved to Tokyo when his$_2$ 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
??'Ziroo$_2$ moved to Tokyo when (his$_2$ son) became seven years old.'

Fujiwara's observation is corroborated by (20), which locates the ellipsis site within a complex NP island. The sloppy reading of the missing argument is not available in (20b) either.

(20) a. *Taroo$_1$-wa* [[*zibun$_1$-no musuko-ga*] ***kaita e***]*-o* *kabe-ni kazatta.*
Taroo-TOP self-GEN son-NOM drew paintings-ACC wall-DAT displayed
'Taroo$_1$ displayed on the wall the paintings that his$_1$ son drew.

b. *Ziroo-wa* [___ ***totta syasin***]*-o kabe-ni kazatta.*
Ziroo-TOP took photo-ACC wall-DAT display
*'Ziroo$_2$ displayed on the wall the photos that (his$_2$ son) took.'

The unavailability of sloppy readings in (19b) and (20b) correlates with the unacceptability of (21a) and (21b). As Saito (1985) observes, scrambling in Japanese induces island violations just as other movement operations do.

(21) a. ??[*Zibun$_1$-no musuko-ga*]$_2$, *Taroo$_1$-wa* [t_2 *5-sai-ni natta toki*] *Tokyo-ni*
self-GEN son-NOM Taroo-TOP 5-y.o.-DAT became when Tokyo-DAT
hikkosita.
moved
lit. '[His$_1$ son]$_2$, Taroo$_1$ moved to Tokyo when t_2 became five years old.'

b. *[*Zibun*$_1$*-no musuko-ga*]$_2$ *Taroo*$_1$*-wa* [[t_2 *kaita*] *e*]*-o* *kabe-ni*
self-GEN son-NOM Taroo-TOP drew drawing-ACC wall-DAT
kazatta.
displayed
lit. '[His$_1$ son]$_2$, Taroo$_1$ displayed on the wall the drawing which t_2 drew.'

Based on this and other observations, Fujiwara hypothesizes that arguments undergo movement before ellipsis applies.[7] He argues that this movement induces an A'-dependency (i.e., involves movement to Spec,CP), which he suggests correlates in properties with long-distance scrambling.[8] He assumes that the moved argument undergoes PF deletion, which, together with the trace left behind, creates the appearance of a null argument, as shown in (22).

(22) a. [$_{CP}$ α_i ... [... t_i ...] ... (Before spell-out)
b. [$_{CP}$ ~~α_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. 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.

(23) [*Zibun*$_1$*-no musuko-ni*]$_2$, *Mary*$_1$*-wa* [***dare****-ga* t_2 *choko-o* *watasita ka*]
self-GEN son-DAT Mary-TOP who-NOM chocolate-ACC gave Q
kyoomigaaru.
is.curious
'Mary$_1$ is curious who gave her$_1$ son chocolate.'

The absence of interaction with a higher *wh*-phrase in (23) is not unexpected given that long-distance 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 involved 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 will address this issue in the next section.

[7] Other observations concern 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.

[8] Fujiwara 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.

3 Proposal

3.1 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.

(24) **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: *[$_{\text{TopicP}}$ α_i ... [***wh*** ... [... t_i ...

Before showing the relevant data, I will 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 (25a), it functions as the topic of the sentence with the rest of the sentence taken as a comment, in the sense in which Reinhart (1981) analyzed the notion of sentential topics. When the object is *wa*-marked in-situ like in (25b), it doesn't function as a topic: *-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.). (25c) 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).

(25) 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.'

It has been controversial whether preposing of a *'-wa'*-phrase involves base-generation or movement (Kuroda 1965; Kuno 1973; Hoji 1985; Saito 1985, a.o.), but there is a consensus that topicalization of PPs, including dative objects, involves movement. Saito (1985) observed that when *'Pekin'* ('Beijing') is marked only by *-wa* as in (26), 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 (27), hence the evidence for movement in this case.

(26) *Pekin-**wa**$_1$ John-ga [[pro$_2$ pro$_1$ itta koto-ga aru] hito$_2$]-o mituketa.*
Beijing-TOP John-NOM went fact-NOM have person-ACC found
'As for Beijing$_1$, John found a person who has been there$_1$.'

(27) **Pekin-ni-**wa**$_1$ John-ga [[pro$_2$ t_1 itta koto-ga aru] hito$_2$]-o mituketa.*
Beijing-DAT-TOP John-NOM went fact-NOM have person-ACC found
lit. 'Beijing$_1$, 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, 2022). Since the use of constructions which may involve base-generation would add an additional factor, I will set aside cases that may involve base-generation here, using the term 'topicalization' for 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 I concentrated on 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. I will test whether binding holds between the reflexive in the topicalized constituent and the antecedent structurally higher than the launching site.

I start with simplex sentences. Consider (28), where the subject *wh*-phrase c-commands the launching site of topicalization. Crucially, binding between the subject and the reflexive pronoun in the topicalized IO is difficult to obtain in (28).

(28) ??[*Zibun$_1$-no sensee-ni-**wa***]$_2$, ***dono dansi***$_1$*-ga t_2 choko-o watasita no?*
self-GEN teacher-DAT-TOP which boy-NOM chocolate-ACC gave Q
lit. '[His$_1$ teacher]$_2$, which boy$_1$ gave t_2 chocolate?'

The low acceptability of (28) contrasts with the full acceptability of (29), where the *wh*-phrase is located in the DO and therefore does not c-command the launching site of topicalization. Binding between the subject and the reflexive is much easier to obtain here. The contrast between (28) and (29) supports the generalization in (24).

(29) [*Zibun$_1$-no sensee-ni-**wa***]$_2$, *John$_1$-wa t_2 **nani**-o watasita no?*
self-GEN teacher-DAT-TOP John-TOP what-ACC gave Q
lit. '[His$_1$ teacher]$_2$, what did John$_1$ gave t_2?'

Let us proceed to more complex sentences. Consider (30), where the launching site of topicalization is located in the embedded IO and is c-commanded by the *wh*-phrase in the embedded subject. Binding between the matrix subject and the reflexive in the topicalized object is difficult to obtain here.

(30) ??[*Zibun*$_1$*-no musuko-ni-**wa***]$_2$*, Mary*$_1$*-wa* [***dare**-ga* t_2 *choko-o watasita ka*]
self-GEN son-DAT-TOP Mary-TOP who-NOM chocolate-ACC gave Q
kyoomigaaru.
is.curious
lit. '[Her$_1$ son]$_2$, Mary$_1$ is curious who gave t_2 chocolate.'

Compare (30) with (31), where a *wh*-phrase is instead located in the embedded DO. Binding between the matrix subject and the reflexive is much easier to obtain here.

(31) [*Zibun*$_1$*-no musuko-ni-**wa***]$_2$*, Mary*$_1$*-wa* [*Taroo-ga* t_2 ***nani**-o watasita ka*]
self-GEN son-DAT-TOP Mary-TOP Taroo-NOM what-ACC gave Q
kyoomigaaru.
is.curious
lit. '[Her$_1$ daughter]$_2$, Mary$_1$ is curious what Taroo t_2 gave.'

Further, (32) differs minimally from (31) in that the matrix subject in (31) is replaced by a *wh*-phrase, which asymmetrically c-commands the launching site of topicalization. Binding between the matrix subject *wh*-phrase and the reflexive is not possible here.

(32) ?*[*Zibun*$_1$*-no musuko-ni-**wa***]$_2$ ***dare**$_1$-ga* [*Taroo-ga* t_2 *nani-o watasta ka*]
self-GEN son-DAT-TOP who-NOM Taroo-NOM what-ACC gave Q
kyomigaaru no?
is.curious Q
lit. '[His$_1$ daughter], who$_1$ is curious what Taroo t_2 gave?'

Now consider the case involving long-distance scrambling. In (33), the *wh*-phrase in the embedded DO undergoes long-distance scrambling and c-commands the launching site of topicalization on the surface. This *wh*-phrase, however, doesn't c-command the launching site at LF, since, recall, it obligatorily reconstructs into its base-position (see Section 2). Binding between the matrix subject and the reflexive does obtain here.

(33) [*Zibun*$_1$*-no musuko-ni-**wa***]$_2$ [***nani**-o*]$_3$ *Mary*$_1$*-wa* [*Taroo-ga* t_2 t_3 *watasita ka*]
self-GEN son-DAT-TOP what-ACC Mary-TOP Taroo-NOM gave Q
kyomigaaru.
is.curious
lit. '[Her$_1$ daughter]$_2$, Nancy$_1$ is curious what Taroo gave t_2.'

Table 2 summarizes the 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 and striking: the possibility of AE and the possibility of topicalization correlate exactly with each other. This parallelism, I argue, would remain mysterious unless we assume that AE involves topicalization as part of its derivation.

(8)	AE	[***wh***$_1$ ... ~~[... SELF$_1$ ...]~~ ... Q]	??
(28)	Topicalization	[... SELF$_1$ ...]$_2$-TOP ... [***wh***$_1$ ... t_2 ... Q]	??
(9)	AE	[NP$_1$ ... ~~[... SELF$_1$ ...]~~ ... ***wh*** ... Q]	✓
(29)	Topicalization	[... SELF$_1$ ...]$_2$-TOP ... [NP$_1$ ... t_2 ... ***wh*** ... Q]	✓
(10)	AE	[NP$_1$ [***wh*** ... ~~[... SELF$_1$ ...]~~ ... Q] ...]	??
(30)	Topicalization	[... SELF$_1$ ...]$_2$-TOP ... [NP$_1$ [***wh*** ... t_2 ... Q] ...]	??
(11)	AE	[NP$_1$ [~~[... SELF$_1$ ...]~~ ... ***wh*** ... Q] ...]	✓
(31)	Topicalization	[... SELF$_1$ ...]$_2$-TOP ... [NP$_1$ [t_2 ... ***wh*** ... Q] ...]	✓
(12)	AE	[***wh***$_1$ ... [~~[... SELF$_1$ ...]~~ ... ***wh*** ... Q] ... Q]	??
(32)	Topicalization	[... SELF$_1$ ...]$_2$-TOP ... [***wh***$_1$ ... [t_2 ... ***wh*** ... Q] ... Q]	?*
(14)	AE	[***wh***$_3$ ... [NP$_1$ [~~[... SELF$_1$ ...]~~ ... t_3 ... Q] ...] ...]	✓
(33)	Topicalization	[... SELF$_1$ ...]$_2$-TOP ... [***wh***$_3$ ... [NP$_1$ [t_2 ... t_3 ... Q] ...] ...]	✓

Table 2: Summary of the (un)acceptability of AE and topicalization data.

3.2 AE as topic deletion

Based on the parallelism between AE and topicalization, I propose that AE is an instance of *topic deletion*. That is, to-be-elided arguments move to Spec,TopicP before spell-out, and then they are deleted at PF under identity with the topic in discourse.[9] This is illustrated in (34).

(34) a. [$_{\text{TopicP}}$ α_i ... [... t_i ...] ... (Before spell-out)
b. [$_{\text{TopicP}}$ ~~α_i~~ ... [... t_i ...] ... (PF)

This is fundamentally a revision of Fujiwara's analysis we saw in Section 2.2, which similarly assumes that arguments undergo movement into the CP left periphery. The crucial difference from his analysis is that I identify this movement 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.

Let me illustrate how the proposal explains simplest examples. Consider (35). As (36a) shows, the object in the second sentence in (35) moves to Spec,TopicP, where it is licensed as the topic of the sentence. The entire discourse consisting of the two sentences is about each person's teachers, and the speaker comments on whether John and Bill respect their own teachers. Because 'self's teachers' is regarded as the shared topic in discourse, it is elidable in the second sentence, as shown in (36b).

[9] I leave the idea of 'deletion under identity with the topic in discourse' rather informal, as full characterization of this notion would involve complex pragmatic concerns. Here I assume, somewhat casually, that a phrase is elidable only if it is the topic that is shared by both the antecedent sentence and the elliptical sentence.

(35) *John$_1$-wa* [*zibun$_1$-no sensee-o*] *sonkeesiteiru. Bill-mo* ___ *sonkeesiteiru.*
John-TOP self-GEN teacher-ACC respect Bill-also respect
'John$_1$ respects his$_1$ teachers. Bill$_2$ respects (his$_2$ teachers), too.'

(36) a. [$_{\text{TopicP}}$ self$_j$-GEN teacher$_i$ ... [Bill$_j$-also t_i respect] ... (Before spell-out)
b. [$_{\text{TopicP}}$ ~~self$_j$-GEN teacher$_i$~~ ... [Bill$_j$-also t_i respect] ... (PF)

The derivation for QPs proceeds in a similar fashion. The second sentence in (37) is analyzed as having (38a) as its pre-spell-out representation. Recall that the sentence may mean that Bill respects teachers whose extensions do not necessarily overlap with those John respects. I assume that what is addressed as a topic in the case of QPs is the *cardinality* of the denotation of the restrictor NP. This correctly captures the fact that reference of teachers may diverge between the two sentences, because what is at stake is not 'who', but rather 'how many'.[10]

(37) *John-wa* [*hotondo-no sensee-o*] *sonkeesiteiru. Bill-mo* ___ *sonkeesiteiru.*
John-TOP most-GEN teacher-ACC respect Bill-also respect
'John respects most teachers. Bill respects (most teachers), too.'

(38) a. [$_{\text{TopicP}}$ most-GEN teacher$_i$ ... [Bill-also t_i respect] ... (Before spell-out)
b. [$_{\text{TopicP}}$ ~~most-GEN teacher$_i$~~ ... [Bill-also t_i respect] ... (PF)

3.3 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 thus involves 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 illustrated in (39).

[10] One may wonder about the specific status of the topics discussed here, in particular that of topicalized QPs, because topicalized QPs do not seem to perfectly fit the standard definition of topics, which requires that topics be 'specific' or 'referential' (Reinhart 1981; a.o.). However, there is cross-linguistic evidence that non-referentially construed QPs can nonetheless play a role as topics; e.g., Tsai (1994, Ch 3) shows this for Mandarin, and Arregi (2003) for Spanish. I will show in Section 4 that this is also the case with Japanese.

(39) a. *[$_{\text{TopicP}}$ α-*wa*$_1$ [... [$_{\text{TP}}$ ... ***wh*** ... [... t_1 ...] ...
b. [$_{\text{TopicP}}$ α-*wa*$_1$ [... [$_{\text{TP}}$ ... t_1 ... [... ***wh*** ...] ...

This analysis is further supported by facts about embedded topicalization. It has been observed that Japanese allows topicalization within an embedded clause (see Maki et al. 1999; see also Tomioka 2015 for recent work on this topic), as shown in (40).

(40) *Taroo-wa* [*Mary-ni-wa*$_1$ *John-ga* t_1 *ai-ni* *itta to*] *omotteiru.*
Taroo-TOP Mary-DAT-TOP John-NOM meet-to go COMP think
Taroo thinks that Mary$_1$, John went to meet t_1.'

The analysis here predicts that no intervention effect would arise in the schema in (41), in which there is a *wh*-phrase in the matrix clause but topicalization occurs within an embedded clause. This prediction is in fact borne out: (42a), which embodies this schema, is fully acceptable, and contrasts with the low acceptability of (42b), where the same topic phrase moves into the sentence-initial position by crossing a *wh*-phrase.

(41) [$_{\text{TP}}$ ... ***wh*** ... [$_{\text{TopicP}}$ α-*wa*$_1$ [... t_1 ...] ...

(42) a. ***Dare**-ga* [*Mary-ni-wa*$_1$ *John-ga* t_1 *ai-ni* *itta to*] *omotteiru no?*
who-NOM Mary-DAT-TOP John-NOM meet-to go COMP think Q
'Who thinks that Mary$_1$, John went to meet t_1?'
b. ?**Mary-ni-wa*$_1$ ***dare**-ga* [*John-ga* t_1 *ai-ni* *itta to*] *omotteiru no?*
Mary-DAT-TOP who-NOM John-NOM meet-to go COMP think Q
lit. 'Mary$_1$, who thinks that John went to meet t_1?'

These data suggest that a higher *wh*-phrase becomes offending only when topicalization has to cross it. In fact, the contrast in (42) brings an interesting implication about 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 (12); see also (18)). This implies that the topicalization in AE patterns with (42b) rather than with (42a). That is, to-be-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, 2022), an advocate of the movement analysis of AE, who speculates that to-be-elided arguments must move to the matrix left periphery because only in this environment can a null argument take an antecedent from the preceding discourse.[11] The claim that AE involves movement to the matrix left periphery is thus further supported by the observations concerning the interaction with *wh*-phrases.

In-depth research into the relevant issues illustrated here is left for another occasion.

[11]A 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').

However, I emphasize again that my overall proposal for AE does not crucially hinge on the exact formulation of the interaction between *wh*-phrases and topicalization.

3.4 Summary

This section showed that AE and topicalization exhibit parallel behavior with respect to *wh*-phrases. Based on the correlation between the two phenomena, which has gone unnoticed in the literature, I argued that AE involves movement of arguments to Spec,TopicP. I will provide further evidence for this claim in the forthcoming sections.

4 Anti-AE $\approx$ Anti-topic

While the literature has documented a number of restrictions on what kind of arguments AE can apply to, there has not been an account that can explain these restrictions in a unified way. The proposal we established in the last section – that elided arguments are elided topics – will give us a principled explanation: what cannot be topicalized cannot be elided. In Section 4.1 I will present four restrictions observed in the literature. In Section 4.2 I will show that they all involve *anti-topical* items, confirming that there is a correlation between 'unelidability' and 'untopicalizability'.

4.1 Restrictions on what is eligible for AE

1. *Wh*-phrases It has been observed that AE cannot apply to *wh*-phrases (Sugisaki 2012; Ikawa 2013; Sakamoto 2018, 2020; a.o.). In (43), the embedded interrogative clause in the second sentence cannot mean *'what Bill bought'*.

(43) *John-wa* [***nani**-o*] *katta no?* [*Bill-ga* ___ *katta ka*] *mo osiete.*
John-TOP what-ACC bought Q Bill-NOM bought Q also tell
*'What did John buy? Also tell me what Bill bought, too.'

2. *'-sika'* In the exceptive construction *'-sika ... -nai'* ('not ... except'), the suffix *'-sika'* typically attaches to NPs, and requires negation for its licensing, whether in the subject or in the object (see also Tanaka 1997). This is illustrated in (44) and (45).

(44) a. *John-**sika** yasai-o tabe-**nai**.*
John-SIKA vegetable-ACC eat-NEG
'No one but John eats vegetables.'
b. **John-**sika** yasai-o taberu.*
John-SIKA vegetable-ACC eat
Intended: 'No one but John eats vegetables.'

(45) a. *John-wa yasai-**sika** tabe-**nai**.*
John-TOP vegetable-SIKA eat-NEG
'John eats nothing but vegetables.'

b. **John-wa yasai-**sika** taberu.*
John-TOP vegetable-SIKA eat
Intended: 'John eats nothing but vegetables.'

Takita (2011) argued that AE can apply to *-sika*-phrases. He argued that (46b) has the reading on which Hanako only ate apples she grew, just like Taroo did.

(46) a. *Taroo-wa* [*zibun-no tukutta ringo-**sika***] *tabe-**na**-katta.*
Taroo-TOP self-GEN grew apple-SIKA eat-NEG-PAST
'Taroo didn't eat anything but apples that he grew himself.'

b. *Hanako-mo* ___ *tabe-**na**-katta.*
Hanako-also eat-NEG-PAST
'Hanako, too, didn't eat (anything but apples that she grew herself).'

Takita's conclusion was later questioned by Ikawa (2013). Ikawa pointed out that while (46b) may not sound so degraded, the acceptability of eliding *-sika*-phrases becomes significantly worse in other examples. (47) is one of his counterexamples: the second sentence cannot mean that Mary bought no book except hers.

(47) *John-wa* [*zibun-no hon-**sika***] *kari-na-katta. Mary-wa* ___ *kaw-**ana**-katta.*
John-TOP self-GEN book-SIKA borrow-NEG-PAST Mary-TOP buy-NEG-PAST
*'John borrowed no book but his. Mary bought (no book but hers).'

Ikawa's claim is corroborated by (48), in which the second sentence drops the subject *-sika*-phrase. The intended reading is similarly unattested.

(48) *Kinoo-wa* [*John-**sika***] *ko-**na**-katta. Kyoo-mo* ___ *ko-**na**-katta.*
yesterday-TOP John-SIKA come-NEG-PAST today-also come-NEG-PAST
*'Yesterday, no one but John came. Today, too, (no one but John) came.'

It thus seems that AE is in principle unapplicable to *-sika*-phrases. I assume that the apparent acceptability of (46) may be deceptively affected by other factors.

3. Downward-monotonic quantifiers As Tomioka (2014, 2016) points out, AE cannot apply to downward-monotonic quantifiers like *'miman'* ('less than') (see also Kurafuji 2019). They contrast with upward monotonic quantifiers in this respect.

(49) *Kyonen-no siken-de-wa* [*30-paasento-*{(*i*) *izyoo* / (*ii*) ***miman***}*-no*
last.year-GEN exam-LOC-TOP 30-percent-{at.least / less.than}-GEN
gakusee-ga] *ukatta.*
student-NOM passed.
'At last year's exam, {at least / less than} 30% of the students passed.'

(50) *Kotosi-no siken-de-mo* ___ *ukatta.*
this.year-GEN exam-LOC-also passed.
With (49i): 'At this year's too, (at least 30% of the students) passed.'
With (49ii): *'At this year's too, (less than 30% of the students) passed.'

4. *'Only'* It has been observed that AE cannot apply to focus-operators like *'dake'* ('only') (Oku 2016; Sato 2020; a.o.). In (51), the meaning of the focus operator is not retrievable in the second sentence.

(51) *John-wa* [*Taroo-ni-**dake***] *atta. Bill-mo* ___ *atta.*
John-TOP Taroo-DAT-only met Bill-also met
??'John met only Taroo. Bill, too, met (only Taroo).'

4.2 Restrictions explained

We will now test the topicalizability of each case from Section 4.1. For this, we need a uniform format which ensures that the target element is unambiguously interpreted as a topic. To this end, I will use (52) as the testing schema.

(52) $[\alpha$-*wa*$]_1$, ... [NP-*ga* ... e_1 ... PRED-*mas*]

I highlight two points regarding the architecture of (52). First, as mentioned in Section 3.1, topics are marked by the particle *'-wa'* in Japanese (Kuroda 1965; Kuno 1973; a.o.), but when the object is *wa*-marked in-situ like in (53a), it cannot function as a topic (recall that the *-wa* here functions as a contrast marker). (53b) shows that preposing of the *wa*-marked object renders it a sentential topic; thus, for a phrase to be a topic, it must not only be *wa*-marked, but also be preposed.

(53) a. *John-ga Bill-**wa** hometa.*
John-NOM Bill-TOP praised
'John praised Bill (but he didn't praise others).'
b. *Bill-**wa**$_1$ John-ga* e_1 *hometa.*
Bill-TOP John-NOM praised
'As for Bill, John praised him.'

Secondly, nominative NPs obtain exhaustive focus in root contexts in Japanese (Kuno 1973;

Heycock 1994, 2008; a.o.): e.g., (53b) implies that no one other than John praised Bill. The existence of such focus in a lower position confirms the status of the preposed *wa*-phrase as a sentential topic, establishing a 'topic-focus' configuration within the sentence. The exhaustive focus interpretation can be facilitated by placing phonological prominence on the nominative NP, which I will indicate in CAPITALS. To signal a root environment decisively, I will attach the polite-form suffix *'-mas'* to predicates, which can only be used in a matrix clause.[12]

Our criterion is thus as follows: for any *wa*-marked constituent, if the sentence is unacceptable with it in the schema in (52), it is untopicalizable.

Consider elidable arguments as a benchmark. (54) shows that the QP *'3-tu-izyoo-no mati'* ('at least three cities') can undergo AE. (55) shows that this QP can be used as a topic in a sentence which conforms to the schema in (52).[13]

(54) *John-wa* [*3-tu-izyoo-no mati-ni*] *itta. Mary-wa* ___ *ikanakatta.*
John-wa 3-CL-at.least-GEN city-DAT went Mary-also didn't.go
'John went to at least three cities. Mary didn't go (to at least three cities).'

(55) [*3-tu-izyoo-no mati-ni-wa*], *JOHN-ga iku koto-ga deki-masi-ta.*
3-CL-at.least-GEN city-DAT-TOP John-NOM go fact-NOM able-POL-PAST
lit. 'As for at least three cities, John was able to go there.'

I will show below that the four anti-AE items from Section 4.1 all fail to be a topic in the schema in (52).

1. *Wh*-phrases (56) shows that *wh*-phrases, which, recall, cannot undergo AE, cannot be topics. The observation that *wh*-phrases cannot be topics is an old one. See e.g., Kuno (1973) and Miyagawa (1987).

(56) *[*Doko-ni-wa*], *JOHN-ga iku koto-ga deki-masi-ta ka?*
where-DAT-TOP John-NOM go fact-NOM able-POL-PAST Q
lit. 'As for where, was John able to visit it?'

[12] For instance, *-mas* cannot occur in an embedded clause and in a relative clause.

(i) a. *John-wa* [*Bill-ga* {*kur-u* / **ki-**mas**-u*} *to*] *omotteiru.*
John-TOP Bill-NOM come-PRES come-POL-PRES COMP think
'John thinks that Bill will come.'
b. [*John-ga* {*kat-ta* / **kai-**masi**-ta*}] *hon.*
John-NOM buy-PAST buy-POL-PAST book
'The book that John bought.'

[13] The sentence is most naturally uttered in contexts which contrast different cardinalities, e.g., where people are sorted in terms of how many cities they were able to visit.

2. *'-sika'* (57) shows that *'-sika'*-phrases cannot be topics either. Japanese speakers judge the constituent *'Tokyo-ni-sika-wa'* as simply ungrammatical. See Tomioka (2007) for a related suggestion regarding the anti-topicality of this and other relevant items.

(57) *[*Tokyo-ni-sika-wa*], *JOHN-ga iku koto-ga deki-mase-n-desita.*
Tokyo-DAT-SIKA-TOP John-NOM go fact-NOM able-POL-NEG-PAST
lit. 'As for except Tokyo, John was able to visit no place other than that.'

3. Downward-monotonic quantifiers (58) shows that the downward-monotonic quantifier *'miman'* ('less than') cannot be a topic: the sentence cannot be taken as addressing who it is that visited less than three cities. That downward-monotonic quantifiers cannot be topicalized has been pointed out by Grohmann (2006) for German. See also Constant (2014) for the observation that downward-monotonic quantifiers cannot obtain the contrastive topic interpretation in English.

(58) *[*3-tu-miman-no mati-ni-wa*], *JOHN-ga iku koto-ga deki-masi-ta.*
3-CL-less.than-GEN city-DAT-TOP John-NOM go fact-NOM able-POL-PAST
lit. 'As for less than three cities, John was able to visit them.'

It is worth noting that there is a class of predicates under which AE of downward-monotonic quantifiers is possible. (59) shows that downward-monotonic quantifiers can be null when they are used under the verb *'osaeru'* ('limit'): (59b) can mean that Nagoya also managed to limit the number of positive cases to less than three hundred. Obviously what the QPs in (59a) and (59b) refer to are disjoint, given that no one can be in two cities simultaneously.

(59) a. *Tokyo-wa (sinki yooseesya-o)* [*300-nin-miman-ni*] *osaeta.*
Tokyo-TOP new positive.case-ACC 300-CL-less.than-DAT limited
'Tokyo limited new positive cases to less than 300.'

b. *Nagoya-mo* ___ *osaeta.*
Nagoya-also ___ limited
'Nagoya, too, limited the number (to less than 300).'

Strikingly, downward-monotonic quantifiers can also be topics under this class of predicates: (60) can mean that it is Tokyo and Nagoya (among major cities in Japan) that managed to limit the positive cases to less than three hundred. This further confirms our predictions.

(60) [*300-nin-miman-ni-wa*], *TOKYO-to NAGOYA-ga osae-masi-ta.*
300-CL-less.than-DAT-TOP Tokyo-and Nagoya-NOM limit-POL-PAST
lit. 'As for less than 300, Tokyo and Nagoya limited the number to it.'

4. *'Only'* (61) shows that constituents with the focus operator '*-dake*' ('only') cannot be topics: the sentence cannot be taken to address who it is that only visited Tokyo.

(61) *[*Tokyo-ni-dake-wa*], *JOHN-ga iku koto-ga deki-masi-ta.*
Tokyo-DAT-only-TOP John-NOM go fact-NOM able-POL-PAST
lit. 'As for only Tokyo, John was able to visit it.'

Our prediction is thus fruitfully borne out: there is a substantial correlation between unelidability and untopicalizability. The analysis of AE as topic deletion thus provides a principled explanation for a number of restrictions on AE that have been independently observed but not accounted for in a unified manner in the literature.

5 Topic deletion: a unified view on AE and discourse *pro*-drop

I have been pursuing the idea that AE is an instance of topic deletion. Another advantage of this analysis is that it offers a unified perspective on AE and discourse *pro*-drop (i.e., *pro*-drop which is not licensed by rich verbal agreement; such *pro*-drop is also referred to as 'radical *pro*-drop'). Huang (1984), following the analysis of Tsao (1977), suggests that discourse *pro*-drop is derived by a rule of 'Topic NP Deletion', which operates across discourse to delete the topic of a sentence under identity with an established topic. In (62), a slightly modified example from Huang (1984: 55), all the subsequent sentences following the first sentence are interpreted as addressing *'Zhongguo'* ('China'). These sentences are analyzed as involving a silent topic in the left-periphery which is identified with the overt topic of the first sentence. The same is replicated in Japanese (63).

(62) [***Zhongguo***$_1$*, difan hen da.*] [*Renkou hen duo.*] ... [*Women dou xihuan.*]
China place very big population very many we all like
'(As for) China$_1$, (its$_1$) land area is very large. (its$_1$) population is very large. ... We all like (it$_1$).'

(63) [***Chuugoku-wa***$_1$ *hiroi kokudo-o motteiru.*] [*Zinkoo-mo totemo ooi.*] ...
China-TOP large land.area-ACC have population-too very many
[*Watasitati-wa mina aisiteiru.*]
we-TOP all love
'(As for) China$_1$, (its$_1$) land area is very large. (its$_1$) population, too, is very large. ... We all love (it$_1$).'

The topic-deletion account of AE thus converges with this early analysis of discourse *pro*-drop: AE and discourse *pro*-drop are different realizations of one and the same phenomenon, namely topic deletion. This unified perspective is in fact plausible from an empirical standpoint. Interestingly, it has been observed that there is a profound overlap between lan-

guages attesting AE and languages attesting discourse *pro*-drop (Saito 2007; Sakamoto 2020; a.o.). AE has been attested in Japanese, Korean (Kim 1999; Sakamoto 2020; a.o.), Chinese (Cheng 2013; Sakamoto 2020; a.o.,), Mongolian (Sakamoto 2020), Turkish (Şener and Takahashi 2010; Takahashi 2014; a.o.), American Sign Language (Koulidobrova 2012), Colloquial Singapore English (Sato 2014), Javanese (Sato 2015), Persian (Sato and Karimi 2016), all of which attest discourse *pro*-drop as well.[14] This correlation between AE and discourse *pro*-drop would be surprising if they were completely independent phenomena.[15] A unified analysis of AE and discourse *pro*-drop is in this sense a desirable move. The present paper argues that this can plausibly be achieved by using the notion of topic deletion.[16]

Let us consider in this vein how the correlation between AE and discourse *pro*-drop can be derived under the current analysis. Under the topic deletion account of discourse *pro*-drop, the silent pronoun in an in-situ position is analyzed as co-indexed with the topic phrase in the sentence. One possibility that is worth pursuing is that the topic that licenses discourse *pro*-drop is situated in a special TopicP projection in the matrix left periphery, which would be present in discourse *pro*-drop languages but possibly absent in others. Then *pro* can be licensed in two ways, via agreement, as in Spanish for instance, or by being co-indexed with a topic in this special projection, which implies discourse *pro*-drop. The projection would link the element in its specifier to the preceding discourse, helping estab-

[14]To the best of my knowledge, no language has been observed to attest discourse *pro*-drop but not AE. The opposite direction, however, is controversial. While Sakamoto (2020) speculates that the presence of AE requires the presence of discourse *pro*-drop, hence doubting the possibility of languages that attest AE but not discourse *pro*-drop, Landau (2018) argues that some null arguments in Hebrew, which is not generally categorized as a discourse *pro*-drop language, do involve AE. Although Hebrew may constitute a counterexample to Sakamoto's speculations, I still agree with Sakamoto and other researchers that the correlation between AE and discourse *pro*-drop is fairly robust, and that there are plausibly some linguistic traits shared by the relevant languages that enable the two types of null arguments simultaneously.

[15]This typological correlation has in fact led some previous works to speculate that the two phenomena are derived from one single syntactic mechanism. For instance, Saito (2007) notably argued that the lack of obligatory agreement in the relevant languages enables liberal use of 'LF-copying', an operation which copies elements into null positions from a set of contextually given materials, and he conjectured that it is this operation that governs both AE and discourse *pro*-drop. I cannot fully evaluate Saito's suggestion here, but one worry is that it is unclear under his account how exactly the set of discourse materials is constrained, which, under the present account, is captured in a principled way by the notion of topicality.

[16]Unification of AE and discourse *pro*-drop then leads us to the question whether it is even possible to reduce either one to the other. The literature (e.g., Saito 2007; Bošković 2011) has argued that they should not be reduced, on the grounds that readings that correlate with AE (in particular sloppy or quantificational readings, e.g., (2) and (4)) are possible only when there is a linguistic antecedent, though null arguments in general do not require a linguistic antecedent, with discourse *pro*-drop being one such case (as far as I can see, Huang 1984 was open with respect to whether discourse *pro*-drop derived by his rule of Topic NP Deletion always requires the presence of a linguistic antecedent like AE; his account only required that reference be retrieved from prior context). This difference between AE and discourse *pro*-drop with respect to selectivity of antecedents suggests that they may not completely overlap in terms of status, hence that both may be needed to capture the entirety of null argument phenomena. I leave further discussion of relevant issues for future work, being open to both the possibility and impossibility of such a reductive account. That said I emphasize that no matter how the discussion turns out, the point that I have made in this paper would not lose its validity; whether linguistic antecedents are required or not, being a deleted topic will remain as a necessary condition for AE and discourse *pro*-drop, and in this respect the two phenomena can be viewed from a unified perspective.

lish an inter-sentential discourse coherence. Arguments in AE would similarly occupy the specifier of this projection (i.e., undergo movement to this projection prior to ellipsis), hence deriving the correlation between AE and discourse *pro*-drop in the relevant languages.

Of course, this would not be the only factor relevant to the distinction between discourse *pro*-drop/AE languages and other languages. One prerequisite that has been argued to be shared by both AE and discourse *pro*-drop is that a language must be an NP-language in the sense of the 'NP/DP' split in Bošković (2008, 2012), i.e., it must lack definite articles: Bošković (2008, 2012) argues that only NP languages (i.e., languages that lack definite articles) may allow discourse *pro*-drop; Cheng (2013) argues that only NP languages may allow AE. The absence of agreement is another related factor discussed in the literature. As Oku (1998) observes, null arguments in agreement *pro*-drop languages like Spanish do not induce sloppy readings and hence defy the AE analysis. Saito (2007) generalizes this idea and speculates that the presence of obligatory agreement blocks AE in Spanish and English (for a way of combining the lack of articles and the lack of agreement requirements, see Bošković 2018). The necessary and sufficient explanation of the correlation between AE and discourse *pro*-drop would involve a complicated interplay between various factors like these, detailed investigation of which goes beyond the scope of this paper. Although further exploration of this issue is left for another occasion, the present work highlights that the notion of topicality and the relevant syntactic projection are plausibly another requirement for the licensing of AE and discourse *pro*-drop, shedding new light on the study of the typological correlation between them.[17]

[17]The relevance of topicality to the licensing of null arguments has been recurrently suggested in the literature. See e.g., Gundel (1980, 1988); Givón (1983); Hinds (1983). In fact, the role of topicality is also crucial in the licensing of weak pronouns in some Slavic languages. Jovović (2020, 2021) has shown that weak pronouns (clitics as well as *pro*) in Serbo-Croatian generally require discourse topics as their antecedents (i.e., signaling topic continuity), hence exhibiting the properties which are very similar to those in discourse *pro*-drop. Jovović further observes that weak pronouns in Serbo-Croatian do not have a topic-shift function in contrast to their strong counterparts. This sort of division of labor between weak and strong pronouns is similarly observed between null arguments and overt pronouns in Japanese. As (i) shows, it is odd to use a null argument in the subject of the second sentence. This simply follows if a null argument (here *pro*) must make reference to the topic in discourse (here 'John'), and in order to shift the current topic to a new one (here 'Mary'), an overt pronoun must be used.

(i) *John-wa Mary-o sonkeesiteiru. Demo,* {(a) **pro* / (b) *Kanozyo-wa*} *John-o sonkeesiteinai.*
John-TOP Mary-ACC respect but she-TOP John-ACC not.respect
'John respects Mary$_i$. But she$_i$ does not respect John.'

What these facts suggest is that the distribution of null arguments and overt pronouns can be viewed from a more general perspective concerning pronominal competition (Cardinaletti and Starke 1999; Patel-Grosz and Grosz 2017; a.o.), which is in fact what Jovović suggests for the distribution of weak and strong pronouns in Serbo-Croatian.

6 Conclusion

This paper argued for a topic-deletion analysis of AE. While I focused on ellipsis of NPs, the proposal is extendable to other related phenomena. For instance, as touched upon in Section 1, it has been argued that AE can apply to CP complements (Shinohara 2006; Saito 2007; Sakamoto 2018, 2020; a.o.). The null complement of *'omou'* ('think') in (64b) can induce the sloppy reading on which Bill doesn't think that his own proposal will be adopted.

(64) a. *John$_1$-wa* [$_{CP}$ *zibun$_1$-no teean-ga saiyoosareru to*] *omotteinai.*
John-TOP self-GEN proposal-NOM is.accepted COMP not.think
'John$_1$ doesn't think that his proposal will be adopted.'

b. *Bill-mo* ___ *omotteinai.*
Bill-also not.think
'Bill$_2$ doesn't think (that his$_2$ proposal will be adopted), either.'

The literature has observed that CPs can also be topicalized (Koster 1978; Alrenga 2005; Takahashi 2010; Moulton 2013; a.o.). (65) shows that this is also the case in Japanese: the entire CP can be appended by the particle *-wa* to their right and preposed to the sentence-initial position. The proposed account can thus be extended to clausal null arguments.[18]

(65) [[$_{CP}$ *Zibun$_1$-no teean-ga saiyoosareru to*]-***wa***]$_2$ *Bill$_1$-mo* t_2 *omotteinai.*
self-GEN proposal-NOM is.accepted COMP-TOP Bill-also doesn't.think
'That his$_1$ proposal will be adopted, Bill$_1$ doesn't think either.'

It should be noted that investigation of cross-linguistic validity of the proposed account of AE in Japanese is left for future work. While I focused on Japanese in this paper, it seems that other AE languages may exhibit the same interaction with *wh*-phrases observed in

[18]The proposed account of AE may also be linked to the analysis of the so-called Particle-Stranding Ellipsis (PSE; Nasu 2012; Sato 2012; Goto 2014; Shibata 2014; Sato and Maeda 2019; a.o.), the ellipsis of an argument which leaves the associated particle stranded, as shown in (i).

(i) A: *Tanaka-kun-wa?*
Tanaka-TITLE-TOP
'How about Tanaka?'
B: ~~[*Tanaka-kun*]~~*-wa-ne, kaisya-o yameta-yo.*
Tanaka-TITLE-TOP-PRT company-ACC quit-SFP
'He quit his company.'

As observed in the literature, the null argument in PSE generally refers back to the topic of the discourse (Nasu 2012; Sato 2012; Goto 2014; a.o.): we can then assume that in (iB), Spec,TopicP is filled by the relevant element and ellipsis takes place there. If the analysis endorsed here is on the right track, we may then be able to give a comprehensive account of null argument phenomena that unifies AE, discourse *pro*-drop, and PSE under the notion of topic deletion (though the licensing of PSE is plausibly constrained by additional factors, such as adjacency to an utterance boundary; see Shibata 2014 and Sato and Maeda 2019). I leave further investigation into the connection between AE and PSE for future work.

Japanese. Evidence comes from Mandarin. (66) shows that the object position in Mandarin can give rise to sloppy readings (see also Cheng 2013).

(66) *Yuehan*$_1$ *biaoyang le* [*ziji*$_1$*-de mama*]. *Bier ye biaoyang le* ___.
John praise ASP self-GEN mother Bill also praised ASP
'John$_1$ praised his$_1$ mother. Bill$_2$ praised (his$_2$ mother), too.'

Importantly, (67) shows that a higher *wh*-phrase blocks sloppy readings in the ellipsis site in Mandarin too. In (67b), where the ellipsis site in the object is c-commanded by the subject *wh*-phrase, the target sloppy reading is not obtained.

(67) a. ***Nage nanhai***$_1$ *biaoyang le* [*ziji*$_1$*-de mama*]*?*
which boy praise ASP self-GEN mother
'Which boy$_1$ praised his$_1$ mother?'
b. *Wo zhi zhidao* [***nage nühai*** *biaoyang le* ___]
I only know which girl praised ASP
*'I only know which girl$_2$ praised (her$_2$ mother).'

It is thus a reasonable prediction that the *wh*-scope generalization for AE established in this paper is prevalent in many AE languages. Detailed cross-linguistic investigation, however, must be left for another occasion.

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. Tokyo: Kuroshio Publishers.

Alrenga, Peter. 2005. A sentential subject asymmetry in English and its implications for complement selection. *Syntax* 8:175–207.

Arregi, Karlos. 2003. Clitic left dislocation is contrastive topicalization. In *University of Pennsylvania Working Papers in Linguistics*, volume 9, 31–44.

Bošković, Željko. 2008. What will you have, DP or NP? In *Proceedings of the 37th Annual Meeting of the North East Linguistic Society (NELS)*, ed. Emily Elfner and Martin Walkow, volume 1, 101–114.

Bošković, Željko. 2011. Rescue by PF deletion, traces as (non) interveners, and the that-trace effect. *Linguistic Inquiry* 42:1–44.

Bošković, Željko. 2012. On NPs and clauses. In *Discourse and Grammar: From Sentence Types to Lexical Categories*, ed. Günther Grewendorf and Thomas Ede Zimmermann, 179–242. Berlin: Mouton de Gruyter.

Bošković, Željko. 2018. On pronouns, clitic doubling, and argument ellipsis: Argument ellipsis as predicate ellipsis. *English Linguistics* 35:1–37.

Bošković, Željko, and Daiko Takahashi. 1998. Scrambling and last resort. *Linguistic Inquiry* 29:347–366.

Bresnan, Joan. 1971. A note on the notion "identity of sense anaphora". *Linguistic Inquiry* 2:589–597.

Cardinaletti, Anna, and Michal Starke. 1999. The typology of structural deficiency: A case study of the three classes of pronouns. In *Clitics in the Languages of Europe*, ed. Henk van Riemsdijk, 145–233. New York: Mouton De Gruyter.

Cheng, Hsu-Te. 2013. Argument ellipsis, classifier phrases, and the DP parameter. Doctoral dissertation, University of Connecticut, Storrs.

Cheng, Lisa L.-S., and Hamida Demirdache. 1990. Superiority violations. In *Papers on* Wh-*Movement*, ed. Lisa L.-S. Cheng and Hamida Demirdache, MIT Working Papers in Linguistics 13. Cambridge, MA: MIT.

Chung, Sandra, William A Ladusaw, and James McCloskey. 1995. Sluicing and logical form. *Natural Language Semantics* 3:239–282.

Cinque, Guglielmo. 1986. Bare quantifiers, quantified NPs, and the notion of operator at S-structure. *Rivista di Grammatica Generativa* 11:33–63.

Constant, Noah. 2014. Contrastive topic: Meanings and realizations. Doctoral dissertation, University of Massachusetts, Amherst.

Fiengo, Robert, and Robert May. 1994. *Indices and Identity*. Cambridge, MA: MIT Press.

Fujiwara, Yoshiki. 2020. Argument ellipsis involves movement. In *Proceedings of the Fifty-fifth Annual Meeting of the Chicago Linguistic Society (CLS)*, ed. Ömer Eren, Asimina Giannoula, Sam Gray, Chi-Dat (Daniel) Lam, and Aurora Martinez del Rio, 145–160.

Fujiwara, Yoshiki. 2022. Movement approach to ellipsis in Japanese. Doctoral dissertation, University of Connecticut, Storrs.

Funakoshi, Kenshi. 2016. Verb-stranding verb phrase ellipsis in Japanese. *Journal of East Asian Linguistics* 25:113–142.

Givón, Talmy. 1983. Topic continuity in discourse: An introduction. In *Topic Continuity in Discourse: A Quantitative Cross-Language Study*, ed. Talmy Givón, 1–42. Amsterdam and Philadelphia: John Benjamins.

Goto, Nobu. 2014. A note on particle stranding ellipsis. In *Seoul International Conference on Generative Grammar (SICOGG)*, ed. Bum-Sik Park, volume 14, 78–97. Seoul: Hankuk Publishing.

Grohmann, Kleanthes K. 2006. Top issues in questions: topics - topicalization - topicalizability. In *Wh-Movement: Moving On*, ed. Lisa L.-S. Cheng and Norbert Corver, 249–288. Cambridge, MA: MIT Press.

Gundel, Jeanette K. 1980. Zero-anaphora in Russian: a case of topic-prominence? In *Papers from the Parasession on Pronouns and Anaphora*, ed. Jody Kreiman and Almerindo E. Ojeda, 139–146. Chicago Linguistic Society.

Gundel, Jeanette K. 1988. Universals of topic-comment structure. In *Studies in Syntactic Typology*, ed. Michael Hammond, Edith Moravacsik, and Jessica Wirth, 209–239. John Benjamins: Amsterdam.

Hankamer, Jorge, and Ivan Sag. 1976. Deep and surface anaphora. *Linguistic Inquiry* 7:391–428.

Heycock, Caroline. 1994. Focus projection in Japanese. In *Proceedings of the North East Linguistic Society (NELS)*, volume 24, 157–171.

Heycock, Caroline. 2008. Japanese-wa,-ga, and information structure. In *The Oxford Handbook of Japanese Linguistics*, ed. Shigeru Miyagawa and Mamoru Saito, 54–83. New York: Oxford University Press.

Hinds, John. 1983. Topic continuity in Japanese. In *Topic Continuity in Discourse: A Quantitative Cross-Language Study*, ed. Talmy Givón, 47–93. Amsterdam and Philadelphia: John Benjamins.

Hoji, Hajime. 1985. Logical form constraints and configurational structure in Japanese. Doctoral dissertation, University of Washington.

Huang, C.-T. James. 1984. On the distribution and reference of empty pronouns. *Linguistic Inquiry* 15:531–574.

Huang, C-T James. 1988. Comments on Hasegawa's paper. In *Proceedings of Japanese Syntax Workshop: Issues on Empty Categories*, ed. Wako Tawa and Mineharu Nakayama, 77–93. New London: Connecticut College.

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.

Ikawa, Hajime. 2013. What the ineligibility of wh-phrases for argument ellipsis tell us: On the inertness of phonetically null elements. In *Proceedings of GLOW in Asia IX*, ed. Nobu Goto, Koichi Otaki, Atsushi Sato, and Kensuke Takita.

Jovović, Ivana. 2020. On discourse licensing of co-indexed readings of pronouns. Talk at Formal Approaches to Slavic Linguistics (FASL) 29, May8, 2020, Seattle, Washington.

Jovović, Ivana. 2021. Competing pronouns in serbo-croatian. Poster presented at North East Linguistics Society (NELS) 52, October 29-31, Rutgers University.

Kim, Soowon. 1999. Sloppy/strict identity, empty objects, and NP ellipsis. *Journal of East Asian Linguistics* 8:255–284.

Koster, Jan. 1978. Why subject sentences don't exist. In *Recent Transformational Studies in European Languages*, ed. Samuel Jay Keyser. Cambridge, MA: MIT Press.

Koulidobrova, Elena. 2012. When the quiet surfaces: 'transfer'of argument omission in the speech of ASL-English bilinguals. Doctoral dissertation, University of Connecticut, Storrs.

Kuno, Susumu. 1973. *The Structure of the Japanese Language*. Cambridge, MA: MIT Press.

Kurafuji, Takeo. 2019. A choice function approach to null arguments. *Linguistics and Philosophy* 42:3–44.

Kuroda, Shige-Yuki. 1965. Generative grammatical studies in the Japanese language. Doctoral dissertation, Massachusetts Institute of Technology.

Landau, Idan. 2018. Missing objects in Hebrew: Argument ellipsis, not VP ellipsis. *Glossa: a journal of general linguistics* 3.

Maki, Hideki, Lizanne Kaiser, and Masao Ochi. 1999. Embedded topicalization in English and Japanese. *Lingua* 109:1–14.

Merchant, Jason. 2001. *The Syntax of Silence: Sluicing, Islands, and the Theory of Ellipsis*. Oxford: Oxford University Press.

Merchant, Jason. 2008. Variable island repair under ellipsis. In *Topics in Ellipsis*, ed. Kyle Johnson, 132–153. Cambridge, UK: Cambridge University Press.

Merchant, Jason. 2013. Diagnosing ellipsis. In *Diagnosing Syntax*, ed. Lisa L.-S. Cheng and Norbert Corver, 537–542. Oxford: Oxford University Press.

Miyagawa, Shigeru. 1987. Wa and the WH phrase. In *Perspectives on Topicalization: The Case of Japanese* Wa, ed. John Hinds, Shoichi Iwasaki, and Senko K. Maynard, 185–221. John Benjamins.

Moulton, Keir. 2013. Not moving clauses: Connectivity in clausal arguments. *Syntax* 16:250–291.

Nasu, Norio. 2012. Topic particle stranding and the structure of CP. In *Main Clause Phenomena: New Horizons*, ed. Lobke Aelbrecht, Liliane Haegeman, and Rachel Nye, 205–228. Amsterdam: John Benjamins.

Oku, Satoshi. 1998. A theory of selection and reconstruction in the minimalist perspective. Doctoral dissertation, University of Connecticut, Storrs.

Oku, Satoshi. 2016. A note on ellipsis-resistant constituents. *Nanzan Linguistics* 11:57–70.

Otani, Kazuyo, and John Whitman. 1991. V-raising and VP-ellipsis. *Linguistic Inquiry* 22:345–358.

Patel-Grosz, Pritty, and Patrick Grosz. 2017. Revisiting pronominal typology. *Linguistic Inquiry* 48:259–297.

Reinhart, Tanya. 1981. Pragmatics and linguistics: An analysis of sentence topics. *Philosophica* 27:53–94.

Rizzi, Luigi. 1990. *Relativized Minimality*. Cambridge, MA: MIT Press.

Ross, John Robert. 1969. Guess who? In *Papers from the Fifth Regional Meeting of the Chicago Linguistic Society (CLS)*, ed. Robert I. Binnick, Alice Davison, Georgia M. Green, and Jerry L. Morgan, 252–286.

Sag, Ivan. 1976. Deletion and logical form. Doctoral dissertation, Massachusetts Institute of Technology.

Saito, Mamoru. 1985. Some asymmetries in Japanese and their theoretical implications. Doctoral dissertation, Massachusetts Institute of Technology.

Saito, Mamoru. 1989. Scrambling as semantically vacuous A'-movement. In *Alternative Conceptions of Phrase Structure*, ed. Mark Blatin and Anthony Kroch. Chicago: Chicago University Press.

Saito, Mamoru. 1992. Long distance scrambling in Japanese. *Journal of East Asian Linguistics* 1:69–118.

Saito, Mamoru. 2007. Notes on East Asian argument ellipsis. *Language Research* 43:203–227.

Saito, Mamoru. 2017. Ellipsis. In *Handbook of Japanese Syntax*, ed. Masayoshi Shibatani, Shigeru Miyagawa, and Hisashi Noda, 701–750. De Gruyter Mouton.

Sakamoto, Yuta. 2016. Phases and argument ellipsis in Japanese. *Journal of East Asian Linguistics* 25:243–274.

Sakamoto, Yuta. 2017. Escape from silent syntax. Doctoral dissertation, University of Connecticut, Storrs.

Sakamoto, Yuta. 2018. Overtly empty but covertly complex. *Linguistic Inquiry* 50:105–136.

Sakamoto, Yuta. 2020. *Silently Structured Silent Arguments*. John Benjamins.

Sato, Yosuke. 2012. Particle-stranding ellipsis in Japanese, phase theory, and the privilege of the root. *Linguistic Inquiry* 43:495–504.

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. 2020. Focus mismatch under ellipsis in Japanese, polarity and head movement. Unpublished Ms.

Sato, Yosuke, and Simin Karimi. 2016. Subject-object asymmetries in Persian argument ellipsis and the anti-agreement theory. *Glossa: a journal of general linguistics* 1:1–31.

Sato, Yosuke, and Masako Maeda. 2019. Particle stranding ellipsis involves PF-deletion. *Natural Language and Linguistic Theory* 37:357–388.

Şener, Serkan, and Daiko Takahashi. 2010. Ellipsis of arguments in Japanese and Turkish. *Nanzan Linguistics* 6:79–99.

Shibata, Yoshiyuki. 2014. A phonological approach to particle stranding ellipsis in Japanese. Poster presented at Formal Approaches to Japanese Linguistics (FAJL) 7. National Institute for Japanese Language and Linguistics and International Christian University.

Shinohara, Michie. 2006. Some differences between the major deletion phenomena and Japanese argument ellipsis. Unpublished Ms., Nanzan University.

Sigurðsson, Halldór Ármann. 2011. Conditions on argument drop. *Linguistic Inquiry* 42:267–304.

Sugisaki, Koji. 2012. A constraint on argument ellipsis in child Japanese. In *Proceedings of the 36th Annual Boston University Conference on Language Development (BUCLD)*, 555–567.

Takahashi, Daiko. 2008. Quantificational null objects and argument ellipsis. *Linguistic Inquiry* 39:307–326.

Takahashi, Daiko. 2014. Argument ellipsis, anti-agreement, and scrambling. In *Japanese Syntax in Comparative Perspective*, ed. Mamoru Saito, 88–116. Oxford: Oxford University Press.

Takahashi, Shoichi. 2010. The hidden side of clausal complements. *Natural Language and Linguistic Theory* 28:343–380.

Takano, Yuji. 1998. Object shift and scrambling. *Natural Language and Linguistic Theory* 16:817–889.

Takita, Kensuke. 2011. An argument for argument ellipsis from *-sika* NPIs. In *Proceedings of the 39th Annual Meeting of the North East Linguistic Society (NELS)*, volume 3, 771–784.

Tanaka, Hidekazu. 1997. Invisible movement in sika-nai and the linear crossing constraint. *Journal of East Asian Linguistics* 6:143–188.

Tancredi, Christopher. 1992. Deletion, deaccenting, and presupposition. Doctoral dissertation, Massachusetts Institute of Technology.

Tomioka, Satoshi. 2003. The semantics of Japanese null pronouns and its cross-linguistic implications. In *The Interfaces: Deriving and Interpreting Omitted Structures*, ed. Kerstin Schwabe and Susanne Winkler, 321–339. Amsterdam: John Benjamins.

Tomioka, Satoshi. 2007. Pragmatics of LF intervention effects: Japanese and Korean Wh-interrogatives. *Journal of Pragmatics* 39:1570–1590.

Tomioka, Satoshi. 2014. Remarks on missing arguments in Japanese. In *Proceedings of Formal Approaches to Japanese Linguistics (FAJL) 7*, ed. Shigeto Kawahara and Mika Igarashi, 251–264. Cambridge, MA: MIT Working Papers in Linguistics.

Tomioka, Satoshi. 2015. Embedded *wa*-phrases, predication, and judgment theory. *Natural Language and Linguistic Theory* 33:267–305.

Tomioka, Satoshi. 2016. Information structure in Japanese. In *The Handbook of Information Structure*, ed. Caroline Féry and Shinichiro Ishihara, 753–773. Oxford: Oxford University Press.

Tsai, Wei-Tien Dylan. 1994. On economizing the theory of A-bar dependencies. Doctoral dissertation, Massachusetts Institute of Technology.

Tsao, Feng-Fu. 1977. A functional study of topic in Chinese: The first step toward discourse analysis. Doctoral dissertation, University of Southern California.

Vermeulen, Reiko. 2013. On the position of topics in Japanese. *The Linguistic Review* 30:117–159.

Williams, Edwin. 1977. Discourse and logical form. *Linguistic Inquiry* 8:101–139.