Cross-linguistic Variation in MaxElide Effects*

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1. Introduction

This paper discusses elliptic structures like (1), which is an example of VP ellipsis in English:[1]

(1) John kissed Mary, and Bill did Δ, too.

There have been two major approaches to ellipsis, under which the elided clause in (1) is derived as in (2) (see Merchant in press for a recent overview).

(2) Two Major Approaches to Ellipsis:
   a. **Ellipsis as PF-deletion** (structure present in both Syntax and LF)
      Syntax: Bill did [VP ~~kiss Mary~~], too.
      LF: Bill did [VP kiss Mary], too.
   b. **Ellipsis as LF-copying** (structure present in LF but not in Syntax)
      Syntax: Bill did [VP e / *pro*], too.
      LF: Bill did [VP kiss Mary], too.

One approach takes ellipsis to be phonological deletion (Ross 1969, Merchant 2001 among others), and the other takes it to be copying in LF (Wasow 1972, Lobeck 1995, Chung *et al*. 1995 among others). The crucial difference between the two has to do with the presence or absence of articulated structure in syntax.

The PF-deletion approach comes in two varieties, given in (3).

(3) Two Analyses of PF-deletion
   a. **Deletion in Situ** (=(2a))
      Syntax: Bill did [$_{VP}$ ~~kiss Mary~~], too.
   b. **Deletion via Movement**
      Syntax: [$_{VP}$ ~~kiss Mary~~]$_i$ Bill did t_i, too.

The first analysis with a rather long tradition simply deletes constituents where they are generated. The second, relatively new one derives ellipsis through movement, syntactic topicalization in particular, as shown in (3b) (Johnson 2001, Authier 2011 among others).

It has been observed in the literature (see Takahashi and Fox 2002, Merchant 2008) that in certain cases where we find more than one possible target for ellipsis, we need to elide as much as possible, as in (4) from English.

(4) a. *Mary was kissing someone, but I don't know who$_i$ she was [$_{VP}$ ~~kissing t_i~~].
   b. Mary was kissing someone, but I don't know who$_i$ [$_{TP}$ ~~she was [$_{VP}$ kissing t_i]~~].

Here one can in principle elide VP (see the grammaticality of (1)), or TP (sluicing, to use Ross's (1969) terminology), but the latter is the preferred choice, blocking the former. (4) represents what is known as MaxElide effects (see Merchant 2008).

The main purpose of this paper is to consider the implications that a proper analysis of MaxElide effects will have for the derivation of ellipsis. Efforts have been made to decide which of the above-mentioned analyses is the most adequate. Interestingly enough, the examination of MaxElide-related data below will lead to the conclusion that the three kinds of analyses are all correct: they just capture different aspects of elliptical constructions within a language or across languages.

This paper is organized as follows. Section 2 introduces basic data on MaxElide effects in English. It also briefly summarizes two versions of MaxElide and points out their problems. Section 3 presents an alternative account of MaxElide based on the movement account of ellipsis. It will be suggested that MaxElide can be reduced to a minimality principle. Section 4

shows that Japanese, unlike English, is not subject to MaxElide, proposing that the language uses the deletion-in-situ strategy. This curious cross-linguistic difference, I argue, is attributable to two different modes of PF-deletion: deletion in English is licensed by agreement/movement, whereas that in Japanese is licensed by selection (Abe 2018). Section 5 is a conclusion.

2. MaxElide and its Problems

Merchant (2008), circulated originally in 2001, provides the following formulation of MaxElide to capture the contrast in (4):[2]

(5) *MaxElide*
Let XP be an elided constituent containing an A'-trace. Let YP be a possible target for deletion. YP must not properly contain XP (XP $\not\subset$ YP). Merchant (2008:141)

MaxElide applies only to cases where A'-movement extracts something out of ellipsis sites. Thus (6) involving A-movement is free from the constraint.

(6) a. Mary said you would arrive, and Sue also said you$_i$ would [$_{VP}$ ~~arrive t_i~~].
b. Mary said you would arrive, and Sue also did [$_{VP}$ ~~say you$_i$ would [$_{VP}$ arrive t_i]~~].

Above, the internal argument *you* of the unaccusative verb *arrive* undergoes A-movement to the subject position (Belletti 1988 among others). Although (6b) deletes the larger constituent than (6a), the former does not block the latter.

Takahashi and Fox (2005) argue that MaxElide in (5) should be modified in such a way as to cover interpretative contrasts of the kind illustrated in (7), which Merchant's original version has nothing to say about.

(7) a. John said Mary hit him, and BILL also said she did [$_{VP}$ ~~hit him~~]. (strict/*sloppy)
b. John said Mary hit him, and BILL also did [$_{VP}$ ~~say she [$_{VP}$ hit him]~~]. (strict/sloppy)

Just as in (6), there are two possibilities of VP ellipsis in (7) involving no A'-movement. Interestingly, the interpretation of the pronoun *him* in the elided clause varies depending on how much is elided. In (7a) where the lower VP is deleted, the missing pronoun *him* can refer to *John* but cannot refer to *Bill*. In (7b) where ellipsis targets the higher VP, it can be *Bill* in addition to *John.* In other words, only (7b) permits what is known as sloppy interpretation.

To account for (7), Takahashi and Fox present (8).[3]

(8) *MaxElide*
Elide the biggest deletable constituent reflexively dominated by the PD (Parallelism Domain). (Takahashi and Fox 2005:229)

Putting details aside, (8) works in two steps. First, one needs to select a Parallelism Domain (PD). Second, one applies MaxElide to that PD. Consider the LF representations in (9)-(12) for (4), (6) and (7).

(9) someone [$_{TP}$ λy. Mary was [$_{VP}$ kissing y]], but I don't know
AC
who [$_{TP}$ λx. she was [$_{VP}$ kissing x]] (=(4))
PD

(10) a. Mary said you would [$_{VP}$ arrive], and
AC
Sue also said you would [$_{VP}$ arrive] (=(6a))
PD

b. Mary [$_{VP}$ said you would [$_{VP}$ arrive]], and
AC
Sue also did [$_{VP}$ say you would [$_{VP}$ arrive]] (=(6b))
PD

(11) a. John said Mary [$_{VP}$ hit him$_{John}$], but
AC
BILL also said she did [$_{VP}$ hit him$_{John}$]
PD

b. John [$_{VP}$ said Mary [$_{VP}$ hit him$_{John}$]], but
AC
BILL also did [$_{VP}$ say Mary [$_{VP}$ hit him$_{John}$]]
PD
(=(7) under the strict reading)

(12) John [$_{VP}$ λy. said Mary [$_{VP}$ hit y]], but
AC
BILL also did [$_{VP}$ λx. say Mary [$_{VP}$ hit x]]
PD
(=(7) under the sloppy reading)

In (9) *someone* has undergone Quantifier Raising (QR) (May 1985), and the PD is the TP which is semantically parallel to another constituent (AC) (see note 3). Having decided on the PD, one needs to elide the biggest deletable constituent, the PD itself in this case. In (10) with no bound variables, there are two deletable PDs. (11) is the representation for (7) under the strict reading. With the pronoun referring to *John*, there are two independent deletable PDs. But under the sloppy reading, the missing pronoun functions as a variable, and Partee's (1975) Derived VP Rule assigns (7) the representation in (12). Here the PD is the larger VP and it undergoes deletion. This is why the sloppy reading is not available if the smaller VP is elided.

The revised version of MaxElide can capture other kinds of interpretative contrasts related to ellipsis. Consider (13).

(13) a. At least one doctor tried to get me to arrest every patient, and at least one NURSE tried to get me to [$_{VP}$ ~~arrest every patient~~], as well.
(∃ > ∀, *∀ > ∃)
b. At least one doctor tried to get me to arrest every patient, and at least one NURSE did [$_{VP}$ ~~try to get me to [$_{VP}$ arrest every patient]~~], as well.
(∃ > ∀, ?∀ > ∃)
(Williams 2003, cited in Takahashi and Fox 2005)

In (13a) the lowest VP is deleted, whereas in (13b) the highest one is. What is noteworthy is the fact that (13a) permits only one reading in which the existential quantifier *one* (*doctor* or *nurse*) takes scope over the universal one *every patient*. On the other hand, (13b) is ambiguous between the reading available in (13a) and the one in which *every patient* takes wide scope. The LF representations for (13) under the wide scope reading of *one* are given in (14).

(14) a. one doctor tried to get me to [every patient] [λx. [VP arrest x]],
AC
and one NURSE tried to get me to [every patient] [λy. [VP arrest y]]
PD
b. one doctor [every patient] [λx. [VP tried to [get me to [arrest x]]],
AC
and one NURSE did [every patient] [λy. [VP try to get me to [arrest y]]]
PD
(=(13) under the ∃>∀ reading)

The universal quantifier undergoes QR to adjoin to VP (May 1985), and this results in the structures where the existential quantifier c-commands the universal one, leading to the relevant reading. The two PDs in (14) are indeed deletable.

Turing to the wide scope reading of *every*, its representation must be (15), where the universal quantifier has covertly raised to the position where it c-commands the existential quantifier.

(15) [every patient] [λx. [one doctor [VP tried to get me to [VP arrest x]]]],
AC
and
[every patient] [λy. [one NURSE did [VP try to get me to [VP arrest y]]]]
PD
(=(13) under the ∀>∃ reading)

This raising has the effect of expanding the PD to the entire clause, so MaxElide deletes the larger VP in this case.

It has been pointed out that there are problems even with Takahashi and Fox's MaxElide.[4] Here I mention just one problem having to do with pairs like (16a,b) whose LF representations are given in (17).

(16) a. ??Ben knows who she invited, but Charlie doesn't know who$_i$
[TP ~~she [VP invited t_i]~~].
b. Ben knows who she invited, but Charlie doesn't [VP ~~know [CP who$_i$ [TP she [VP invited t_i]]]~~].
Merchant (2008:142)

(17) a. Ben knows who [$_{TP}$ λx. she [$_{VP}$ invited x]],
AC
but Charlie doesn't know who [$_{TP}$ λy. she [$_{VP}$ invited y]]
PD (=(16a))

b. Ben [$_{VP}$ knows who [$_{TP}$ λx. she [$_{VP}$ invited x]]],
AC
but Charlie doesn't [$_{VP}$ know who [$_{TP}$ λy. she [$_{VP}$ invited y]]]
PD (=(16b))

We can see that the two instances of ellipsis actually target different PDs and thus (16a) is wrongly expected to be legitimate.

In short, the two versions of MaxElide are both empirically problematic. Merchant's version fails to capture the MaxElide effects on interpretation, whereas Takahashi and Fox's fails to explain certain examples like (16a) that Merchant's can account for. They are also theoretically problematic in the sense that they are mere descriptions of relevant facts. It is therefore desirable to explain MaxElide effects in a more principled way.[5]

3. A Movement Account of MaxElide Phenomena

Given that there is good reason to abandon MaxElide as it is, Nakamura (2016, 2017) presents an alternative account based on the movement theory of ellipsis (Johnson 2001). As noted in Nakamura (2016), MaxElide, viewed from this particular theory, is reminiscent of Chomsky's (1973) A-over-A Principle in (18).

(18) *A-over-A Principle*
If a transformation applies to a structure of the form [$_{\alpha}$... [$_{A}$...]$_{A}$ ...]$_{\alpha}$, where α is a cyclic node, then it must be so interpreted as to apply to the maximal phrase of the type A. (Chomsky 1973:235)

MaxElide and the A-over-A Principle share the intuition that an operation must apply to the largest constituent possible. It has been shown, however, that Chomsky's original version faces a number of problems (see Bresnan 1976 among others) and various authors have proposed to revise it. Müller

(2011), for instance, presents a feature-based version of the principle:

(19) *F-over-F Principle*
In a structure $\alpha_{[\bullet F \bullet]}$ ... $[\beta_{[F]}$ ... $[\gamma_{[F]}$ ...] ...] ..., movement to [●F●] can only affect the category bearing the [F] feature that is closer to [●F●].
(Müller 2011:42)

Let us assume that (19) is valid. Let us assume further following the lead of Johnson (2001) that PF-deletion in English is mediated by a species of syntactic topicalization. Now Merchant (2001:60) suggests that ellipsis is triggered by the presence of a feature, dubbed E. Adapting and extending his suggestion, suppose that the feature ET (for Elidable Topic) is assigned to the ellipsis-triggering Topic head and that elidable constituents bear the matching feature ET. I put Top(ic) P(hrase) between CP and TP, following Rizzi (1997) and others, as in (20).

(20) [CP … [TopP ... [TP ... [VP ...]]]] (Müller and Sternefeld 1993, Rizzi 1997)

With these ideas in place, we can see why MaxElide effects manifest themselves in certain limited environments. The typical example in (4) is repeated in (21).

(21) a. *Mary was kissing someone, but I don't know who$_i$ she was [VP ~~kissing t_i~~].
b. Mary was kissing someone, but I don't know who$_i$ [TP ~~she was [VP kissing t_i]~~]. (=(4))

Notice that in (21) with wh-movement leaving an A'-trace, we cannot use LF-copying with no internal structure of the elided constituent in syntax. In other words, we must use the movement strategy here. As shown in the schematic representations in (22), we have to move and delete the TP in this case, which is closer to the Topic head than the VP.

(22) a. *[CP … [TopP Top[•ET•] … [TP[ET] ... [VP[ET] ...]]]]

b. [CP … [TopP Top[•ET•] … [TP[ET] … [VP[ET] …]]]]

In (22b) the TP successfully moves to Spec of TopP to check off the ET-feature of the Top head.[6]

This account extends to (7), (13), and (16) exhibiting MaxElide effects, repeated in (23), (24), and (25), respectively.

(23) a. *John said Mary hit him, and BILL also said she did [VP ~~hit him~~].
b. John said Mary hit him, and BILL also did [VP ~~say she [VP hit him]~~].
(=(7) under the sloppy interpretation)

(24) a. *At least one doctor tried to get me to arrest every patient, and at least one NURSE tried to get me to [VP ~~arrest every patient~~], as well.
b. ?At least one doctor tried to get me to arrest every patient, and at least one NURSE did [VP ~~try to get me to [VP arrest every patient]~~], as well.
(=(13) under the ∀ > ∃ interpretation)

(25) a. ??Ben knows who she invited, but Charlie doesn't know who_i [TP ~~she [VP invited t_i]~~].
b. Ben knows who she invited, but Charlie doesn't [VP ~~know [CP who$_i$ [TP she [VP invited t_i]]]~~]. (=(16))

What is common among these examples, I suggest, is that they all require the elided constituents to have fully articulated syntactic structure and therefore have to undergo movement. That is obvious with (25) with overt wh-movement. The sloppy reading in (23) requires the presence of a pronominal variable. I maintain that that is impossible with LF-copying, which I assume literally copies the exact interpretation in the antecedent clause: certainly, LF-copying would be able to handle sloppy identity but only by introducing additional mechanisms. The wide scope reading of the universal quantifier in (24) requires the actual presence of the quantifier within the ellipsis site, otherwise there would be no way for it to undergo QR to c-command the existential quantifier. The simple copying would trap the universal quantifier

within the elided constituent with no chance of scoping over the existential quantifier, leading to the narrow reading of the universal quantifier.

As pointed out by Nakamura (2017), the alternative account paves the way for answering the fundamental question of why Merchant's MaxElide must refer to an A'-trace. The example in (6) is repeated below.

(26) a. Mary said you would arrive, and Sue also said you$_i$ would [$_{VP}$ ~~arrive t_i~~].
b. Mary said you would arrive, and Sue also did [$_{VP}$ ~~say you$_i$ would [$_{VP}$ arrive t_i]~~]. (=(6))

The question is: why is it that (26a) does not have to use the movement strategy? If it did, it would necessarily be blocked by (26b) moving and eliding the larger VP.

Lasnik (1999) and others have argued for the following thesis:

(27) A-movement does not leave a trace.

Given (27), one can use an empty pronominal or VP in (26a) and the relevant θ-information can be obtained after copying at LF.

It is worth noting that the copying strategy is indeed available in English. It can be used when the use of the other movement-and-deletion strategy is not forced.[7]

To wrap up this section, the movement theory of ellipsis allows us to reduce MaxElide to a minimality constraint. MaxElide effects are observed in cases where ellipsis targets full-fledged syntactic structure, which must undergo movement in English. In other cases of ellipsis, there is an option of using an empty element whose content is identified through direct copying at LF.

4. Cross-linguistic Variation

4.1. Absence of MaxElide Effects

Let us now examine some data pertaining to ellipsis in Japanese. I will show that in sharp contrast with English, Japanese does not exhibit any

MaxElide effects.

Japanese has clausal ellipsis, as in (28), where the clausal complement of *itta* or 'said' gets deleted (see Tanaka 2008 among others).[8]

(28) Taroo-wa [CP Hanako-ga hon-o yonda to] itta.
Taro-TOP Hanako-NOM book-ACC read C said
Ziroo-mo Δ itta.
Ziro-also said
Lit. 'Taro said that Hanako read a book. Ziro also said.'

(28) is an instance of CP ellipsis.[9] In addition, it has been argued that the language has verb-stranding VP ellipsis. Funakoshi (2016) presents the generalization in (29), which can be explained by positing VP ellipsis.

(29) In Japanese, an adjunct can be null only if the clause-mate object (or other VP-internal elements), if any, is also null.
Funakoshi (2016:117)

(30) is an example of VP ellipsis. As illustrated in (31), the verb moves out of the VP and the VP containing the manner adverb and the object undergoes deletion.

(30) Bill-wa teineini kuruma-o aratta kedo,
Bill-TOP carefully car-ACC washed but
John-wa Δ arawanakatta.
John-TOP washed.NEG
(intended) 'Bill washed a car carefully, but John didn't wash a car carefully.'

(31) John [VP ~~carefully car t_i~~] washed_i-not (=(30))

Given that Japanese has both CP ellipsis and VP ellipsis, it offers a testing ground for the universality of MaxElide. Consider the sluicing example in (32) (see Takahashi 1994 and Hiraiwa and Ishihara 2002 among numerous others).

(32) Taroo-ga nanika-o katta ga,
Taro-NOM something-ACC bought but
boku-wa [[$_{FocP}$ nani-o$_i$ [$_{CP}$ ~~kare-ga t_i katta no~~] da] ka] sira-nai.
I-TOP what-ACC he-NOM bought C COP Q know-NEG
'Taro bought something, but I don't know what.'

Here the wh-word *nani* 'what' undergoes focus movement, leaving an A'-trace in the elided clause (Hiraiwa and Ishihara 2002). It must be then that (32), like its English counterpart, is derived by PF-deletion. Now compare the examples in (33).

(33) a. Taroo-ga sugoi ikioi-de dareka-ni booru-o nagetuketa
Taro-NOM great velocity-with someone-DAT ball-ACC threw
rasii ga, boku-wa dare-ni$_i$ [$_{CP}$ kare-ga/*pro* [$_{VP}$ ~~sugoi ikioi-de t_i~~
it-seems but I-TOP who-DAT he-NOM great velocity-with
~~booru-o t_j~~] nagetuketa$_j$ no] da ka sira-nai. **(VP ellipsis)**
ball-ACC threw C COP Q know-NEG
Lit. 'It seems Taro threw a ball to someone at high velocity, but I don't know who he threw.'

b. Taroo-ga sugoi ikioi-de dareka-ni booru-o nagetuketa
Taro-NOM great velocity-with someone-DAT ball-ACC threw
rasii ga, boku-wa dare-ni$_i$ [$_{CP}$ ~~kare-ga sugoi ikioi-de t_i~~
it-seems but I-TOP who-DAT he-NOM great velocity-with
~~booru-o nagetuketa no~~] da ka sira-nai. **(CP ellipsis)**
ball-ACC threw C COP Q know-NEG
'It seems Taro threw a ball to someone at high velocity, but I don't know who.'

They share the same antecedent clause, but they differ in that (33a) involves VP ellipsis, whereas (33b) involves sluicing or CP ellipsis. In blunt violation of MaxElide, (33b) does not block (33a) (unlike English (21b) blocking (21a)). Data like (33) indicate that Japanese is free from MaxElide.

This observation is further supported by (34), which shows that unlike its English counterpart in (23), MaxElide has no impact on the availability of sloppy interpretation.

(34) a. John-wa Mary-ga kibisiku zibun-no titioya-o hihansita
John-TOP Mary-NOM harshly self-GEN father-ACC criticized
to itta si, Bill-mo [CP kanozyo-ga/*pro* [VP ~~kibisiku zibun-no~~
C said and Bill-also she-NOM harshly self-GEN
~~titioya-o t_i~~] hihansita$_i$ to] itta. **(VP ellipsis)**
father-ACC criticized C said
Lit. 'John said that Mary criticized self's father harshly, and Bill also said that she criticized.' (strict/sloppy)

b. John-wa Mary-ga kibisiku zibun-no titioya-o hihansita
John-TOP Mary-NOM harshly self-GEN father-ACC criticized
to itta si, Bill-mo [CP ~~kanozyo-ga kibisiku zibun-no titioya-o~~
C said and Bill-also she-NOM harshly self-GEN father-ACC
~~hihannsita to~~] itta. **(CP ellipsis)**
criticized C said
Lit. 'John said that Mary criticized self's father harshly, and Bill also said.' (strict/sloppy)

As expected, both (34a) with VP ellipsis and (34b) with CP ellipsis allow the strict reading where the (long-distance) reflexive pronoun *zibun* 'self' within the elided constituent is bound by *John*.[10] What is noteworthy is that not only (34b) but also (34a) permits the sloppy reading where the missing *zibun* can be construed as *Bill*.

Furthermore, (35) below shows that MaxElide is extraneous to scope interactions in Japanese. (35b) with CP ellipsis is ambiguous. Under the narrow scope reading of *dake* 'only,' it means that Bill thinks Mary ate not only fish but also other things raw. Under the wide scope reading of the focus particle, it means that Bill thinks that fish is the only thing that Mary did not eat raw.

(35) a. Boku-wa [CP Mary-ga namade sakana-dake-o tabeta to]
I-TOP Mary-NOM raw fish-only-ACC ate C
omowa-nai si, Bill-mo [CP kanozyo-ga/*pro* [VP ~~namade~~
think-NEG and Bill-also she-NOM raw
~~sakana-dake-o t_i~~] tabeta$_i$ to] omowa-nai.
fish-only-ACC ate C think-NEG **(VP ellipsis)**
Lit. 'John doesn't think that Mary ate only fish raw, and Bill also doesn't think that she ate.' (?NEG > only, only > NEG)

b. Boku-wa [CP Mary-ga namade sakana-dake-o tabeta to]
I-TOP Mary-NOM raw fish-only-ACC ate C
omowa-nai si, Bill-mo ~~[CP kanozyo-ga [VP namade~~
think-NEG and Bill-also she-NOM raw
~~sakana-dake-o t_i] tabeta$_i$ to]~~ omowa-nai.
fish-only-ACC ate C think-NEG **(CP ellipsis)**
Lit. 'John doesn't think that Mary ate only fish raw, and Bill also doesn't think.' (NEG > only, only > NEG)

The ambiguity persists even if we elide the smaller constituent containing the *dake*-marked object, namely, the VP, as in (35a).[11] Again, Japanese is different from English in this respect (compare (35) with (24)).

Finally, (36) is the Japanese counterpart of English (25).

(36) a. John-wa senmeini Mary-ga dare-o syootaisita ka
John-TOP clearly Mary-NOM who-ACC invited Q
oboeteiru ga, Bill-wa [VP ~~senmenini dare-o$_i$ [CP kanozyo-ga t_i~~
remember but Bill-TOP clearly who-ACC she-NOM
~~syootaisita no] da ka t_j]~~ oboetei$_j$-nai. **(VP ellipsis)**
invited C COP Q remember-NEG
Lit. 'John remembers clearly who Mary invited, but Bill doesn't remember.'

b. John-wa senmeini Mary-ga dare-o syootaisita ka
John-TOP clearly Mary-NOM who-ACC invited Q
oboeteiru ga, Bill-wa senmenini dare-o$_i$ [CP ~~kanozyo-ga t_i~~
remember but Bill-TOP clearly who-ACC she-NOM
~~syootaisita no~~] da ka oboetei-nai. **(CP ellipsis)**
invited C COP Q remember-NEG
Lit. 'John remembers clearly who Mary invited, but Bill doesn't remember clearly who.'

MaxElide incorrectly rules out (36b), which involves ellipsis of the clausal complement, smaller than the matrix VP elided in (36a). All the Japanese data in (33)-(36) point to the conclusion that MaxElide is not operative in Japanese.

4.2. Discussion

Having established that Japanese fails to exhibit MaxElide effects, let us

now ask why it differs from English in this respect. There are two possibilities worth exploring.

One possibility is that the for some reason, Japanese is not subject to the kind of minimality captured by the F-over-F Principle, which I suggested replaces MaxElide.[12] If this is true, the irrelevance of MaxElide to Japanese follows automatically.

There are conceptual and empirical reasons to believe that it is unlikely. Conceptually, it is surely undesirable to parameterize a minimality principle, which has proved very useful in explaining a wide variety of locality phenomena in natural language (see for example Rizzi 1990, Müller 2011). Empirically, there have been arguments that Japanese does obey the F-over-F principle. Observe (37).

(37) a. Taroo-ga John-ni [$_{CP}$ Mary-ga [$_{DP}$ unagi-o] tabeta to] itta.
Taro-NOM John-DAT Mary-NOM eel-ACC ate C said
'Taro said to John that Mary ate eel.'
b. [$_{DP}$ unagi-o]$_i$ Taroo-ga John-ni [$_{CP}$ Mary-ga t_i tabeta to] itta.
eel-ACC Taro-NOM John-DAT Mary-NOM ate C said
Lit. '[Eel]$_i$, Taro said to John that Hanako ate t_i.'
c. Taroo-ga [$_{CP}$ Mary-ga [$_{DP}$ unagi-o] tabeta to]$_i$ John-ni t_i itta.
Taro-NOM Mary-NOM eel-ACC ate C John-DAT said
Lit. 'Taro said [that Hanako ate eel]$_i$ to John t_i.'

As is well known, Japanese permits scrambling (Saito 1985). (37b,c) are scrambled versions of (37a). DPs and CPs can undergo interclausal as well as intraclausal scrambling. In (37b) the object of the verb *tabeta* 'ate' has scrambled long-distance to the top of the sentence, whereas in (37c) the embedded clause has undergone clause-internal scrambling.

It has been pointed out that scrambling in Japanese is constrained by the Proper Binding Condition (PBC), which demands that traces be bound (Fiengo 1977). Consider the following examples of multiple scrambling:

(38) a. [$_{DP}$ unagi-o]$_j$ Taroo-ga [$_{CP}$ Mary-ga t_j tabeta to]$_i$ John-ni t_i itta.
eel-ACC Taro-NOM Mary-NOM ate C John-DAT said
Lit. '[Eel]$_j$ Taro said [that Hanako t_j ate]$_i$ to John t_i.'

b. *[$_{CP}$ Mary-ga t_i tabeta to]$_j$ Taroo-ga [$_{DP}$ unagi-o]$_i$ John-ni t_j itta.
Mary-NOM ate C Taro-NOM eel-ACC John-DAT said
Lit. '[That Hanako t_j ate]$_i$ Taro said [eel]$_j$ to John t_i.'

Both (38a) and (38b) involve two instances of scrambling but they differ markedly in their grammaticality. In well-formed (38a) the embedded CP undergoes scrambling first, followed by the scrambling of the object DP *unagi* 'eel' out of the scrambled CP. In ill-formed (38b), on the other hand, it is the DP that scrambles first, followed by the remnant movement of the embedded CP to the sentence-initial position. Notice that the embedded CP in (38b) contains an unbound trace, namely, the trace of the object, in violation of the PBC.

Kitahara (1997), based on Müller (1996), argues that data like (38b) can be accounted for without recourse to the PBC. Suppose, as some researchers have claimed (see Miyagawa (2017) for recent discussion), that scrambling in Japanese is feature-driven. At some point in the derivation of (38), we have the following structure (the feature ST stands for Scrambled Topic):

(39) a. [$_{TopP}$ Top$_{[\bullet ST \bullet]}$ … [$_{CP[ST]}$ ... [$_{DP[ST]}$]…]]

b. *[$_{TopP}$ Top$_{[\bullet ST \bullet]}$ … [$_{CP[ST]}$ ... [$_{DP[ST]}$]…]]]

The F-over-F Principle dictates that in (39) the CP must undergo movement, banning movement of the DP. In other words, it is simply impossible to derive (38b). Once the feature of the CP is erased, the DP within the CP becomes eligible as a target for scrambling. This is why (38a) is permitted.

It seems reasonable then to abandon the idea that the F-over-F Principle does not apply to Japanese.

The other possibility, which I would like to pursue here, is that PF-deletion in Japanese, unlike its counterpart in English, does not involve movement. Rather, it is executed without any movement, as in the theory defended by Merchant (2001) and others. If this is so, the F-over-F Principle

applies only vacuously to Japanese PF-deletion and the lack of MaxElide effects in Japanese comes as no surprise.

In order for this contention to be viable, we need to find evidence that Japanese utilizes a totally different mode of licensing from English when it comes to PF-deletion. There is an obvious indication that Japanese and English differ in this respect: only the former allows argument ellipsis (Oku 1998, Takahashi 2008 among others). We have already seen above in (34b) and (35b) that clausal arguments can be phonologically deleted. Consider the following examples:

(40) Speaker A: Taroo-wa zibun-no haha-o aisiteiru.
Taro-TOP self-GEN mother-ACC love
Lit. 'Taro loves self's mother.'
Speaker B: a. Jiroo-wa Δ kiratteiru.
Jiro-TOP hate
Lit. 'Jiro hates.' (strict/sloppy)
b. Jiroo-wa kanozyo-o kiratteiru.
Jiro-TOP her-ACC hate
'Jiro hates her.' (strict/*sloppy)

Assume that (40a,b) are uttered in response to Speaker A's statement. (40a) is ambiguous between the strict interpretation where Jiro hates Taro's mother and the sloppy interpretation where he hates his own mother. In contrast, (40b) with the overt pronoun *kanozyo* 'her' permits only the strict reading. The availability of the sloppy reading in (40a) suggests that the null object is more than a mere empty pronoun and can arise as a result of PF-deletion. Notice that (40a) cannot be an instance of verb-stranding VP ellipsis. This is because the verbs used by Speaker A and Speaker B are distinct.[13]

The literature contains a variety of proposals on how to capture the cross-linguistic difference between English and Japanese with respect to argument ellipsis (Abe 2018, Oku 1998, Saito 2007, Takahashi 2008 among others). Although their details differ, they share the intuition that the difference stems from the presence/absence of grammatical agreement (see Kuroda 1988).

Here I adopt Abe's (2018) theory, which seems most promising. Abe

claims that selectional relations such as θ-relations, categorial selections, subject-predicate and modifier-predicate relations suffice to license ellipsis in Japanese.[14] His approach immediately explains why argument ellipsis, whether it targets DPs or CPs, is possible in Japanese. It can cover a wide range of elliptical constructions in Japanese which other approaches cannot. For instance, Abe discusses examples similar to (41), which he calls Predicate Ellipsis.

(41) Taroo-ga zibun-no kodomo-o sikatta ra, Jiroo-mo Δ.
Taro-NOM self-GEN child-ACC scold and Jiro-also
Lit. 'Taro scolded self's child, and also Jiro. (strict/sloppy)

In (41) the predicate in the second conjunct goes missing (see Abe's work for arguments that (41) is not an instance of VP ellipsis). Note that (41) permits sloppy identity, under which Jiro scolded his own child, not Taro's. This indicates that Predicate Ellipsis is a genuine case of deletion. Its licensing does not involve agreement. According to Abe, the ellipsis site in (41) is licensed by the topic *Jiro-mo* under topic-comment relationship.

We can add Particle Stranding Ellipsis (PSE) (Sato and Maeda 2018) to the list of ellipsis constructions in Japanese that have so far resisted a unified account. An example of PSE is given in (42) (taken from Sato and Maeda 2018).

(42) Speaker A: Zibun-no hahaoya-o Hanako-wa sonkeisitei-masu.
self-GEN mother-ACC Hanako-TOP respect-POL
Lit. 'Hanako respects self's mother.'
Speaker B: a. Δ wa, Taroo-wa sonkeisitei-masen.
TOP Taro-TOP respect-PL.NEG
Lit. 'Taro doesn't respect.' (strict/sloppy)
b. Kanozyo-wa, Taroo-wa sonkeisitei-masen.
she-TOP Taro-TOP respect-PL.NEG
Lit. 'Her, Taro doesn't respect.' (strict/*sloppy)

In (42) Speaker B responds to Speaker A in two ways. In (42a) the topic DP

zibun-no hahaoya 'self's mother' gets deleted, stranding the topic marker *wa*. In (43b) the overt pronoun *kanozyo* 'her' is used with the topic marker attached to it. As pointed out by Sato and Maeda (2018), only (42a) permits a sloppy interpretation, indicating that PSE in fact arises as a result of deletion.[15]

Particles other than the topic marker can license ellipsis. For instance, inherent case markers such as *kara* 'from' allow their associated DPs to be deleted, as illustrated in (43).

(43) Speaker A: Zibun-no yuuzin-kara Jiroo-wa okane-o karita yo.
self-GEN friend-from Jiro-TOP money-ACC borrowed PRT
Lit. 'Jiro borrowed money from self's friend."
Speaker B: a. Δ Kara boku-mo *pro* karirareruto iinoni.
from I-also able.to.borrow how.good
Lit. How good it would be if I also can borrow from!'
(strict/sloppy)
b. Kare-kara boku-mo *pro* karirareruto iinoni.
he-from I-also able.to.borrow how.good
Lit. How good it would be if I also can borrow from him!'
(strict/*sloppy)

The interpretative contrast in (43) is familiar by now. Sloppy reading is possible with (43a) where the DP *zibun-no yuuzin* 'self's friend' goes missing, but not with (43b) where *kara* attaches to the overt pronoun *kare* 'he.'

Abe (2018) does not consider PSE, but his proposal can handle it easily: the licensing of PSE in (42) and (43) is possible due to the selectional relation that holds between the particle and the element associated with it.

We can begin to understand why ellipsis in Japanese does not involve movement if we adopt Abe's theory, according which ellipsis in the language is made possible by selection. Selectional relations, represented by θ-marking, are established without movement. In the present context, Japanese is supposed to lack the ET feature which triggers movement of constituents to be deleted.

In English, ellipsis is licensed by agreement (Lobeck 1995). The present analysis assumes along the lines of Johnson (2001) that phonological deletion

of articulated structure in English calls for its movement. From this perspective, the necessity of agreement can be viewed as an identification requirement on a trace or a copy left by movement. It may be that English, as a subject-prominent language, needs to mark elidable constituents as topics using the ET feature. Japanese, on the other hand, is a topic-prominent language, in which topicalization does not require movement: for instance, all kinds of things can be topics just by attaching the topic marker *wa* to them.

Thus, there seems to be a fundamental parametric difference between English and Japanese in terms of deletion: the former language uses movement, whereas the latter language uses selection without movement. It follows from this difference that MaxElide effects, which I suggested are governed by a minimality principle, the F-over-F Principle in particular, imposed on movement, are observable in English, but not in Japanese.[16]

5. Concluding Remarks

Based on the comparison between English and Japanese in terms of constructions where one finds multiple possibilities of ellipsis, this paper has demonstrated that there exists cross-linguistic variation regarding MaxElide effects. English is subject to MaxElide (Takahashi and Fox 2002, Merchant 2008), whereas Japanese is not. I argued that the different methods of licensing ellipsis employed by these languages are responsible for the variation: PF-deletion in English requires movement, while that in Japanese does not, licensed by selection (Abe 2018).

To the extent that the present analysis of MaxElide phenomena proves tenable, it has interesting implications for the derivation of ellipsis in general.

At the outset of this paper, I mentioned the three competing approaches to ellipsis. The discussion here implies that none of them is wrong: they capture different characteristics of ellipsis and collaborate to help us understand this intriguing property of natural language. When articulated syntactic structure gets deleted phonologically, two strategies are available: you can delete it either with movement, as in English, or without movement, as in Japanese. In addition to PF-deletion, Universal Grammar offers the option of using LF-copying, especially in linguistic environments where the

movement strategy fails. LF-copying, however, puts severe semantic restrictions on the interpretation of the ellipsis site. It literally copies the relevant structure in the antecedent clause without any chance of alteration.

Admittedly, there are many loose ends to tie up. For example, questions remain about the exact mechanisms involved in legitimate extraction out of ellipsis sites in English (see note 6). Furthermore, it remains to be seen whether the proposed account extends to languages other than English and Japanese: does the dichotomy between agreement-based deletion and selection-based deletion correlate fully with the presence or absence of MaxElide effects? I hope to address these and related issues in the future.

Notes

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1. I disregard the distinction between VP and *v*P and use the term VP uniformly in this paper.
2. This section is based largely on Nakamura (2016, 2017).
3. Reflexive domination in (8) is defined as follows:

(i) XP reflexively dominates YP if XP dominates YP or XP = YP.

The notion of Parallelism Domain is characterized as in (ii) and (iii).

(ii) For ellipsis of EC [elided constituent] to be licensed, there must exist a constituent, which reflexively dominates EC, and satisfies the parallelism condition in (iii). [Call such a constituent a *Parallelism Domain (PD)*.]
(iii) PD satisfies the parallelism condition if PD is *semantically identical to another constituent AC, modulo focus-marked constituents*.

(iii) takes into consideration the kind of impact that focus has on ellipsis

extensively discussed by Schuyler (2001).
4. See Nakamura 2017 for relevant discussion.
5. There have been attempts to derive MaxElide from some principle of grammar. Nakamura (2016) demonstrates that two previous analyses based on Economy (Funakoshi 2012 and Messick and Thoms 2016) are defective both empirically and theoretically.
6. This analysis immediately raises questions regarding the legitimate derivation in (22b). First, is it possible to move TP in the first place? Abels (2003) argues that it is not, citing such examples as (i).

(i) *[$_{TP}$ John is a fool], Mary told herself that *t* at least twice a day.

(i) shows that TP cannot be topicalized. The ill-formedness of (i), however, can be attributed to some factor (such as a *that*-trace effect) other than movement itself. In addition, Nakamura (2009) claims that categories (such as English VP) that resist overt movement can in fact undergo movement if they are phonologically empty. Then it would be reasonable to think that the TP in (22b), marked with the ET-feature and hence eventually deleted phonologically, is able to move.

Assuming that the TP in question is movable, the second question is: how is it possible for the wh-phrase to move out of the moved TP? It is impossible to extract out of topicalized phrases in English, as shown in (ii) (Corver 2017).

(i) *Whose books$_i$ do you think that [reviews of t_i]$_j$ John never reads t_j?

Again, the crucial difference between (22b) and (ii) has to do with ellipsis (see Schuyler 2001 for English examples where wh-movement can take place out of elided VP). Bošković (2018:262) argues for the following generalization:

(iii) Phases that host successive-cyclic movement (at their edge) cannot undergo movement.

It is likely that (iii) is true only of extraction out of overtly moved elements because (a) non-phases can undergo movement if phonologically null (Nakamura 2009) and (b) movement within an elided constituent can be non-successive-cyclic (Fox and Lasnik 2003). Therefore, I assume that the proposed wh-extraction out of the TP in (21b) is legitimate.

Another question regarding (22b) is: what will happen to the ET-feature

of VP? I simply assume that it gets deleted after the TP moves to Spec of TopP either by being checked by the Top head (multiple checking) or by raising (and deleting) the VP (multiple Specs).

In order to account for (21) and (16), repeated in (25) below, it is crucial that topicalization in question is triggered by root Top located higher than T. Noting that VP ellipsis and VP topicalization do not have the same distributional properties, Aelbrecht and Haegeman (2012) allude to the possibility, which I reject here, that topicalization in VP ellipsis can be movement to the periphery of (non-root) *v*P. I speculate that VP ellipsis is freer in its distribution simply because it can utilize LF-copying.

7. I leave open the question of whether the copying strategy is a last resort in the sense that it is less economical than the movement-and-deletion strategy.

8. The abbreviations used in the English glosses are as follows:

ACC-accusative	C-complementizer	COP-copula
DAT-dative	GEN-genitive	NEG-negative
NOM-nominative	POL-polite	PRT-particle
Q-question marker	TOP-topic	

9. Notice that unlike English, Japanese permits ellipsis of a [-WH] clausal complement. It also has what is known as argument ellipsis (see Oku 1998 among numerous others), which does not exist in English. See below for some discussion.

10. (34) has the irrelevant strict reading under which *zibun* is bound locally by *Mary*.

11. The narrow scope reading of *dake* might be harder to get in (35a) than in (35b). It appears that the string *tabeta to omowa-nai* 'doesn't think ate' in (35a) somehow favors the wide scope reading of *dake*.

12. Thanks to Satoshi Oku (personal communication) for reminding me of this possibility.

13. Subjects can also undergo deletion in Japanese, which clearly argues for the presence of argument ellipsis in the language. See Oku 1998 for relevant discussion. He demonstrates that adjuncts cannot undergo ellipsis even in Japanese.

14. Abe (2018) remains neutral as to whether ellipsis is derived through PF-deletion or LF-copying. Some of his specific analyses (for example, his analysis of sluicing) are incompatible with the present paper but his proposed mechanism of ellipsis licensing can be used fruitfully in discussing ellipsis phenomena in Japanese in general.

15. In full accord with the present analysis, Sato and Maeda (2018) argue that PSE involves PF-deletion.

16. Examining some English data that are problematic for Takahashi and Fox's (2005) MaxElide, Griffiths (to appear) maintains that it should be discarded in favor of a more restrictive version of their Parallelism condition (see note 3). His analysis does not go against mine. Instead, they nicely supplement each other: in order for ellipsis to be successful, it must satisfy both the licensing condition, which this paper has dealt with, and the Parallelism condition.

Griffiths discusses two kinds of counterexamples to MaxElide: those which it overgenerates and those which it undergenerates. The former do not pose a problem for the present proposal: they are fine as far as the licensing condition is concerned but are ruled out by Parallelism considerations. The latter are potentially problematic because they must satisfy both of the conditions. The following example is a case in point (taken from Griffiths to appear):

(i) I know which GIRL he kissed, but not [which BOY]$_i$ he did [~~kiss t_i~~].

Takahashi and Fox's MaxElide wrongly predicts that (i) is ruled out because it dictates that one must have sluicing in (i). At first glance, the proposed analysis may seem to suffer from the same error.

The analysis put forth here (and in fact Merchant's (2008) MaxElide) can handle examples like (i). It is important to realize that the wh-phrases in (i) are D(iscourse)-linked in the sense of Pesetsky (1987). The role that D-linking may play in ellipsis has been pointed out by Parker and Seely (2010). We know that D-linked elements behave differently from non-D-linked ones when it comes to syntactic dependencies: they do not obey locality constraints on movement such as the superiority condition (see Pesetsky 1987). It is reasonable then to assume that the wh-dependencies in (i) do not result from movement. Rather, they arise via binding. This means that there is no A'- trace in the ellipsis site in (i), as in (26)(=(6))), and therefore we can use LF-copying, which is in no way subject to MaxElide. Other alleged counterexamples can probably be handled in a similar manner, but I will not undertake the task here.

Note that the Parallelism condition presented by Griffiths (to appear) does not explain cross-linguistic discrepancies in terms of MaxElide effects. This is only natural because the condition, being semantic in nature, is supposed to be universal. In the case of ellipsis, the locus of parameterization is its licensing condition.

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