

ON NULL ARGUMENTS AND PHI-FEATURES IN SLA: A PRELIMINARY STUDY*

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1. Introduction

Since the 1970s, it has been widely accepted that Japanese is one of the *pro-drop* languages. For example, (1) is perfectly acceptable if an appropriate context is given.

- (1) Tabeta(-yo).
ate (-ending particle)

‘(The person(s) under consideration) ate (the dish(es) under consideration).’

If someone asks what Hanako did to the cookies that she made, we can answer the question by uttering the one word in (1), meaning she ate them, although this “sentence” does not contain any overt pronoun. Sentences like (1) thus show that Japanese null arguments behave like pronouns (Perlmutter 1972).

However, the recent development of Japanese syntax reveals that Japanese null arguments do not quite correspond to pronouns. One of the characteristics of overt pronouns is that they do not allow sloppy reading, which follows from the characteristic of pronouns in that they refer to the entities already salient in the discourse. For example, following (2a), (2b) is unambiguous, meaning that Mary also saw John’s picture. Crucially, this sentence does not mean that Mary also saw the picture of herself.

- (2) a. John saw the picture of himself.
b. Mary saw it, too.

Likewise, as Oku (1998) observes, null subjects only allow strict reading in *pro-drop* languages like Spanish. Consider (3).

- (3) a. Maria cree [que su propuesta sera aceptada] y
Mary believes that her proposal will-be accepted and

‘Mary believes that her paper will be accepted, and’

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- b. Juan tambien cree [[e] sera aceptada].
 Juan too believe will-be accepted

‘Juan also believes that [e] will be accepted.’

(3b) only means that Juan also believes that Maria’s paper will be accepted, and it lacks the sloppy reading which would describe the situation in which Juan also believes that his own paper will be accepted. This shows that the null subject in (3b) is pronominal in nature.

Given this observation, as noted by Oku (1998), it is quite surprising that Japanese null arguments permit both strict and sloppy readings if Japanese null arguments are also pronominal. Consider (4):

- (4) a. Mary-wa [jibun-no ronbun-ga saiyoosareru]-to omotteiru.
 Mary-TOP self-GEN paper-NOM will be accepted-that think

‘Mary thinks that her paper will be accepted.’

- b. John-mo [[e] saiyoosareru]-to omotteiru.
 John-also will be accepted-that think

‘John also thinks that [e] will be accepted.’

As a continuation to (4a), (4b) can mean that John also thinks that Mary’s paper will be accepted. In addition, this example can also describe the situation in which John also thinks that his own paper will be accepted. The presence of the latter reading in (4b) thus shows that Japanese null arguments have properties different from those of null subjects in *pro-drop* languages.

Another property that differentiates Japanese null arguments from null subjects in languages like Spanish is the availability of what Takahashi (2008) calls “quantificational reading.” Consider (5a, b).

- (5) a. Hanako-wa taitei-no sensei-o sonkeishiteiru.
 Hanako-TOP most-GEN teacher-ACC respect

‘Hanako respects most teachers.’

- b. Taroo-mo [e] sonkeishiteiru.
 John-also respect

‘Taroo respects [e], too.’

(5b), which follows (5a), is ambiguous. It can describe the situation in which Taroo respects those teachers whom Hanako respects. It can also mean that Taroo respects a set of teachers which can be different from a set of teachers whom Hanako respects. This is an instance of

quantificational reading. Notice that the former reading, but not the latter, can be readily accommodated under the assumption that the null object in (5b) is a null pronoun due to the lack of the relevant entities already introduced in the discourse. Again, Japanese null arguments behave differently from null subjects in *pro-drop* languages. In the literature, Japanese null arguments have been called “argument ellipsis (AE)” in order to tell them apart from null pronouns in so-called *pro-drop* languages.

In the field of language acquisition, one of the fundamental questions arising from the contrast between Japanese AE and Spanish null subjects is how Japanese AE is acquired in the course of language development. Does it follow the same developmental steps as those that Spanish null arguments follow? In the field of second language acquisition, it has been observed that in the course of English acquisition, null arguments “disappear” earlier in the grammar of Japanese EFL learners than in the grammar of EFL learners of European *pro-drop* languages (White 1985, Lakshmanan 1991, Wakabayashi 2002, among others). If Japanese null arguments are not null pronouns, in contrast to null subjects in *pro-drop* languages, this developmental difference between them may not be too surprising.

This paper deals with the (un)learning of null arguments in the grammar of Japanese EFL learners and JFL learners of *non-pro-drop* languages and aims to contribute to issues surrounding (un)learning AE in SLA. We report on experimental results showing that Japanese EFL learners can ultimately “unlearn” AE in their English grammar by the advanced level, while AE is very difficult, if not impossible, to learn for JFL learners of European *non-pro-drop* languages. We explain why this is the case under Ishino’s (2012) framework, which is modified by Miyamoto (2012).

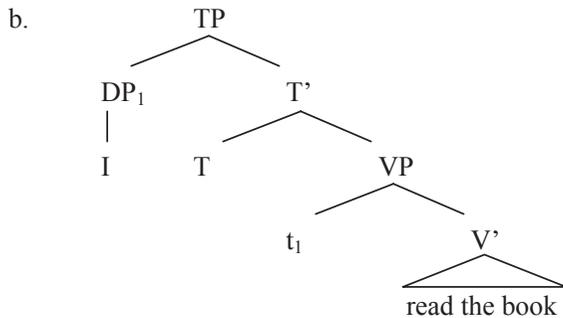
For this purpose, this paper is organized as follows. Following this introduction, Section 2 introduces Wakabayashi’s early minimalist account on the contrast between Japanese and Spanish EFL learners with respect to when they stop using null arguments in their target language, and also points out remaining issues under his proposal. Section 3 turns to Saito’s (2007) proposal on null arguments, based on the absence of phi-feature agreement in Japanese. Section 4 reviews Ishino’s (2012) phi-feature-based model on second language acquisition. Based on Saito’s theoretical framework that the present paper assumes, this paper assumes a slightly modified version of Ishino’s proposal in accordance with the assumption that Japanese lacks phi-feature agreement. Section 5 presents our experiment. In Section 6, we discuss our results in relation to Oba’s (2003) experimental results showing that subject condition effects start emerging in the grammar of Japanese advanced EFL learners. Section 7 contains concluding remarks.

2. Previous Account on the Contrast between Japanese and Spanish EFL Learners

Under the early minimalist framework, Wakabayashi (2002) explains why Spanish EFL learners drop more subjects in their L2 English than Japanese EFL learners. Wakabayashi

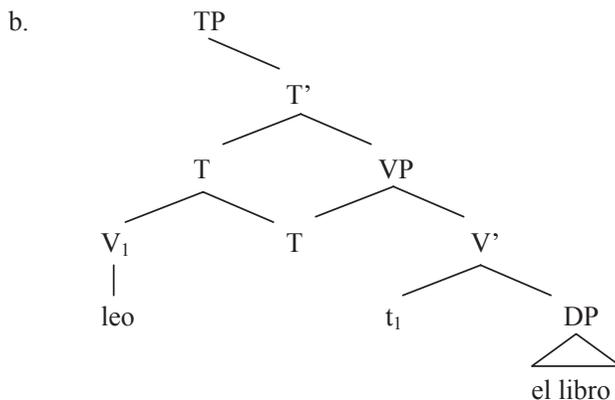
proposes that in English, T has a [+merge-in-overt-syntax] feature due to a strong nominal feature, and T merges with VP in overt syntax. Subject-raising to TP SPEC satisfies the EPP requirement on T in English, as exemplified in (6).

(6) a. I read the book.



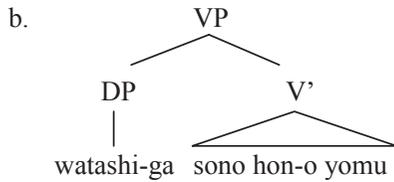
In Spanish, on the other hand, T has a [+merge-in-overt-syntax] feature due to a strong verbal feature, and T merges with VP in overt syntax. This time, the EPP requirement on T is satisfied by verb-raising without any DP moving into TP SPEC (Alexiadou and Anagnostopoulou 1998). For example, (7a) has the structure given in (7b).

(7) a. Leo el libro.
I-read the book
'I read the book.'

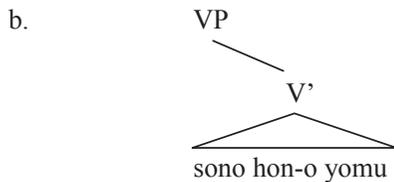


Finally, in Japanese, T does not have a [+merge-in-overt-syntax] feature due to a weak nominal feature. Accordingly, the subject and T are merged in covert syntax since they do not have phonological and semantic content. When a subject has a phonological feature, it is assumed to merge in overt syntax at VP SPEC. (8a) and (9a), for example, have the structures given in (8b) and (9b) in overt syntax, respectively.

- (8) a. Watashi-ga sono hon-o yomu.
 I -NOM that book-ACC read
 ‘I read the book.’



- (9) a. Sono hon-o yomu.
 that book-ACC read
 ‘(the person(s) under consideration) read the book.’



Given this, let us turn to clarify what Japanese and Spanish EFL learners need to do. Japanese EFL learners must only learn T having a [+merge-in-overt-syntax] feature due to a strong nominal feature. In contrast, Spanish EFL learners must first unlearn T having a [+merge-in-overt-syntax] feature due to a strong verbal feature, and then they must learn T having a [+merge-in-overt-syntax] feature due to a strong nominal feature. Notice that Spanish EFL learners must follow more steps than Japanese EFL learners, which may pose extra difficulty for Spanish EFL learners to learn English. Alternatively, for some reason, learning new features may be easier than unlearning L1 features. Either way, we predict that Japanese EFL learners have an easier time than Spanish EFL learners in learning the target language.

Attractive though Wakabayashi’s proposal may be, it remains speculative with the [+merge-in-overt-syntax] feature, whose existence needs to be independently justified. In addition, a number of questions naturally arise on the structures exemplified in (8b) and (9b). One issue concerns the position of the subject in Japanese. We now have evidence that a Japanese overt subject is located in CP SPEC (Hasegawa 2005, Miyagawa 2010, Saito 2011, Ueda 2002). For instance, Fukui (1984) argues that the Japanese subject is situated in an A’-position. His evidence comes from the paradigm in (10).

- (10) a. *John-ga kare-no kaban to jibun-no syasin-o motte
 John-NOM his-GEN bag and self-GEN picture-ACC with
 kaet-te ki-ta.
 return-TE came

‘John came back with his bag and a picture of himself.’

- b. *John-ga jibun-no kaban to kare-no syasin-o motte
 John-NOM self-GEN bag and his-GEN picture-ACC with
 kaet-te ki-ta.
 return-TE came

- c. John-ga kare-no kaban to kare-no syasin-o motte
 John-NOM his-GEN bag and his-GEN picture-ACC with
 kaet-te ki-ta.
 return-TE came

- d. John-ga jibun-no kaban to jibun-no syasin-o motte
 John-NOM self-GEN bag and self-GEN picture-ACC with
 kaet-te ki-ta.
 return-TE came

The contrast between (10a, b) and (10c, d) is surprising, given the fact that the English translation given to (10a) is fully acceptable. Fukui proposes that this contrast follows from the Parallelism Constraint on Operator Binding (Safir 1986), which states (11), under the assumption that the reflexive *jibun* and the pronoun *kare* have different feature specifications and the Japanese subject is located in an A'-position, creating an operator-variable chain.

- (11) If O is an operator and x is a variable bound by O, then for any y, y a variable, x and y are the same in their feature specifications.¹

In (10a, b), the feature specifications of the reflexive *jibun* and the pronoun *kare* result in feature conflict, and thus, these examples violate the constraint in point. On the other hand, no such conflict occurs in (10c, d), thus, these examples are acceptable.

To the extent that Fukui is correct, we cannot maintain the hypothesis that the Japanese subject is located in VP SPEC since the position under consideration must be an A-position under Wakabayashi's proposal. The fact that the English translation given in (10a) is grammatical also indicates that the position that the Japanese subject occupies is not TP

¹ The definition in (11) is from Fukui (1984), cited in Ueda (2002).

SPEC, which we assume the English subject occupies. Then, the most plausible candidate would be CP SPEC, as Ueda (2002) states. This leads us to suggest that Wakabayashi's account cannot be maintained as it is. In the sections to follow, we develop an alternative to his proposal under the current minimalist framework. Nevertheless, the reader will see that Wakabayashi's insight on LF-copying is still maintained under our proposal.

3. Feature-based Approach to Null Arguments in Japanese

Observing the contrast between Japanese and Spanish, Oku proposes that null arguments, which are missing in overt syntax, are copied from the preceding sentence in LF. For instance, the DP *jibun-no ronbun-ga* is copied from (4a), repeated here as (12a), to the embedded subject position in (4b), repeated here as (12b), in LF, as illustrated in (12c).

- (12) a. Mary-wa [jibun-no ronbun-ga saiyoosareru]-to omotteiru.
 Mary-TOP self-GEN paper-NOM will be accepted-that think
 'Mary thinks that her paper will be accepted.'
- b. John-mo [[e] saiyoosareru]-to omotteiru.
 John-also will be accepted-that think
 'John also thinks that [e] will be accepted.'
- c. John-mo [**jibun-no ronbun-ga** saiyoosareru]-to omotteiru.
 John-also self-GEN paper-NOM will be accepted-that think

Building on his proposal based on LF-copying, Saito (2007) further develops a theory of AE, given the hypothesis that Japanese lacks phi-feature agreement (see Kuroda (1988) for relevant discussion), and explains why AE is not available in languages like English. Under the assumption that agreement is an instance of a probe-goal relation triggered by uninterpretable phi-features on T and *v*, the interpretable phi-features of the subject or object DP agree with the uninterpretable phi-features of T or *v*. For Chomsky (2000), this agreement relation leads to the deletion of the uninterpretable phi-features of T or *v* as well as the uninterpretable Case-feature of the DP under consideration. Under this probe-goal based theory of Case, Saito (2007) argues that the absence of phi-features in Japanese enables the LF-copying of the element missing in overt syntax to be legitimate in Japanese, but not in English.

Let us illustrate how his proposal works with concrete examples. We start with (13a, b) in English.

- (13) a. John praised himself.
 b. *But Mary did not praise.

In (13a), the interpretable phi-features of the DP *himself* agree with the uninterpretable phi-features of *v*; consequently, the uninterpretable phi-features of *v* and the uninterpretable Case-feature of the DP under question are deleted. This means that the DP *himself* becomes inactive. Now, this DP, being inactive, cannot act as a goal of *v* in (13b) when it is copied from (13a). As a result, the uninterpretable features of *v* remain in this example, and this derivation crashes. In contrast, due to the lack of phi-features in Japanese, (12b) undergoes different derivational steps. In (12b), since T does not have uninterpretable phi-features, it does not have to establish any probe-goal relation with the subject DP *jibun-no ronbun*, which is copied from (12a). Consequently, no crash occurs in (12b).

Notice that this feature-based approach to AE also correctly accounts for the cross-linguistic contrast between Japanese and Spanish null elements, as illustrated in the contrast between (12a, b) and (3a, b), repeated here as (14a, b).

- (14)a. Maria cree [que su propuesta sera aceptada] y
 Mary believes that her proposal will-be accepted and
 ‘Mary believes that her paper will be accepted, and’
- b. Juan tambien cree [[e] sera aceptada].
 Juan too believe will-be accepted
 ‘Juan also believes that [e] will be accepted.’

Spanish does have phi-feature agreement; accordingly, AE is unavailable for the same reason that (13b) is excluded in English. If so, null subjects in Spanish must be of a type different from AE. Given the fact that they do not allow sloppy reading, the most plausible candidate is a null pronominal, as has been proposed in the literature (Chomsky 1982).

This concludes the brief introduction of Saito’s (2007) proposal on AE. In the sections to follow, the reader will see that this feature-based approach to AE, along with Ishino’s (2012) feature-based model in second language acquisition, makes significant predictions for the acquisition of AE in second language acquisition.

4. Feature-based Approach to Second/Foreign Language Acquisition

In this paper, we adopt Ishino’s (2012) model on second language acquisition in essence, which is based on feature transfer and feature learning (FTFL). Yet, we do not adopt her theoretical assumption that Japanese is specified for (some of the) phi-features, i.e., the number feature.²

The essence of the FTFL is: the L1 features, if any, are first transferred to the L2

² This section is based on Miyamoto (2012).

grammar at the elementary/intermediate level, and then the competition of feature specification between the L1 and the L2 occurs at the advanced level. If the L1 features have been transferred to L2 at the earlier stage, they remain even at the advanced level. In contrast, if no L1 feature is present at the earlier stage, the L2 feature specification will be adopted at the advanced level.

Notice that the unavailability of the feature specification resetting readily accounts for the observation, mentioned in Section 1, that Japanese EFL learners ultimately stop using null arguments while Spanish EFL learners have a difficult time in doing so. The following charts informally illustrate the relevant processes. In (15) and (16), ✓ means the presence of (phi-) features while ✕ indicates the absence of such features.

(15) Japanese EFL Learners

Stage in L2 Learning	L1 Feature Inventory	L2 Grammar (Elementary/Intermediate)	L2 Grammar (Advanced)	L2 Feature Inventory
Earlier	✕	→ ✕		✓
Later	✕	✕	← ✓	✓

(16) EFL Learners from *Pro-drop* Languages (e.g., Spanish)

Stage in L2 Learning	L1 Feature Inventory	L2 Grammar (Elementary/Intermediate)	L2 Grammar (Advanced)	L2 Feature Inventory
Earlier	✓	→ ✓		✓
Later	✓	✓ →	✓	✓

In (15), since Japanese is assumed to have no phi-features, no phi-feature specification is set for the L2 grammar at the earlier stage. Then, the phi-feature specification from English, the target language, can ultimately be adopted at the later stage in their grammar. On the other hand, since *pro-drop* languages have phi-feature agreement, this L1 setting persists throughout their acquisition of English, as illustrated in (16).

The present concern regards the case where the target language does not have phi-feature agreement, unlike the case discussed above. In this preliminary study, we focus on the availability of feature resetting in the grammar of JFL learners of *non-pro-drop* languages. Under Ishino's proposal, we predict the developmental steps, illustrated in (17).

(17) JFL Learners from *Non-pro-drop* Languages

Stage in L2 Learning	L1 Feature Inventory	L2 Grammar (Elementary/Intermediate)	L2 Grammar (Advanced)	L2 Feature Inventory
Earlier	✓	→ ✓		✕
Later	✓	✓ →	✓	✕

In (17), the L1 feature specification should also remain even at the advanced level. We tested whether this prediction is fulfilled in our experiment.

5. Experiment

We now introduce our experiment. In Section 5.1, we present our hypothesis, followed by the subjects in Section 5.2. Section 5.3 discusses the procedures, and Section 5.4 is for our results.

5.1. Hypothesis

Under Saito's (2007) feature-based approach to AE as well as Ishino's (2012) feature-based model on second language acquisition, we predict, as mentioned in Section 4, that by the advanced level Japanese EFL learners (J-EFL, hereafter) will be able to "unlearn" AE, but JFL learners of European *non-pro-drop* languages (E-JFL learners, hereafter) will experience difficulty in "learning" AE. This in turn means that advanced J-EFL learners should not permit null arguments altogether, whereas advanced E-JFL learners should permit neither sloppy nor quantificational reading for null arguments.

5.2. Subjects

A total of 58 subjects participated in our study (see Table 9). The control group (English native speakers (NS's) = 8, Japanese NS's = 11) served as a baseline against which we compared the learners' results. The experimental groups consisted of NS's of European *non-pro-drop* languages (n = 12) and Japanese NS's (n = 27). They were either undergraduate or postgraduate students at universities in England and Japan. The subjects' proficiency was evaluated, based on the Simple Performance-Oriented Test (for E-JFLs) and the Oxford Placement Test (for J-EFLs) scores. All of the learners started studying their target language from age 12. Their language profiles are summarized in (18).

(18) Participants

L1	N	Age	Level	Length of Study (year)
<i>Non-pro-drop</i> languages	12*	19-26 (mean = 21.9)	Advanced (n = 5)	1-6 (mean = 2.9)
			Upper Int. (n = 7)	
Japanese	27	18-20 (mean = 18.8)	Upper Int. (n = 7)	6-9 (mean = 6.9)
			Lower Int. (n = 16)	
			Elementary (n = 4)	

*English (n = 8); French (n = 2); Dutch (n = 1); German (n = 1)

In addition to these experiment groups, we tested eight Japanese (age = 18-20; mean = 18.7) and 11 English (age = 29-68; mean = 44.3) NS's as the control groups.

5.3. Procedures

The experiment was conducted in two steps. All participants took part in two experimental tasks in the following order: the truth-value judgment task, followed by the grammaticality judgment task. This task order was selected in an effort to prevent participants from ascertaining that the focus of the study was on interpretation of null elements. The session was in approximately 60 minutes for both groups of learners. They were given a brief break between each task when necessary.

5.3.1 The Grammaticality Judgment Task

This task was performed to first identify the participants who allowed null arguments in their L2. For the E-JFL learners, the task consisted of 6 stimuli in Japanese: 3 included null subjects and 3 null objects. Examples are given in (19). (19a) is an instance of a null subject whereas (19b) exemplifies a null object.

- (19)a. Taroo-ga akai huku-no onna-no hito-o mita toki,
 Taro-NOM red cloth-NOM woman-GEN person-ACC saw when,
 [e] sono hito-o Sam-no onesan da-to omoimashita.
 that person-ACC Sam-NOM elder sister is-that thought
 ‘When Taro saw a lady wearing a red clothes, [e] thought she was Sam’s elder sister.’
- b. Taroo-ga kompyuutaa-o kowashi-te shimaimashita ga, otoosan-ga
 Taro-NOM computer-ACC ended up breaking although Father-NOM
 [e] naoshimashita.
 fixed
 ‘Although Taro broke a computer, his father fixed [e].’

The test for the J-EFL learners consisted of 8 stimuli in English: 3 included null subjects, 3 null objects, and 2 distracters. Test items are exemplified in (20a, b).

- (20)a. John saw a very beautiful woman. He thought [e] was Mary’s mother.
 b. Before John used [e], Mary broke his computer.

Both E-JFL and J-EFL learners were also asked to correct the sentence when they found it *unnatural/not acceptable*. Responses were not explicitly timed, but they were instructed to answer quickly, and not to change their answers to previous items.

5.3.2. The Truth-Value Judgment Task

After identifying the participants who allowed null arguments from the results in the

grammaticality judgment task, we further examined their responses from the truth-value judgment task to investigate whether the null arguments under question permit sloppy and quantificational reading. Each stimulus consisted of a dialogue among animals or people, along with their photos/videos that subjects saw on a projector screen while listening to the corresponding audio. The dialogues were given in English for the *non-pro-drop* language group and in Japanese for the Japanese group to make sure that they fully understood each context/situation. The E-JFL group was told that ‘Elmo’ is learning Japanese, but he is not good at Japanese yet. The J-EFL group was told that ‘Taroo’ is learning English, but he is not good at English yet. Each of the learners was required to judge whether the uttered Japanese/English test sentences by ‘Elmo’/‘Taroo’ correctly described the situations of given dialogues. Examples of the test items (dialogues and test sentences) are illustrated in (21)-(23).

(21) Sloppy Reading

No. 1 (1/4)



0:11



(E): “My car is very dirty. I should clean it.

(J): “Kuruma-o kiree-ni siyoo”
car-ACC clean shall do

No. 1 (2/4)



(E): “It’s very clean now.

(J): “Pika pika-ni natta-zoo”
shining became-ending particle

No. 1 (3/4)



(E): “I should clean the car, too.”

(J): “Sorosoro kiree-ni siyoo”
soon clean shall do

No. 1 (4/4)



(E): “Now, it is very clean.”

(J): “Yoshi, pika pika-ni natta-zoo”
alright shining became-ending particle

Test Sentence

(E) Elmo: “Kuma-wa jibun-no kuruma-o fuita. Sosite, Penguin-mo
 Bear-TOP self-GEN car-ACC wiped and penguin-also

[e] fuita.”
 wiped

‘Bear wiped his own car, and Penguin wiped [e], as well.’

(J) Taroo: “Bear cleaned his own car, and Penguin cleaned [e], as well. ”

(22) Strict Reading

No. 37 (1/2) 🐧



(E) Bear: “Let’s clean the car.”

Penguin: “I will help you.”

(J) Bear: “Kuruma-o kiree-ni shiyoo”

car-ACC clean shall do

Penguin: “Boku-mo tetsudau-yo”

I-also help-ending particle

No. 37 (2/2) 🐧



(E) Bear: “Now, it is really clean.

Thank you very much, Penguin.”

Penguin: “You’re welcome.”

(J) Bear: “Pika pika-ni natta!

shining became

Penguin-san, arigatoo.”

Penguin, thank you

Penguin: “Dooitashimashite!”

Welcome

Test Sentence

(E) Elmo: “Kuma-wa jibun-no kuruma-o fuita. Sosite, Penguin-mo
 Bear-TOP self-GEN car-ACC wiped and penguin-also

[e] fuita.
 wiped

‘Bear wiped his own car, and Penguin wiped [e], as well.’

(J) Taroo: “Bear cleaned his own car, and Penguin also cleaned [e].”

(23) Quantificational Reading

No. 48 (1/4)



(E): “They look tasty.”

(J): “Tottemo oishisoo.”
very look tasty

No. 48 (2/4)



(E): “I’m full now.”

(J): “Oishikatta”
were tasty

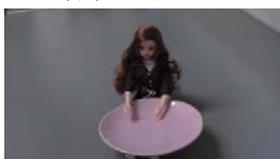
No. 48 (3/4)



(E): “They look good.”

(J): “Kiree-na keeki”
beautiful cake

No. 48 (4/4)



(E): “I’m also full.”

(J): “Oishikatta-wa”
were tasty-ending particle

Test Sentence

(E) Elmo: “Erikku-wa ni-ko-no keeki-o tabeta.
Eric-TOP two-CL-GEN cake-ACC ate

Monika-mo [e] tabeta.”

Monika-also ate

‘Eric ate two pieces of cake, and Monika also ate [e].’

(J) Taroo: “Eric ate two pieces of cake, and Monika ate [e], as well.”

Dialogues were recorded by two English or Japanese native speakers. For the tasks for the two experimental groups, each task consisted of 52 stimuli including 28 sentence types. The 10 stimuli including 5 sentence types, summarized in Table (24), are relevant for the present concern.

(24) Sentence Types

	Context	
Null subject (n = 4)	Sloppy	(n = 2)
	Strict	(n = 2)
Null object (n = 6)	Sloppy	(n = 2)
	Strict	(n = 2)
	Quantificational	(n = 2)

For both learning groups, we created two versions of the test (version 1 and version 2) with the same stimuli distributed differently on each test to avoid any ordering effect. Half of each group took version 1 and the other half took version 2. Before starting the experiment, both groups were given a practice session where, together with the researcher, they worked through how to do the task. They were also given a list of vocabulary with definitions in case any of the vocabulary was unfamiliar to them. For the truth-value judgment task, both groups were told that they should not go back to the previous items and correct their answers.

5.4. Results

5.4.1. The Grammaticality Judgment Task

A benchmark was set in this task: when learners allowed a null element at least once in each position of subject and object, they were included in our interpretation task. All 12 E-JFL learners met our standard while among the 38 J-EFL learners, 27 J-EFL allowed null arguments in each position, so they were included in the truth-value judgment task.

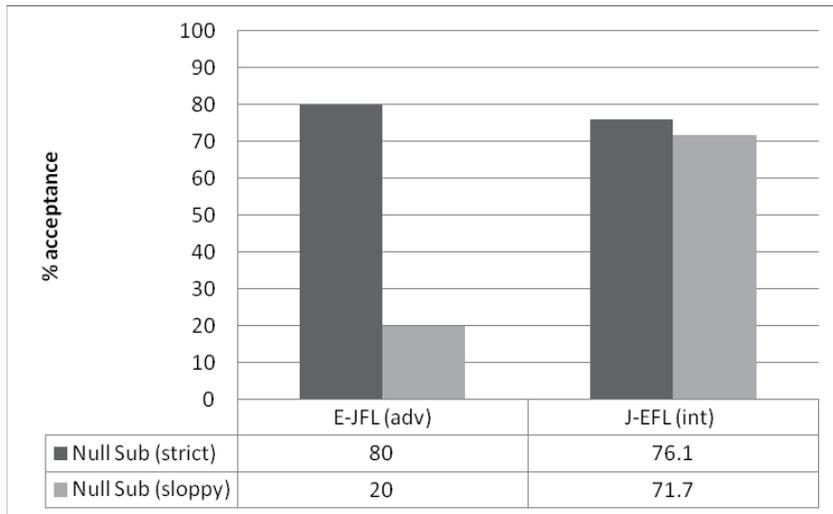
5.4.2. The Truth-Value Judgment Task

The overall judgment of the Japanese native control group indicated that all of the Japanese test sentences with null elements uttered by Elmo are acceptable: in subject position, 93.8% for sloppy reading and 81.3% for strict reading while in object position, 100% for sloppy reading, 93.8% for strict reading, and 100% for quantificational reading. The Japanese native control allowed null elements to have both readings (i.e. sloppy and strict) in both positions (i.e. subject and object). The results of the English native control group show that all of the English test sentences with a null element uttered by Taroo are not acceptable. Null elements are prohibited from appearing in both subject and object positions in English.

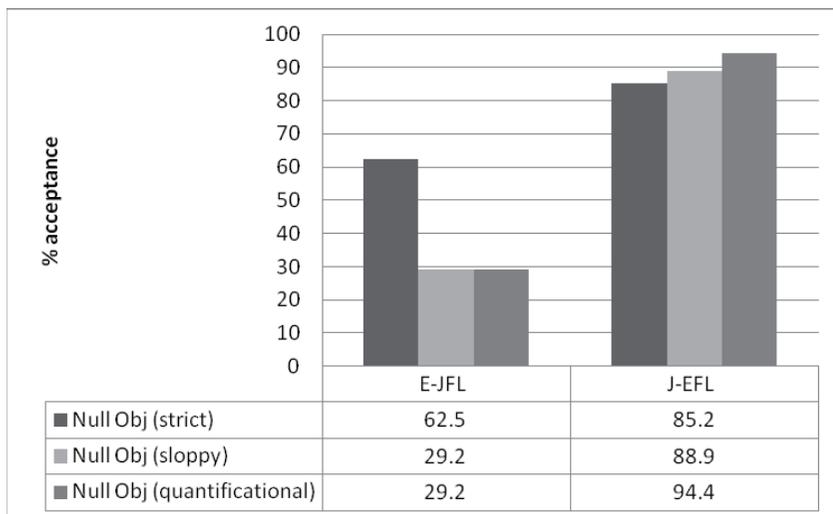
The learners' results of the task were summarized in (25), (26) and (27). First and foremost, the advanced E-JFL learners, but not the intermediate J-EFL learners, rejected sloppy reading with a null subject (80.0% vs. 28.3%). Yet, both learners permitted strict

reading. Secondly, the acceptance rate of strict reading with a null object by the E-JFL learners was higher than that of sloppy reading (62.5% vs. 29.2%). Meanwhile, no such difference was observed by the J-EFL learners (85.2% vs. 88.9%). Finally, the acceptance rate of quantificational reading with a null object by the J-EFL learners was also higher than that of the E-JFL learners (94.4% vs. 29.2%). Crucially, the advanced E-JFL learners still rejected both sloppy and quantificational reading with null objects (70.0% and 90.0% each).

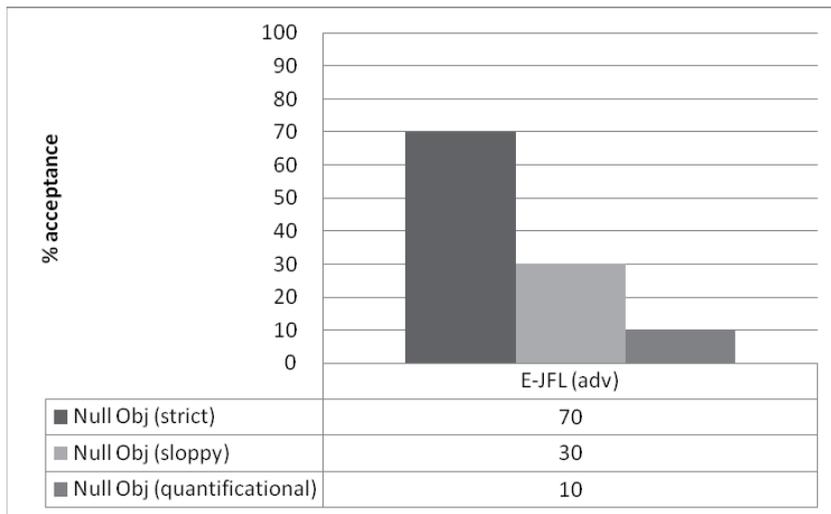
(25) Percent Null Subject Items Judged Appropriate on the Interpretation Task



(26) Percent Null Object Items Judged Appropriate on the Interpretation Task (1)



(27) Percent Null Object Items Judged Appropriate on the Interpretation Task (2)



We conducted within-group comparisons to observe how each group would behave in readings. Concerning subject position, a repeated measure *t*-test shows there is a highly significant difference in their acceptance of strict and sloppy readings in the E-JFL group ($t(11) = -5.61, p < .001$), whereas there is no significant difference between the two readings in the J-EFL group ($t(26) = .00, p = 1.00$). Regarding object position, a repeated measure, one-way ANOVA shows a significant main effect of reading in the E-JFL group ($F(2, 22) = 4.63, p < .05$). Further multiple comparisons confirmed that there is a marginally significant contrast in their acceptance of strict and sloppy readings ($p = .074$), but no significant gap between sloppy reading and quantificational reading ($p = 1.00$). As for the J-EFL group, on the other hand, there is no main effect on readings ($F(2, 52) = 1.62, p = .21$). A null hypothesis is adopted, so there is no difference in their readings.

On the basis of these considerations, we conclude that while null arguments result from AE in the grammar of J-EFL learners, it is a covert pronominal in the grammar of E-JFL learners.

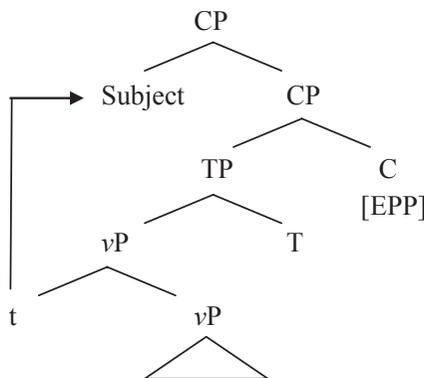
6. The Emergence of Subject Condition Effect in the Grammar of Japanese Advanced EFL Learners

Before closing this paper, this section briefly concerns the status of Japanese upper intermediate EFL learners who did not permit AE in the grammaticality judgment task. The question to be addressed here is whether the unavailability of AE at the upper intermediate/advanced level is merely a surface phenomenon without L2 phi-features acquired.

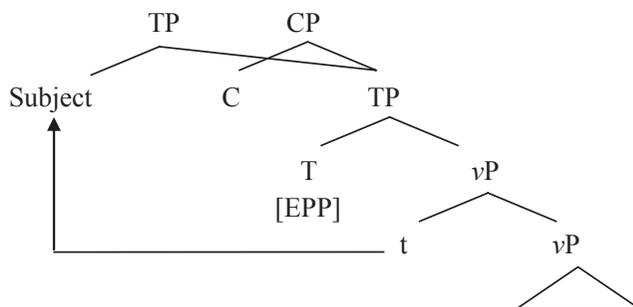
Oba (2003) reported experimental results showing that Japanese advanced EFL learners start observing subject condition effect in their English grammar. We can interpret his results under Oseki and Miyamoto (2014) who argue that the absence of subject condition effect is tied to the absence of phi-features in Japanese.

Saito (2011) argues that under the assumption that Japanese lacks phi-feature agreement, an EPP feature at C is not subject to feature inheritance to T, which is assumed to be triggered by phi-features. Consequently, the EPP feature at C is satisfied by the raising of the subject to CP SPEC in Japanese. Under the phase theory (Chomsky 2008), this means that the Japanese subject is located at the phase edge, as illustrated in (28a), and thus, Oseki and Miyamoto propose that it should be visible from the next phase domain. In English, on the other hand, the EPP feature at C is inherited by T along with the phi-features. This results in the raising of the subject to TP SPEC in English. Now, under Epstein, Kitahara and Seely's (2012, 2013) Simplest Merge framework, this subject raising creates the so-called "two-peaked" structure, as illustrated in (28b)

(28)a. Japanese



b. English



In (28b), Epstein, Kitahara and Seely claim that one of the two peaks must be removed via Transfer as soon as possible for the derivation to continue, which means that the subject must

be transferred at this point in the derivation. As a result, the subject becomes inaccessible to narrow syntax as soon as the subject-raising applies. Thus, subject condition effects result in English.

To the extent that Oseki and Miyamoto's proposal is correct, Oba's results suggest that phi-features of English can be acquired by Japanese advanced EFL learners. If this is correct, it is not unnatural that Japanese upper intermediate EFL learners start rejecting AE because they have acquired L2 phi-features. We take this clustering effect as supporting evidence for the hypothesis that Japanese EFL learners can acquire phi-features by the advanced level. Crucially, this is exactly what we predict under Ishino's (2012) FTFL model, modified by Miyamoto (2012).

7. Concluding Remarks

This study reported experimental results showing that Japanese EFL learners can "unlearn" AE in their English grammar while JFL learners from European *non-pro-drop* languages cannot learn AE in their Japanese grammar. We then reach the conclusion that the "incorrect" feature specification remains throughout the L2 development when the L1 phi-features are first transferred (e.g., Franceschina 2005, Hawkins 1998), and the "incorrect" feature specification can be "corrected" in the grammar when the L1 does not have relevant phi-features; thus, the absence of AE and the presence of subject condition effect are correctly predicted for the grammar of Japanese advanced EFL learners. Accordingly, this study supports the FTFL model on second language acquisition in that the "correct" L2 phi-feature specification can ultimately be obtained when no phi-features are present in L1 (Ishino 2012, Miyamoto 2012).

References

- Alexiadou, A. and E. Anagnostopoulou (1998) "Parameterizing Agr: Word Order, V-movement and EPP-checking," *Natural Language and Linguistic Theory* 16, 491-539.
- Chomsky, N. (1982) *Some Concepts and Consequences of the Theory of Government and Binding*, MIT Press, Cambridge, MA.
- Chomsky, N. (2000) "Minimalist Inquiries: The Framework," in R. Martin, D. Michaels and J. Uriagereka, eds., *Step by Step: Essays on Minimalist Syntax in honor of Howard Lasnik*, MIT Press, Cambridge, MA, 89-155.
- Chomsky, N. (2008) "On Phases," in R. Freidin, C. Otero and M. L. Zubizarreta, eds., *Fundamental Issues in Linguistic Theory*, MIT Press, Cambridge, MA, 133-166.
- Epstein, S. D., H. Kitahara, and D. Seely (2012) "Structure Building That Can't Be," in Myriam Uribe-Etxebarria and Vidal Valmala, eds., *Ways of Structure Building*, Oxford University Press, Oxford, 253-270.
- Epstein, S. D., H. Kitahara, and D. Seely (2013) "Simplest Merge Generates Set Intersection: Implications for Complementizer 'That' Explanation," *The Proceedings of GLOW in Asia IX*,

77–92.

- Franceschina, F. (2005) *Fossilized Second Language Grammars: The Acquisition of Grammatical Gender*, John Benjamins, Amsterdam/Philadelphia.
- Fukui, N. (1984) “Studies on Japanese Anaphora I: The Adjunct Subject Hypothesis and ‘Zibun,’” Ms., MIT, Cambridge, MA.
- Hasegawa, N. (2005) “EPP Materialized First, Agree Later: Wh-Questions, Subjects and MO-Phrases,” *Scientific Approaches to Language* 4, 33-80.
- Hawkins, R. (1998) “The Inaccessibility of Formal Features of Functional Categories in Second Language Acquisition,” Paper presented at PacSLRF '98, Aoyama Gakuin University, March 28, 1998.
- Ishino, N. (2012) *Feature Transfer and Feature Learning in Universal Grammar: A Comparative Study of the Syntactic Mechanism for Second Language Acquisition*, Ph.D. dissertation, Kwansei Gakuin University.
- Kuroda, S.-Y. (1988) “Whether We Agree or Not: A Comparative Syntax of English and Japanese,” in W. J. Poser, ed., *Papers from the Second International Workshop on Japanese Syntax*, CSLI Publications, Stanford, 103–143.
- Lakshmanan, U. (1991) “Morphological Uniformity and Null Subjects in Child Second Language Acquisition,” in L. Eubank, ed., *Point and Counterpoint: Universal Grammar in the Second Language*, John Benjamins, Amsterdam, 398–411.
- Miyagawa, S. (2010) *Why Agree? Why Move? Unifying Agreement-based and Discourse Configurational Languages*, MIT Press, Cambridge, MA.
- Miyamoto, Y. (2012) “Dainigenngo-ni okeru Hikenzaiteki-na Yooso-ni kansuru Ichikoosatsu [A Study on Null Elements in Second Language Acquisition],” Paper presented at the 84th ELSJ Annual General Meeting, Senshu University, May 26, 2012.
- Oba, H. (2003) “The Acquisition of WH-movement by Advanced Japanese Learners of English,” *Bulletin of Joetsu University of Education* 22, 587-599.
- Oku, S. (1998) “LF Copy Analysis of Japanese Null Arguments,” *CLS* 34, 299–314.
- Oseki, Y. and Y. Miyamoto (2014) “Some Consequences of Simplest Merge and Phi-Defectiveness in Japanese,” Paper presented at WAFL 10, MIT, May 4, 2014.
- Safir, K. (1986) “Relative Clauses in a Theory of Binding and Levels,” *Linguistic Inquiry* 17, 663-689.
- Perlmutter, D. (1972) “Evidence for Shadow Pronouns in French Relativization,” in P. M. Peranteau, J. N. Levi and G. C. Phares, eds., *The Chicago Which Hunt: Papers from the Relative Clause Festival*, Chicago Linguistic Society, University of Chicago, Chicago, 73–105
- Saito, M. (2007) “Notes on East Asian Argument Ellipsis,” *Language Research* 43, 203–227.
- Saito, M. (2011) “Two Notes on Feature Inheritance: A Parametric Variation in the Distribution of the EPP,” *Nanzan Linguistics* 7, 43–61.
- Takahashi, D. (2008) “Noun Phrase Ellipsis,” in S. Miyagawa and M. Saito, eds., *The Oxford Handbook of Japanese Linguistics*, Oxford University Press, Oxford, 394–422.
- Ueda, Y. (2002) *Subject Positions, Ditransitives, and Scope in Minimalist Syntax: A Phase-based Approach*, Ph.D. dissertation, Kanda University of International Studies.
- Wakabayashi, S. (2002) “The Acquisition of Non-null Subjects in English: A Minimalist Account,” *Second Language Research* 18, 28-71.
- White, L. (1985) “The ‘Pro-drop’ Parameter in Adult Second Language Acquisition,” *Language Learning* 35, 47-62.