Interpretation of Argument Ellipsis by Japanese and German EFL learners[1]

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Ⅰ. Introduction

In this paper the focus is on "argument ellipsis (AE)". This has been very influential in the recent work in theoretical linguistics arguing that the syntactic status of null arguments in Japanese is not *pro*[2] but AE (Oku, 1998; Saito, 2007 among others), since in the literature, the status of Japanese null arguments has been considered as *pro* (Saito 1985, Hoji 1987, Nakayama 1988, Fukui 1984 among others). However, it has been pointed out that Japanese null arguments have an interpretation which *pro* does not possess. To illustrate, Japanese null arguments are different from those of *pro-drop* languages such as Spanish. Compare the following.

(1) Japanese

 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.'   (Oku 1998: 166)

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2) Pronouns with no phonological content are called *pro*.

(2) Spanish

    a. Maria   cree   [que   su   propuesta   será   aceptada]   y

       Mary   believes   that   her   proposal   will-be   accepted   and

       'Mary believes that her paper will be accepted, and'

    b. Juan   también cree   [[e]   será   aceptada].

       Juan   too   believe will-be   accepted

       'Juan also believes that [e] will be accepted.'   (Oku, 1998: 166)

In (1b), the Japanese null argument can be interpreted as *Mary's paper*, but also John's paper. If the status of Japanese null arguments is *pro*, the null argument in (1b) allows for only strict reading interpretation as *Mary's paper*. Sloppy interpretation is also available here as *John's paper*. On the other hand, in (2b) the Spanish null argument allows for only one interpretation which is *Mary's paper* where sloppy reading is not available. Oku (1998) argues that the phenomenon of sloppy interpretation is a result of AE. That is, 'jibun-no ronbun-ga' in (1a) is copied onto [e] in (1b) at LF. This leads to sloppy reading.

    Another example of interpretation that *pro* does not have is the quantificational reading introduced by Takahashi (2008).

(3) a. Hanako-ga   taitei-no   sensei-o   sonkeishiteiru

       Hanako-NOM   most-GEN   teachers-ACC respect

    b. Soshite Taroo   mo   e   sonkeishiteiru

       and   Taro   also   respect   (Takahashi, 2008: 398)

(3b) is ambiguous because it can describe the situation where Taroo respects those teachers whom Hanako respects. It can also indicate that Taroo respects a set of teachers which can differ from a set of teachers whom Hanako respects. Takahashi (2008) pointed out that the interpretation in (3) is not explained by *pro* analysis.

    If Japanese null arguments are not *pro* but AE, it will make an interesting prediction for learning or unlearning of AE by second language (L2, hereafter) learners. German is a *topic-drop* language and allows null arguments. Huang (1984) extended this phenomena that the syntactic status of German null arguments is a null topic operator where both strict and sloppy readings are available as AE in Japanese. Therefore although both

Japanese and German have null arguments, the mechanism of sloppy reading availability is different to each other.

When we compare German learners of English (G-EFL, hereafter) and Japanese learners of English (J-EFL, hereafter), we would like to investigate the distinction in the developmental path between the two groups of learners. Under an assumption that the initial state of L2 grammar is equivalent to L1 grammar (Schwartz and Sprouse, 1996 among others), it is predicted that J-EFL and G-EFL will start with different initial states. In the course of L2 learning, both learner groups need to unlearn null arguments in their L1 because null arguments are not available in the target language, English any more. However, specifically, J-EFL should learn that English does not allow AE while G-EFL should know that English does not permit a null topic operator. This raises the question of how can this be captured in the literature of second language acquisition. What kind of learning mechanism is possibly involved in their L2 acquisition process?

Ishino (2012) proposes a feature-based model to explain L2 development. In her model, if L1 features are transferred to the L2 grammar at an earlier stage, these L1 features will continue to exist even at a later or advanced stage. However, if learners do not transfer their L1 features at an early stage, feature specifications of the target language can be acquired at a later stage. Adopting Ishino's feature-based model, Miyamoto (2012) illustrates the course of L2 development that J-EFL learners would follow in (4). ✔ means the presence of (phi-) features while ✖ indicates the absence of such features.

(4) Japanese EFL Learners

Stage in L2 Learning	L1 Feature Inventory	L2 Grammar (Elementary/Intermediate)	L2 Grammar (Advanced)	L2 Feature Inventory
Earlier	✖ ————————➤	✖		✔
Later	✖	✖	✔ ◄————	✔

However, note that Miyamoto (2012) does not share the same theoretical assumption as Ishino (2012) that Japanese is specified for (some of the) phi-features, following Saito's (2007) claim that there is no phi-feature agreement in Japanese. Thus under his claim, concerning null arguments, J-EFL begin with no L1 feature inventory as illustrated in (4). Under Miyamoto's modified version of Ishino's (2012), it is explained that since no phi-features are specified in Japanese, the relevant English features can eventually be specified. Japanese null arguments are unlearned and the features of English can be

acquired in the end.

　　Consider the case of G-EFL with Miyamoto's (2012) claim. Since German has phi-feature agreement, G-EFL will keep their L1 feature setting throughout their L2 development as illustrated in (5). In this table ▲ indicates the presence of L1 (phi-) features while ✔ means the presence of L2 (phi-) features.

(5)　German EFL learners

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

Namely, G-EFL transfer L1 features to L2 grammar at an earlier stage, which will keep interfering with the acquisition of L2 features in the course of their L2 development.

　　In the next section, we will observe how J-EFL and G-EFL interpret null arguments in their L2 grammar.

Ⅱ．Study

　　In this section, we report on the experimental study that tested the interpretation of null subjects and null objects by L2 grammars of J-EFL and G-EFL learners.

2.1．Hypothesis

　　Under Miyamoto's (2012) modified version of a feature-based model by Ishino (2012), we predict, as mentioned in Section Ⅰ, that by the advanced level, J-EFL will come to notice that null arguments are not available in English and they are able to "unlearn" AE. On the other hand, G-EFL will experience difficulty in "unlearning" a null topic and keep using null arguments even at a later stage. This in turn means that advanced J-EFL learners should not allow null arguments, whereas advanced G-EFL learners should permit all three readings (sloppy, quantificational, and strict readings) for null arguments.

2.2．Subjects

　　A total of 60 subjects participated in our study. The experimental groups consisted of Japanese NSs (n=33) and German NSs (n=16). They were either undergraduate or postgraduate students learning English as a second language at universities in Japan and

Germany. The subjects' proficiency was evaluated based on the Oxford Placement Test. All of the J-EFL learners started studying their target language from age 13 while the G-EFL learners were from age 6 to 12. Their language profiles are summarized in (6).

(6) Participants

L1	Number	Age	Level		Length of Study
Japanese	n=33	18-20 (mean=18.7)	Elementary Low Int. Upper Int. Advanced	n=4 n=16 n=7 n=6	6-9 years (mean=6.9 years)
German	n=16	18-35 (mean=24.9)	Elementary Low Int. Upper Int. Advanced	n=2 n=5 n=2 n=7	6-11.6 years (mean=11.0 years)

In addition to these experimental groups, 11 English NSs (age=29-68; mean= 44.3) joined our study as the control group.

2.3. Stimuli and Procedures

All participants took part in two experimental tasks in the following order: Truth-Value Judgment Task and Grammaticality Judgment Task. This task order was chosen in an effort to prevent participants from ascertaining that the focus of the study was on interpretation of null elements. Testing took place in one session lasting approximately 80 minutes for both learners' groups. Participants were given a brief break between each task when necessary.

2.3.1. The Grammaticality Judgment Task

This test was performed to identify the participants who allowed null arguments in their L2 grammar. In the main study (i.e. the Truth-Value Judgment Task), we expected the EFL learners to judge whether a null element is allowed to have either a sloppy reading or a strict reading. Therefore it was indispensable that null elements were allowed in their L2 grammar. The test consisted of 8 stimuli in English: 3 included null subjects, 3 null objects, and 2 distracters. Test items are exemplified in (7a, b).

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

Both J-EFL and G-EFL 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 briskly, and not to change their answers to previous items.

2.3.2.　The Truth-Value Judgment Task

As a main study, this test was conducted to investigate the availability of sloppy and quantificational reading with null arguments in L2 grammar. Each stimulus consisted of a dialogue among animals or people, along with the respective photos/videos that subjects saw on a projector screen while listening to the corresponding audio. The dialogues were given in German for G-FFL and in Japanese for J-EFL to make sure that they fully understood each context/situation. Both groups were told that ‘Taroo’ is learning English, but he is not good at English yet. Both groups were required to judge whether the uttered English test sentences by ‘Taroo’ correctly described the situations of given dialogues. Examples of the test items are illustrated in (8). (J) refers to the Japanese dialogue for J-EFL and (G) is the German version.

(8)　a. Sloppy reading

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

(G)　“Mein　　　　Auto ist　sehr schmutzig.
　　　my.Acc　　　car　　　is.3rd.sg very dirty
　　　Ich　　　　sollte　　es säubern.”
　　　I.Nom should it clean

(J)　“Pika pika-ni　　natta-zoo.”
　　　Shining　　　　became-ending particle

(G)　“Es ist　　　　jetzt　sehr　sauber.”
　　　It is.3rd.sg　　now　very　clean

(J) "Sorosoro   kiree-ni   siyoo."
     soon   clean   shall do

(G) "Ich sollte das   Auto auch   säubern."
     I should the   car   also   clean

(J) "Yoshi, pika pika-ni   natta-zoo."
     Alright shining   became-ending particle

(G) "Jetzt ist   es sehr   sauber."
     now is.3rd.sg   it very   clean

Test sentence

Taroo: "Bear wiped his own car, and Penguin wiped [e], as well."

b. Strict reading

(J) Bear: "Kuruma-o   kiree-ni   shiyoo."
                car-ACC   clean   shall do
    Penguin: "Boku-mo   tetsudau-yo."
                I-also   help-ending particle

(G) Bear: "Lass uns das Auto   säubern."
                let   us   the car   clean
    Penguin: "Ich werde   dir helfen."
                I will.1st.sg.pres you. Dat help

言　　語

(J)　Bear:　　"Pika pika-ni natta! Pengin-san, arigatoo."
　　　　　　　　　shining　　became Penguin,　thank you
　　　　Penguin: "Dooitashimashite!"
　　　　　　　　　Welcome

(G)　Bear:　　"Jetzt ist　　　　　　　　es sehr sauber.
　　　　　　　　Now is.3rd.sg.pres it very clean
　　　　　　　　Vielen Dank, Pinguin".
　　　　　　　　Many　thank Penguin

　　　　Penguin: "Gern geschehen."
　　　　　　　　　You're　welcome.

　　Test Sentence
　　　　Taroo: "Bear cleaned his car. And, Penguin cleaned [e], as well."

　c. Quantificational reading

(J)　"Tottemo　　　oishisoo."
　　　very　　　　look tasty

(G)　"Sie　　sehen lecker."
　　　they　　look　　tasty

(J)　"Oishikatta"
　　　were tasty

(G)　"Ich　bin jetzt satt."
　　　I.Nom am now full

(J) "Kiree-na   keeki"
    beautiful   cake

(G) "Sie   sehen gut aus."
    they look   good out

(J) "Oishikatta-wa"
    were tasty-ending particle

(G) "Ich   bin   auch satt."
    I.Nom am   also full

Test Sentence
   Taroo: "Erick ate two pieces of cake. Monika ate [e], as well."

The audio Dialogues were recorded by two Japanese NSs and two German NSs, Taro's English sentences were recorded by an English NS.

For two EFL learner groups, each task consisted of 52 stimuli including 28 sentence types, most of which involved two tokens. Since the current study was part of the project examining null elements in SLA, we will report the relevant data in this paper as the focus matches our purpose. The 10 stimuli including 5 sentence types are summarized in (9).

(9) 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 being distributed differently on each test. To avoid any ordering effect, half of each group took version 1 and the other half of each group took version 2. Before starting the experiment, the EFLs were given a practice session where, together

with the researcher, they worked through how to do the Truth-Value Judgment Task. They were also given a list of vocabulary with definition in case any of the words used in the test were unfamiliar to them. For the Truth-Value Judgment Task, again, the EFL learners were told that they should not go back to the previous items and correct their answers.

Ⅲ. Results

3.1. The Grammaticality Judgment Task

A benchmark was set in this task: when learners allowed a null argument at least once in each position of subject and object, they were included in our main study. As a result, 27 J-EFL were included in the Truth-Value Judgment Task. While the 27 J-EFL fall within the level ranges of elementary to upper intermediate, we also tested 6 advanced J-EFL learners. Their results showed that null arguments were rejected in their L2 grammar.

On the other hand, among 16 G-EFL, only four learners met our standard. That is, other 12 G-EFL did not permit null arguments. However, this result might have been influenced by the nature of the task. Each of the test sentences easily directed G-EFL to notice a null element in it because they were given only one sentence per test item to judge. If each test sentence was embedded in any discourse or contexts, their focus might have deviated from null arguments. If this was the case, the Grammaticality Judgment Task may not reflect correctly how G-EFL treat null arguments in their L2 grammar. However, as we will report in the result section, G-EFL actually showed interesting results for interpretation of null arguments in the Truth-Value Judgment Task. Therefore, we include all results from G-EFL this time in our main study[3].

3.2. The Truth-Value Judgment Task

The English native control group did not allow null arguments to have both readings (i.e. sloppy and strict) in both positions (i.e. subject and object). Their results show that all of the English test sentences with a null argument uttered by Taroo were not acceptable. Null arguments are prohibited from appearing in both subject and object positions in the English language.
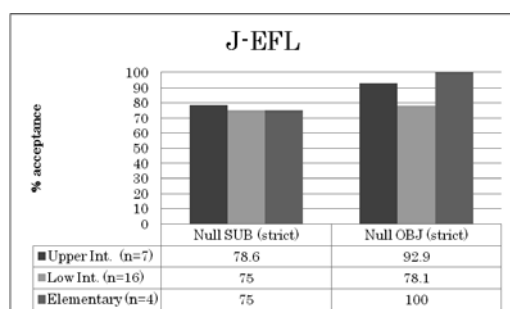
The results of experimental groups were summarized in (10), (11), (12), and (13). As

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3) As their language profiles are illustrated in (6), G-EFL started studying English earlier than J-EFL, so it could be said that G-EFL have had much more exposure to English than J-EFL. That might be relevant to their results of Grammaticality Judgment Task. Moreover, their results of the Oxford Placement Test also shows different average scores, 32.2 out of 60 for J-EFL and 41.2 for G-EFL.
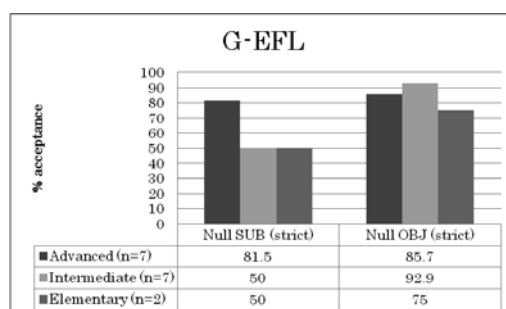
for the interpretation of strict reading, null arguments were accepted by the learners at all proficiency levels in both J-EFL and G-EFL groups; null subjects were allowed more than 75% and 50% each while null objects were also allowed more than 75% by both learners' groups. It is surprising that G-EFL accepted null arguments in spite of the fact that most of them rejected null arguments in the Grammaticality Judgment Task.

Regarding sloppy and quantificational reading interpretations, about 65% to 90% of G-EFL accepted null objects while the acceptance rate of null subjects was lower at all levels. On the other hand, the J-EFL showed higher acceptance rates than G-EFL learners from about 60% to 100% throughout the three levels.
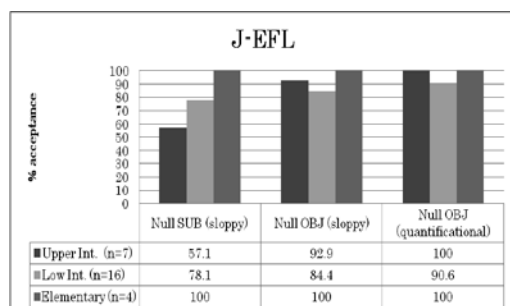
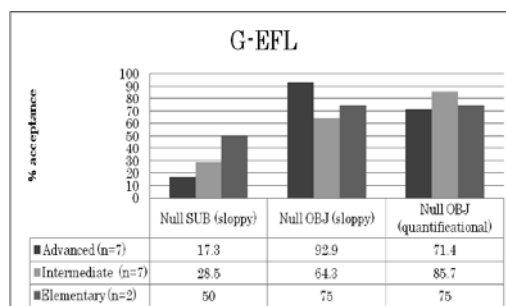(10) Acceptance (%) - Strict Reading

J-EFL

	Null SUB (strict)	Null OBJ (strict)
■Upper Int. (n=7)	78.6	92.9
■Low Int. (n=16)	75	78.1
■Elementary (n=4)	75	100

(11) Acceptance (%) - Strict Reading

G-EFL

	Null SUB (strict)	Null OBJ (strict)
■Advanced (n=7)	81.5	85.7
■Intermediate (n=7)	50	92.9
■Elementary (n=2)	50	75

(12) Acceptance (%) - Sloppy Reading

J-EFL

	Null SUB (sloppy)	Null OBJ (sloppy)	Null OBJ (quantificational)
■Upper Int. (n=7)	57.1	92.9	100
■Low Int. (n=16)	78.1	84.4	90.6
■Elementary (n=4)	100	100	100

(13) Acceptance (%) - Sloppy Reading

G-EFL

	Null SUB (sloppy)	Null OBJ (sloppy)	Null OBJ (quantificational)
■Advanced (n=7)	17.3	92.9	71.4
■Intermediate (n=7)	28.5	64.3	85.7
■Elementary (n=2)	50	75	75

Ⅳ. Discussions

The results are summarized in (14a) and (14b).

(14) a. J-EFL from upper intermediate levels allowed null arguments to have strict, sloppy, and quantificational readings in their L2 grammar. However, null arguments were not available in the L2 grammar of advanced J-EFL.

    b. G-EFL at all the levels accepted the presence of null arguments in all types of readings, especially on object positions.

From our observations, the results from J-EFL and G-EFL can follow the prediction in Miyamoto's (2012) modified version of Ishino's (2012) feature-based model as in (4) and (5).

    Similar results were also obtained in other L2 studies exploring learning or unlearning AE. Yamada and Miyamoto (2012) concluded that Spanish learners of Japanese in their study, rejected sloppy reading when interpreting null arguments though the learners were of an intermediate level. Since Spanish is a phi-feature agreement language, it is plausible that they transferred the L1 feature inventory to L2 Japanese, that would prohibit them from learning AE.

    In another study, Yamada (2014) compared *non-pro-drop* language (English and French) learners of Japanese and *topic-drop* language (German) learners of Japanese. It was observed that although the advanced learners of Japanese whose L1 are *non-pro-drop* languages did allow null arguments in their L2 grammar, they never interpreted null arguments as sloppy or quantificational, and only allowed strict reading. Yamada (2014) further argued that phi-feature agreement language learners cannot learn AE. In Miyamoto and Yamada (2015), this is explained with Miyamoto's (2012) modified version of Ishino's (2012) feature-based model as illustrated in (15).

(15)　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	✔	✔ ⟶	✔	✘

    The result from *non-pro drop* language learners is due to the presence of L1 English feature inventory at an early stage. They transferred L1 property into L2 Japanese and this transfer has remained throughout the part of their acquisition process. Accordingly, they cannot learn AE.

    In a study by Miyamoto, Yamada, and Yatsushito (2015), Japanese learners of German and German learners of Japanese were observed. They found that the Japanese learners with advanced level did not accept null arguments with sloppy readings in L2 German. This result seemed irregular contrary to their hypothesis. Japanese learners were expected to master relevant German feature inventory at a later stage.

Importantly, however, Miyamoto, Yamada, and Yatsushito (2015) suggested out that this is due to English feature inventory which has been present in L2 German since the Japanese learners studied English before they started learning German. Therefore because of this English feature inventory, AE is not available in their L2 German anymore. Interestingly, L2 German of Japanese learners with advanced level is neither German nor Japanese because a null argument is still available in spite of transferring the English feature inventory. This will not be explained simply by an effect of transfer.

As we outlined in the L2 studies on AE above, L2 learners' behavior including the results of the present study can be explained by Miyamoto's (2012) modified version of Ishino's (2012) feature-based model.

V. Concluding Remarks

The data in the present study shows that our hypothesis has been proven in previous studies. We hypothesize that J-EFL can unlearn AE and realize non availability of null arguments in English while G-EFL suffer persistent L1 influence throughout their progress in L2 development. Our results are consistent with Yamada (2014), Miyamoto, Yamada, and Yatsushito (2015), and Miyamoto and Yamada (2015). In the case where relevant features are already present in the earlier stage of L2 grammar, these features prevent L2 learners from acquiring relevant features of target languages even at a later stage.

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This is an ongoing project examining null elements in SLA. The current study explores the acquisition of L2 English by Japanese native speakers (NSs) and that of German NSs. We can obtain a crucial insight from this data focusing on comparing the informants' L1s: agreement (i.e. German) with non-agreement (i.e. Japanese) languages. In this paper, we examine how L2 learners interpret null elements if they are permitted in their L2 grammar. Japanese allows both null subjects and null objects while German allows null elements only in limited contexts. Our results from the Truth-Value Judgment Task show that the German NSs suffer more L1 influence than their counterparts of Japanese NSs. We will consider our results under Miyamoto's modified version of Ishino's (2012) feature-based model, which can give us a possible account to clarify the differences in L2 developmental process observed in our data from Japanese EFL learners and German EFL learners. It is only natural that such differences appear if Japanese null elements are a result of argument ellipsis (AE).