Interpretation of Argument Ellipsis by European *Non-pro-drop* and *Topic-drop* Language Speakers[1)]

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I Introduction

It has been claimed since Oku (1998) that an element considered to be *pro* in Japanese has different properties from those that general pronouns have. For example, in (1) a covert element occupies the subject position in the embedded clause, but if this element is a pronoun, we cannot predict (2b).

(1) a. Mary-wa [zibun-no ronbun-ga saiyo-sare-ru-to]
-TOP [self-GEN paper-NOM accept-PASS-PRES-COMP]
omotteiru.
think
'Mary$_i$ thinks that her$_i$ paper will be accepted'

b. John-mo [[e] saiyo-sare-ru-to] omotteiru
-also [[e] accept-PASS-PRES-COMP] think
'John also thinks that [e] will be accepted' (Oku 1998: 305)

(2) a. John also thinks her (=Mary's) paper will be accepted. [strict reading]
b. John also thinks his (=John's) paper will be accepted. [sloppy reading]

Oku claims that the argument DP 'zibun no ronbun-ga' (*his own paper*) is elided, and it is inserted into the position of *e* at LF.

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Moreover, not only subjects but also objects can be dropped in Japanese.

(3) a. John-wa [zibun-no tegami-o sute-ta]
-TOP self-GEN letter-Acc discard-PAST
'John$_i$ threw out his$_i$ letters'

b. Mary-mo [[e] sute-ta].
-also discard-PAST

'Mary also discarded his (=John) letters.' [strict reading]
'Mary also discarded her (=Mary) letters.' [sloppy reading]
(Otani and Whitman 1991: 346-347)

Based on the discussion by Otani and Whitman (1991) where null objects are considered VP-ellipsis, Oku developed their analysis and claims that null objects are a result of argument ellipsis (AE) with the evidence that null subjects can also have a sloppy reading as (1) shows. If the null objects are considered VP-ellipsis, it is a puzzle that a sloppy reading is also available in the subject position where VP-ellipsis is irrelevant because null subjects are outside of VP.

To sum up, it has been considered that null elements in subject and object positions are not *pro* in Japanese, but an argument is elided. Takahashi (2008) gave support to the AE analysis, particularly on null objects. He showed that quantificational null objects cannot be accounted for with an empty pronoun analysis.

(4) Hanako-ga taitei-no sensei-o sonkeishiteiru
Hanako-NOM most-GEN teacher-ACC respect

Soshite Taroo mo *e* sonkeishiteiru.
and Taro also respect
Lit. 'Hanako respects most teachers. And Taro respects, too.'
(Takahashi, 2008: 398)

As such, what languages is AE available in? Saito (2007) argues that AE is available only in languages which lack agreement. On the basis of his claim, languages such as Japanese and Korean permit AE because these languages lack agreement, while English

and Spanish do not allow AE as those languages exhibit agreement.

Among SLA studies concerning AE, Yamada and Miyamoto (Y&M) (2012) examined how their Spanish learners of Japanese (S-JFL) and Japanese learners of English (J-EFL) would interpret null elements if they are permitted in their L2 grammar. It was found that the Spanish native speakers (NSs) had difficulty in the interpretation of AE. They did not allow null elements to have a sloppy reading in L2 Japanese, so they suffered negative L1 influence. Y&M (2012) discussed that the J-EFL learners would learn full-fledged DP structure with positive evidence of determiners and third person singular agreement, which finally leads to phi-feature agreement. However, no such positive evidence is available in Japanese since the language does not have either definite/indefinite articles or any agreement. Therefore the S-JFL learners cannot have obvious positive evidence in the absence of phi-feature agreement. They will be unable to learn AE.

Yamada (2012) compared the data from the Japanese EFL learners in Y&M (2012) with a new dataset of Japanese learners of Spanish (J-SFL). The experiment employed an interpretation task using a Spanish version of the same questionnaire in Y&M (2012). The results showed that both of the groups allowed not only a strict reading but also a sloppy reading in their L2. Referring to the analysis of T's/v's φ-feature Specification (Ishino 2012, Miyamoto 2012), Yamada (2012) assumes that a negative L1 transfer of the relevant feature specification does not occur in their L2 grammars because T's/v's φ-features in Japanese are unspecified. However, both learner groups would need more time to acquire new feature specification of each target language: impoverished in English and fully specified in Spanish.

In Y&M (in progress), the experiment material used in Y&M (2012) was revised to include audio, corresponding to a short conversation or a dialogue in each stimulus. JFL learners of European *non-pro-drop* languages (English and French) (E-JFL) and Japanese EFL learners (J-EFL) were tested. Although the Japanese proficiency level of the E-JFL learners was advanced/upper-intermediate, their acceptance rate of null subjects and null objects in sloppy reading was low (less than 30% for both of them) compared to those of strict reading (above 80% and 60% each). There is no such numerical difference found in the J-EFL group. Y&M (in progress) concluded that while null arguments result from AE in the grammar of the J-EFL learners, it is a covert pronominal in the grammar of the E-JFL learners.

Regarding learners' L1s, target languages, directions, results (status of L2 null elements), discussions (prediction for future L2 grammar), the L2 studies above and the present study are summarized in Table 1.

Table 1: Summary of L2 studies testing interpretation of AE

	L1	L2	Directions	Results (Status of L2 null elements)	Discussions (prediction for future L2 grammar)
Y&M (2012)	Spanish	Japanese	Agr → non Agr	pronoun	AE not learned
	Japanese	English	non Agr → Agr	AE	*pro*/no null object
Yamada (2012)	Japanese	Spanish	non Agr → Agr	−	*pro*/no null object
	Japanese	English	non Agr → Agr	−	no null element
Y&M (in progress)	E-*non-pro-drop**	Japanese	Agr → non Agr	pronoun	AE not learned
	Japanese	English	non Agr → Agr	AE	no null element
Present study	E-*non-pro-drop***	Japanese	Agr → non Agr	?	?
	*topic-drop****	Japanese	Agr → non Agr	?	?

*One German learner was included in this group. **They are English and French NSs.
***They are German NSs.

The summary of the L2 studies shows that JFL learners whose L1 is a phi-agreement language (Spanish and English) cannot learn AE.

In the present study, following Y&M (2012), Yamada (2012), and Y&M (in progress), we hypothesize that it is difficult for JFL learners whose L1 is English, French, and German to learn AE, or they are unable to learn AE. Regarding null elements, colloquial German is different from English and French in that it allows null subjects and null objects as shown in (5).

(5) a. (Ich) kenne das nicht.
(I) recognize that not
'I don't recognize that.' (Sigurðsson, 1993: 254)

b. (Das) kenne ich nicht.
(That) recognize I not
'That I don't recognize.' (Ibid: 255)

The dropping subject and object in (5) are bound by an empty 'topic operator' or a null-topic (O) in [Spec, CP] as illustrated in (6).

(6) a. $[_{CP}\ O_i\ [_{C'}$ kenne $[_{IP}\ e_i$ das nicht]]
b. $[_{CP}\ O_i\ [_{C'}$ kenne $[_{IP}$ ich e_i nicht]] (Ibid: 255)

Therefore German is classified as a *topic-drop* language.

In our main study, we combined our English and French JFL learners into one group as the *non-pro-drop* language group, whose data is compared to the data from a *topic-drop* language group.

Ⅱ The Study

In this section, we report on the experimental study that tested interpretation of Japanese null subjects and null objects.

2.1. Subjects

A total of 31 subjects participated in our study (see Table 2). The control group (Japanese NSs, n=8) served as a baseline against which we compared the learners' results. The experimental (learners) groups consisted of NSs of *non-pro-drop* languages (n=10) and German NSs (n=13). They were either undergraduate or postgraduate students learning Japanese as a second language at universities in London and Berlin. The JFL learners had diverse language profiles, with the length of study ranging from 1 to 6 years (*M*=3.2) for the *non-pro-drop* language group, and from 1 month to 6 years (*M*=2.2) for the *topic-drop* language group. All of the learners started their study from age 13.

Table 2: Participants

L1	Number	Age	Level**	Length of Study
Non-pro-drop*	n=10	19-23 (*M*=21.1)	N1, N2 (JLPT)	1-6 years (*M*=3.2 years)
German	n=13	18-27 (*M*=23.0)	N2,N3,N4,N5 (JLPT)	1 month-6 years (*M*=2.2 years)
Japanese Control	n= 8	18-20 (*M*=18.7)	–	–

*English (n=8), French (n=2)

**Levels: N1=advanced, N2/N3=intermediate, N4/N5=elementary

2.2. Stimuli and Procedures

All participants took part in two experimental tasks in the following order: an interpretation task and a 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 70 minutes for the JFL learners and 40 minutes for the Japanese NSs. Participants were given a brief break between each task when necessary.

2.2.1. Grammaticality Judgment Task (pre-test)

This test was performed to identify the participants who allowed null arguments in their L2 grammar. In the main study (the interpretation task), we expect the JFL learners to judge whether a null element is allowed to have either a sloppy reading or a strict reading. Therefore it is indispensable for the JFL learners to know that null elements are available in their L2. A different grammaticality judgment task was prepared for each group. For the *non-pro-drop* language group, the task consisted of 6 stimuli: 3 included null subjects and 3 null objects. Examples are given in (7).

(7) a. null subject
たろうが　赤い(あか)　ふくの　女の人(おんなひと)を　みたとき、[e] その人(ひと)を　サムの　おねえさんだ　と思(おも)いました。
'When Taro saw a lady wearing red clothes, [he] thought she was Sam's elder sister.'

natural/acceptable or unnatural/not acceptable

b. null object
たろうが　コンピュータを　こわしてしまいましたが　おとうさんが　[e]　なおしました。
'Although Taro broke a computer, his father fixed [it].'

natural/acceptable or unnatural/not acceptable

The test for the German group consisted of the same 6 stimuli used in the *non-pro-drop* language group, but 3 more were added to check whether they would permit null objects after the verbs of *soujisuru* 'clean', *taberu* 'eat', and *keru* 'kick'. Since the German equivalent these three verbs can be followed by an indirect null object, we can also confirm how this affects their L2 grammar.

The JFL learners were also asked to correct a sentence when they circled *unnatural/not acceptable* for it. Responses were not explicitly timed, but the JFL learners were instructed to answer quickly, and not to change their answers to previous items.

2.2.2. Interpretation task: Truth-value Judgment Task

In the main study, a truth value judgment task 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 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 German for the German group to make sure that they fully understood each context/ situation. Both groups were told that 'Elmo' is learning Japanese, but he is not good at Japanese yet. The JFLs were required to judge whether the uttered Japanese test sentences by 'Elmo' correctly described the situations of given dialogues. Examples of the test items are illustrated in (8).

(8) a. Sloppy reading context

No.1 (1/4) 0-1-1

(English)
"*My car is very dirty. I should clean it.*"
(German)
"*Mein Auto ist sehr schmutzig. Ich sollte es säubern.*"

No.1 (2/4)

(E) "*It's very clean now.*"
(G) "*Es ist jetzt sehr sauber.*"

No.1 (3/4)

(E) "*I should clean the car, too.*"
(G) "*Ich sollte das Auto auch säubern.*"

No.1 (4/4)

(E) "*Now, it is very clean.*"
(G) "*Jetzt ist es sehr sauber.*"

Elmo "くまは　自分の　車を　ふいた。そして　ペンギンも　　e　　ふいた。"
(*Lit: Bear wiped his own car, and Penguin wiped [his own car], as well.*)

b. Strict reading context

No.37 (1/2)　0-2-1

(E) Bear: "*Let's clean the car.*"
Penguin: "*I will help you.*"
(G) Der Bär: "*Lass uns das Auto säubern.*"
Der Pinguin: "*Ich werde dir helfen.* "

No.37 (2/2)

(E) Bear: "*Now, it is really clean. Thank you very much, Penguin.*"
Penguin: "*You're welcome.*"
(G) Der Bär: "*Jetzt ist es sehr sauber. Vielen Dank, Pinguin.*"
Der Pinguin: "*Gern geschehen.*"

Elmo "くまは　自分の　車を　ふいた。そして　ペンギンも　*e*　ふいた。"
(*Lit: Bear cleaned his car, and Penguin cleaned [his car], as well.*)

Dialogues were recorded by two English NSs and two German NSs, and Elmo's Japanese sentences by a Japanese NS.

For the two JFL groups, each task consisted of 52 stimuli including 28 sentence types, most of which involved two tokens. Since the current study is part of the project examining null elements in SLA, we will report the relevant data here whose focus matches our purpose. The 10 stimuli including 5 sentence types are summarized in Table 3.

Table 3: 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 JFLs were given a practice session where, together with the researcher, they worked through how to do the interpretation task.

They were also given a list of vocabulary with definition in case any of the vocabulary was unfamiliar to them. For the interpretation task, the JFLs were told that they should not go back to the previous items and correct their answers.

Ⅲ Results

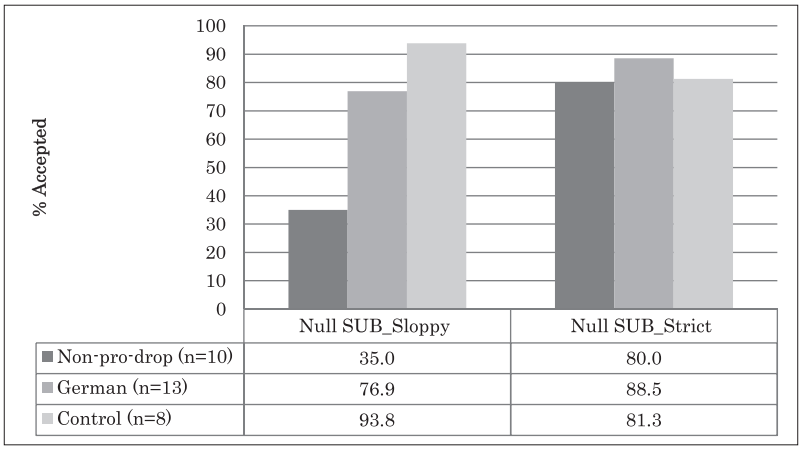
1. Grammaticality Judgment Task

A benchmark was set in this task: when JFLs allowed a null element at least once in each position of subject and object, they were included in our interpretation task. All 10 *non-pro-drop* language learners and all 13 German learners met our standard, and all of them participated in the interpretation task. In regards to a structure with a null indirect object in German, one German NS permitted a null element twice in that structure while the other 12 German NSs allowed a null element all three times.

2. Interpretation Task

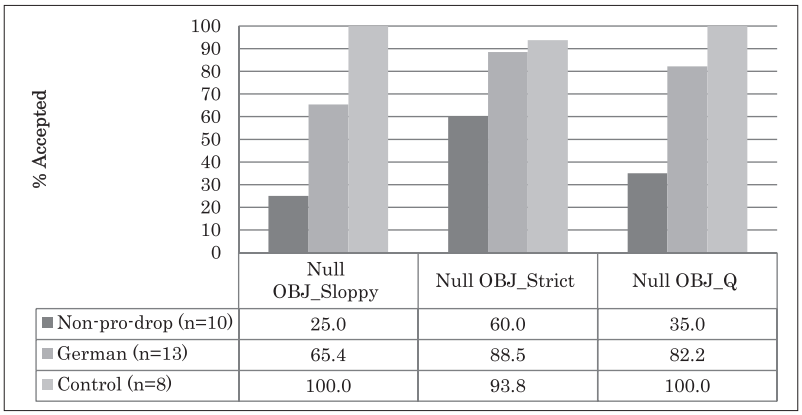
The results of the interpretation task were summarized in Figure 1 and 2.

Figure 1: Percent null subject items judged appropriate on the interpretation task



	Null SUB_Sloppy	Null SUB_Strict
Non-pro-drop (n=10)	35.0	80.0
German (n=13)	76.9	88.5
Control (n=8)	93.8	81.3

Figure 2: Percent null object items judged appropriate on the interpretation task



	Null OBJ_Sloppy	Null OBJ_Strict	Null OBJ_Q
Non-pro-drop (n=10)	25.0	60.0	35.0
German (n=13)	65.4	88.5	82.2
Control (n=8)	100.0	93.8	100.0

The *non-pro-drop* language group, but not the *topic-drop* language group, rejected sloppy reading with a null subject (65.0% vs. 23.1%) and a null object (75.0% vs. 34.6%). This difference was not expected because under our hypothesis, all JFLs would have problems learning AE. As for strict reading, in all three groups, null subject acceptance was 80% or more whereas for null objects, allowance from the groups was 60% and above. Finally, the acceptance rate of quantificational reading with a null object by the *non-pro-drop* language group was lower than that of the *topic-drop* language group (35.0% vs. 82.2%).

Concerning the subject position, a repeated measure, two-way ANOVA shows a significant main effect of context types (sloppy and strict reading) ($F(1,28)=4.31$, $p<.05$), a highly significant effect of L1 ($F(2,28)=5.43$, $p<.01$), and significant interaction of context type by L1 ($F(2,28)=5.08$, $p<.05$). Further multiple comparisons confirmed that there is a significant difference between the control group and the *non-pro-drop* language group ($p<.05$), but no such difference between the control group and the *topic-drop* language group ($p=.874$). Between-group comparisons were also conducted to test each group of learners for the interpretation of null subject in the two context types. In order to check every comparison, an independent *t*-test was performed. Experiment groups' interpretation was compared against the native's norm. The test result shows that there is a significant contrast in a sloppy reading context between the control group and the *non-pro-drop* language group ($p=.013$). In contrast, there is no such difference between the control and the *topic-drop* language group ($p=.193$). As for the strict reading context, no significant difference is found among the three groups. This indicates that the *non-pro-drop* language group's behavior was different from the control group's with respect

to the interpretation of null subject in sloppy reading contexts, but the topic-drop language group's interpretation was similar to the Japanese control group's.

Regarding interpretation of null objects, a repeated measure, two-way ANOVA shows a significant main effect of context types (sloppy, strict, and quantificational readings) ($F(2,56)=4.35$, $p<.05$), a highly significant effect of L1 ($F(2,28)=9.18$, $p=.001$), and marginally significant interaction of context type by L1 ($F(2,28)=3.13$, $p=.059$). Further multiple comparisons confirmed that there is a significant contrast between the control group and the *non-pro-drop* language group ($p<.05$), but no such disparity between the control group and the *topic-drop* language group ($p=.224$). Between-group comparisons were also conducted to test each group of learners for the interpretation of null objects in context type. Independent *t*-test results show that there is a highly significant gap in a sloppy reading context between the control group and the *non-pro-drop* language group ($p<.01$), and a significant difference between the control group and the *topic-drop* language group ($p<.05$). In a strict reading context, a significant distinction is found between the control group and the *non-pro-drop* language group ($p<.05$), whilst there is no difference between the control and the *topic-drop* language group ($p=.657$). In a quantificational reading context, there is a highly significant gap between the control and the *non-pro-drop* language group ($p<.01$), but a marginally significant contrast appears between the control and the topic-drop language group ($p=.096$). This indicates that the two experimental groups' behavior was not different from the control group with respect to the interpretation in a strict reading context. On the other hand, their null object interpretation was different from the natives' in a sloppy and quantificational reading context. However, the statistical difference between the native control and the *topic-drop* language group is smaller than that between the control group and the *non-pro-drop* language group.

For closer examination, we also conducted within-group comparisons to observe how each group would behave in regard to sloppy reading in each position: subject and object. Would they behave differently in each position? The results show that there is no significant difference in the control group and the *non-pro-drop* group, but there is a marginally significant difference in the *topic-drop* language group ($p=.082$). This might indicate that the *topic-drop* language group reacted differently in the two positions.

Ⅳ Discussions

The results are summarized in (a) to (c) below.

(a) The *non-pro-drop* language JFL learners allowed null elements to have strict reading. However, they permitted neither a sloppy reading nor a quantificational reading.

(b) The *topic-drop* language JFL learners seemed to have permitted sloppy and strict readings with both positions, and quantificational readings. However, their acceptance rates were not as high as those of the native control group.

(c) Compared to the Japanese NSs' results, both experimental groups mostly behaved in the same way regarding strict reading. However, there is a statistical difference between the control group and the *non-pro-drop* language JFL learners in terms of acceptance rates of sloppy and quantificational readings. More importantly, the *topic-drop* language JFL learners might not behave similarly in subject and object positions regarding sloppy reading interpretation.

On the basis of the results above, it would be that the status of null elements in the *non-pro-drop* JFL learners' L2 is pronominals since they permitted only strict reading with null elements. Their Japanese proficiency level is advanced/upper-intermediate; nonetheless, they still suffer L1 influence. Their behavior supports our hypothesis: JFL learners whose L1 has *phi-feature agreement* have difficulty in learning AE, or are unable to learn AE. Learning AE poses a problem for them.

On the other hand, no clear results were obtained in the data from the *topic-drop* language group. If we follow our hypothesis, the *topic-drop* language JFL learners cannot learn AE. Since their L1, German, has phi-feature agreement, it is considered that the *topic-drop* JFL learners keep having phi-feature specifications in their L2 acquisition process. Therefore we suggest that the status of null elements in their L2 grammar not be AE, but topic-drop, which is a result of L1 transfer. If the *topic-drop* language JFL learners allow sloppy reading in the subject position more than in the object position, this subject/object asymmetry might indicate that the nature of topic-drop in each position differ in their L2 grammar for some reason or other.

Ⅴ Concluding remarks

The data in the present study shows that our hypothesis is partially supported. We hypothesize that learners of *phi-feature agreement* language cannot learn AE. Although both groups suffered L1 transfer, a difference found in their results is that *null topic* would relate to the sloppy reading interpretation in the *topic-drop* language group, which allowed the learners to acquire AE in subject position superficially. However, it is uncertain whether the null element truly reflects the characteristics of AE. We need to examine more closely to clarify its status.

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Interpretation of Argument Ellipsis by European *Non-pro-drop* and *Topic-drop* Language Speakers

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Oku (1997) claimed that null elements considered as *pro* in Japanese are the results of argument ellipsis (AE). According to Saito (2007), AE is available in languages without agreement such as Japanese but not in agreement languages such as English. As part of a project examining null elements in SLA, the current study explores the acquisition of L2 Japanese by English, French, and German native speakers (NSs). We can obtain a crucial insight from those data focusing on a direction of L1 to L2, namely, from phi-agreement languages (i.e. French, English, and German), to a non-agreement language (i.e. Japanese). Do the learners whose L1 is a phi-agreement language successfully acquire AE?

In this paper, we examine how learners interpret Japanese null elements if they are permitted in their L2 grammar. Japanese allows null elements while English and French do not. They have been classified in *non-pro-drop* languages. Colloquial German, on the other hand, permits null elements if they are bound by a null topic. German is considered a *topic-drop* language.

Our results from an interpretation task show that the *non-pro-drop* language group suffer L1 influence while, interestingly, the *topic-drop* language group behaved like Japanese NSs. However, their L2 grammar is actually influenced by L1 German. We discuss the syntactic status of null elements in both language groups, which can provide us a possible account to clarify the difference in L2 developmental process observed in our data.