Asymmetric Unlearning of Null Arguments in L2 English Acquisition by Korean speakers*

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Kim, So-Young. 2007. Asymmetric null arguments in the L2 English acquisition by Korean speakers. The Linguistic Association of Korea Journal, 15(1) 63-81. This study investigates how Korean speakers learning English unlearn L1-oriented null subjects and null objects. The participants were 22 Korean ESL high school students from three proficiency groups. Ten native speakers served as controls. The methodology is an acceptability judgment task using Yuan's (1997) questionnaire of null subjects and null objects. Results show that the learners were quite accurate in detecting the ungrammaticality of null subject sentences but had difficulty with null object sentences. This can be interpreted to mean that the EPP (Extended Projection Principle) was operative in the learners, but that the PP (Projection Principle) was overridden by the [+discourse-oriented] parameter. As their proficiency increased, the learners showed progress in acquiring the PP.

Key words: null subjects, null objects, EPP, PP, L2 English acquisition by Korean speakers

1. Introduction

Among the many differences between Korean and English, one drastic difference is found in the fact that English requires the presence of overt arguments, whereas Korean allows null arguments.[1] The following (1) illustrates the difference between the two languages.

(1) Question: What happened to your homework?
a. English: My dog ate it.[2]

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[1] In English, there are limited contexts that allow null subjects and null objects. Some examples of null subjects are PRO, as in John tried [PRO to help himself], and null subjects found in specialized register variations, including diary register, idiolects of colloquial English, abbreviated written registers in notes, and informal spoken English (see Hageman, 2000, for a summary see Kim, S.-Y. (2006)). Null objects are found in the so-called intransitive-transitive alternation verbs (see Levin, 1993, p.33-41).

[2] Verbs, such as eat and read, are categorized into a special group of verbs, taking "unexpressed objects" (Levin, 1993, p. 33), "lexically saturated objects" (Rizzi, 1986, p. 509), or "indefinite objects" (Allerton, 1975, p. 214; Fillmore, 1986, p. 96). This paper does not address these types of verbs. In the

a'. English: *My dog ate.

b. Korean: ?kay-ka kukes-ul mekesse
dog-NOM it-ACC ate
b'. Korean: kay-ka mekesse
dog-NOM ate.

In English, the absence of the object, it, referring to my homework, causes ungrammaticality as shown in (1-a'). In Korean, on the other hand, the presence of the object, kukes, causes unnaturalness due to the discourse-redundancy, and the discourse-recoverable object is rather favored to be null as in (1-b').[3] The present study concerns how these parametric differences between L2 English and L1 Korean influence the shape of the interlanguage grammar of Korean speakers learning English.

2. Linguistic theories on subjects and objects

2.1. The PP (Projection Principle) and the EPP (Extended Projection Principle)

The occurrence of an object in a well-formed sentence is ensured by the Projection Principle, which guarantees "subcategorization properties of lexical items must be satisfied at LF" (Chomsky, 1981, p. 29):

(2) Projection Principle
Representations at each syntactic level (i.e., LF, D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items. (Chomsky, 1981, p. 29)

Subcategorization refers to "conditions [which] state for a lexical head what phrase categories it takes as complements" (Chomsky, 1995, p. 30). For instance, the lexical item kick has the subcategorization, or c(ategorial)-selectional property, 'kick [__NP],' which requires that it take one NP object. The object NP selected by the lexical head kick is assigned a specific θ-role, which is known as s(emantic)-selection. This follows Chomsky (1995, p. 31) who states that "subcategorization follows almost entirely from θ-role specification," and that a lexical item has "inherent semantic and syntactic features that determine s(emantic)-selection and c(ategorial)-selection, respectively." Chomsky (1995, p. 54) divides items of the lexicon into two general types, lexical items with substantive content, such as NPs and VPs, and functional items without substantive content, such as IPs and CPs. Given this distinction, the Projection Principle is operative only for lexical items which can be theta-marked. Thus, an object selected by a lexical head occurs in a θ-position, which is θ-marked by the lexical head.

Subjects, on the other hand, are regulated by the Extended Projection Principle (EPP), which informally states that every clause must have a subject. While an object occurs as the complement of a verb in a θ-marked position, the subject is syntactically, not

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example (1), the verb eat is used as a transitive verb, since it needs an object which is specified, and should be pronominalized.

[3] The Korean sentence, (1-b), is not ungrammatical, but unnatural, due to the redundancy of the object.

thematically, ensured in the spec of a non-substantive functional item, which is responsible for a proposition, headed by the category I (inflection). According to Chomsky (1995, p. 55), "The Extended Projection Principle (EPP) states that [Spec, IP] is obligatory, perhaps as a morphological property of I or by virtue of the predicational character of VP."

(3) $[_{CP}$ Spec $[_{C'}$ C $[_{IP}$ Spec $[_{I'}$ I VP]]] (Chomsky, 1995, p. 55)

In (3), the subject position is the spec of IP. The EPP requires that the [Spec, IP] position be realized, which enters the spec of IP into a spec-head relationship. While the object is necessarily theta-assigned, the subject may or may not be, since the EPP is, in principle, strictly syntactic, not semantic. In the example below (4), the subject is filled to satisfy the EPP.

(4) There are three pigs escaping. (Haegeman, 1994, p. 65)

The expletive there is not a locative adjunct, as shown in the impossible question and answer set, Where are three pigs escaping?-- *There.[4] Without carrying any semantic content of its own, the expletive is inserted into the spec of IP to satisfy the EPP. In the next section, I discuss how these UG principles are parameterized.

2.2. Parameterization of the EPP and the PP

2.2.1. Pro-drop parameter

One main parameter which accounts for the availability of null arguments is the pro-drop parameter (Chomsky, 1981; Rizzi, 1986). Even though the pro-drop parameter is used as a catchall for null subject phenomena, the original insights under this parameter are based on the relationship between null arguments and rich agreement. Thus, rich subject agreement languages, like Italian and Spanish, "license" null subjects by the governing node INFL, and "identifies" its missing grammatical information, based on the rich agreement inflection carrying the φ-features of person, number and gender. On the other hand, impoverished agreement languages, like English, do not allow pro, since the impoverished agreement morpheme does not carry enough information to identify the grammatical content of null arguments. Agreement-based pro can occur in both the object and subject positions. According to Huang (1984), languages like Pashto allow null objects when the verb agrees with the object in the past tense, and a null subject when the verb agrees with the subject in the present tense (see Huang, 1984, p. 535-536, for a detailed discussion).

2.2.2. [+discourse-oriented] parameter

The [+discourse-oriented] parameter (Huang, 1984) accounts for the occurrence of null arguments, the information of which is identified in discourse, without agreement morphemes. Null arguments allowed in this parameter are observed in the so-called discourse-oriented languages, such as Chinese, Japanese, and Korean. These null

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[4] This answer is possible, but the meaning is different from the 'there' in 'there are three pigs escaping.'

arguments are different from those in languages, like Italian. In Italian, null subjects are allowed only when the missing information is recovered from the rich inflectional morphology within a sentence domain (see Kim, S. H. (1993) and Park, H. (2004) for related discussions). In languages, like Korean, however, null arguments are allowed and even favored when the information is recovered from a discourse domain. In addition to this discourse-based identification of null arguments, the [+discourse-oriented] parameter carries a cluster of properties, including null arguments, topic constructions, and topic-prominence. The positive setting of the [discourse-oriented] parameter indicates that a language bears a combination of these properties, allowing a topic to show connectedness to a null argument, and a topic to be placed in the sentence-initial position where it picks up its reference from discourse. Thus, the term [discourse-oriented] parameter implies an availability of null arguments in connection with the clustering properties. An incorporation of the typological characteristic into the parametric framework was initially made by Huang (1984).

(5) Binding of a topic to a null argument in Huang (1984);
[Top e_i], [Zhangsan shuo [Lisi bu renshi e_i]].
Zhangsan say Lisi not know e
'Zhangsan said that Lisi didn't know.'

Meaning: Him, Zhangsan said that Lisi didn't know.
e_i = Him, Him ≠ Zhangsan, Him ≠ Lisi, Him = discourse topic
(adopted from Huang, 1984, p.542)

In Huang's analysis (5), the null object is bound by the sentence initial [Top e_i]. The status of the null object is defined as a variable, given that 'α is a variable if and only if it is locally A'-bound and in an A-position' (Chomsky, 1981, p.330). According to Huang (1984), while a null object is a variable, a null subject can be either a variable or pro, depending on where it occurs. When the null subject is c-commanded by the matrix antecedent, it can be a pro.[5] In other contexts, null subjects are variables, bound by the zero-topic.

While Huang (1984) argues that null arguments in Chinese are variables, those in Korean and Japanese[6] are analyzed as pros (Cole, 1987; Kang 1986; Moon, G. S.; Kim, S.

[5] Null subject as a pro: Zhangsan$_i$ xiwang [e_i keyi kanjian Lisi]
Zhangsan hope can see Lisi
'Zhangsan hopes that can see Lisi.'
Meaning: 'Zhangsan hopes that he can see Lisi.' (Chinese: Huang, 1984, p.538)
Null subject as a variable: e lai-le.
Come-LE
'Came.'
Meaning: 'He came.' (Chinese: Huang, 1984, p.537)

[6] Analyses based on Korean are assumed to apply to Japanese, due to their striking structural similarities.

H., 1993; Zushi, 2003).[7] Proponents of the pro analysis provide data showing pro properties defined in Chomsky; 'α is a pronominal if and only if it is free or locally A-bound by β with an independent θ-role' (Chomsky, 1982, p.81).

(6) pro properties of null arguments in Korean
a. [e] cham cal ttwuin-ta.
really fast run-Dec
'Really runs fast.' (looking at a sprinter)
[e] = empty category

b. John$_i$-i [Mary-ka e_i / ku_i / caki$_i$-lul ttaly-ess-ta] ko ha-ess-ta.
John$_i$-NOM [Mary-NOM e_i / ku_i /caki$_i$-ACC hit] COMP said
'John said that Mary hit e /him/himself.'

In (6a), the null subject refers to someone physically present, which bears its own θ-role, behaving as "its overt counterpart that alternates with it" (Chomsky, 1982, p.81). (6b) contains a null object which is in the variation with the overt resumptive pronouns, ku_i or caki, which bears its own theta role in the base position, suggesting it is base-generated. The null object in (6b) is A-bound by the matrix argument, suggesting it is a pro, but not a variable. Null arguments in Korean are pros that are base-generated, carrying their own theta-roles, and allowed due to the discourse-oriented parameter. This runs counter to Huang (1984), who argues that natural languages do not allow pro in the object position.

Kim, S. W.'s (1999) study shows that the recovery domain for null arguments in Korean is extensive, encompassing not only explicitly given, but also implicitly inferred information. Examples of this are taken from Kim, S. W. (1999).

(7) Null arguments with wide discourse recovery domains (Korean)

a) Mary-nun [caki-uy yenkuse-ka thonggwatoylila] ko saynggakhanta.
Mary-TOP [self- GEN paper- NOM will be accepted] COMP think
'Mary thinks that her paper will be accepted.

b) John-to [e thonggwatoylila] ko saynggakhanta.
John-also [e will be approved] COMP think
i) 'John also thinks that [e =it = Mary's paper] will be approved' (strict reading)
ii) 'John also thinks that [e =John's paper] will be accepted' (sloppy reading)

In (7a), the null subject in Korean can refer to either John's paper as in (7b-i), or Mary's paper as in (7b-ii), known as 'sloppy identity' and 'strict identity,' respectively. On the other hand, its English counterpart with an overt pronoun allows only the strict reading.[8]

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[7] Analyses of null arguments in discourse-oriented languages have not reached a consensus among researchers. Unlike researchers cited above, Kuroda (1965, cited in Zushi, 2003) suggests that null objects in Japanese show variable properties, as proposed in Huang (1984).

[8] The Spanish counterpart also receives only a strict reading, as follows:
(1) Maria cree [que su propuesta sera aceptada] y

Kim, S. W. (1999, p. 267) suggests that the range of reading null arguments in Korean is extensive, taking any possible antecedent from discourse.[9]

In sum, Huang's (1984) [+discourse-oriented] parameter can account for null arguments in discourse-oriented languages, such as Korean. This parameter allows null arguments in the subject and object position, as long as the missing information is recovered from discourse. Their syntactic status is assumed to be pro, since they carry their own theta-roles and can alternate with resumptive pronouns. The recoverability domains of null arguments are extensive, and thus null arguments can pick up their antecedents, which are linguistically given or implicitly inferred.

2.3. Summary: parameterization of the EPP and PP

A subject and object(s) are required by linguistic principles, the EPP and the PP, respectively. These principles are parameterized in that English requires the overt presence of these constituents, whereas Korean allows and even favors null arguments. The differences between Korean and English in terms of the null argument availability is attributed to the positive setting of the [+ discourse-oriented] parameter in Korean and the negative setting of the parameter in English.

3. Previous study: null subjects vs. null objects in the L2 English acquisition (Yuan, 1997)

Yuan (1997) studied the unlearning of null subjects vs. null objects in English by Chinese learners. The subjects were 159 Chinese EFL learners, including 73 middle school students, 65 English-major college students, and 21 university teachers of English. The Chinese learners were subdivided into seven groups, depending on their English proficiency. Five native speakers of English served as controls. The methodology adopted was an acceptability judgment task on four pairs of null/overt subject sentences and five pairs of null/overt object sentences.[10] Yuan's test sentences are as follows:

Mary believes [that her proposal will-be accepted] and
'Maria believes that her proposal will be accepted and….'

(2) Juan tambien cree [que pro sera aceptada]
Juan too believes [that pro will-be accepted] (pro = Maria's proposal)
'Juan also believes that pro will be accepted. ' (Spanish: Oku, 1998, p. 305)

Pro in (2) allows the strict identity reading, Maria's proposal, but never the sloppy identity reading, Juan's proposal.

[9] Kim, S. W. (1999, p. 258) argues that the null arguments are base-generated empty NPs, that is, "empty phrase-markers underlyingly, not empty pronouns per se." Also see Oku (1998) and Tomioka (2000, cited in Zushi, 2003, p. 582-583) for a similar phenomenon in Japanese. On the other hand, Hoji (1998, p. 142) claims that null arguments in Japanese behave either like referential definites or indefinites in English. This comes from the specific 'bare nominal' property of Japanese nouns. Zushi (2003, p. 253-254), adopting Hoji (1998), proposes that null arguments in Japanese are 'minimum pro. I leave the full evaluation of Kim, S. W.'s (1999) 'full NP' analysis and Hoji's (1998) 'bare nominal' analysis for future detailed research. In this paper, I use the neutral term 'null argument.'

[10] Yuan (1997) adopted a technique called 'Magnitude Estimation' (Sorace, 1990, p. 143). The participants assigned the first sentence any number they wanted. They then assigned the next

(8) Yuan's test sentences: Ungrammatical versions replace the italicized words with null subjects or objects.
I. Overt/Null subject sentences
a) I once met John's girlfriend. She was very beautiful.
b) The experiment has been started. I hope it will be successful.
c) It has been very cold here recently.
d) It seems that Peter is ill.

II. Overt/Null object sentences
a) Mary's bike has gone wrong. Tomorrow I am going to repair it for her.
b) Mary lost her bike last week, but John says the police have found it for her.
c) When you finish using the computer, please let me use it for a while.
d) I immediately recognized the students, and later Mary also recognized them.
e) John said those students were in the library, but I told him I didn't find them there.

The results display an asymmetry in the unlearning of null subjects and null objects by the Chinese learners. The Chinese learners were in general accurate in identifying the ungrammaticality and grammaticality of null and overt subject test sentences. For instance, with the exception of the lowest level group, the test item, I once met John's girlfriend. Was beautiful, did not yield any significant difference between the native speaker group and the learner groups. On the other hand, the null object sentences were problematic to almost all of the learner groups. Based on these results, Yuan (1997) claims that "Chinese learners are able to reject the incorrect null subject in English but unable to detect the ungrammaticality of the null object" (p. 467).

Yuan (1997) suggests that Chinese learners' asymmetric unlearning between null subjects and null objects is due to asymmetric parameter resetting and asymmetric L1 transfer. Chinese learners successfully reset the L2 parameter of the subject requirement, but they transferred their L1 [+topic-drop] parameter[11] as "a persistent source of interference in the acquisition of English" (p. 491).[12]

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sentences numbers, using the first sentence as a reference. The raw numbers assigned by the participants were converted to a range of 0 to 10, following the formula: 10 * (individual raw number – minimum) / (maximum – minimum) (Yuan, 1997, p. 479).

[11] Yuan's (1997) [+topic-drop] parameter is equivalent to the [+discourse-oriented] parameter in this paper. Yuan adopts Huang's (1984) account that topic-drop involves movement of arguments to the topic position, where the topic can receive interpretation from the discourse via the Topic Chain, and the sentence initial topic can be deleted via the Topic NP Deletion Rule. As discussed in Chapter 2, Huang's (1984) theory needs to be modified in order to account for Korean null arguments.

[12] Let us briefly discuss Yuan's theoretical assumptions on null subject parameter, which stem from Jaeggli and Safir's (1989) Morphological Uniformity Hypothesis (MUH). In the MUH, null subjects are allowed in languages with uniformly inflected morphemes, such as Spanish, and languages with uniformly uninflected morphemes, like Chinese, but not in morphologically mixed languages, like English. Yuan reinterprets MUH in that null subjects are allowed in Spanish-type languages where strong I-features of the verb undergo raising to I, and where the subject position is governed by a lexical head at PF. Null subjects are also allowed in Chinese-type languages where underspecified I-

4. Present study: null subjects vs. null objects in the L2 English acquisition by Korean speakers

4.1. A research question

L1 Korean and L2 English show parametric differences in terms of the EPP and PP. English requires a subject and an object(s) of a transitive verb, whereas Korean allows subjects and objects to be null due to the [+discourse-oriented] parameter. Yuan (1997) claimed that Chinese EFL learners, whose L1 is [+discourse-oriented], easily unlearn null subjects, but are not able to unlearn null objects in learning English. Considering that Korean is [+discourse-oriented], will Korean speakers learning English show the same asymmetric unlearning of null subjects and null objects?

4.2. Participants

The present study investigates the acquisition of the overt argument requirement in L2 English by L1 Korean learners. The subjects were 22 Korean ESL students attending high school in the U.S. Their length of residency in the U.S. was between three months and 3-1/3 years. The grade at which their English instruction began varied from the 4th grade to the 7th grade. This difference in their starting points of the English instruction was due to a change in the obligatory English education policy in Korea. According to the Korean Education Weekly [Hankuk Kyoyuk Sinmun] (Jan. 12, 2006), and the Korean Educational Development Institute Internet Newsletter (Feb. 15, 2006), in 1997, the Ministry of Education lowered the grade of obligatory English education from 7th grade to 3th grade. Since 1997, English has been required to be taught at school from the 3rd grade. Before 1997, English was taught from the 7th grade. Four students had additional experience with English, since they had lived in the U.S. for one year on previous occasions.

The learners were divided into three groups based on their scores on the ESL placement test given in their school. The test identifies six groups of learners, from 'Pre-Production/Beginning Stage' (Level 1) to 'Full Proficiency Level' (Level 6). The levels of the learners in the study were Level 2, 3, and 4. They were assigned to Group 1, 2, and 3, and they were referred to as Low ESL, Intermediate ESL, and advanced ESL in this study. Ten native speakers, randomly selected from the University of Wisconsin-Madison, participated in the study as a control group. The following is the distribution of the subjects.

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features do not need to raise at any level, and the subject position can never be lexically governed. On the other hand, English-type languages require that the subject position be phonetically realized because weak I features of the verb do not undergo being raised to I until LF. Based on these theoretical assumptions, he claims that the Chinese learners are exposed to positive evidence containing informative L2 input, such as tense and agreement morphemes, copulas, auxiliaries, and do-support, which in turn triggers the I-feature specification. The learners also learn that English is morphologically non-uniform, by which they realize that the English I features are weak and require overt subjects. However, I adopt a different position from Yuan. This paper does not address this issue. See Kim, S.-Y. (2006) for a detailed discussion.

(9) Table 4.1 Distribution of the subjects

Group	Proficiency level	Number
Group 1	Low ESL	5
Group 2	Intermediate ESL	9
Group 3	Advanced ESL	8
Control	Native Speakers	10
Total		32

4.3. Methodology

Like Yuan's (1997) study, the learners in my study come from a [+discourse-oriented] L1 and are learning English, which is [-discourse-oriented]. Assuming that it would be a good starting point to investigate whether Korean speakers learning English show judgment patterns similar to Chinese speakers, I used Yuan's (1997) questionnaire.[13] To check whether the questionnaire sentences were acceptable in current American English, I asked three native speakers of English about the acceptability of the sentences. Based on their responses, I modified two of Yuan's original sentences. Mary's bike has gone wrong… was changed to Mary's bike is broken…, and the experiment has been started..., was changed to the experiment has started. The test sentences consist of nine pairs: four pairs of null/overt subject sentences, and five pairs of null/overt object sentences (see Appendix for the questionnaire sentences). The sentences were randomized according to a randomization table. The subjects were asked to rank the grammaticality of each sentence on a scale of 1 to 10, where 0 is the least acceptable, and 10 is the most acceptable.

5. Results

5.1. Overall results: null subjects vs. null objects

An overall mean score was calculated for null/overt subject sentences and null/overt object sentences produced by the learners and the native speakers. Results are shown in (10). An ANOVA test showed that the learners were significantly different from the native speakers in their judgments of the overt subject constructions and the null object constructions, as in (11).

(10) Table 5.1 Mean scores of null/overt subjects and null/overt objects by learners and native speakers

Null subject		Overt subject	Null object	Overt object
Learners	3.25	8.32	7.71	4.09
Native speakers	1.83	9.53	1.59	8.53

[13] I greatly appreciate Yuan's consenting to let me use his questionnaire.

(11) Table 5.2 ANOVA for null/overt subjects vs. null/overt objects by learners and nativespeakers

Category	F	sig.
Null subject	3.660	.065
Overt subject	6.632	.015*
Null object	14.188	.001*
Overt object	1.619	.213

Note. [a] df = 1, * p > .05

The data were divided by language proficiency, and each group's mean scores on null subject, overt subject, null object, and overt object sentences were calculated, as in (12). An ANOVA test showed significant differences in the overt subject sentences (df = 3, F = 10.978, sig. = .000) and the null object sentences (df = 3, F = 7.067, sig. = .001).

(12) Table 5.3 Mean scores of overt vs. null subject sentences by group

	Overt subject	Null subject	Overt object	Null object
Low	6.59	2.80	6.69	5.27
Intermediate	8.63	4.06	7.84	4.30
Advanced	9.03	2.60	8.20	3.13
Native speaker	9.53	1.83	8.53	1.59

Post hoc Tukey tests were conducted on the overt subject and the null object sentences, which had shown significant differences on the ANOVA test. The Tukey tests on the means of the overt subject sentences, in (13), show that the low level group, unlike the other learner groups, had mean scores significantly different from that of the native speaker group. On the other hand, the Tukey tests for the null object sentences, in (14), show that, with the exception of the advanced group, the learner groups had scores significantly different from that of the native speaker group. This suggests that the null object sentences were more difficult for the learners than the overt subject sentences. The data are presented in the graphs in (15) and (16).

(13) Table 5.4 Tukey test for mean scores of the overt subject constructions by group

	Low	Inter.	Adv.	Native
Low		-2.04*	-2.44*	-2.93**
Inter.	2.04*		-.40	-.89
Adv.	2.44*	.40		-.49
Native	2.93**	.89	.49	

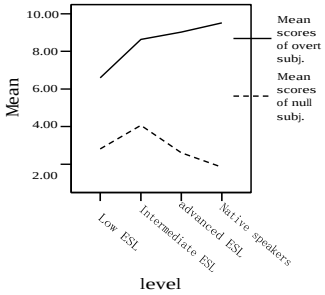
Note. *p<.05, **p<.001, numbers = Mean Difference

(14) Table 5.5 Tukey test for mean scores of the null object constructions by group

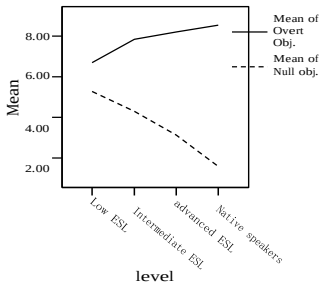
	Low	Inter.	Adv.	Native
Low		.97	2.14	3.97*
Inter.	-.97		1.17	2.70*
Adv.	-2.14	-1.17		1.54
Native	-3.67*	-2.70*	-1.54	

Note. *p<.05, **p<.001, numbers = Mean Difference

(15) Figure 5. 1. Null subjects vs. overt subjects by proficiency



(16) Figure 5.2. Null objects vs. overt objects by proficiency



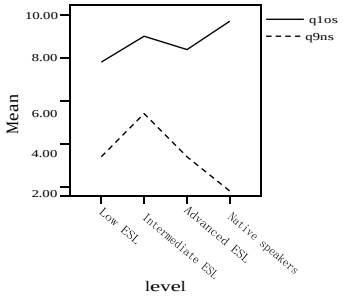
5.2. Subject sentences: Null subject vs. overt subject sentences

In this section, the mean scores of each pair of null/overt subjects are presented in line graphs. The data in the line graphs in (17) yield a couple of interesting observations. First, with the exception of Q14 (17-d), the low level learners generally assigned low acceptability scores to the null subject sentences.[14] This appears to be because the learners were aware that a null subject is ungrammatical. Second, the low level learners also assigned low acceptability scores to the grammatical overt subject sentences. This is presumably because of "indeterminacy" caused by their low proficiency (Schachter et al., 1976; Gass, 1994). Third, the intermediate group assigned higher acceptability scores to Q9, Has been very cold here recently, than the low group. The intermediate group appeared to overextend the register variation into other similar contexts.

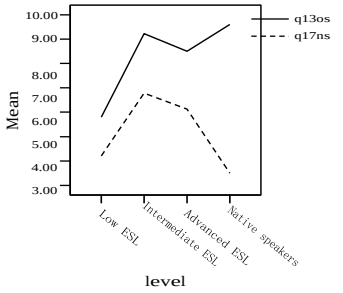
[14] Of interest is Q14, which contains a null subject, but receives relatively high acceptability scores from the low level learners. See Kim, S.-Y. (2006) for possible explanations.

(17) Figure 5.3. Line graphs of each pair of null/overt subject sentences

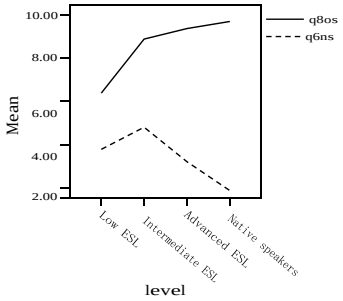
a) Q1: It has been very cold here recently.—
Q9: Has been very cold here recently.*



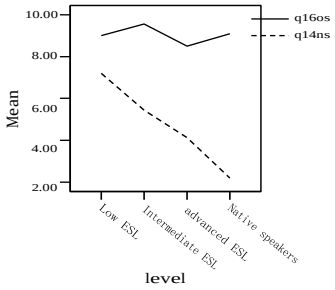
b) Q13: It seems that Peter is ill.—Q17: Seems that Peter is ill.*



c) Q8: I once met John's girlfriend. She was very beautiful. --
Q6: I once met John's girlfriend. Was very beautiful.*



d) Q16: The experiment has started. I hope it will be successful. --
Q14: The experiment has started. I hope will be successful.*



(18) Table 5.6 Paired sample t-tests on null and overt subject sentences by proficiency

Pair	Low[a]	Inter.[b]	Adv.[c]	Native[d]
Q1-Q9	*	*	**	**
Q8-Q6	none	*	*	**
Q13-Q17	none	*	*	**
Q16-Q14	*	*	*	**

Note. *p< .05, **p <.001, [a] df = 4, [b] df = 8, [c] df = 7, [d] df =9

To determine whether there was a significant difference between null subject sentences and their overt counterparts, paired sample t-tests were conducted. One underlying assumption on this test is that, if there is a significant score difference on a pair, it can be interpreted to mean that the learners clearly differentiated the null and overt subject sentences. The results in the paired sample t-test in (18) show that the intermediate and advanced learners were quite successful in differentiating the null and overt subject sentences. The low level learners, on the other hand, failed to show a significant difference on the pairs Q8-Q6 and Q13-Q17.

In sum, Korean intermediate and advanced learners were generally accurate in assigning low acceptability scores to null subject sentences, suggesting that they had acquired the English overt subject requirement. However, the low level learners showed indeterminacy in identifying the overt subject sentences.

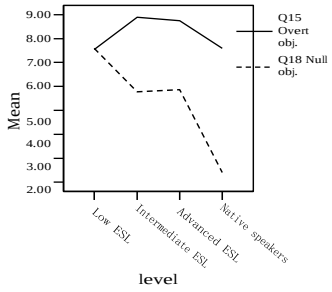
5.3. Object sentences: null object vs. overt object sentences

The main observation for the figures in (19) is the learners' relatively high acceptance of null object sentences. For instance, on the pair Q15-Q18 in (19-a), I immediately recognize the students, and later Mary also recognized (them), the low level learners assigned the same mean, 7.6, to both Q18 and Q15, where Q18 has a null object and Q15 is its overt object counterpart. In other words, the presence or absence of an object did not appear to influence the low-level learners' acceptance scores. Even the scores of the

intermediate and the advanced learners showed indeterminacy (see 19-a). This relatively high tendency to accept the null object sentences does not appear to come from an error in verbal argument structure, since the learners assigned high acceptability scores to the overt object sentences. Instead, it is attributable to the transfer of the L1 [+discourse-oriented] parameter, which allows any recoverable argument to be null. Under this parameter, a null object can receive interpretation. This parameter, in turn, caused the learners difficulty in detecting the ungrammaticality of null object sentences.

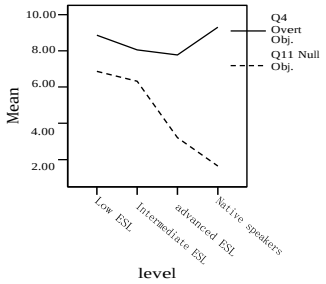
To find whether there was a significant score difference between a null object sentence and its overt object counterpart, paired sample t-tests were conducted. The results of the paired sample t-test on the object sentences in (20) present a different pattern from those of the subject sentences in (18). With the exception of the pair Q4-Q11, the low-level group did not show a significant difference in acceptance of null and overt object sentences. However, with the exception of the pair Q3-Q7, the advanced group showed a significant difference between null and overt object sentences. This can be interpreted to mean that the learners were acquiring the Projection Principle (see 2.1 for a discussion of the PP), as their proficiency has improved.

(19) Figure 5.4 Line graphs of each pair of null/overt object sentences[15]
a) Q15-Q18: I immediately recognized the students, and later Mary also recognized (them).

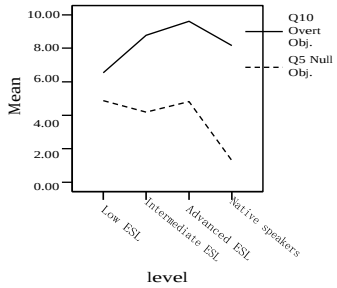


[15] The graph of the Q12-Q2 pair, on which the ANOVA did not show a significant difference between the learners and the native speakers (df = 1 and df = 3), is not presented due to space limitations. The sentences are as follows: John said those students were in the library but I told him I didn't find (them) there (Q2-with a null object).

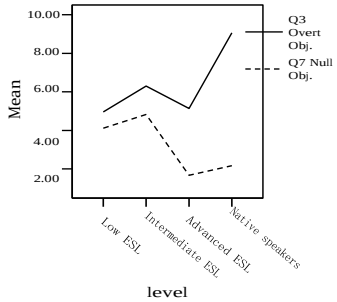
b) Q4-Q11: When you finish using the computer, please let me use (it) for a while.



c) Q10-Q5: Mary's bike is broken. Tomorrow I am going to repair (it) for her.



d) Q3-Q7: Mary lost her bike last week, but John says the police have found (it) for her.



(20) Table. 5.7 Paired sample t-tests on null and overt object sentences by proficiency level

Pair	Low[a]	Inter.[b]	Adv.[c]	Native[d]
Q2-Q12	none	*	**	**
Q4-Q11	*	none	*	**
Q3-Q7	none	none	none	**
Q5-Q10	none	*	*	**
Q15-Q18	none	*	*	**

Note. *p< .05, **p <.001, [a] df = 4, [b] df = 8, [c] df = 7, [d] df =9

6. Discussion and conclusion

My study shows that Korean learners were accurate in detecting the ungrammaticality of null subject sentences, but they had difficulty identifying the ungrammaticality of null object sentences. In other words, the learners showed the same asymmetric unlearning pattern observed in Yuan's (1997) study. While the asymmetric unlearning pattern supports Yuan's observations, I suggest a theoretical explanation different from his. As discussed in Kim, S.-Y. (2006) in a detailed way, I assume that unlearning of null subjects is associated with the learners' utilization of the L1 grammar option, that is, L1 conceptualization of topics for subjects in their interlanguage. On the other hand, there are no grammar options available to facilitate the unlearning of null objects. Furthermore, the L2 input is not consistent, in that many transitive verbs, such as eat and read, allow object deletion. Even more challenging is the fact that this object deletion does not seem to fall into any clear-cut verbalized rules that can be taught in an ESL classroom. In addition, Allerton (1975), for instance, distinguished contextual deletion from indefinite deletion. Indefinite deletion takes place when the content is left 'unspecified' because it is not of importance, as in the eat and read type verbs. Contextual deletion, on the other hand, takes place when the referent is definite, meaning that its content is contextually specified, as in the verbs follow, interrupt, look at, pull, and watch (Allerton, 1975, p. 214). For instance, in the sentence, I see you've got today's 'Guardian.'—May I look?, *May I read? (Allerton, 1975, p. 215), the deleted object carries a definite entity, and thus, the definite deletion verb look can be used, while the indefinite verb read cannot.[16] Fillmore (1986) notes that some verbs are susceptible to both definite and contextual deletion, as in the verb contribute:

(21) a) I contributed to the movement.
b) I contributed five dollars.
c) I've already contributed.

In (21), the verb contribute takes two internal arguments, the Gift and the Receiver. In (21a), the deleted Gift object is indefinite, in that the nature of the Gift is a matter of

[16] Native speakers appear to show variation in terms of the grammaticality of object-deleted sentences. One native speaker informant says that the sentence "May I read?" is ungrammatical, but it would be acceptable to walk up to someone reading and ask "May I read (too)?"

indifference. In (21b), the omitted Receiver is definite in that the information was given in previous conversation. In (21c), both the Gift and the Receiver are omitted, where the Gift object is indefinite and the Receiver is definite, having been understood from the context. Fillmore (1986) suggests that this object omissibility in English is not predictable on a purely semantic basis, as shown in the contrasts, I tried vs. *I attempted, or They accepted [my offer], vs. *They accepted [my gift], and He noticed [that she was blind], vs. *He noticed [the mouse] (p. 101). Due to the complexity of the object requirement in English, Ingham (1993/1994) claims that the acquisition of the c-selectional properties of object omissibility requires 'item wise learning' of which verbs allow direct objects to be deleted and which verbs do not. These lexical properties listed in the lexicon are assumed to cause more difficulties for the learners who speak discourse-oriented L1s, in that they need to unlearn null objects and then learn the lexical object omissibility information.

It is clear that null objects are problematic for the learners due to the differences between the L1 and L2, which places on the learners the heavy burden of unlearning the L1 null objects. The L1 discourse-oriented parameter strongly enforces the interlanguage requirement of dropping identifiable arguments, yet does not provide any grammar options to facilitate the phonological realization of an object argument. The L2 input also poses problems in that the lexical nature of the object realization renders it confusing. Despite these many obstacles, the present study does not support Yuan's (1997) position that learners from discourse-oriented L1s are not able to unlearn null objects. Instead, in this study, the advanced English majors showed native or near-native control on the null object sentences, which suggests that null objects can be unlearned, as the learners' proficiency improves.

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Appendix

Questionnaire sentences

I. Overt/Null subject sentences

a) I once met John's girlfriend. She was very beautiful.
b) The experiment has started. I hope it will be successful.
c) It has been very cold here recently.
d) It seems that Peter is ill.

II. Overt/Null object sentences

a) Mary's bike is broken. Tomorrow I am going to repair it for her.
b) Mary lost her bike last week, but John says the police have found it for her.
c) When you finish using the computer, please let me use it for a while.
d) I immediately recognized the students, and later Mary also recognized them.
e) John said those students were in the library, but I told him I didn't find them there.

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