

# Acquisition of Topic Shift by L1 English Speakers of L2 Japanese

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## 1. Introduction

A puzzling finding in second language acquisition is that near native adult L2 speakers at the end state often do not attain full native-like competence. The Interface Hypothesis (henceforth IH) (Tsimplici & Sorace, 2006) is an attempt to give an account of this puzzle. The IH suggests that L2 speakers may have a persistent problem in their knowledge relating to external interfaces, such as the syntax-discourse interface. This is supported by Belletti, Bennati & Sorace (2007) (henceforth BB&S), who investigated acquisition of discourse constraints (topic shift) governing the distribution of pronouns (topic shift) by L1 English near-native speakers of L2 Italian. In Italian, null subject pronouns typically refer to already established topic antecedents ([-topic shift]), whereas, overt subject pronouns signal a change in topic ([+topic shift]). BB&S argue that (i) topichood rather than subjecthood is crucial in determining the antecedents of pronouns in Italian, and that (ii) near natives misinterpreted and overused overt pronouns, suggesting that they had not acquired the [+topic shift] requirement for overt pronouns.

In order to test the applicability of the IH, this study looks at another null subject language, Japanese, and extends BB&S in two ways. First, two factors which affect the choice of antecedents of pronouns, namely, topichood and subjecthood, are separated to find out which is more crucial in determining the antecedents of pronouns. Japanese has a topic marker *-wa*, which is distinct from a nominative case marker *-ga*. Therefore, topichood and subjecthood, which are confounded in Italian, can be separated. Second, whether the complementary distribution of null and overt pronouns is observed in subject and object positions is discussed. Japanese allows object drop as well as subject drop; accordingly, the distribution of null and overt pronouns in object position, which is not discussed in BB&S, is investigated. To the best of the author's knowledge, this is the first attempt to investigate the antecedent preference of null/overt subject/object pronouns in Japanese. The results of an off-line interpretation task and a written, elicited production task challenge BB&S, showing that (i) subjecthood is more crucial than topichood in determining the antecedents of pronouns in Japanese, contrary to their assumption, and that (ii) the advanced L2 speakers had a different interpretation of null pronominal subjects, rather than overt pronominal subjects, from Japanese monolinguals. This suggests that a [-subject shift] requirement for null pronouns, not a [+topic shift] requirement for overt pronouns, can be a residual problem in the L2 grammar.

This paper is structured in the following way: Section 2 introduces the IH and presents the findings of BB&S. Section 3 discusses whether the complementary distribution of null and overt pronouns is observed in Japanese, similarly to Italian. Section 4 gives research questions and hypotheses. Section 5 explains the experiment and presents the results. Section 6 discusses the implications of the findings, followed by a conclusion.

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## 2. Interface Hypothesis and topic shift

### 2.1. Interface Hypothesis

Many studies suggest that post-pubescent second language (L2) learners often end up with a grammar different from that of native speakers. The IH (Sorace, 2005; Sorace, 2006; Sorace & Filiaci, 2006; Tsimpli & Sorace, 2006) suggests that interfaces between syntax and other cognitive domains can result in residual optionality. The claim of the IH is summarized in (1).

- (1) a. ‘Non-interpretable features that are internal to the computational system of syntax proper and drive syntactic derivations are categorical in native grammars: are acquired successfully by adult L2 learners; and are retained in the initial stages of individual attrition.’  
 b. ‘Interpretable features that “exploit” syntactic options and belong to the interface between syntax and other domains, such as the lexicon, discourse, or pragmatics, may exhibit gradedness in native grammars; may present residual optionality in near-native grammars, due to the influence of the native language even at the most advanced competence stage: and are vulnerable to change in individual attrition.’ (Sorace, 2006, p.116).

Sorace & Filiaci (2006) assume that this optionality is caused by processing complexity at the interfaces rather than the underspecification of the grammatical representations. L2ers with insufficient processing capacity may have a problem integrating multiple types of information at the interfaces. They claim that the IH is applicable not only to end state second language acquisition, but also to L1 attrition, bilingual L1 acquisition, language processing, language breakdown, and diachronic change.

### 2.2. Previous study on topic shift (Belletti, Bennati & Sorace, 2007)

One of the studies supporting the IH is BB&S, which investigated the interpretation and production of pronouns in L2 Italian. In Italian, null and overt pronominal subjects have distinct functions in the discourse and show a complementary distribution. In (2), the antecedent of the null pronoun is *La mamma* ‘the mother’. Here, the embedded clause maintains the sentential topic (i.e. what is the sentence about, and accordingly, old information) of the preceding main clause (-topic shift). In contrast, the antecedent of the overt pronoun is not ‘the mother’ but either *figlia* ‘the daughter’ or another woman in the discourse. That is, the embedded clause involves shifting the sentential topic from the matrix subject to another referent (+topic shift). From this, BB&S suggest that Italian preverbal overt pronominal subjects have a [+topic shift] feature, whereas, null pronominal subjects do not.

- (2) *La mamma<sub>i</sub> dà un bacio alla figlia<sub>k</sub>, mentre lei<sub>kl/pro<sub>i</sub></sub> si mette il cappotto.*  
 The mother<sub>i</sub> gives a kiss to the daughter<sub>k</sub>, while she<sub>kl</sub> wears the coat  
 The mother<sub>i</sub> kisses her daughter<sub>k</sub>, while she<sub>kl/pro<sub>i</sub></sub> is wearing her coat.

(Sorace & Filiaci, 2006, p.352)

What is crucial in BB&S’s claim is that the antecedents of null subject pronouns should be in the preverbal position, not in the postverbal position, of the main clause; they assume that the preverbal position is for topic (i.e. old information), as follows:

‘A lexical subject in preverbal position is normally interpreted as given, topic-like information; typically, an overt pronominal subject of an embedded clause does not refer to the preverbal lexical subject of a superordinate clause..., whereas a null subject does’ (BB&S, p.660)

BB&S investigated whether the topic shift requirement on overt subject pronouns is acquirable for L1 English near-native speakers of L2 Italian using a picture verification task<sup>1</sup>. In the experiment, the

<sup>1</sup> BB&S also investigated acquisition of focus by the same subjects. However, only acquisition of topic shift is relevant to the present study.

near-natives and Italian monolinguals indicated the referents of null and overt pronouns in bi-clausal sentences like (2), by choosing pictures. The results suggest asymmetry in L2 knowledge: the near-natives differed significantly from the monolinguals in interpretation and production of the overt pronouns. They interpreted the matrix subjects as co-referential with the overt pronouns more frequently than the controls. They also overused overt pronouns in the production task. By contrast, there was only a negligible difference between the two in the interpretation and production of the null pronouns. BB&S take this to be evidence that the [+topic shift] requirement on overt pronouns had not been fully acquired by the near-natives because English lacks this requirement. From this, BB&S conclude that the properties at the syntax-discourse interface are persistently problematic, whereas purely syntactic properties are not, in adult L2 acquisition.

### 3. Topic shift in Japanese

#### 3.1. Topic shift in Japanese

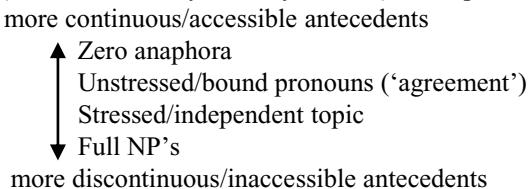
If we look at another null subject language, Japanese, a similar complementary distribution of null and overt pronominal subjects is observed. In (3), the overt pronominal subject *kanozyo* ‘she’ usually does not refer to the matrix subject *okaasan* ‘the mother’, but refers to *musume* ‘the daughter’ or another woman which is given in the context (+topic shift). By contrast, when the embedded subject refers to the matrix subject, it should be either null as in (3) or a reflexive, *zibun* ‘self’ (-topic shift). Using an overt pronoun to refer to the matrix subject in (3) violates Grice’s (1975) maxim of quantity since a less complex form (a null pronoun) is available (Sorace & Filiaci, 2006).

- (3) Okaasan<sub>i</sub>-**wa** musume<sub>k</sub>-ni [**kanozyo**<sub>k/ɹ</sub>-**ga/pro**<sub>i</sub> kooto-o kiru toki] kisu-wo sita  
 mother<sub>i</sub>-Top daughter<sub>k</sub>-Dat [she<sub>k/ɹ</sub>-Nom coat-Acc put on when] kiss-Acc did  
 ‘The mother<sub>i</sub> kissed the daughter<sub>k</sub> when she<sub>k/ɹ</sub>/pro<sub>i</sub> put on the coat.’

#### 3.2. The mechanism of topic shift

The antecedent bias of pronouns has been pointed out in the literature on discourse. Givón (1983a,b) suggests the cross linguistic gradation of referring expressions in (4): less informative expressions, such as zero anaphora, take more continuous antecedents. Ariel (1990) gives a thorough account of this connection between referential expressions and antecedents. She proposes that interpretation of all definite NPs is governed by the same cognitive principle of accessibility, and as a result, referential expressions code the degree of accessibility of the antecedents (Accessibility Theory). Here, ‘accessibility’ refers to the level of ease for the addressee when retrieving the meaning in memory. For example, the previous utterance processed is highly accessible for the addressee and requires little processing cost to retrieve. By contrast, an earlier utterance is less accessible and requires more processing cost to retrieve. According to the Accessibility Theory, pronouns are used when the antecedent is stored in short-term working memory and are therefore highly accessible. By contrast, proper names are used when the antecedents are not currently salient and stored in long-term memory with low accessibility.

- (4) The accessibility scale by Givón (1983b, p.18 with modification)



Ariel (1990, p.29) suggests that the saliency of the antecedent is affected by topichood (i.e. whether the antecedent is a topic or non-topic). Givón (1983a) points out the correlation between topichood and subjecthood, as in (5). He suggests that subjects or agents are the most salient entities in the sentence and would be therefore likely to become the sentential topic.

(5) The likelihood of NP arguments being the sentential topic (Givón, 1983a, p.57)

Subject > direct object > indirect object (grammatical cases)

Agent > dative > accusative > oblique (semantic cases)

If Givón's cross linguistic scales in (4) and (5) are applied to Japanese, it is not surprising to see the complementary distribution of null and overt pronouns. However, both Givón and Ariel seem to give little attention to the interaction of subjecthood and topichood of the antecedents. In (3) for example, the subject 'the mother' is topic marked and as a result, it is not clear whether topichood or subjecthood leads to the saliency of 'the mother'. In order to clarify this, we should investigate which of the four combinations of subjecthood and topichood (i.e. the topic subject, the non-topic subject, the topic object, and the non-topic object) are most preferred antecedents of pronouns. If topichood is crucial in determining the prominence of NPs in the sentence, (6a) should obtain. Alternatively, if subjecthood is crucial, (6b) should obtain. Japanese allows object drop as well as subject drop, accordingly, the distribution of pronouns in object positions, which is not discussed in BB&S, can be investigated. In addition, Japanese has a topic marker *-wa*, which is distinct from a nominative case marker *-ga* (Kuno, 1973). Therefore, topichood and subjecthood of the antecedents, which are confounded in Italian, can be investigated separately.

(6) Preferred choice of antecedents of null subject pronouns in Japanese

a. Topic subject > topic object > non-topic subject > non-topic object (topichood is crucial)

b. Topic subject > non-topic subject > topic object > non-topic object (subjecthood is crucial)

#### 4. Research question and hypotheses

The contributions of this study are twofold. First, this study extends BB&S and aims to clarify whether topichood or subjecthood is more crucial in determining antecedents of pronouns in Japanese. Second, this study tests the applicability of the IH using a new L1-L2 combination. I have two research questions and hypotheses. These are tested in the experiment.

##### Research Questions

RQ1: Is a preferred choice of antecedents observed for pronouns in subject and object positions in Japanese? If so, which of topichood or subjecthood is more crucial in determining the antecedents of pronouns?

RQ2: Do advanced L1 English speakers of L2 Japanese acquire the [+topic shift] requirement for pronouns?

##### Hypotheses

H1: If topichood determines the antecedent preference of null pronouns, as BB&S assume in Italian, topic marked NPs should be chosen as antecedents, regardless of their syntactic positions (i.e. subjects/objects).

H2: If the BB&S are right, advanced L1 English speakers of L2 Japanese will have a problem in determining the antecedents of overt pronouns, but not null pronouns.

#### 5. The experiment

##### 5.1. Informants

The informants were 10 L1 English speakers of L2 Japanese with an advanced level of proficiency and 12 monolingual Japanese speakers. All L2ers started their study of Japanese after puberty and had lived in Japan for more than 0.8 years (range 0.8-23, mean 9.7 years). They took an independent proficiency test adopted from Umeda (2008). The mean score on the proficiency test was 36.3 (84%, range 31- 41 (72%-95%)). The monolingual Japanese speakers were residents in Japan (aged 33-60, mean 45).

## 5.2. The picture verification task

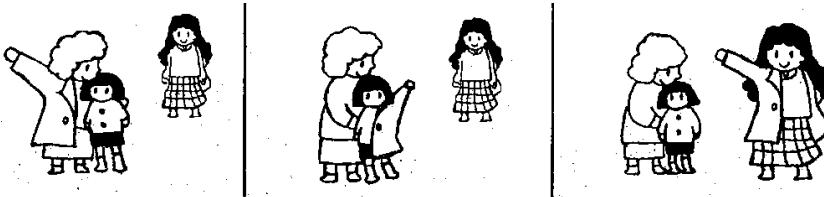
### 5.2.1. Methodology

The first task was picture verification, adapted from BB&S, to examine the interpretation of pronouns. Each stimulus consisted of a context, the sentence, and three pictures, as (7) shows. The informants were asked to read the context and the sentence and then choose the appropriate picture(s) depicting different referents, namely, (i) the matrix subject, (ii) the matrix object, and (iii) the external referent, as in Figure 1.

#### (7) Con 1-null example

Context:(given in Japanese) The mother and daughter finished their dinner at the restaurant. While putting on their coats to leave the restaurant, another customer also began to leave the restaurant.

Okaasan-wa musume-ni *pro* kooto-o kiru tokini kisu-o sita.  
 mother-Top daughter-Dat *pro* coat-Acc put on when kiss-Acc did  
 ‘The mother(Topic) kissed the daughter when *pro* put on the coat.’



(i) *pro*=matrix subject

(ii) *pro*=matrix object

(iii) *pro*=external referent

Figure 1 (adapted from Sorace & Filiaci with modifications)

There were 8 conditions: 4 for pronominal subjects (Con 1-4) and 4 for pronominal objects (Con 5-8). Con 1-4 were different from each other in topic marking and word order in the matrix clause. In Con 1, the subject was topic marked as in (7), while in Con 2, the object was topic marked, as in (8). In Con 3 and 4, neither the subject nor the object was topic marked. In Con 3, the object followed the subject (a basic word order), whereas the object preceded the subject by scrambling in Con 4. Each condition was divided into 2 sub-groups depending on pronoun type (i.e. null or overt). Each sub-group contained 4 stimuli (i.e. 2 each for masculine/feminine referents). The stimuli (n=64) and distracters (n=32) were randomized.

#### (8) Con 2-null/overt

Musume-ni-wa okaasan-ga [*pro/kanozyo-ga* kooto-o kiru tokini] kisu-wo sita.  
 daughter-Dat-Top mother-Nom [*pro/she-Nom* coat-Acc put on when] kiss-Acc did  
 ‘The mother kissed the daughter (Topic) when *pro*/she put on the coat.’

### 5.2.2. Results (Subject pronouns)

Table 1 shows the distribution of antecedent choices in 4 conditions in which embedded subjects were null pronouns. There are two interesting findings we can glean from this. First, the controls always preferred matrix subject antecedents, regardless of topic marking (Con 1-null vs. Con 2-null) and word order (Con 3-null vs. Con 4-null). In all conditions, the distribution among the three choices was significant, but there was no significant difference among the 4 null conditions. This suggests that subjecthood is more crucial than topichood or word order in determining the antecedents of null subject pronouns in Japanese, unlike Italian. In other words, Japanese null subject pronouns are basically [-subject shift] rather than [-topic shift]. Second, the L2ers chose matrix subjects and objects to the same extent when the matrix subject precedes the matrix object (Con 1-null and Con 3-null). As a result, there was a significant difference in the antecedent choice between the controls and the L2ers in Con 3-null ( $\chi^2(2, N=100)=9.29$   $p=.011<.05$ ). The differences between the controls and the L2ers in other conditions, including Con1-null, were not statistically significant (e.g.  $\chi^2(2, N=93)=5.84$   $p=.056>.05$  in Con 1-null,).

Table 1 Distribution of antecedents of null pronominal subjects (%)

antece -dents	Con 1-null (topic-S)		Con 2-null (topic-O)		Con 3-null* (non-topic-SO)		Con 4-null (non-topic-OS)	
	Control	L2er	Control	L2er	Control	L2er	Control	L2er
S <sup>2</sup>	70	46	67	62	72	43	65	57
O	26	46	27	33	21	49	31	39
E	4	9	6	5	6	8	4	4
total	100	100	100	100	100	100	100	100

topic S>non-topic O      non-topic S>topic O      non-topic S>non-topic O (regardless of order)

Table 2 shows the distribution of antecedent choices in 4 conditions in which embedded subjects were overt pronouns. There are two findings. First, the controls chose matrix subjects and objects to the same extent. This suggests that overt subject pronouns do not have a strong antecedent bias. Though the controls appear to have slightly preferred antecedents immediately preceding the overt pronouns, this preference was not statistically significant. Second, the L2ers generally preferred object antecedents to subject antecedents, irrespective of topic marking and word order. Though they might seem to have a different strategy in determining the antecedent from the controls, the difference between the controls and the L2ers was not statistically significant in any of the 4 conditions.

Table 2 Distribution of antecedents of overt pronominal subjects (%)

antece -dents	Con 1-overt (topic-S)		Con 2-overt (topic-O)		Con 3-overt (non-topic-SO)		Con 4-overt (non-topic-OS)	
	Control	L2er	Control	L2er	Control	L2er	Control	L2er
S	40	30	47	32	41	30	45	40
O	45	51	41	53	43	53	38	42
E	15	19	12	15	17	17	16	19
total	100	100	100	100	100	100	100	100

### 5.2.3. Results (Object pronouns)

Table 3 and 4 show the distribution of antecedents of null and overt object pronouns. There are two findings. First, the controls accepted subject and object antecedent nearly to the same extent. Though they appear to slightly prefer subjects to objects in 5 out of the 8 conditions (Con 5/7/8-null and Con 5/8-overt), this preference was not statistically significant (e.g. Con 8-null  $\chi^2(1, N=74)=2.65$   $p=.10>.05$ ). This suggests that object pronouns do not have an antecedent bias. Second, the L2ers also accepted subject and object antecedent to the same extent. Though they chose antecedents immediately preceding the pronouns in 5 out of the 8 conditions (Con 5/7/8-null and Con 6/8-overt), this was not statistically significant. As a result, there was no significant difference between the L2ers and the controls.

Table 3 Distribution of antecedents of null pronominal objects (%)

antece -dents	Con 5-null (topic-S)		Con 6-null (topic-O)		Con 7-null (non-topic-SO)		Con 8-null (non-topic-OS)	
	Con	L2er	Con	L2er	Con	L2er	Con	L2er
S	49	41	43	43	48	39	54	45
O	41	44	45	45	40	45	37	39
E	9	15	12	12	12	16	10	15
total	100	100	100	100	100	100	100	100

<sup>2</sup> S:matrix subject, O:matrix object, E:external referent, \* $p<.05$

Table 4 Distribution of antecedents of overt pronominal objects (%)

antece- -dents	Con 5-overt (topic-S)		Con 6-overt (topic-O)		Con 7-overt (non-topic-SO)		Con 8-overt (non-topic-OS)	
	Con	L2er	Con	L2er	Con	L2er	Con	L2er
S	47	43	42	51	44	48	51	52
O	41	43	45	41	47	43	41	41
E	12	14	13	7	9	9	8	7
total	100	100	100	100	100	100	100	100

To summarize, there were three findings in the interpretation task.

1. Subjecthood is more crucial than topichood or word order in determining antecedents of null subject pronouns.
2. Neither overt subject pronouns nor null or overt object pronouns show an antecedent preference.
3. The L2ers did not show a subject preference in the case of null pronominal subjects, unlike the controls, in Con 3-null.

### 5.3. The written production task

#### 5.3.1. Methodology

The second task was a written elicited production task, adapted from Serratrice (2009) with a number of modifications. There were 8 conditions, 4 for pronominal subjects and 4 for pronominal objects, varying by the combination of the given picture and the sentence, as Table 5 shows.

Table 5 Conditions and stimuli types

Condition	pictures		sentences				
	Type	Person involved in the embedded action	Type (e.g.)	topic marking	word order	Positions of Pronouns	
Con 1-S	P1	Subject	S1 (9)	matrix subject	SO	Embedded Subject	
Con 1-O	P2	Object		matrix object	OS		
Con 2-S	P1	Subject	S2	matrix subject	SO		Embedded Object
Con 2-O	P2	Object		matrix object	OS		
Con 3-S	P3	Subject	S3	matrix subject	SO	Embedded Object	
Con 3-O	P4	Object		matrix object	OS		
Con 4-S	P3	Subject	S4	matrix subject	SO		Embedded Object
Con 4-O	P4	Object		matrix object	OS		

There were 4 types of pictures: two (P1 and P2) for embedded subject pronouns and two (P3 and P4) for embedded object pronouns. In P1, a topic subject was simultaneously doing two actions: (i) a transitive action which affected a human object (e.g. greeting somebody) and (ii) an action which did not (e.g. watering flowers) (see Figure 2). This was to elicit an embedded null pronominal subject referring to the matrix topic subject ([-topic shift] contexts). By contrast, in P2 the topic subject was only doing the first action and the human object was doing the other action. This was to elicit an embedded overt pronominal subject referring to the matrix non-topic object ([+topic shift] contexts). P3 and P4 were object equivalents to P1 and P2.

In each sentence the matrix clause was given, whereas the embedded clause was in brackets and its elements were only partially given, as shown in (9). In the embedded clause, no subject/object was given and only a base verb form (and an inanimate verb complement when necessary), followed by a conjunction, was given to control the structure. As a result, the informants were required to produce the appropriate embedded subject/object to refer to the matrix subject/object on their own. There were 4 types of sentences: two (S1 and S2) for embedded subjects and two (S3 and S4) for embedded

objects. S1 and S2 were exactly the same except for the place of topic marking. Matrix subjects were topic-marked in S1, whereas matrix objects were topic-marked in S2. All 4 types shared the same matrix clause and each type consisted of 4 different sentences with even numbers of male and female subjects. The stimuli (n=32) and distracters (n=16) were randomized.

(9) Con 1-S example

Onnanoko<sub>i</sub>-wa sensei<sub>j</sub>-ni [ ( \_\_\_\_\_ ) tokini] aisatu-o sita  
 girl<sub>i</sub>-Top teacher<sub>j</sub>-Dat [ ( mizu yaru / water give ) when] greeting-Acc did



Figure 2

Target answer: ( *pro<sub>i</sub>* mizu-o yatteiru )  
*pro<sub>i</sub>* water-Acc doing  
 ‘pro is watering’

The target meaning of the whole sentence: ‘The girl<sub>i</sub> (Topic) greeted the teacher<sub>j</sub> when she<sub>i</sub> was watering (flowers)’

### 5.3.2. Results

Table 6 shows the distribution of embedded subjects. There are two findings. First, about 80% of the time the controls produced null subject pronouns to refer to the matrix subjects, irrespective of topic marking (Con 1-S, Con 2-S). In these conditions, they produced overt NPs 15% of the time and overt pronouns 2-6 % of the time. By contrast, over 60% of the time the controls produced overt NPs and overt pronouns to refer to matrix objects, irrespective of topic marking (62% in Con 1-O, 69% in Con 2-O). These results suggest that null subject pronouns were mainly used to refer to matrix subjects, whereas overt NPs and overt pronouns were mainly used to refer to matrix objects. The reason why the informants produced more overt NPs than overt pronouns to refer to matrix objects (e.g. the controls produced overt NPs and overt pronouns 43% and 19% respectively in Con 1-O) can be attributed to the fact that overt pronouns are mostly used in formal written occasions. Second, the L2ers also produced null pronouns to refer to matrix subjects, while they produced overt NPs and overt pronouns to refer to matrix objects. Accordingly, there was no significant statistical difference between the controls and the L2ers.

Table 6 Distribution of embedded subjects (%)

Condition	Con 1-S (topic-S)		Con 1-O (topic-S)		Con 2-S (topic-O)		Con 2-O (topic-O)	
	Con	L2er	Con	L2er	Con	L2er	Con	L2er
Overt NPs <sup>3</sup>	15	12	43	42	15	9	54	42
Overt pronouns	2	3	19	23	6	3	15	18
Null pronouns	83	85	38	35	79	88	31	40
total	100	100	100	100	100	100	100	100

Table 7 presents the distribution of embedded objects. There are two findings. First, the controls produced null and overt expressions to nearly the same extent in Con 3-S (overt NPs and overt pronouns 50% vs. Null pronouns 50%) and in Con 3-O (overt NPs and overt pronouns 58% vs. Null pronouns 42%). This seems to suggest that object null and overt pronouns do not show an antecedent bias. Second, the L2ers produced overt expressions and null pronouns to nearly the same extent in all conditions. There was no significant difference between the controls and the L2ers. The L2ers

<sup>3</sup> Overt NPs include repeating the nouns in the matrix clause and using reflexives *self*.

generally produced more overt pronouns (13-30%) than the controls (8-15%), presumably because of L1 transfer. Though pronouns are commonly used in English, they are rather limited to formal occasions in Japanese.

Table 7 Distribution of embedded objects (%)

antecedents	Con 3-S (topic-S)		Con 3-O (topic-S)		Con 4-S (topic-O)		Con 4-O (topic-O)	
	Con	L2er	Con	L2er	Con	L2er	Con	L2er
Overt NPs	42	27	48	37	56	22	50	37
Overt pronouns	8	20	10	13	8	30	15	15
Null pronouns	50	53	42	50	35	48	35	48
total	100	100	100	100	100	100	100	100

To summarize, there were three findings in the elicited production task:

1. Subjecthood is more crucial than topichood in determining antecedents of null subject pronouns.
2. Neither overt subject pronouns nor null and overt object pronouns shows an antecedent preference.
3. The pattern of producing null pronouns and overt expressions was similar in the L2ers and the controls.

## 6. Discussion

### 6.1. H1 was not supported

H1 was not supported in either the interpretation task or the production task. In these tasks, subjecthood is more crucial than topichood or word order in determining antecedents of null subject pronouns. If we take these results into consideration, it may be reasonable to assume that the importance of subjecthood in determining the antecedents of pronouns is universal, as Givón (1983a) suggests, whereas the importance of topichood presumably depends on the languages at stake. What we can say from the present study is that the prominence of topic antecedents, which BB&S assume in Italian, is lost in Japanese. In order to clarify the cross linguistic effect of topichood, we need to investigate the interaction between topichood and subjecthood in other ‘topic-prominent’ East Asian languages, such as Vietnamese (Duffield, 2011).

### 6.2. H2 was not supported

H2 was not supported. In the interpretation task, the advanced L2ers encountered problems in determining the antecedents of null pronouns, rather than overt pronouns. The L2ers as well as the controls did not show a preference for antecedents when the pronouns were overt. This could be partially because Japanese overt pronouns behave like demonstratives rather than English pronouns (Kuroda, 1965; Hoji, 1991; Kanzaki, 1994; Shirahata, 2007). It has been pointed out that *kare* ‘he’ and *kanozoyo* ‘she’ cannot become bound variables, unlike English pronouns, Japanese null pronouns, or self forms (Hoji, 1991), as in (11). Shirahata (2007) also points out that *kare* and *kanozoyo* are demonstratives, invented in the 19<sup>th</sup> century to cope with ‘he’ and ‘she’ in European languages.

- (11) a. Daremo<sub>i</sub>-ga [DP [TP zibun<sub>i</sub>-ga /\*kare<sub>i</sub>-ga /pro<sub>i</sub> tukutta] omotya]-o kowasita.  
 Everyone-Nom self-Nom he-Nom made toy-Acc broke  
 Everyone<sub>i</sub> broke the toy that he<sub>i</sub> had made.
- b. Daremo<sub>i</sub> [DP [TP zibun-ga /\*kare<sub>i</sub>-ga /pro<sub>i</sub> tukutta] omotya]-o mottekonakatta.  
 No one self-Nom he-Nom made toy-Acc broke  
 No one<sub>i</sub> brought along the toy that he<sub>i</sub> had made. (Shirahata, 2007, p.145)

These observations that *kare* and *kanozyo* behave like demonstratives rather than pronouns accord with the fact that they did not show a strong antecedent bias, unlike null pronouns. According to Givón and Ariel, demonstratives are intermediate accessibility markers, which do not have a strong connection with salient entities in the sentence. By contrast, pronouns are high accessibility markers, which have a strong connection with salient entities. Therefore, it is not surprising that the informants had a less determinate sense of the antecedents for *kare* and *kanozyo* than they had for null pronouns.

### 6.3. Other issues

One significant difference between the L2ers and controls in this study is that the L2ers did not show a preference for subject antecedents for null pronominal subjects in Con 3-null in the interpretation task. There seem to be two possible reasons for this. First, the stimuli contained two *-ga* marked NPs (one in the matrix subject, and the other in the embedded subject) and this could have made it difficult for the L2ers to understand the sentence structure. In fact, many studies suggest that subject attached *-ga* is acquired later than the topic marker *-wa* and the accusative case marker *-o* (Sato, 1999). This is presumably because subjects with *-ga* are less commonly used than subjects with *-wa*. The structure comprising two *-ga* marked subjects could have prevented the L2ers from making categorical judgements. Second, the task could have been very demanding for the L2ers. In fact, the L2ers performed worse in the interpretation task (Con 1-null) than the production task (Con 1-S). In the interpretation task, the informants were required to carefully read the context and the ambiguous sentence, then to observe three pictures, considering the possibility of three options (i.e. subject antecedents, object antecedents, and external referents). By contrast, in the production task, the informants did not have to read a written paragraph of the context; in addition, they needed to consider only two options (i.e. subject antecedents and object antecedents).

## 7. Conclusion

In this study, I presented empirical evidence to demonstrate that BB&S's findings in L2 Italian are not applicable to L2 Japanese. First, I presented data showing that subjecthood rather than topichood is crucial in determining the antecedents of null subject pronouns in Japanese. Both the interpretation task and the written elicited production task suggest that the prominence of topic antecedents, which BB&S assume in Italian, is absent in L1 and L2 Japanese. Second, I presented data confirming that advanced L1 English speakers of L2 Japanese do not have a problem with the [+topic shift] requirement for overt pronouns. Instead, they experience problems with the [-subject shift] requirement for null pronouns. This challenges the IH view, suggesting that the syntax-discourse requirement for overt pronouns can be acquired in L2 Japanese. These findings support White (2011), showing that not all the properties on the external interface are necessarily problematic in L2 acquisition.

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