

Wh-scope Marking in English-Japanese Interlanguage

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1. Introduction

The present study deals with second language (L2) acquisition of wh-in-situ by English-speaking learners of Japanese. The particular focus of this paper is a scope-marking strategy used in Japanese which is not found in English wh-constructions. The examples in (1) show the contrast between a matrix wh-question and a yes/no question.

- (1) a. Mary-wa [CP John-ga nani-o katta-to] iimasita-ka?
Mary-Top John-Nom what-Acc bought-that said-Q
'What_t did Mary say John bought t_t?'
b. Mary-wa [CP John-ga nani_t-o katta-ka] iimasita-ka?
Mary-Top John-Nom what-Acc bought-Q said-Q
'Did Mary say what_t John bought t_t?'

In both questions, the wh-phrases in-situ are in the embedded clause. However, the wh-phrase in (1a) takes matrix scope and the one in (1b) takes embedded scope. Nishigauchi (1990) noted that the scope of wh-phrases in-situ is determined by the position of the Q(uestion)-particle *-ka*. In (1a), the Q-particle *-ka* is in the matrix clause, and therefore the wh-phrase in the embedded clause takes matrix scope, whereas in (1b), the Q-particle is in the embedded clause, and thus the wh-phrase takes embedded scope.¹ In contrast to English, the scope of wh-phrases is determined by the position of the wh-phrases themselves.

The main concern of this paper is whether learners transfer their first language (L1) knowledge of wh-in-situ, and whether they can achieve target-like interpretations despite the fact that the evidence they are exposed to underdetermines these interpretations. English is a wh-movement language, though wh-in-situ is allowed in limited constructions, such as in multiple wh-questions and echo-questions, as shown in (2). Wh-questions with a single wh-phrase, like the examples in (1), are only allowed in echo-questions, as shown in (2b).

- (2) a. Who said [where John bought what]?
b. Mary said [John bought what]?

In English echo-questions, the in-situ wh-phrase always takes the matrix scope. Therefore, if learners transfer knowledge of wh-in-situ from their L1, they are expected to interpret both (1a) and (1b) as matrix wh-questions.

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¹ In (1b), it is the Q-particle in the embedded clause that is associated with the wh-phrase, and not the one in the matrix clause. This is due to the intervention effect that constrains the association between particles and wh-phrases. Intervention effects are discussed in section 2.

The contrast in meaning between (1a) and (1b) is not directly available from the input. Because both sentences are questions, their meanings cannot be ascertained from the contexts in which they were uttered, since questions are never true or false (Hamblin 1958). Neither can learners derive the contrast from their L1s, since the L1 lacks Q-particles. Furthermore, the contrast between the two sentences generally not taught in the classroom. Therefore, learners must rely on knowledge from UG. If UG is accessible in L2 acquisition (Epstein, Flynn & Martohardjono 1996; Schwartz & Sprouse 1994, 1996; White 1989), English-speaking learners are predicted to be able to achieve target-like interpretations for scope-marking in Japanese. This paper reports on an experiment to this effect.

This paper is organized as follows: section 2 presents theoretical assumptions regarding scope-marking strategies used in wh-in-situ languages and wh-movement languages. In section 3, predictions regarding the acquisition of Japanese wh-constructions by English-speaking learners are presented. Section 4 describes the experimental study conducted, and presents the results. Section 5 discusses the results; conclusions are given in section 6.

2. Wh-scope marking

In wh-movement languages, the position of the wh-phrase determines its scope, as is seen in the following examples. The wh-phrase in (3) takes matrix scope, and in (4), embedded scope.

- (3) What_i did Mary say [_{CP} t_i John bought t_i]? (Matrix scope)
 (4) Did Mary say [_{CP} what_i John bought t_i]? (Embedded scope)

It is assumed that wh-phrases in wh-movement languages have a Q(uestion)-operator feature; in order to establish the operator-variable representation, the wh-phrase moves to Spec CP, binding a trace as a variable (e.g. Chomsky 1973; Nishigauchi 1990; Watanabe 1992). Since wh-phrases themselves act as Q-operators in wh-movement languages, the position to which the wh-phrase moves is the position in which it takes its scope.

In wh-in-situ languages, on the other hand, since wh-phrases do not move, the position of the wh-phrase cannot determine its scope. I assume in this paper that wh-phrases in-situ do not undergo LF movement, but that they are licensed under unselective binding by a null Q-operator, which merges at CP (e.g. Aoun & Li 1993; Cheng 1991; Cheng & Rooryck 2000; Shimoyama 2001; Tsai 1999). Under this assumption, the operator-variable structure is established between the base-generated operator in Spec CP and the wh-phrase in-situ.

It is well-known that Japanese is a wh-in-situ language. The wh-phrase stays in its thematic position, as shown in (5).²

- (5) Mary-ga nani-o kaimasita-ka?
 Mary-Nom what-Acc bought-Q
 'What did Mary buy?

The Q-particle, *-ka*, is obligatorily used in wh-questions.³ *-Ka* can be interpreted as a yes/no question

² Wh-phrases in Japanese can undergo movement, however, leaving their thematic positions, as exemplified in (i). I do not consider this an equivalent of wh-movement, but rather, an instance of scrambling (e.g. Saito 1985, 1989, cf. Takahashi 1993).

(i) nani-o Mary-ga katimasita-ka?
 what-Acc Mary-Nom bought-Q
 'What did Mary buy?

³ In root clauses only, *-ka* may be substituted by another Q-particle, *-no*, as shown in (i), or by raising intonation, as in (ii).

particle when it is not used with a *wh*-phrase.

- (6) Mary-ga ringo-o kaimasita-ka?
 Mary-Nom apple-Acc bought-Q
 ‘Did Mary buy an apple?’

Nishigauchi (1990) noted that the scope of a *wh*-phrase in Japanese is determined by the position of the Q-particle, *-ka*. In (7), the *wh*-in-situ in the embedded clause takes matrix scope as the Q-particle is in the matrix C^0 ; in (8), it takes embedded scope as the Q-particle is in the embedded C^0 .

- (7) Mary-wa John-ga nani-o katta-to iimasita-ka?
 Mary-Top John-Nom what-Acc bought-that said-Q
 ‘What_t did Mary say John bought t₁?’
 (8) Mary-wa John-ga nani-o katta-ka iimasita.
 Mary-Top John-Nom what-Acc bought-Q said
 ‘Mary said what_t John bought t₁.’

The sentence in (8) becomes ungrammatical if the Q-particle *-ka* is not used, as shown in (9).

- (9) *Mary-wa John-ga nani-o katta-to/-Ø iimasita.
 Mary-Top John-Nom what-Acc bought-that/-Ø said
 ‘Mary said what_t John bought t₁.’

If it is assumed that a null Q-operator merges at Spec CP in *wh*-in-situ languages, binding a *wh*-in-situ as a free variable, in Japanese, the Q-particle *-ka*, will introduce the Q-operator at Spec CP, and the Q-operator will be co-indexed with the *wh*-in-situ. This is shown in (10) (Shimoyama 2001). Since the *wh*-phrase in the embedded clause is co-indexed with the operator in the matrix clause, as shown in (10a), the *wh*-phrase takes matrix scope. In contrast, as shown in (10b), when the *wh*-phrase is co-indexed with the operator in the embedded clause, it takes embedded scope. In (10a), the *wh*-phrase in the embedded clause cannot take embedded scope because the complementizer particle, *-to*, marks that the embedded C^0 is [-Q]. In Japanese, such instances never involve the introduction of a Q-operator.

- (10) a. [_{CP} Mary-wa [_{CP} John-ga nani₁-o katta-to] iimasita-ka? Op₁]
 Mary-Top John-Nom what-Acc bought-that said-Q
 ‘What_t did Mary say John bought t₁?’
 b. [_{CP} Mary-wa [_{CP} John-ga nani₁-o katta-ka Op₁] iimasita.]
 Mary-Top John-Nom what-Acc bought-Q said
 ‘Mary said what_t John bought t₁.’

In cases that involve two Q-particles, as shown in (11), the Q-operator which is closest to the *wh*-phrase is co-indexed with the *wh*-phrase. This is called an intervention effect, induced by a locality principle (e.g. Hagsrom 1998, Nishigauchi 1990, Shimoyama 2001).⁴

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- (i) dare-ga kita-no?
 who-Nom came-Q
 ‘Who came?’
 (ii) dare-ga kita-Ø?
 who-Nom came
 ‘Who came?’

⁴ Shimoyama (2001), for example, extends Heim’s (1982) Operator Indexing Rule, originally proposed for English indefinites, to account for the intervention effect in Japanese *wh*-interrogatives, as shown below in (i) (p. 60: (105)).

- (11) Mary-wa [_{CP} John-ga nani₁-o katta-ka Op₁] iimasita-ka?
 Mary-Top John-Nom what-Acc bought-Q said-Q
 a. 'Did Mary say what₁ John bought t₁?
 b. *'What t₁ did Mary say whether or not John bought t₁?'⁵

Because the Q-operator in the embedded C⁰ picks up the wh-phrase in (11), the Q-particle in the matrix clause is interpreted as a yes/no question particle.

Although English is a wh-movement language, it also allows wh-in-situ in multiple wh-questions and in echo-questions. A single wh-in-situ is only permitted in echo-questions and, in such cases, must take matrix scope, as shown in (12).

- (12) Mary said [John bought what]? (Matrix scope)

In English echo-questions, I assume that a Q-operator merges at Spec CP in the matrix clause, binding the wh-in-situ in the embedded clause. The fact that a single wh-phrase in echo-questions always takes matrix scope suggests that a null operator can only be merged at the matrix CP in English.

- (13) [_{CP} Op₁ Mary said [_{CP} John bought what₁]]?

To sum up, Japanese is a wh-in-situ language and English is a wh-movement language. English does allow wh-in-situ in limited constructions, but interpretations of wh-phrases in-situ in English differ from those of Japanese, as English wh-phrases in-situ can only take scope at the matrix clause.

3. Wh-interrogatives in English-Japanese interlanguages

Previous L2 studies suggest that the initial state of the L2 grammar is the learner's L1 grammar (e.g. Schwartz & Sprouse 1994, 1996; White 1985, 1989). If English-speaking learners of Japanese transfer English wh-in-situ, they should have problems with the scope of wh-phrases in-situ in Japanese. As seen in (12) above and repeated here in (14), wh-phrases in-situ in English must take matrix scope.

- (14) Mary said [John bought what]?
 a. What did Mary say that John bought? (Matrix scope)
 b. *Did Mary say what John bought. (Embedded scope)

In other words, it is predicted that learners encountering sentences such as (15) and (16), which represent a contrast in Japanese, will interpret both as matrix wh-questions. However, in Japanese, only (15) is a matrix wh-question.

- (15) [Mary-wa [John-ga nani₁-o katta-to] iimasita-ka?]
 Mary-Top John-Nom what-Acc bought-that said-Q
 a. 'What₁ did Mary say John bought t₁?
 b. *'Did Mary say what₁ John bought t₁?
 (16) Mary-wa [_{CP} John-ga nani₁-o katta-ka] iimasita-ka?
 Mary-Top John-Nom what-Acc bought-Q said-Q
 a. 'Did Mary say what₁ John bought t₁?
 b. *'What t₁ did Mary say whether or not John bought t₁?'

(i) Quantifier Indexing: Copy the index of each indeterminate phrase (wh-phrase) onto the lowest c-commanding Op.

⁵ If the wh-phrase and the Q-particle in the matrix clause are associated, the Q-particle, *-ka*, in the embedded clause must be interpreted as a yes/no question particle. Therefore, this impossible interpretation should be as shown in (11), in which the embedded *-ka* is interpreted as *whether*.

The problem of moving beyond this L1 transfer stage for English-speaking learners of Japanese is that input itself cannot lead them to target-like interpretations, since (15) and (16) are questions. As Hamblin (1958) pointed out, questions are never true or false. In consequence, L2 learners cannot learn the difference in meaning for questions such as (15) and (16) from their contexts.⁶

It might be that learners receive negative evidence motivating target-like interpretations. For example, let us consider a scenario in which learners interpret both (15) and (16) as matrix wh-questions. Being asked (17a), learners may give the answer in (17b). (17b) may be considered to be an inappropriate answer, and learners may be told that questions like (17a) are yes/no questions. However, (17b) is pragmatically acceptable, as it presupposes an affirmative answer to (17a), and it is therefore unlikely that learners receive negative evidence.⁷

- (17) a. Mary-wa [CP John-ga nani_i-o katta-ka] iimasita-ka?
 Mary-Top John-Nom what-Acc bought-Q said-Q
 ‘Did Mary say what_i John bought t_i?’
- b. Kutsu.
 shoes
 ‘Shoes.’

Thus, the only available positive evidence that learners have is that Japanese is a wh-in-situ language and has a Q-particle, *-ka*. Input such as that in (18), heard in a non-echo-question context, should inform learners that wh-phrases in Japanese remain in-situ, and that the particle *-ka* is used in questions.

- (18) Mary-wa nani-o kaimasita-ka?
 John-Top what-Acc bought-Q
 ‘What did Mary buy?’

Based on such evidence, learners must go beyond L1 transfer to construct interlanguage (IL) grammars for Japanese wh-interrogatives. What they must know in order to achieve target-like interpretations is that, in wh-in-situ languages, a Q-operator can merge in the embedded Spec CP, and in Japanese-type wh-interrogatives, the Q-operator merges only when *-ka* is present in C⁰. Such knowledge is not derivable from input, their L1 or classroom instruction; it must come from UG. Therefore, if UG is accessible in L2 acquisition (e.g. Epstein, Flynn & Martohardjono, 1996; Schwartz & Sprouse 1994, 1996; White 1989), adult L2 learners are predicted to be able to achieve target-like interpretations for Japanese wh-interrogatives.

⁶ Even if we take a question-answer pair as a source of positive evidence for the scope interpretations of wh-questions, such evidence does not appear to be reliable. For example, the question in (i) is a yes/no question, but it may be followed by answers such as (ii), (iii) and (iv). All these answers are acceptable in conversation, but they do not provide an interpretation of the question in (i).

- (i) Do you know who passed the test yesterday?
 (ii) Mary.
 (iii) I am sure Mary passed because she is the smartest in the class.
 (iv) There was a test yesterday?

Since pragmatics comes into play between what is actually asked in the question and what is stated in the answer, it seems unlikely that language learners will receive reliable evidence leading to target-like interpretations.

⁷ The effectiveness of negative evidence in L2 acquisition has been controversial. See, for example, Schwartz & Gubala-Ryzak (1992), Slabakova (2002) and White (1990/1991).

4. Study

4.1. Participants

Thirty-six native speakers of English, who started acquiring Japanese post-puberty, and 11 native speakers of Japanese participated in the study. Learners were separated into three groups: low-intermediate, high-intermediate and advanced, based on scores from a proficiency test. The proficiency test given was in the format of a cloze test, with multiple-choice answers provided for each blank. The test had 43 questions in total, and participants in the control group scored between 40 and 43. For the learner groups, those who scored lower than 20 were judged to be low-intermediate, those who scored between 20 and 29 were ranked high-intermediate, and those who scored 30 or higher were considered advanced. Participant data is shown in Table 1.

Table 1: Participants

	Mean age	Mean length of exposure (yrs) ⁸		Proficiency test scores (out of 43)	
		Mean	Range	Mean	Range
Low-intermediate (n=8)	30.5	6;1	2 – 12	14.8	11 – 19
High-intermediate (n=15)	26.8	6;4	2 – 22	24.5	20 – 28
Advanced (n=13)	32.0	10;2	4 – 2	35.5	30 – 41
Control (n=11)	25.8			41.6	40 – 43

4.2. Material

The test used in this experiment was a question-answer (Q/A) pair acceptability judgment task. In this task, participants read a context in their L1, followed by a Q/A pair in Japanese. Control subjects read contexts in Japanese and learners read contexts in English. Participants had to decide whether the answer provided was natural or unnatural with respect to the question. They were asked to rate the answer from 1 to 4, “1” designating a very odd answer to the question, “4”, a perfectly natural answer. They were also given a choice of “*don't know*”. The test included 28 test items and 20 fillers, amounting to 48 items in total.⁹

There were two question types; each was followed by one of two different types of answers, either a yes/no answer or a content answer. Type 1 questions were matrix wh-questions; these were followed by content answers (which are appropriate) in Type 1-1 pairs, and by yes/no answers (which are inappropriate) in Type 1-2 pairs. Type 2 questions were yes/no questions; yes/no answers were given in Type 2-1 (appropriate) and content answers were given in Type 2-2 (inappropriate). Examples are given in (19) through (22).

(19) Type 1-1: Matrix wh-questions, appropriate (n = 4)

[context] Masami and Jiro are going to have a dinner party at their house. Jiro wanted to know whether Masami had already invited Kenji, so he asked her. Later, Jiro's friend asked him,

Question: Masami-wa dare-o shootaisita-to iimasita-ka?
 Masami-Top who-Acc invited-that said-Q
 ‘Who did Masami say she invited?’

⁸ Length of exposure was calculated by subtracting the participant's age at the time of his or her first exposure to Japanese (whether or not first exposure consisted in taking classes or independent study) from his or her age at the time of testing.

⁹ There were three types of test items; matrix wh-questions, yes/no questions and wh-questions with a wh-element in a relative clause. In this paper, I will only present results that concern the first two types.

Answer: Kenji-o shootaisita-to iimasita-yo.
 Kenji-Acc invited-that said-part.
 ‘She said that she invited Kenji.’

(20) Type 1-2: Matrix wh-questions, inappropriate (n = 4)

[context] Masami and Jiro are going to have a dinner party at their house. Jiro wanted to know whether Masami had already invited Kenji, so he asked her. Later, Jiro’s friend asked him,

Question: Masami-wa dare-o shootaisita-to iimasita-ka?
 Masami-Top who-Acc invited-that said-Q
 ‘Who did Masami say she invited?’

Answer: Hai, iimasita-yo.
 yes, said-part.
 ‘Yes, she did.’

(21) Type 2-1: Yes/No-questions, appropriate (n = 4)

[context] Kenji heard that Miki had drunk either beer or wine at his birthday party. Kenji wanted to know whether Miki drank beer, so he asked her. Later, Kenji’s friend asked him,

Question: Miki-wa nani-o nonda-ka iimasita-ka?
 Miki-Top what-Acc drank-Q said-Q
 ‘Did Miki say what she drank?’
 (not ‘What is the thing x such that Miki said whether she drank x ?’)

Answer: Hai, iimasita-yo.
 yes said-part.
 ‘Yes, she did.’

(22) Type 2-2: Yes/No-questions, inappropriate (n = 4)

[context] Kenji heard that Miki had drunk either beer or wine at his birthday party. Kenji wanted to know whether Miki drank beer, so he asked her. Later, Kenji’s friend asked him,

Question: Miki-wa nani-o nonda-ka iimasita-ka?
 Miki-Top what-Acc drank-Q said-Q
 ‘Did Miki say what she drank?’
 (not ‘What is the thing x such that Miki said whether she drank x ?’)

Answer: Biiru-o nonda-ka iimasita-yo.
 beer-Acc drank-Q said-part.
 ‘She said whether or not she drank beer.’

4.3 Results

4.3.1. Group results

The group results are shown in Table 2. One-way ANOVA was performed and showed statistically significant differences between groups for Type 1-2 ($F(3, 43)=11.80, p=.000$), Type 2-1 ($F(3, 43)=13.62, p=.000$), and Type 2-2 ($F(3, 43)=17.52, p=.000$) questions, but there was no statistically significant differences for Type 1-1 ($F(3, 43)=1.43, p=.245$). Post-hoc tests revealed that, at the .05 level, there were no statistically significant differences between groups for Type 1-1 questions. For Type 1-2, the low-intermediate group and the control group were not statistically different from each other, but both the high-intermediate and advanced groups were statistically significantly different from the control group. For Types 2-1 and 2-2, the low- and the high-intermediate groups were not statistically significantly different from each other, but both groups were statistically different from the advanced

and the control group. The advanced and the control group were not statistically different from each other for either Type 2-1 or Type 2-2 questions.

Table 2: Acceptability judgment task: Group results (mean max. 4)

Groups	Type 1: Matrix Questions				Type 2: Yes/No Questions			
	Type 1-1		Type 1-2		Type 2-1		Type 2-2	
	Appropriate	Inappropriate	Appropriate	Inappropriate	Appropriate	Inappropriate	Appropriate	Inappropriate
	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Low-intermediate (n=8)	3.79	0.4	1.5	0.8	1.79	1.1	3.61	0.7
High-intermediate (n=15)	3.72	0.5	2.66	1	2.51	1	3	1
Advanced (n=13)	3.78	0.42	2.94	1.02	3.63	0.47	1.56	0.76
Control (n=11)	4	0	1.18	0.46	3.83	0.32	1.41	0.76

Low-intermediate learners scored low for pairs with yes/no answers and high for content answers. This indicates that they interpret both Type 1 and Type 2 questions as matrix wh-questions. At the high-intermediate level, learners gradually start to accept yes/no answers for Type 2 questions, but they do so for Type 1 questions as well, for which yes/no responses are inappropriate. There was no statistical difference between Type 1-2 and Type 2-1 questions for either the low-intermediate ($t(7)=1.16, p=0.15$) or the high-intermediate group ($t(15)=0.8, p=0.22$).

At the advanced level, all pairs were judged as expected except for Type 1-2. Although Type 1-2 was accepted at a higher rate by advanced learners than controls, there was a statistically significant difference between Type 1-2 and Type 2-1 pairs for the advanced group ($t(12)=2.56, p=0.012$). Advanced learners seem to prefer yes/no answers for Type 2-1, which is appropriate, over Type 1-2, which is inappropriate. This distinction was not made by other learner groups.

4.3.2. Individual results

Table 3 shows the number of participants who have target-like interpretations for Type 1 and 2 questions. Participants who rated the appropriate Q/A pair at 3.0 or higher out of 4 on average and the inappropriate Q/A pair at 2.0 or lower out of 4 were judged to have target-like interpretation. As can be seen from Table 3, there were no learners who have target-like interpretations in the low- and high-intermediate groups. In the advanced learner group, four out of 13 learners demonstrated having target-like interpretation.

Table 3: Acceptability judgment task: Individual results

Groups	Number of participants with target-like interpretations
Low-intermediate (n=8)	0/7 (0%)
High-intermediate (n=15)	0/16 (0 %)
Advanced (n=13)	4/13 (30.8 %)
Control (n=11)	9/11 (82 %)

5. Discussion

The results show clear transfer effects. Low-intermediate learners seem to interpret both matrix wh-questions and yes/no questions as matrix wh-questions. This suggests the L1 transfer of English wh-in-situ.

At the high-intermediate level, learners gradually go beyond L1 transfer and start interpreting Type 2 questions as yes/no questions, although their judgments are not at the level of advanced learners or native controls. Interestingly, as their judgments on Type 2 yes/no questions improve, their scores for Type 1 inappropriate pairs worsen. There was no statistically significant difference between appropriate Type 2-1 pairs and inappropriate Type 1-2 pairs.

Advanced learners have target-like interpretations for Japanese *wh*-interrogative sentences in all instances except for Type 1-2 pairs. Four out of 13 subjects have target-like interpretations in all four conditions, while eight out of 13 subjects (61.5 %) showed target-like interpretations for all except Type 1-2 pairs.¹⁰ It seems that target-like interpretations can be achieved at the advanced level, but the 1-2 question type does pose problems for some learners.

Eight learners from the advanced group accepted a yes/no answer for a matrix *wh*-question, repeated here in (23), while four learners were able to reject the pair in (23).

- (23) a. Miki-wa [pro nani-o nonda-to] iimasita-ka?
 Miki-Top what-Acc drank-that said-Q
 ‘What did Miki say she drank?’
 b. Hai, iimasita-yo.
 yes said-part.
 ‘Yes, she did.’

This means that, for the eight advanced learners who accepted the Q/A pair in (23), the *wh*-phrase in the embedded clause takes scope in the embedded clause. Some advanced learners, therefore, seem to assign a non-target-like representation in (24b), instead of target-like (24a), to sentences like (23).

- (24) a. [Miki-wa [CP pro nani₁-o nonda-to] iimasita-ka Op₁]? (Target)
 Miki-Top what-Acc drank-that said-Q
 b. [Miki-wa [CP pro nani₁-o nonda-to Op₁] iimasita-ka]? (Non-target)
 Miki-Top what-Acc drank-that said-Q

It is clear that advanced level (and to some extent also at the high-intermediate level), learners come to have interpretations of *wh*-in-situ that differ from those in English, as shown in (14), repeated here in (25).

- (25) Mary said [John bought what]?
 a. What did Mary say that John bought? (Matrix scope)
 b. *Did Mary say what John bought. (Embedded scope)

The question is, where does this non-target-like and non-L1-like interpretation of *wh*-in-situ come from? The non-target-like interpretation in (23a), I believe, comes from the learner’s knowledge of semantics. It is a universal characteristic of *wh*-questions that *wh*-phrases take scope at CP. L2 learners must know this, based on the assumption that they acquired this semantic principle when they acquired their L1. Therefore, in questions which involve a bi-clausal structure, as in (23), learners know that a *wh*-phrase in-situ has two potential positions in which it can take scope; the embedded CP or the matrix CP. Misinterpretation is likely to result from the fact that these learners have not fully acquired the syntax and the semantics of Japanese *wh*-interrogatives, and that they therefore resort to their semantic knowledge, thus allowing the interpretation in (24b).¹¹

Four advanced learners in this study demonstrated knowledge of scope-marking in Japanese, despite the lack of positive evidence. Learners who were seen to achieve target-like interpretations were highly proficient learners (see table 4). This suggests that target-like interpretations can be achieved by English-speaking learners.

¹⁰ The one remaining subject showed non-target-like interpretations for Type 1-2 and Type 2-2 questions (both inappropriate pairs). He rated all the pairs discussed in this paper an average of 3 or higher. This is not to say that he had a tendency to accept all pairs. He correctly rejected inappropriate pairs that were included as fillers.

¹¹ This supports Slabakova’s (2006) semantics-before-syntax view. She assumes, following Jackendoff (2002), that semantics have universal characteristics. Therefore, the syntax-semantics interface should not pose problems for L2 learners as long as basic morpho-syntactic properties in the target language are in place.

Table 4: Advanced learners

		Proficiency test scores (out of 43)	Age of first exposure	Number of yrs studying Japanese	Length of residence in Japan
1	Non-target	30	25	6 yrs	6 yrs
2	Non-target	30	24	15 yrs	4 yrs
3	Non-target	32	18	16 yrs	13 yrs
4	Non-target	33	20	7 yrs	3 yrs
5	Non-target	33	18	4 yrs	10 mo
6	Non-target	34	26	5 yrs	5 yrs
7	Non-target	35	19	4 yrs	1 yrs. 9 mo
8	Non-target	38	14	5 yrs	1 mo
9	Non-target	38	22	16 yrs	9 yrs
10	Target	38	22	7 yrs	4 yrs
11	Target	38	16	21 yrs	18 yrs
12	Target	41	18	10 yrs	4 yrs
13	Target	41	22	17 yrs	14 yrs

It is still not clear why many advanced learners have problems achieving the target-like interpretations. The difficulty learners face, I argue, derives from their inability to integrate their semantic knowledge with their syntactic knowledge. The syntax and semantics of Japanese interrogatives require that *wh*-phrases remain in-situ, acting as a variable; it is only *-ka* that introduces a Q-operator, which is co-indexed with the *wh*-phrase in-situ. These properties have to be acquired in order for learners to achieve target-like interpretations. At the advanced level, learners are likely to know that *wh*-phrases remain in-situ in Japanese and that *-ka* has a [+Q] feature.¹² What seems to be the problem is that they do not yet know when to introduce a Q-operator that binds the variable (the *wh*-in-situ). This is a semantic property. Learners must therefore derive this semantic property from their newly acquired syntax.¹³ Some advanced learners have not achieved this yet. Therefore, it may be the case that, in the L2 acquisition of some properties at the syntax-semantics interface, there may be a delay for target-like semantics to emerge, even if the learner has already acquired target-like syntax.

¹² In a translation task, learners from the same advanced group demonstrated that they distinguish the declarative complementizer particle, *-to*, from the interrogative complementizer particle, *-ka*, when they are used without a *wh*-phrase, as shown below in (i) and (ii):

(i) Declarative complementizer *-to*
 Jiro-wa [pro pizza-o katta-to] iimasita-ka?
 Jiro-Top pizza-Acc bought-that say-Q
 'Did Jiro say that he bought pizza?'

(ii) Interrogative complementizer *-ka*

Jiro-wa [pro pizza-o katta-ka] iimasita-ka?
 Jiro-Top pizza-Acc bought-Q say-Q
 'Did Jiro say whether or not he bought pizza?'

Ten out of 13 (76.8%) advanced learners showed target-like interpretations for the sentences in (i) and (ii), suggesting that the majority of advanced learners have knowledge of the complementizer types.

¹³ This is similar to what has been argued for the syntax-pragmatics interface in L2 acquisition. The Interface Hypothesis (Sorace 2004, 2005) claims that L2 learners have problems integrating pragmatic information with their knowledge of L2 (narrow) syntax and that this may cause persistent problems to L2 learners, even at the near-native level. Sorace (pc) indicated that the syntax-semantics interface, however, should not cause such persistent problems, and at a near-native level, properties at the syntax-semantics interface should be acquirable. This seems to be the case according to our results as some highly advanced learners have the target-like interpretation.

6. Conclusions

This study investigated the acquisition of *wh*-in-situ by learners whose L1 is English, a *wh*-movement language. As predicted, learners transfer their knowledge of *wh*-in-situ from their L1s, as evidenced by the results from low-intermediate learners.

It was also predicted that learners should be able to achieve target-like interpretations if they have access to UG. It was found that some learners were able to achieve target-like interpretations, while the majority were not. Only those who achieved high proficiency seemed to have acquired the scope-marking strategy that Japanese employs. Still, many advanced learners were not yet able to achieve target-like interpretations. I argued that some learners have difficulties deriving the target-like semantics from their L2 syntax, which leads some learners to rely on their already-existing semantic knowledge.

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