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COLLOCATIONS AND SECOND LANGUAGE ACQUISITION:
THE ACQUISITION OF ENGLISH ADJECTIVAL CONSTRUCTIONS

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In recent years, vocabulary has gained a more prominent status in the study of second language acquisition, prompted by various corpus studies and awareness of the role of lexical units in learning and communication. Although vocabulary is often dealt with only incidentally by language teachers, lexical knowledge is central to communicative competence and to the acquisition of a second language (Schmitt 2000). An experiment was conducted to examine the effect of text frequency in the acquisition of two grammatical collocations by Japanese learners of English: predicate adjectival constructions involving an expletive *it* plus either (1) a *for* + NP prepositional phrase followed by an infinitival clause; or (2) a *that* clause. It was found that, as compared with the performance of low-to-intermediate learners, advanced learners show a stronger sensitivity to text frequency in three tasks: Japanese-to-English translation, grammaticality judgments, and familiarity ratings. It was also concluded that L2 learners, especially low-to-intermediate learners, need to receive a greater variety of input in order to achieve native-like proficiency in such adjectival constructions. Results of this study support claims that L2 learners are poor in knowledge of formulaic sequences (Wray 2002). These results also suggest that a greater variety of input must be given to L2 learners and that the use of corpora can supplement L2 learning.

1. INTRODUCTION. This paper investigates the second language acquisition of two types of grammatical collocations involving predicate adjectivals as in the following examples:

(1)　It is necessary *for* us *to* know how to use a computer.

(2)　It is necessary *that* we know how to use a computer.

The structure of these two types is as follows:

(1′)　It is (adjective) for (subject) to (verb phrase) (hereafter the "*for*-construction")
(2′)　It is (adjective) that (subject) + (verb) (hereafter the "*that*-construction")

I am particularly concerned with the effect of frequency on learners of English as a second language, because frequency often acts as a constraint on use (Nation 2001). According to the COBUILD corpus, the adjective *necessary*, for instance, frequently occurs with both the *for* construction and the *that* construction: "*It is necessary for* us *to* know how to use a computer" and "*It is necessary that* we know how to use a computer". In contrast, the adjective *dangerous* occurs frequently in the *for* construction, but relatively less frequently in the *that* construction. Accordingly, a sentence in the more frequent construction: "*It is dangerous for* the children *to* play in the street" sounds quite natural to most English native speakers, whereas a sentence in the less frequent construction: "*It is dangerous that* the children play in the street" sounds somewhat odd to most speakers. The effect of frequency on the acceptability of such sentences cannot be explained by referring to traditional generative grammar. In fact, Pawley and Syder (1983) suggest that only a small proportion of the total set of grammatical sentences is native-like —in the sense of being readily acceptable to native speakers as ordinary, natural forms of expression. Most other grammatical sentences are judged to be unidiomatic, odd, or foreign. Pawley and Syder claim that full control of a language must entail knowledge of something more than a generative grammar. They propose that the additional knowledge that underlies native-like language abilities is "memorized sentences" and "lexicalized sentence stems". Memorized

clauses and clause sequences make up a large percentage of the language we use, and the large stock of prefabricated units enables natives to select appropriate forms of expression from a rather small range of grammatically acceptable alternatives, and to produce fluent speech or writing without apparent planning, effort, or hesitation. In contrast, when L2 learners make productions in a target language, their performance may be perceived as non-nativelike, due to their limited command of acceptable lexical phrases. They often confine themselves to a limited range of familiar vocabulary, or produce expressions that sound odd, unidiomatic, or unintentionally amusing; and they are likely to be hesitant, to speak more slowly, and to write less volubly than natives do (Read 2000).

In this sense, acquisition of vocabulary does not mean simply learning a word's pronunciation, spelling, and meanings. Nation (1990) claims that knowing a word involves both receptive and productive knowledge of *form* (spoken, written, word parts), *meaning* (form and meaning, concept and referents, associations), and *use* (grammatical functions, collocations, and constraints on use such as register and frequency). Vocabulary ability includes both knowledge of language and the ability to put language to appropriate use in a given context. This leads to injunctions against teaching L2 words only in lists; instead, vocabulary should be taught in context while keeping the flexibility of list learning (Nation 1990). Taylor (1983) lists four reasons for studying words in collocations: (a) Words that are naturally associated in a text are learned more easily than those not so associated; (b) vocabulary is best learned in context; (c) context alone is insufficient without deliberate association; (d) vocabulary is a distinct feature of language that needs to be developed alongside a developing grammatical competence.

Memorized phrases and clause sequences have been given a number of labels, including "phraseological units" (Gläser 1986), "word-combinations" (Akhmanova 1974, Cowie 1994), and "phrasal lexemes" (Lipka 1991, Moon 1998). In this paper, I will use the term "collocation" to refer to ready-made memorized combinations in written and spoken language. Collocations are frequent co-occurrences of individual lexical items or of particular constructions. They are a type of syntagmatic relation that is linguistically predictable to a greater or lesser extent (e.g., the bond between *spick* and *span* is stronger than that between *letter* and *pill-box*) (Crystal 1997).

Collocations can be divided into two subtypes: grammatical collocations and lexical collocations (Benson 1985). Grammatical collocations consist either of a dominant word (usually a verb, a noun, or an adjective) and a dependent word such as a preposition; or of a particular structural pattern, such as the dative-movement transformation, *that*-clause, and *to* + infinitival + gerund. Lexical collocations, in contrast, consist of two "equal" components, such as *verb + noun* or *adjective + noun*. Examples of grammatical and lexical collocations are given in Table 1.

TABLE 1. Examples of collocations. Source: Benson (1985).

Type	Examples
Grammatical Collocations:	
verb + preposition	*(to) get at, (to) go for*
adjective + preposition	*different from, curious about, full of*
adjective + preposition + preposition	*fed up with*
preposition + noun	*for sale, on time*
dative movement transformation	*She sent the book to him/ She sent him the book.*
	*He described the book to me/ *He described me the book.*

Lexical Collocations:

verb + noun	*(to) reach a verdict, (to) launch a missile, (to) lift a*
(pronoun, prepositional phrase)	*blockade, (to) revoke a license*
adjective + noun	*reckless abandon, sweeping generalization*
noun + verb	*adjectives modify, alarms go off*
noun + *of* + noun	*a bunch of flowers, a piece of advice*
adverb + adjective	*deeply religious, fiercely independent*
verb + adverb	*(to) apologize humbly, (to) affect deeply*

In Government and Binding theory, these two adjectival constructions —"It is *adjective* for a person to do" and "It is *adjective* that SV" — are generated through similar syntactic processes. In both constructions, the sentential subject is moved to the final-position, and the vacated subject position is filled by a dummy pronoun *it* (often called an expletive pronoun). When the *for* construction is generated, the *for* serves as a prepositional complementizer that case-marks the internal subject NP (Haegeman 1994).

In the language classroom, these two adjectival constructions are generally introduced as chunks, specifically as structural patterns, both in Japan and the U.S. When English sentences that contain either *for* or *that* constructions are translated into Japanese, there are usually two possible approximate Japanese equivalents of the *for* and *that* constructions. For example, sentence (3) with the *for* structure can be translated into Japanese as either (3′) or (3″). (3′) is structurally similar to the English *for* construction: the NP 'Roy' appears within the prepositional phrase headed by *totte* 'for'. In contrast, (3″) is comparable to the English *that* construction. The NP *Roy* carries the topic marker *wa* or the nominative case marker *ga* and functions as the subject of the internal clause, while the embedded verb phrase *oyogu* may carry either the nominative case marker *ga* or the topic marker *wa*. In the same manner, English sentences that contain a *that* structure, such as (4), can be translated in two possible ways into Japanese — similar to a *for* construction (4′) or a *that* construction (4″).

(3) It was not easy for Roy to swim 500 meters.
(3′) *Roy-ni-totte   500 meetaa oyogu-no-wa   youi-de-wa-naka-tta.*
     Roy-dat-for   500 meter   swim-thing-topic   easy-be-topic-not-past
(3″) *Roy- wa/ga   500 meetaa   oyogu-no-ga/wa   youi-de-wa-naka-tta.*
     Roy- topic/nom 500 meter   swim-thing-nom/topic easy-be-topic-not-past

(4) It is necessary that Stella should study Portuguese before going to Brazil.

(4′) *Sutera-ni-totte   buraziru-ni iku maeni porutogarugo-o   benkyou-suru-no-ga/wa*
     Stella-dat-for   Brazil-to   go before Portuguese-acc   study-do-thing-top
     hituyou-dearu.
     necessary-be

(4″) *Sutera-wa/ga   buraziru-ni iku maeni porutogarugo-o   benkyou-suru-no-ga/wa*
     Stella-topic/nom Brazil-to   go before Portuguese-acc   study-do-thing-nom/topic
     hituyou-dearu.
     necessary-be

In most schools in Japan, learners are explicitly instructed to translate English sentences following (3″) and (4″), i.e., using the Japanese equivalent of the *that* construction for both types. I believe that the reason is the influence of the dominant grammatical theory. The NP *Roy* in (3) and the NP *Stella* in (4) are both regarded as internal subjects in both transformational grammar and GB theory. Language teachers want the original grammatical relation to be maintained in the Japanese translations, although the alternative translations (3′) and (4′) are entirely acceptable in Japanese.

I will next state my research questions and predictions, then describe my experimental method, followed by results and discussion. This paper will conclude with some thoughts about the current position of the study of second language collocations and implications for language pedagogy.

2. RESEARCH QUESTIONS AND PREDICTIONS. The following four research questions are addressed in this study.

QUESTION 1: Which construction (*for* or *that*) do Japanese learners of English use more frequently?
QUESTION 2: Which construction do Japanese learners of English acquire first?
QUESTION 3: How does the observed frequency of these constructions relate to acquisition?
QUESTION 4: Is there any correlation between learners' proficiency and their subjective ratings of familiarity of these constructions?

The first question concerns the preference in the production of the two constructions by L2 learners. As I discussed in the previous section, both of these constructions in English can be roughly translated into Japanese equivalents of both *for* and *that* constructions. So the answer cannot be predicted merely by comparing structural differences between English and Japanese. The *for* construction seems to be structurally more complex, since it involves the use of the accusative form of the noun or pronoun and the infinitive form of the verb. Some learners may find it easier to produce *that* constructions because of their greater simplicity.

PREDICTION 1: There are observable individual differences among the learners with respect to a preference for producing *for* or *that* constructions. These differences stem from various factors, including differences in learners' confidence in one of the constructions, their general preference for one construction, their use of communication strategies, and pedagogical influences, such as which construction more emphasis was placed on. If a learner is confident in using only one of the constructions, for example, he or she may overuse that construction in the translation task.

Addressing the second question will require considering structural differences between English and Japanese, as well as the amount of input that learners receive. We have noted that Japanese has rough equivalents of both English *for* and *that* constructions. The difference is that almost any Japanese adjective can be inserted into either construction without affecting the acceptability of the sentence, although there are individual variations in preferences as well as differences in frequency. In English, on the other hand, although some adjectives may occur with both constructions, others generally occur with only one.

PREDICTION 2: Learners will acquire the constructions involving adjectives that commonly occur with both *for* and *that* constructions more quickly, whereas they will have more difficulty with constructions involving adjectives that occur with only one construction.

A prediction regarding the third question is simple.

PREDICTION 3: If frequency influences acquisition order, Japanese learners will acquire more uses of verbs with constructions that are more frequent before those that are less frequent. Such words as *important* and *necessary* are frequently used when the *for* construction is introduced in both conventional and modern ESL materials.[1] These adjectives hardly ever appear in *that* constructions in ESL materials. Learners may respond in a near native-like manner when judging high-frequency adjectival constructions, but may accept less common ones.

The fourth question considers how learners respond to grammaticality judgments and familiarity ratings. A strong relationship between responses to grammaticality judgments and to familiarity ratings should reflect learners' confidence in relying on their exposure when making grammaticality judgments. They will judge a sentence as grammatical because they think they have seen or heard the construction before, and they may reject a sentence because they believe they have not seen or heard the construction. In contrast, a weak relationship in the ways learners respond to the two tasks might suggest a lack of confidence in their grammaticality judgments. They may accept some sentences, even though they feel they have never seen or heard the construction, and they may reject other sentences, though they think they may have seen or heard the constructions before.

PREDICTION 4: There will be a stronger relationship between familiarity and grammaticality among advanced learners than among low-intermediate learners.

3. METHOD.

3.1 PARTICIPANTS. The participants in this study were forty-two Japanese learners of English, who included graduate and undergraduate students and visiting scholars at the University of Hawai'i at Mānoa, and students studying English in the HELP (Hawai'i English Language Program) or NICE (New Intensive Course in English) programs. There was also an English native speaker comparison group of twenty graduate and undergraduate students (ten males and ten females) at the same university. Nonnative speakers were divided into two proficiency groups based on their TOEFL scores: the low-intermediate group had TOEFL scores lower than 550, while the advanced group had TOEFL score of 550 or higher. Twenty-five learners (eleven males and fourteen females) were in the low-intermediate group, and seventeen learners (six males and eleven females) were in the advanced group. The mean number of years of residence in English-speaking countries was one year and six months in the low-intermediate group and four years and two months in the advanced group.

3.2 MATERIALS. Sixteen adjectives were selected on the basis of the frequency of their occurrence in *for* and *that* constructions in the COBUILD collocation sampler. The COBUILD database is composed of fifty-six million words of contemporary written and spoken text in American and British English. In this experiment, a construction was considered to be highly frequent when the COBUILD database had more than twenty instances that involved the construction, while a construction was regarded as infrequent when there were from zero to four instances. I excluded adjectival constructions which had between five and twenty instances.

The sixty adjectives were divided into four types: (1) Adjectives that frequently occur with both the *for* and *that* constructions; (2) Adjectives that frequently occur with the *for* construction but not with the *that* construction; (3) Adjectives that frequently occur with the *that* construction but not with the *for* construction, and (4) Adjectives that do not commonly occur in either construction. Four adjectives were chosen from each type. Table 2 is the list of the adjectives.

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[1] See Bland 1996, Holschuh 1991a, b, Kirn and Jack 2002, Lado and Fries 1966, and Rutherford 1977.

TABLE 2. List of adjectives, by type.

TYPE 1. Both *for* and *that* constructions are frequent:
     important, necessary, impossible, possible
TYPE 2. *For* construction is frequent, but *that* construction is uncommon or unattested:
     easy, difficult, hard, dangerous
TYPE 3. *That* construction is frequent, but *for* construction is uncommon or unattested:
     certain, probable, unfortunate, clear
TYPE 4. Both *for* and *that* constructions are uncommon or unattested:
     intolerable, annoying, inadequate, innovative

In addition to these adjectives, fourteen filler adjectives were selected. These adjectives occur in the two constructions with various frequencies, but they are neither frequent nor infrequent enough to meet the criteria to be included in TYPES 1~4. Thus a total of thirty adjectives were used in this experiment.

3.3 PROCEDURE. The experiment was composed of two parts. In the first part, Japanese learners of English were asked to translate thirty Japanese sentences into English, using the adjectives listed in Table 2. They were instructed to start their translation with "*It is* adjective," which was already written in the answer sheet as in the example question given below:

QUESTION: あなたが一生懸命勉強するのが必要です。
     It is necessary _____

The translation task was intended to elicit the learners' production so as to detect any systematicity in their selection of two adjectival constructions. All the sentences in this task were declarative and used the copula verb *be*. There were no modal verbs and no adverbs that modified the adjective; the tense of the sentence was either past or present, and the content of the sentence was semantically natural. All the Japanese sentences in questions were given in the equivalent of the Japanese *that* constructions, since in language classes, students are usually instructed to use Japanese *that* constructions when they translate English sentences involving both *for* and *that* constructions into Japanese. In order to facilitate the translation task, some parts of the original Japanese sentences were underlined, and an English translation was provided on the sheet next to the Japanese sentence. The following is an example:

QUESTION: 彼らが<u>彼らの少ない収入で生活する</u> (live on their small income)のは大変であった。
     It was hard _____

Because the focus of this study was to examine the learners' use of the two constructions involving adjectives, other possible errors were not of interest. Participants were allowed to spend as much time as they wanted to translate their sentences. They took twenty to thirty-five minutes to complete this part.

The second part consisted of two tasks: (1) grammaticality judgments and (2) subjective ratings of whether or not the participants had seen or heard a given construction before. These tasks were designed to probe the learners' metalinguistic abilities with the two adjectival constructions. Sixty sentences were prepared. Each of the thirty adjectives appeared twice; once

in the *for* construction, and once in the *that* construction. The sentences were randomly ordered. In both tasks the subjects responded using a five-point scale. The following are example questions:

> SENTENCE: It is not easy for me to solve the problem.
> QUESTION 1: Is this sentence acceptable in English?
> QUESTION 2: Have you ever seen or heard the construction "*It is (not) easy for a person to do …?*"

> SENTENCE: It is not easy that we speak French.
> QUESTION 1: Is this sentence acceptable in English?
> QUESTION 2: Have you ever seen or heard the construction "*It is (not) easy that …?*"

The first task, grammaticality judgments, asked for the subjects' judgment of the acceptability of a given sentence that contained an adjective inserted into either the *for* or *that* construction. For the second task, familiarity ratings, the subjects were asked whether they thought they had previously seen or heard the construction. They were instructed to pay attention to the constructions: *It is adjective for … to do …* and *It is adjective that …*. They were also instructed that the tense of the verb did not have to match (e.g., it could have been *It was easy*, *It will be easy*, or *It seems to be easy*), and that *for a person* and *to do* could have been replaced with any noun (including pronouns) or verb respectively (e.g., *It is not easy for John to play the guitar*, *It was easy for her to write a letter in German* and so on).

Non-native subjects participated in this part immediately after performing the translation task. The native speakers took part only in this part to serve as a control group. All the participants were allowed to spend as much time as they wanted to complete these tasks. They usually spent twenty to forty minutes to finish the second part. All the materials used in the experiment are attached in the appendix.

4. RESULTS.

4.1 PART I: TRANSLATION TASK. Figure 1 displays the percentages of subjects' production of the *for* and *that* constructions in the translation task. Since the objective of this study was to investigate the learners' use of the *for* and *that* constructions, all translations that used constructions other than these two were excluded from the analysis. 3.25% of low-intermediate learners' translations had to be excluded, but no data were excluded from the advanced learners' translations.

FIGURE 1. The production of *for* and *that* constructions in Japanese-to-English translations.
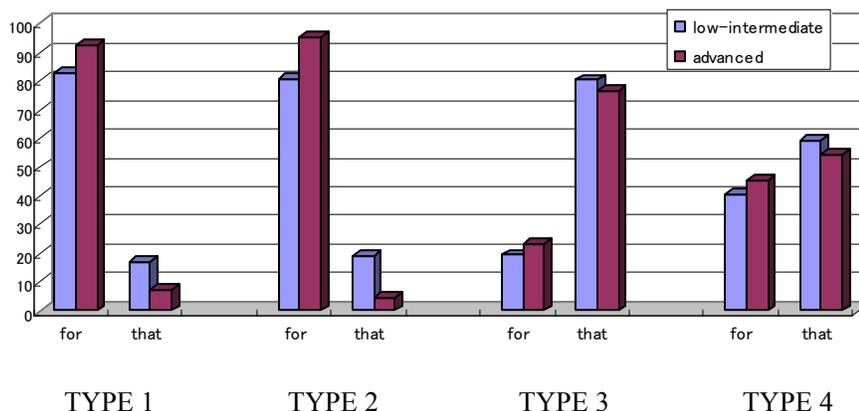
In translating the sentences that involved adjectives of Type 1, the majority of the subjects used the *for* construction despite the fact that according to the COBUILD database, both the *for* and *that* constructions are frequent. The reason could be the amount of the input they received in their ESL classes. This result suggests the possibility that the frequency of constructions that L2 learners encounter in language classes may be somewhat different from the observed frequency found in the COBUILD database. For TYPE 1, the advanced learners used more *for* constructions (92.65 %) than the low-intermediate learners (82.96 %), but the difference is not statistically significant (t = 0.007; p>.05). The frequency effect is clear on TYPES 2 and 3. A large part of the subjects used the *for* construction for TYPE 2 and the *that* construction for TYPE 3. The advanced learners used significantly more *for* constructions for TYPE 2 (95.59 %) than did low-intermediate learners (80.68 %) (t = 6.461*; p<.05), and for TYPE 3, low-intermediate learners used slightly more *that* constructions (80.46 %) than advanced learners (76.47 %), but this difference is statistically insignificant (t = 0.233; p>.05). Thus, there is an effect of frequency present in the overall performance of both low-intermediate and advanced learners in the translation task.

Next, let us consider individual differences with respect to the use of these two constructions. The percentages of each subject's use of *for* and *that* constructions are summarized in Figures 2 and 3. Figure 2 depicts the low-intermediate learners' group, and Figure 3 depicts the advanced learners' group.

FIGURE 2. Low-intermediate learners' production of *for* and *that* constructions in translations.
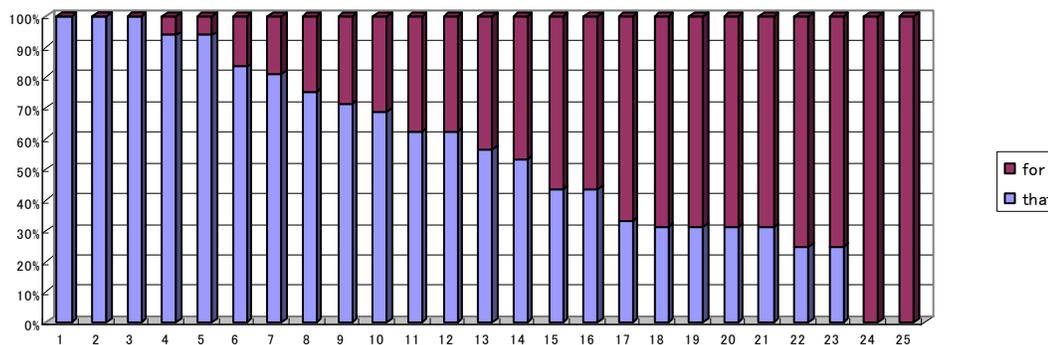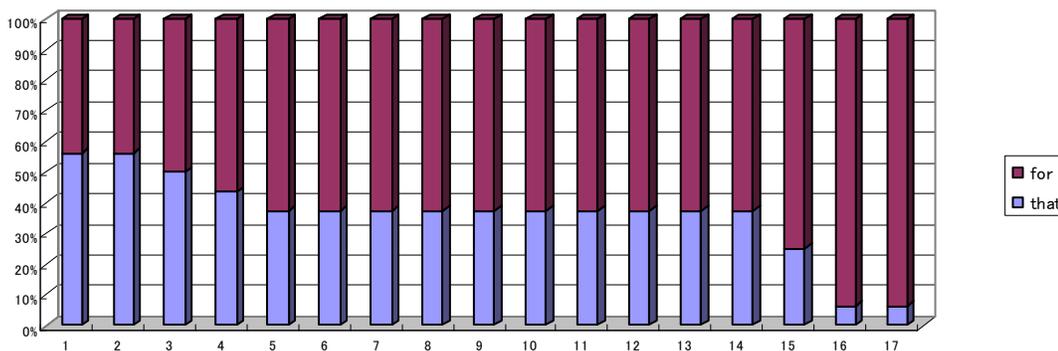

FIGURE 3. Advanced learners' production of *for* and *that* constructions in translations.

It is clear that individual variation is more prominent among low-intermediate learners than advanced learners. The diagonal line from the upper left to the lower right in Figure 2 characterizes the range of performance in the low-intermediate learners' group. Some low-intermediate learners (numbered 1-10) used a large number of *for* constructions and a relatively small number of *that* constructions, some (17-25) used many *that* constructions but not so many *for* constructions, and yet others (11-16) used about the same number of each.

In contrast, many advanced learners used similar ratios of *for* and *that* constructions, though some individual variation is still present. The roughly horizontal line in Figure 3 indicates less individual variation in advanced learners' performance. In ESL classes, the *for* construction is usually introduced prior to the *that* construction. However, the present findings from the low-to-intermediate learners' group suggest that learners do not always start producing *for* constructions before *that* constructions. It is possible that, in the beginning, some learners feel more comfortable producing *for* constructions than *that* constructions, while others may feel the opposite or do not have a general preference. As proficiency increases, they feel comfortable producing both constructions, resulting in less variation among more advanced learners.

4.2.1 PART II: GRAMMATICALITY JUDGMENTS. Figures 4, 5, and 6 summarize the results from the grammaticality judgments of the low-intermediate learners, advanced learners and native speakers, respectively. The criteria used in this analysis were that a sentence was judged acceptable when the subject rated it as either four or five on the five-point scale, and a sentence was judged unacceptable when the subject rated it as either one or two. They responded with three when they could not judge whether the sentence was acceptable or not.

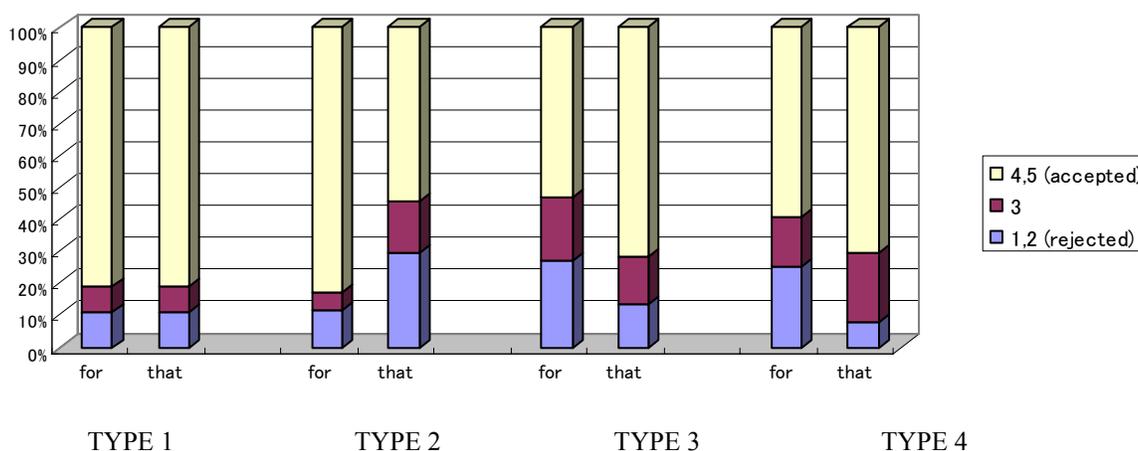FIGURE 4. Grammaticality judgments by low-intermediate learners.

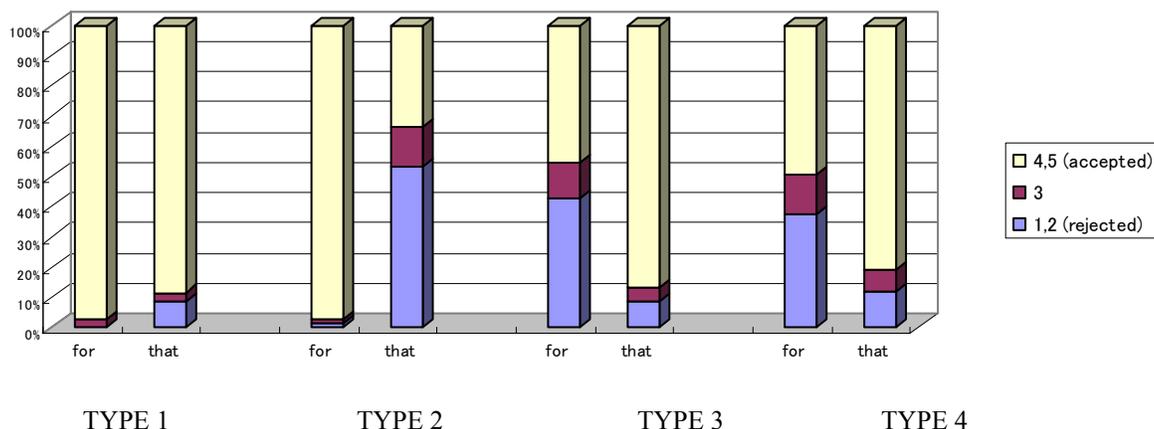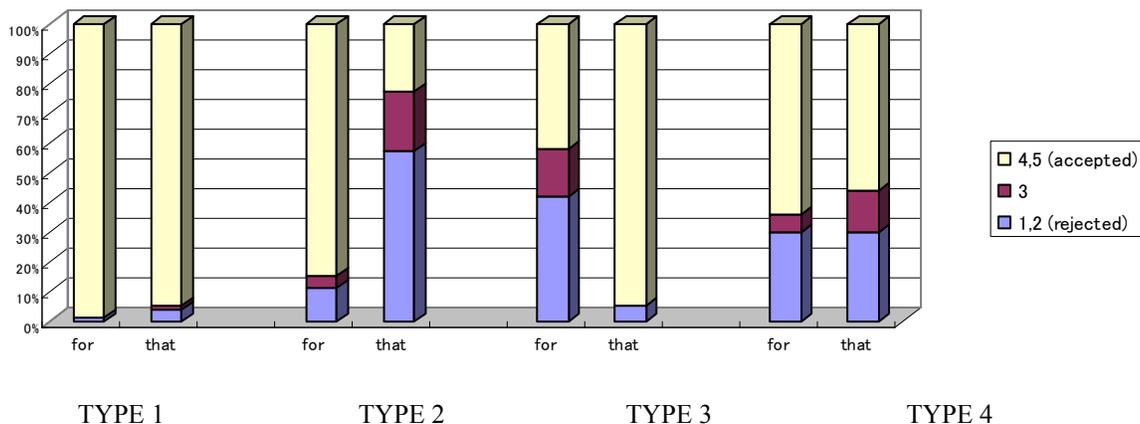FIGURE 5. Grammaticality judgments by advanced learners.

FIGURE 6. Grammaticality judgments by native speakers.

Figures 4 and 5 show that the performance of both low-to-intermediate and advanced learners reflects frequency; they accepted the frequent constructions (TYPE 1: *for* and *that* constructions, TYPE 2: *for* construction, and TYPE 3: *that* construction) as compared with the uncommon constructions (TYPE 2 *that* construction, TYPE 3 *for* construction, and TYPE 4 *for* and *that* constructions). For all the frequent constructions, the advanced learners' positive responses were higher than those of the low-intermediate learners, and their negative responses were lower than those of the low-intermediate learners. The advanced learners accepted the *for* structure of TYPE 2 even more strongly than even native speakers.

The results for uncommon constructions were also as expected. The advanced learners had higher negative scores on all the uncommon constructions except the TYPE 4 *that* construction and lower positive scores on all the uncommon constructions except the TYPE 4 *that* construction. The majority of the advanced learners and the native speakers rejected the TYPE 2 *that* construction. In contrast, less than half of all the participants rejected the TYPE 3 *for* construction, or the TYPE 4 *for* and *that* constructions, and more than half of the participants actually accepted many of these constructions. These are all uncommon constructions according to the COBUILD corpus, but it is possible that they are actually possible constructions.

Individual variation also exists among native speakers, especially in the TYPE 3 *for* construction; the same percentage (42.3 %) accepted and rejected the construction.

4.2.2 PART II: SUBJECTIVE RATINGS OF FAMILIARITY. Figures 7, 8, and 9 show the results of the familiarity ratings: i.e., the participants' subjective awareness about whether or not they had encountered a given construction before.

FIGURE 7. Familiarity ratings by low-intermediate learners.
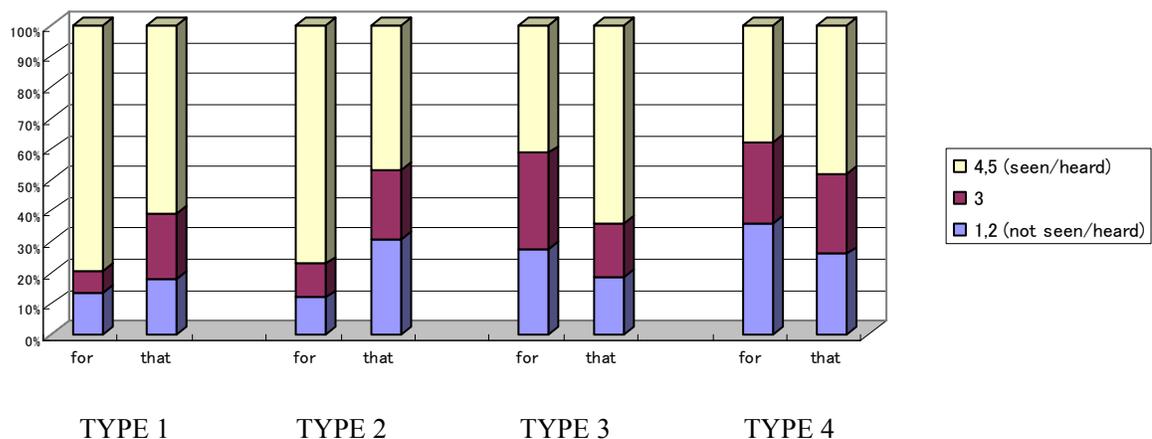

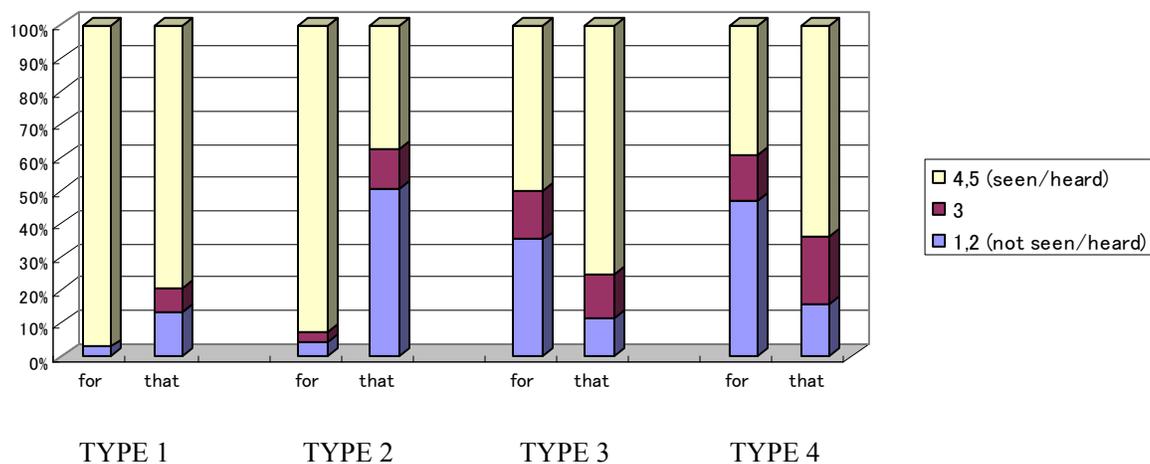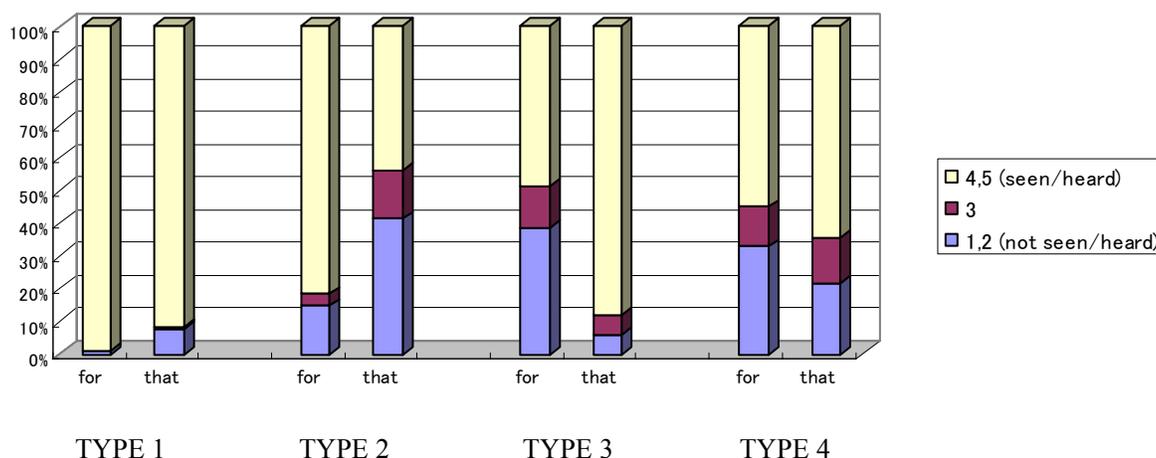FIGURE 8. Familiarity ratings by advanced learners.

FIGURE 9. Familiarity ratings by native speakers.

Just as we observed for the grammaticality judgments, all the learners gave more positive responses to frequent constructions and more negative responses to uncommon constructions. Again, the advanced learners' positive scores were higher and their negative scores were lower for all the frequent constructions as compared with low-intermediate learners' scores.

The result was more complicated for the less common constructions. Advanced learners' scores on rejecting uncommon constructions were higher for all the uncommon constructions except the TYPE 4 *that* construction. However, the advanced learners also responded positively to many uncommon constructions, including the TYPE 3 *for* construction, and the TYPE 4 *for* and *that* constructions. This last result does not seem to be what was predicted. But notice that in Figure 9, the native speakers also had quite high rates of both positive and negative responses on the TYPE 3 *for* construction and the TYPE 4 *for* and *that* constructions. That is, the advanced learners' performance was similar to that of native speakers.

Figures 10 and 11 display the results of the subjects' response patterns to the two tasks. GJ (grammaticality judgments) > FR (familiarity ratings) indicates a higher score for grammaticality judgments than for subjective ratings about whether or not they have seen or heard the construction (e.g., a subject responded with 5 to the grammaticality judgment and with 4 to the familiarity rating on the same construction involving the same adjective, or a subject responded with 3 to the grammaticality judgment and with 1 to the familiarity rating). GJ = FR indicates an identical response to both the grammaticality judgment and the familiarity ratings on the same adjective occurring with the same type of construction. GJ < FR indicates a response to the grammaticality judgment that was lower than a familiarity rating response.

FIGURE 10. The relation between grammaticality judgments and familiarity ratings when the subject responded positively to a grammaticality judgment.
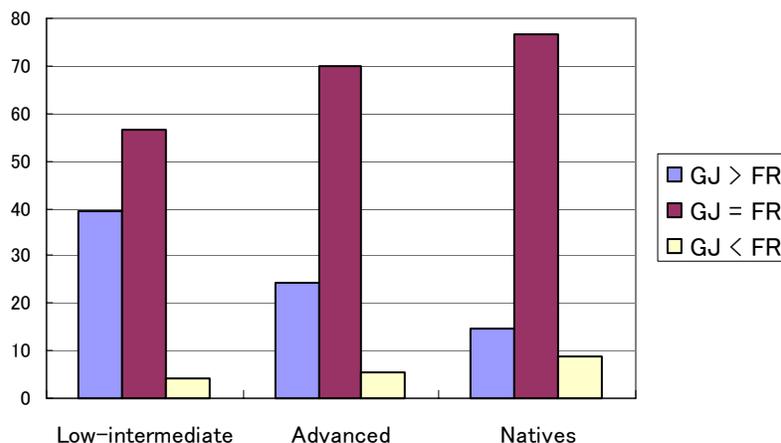

FIGURE 11. The relation between grammaticality judgments and the familiarity ratings when the subjects responded negatively to a grammaticality judgment.
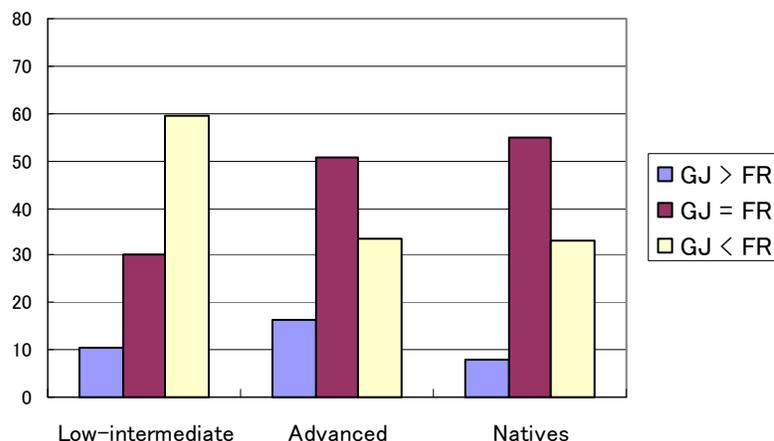

Figure 10 shows a high percentage of GJ > FR by the low-intermediate learners (39.36 %). This suggests that low-intermediate learners may often consider a sentence to be grammatical, even though they are not aware of ever having seen or heard the construction before. In contrast, advanced learners' results are closer to those of native speakers: they more often respond positively to the familiarity ratings when they respond positively to the grammaticality judgments.

A similar result is seen in Figure 11. The low-intermediate learners had quite a high percentage of GJ < FR (59.36%), suggesting that they thought that they had encountered the construction before, in spite of their negative grammaticality judgments. The advanced learners, on the other hand, showed results similar to those of native speakers, in that the majority of the advanced learners (50.51 %) responded in the same way in familiarity ratings when they rejected a construction in grammaticality judgments.

5. DISCUSSION.   These results show trends in learners' development of the two adjectival structures that are, on the whole, consistent with my predictions, although there are some discrepancies.

5.1 SUPPORT FOR PREDICTIONS.   PREDICTION 1: There are individual differences among learners that are more prominent among low-intermediate learners than advanced learners.   In Figures 2 and 3, as proficiency improves, there is less variation in the use of these constructions. The translation task showed that some low-intermediate learners overused one construction, while many advanced learners used about the same number of both.   In addition, learners in both groups generally used more frequent constructions in translating sentences of TYPES 2 and 3. The predominant use of the *for* construction was observed for TYPE 1, possibly due to instructional emphasis on the *for* construction in many ESL classrooms.

PREDICTION 2 was not supported in this study.   The prediction was that the learners would acquire adjectives that occur in both *for* and *that* constructions before adjectives that occur in only one of the constructions, because most Japanese adjectives occur with both constructions. When we define acquisition as demonstrating native-like proficiency, there was no significant difference between the learners' performance in TYPE 1 (adjectives that occur in both of the constructions) and in TYPES 2 and 3 (adjectives that occur in only one of the constructions) in their grammaticality judgments.   As proficiency increased, progress was observed for all types of adjectives, regardless of whether or not they commonly occur in one or both of the constructions. A related issue is which construction learners start to produce first.   In the translation task, three of the low-intermediate learners used only *that* constructions, while two of them used only *for* constructions.   This indicates that it is generally up to individual preference which construction learners produce first, although the *for* construction is usually introduced first in many language courses.

PREDICTION 3, that the observed frequency of these constructions would have an impact on the learners' performance in all the tasks in this study, was supported.   The learners used more frequent constructions in translation tasks, and responded positively to more frequent constructions.   In particular, the more advanced learners showed a strong sensitivity to frequency, resulting in even higher scores than native speakers on the acceptability of TYPE 2 *for* constructions.   The primary focus of this experiment was to examine the effect of observed frequency of adjectives in constructions, as measured by the total number of entries found in the COBUILD corpus.   Other variables, including the relative overall frequency of each adjective, independent of construction, and the simple observed frequency of each adjective, were not considered.   These questions should be investigated in the future, but in the present study, an attempt was made to minimize the influence of the familiarity of individual words by carefully instructing the subjects to focus their attention on the constructions as wholes rather than on the individual words.

PREDICTION 4, that there would be a strong relationship between responses to Grammaticality Judgments and Familiarity Ratings in the advanced learners' group in comparison with those in the low-intermediate learners' group, was supported.

5.2 GENERAL DISCUSSION.   Much of language learning involves the acquisition of memorized sequences of language (for vocabulary, the phonological units of languages and their phonotactic sequences; for discourse, the lexical units of language and their sequences in clauses and collocations) (Hakuta 1974, Wong-Fillmore 1976; Peters 1983, Ellis and Sinclair 1996).   It is evident that memorizing a large amount of prefabricated language will enable L2 learners to select more native-like expressions as well as to improve their fluency.   An unanswered question

is: Are the *for* and *that* adjectival constructions really stored as prefabricated language by native speakers? It is possible that some of the highly frequent constructions, such as *It is clear/ probable/ certain that ...* and *It is easy/ difficult/ necessary for ...* are stored as lexicalized chunks in native speakers' repertoires, while adjectives occurring in less frequent constructions might be handled as separate units rather than as parts of prefabricated chunks. Howarth (1998) suggests that there is a collocational continuum from the most free combinations (e.g., *blow a trumpet, under the table*) to the most fixed expressions (e.g., *blow the gaff, under the weather*) rather than discrete classes. Although it is not always clear what, precisely, is the component that is subject to gradation, frequency will be one of the factors that may affect processing.

It has been shown that collocational errors constitute a high percentage of all the errors committed by L2 learners (Marton 1978, Arabski 1979, Yorio 1989, Biskup 1995). For example, Yorio found errors in the use of collocations by a group of advanced ESL students, such as *take advantages of*; *are to blamed for*; *those mention above*; *being taking care of*; *a friend of her*; *make a great job*; *on the meanwhile*; *with my own experience*; *put more attention to* (Yorio 1989: 62-63). Wray (2002) suggests that these errors are the consequence of incorrect perception at the stage of memorization or incorrect editing during production because of insufficient grammatical ability. Language teachers and course designers need to develop balanced programs that incorporate tasks which allow opportunities for both memorizing sufficient amounts of collocations and unpacking or analyzing them with reference to relevant grammatical information.

How can formulaic sequences be taught in a classroom? Gatbonton and Segalowitz (1988) provided five criteria to be applied to the design of materials when teaching collocations. They are (1) The activity must be communicative; (2) Learners must experience some of the normal psychological pressures felt by people engaged in real communication; (3) The focus should be on everyday activities that the learners are likely to need, such as directing, apologizing, and describing; (4) The utterance must be formulaic; (5) The task must be inherently repetitive in order to provide opportunities for multiple rehearsal. The low-intermediate learners' high percentages of GJ > FR of Figure 10 and GJ < FR of Figure 11 suggest the possibility that these learners have not yet received enough input for the *for* and *that* adjectival constructions. Many language teachers often use a very small number of adjectives when they introduce these adjectival constructions, in spite of the fact that many adjectives can occur in one or both of these constructions. Such a learning environment may restrict learners' opportunity to pick up more collocations; consequently, many learners lag behind in their knowledge of formulaic sequences. A greater variety of adjectives must be used in example sentences and exercises when these constructions are taught in the classroom. *Collins COBUILD: Grammar Patterns, 2: Nouns and Adjectives* (1998: 480–501) attempts to provide semantic descriptions of the types of adjectives that occur in *for* and *that* constructions. Adjectives were divided into seven semantic groups that occur in *for* constructions and eight groups that occur in *that* constructions. This source provides comprehensive lists of adjectives that belong to each of these groups. Language instructors and learners will benefit from this type of resources to better understand native speakers' semantic intuitions regarding these two constructions.

Access to corpus data, such as the COBUILD corpus or the BROWN corpus, can also be beneficial to L2 learners. When they are writing an English composition, for instance, the frequency of a particular word combination or structure can provide a rough estimate of whether or not the combination is native-like.

Social and psychological factors are also relevant to the use of L2 collocations. Wray (2002: 175) suggests that there is a link between the use of collocations and a need and desire to interact: these two together contribute to the overall achievement of communicative competence. Schmidt's (1983) subject Wes, a 33-year-old Japanese immigrant to Hawai'i who was highly motivated to make himself understood, achieved a high level of fluency and used a lot of formulaic sequences. On the other hand, Schumann's (1978) subject and Shapira's (1978) Guatemalan subject, each of whom kept a social and psychological distance from the target language, used fewer formulaic sequences and achieved less success in learning. It is not surprising that L2 learners who strive to be accepted as members of the target language community are more motivated in learning, interact more with native speakers, receive more input and feedback, and have more opportunity for output. An observation that makes the matter more complicated is that Schmidt's subject Wes did not attain accuracy in formulaic expressions despite his fluency. This provides evidence that adult learners do not follow the same developmental stages of acquiring collocations as children. In adult second language, dominant holistic processing is usually limited to early stages when learners initially rely almost entirely on formulaic sequences, such as *Good morning*, *How are yo*u? and *Thank you*. When they outstrip the limitations of such fixed forms, they try to build up phrases and sentences from individual words rather than learning more formulaic sequences. Schmidt's study shows that even adult naturalistic learners do not learn collocations in the same way as children. The difference between adult naturalistic learners and adults learning L2 in the classroom is a topic that should be investigated further in the future.

6. Conclusion. In this paper, I have examined the effect of frequency in the acquisition of adjectival constructions by second language learners. In general, learners distinguish between frequent and infrequent constructions in the translation tasks as well as in their grammaticality judgments. They use more frequent constructions in the translation task, and are more likely to accept more frequent constructions in the grammaticality judgments. The advanced learners show a stronger sensitivity to frequency than the low-intermediate learners. As proficiency improves, L2 learners show similar rates of development in all the types of adjectives in both *for* and *that* constructions.

In the future, it will also be important to investigate the extent to which learners from other language backgrounds evidence similar trends in the acquisition of these two adjectival constructions. Since Japanese has equivalents of *for* and *that* constructions, no consideration was made of positive or negative transfer effects. Investigating the acquisition of these constructions by L2 learners whose native languages do not have equivalents of both *for* and *that* constructions, such as Spanish, will be significant for understanding the extent to which they might differ as a result of L1 transfer effects. I look forward to continued research efforts to empirically examine second language collocations cross-linguistically.

APPENDIX

PART 1: JAPANESE-TO-ENGLISH TRANSLATION.
TYPE 1: important, necessary, impossible, possible.
・あなたがたが<u>十分な睡眠をとる</u> (have enough sleep)のは、重要である。
・あなたが<u>コンピュータの使い方</u> (how to use a computer) を知るのは、必要である。
・私が<u>ギター</u> (guitar) を弾くのは、不可能である。
・私が<u>１時間で</u> (in an hour) あの本を読むのは、可能である。

TYPE 2: easy, difficult, hard, dangerous.
・私が、<u>その問題を解く</u> (solve the problem) のは、容易ではない。
・私たちが、<u>お昼までに</u> (by noon) <u>サンフランシスコに到着する</u> (arrive in San Francisco) のは、困難であった。
・彼らが、<u>彼らの少ない収入で生活する</u> (live on their small income) のは、大変であった。
・子どもたちが、<u>通りで遊ぶ</u> (play in the street) のは、危険である。

TYPE 3: certain, probable, unfortunate, clear.
・<u>ローラ</u> (Laura) が、<u>彼女の希望する大学に合格する</u> (be admitted to the university of her choice) のは、確かである。
・彼は、<u>パーティに３０分遅れてくる</u> (come to the party thirty minutes late) だろう。
・ケンが、<u>彼の友人から異議を受けた</u> (receive objections from his friends) のは、不運であった。
・彼らが、<u>私たちの計画に反対する</u> (oppose to our plan) のは、明らかである。

TYPE 4: intolerable, annoying, inadequate, innovative.
・<u>エドウィン</u> (Edwin) が、<u>マーク</u> (Mark) と住むのは、耐え難い。
・私たちが、<u>このことについて</u> (about this) 知っていなかったのは、いらだたしい。
・彼らが、<u>彼女に返答する</u> (answer her) のは不適切である。
・あなたが、<u>そのような考え</u> (such an idea) を<u>思いついた</u> (come up with) のは、斬新である。

PART 2: GRAMMATICALITY JUDGMENTS.
TYPE 1: important, necessary, impossible, possible.
・It is important for you to have enough sleep
・It is important that you read the instructions carefully.

・It is necessary for us to know how to use a computer.
・It is necessary that we save our money to buy a helicopter.

・It is impossible for me to play the guitar.
・It is impossible that she is still alive.

・It is possible for me to read that book in an hour.
・It is possible that we made such a mistake.

TYPE 2: easy, difficult, hard, dangerous.

･It was not easy for me to solve the problem.
･It is not easy that we speak French.

･It was difficult for us to arrive in San Francisco by noon.
･It was difficult that women should pursue their careers after they got married.

･It was hard for him to live on his small income.
･It was hard that we had to carry a large piano to the lounge

･It was dangerous for children to play in the street.
･It was dangerous that we found a hole in the boat we were about to row.

TYPE 3: certain, probable, unfortunate, clear.
･It is certain for Laura to be admitted to the university of her choice.
･It is certain that Jim will pay in cash.

･It is probable for him to come to the party thirty minutes late.
･It is probable that they will move to L.A. in summer.

･It was unfortunate for Ken to receive objections from his friends.
･It was unfortunate that we missed our train.

･It is clear for him to oppose to our plan.
･It is clear that she pretended to be ill.

TYPE 4: intolerable, annoying, inadequate, innovative.
･It was intolerable for Edwin to live with Mark.
･It was intolerable that the baby kept crying eight hours on the airplane.

･It was annoying for us not to have known about this.
･It was annoying that someone called me at three o'clock in the morning.

･It is inadequate for him to just to answer her.
･It is inadequate that many young people show so little respect to older people.

･It was innovative for you to come up with such an idea.
･It was innovative that they performed sign language dance in the festival.

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