Language Transfer and Discourse Constraint
on English Dative Alternation

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Abstract

In English, dative position is highly constrained when it occurs with a certain given and new information distribution related to its previous discourse ('motivating'), while in other context ('un-motivating'), it is not. In Japanese, on the other hand, dative sentences do not alternate nor have discourse constraint. Therefore, it is hypothesized that Japanese learners of English as L2 find difficulty to map the distinction of given and new information onto English dative alternation. An experiment is reported which tests such a hypothesis by means of a recognition memory task for sentences in different types of contexts. In terms of the scores combined correctness and confidence rating in the memory recognition task, NSs recognized contextually motivated datives slightly better ($p<0.05$) than the contextually un-motivated datives; whereas NNSs' difference between the scores of recognition tasks of datives in motivated and un-motivated context was not significant. In discussing the result of the experiment, the experimental material is re-examined in terms of reliability. It is concluded that more careful designing of experiment will be required if reliability of the findings is to be raised to acceptable levels. Also it is suggested that a sentence-bound description is inadequate to represent such facts in second language acquisition, thus unable to explain the transfer of L1 to L2.

Introduction

The influence of the first language on second language learning has been debated since ancient times. There is now enormous evidence that language transfer is a real and central phenomenon that must be considered seriously in the second language acquisition process. In fact, a quick look at a volume

such as *Language Transfer in Language Learning* (Gass & Selinker, 1992) gives the reader a general impression of how many recent studies there are on language transfer. The purpose of my study is to explore the role of the first language (L1) in second language (L2) acquisition by investigating the acquisition of English dative alternation (hereafter DA) under discourse constraints by Japanese learners of English as a L2. In the first half of this paper, what is known about discourse constraints on DA in English is discussed. Second, an attempt to situate the concept of second language acquisition of DA under contextual constraints is made. Then the basic background on dative and information flow in Japanese is provided, because predictions of how L2 learners of English learn DA under discourse constraint is dependent on the native language of the learner. In the latter half, the methodology and the results of the experiment are explained. Then the results are interpreted in regards to second language acquisition.

The English dative construction and the discourse constraint

There are a group of verbs in English referred to as datives (Hawkins, 1987). These verbs appear with two complement types: the double-object dative (hereafter DOD) sentence and the prepositional dative (hereafter PD) sentence as in (1). The pair of sentences exemplified in (1) are referred to as the "dative alternation":

(1)   (a) Paul gave Jane the book.
           (b) Paul gave the book to Jane.

Dative alternation has been discussed in various contexts. Semantic constraints on the variation between these two complement types have been discussed by Green (1974) and Goldsmith (1980). The acquisition of dative structures by L2 learners is discussed within the theory of markedness by Mazurkewich (1985) and Hawkins (1987). Bley-Vroman and Yoshinaga (1992) reports their comparison study about the acquisition of broad and narrow constraints of dative alternation by native speakers (hereafter NSs) and nonnative speakers (hereafter NNSs). More or less, these studies have treated sentence pairs such as (1a, b) as syntactically related, and they have described them in terms of a transformational rule of Dative Movement which derives both surface structures from the same deep structure. Furthermore,

transformationalists have generally assumed such sentence pairs to be synonymous even though the contexts in which they may appear are not always the same. Such differences are ignored because transformational theory is sentence-bound in nature.

It may have been sufficient to observe DA on the sentence-level for some researchers interested in syntactic acquisition of dative alternation by L2 learners, however, for those interested in the acquisition of DA in discourse phenomena, it is a challenge to find out the role of L1 in learning English DA under contextual constraint. Erteschik-Shir (1979) tried to observe DA in discourse and suggests that the place of the recipient in pairs like (1a) and (1b) is related to its "dominance," i.e., the range to which the "speaker intends to direct hearers' attention" to it.

The fact that this DA is subject to consideration of information distribution in discourse has also been noticed by several other researchers. One of the earliest researchers who indicated this was Halliday (1970) :

> Typically, the prepositional form . . . is associated with the function 'new,' the other form with the function 'given.' . . .
> A general principle underlies the existence of these two informational distinct forms, one with a preposition and one without, for expressing participant roles. The textual function of language requires that, for effective communication, new information should be made grammatically explicit. (p.164)

Halliday defends his claim by suggesting that the individual members of pairs like (1a) and (1b) could be used to answer different questions, though he does not provide any actual discourse data to verify this. Let us examine Halliday's claim by considering the following question-answer pairs (It is important to read these sentences with normal intonation):

(2)   What did you do with the necklace?
      (a) I gave the necklace to Helen.
      (b) *I gave Helen the necklace.

(3)   What did you give to Helen?
        (a) I gave Helen the necklace.
        (b) *I gave the necklace to Helen.

Example (2b), derived with DA, shows that DA is inappropriate when the indirect object is new information (New) because New information is usually placed at the end of the sentence. In example (3), however, where (3) establishes 'Helen' as previously given information (Given), (3a), derived with DA so that the indirect object serves as Given information and as such is placed before the New information which is the direct object. It thus appears that the relative order of the two object noun phrases (hereafter NP), interacts with the information distribution in the sentence within a context defined by the preceding interrogative sentence, so that the appropriate response is a function of the information elicited by the question.

According to Thompson (1990), Givón (1984) argues that DA in English involves a change in the relative topicality of the patient and the recipient arguments:

> Givón (1984) provides figures from a small text count from a written narrative to support his claim of topicality: names and pronouns, in his study, occur categorically in the post-verbal position, (as in (1a) above), while full (common) NP's occur categorically with the preposition at the end of the clause.
> (Thompson, 1990, p.240)

This Givón's claim points out New information has a strong tendency to occur in the sentence final position, while Given information such as which can be substituted with pronouns is placed in the post-verbal position.

Smyth, Prideaux, & Hogan (1979) attempt to approach such constraints by analyzing the phenomenon in terms of contextual motivation. The term "contextually motivated," used by Smyth et al., means the use of a particular linguistic mechanism (such as word order or stress) which makes some constituent prominent when the use of that mechanism is based on the fulfillment of expectations developed in context. Likewise, a mechanism will

be "contextually unmotivated" when the choice of which element is to be made prominent is not based on the fulfillment of such expectations. For example, in (4) the question elicits information that one expects to find as the information focus of the appropriate answer. Thus, dative position is contextually motivated in (4a), but is contextually un-motivated in (5a) and (5b).

(4)   Who did you sell the apples to?

        a. I sold the apples to Jill.

        b. *I sold Jill the apples. (when read in normal intonation)

(5)   ... I'd brought some wine, and opened it by pushing the cork inside with a twig.

        a. Then I passed a glass to Susie.

        b. Then I passed Susie a glass.

To sum up the relation between the Given-New information distribution and the relative ordering of the object NP's in dative sentences, I cite the statement of Smyth et al.:

In applying the Given-New distinction to the relative order of direct and indirect object NP's, one observes that each object NP can be either Given or New, resulting in four possible orders: Given-Given, New-New, Given-New, or New-Given. When the two NP's are both Given or both New, their relative order is contextually unmotivated (and hence free). In sentences with one Given and one New object NP, the New NP follows the Given for normal sentence intonation; otherwise, if the order is New-Given, normal intonation is inappropriate and sentence stress must fall on the New NP. Such orderings seem to be quite independent of the grammatical functions of the NP's. (Smyth et al., 1979)

Smyth et al. also reported the results of their experiment which lent support to their hypothesis of a Given-New strategy of information distribution in English dative constructions.

Language learning and the effect of context on dative alternation

Since language is the system of human communication, the function, such as we have seen in the previous section, conveying the distinction of Given-New information on a language form should be universal to languages. Givón (1979) points out:

> . . . it is quite likely that the pragmatic mode is actually the MOST universal component of our communicative skills, the bottom-line register shared by all humans. (capitalization is Givón's, p.102, 1979.)

Ellis (1994) shares this point of view in language learning and points out that "learning language involves mastering a number of fundamental functions of language--spatial and temporal reference, for example."

The general view I shall adopt regarding language transfer is that "transfer is a major factor at the level of discourse" (Ellis, 1994). The issue here is, then, the availability of this "pragmatic mode" through the learner's native language when learning DA in English, i.e., whether or not the learners recognize the discourse constraints of DA in an L2 as they do on a certain syntactic structure in their L1. In the case of a native language, it is clear that this pragmatic notion of Given-New information is indeed acquired, and the only theoretical issue is how it is acquired. The problem for second language learning is larger. I must discover first whether and under what circumstances such alternations can be acquired and relate the answers to the role of L1 in L2 acquisition.

From the aspect of L2 acquisition, is this area likely to cause difficulty? Would L2 learners be unable to learn the distinction of Given-New information in new languages? The innate ability to do so is clearly there. While the relevant aspects of pragmatics are probably available, what about its links to syntax? It is here that I focus my research hypotheses.

Now let us consider the linking mechanism between DA and the discourse constraint in English as a L2. If the linking mechanism between the universal component of distinguishing Given-New information and DA is not

functioning, the second language learners might think that 'John gave Mary a book' and 'John gave a book to Mary' are completely interchangeable, i.e., learners would not know that these two sentences are in fact different contextually. They will fail to know that 'John gave Mary a book' places 'Mary' in its post-verbal position as Given information and 'a book' after the Given information in its proper place as New information, whereas 'John gave a book to Mary' places 'a book' in its post-verbal position as the Given information and 'Mary' after the Given information as the New information. Therefore, non-functioning of the linking mechanism causes difficulty for learners in recognizing the discourse constraint. They would not know that they cannot say 'I gave Mary the book (in normal intonation)' as an answer to the question 'What did you do with the book?' This is likely to happen, especially when Given-New information does not reflect a similar distinction made in dative structure in the learner's native language. However, if the learners have a linking mechanism, they should inevitably make a distinction between the two complement types in dative sentences and the discourse constraints should consequently be recognized. I expect that some learners of English as a L2 will eventually acquire the discourse constraints of DA. To do this, learners must "notice" notions like Given-New information and the linking rules which map the pragmatic notions on to the syntactic structures. The concept of Given-New information is cognitively universal, and all languages use such notions and link such notions to syntactic functions. Even if the native language does not reflect its notion of Given-New information onto a construction similar to the dative sentences of English, provided frequent inputs of DA in motivated and un-motivated contexts, the learner gradually may attain the judgments which native speakers have with respect to dative sentences occurring in a certain context.

Facts of Japanese
The dative construction in Japanese

The prediction of transfer from Japanese language to English in DA requires an analysis of Japanese datives. Sawyer (1995), basing his argument on the analysis of Yoshinaga (1991), concludes that Japanese does not have a dative alternation:

It is fairly uncontroversial that Japanese does not have a dative alternation. Although the order of the recipient and the transferred object in dative sentences can be reversed, this change in word order is just one instance of the more general phenomenon of "scrambling," a reflection of the free word order in Japanese due to its explicit case-marking system. (Sawyer, 1995, p.21)

Bley-Vroman and Yoshinaga (1992) also refers to this existence of a scrambling operation in Japanese, and they asserted "there is a Japanese dative construction which is in its essential respects parallel to the English double-object dative", but "there is no alternation of double-object and prepositional forms." As indicated below (5), the surface structure of a Japanese dative sentence may appear to follow the English alternation:

(5)   a.   Paul-ga   Jane-ni   hon-o   ge-ta.
                Paul-Nom   Jane-Dat   book-Acc give-Past
                "Paul gave Jane a book."

        b.   Paul-ga   hon-o   Jane-ni   age-ta.
                Paul-Nom   book-Acc   Jane-Dat   give-Past
                "John gave a book to Mary."

This scramble mechanism is a general rule in Japanese language, applied not only to the dative construction, but also to many other structures.

The Japanese dative construction and the discourse constraint

As described earlier, there is general acceptance that pragmatic concepts are universal to languages. In the Japanese language, the typically cited piece of evidence of the existence of Given-New information distribution onto a syntactic form is found in the use of particles '-wa' and '-ga' as markers for Given and New information respectively. For a discussion of these particles, see Maynard (1981) and Makino (1982).

In this section, I consider whether or not the use of the Japanese dative is

subject to a discourse constraint. In order to make this argument, it is necessary to examine the scramble operation of Japanese datives in actual discourse data.

In Japanese, the position of the who-Dat in an interrogative sentence can be immediately before an Accusative NP or a Verb , as seen in (6a) and (7a), whereas the PD sentence is the only possible structure in this case in English. Furthermore, the answer to each type of sentence does not shift its dative by information distribution as it does in English; rather, it simply echoes the structure of the interrogative sentence preceding it in most of the cases. Besides, even when it does not echo the structure of preceding question, it is still grammatically correct. Thus, in the following examples, (6b) can be an answer for (7a), and (7b) can be an answer to (6a).

(6)   a.   Paul-wa   dare-ni   hon-o   atae-mashita-ka?
               Paul-Nom   who-Dat   book-Acc   give-Past-tag?
               "Who did Paul give a book?" (literally translated)

        b.   Paul-wa   Jane-ni   hon-o   atae-mashita.
               Paul-Nom   Jane-Dat   book-Acc   give-Past.
               "Paul gave Jane the book."

(7)   a.   Paul-wa   hon-o   dare-ni   atae-mashita-ka?
               Paul-Nom   book-Acc   who-Dat   give-Past-tag?
               "Who did Paul give a book to?"

        b.   Paul-wa   hon-o   Jane-ni   atae-mashita.
               Paul-Nom   hon-Acc   Jane-Dat   give-Past.
               "Paul gave the book to Jane."

This attribute of Japanese dative structures is clearer when seen in a sentence with a pronoun 'it' as its direct object. In English, a pronoun 'it' does not occur at the end of DOD sentences, "for a speaker can only use 'it' in a sentence that immediately follows another sentence in which the referent of 'it' has been given" (Erteschik-Shir, 1979). However, in Japanese, 'sore-o'

(it-Acc) can occur immediately before either a Dative NP or a Verb.

(8)   a.   Paul-wa   Janeni   sore-o   atae-mashita.
                    Paul-Nom   Jane-Dat   it-Acc   give-Past.
                    "*Paul gave Jane it."

          b.   Paul-wa   sore-o   Jane-ni   atae-mashita.
                    Paul-Nom   sore-Acc   Jane-Dat   give-Past.
                    "Paul gave it to Jane."

In summary, it is reasonable to conclude that in Japanese the particle 'ni' is interpreted as a dative case-marker, and movement of NP with case-marker 'ni' does not show discourse constraint.

Japanese datives and language transfer

If this analysis is correct, Japanese learners of English as a L2 should find the discourse constraint on the dative alternation difficult to acquire. The concept of Given-New information is considered universal, therefore, the Japanese language must also have such universal properties which can be transferred to L2 learning. However, as I have observed above, the linking mechanism which relates the syntactic forms and discourse are irrelevant to Japanese dative construction. Thus, Japanese learners of English as a L2 will find difficulty to map the distinction of Given-New information onto English DA.

Research questions and hypothesis

The purpose of my experiments in the following section is to investigate whether or not Japanese learners of English as L2 can acquire English dative alternation under discourse constraints despite the fact that Japanese dative sentences do not have a mechanism which distributes Given-New information to their NPs, as well as to relate the answers to the role of the L1 in L2 acquisition. For the purposes of this experiment, a pre-recorded listening test will be used in order to control variables such as sentence intonation and stress. The data collected from native-speakers will be compared with that of

learners. This experiment was designed to replicate the essential features of Smyth, et al. (1979). This experiment addresses the following two research questions:

RQ1. Are NSs of English sensitive to the discourse constraint in English DA?

RQ2. Are Japanese learners of English as a L2 sensitive to the discourse constraint in English DA?

The hypotheses corresponding to RQ1 and 2 for the experiment are as follows:

Research hypothesis 1

The discourse constraint in DA will be psychologically real for adult native speakers of English. That is, they will be more sensitive to the DA in motivated contexts than the DA in un-motivated ones, and thus will have more correct answers connected with changes in motivated context DAs than in unmotivated ones.

Research hypothesis 2

Performance of adult Japanese learners of English in choosing correct answers will differ from that of the native speakers because the Japanese language lacks a mapping mechanism corresponding to that for Given-New information in dative sentences in English. Therefore, their ability to give correct answers in DA in motivated contexts should not be significantly different from that in unmotivated contexts.

Experiments

A preliminary experiment

The experimental hypothesis depended on the prediction that the discourse constraints in DA do not exist in the Japanese language and that adult native speakers of Japanese would not be sensitive to the difference in the order of NPs in their dative sentences. The prediction was reached on the basis of a preliminary study in which a grammatical judgment test was applied to Japanese dative sentences.

The preliminary questionnaire consisted of 6 pairs of Japanese sentences. Half of them were pairs consisting of a *wh*-question and an answer. The rest were pairs of sentences in which the latter sentence had a dative structure

with its motivating context provided by the sentence preceding it. Since all six of the Japanese dative sentences which appeared in the questionnaire were motivated, in English they would have been allowed to take either a DOD or a PD form, but not both at the same time. Therefore, this questionnaire made simultaneous use of both DOD and PD forms in dative sentences in motivated contexts, and subjects were asked to judge whether or not the dative sentences were grammatical. Six sample pairs of Japanese sentences are shown below.

Table 1. Sample pairs of sentences in the preliminary questionnaire

a.   Paul-wa   dare-ni   hon-o   atae-mashita-ka?
     Paul-Nom who-Dat   book-Acc   give-Past-tag?
     "Who did Paul give a book?" (literally translated)

     Paul-wa   Jane-ni   hon-o   atae-mashita.
     Paul-Nom   Jane-Dat   book-Acc   give-Past.
     "Paul gave Jane the book."

b.   Paul-wa   dare-ni   hon-o   atae-mashita-ka?
     Paul-Nom   who-Dat   book-Ac   give-Past-tag?
     "Who did Paul give a book?" (literally translated)

     Paul-wa   hon-o   Jane-ni   atae-mashita.
     Paul-Nom   book-Acc   Jane-Dat   give-Past.
     "Paul gave the book to Jane."

c.   Paul-wa   hon-o   dare-ni   atae-mashita-ka?
     Paul-Nom   book-Acc   who-Dat   give-Past-tag?
     "Who did Paul give a book to?" (literally translated)

     Paul-wa   Jane-ni   hon-o   atae-mashita.
     Paul-Nom   Jane-Dat   book-Acc   give-Past.
     "Paul gave Jane the book."

d. Paul-wa   hon-o   dare-ni   atae-mashita-ka?
    Paul-Nom   book-Acc who-Dat   give-Past-tag?
    "Who did Paul give a book to?" (literally translated)
    Paul-wa   hon-o   Jane-ni   atae-mashita.
    Paul-Nom   book-Acc   Jane-Dat   give-Past.
    "Paul gave the book to Jane."

e. John-wa   kaban-kara   bin-o   toridashi-mashita.
    John-Nom   bag-From   bottle-Acc   pull out-Past.
    "John pulled a bottle out of his bag. "

    Soshite   kare-wa   sono bin-o   Mary-ni   watashi-mashita.
    Then   he-Nom   the   bottle-Acc Mary-Dat   pass-Past.
    "Then he passed the bottle to Mary."

d. John-wa   kaban-kara   bin-o   toridashi-mashita.
    John-Nom   bag-From   bottle-Acc   pull out-Past.
    "John pulled a bottle out of his bag. "

    Soshite kare-wa   Mary-ni   sono bin-o   watashi-mashita.
    Then   he-Nom   Mary-Dat the   bottle-Acc pass-Past.
    "Then he passed Mary the bottle."

Nine Japanese native speakers were asked to indicate how possible or impossible they considered sentences such as the above to be by using a scale which ranged from '1'='completely impossible' to '5'='completely possible', and 54 judgments were collected. The average rating of grammatical judgments for these pairs of sentences was 4.67. It was thus concluded that native Japanese speakers are not sensitive to the order of complements in dative sentences in Japanese, and that the movement of NPs with the case-marker 'ni' does not show discourse constraint.

The main experiment

The main experiment was intended to replicate the essential features of memory recognition task by Sachs (1974), Smyth et al. (1979) and Smyth (1988).

Sachs had an experiment in which subjects were made to listen to recorded passages taken from factual essays. In each passage, a test sentence was assigned for a recognition task which followed at intervals of either 0, 20, 40, or 80 syllables of text beyond the target. Sachs found that only semantic changes were noticed when the delay exceeded 20 syllables (one or two sentences). The syntactic changes involved such things as dative movement, particle shift, and passivization, and the passages were written in such a way that either version of each sentence would have been appropriate in the context, i.e., the contexts were un-motivating.

In Smyth et al. (1979) and Smyth (1988), Sach's research methodology was adapted to illustrate that memory for the surface form of dative sentences is as good as memory for semantic changes when the order of two NPs following a verb is contextually motivated on the bases of given-new information distribution. They used three different delays as intervals. The result of the experiment indicated that the relative recognition accuracy did not change significantly with increases in retention interval.

In this experiment, the experimental tool consisted of answer sheets and an audio tape of test materials. The test material consisted of 18 short passages (130 words average), each followed by three short test sentences. The recorded material was narrated by a female speaker of English and recorded with a high-quality tape recorder. 12 of the passages contained a dative sentence as the target sentence, although the special status of the target sentences was not revealed. The target sentences were all located 20 syllables from the end of their respective passages. Only one delay was used because intervals have been shown not to be a factor which affects recognition accuracy (Smyth et al., 1979). Then subjects were asked to listen carefully in order to recognize all changes in wording made to the three sentences during the test phase. After subjects finish listening to each passage, i.e., after 20 syllables, they heard the three short test sentences. The subject's task was to indicate on their answer sheets whether or not each test sentence was identical

to one just heard in the passage, or whether the wording had been changed in any way. Instruction had to be emphasized that "wording" changes were what subjects were looking for. This is because when subjects feel there is a meaning change, they will very likely answer that the wording changed, and also because it is nearly impossible to remember wording changes if they really are meaningless. So while it was "really" a semantic test (semantics of discourse), it was best to emphasize surface structure because that will sensitize subjects to any and all changes. Subjects were also instructed to assign a confidence rating to each answer by circling a number from 1 (very low confidence) to 5 (very high confidence).

In twelve out of eighteen passages, the target was a dative sentence. The remaining six passages were filler passages which contained target sentences without controls. All of the passages and their following three test sentences were randomly ordered so that subjects would not realize that dative sentences were the focus of the experiment.

The sentence which corresponded to the target dative sentences in the passage was consistently the first of the three test sentences, and there were only 20 syllables between the target in the passage and the test sentence. The other two test sentences were distracters. All of the corresponding dative sentence were alternated. The hypothesis behind this was as follows: If dative sentences were contextually motivated, subjects would be able to reconstruct local discourse constraint, thus their memory would be better able to recognize changes in NP order, i.e., they would have more correct answers in contextually motivated dative sentences). By contrast, if dative sentence were not motivated in the context, the subject's memory would not be as accurate as in the motivated context. Each target dative sentence had a human subject NP, a transitive verb, an inanimate direct object NP, and a human indirect object NP (e.g., Fiona passed Yoshio a letter). Ten different verbs were employed: 'throw', 'give', 'hand', 'teach', 'offer', 'write', 'pass', 'leave', 'show', and 'send.' Among these, 'give' and 'teach' were each used twice. Half of the dative-target passages (six passages) had contexts in which the direct object was informally new and the indirect was given, or vice versa, i.e., the dative sentences in these contexts are "motivated". The other six passages contained target dative sentences in which both object NPs were either given

or new, i.e., the dative sentences in these contexts are "un-motivated". Two sample passages with a dative target in a motivating context and a dative context in an un-motivating context, along with each test sentences, are shown in *Table 2* and *Table 3*.

Table 2. Sample passage with a motivating context

In astonishment, Mrs. Douglas gave a cry when she was aware of Antonio who seemed to have emerged from the wall. Mrs. Douglas turned, and in an instant her arms were around Antonio. Antonio stood blinking at Mrs. Douglas with the dazed look of one who comes from the dark into the light. It was a remarkable face: bold gray eyes; a strong, short-clipped, grizzled mustache; and a humorous mouth.

Antonio took a good look at Mrs. Douglas, and advanced toward her. **Then Antonio handed Mrs. Douglas a bundle of papers.**

I want you to keep them for me, said he in a voice which was not quite English nor American.

Test Sentences

a. Antonio handed a bundle of papers to Mrs. Douglas.

b. Mrs. Douglas turned, and in an instant her arms were round Antonio.

c. Mrs. Douglas gave a cry of fear.

Table 3. Sample passage with an un-motivating context

McMundo picked up his leather backpack and was about to start off into the darkness, when one of the miners approached him.

"Hey mate! you know how to speak to the cops," he said in a voice of admiration.

"It was grand to hear you. I'm Tom. Let me carry your backpack. I'll show you the road," he said.

There was a chorus of friendly "Good-nights" from the other miners as they passed from the platform. On their way to the town, **Tom showed a photo to McMundo.** In the photo, a woman in her late thirties was smiling as she stood in front of an old farm house.

Test Sentences
a. Tom showed McMundo a photo.
b. McMundo picked up his leather backpack.
c. There was a murmur of sympathy and admiration from the miners at the braveness of the newcomer.

Nine native speakers of English and nine Japanese advanced learners of English as a L2 at an American university volunteered to be subjects for the experiment. Subjects were told that the experiment was designed to discover how well they could remember the sentences that they were about to hear. They were given instructions on how to enter their answers and confidence ratings in the answer sheets. Once the instructions were clear, the subjects worked through a practice passage and discussed their answers with the researcher to makes sure they understood the instructions. The 18 experimental passages were then administered. The experiment took approximately 30 minutes. After completing the task, subjects were asked whether they could guess the purpose of the experiment and whether they thought that any particular kind of sentence stood out as being unnatural or remarkable in any way.

The scoring for each response was based on accuracy and the confidence rating. Correct responses were assigned the positive value of the confidence rating and incorrect responses received the negative value. Scores thus ranged from +1 to +5 for correct responses and from -1 to -5 for incorrect responses.

Results
Means and standard deviations of correct responses on motivated and unmotivated contexts are given in Table 4. Then the data for both the native speakers of English and the Japanese learners of English as a L2 under motivated contexts and un-motivated contexts were submitted to t-test -- a hypothesis test to determine the difference between two population means when the sample size is smaller than 30 (Mason, Lind, & Marchal, 1991). The t-statistic was also shown in Table 4. The t-statistic was 1.02 for NSs and -0.91 for NNSs. They were both less than the critical value of 1.86 (df=8, $\alpha < 0.05$), thus both native speakers of English and Japanese learners of

English as a L2 did not show a significant difference in their recognition of DA in motivated contexts and in un-motivated contexts, i.e., they did not give more correct responses in motivated contexts than in unmotivated contexts.

Means and standard deviations in terms of the combined score of recognition correctness and recognition confidence on motivated and unmotivated contexts are given in Table 5. The data for both the native speakers of English and Japanese learners of English as a L2 were submitted to a t-test as well, and the result is shown in Table 5. The t-statistic for NSs (t=2.29*) was larger than the critical value of 1.86 (df=8, α <0.05), thus the combined score of recognition correctness and the confidence rating in motivated contexts was significantly higher than in unmotivated contexts. The t-statistic for NNSs (1.24) was smaller than the critical value of 1.86 (df=8, α <0.05), therefore, there was not a significant difference in the combined score of correctness and the confidence rating between DA in motivated contexts and in unmotivated contexts.

Table 4. Means, Standard Deviations and t-statistic of Recognition Accuracy

| | Motivated Dative | | Unmotivated Dative | | t-statistic |
	Mean	SD	Mean	SD	
NS (N=9)	66.67	17.32	53.33	20.00	1.02
NNS (N=9)	52.08	28.28	62.5	20.00	-0.91
*p<0.05					

Table 5. Means, Standard Deviations and t-statistic of Combined Score of Recognition Accuracy and Confidence

| | Motivated Dative | | Un-motivated Dative | | t-statistic |
	Mean	SD	Mean	SD	
NS (N=9)	1.4	1.28	-0.32	0.87	2.29*
NNS (N=9)	0.1	1.52	1.03	1.27	-1.24
*p<0.05					

General discussion

The result of the preliminary experiment confirmed that scrambling in Japanese dative sentences does not have discourse constraint, and it fully supports the prediction which claims that generally Japanese speakers are not sensitive to the order of complements in dative sentences in Japanese.

As can be seen from Table 5, the difference of the combined scores of recognition accuracy and confidence between the motivated dative sentences and the unmotivated for NSs was significantly different. However, as indicated in Table 4, when comparing only the recognition accuracy, the distinction between motivated dative sentences and un-motivated sentences was not significant. Since the study of Smyth (1988) shows stronger significance in the comparison of recognition accuracy alone, and the results of the experiment with NSs was expected to be a controlled result, this partially significant result was not satisfactory.

It is notable that NNSs' scores for both recognition accuracy and the combined score of recognition accuracy and confidence gave results completely opposite to that of NSs. The results of the NNS subjects, who were all graduate students with high English proficiency, were expected to resemble that of the NSs. However, as shown in both Table 4 and 5, the difference of scores between motivated sentences and unmotivated sentences yielded a negative value, i.e., NNSs were more sensitive to changes in the unmotivated sentences than in the motivated. This difference was submitted to a t-test, and the difference was not significant at the 0.05 level. This suggests that Research Hypothesis 2 was supported by this experiment, however, it was also concluded that this result was not satisfactory since the result of NSs as a control group was somewhat faulty as discussed above.

Concluding that the two hypotheses were not fully supported by the experiment, interviews were conducted with the subjects after the experiment to identify any problems. From these interviews, it was determined that, as most of the passages were adapted from 19th-century literature and often used old expressions, they were felt to be awkward and difficult to understand not only by the NNSs but by the NSs as well. Second, subjects might have judged a target dative sentence to have been "changed" when the test sentence appeared as a simple structure when it had been part of a compound structure

in the passage. Third, the length of the noun phrases should have been controlled somehow, because as it was, there was potential for a 'heavy NP' effect. That is, whenever an extra-long NP occurs, that long NP sounds better in sentence final position. Therefore, it might have been easier to notice a change in those cases. Finally, most NNSs pointed out that they could not comprehend the meaning of the passages well. Since it was indeed important for subjects to fully understand the meaning of the passage up to the target sentence, this was a crucial problem in the experimental tool.

Conclusion

Since the major hypothesis of this study was not completely confirmed, there is a need for further investigation. A more carefully designed experiment will be required if the reliability of the findings is to be raised to acceptable levels. Experimentation with larger samples, writing experimental passages which utilize more comprehensible content and basic vocabulary, and the development of some other efficient task to measure the sensitivity of subjects towards target sentences would allow conclusions to be more confidently drawn.

The study of the acquisition of discourse constraints on dative alternation by learners of English can offer insights into the extra-sentential structure of English, its relationship to the learner's first language, and to the concept of language transfer. My research suggests that learners are able to acquire such constraints in the L2 to the extent that such constraints are supported by their first language, but this is still based as much on intuition as it is supported by experimental evidence.

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