Locative alternation in the interlanguage of Japanese-speaking learners of English

Masanori BANNAI
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Abstract

Cross-linguistic surveys on locative verbs (e.g., spray, pour, fill) have suggested that the relevant arguments of the verbs belonging to the specific narrow conflation class of pour, which share the specific meaning of “[a] mass is enabled to move via the force of gravity,” (Pinker 1989: 126) are syntactically realized in the same pattern. This gives rise to the grammaticality contrast: “John poured some water into the glass” vs. “*John poured the glass with some water.” It has been suggested that the Broad Range linking rule (Pinker 1989) and the mechanism forming the pour-class verb conflation are invariable across languages (Schwartz et al. 2003). The present study attempts to investigate whether the universal property of this conflation verb class has any advantage in second language acquisition. An acceptability judgment test with grammatical and ungrammatical sentences involving pour-class and two other locative verb classes was administered to Japanese-speaking English learners at beginner, elementary, and intermediate levels and a group of native speakers of English. Results suggest that learners up to intermediate levels might not benefit from the universality of pour-class verbs’ mapping pattern.

Keywords: Second Language Acquisition, Locative Alternation, Linking Rules, Japanese Learners of English

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1 Introduction

When acquiring a second language (L2), learning the semantic as well as the syntactic properties of its lexical items is crucial. More specifically, L2 learners must learn that the semantic structure of a verb is determined by its inherent semantic properties, which must be appropriately mapped onto the specific syntactic structure (e.g., Levin and Rappaport Hovav 1995; Pinker 1989). The complexity of mapping semantic structure onto syntax has attracted attention of researchers working on both first languages (e.g., Kim et al. 1999; Gropen et al. 1991) and second languages (e.g., Juffs 1996; Choi and Lakshmanan 2002; Bley-Vroman and Joo 2001).

As a good example of such complexity, let us consider a class of English verbs that depict motions of putting something onto a surface (or into a container), called “locative” verbs, which are largely classified into two semantic subclasses. Content-oriented verbs (e.g., pour, spray, spread) specify the manner of motion rather than the resulting state of the surface/container, and typically appear in the surface structure “V + NP1 + into/onto NP2” as in (1a) and (2a) below. Following other researchers working on this issue (e.g., Schwartz et al. 2003), let us call this sentence structure “FIGURE frame,” where “FIGURE” refers to the object NP1 that is the entity/substance that is moved. In the FIGURE frame sentences, the surface/container onto/into which the FIGURE (NP1) is moved is expressed as the complement (NP2) of the preposition (i.e. into and onto). On the other hand, container-oriented verbs (e.g., stuff, load, fill) specify the end-state of the surface/container rather than the manner of motion, and typically appear in the surface structure “V + NP2 + with NP1 as in (3b) and (4b) below. Again, following researchers such as Schwartz et al. (2003), let us call this sentence frame as “GROUND frame.” In this case the surface object of the verb (NP2) is the surface/container which changes its state as a result of the motion and the complement of with (NP1) is the entity/substance which is moved. Each of these sub-classes can be further divided into two verb types depending on whether or not the verb in question allows alternation between the two syntactic structures. This classification is illustrated in (1) – (4) below with examples.

(1) Content-oriented alternating verbs: spray, pile, scatter, splash
   a. John sprayed paint onto the wall. (FIGURE frame)
   b. John sprayed the wall with paint. (GROUND frame)

(2) Content-oriented non-alternating verbs: pour, spill, drip
   a. John poured water into the bottle. (FIGURE frame)
   b. *John poured the bottle with water. (GROUND frame)

(3) Container-oriented alternating verbs: stuff, pack, load
   a. John loaded boxes onto the truck.
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2 Locative alternation

In Pinker’s (1989) account, an argument structure is associated with one or more thematic cores, which are “schematization[s] of a type of event or relationship that lies at the core of the meanings of a class of possible verbs” (p. 73) or “specification[s] of a conflation class defining a kind of possible verb meaning in a language” (p. 74). In particular, the types of argument structure found in examples (a) and (b) of (1)-(4) above can be given the thematic cores “X causes Y to go to Z” and “X causes Y to change its state by means of moving Z to Y” respectively, with X, Y, and Z each representing an “open argument” which can be expressed by a noun phrase syntactically. “Cause,” “go,” and “change” are the elementary semantic functions. The “open arguments” or variables X, Y, and Z are mapped onto grammatical functions “by virtue of their thematic roles” by linking rules or “Broad Range Rules” (Pinker 1989: 74). This results in the thematic core of “X causes Y to go to Z” being associated with “manner-of-motion” meaning, with the open arguments X, Y and Z respectively being mapped onto the subject NP, the object NP of the verb (NP1) and the complement of the preposition (NP2) in the FIGURE frame. Similarly, the thematic core of “X causes Y to change its state by means of moving Z to Y” is realized as a sentence in the GROUND frame with the open arguments X, Y and Z being mapped onto the subject NP, NP2 and NP1 respectively. This can be somewhat simplified as (5):

(5) Linking rules for locative verbs (Broad Range rules)
a. X causes Y to go to Z (Manner-of-motion meaning) ⇔ Subj. + V + NP FIGURE + PP GROUND
b. X causes Y to change its state by means of moving Z to Y (Change-of-state meaning)  
⇔ Subj. + V + NP<sub>G</sub> + PP<sub>F</sub>  
(GROUND frame)

An interesting semantic effect brought about by (5a-b), which has attracted a number of researchers’ attention, is what is often called the “holism effect,” which is stated in (6):

(6) Holism Effect
Ground-objects, but not Ground-PPs, are interpreted as completely affected.  
(e.g. Anderson 1971)

That is to say, of the two types of syntactic structures (i.e., FIGURE and GROUND frames) for locative verbs, it is in the GROUND frame, as in (1b) for example, where the Ground NP (the wall) ends up in the object position of the verb, that the holism effect is observed and the Ground NP is interpreted as completely affected by the motion expressed by the verb (spray). In other words, (1b) clearly means that the wall has been completely covered with paint as the result of John’s spraying. In contrast, the holism effect is not observed in sentences in the FIGURE frame. For example, the wall may or may not be completely covered by the paint as the result of John’s spraying in (1a) (see Pinker 1989 for more technical formulation).  

Whether or not a locative verb allows the FIGURE or the GROUND frame, or the alternation between the two frames, is determined by which narrow class the verb in question belongs to (Pinker’s [1989] Narrow Range rules). These in turn are defined by the verbs’ language-particular lexical semantic property. For example, the verbs in the pour-class share a semantic property of “A mass is enabled to move via the force of gravity” (Pinker 1986: 126). As this shared meaning does not include the change of state of the goal/ground, this class of verbs does not allow the GROUND frame. Pinker (1989) points out that for a verb to allow locative alternation, it needs to “specify or allow one to predict both a type of motion and an end state” (p. 124).

As far as language acquisition is concerned, Pinker (1989) goes on to distinguish acquisition of the general properties associated with “Broad Range rules” and learning of language-particular Narrow Range rules. Before turning to the issue of L2 acquisition of Broad Range rules and Narrow Range rules, let us briefly look at the phenomena of locative alternation in Japanese, which is the native tongue of the participants of the present study.

3 Locative verbs in Japanese
As in English, locative verbs in Japanese also
appear in the FIGURE and/or GROUND frames, and the “holism effect” associated with the GROUND frame obtains (Fukui et al. 1985; Kageyama 1980, 2001). Consider the following examples (7)-(9), each of which includes a Japanese locative verb equivalent to an English content-oriented locative verb. Note that in Japanese the direct object of a verb is generally realized as an NP plus the accusative case marker “-o,” and the arguments that surface as a complement within PPs in English are realized as the NP plus the particle “-ni (to),” or “-de (with).”

There has been a general agreement among linguists that Japanese post-NP particles can be classified into two categories: postpositions such as kara “from” and and case markers such as the nominative -ga and the accusative -o (Sadakane & Koizumi 1995, citing Kuroda 1965 and Miyagawa 1989 amongst others). According to Miyagawa (1989), postpositions project their own maximal projections and have some semantic content, on the other hand, case markers do not project a maximal projection and just cliticize onto an NP directly. This difference between postpositions and case markers manifests itself as the difference in grammaticality when they occur in some particular constructions. The following examples involving numeral quantifiers are from Sadakane & Koizumi (1995: 8):

(i) Case markers

a. [NP] Gakusei-ga 3-nin piza-o tabeta.
   student-NOM 3-CL pizza-ACC ate
   ‘Three students ate pizza.’

   John-NOM pizza-ACC 2-CL ate
   ‘John ate two slices of pizza.’

(ii) Postpositions

a. *John-ga [NP gakusee] kara 3-nin
   John-NOM student from 3-CL
   purezento-o moratta.
   presents-ACC received
   ‘John received presents from three students.’

b. *Mary-ga [NP konpuutaa] de 2-dai
   Mary-NOM computer with 2-CL
   ronbun-o kaita.
   paper-ACC wrote
   ‘Mary wrote a paper with two computers.’

As it is assumed that “a numeral quantifier and its host NP must c-command each other” (Sadakane & Koizumi 1995: 8, citing Miyagawa 1989), the difference in grammaticality between (i) and (ii) follows from the structural difference assumed for case-marked NPs and NPs within the PP headed by a postposition. Regarding the particle -ni, we can see that it is used as either a dative case marker as in (iii), where the NP marked by -ni can be modified by the numeral quantifier “3-nin,” or a postposition as in (iv), where the NP included in the PP cannot be modified by the numeral quantifier.

(iii) Emi-wa tomodati-ni 3-nin bara-no
    Emi-TOP friend-NI 3-CL rose-GEN
    hanataba-o ageta.
    bouquet-ACC gave
    ‘Emi gave a bouquet of rose to three of her friends.’

(From Sadakane & Koizumi 1995: 12)

(iv) *Taro-ga hei-ni 3-mai penki-o
    Taro-NOM fence-NI 3-CL paint-ACC
    nutta painted
    ‘Taro painted paint onto three pieces of fences.’

Moreover, as Sadakane & Koizumi (1995) observed, the status of -ni varies depending on the elements
As the examples in (7) show, Japanese verb nur ("paint") allows alternation just like English paint, and those in (9) show that Japanese also has pour class verbs which only appear in the FIGURE frame. Examples in (8) show, however, there are Japanese content-oriented locative verbs which do not appear in the GROUND frame, unlike the English counterparts. Moreover, consider:

(10) a. John-wa doa-ni hana-o
John-TOP door-(on)to flower-ACC
kaz-ta
decorate-PAST
“John decorated flowers onto the door.”

John-TOP glass-into water-ACC
sosoi-da
pour-PAST
“John poured water into the glass.”

b. John-wa gurasu-o mizu-de.
John-TOP glass-ACC water-with
sosoi-da
pour-PAST
“John poured the glass with water.”

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John-TOP door-(on)to flower-ACC
kaz-ta
decorate-PAST
“John decorated flowers onto the door.”
b. John-wa doa-o hana-de
   John-TOP door-ACC flower-with
   kaza-ta
decorate-PAST
   “John decorated the door with flowers.”

The examples in (10) show that the difference in the narrow-class conflation of verbs between Japanese and English is also seen for container-oriented verbs.

In sum, the fundamental mapping between the semantic cores and surface syntax (i.e., the Broad Range rules) seems to be the same for both English and Japanese locative verbs, but the locative verbs in the two languages are conflated differently with respect to whether they can alternate between the FIGURE and the GROUND frames. One exception is the pour (or “sosogu”) class verbs, whose semantic properties and mapping pattern to the syntactic structure (i.e., the FIGURE frame) seem to be the same for both languages.

4 Previous L2 studies on locative alternation

The acquisition of locative alternation has recently attracted much interest from researchers of L2 acquisition. For instance, Bley-Vroman & Joo (2001) (also Joo 2000, 2003) tested advanced Korean learners of English (KLEs) on their knowledge of alternating facts presented in (1), (2) and (4). In their forced-choice picture-description task, the participants were presented with test items, each of which consisted of a test sentence including a locative verb and a set of two pairs of pictures. The first members of the two pairs of pictures were identical ones that were intended to show a given situation before the event in question happened. However, the two pairs of pictures differed in their second members. One of them depicted a situation where the surface or container of some sort was completely affected by the given event (let us call this type “a Ground picture” following Bley-Vroman & Joo (2001), and the other depicted a situation where the surface of container was only partially affected by the event. Figure 1 is an example test item taken from Bley-Vroman & Joo (2001):

Figure 1: A sample test item of Bley-Vroman & Joo (2001: 211)

The participants were instructed to choose one from the two pairs of pictures (i.e., “a” or “b” in Figure 1) that they felt better depicted the situation described by the sentence. The test sentences were presented one at a time in either the FIGURE or the GROUND frame. The authors reasoned that if the learners had acquired the narrow class constraints, they would find difference among 3 classes of verbs they had implemented in their test (i.e., whether or not they allow alternation between the two sentence frames). The results, which they came
up with by calculating the frequency with which the pair of pictures including a Ground picture was chosen for each sentence, indicated that the main effect of frames (i.e., structures) was significant both for native speakers of English (NSEs) and KLEs. That is, the participants were more likely to choose the picture pair with a Ground picture whenever they were presented with the GROUND frame sentences than whenever they were presented with the FIGURE frame sentences. However, the main effect of verb classes, which was supposed to show the participants’ sensitivity to the narrow conflation classes of verb, was only significant for the NSEs (Bley-Vroman and Joo 2001: 213). The authors attributed these results to the availability of holism effect (recall our discussion in (5) and (6) above) derived by the learning of broad properties of constructional meaning on the one hand (e.g., the Broad Range rule), and the difficulty for L2 learners to learn the narrow class constraints on the other. These results led the authors to suggest that L2 learners have limited access to Universal Grammar (UG).

Schwartz et al. (2003), however, argued that the different responses obtained by NSEs and KLEs should not necessarily be interpreted as an evidence of inaccessibility of UG in L2 acquisition. They draw on a cross-linguistic survey of 13 languages on locative verbs (Kim 1999), which found that manner-of-motion verbs generally map onto the FIGURE frame but mapping of change-of-state verbs tend to vary from language to language. According to Schwartz et al (2003), the linking illustrated in (5a) is universal, but that in (5b) is not. Schwartz et al. (2003) argue the following observation holds for all languages:

(11) pour-class manner-of-motion verbs allow only Figure frame (Schwartz et al. 2003: 251, citing Kim 1999: 156-158)

Schwartz et al. (2003) then claimed that Joo’s (2000) data, from which Bley-Vroman and Joo’s (2001) arguments derived, point to an interesting fact that KLEs observe the universal linking rule (11). In Joo’s (2000) Task B, where the participants were asked to choose an appropriate sentence to describe a situation depicted by a pair of pictures (i.e., an elicitation task in the opposite direction from Joo’s (2000) other task discussed above), the results indicated that the effects of both picture types and verb classes were significant for both NSEs and KLEs, but the effect of the picture types was larger than that of the verb classes for KLEs. Joo’s (2000) interpretation was again that KLEs can learn the holism effects of the GROUND frame constructions but have problems learning distinctions between the verb classes. However, Schwartz et al. (2003) pointed out that the frequency of choosing the GROUND frame sentences was lower for the pour-class manner-of-motion verbs than for the other two classes (non-alternating Ground class verbs such as fill and cover, and alternating class verbs such as spray and load). This fact conforms to the observation that the KLEs’ responses were under the sanction of UG,
including the principles determining the narrow verb classes, and suggests that Bley-Vroman and Joo’s (2001) observations on their Task A results were probably due to some unwanted influences of the task (Schwartz et al. 2003: 256).

Moreover, Schwartz et al. (2003) quite convincingly argue against the appropriateness of Bley-Vroman and Joo’s (2001) forced picture choice task:

For a subject to go with the ‘neither [of the two pictures is right]’ option indicates that the ungrammaticality of the Figure verb in that syntactic frame interferes too much with the syntax-to-picture mapping task. In order to this task to be a valid indicator of sensitivity to ungrammaticality, one must assume that only if someone has the right semantic representations for Figure verbs could s/he not interpret Figure verbs in the (ungrammatical) Ground frame (and so pick ‘neither’). This assumption, however, is patently false, since ‘ungrammatical’ does not mean that no interpretation obtains (Schwartz et al. 2003: 256, italics as original).

The argument put forward by Schwartz et al. (2003) thus strongly suggests that we still cannot say with confidence that L2 acquisition of locative verbs proceeds word by word without the aid of universal principles underlying the formation of narrow verb classes. Besides, the data presented so far have been collected from rather limited learner populations (Korean-speaking advanced learners of English: Joo 2000; Bley-Vroman and Joo 2001; Choi and Lakshmanan 2002; Bullock 2004, cf. Sawyer 2002), and with rather questionable methods of data elicitation, as Schwartz et al. (2003) have pointed out. This state of affairs surely calls for further research using more reliable data elicitation tasks and targeting a wider range of learners before coming to firm conclusions regarding what is really happening in the L2 acquisition of locative verbs.

5 Research questions

If Schwartz et al. (2003) are correct and the linking rule depicted in (5a) is universal, it would not be unreasonable for the grammaticality distinction between the FIGURE and GROUND frames with pour-class verbs to be available to intermediate, or even beginner, L2 English learners in both an ESL environment and an EFL environment. Moreover, there may well be differences between learning processes of the linking rule (5a-b) and those of the narrow range

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3 Sawyer’s (2002) study, which was cited in Schwartz et al. (2003), reports results of a study with Japanese-speaking learners of English (JLEs), whose TOEFL scores ranged between 380 and 550. His experiment utilized a picture-description task (Juffs 1996) and a grammaticality judgment task. Sawyer (2002) found that JLEs generally distinguished the verb classes illustrated in (1)-(4), though their behavior was clearly different from that of NSEs. In the picture-description task, the FIGURE frame verbs almost never appeared in the GROUND frame construction. However, in the grammaticality judgment task, they accepted both sentence frames for the FIGURE frame verbs (e.g., pour).
verb classes. This possibility, however, has not been fully explored. Furthermore, as Schwartz et al. (2003) suggested, the learners’ sensitivity to the narrow range conflation classes should be elicited through tasks capable of tapping learners’ linguistic knowledge more directly rather than those which only elicit their preferences between choices as their responses to specific types of stimuli.

To investigate the availability of the universal linking property of (6a) in early L2 acquisition, the following research questions (RQ) were formulated:

(12) a. (RQ1) Are Japanese Learners of English (JLEs) sensitive to the universal linking pattern of pour-class verbs?
b. (RQ2) Do JLEs become sensitive to the unavailability of the FIGURE frame for fill-class verbs, whose semantic and syntactic properties must arguably be learned on a word-by-word basis? If they do, at what stage?

If the answer to RQ1 is affirmative, the JLEs in this study should show a tendency to accept the FIGURE frame construction and to reject the GROUND frame construction for pour-class verbs. The RQ2 is mostly exploratory, however. Judgment data on the non-pour-class verbs compared with the pour-class verbs in this study should provide us with valuable information regarding the learning processes.

Another important aspect of this study is the potential (and arguably unavoidable) effects of learners’ native language (L1). Recall that pour-class verbs in Japanese, the L1 of our participants, show the same mapping property as their English equivalents. Potential evidence of early sensitivity to pour-class verbs’ universal mapping property might well be the result of early L1 transfer. As will be discussed later, however, this possibility can be cross-checked comparing the results for different types of verbs.

6 Experiment
6.1 Participants

Ninety-nine Japanese-speaking learners of English (JLEs) and 10 native speakers of English (NSEs) participated in the present study. The JLEs were all university students in Japan, with ages ranging from 18 to 21, and none of them had lived in a community where English is the main means of communication for more than a month. The NSEs were all English teachers working in Japan. The JLEs were divided into 3 sub-groups, Beginner, Elementary, and Intermediate, according to their scores on the Oxford Quick Placement Test (OQP), which was given prior to the experimental battery. Originally, sixty-six learners fell within the score rage of 18 to 29 (out of 60), which is designated as “Elementary” level score range by the OQP. In order to make three sub-groups representative of more distinct levels of proficiency, thirty-eight learners who fell on the upper (26 – 29) or lower (18 – 20) score ranges of the Elementary level were excluded from the analyses. This process resulted in 10 JLEs in the
Beginner group, 28 in the Elementary group, and 23 in the Intermediate group. Information pertinent to the three JLE groups is provided in Table 1.

### 6.2 Materials

An acceptability judgment task (AJT) was created with a total of 30 sentences, 12 of which were distractors. The remaining 18 test sentences featured the 3 types of locative verbs discussed above in (1), (2) and (4), repeated here as (13)-(15).

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(13) Content-oriented alternating verbs (Verb type A): spray, pile, splash
a. John sprayed paint onto the wall. (FIGURE frame)
b. John sprayed the wall with paint. (GROUND frame)

(14) Content-oriented non-alternating verbs (Verb type B): pour, spill, drip
a. John poured water into the bottle. (FIGURE frame)
b. *John poured the bottle with water. (GROUND frame)

(15) Container-oriented non-alternating verbs (Verb type C): decorate, fill, cover
a. *John decorated flowers onto the door. (FIGURE frame)
b. John decorated the door with flowers. (GROUND frame)

The JLEs were not expected to experience problems judging the correctness of sentences with a Verb type A because neither the properties of their L1-equivalents nor the universal linking rule would interfere with their judgments. As is described in the following section, the AJT was given with a pair of pictures to provide context. These pictures all depicted a situation where the ground NP argument was completely affected by the action. My premise was that if learners were sensitive to the universal property – holism effect – of the syntactic structure, they should tend to favor the GROUND frame for Verb type A.

With Verb type B, however, the JLEs were...
expected to accept the FIGURE frame sentences and reject the GROUND frame sentences as both the universal linking rule and the narrow semantic class of the L1-equivalents are the same as in English. Again, my premise was that if the learners were sensitive to the universality of the pour-class verbs’ mapping pattern onto syntax, they should correctly reject the GROUND frame from early on.

For sentences involving a Verb type C, on the other hand, the JLEs were expected to accept both the FIGURE and the GROUND frame versions if they were influenced by verbs with the same surface meaning in Japanese. However, if they have access to deeper lexical semantic knowledge, they would be able to organize the narrow semantic conflation class of container-oriented verbs and become sensitive to the anomaly of the sentences like (15a). I anticipate, however, that this type of sensitivity is gained gradually as the learner develops his/her lexical knowledge in L2 English.

6.3 Procedure

The Acceptability Judgment Task (AJT) was administered in English classes taught by the author. In this task, each participant was given an answering sheet and a questionnaire booklet in which all test items were printed. Similar to the forced-choice task used by Joo (2000), English sentences with a locative verb were presented with a set of two pictures. Unlike Joo’s (2000) forced choice task, however, every set of pictures used in this task depicted a situation where the state of Ground NP was completely changed by the action described by the verb. Moreover, the participants of the present study were asked to judge the appropriateness of each sentence. See Appendix for an example test item of the AJT.

On their answer sheet, a space for marking was each provided as “1,” “2,” “3” and “4” for each test item. The participants were instructed to mark “4” when they considered the sentence to be an appropriate description of the situation depicted by the two pictures; “3” when they considered it adequate (OK); “2” when they considered it rather inappropriate; and “1” when they considered it inappropriate. They also had the option of marking the item number in the left margin when they could not choose. They were also instructed to work on the task with their own speed. All participants completed the AJT within 30 minutes.

6.4 Results

The mean of the participant’s responses to each sentence type was calculated, and then the means of each group were calculated. Table 2 shows the results.

From the descriptive data in Table 2, at least three things can be observed. First, there seems to be a clear difference between NSEs on the one hand and the three groups of JLEs on the other. The NSEs’ judgments look almost exactly...
as expected, there is a clear distinction between the acceptable and non-acceptable sentence frames, while the JLEs’ judgments look unclear to a large extent. Second, although it seems somewhat odd that the Elementary group gave lower ratings for the grammatical Frames with type A and B verbs even compared with the Beginner group, the JLEs generally seem to develop their sensitivity to the grammaticality difference as they improve their proficiency levels. Third, the JLEs’ sensitivities to the ungrammatical sentence frames with type B and C verbs seem to improve as their general proficiency levels improve. The ungrammatical GROUND frame with type B was accepted by the Beginner JLEs 71.8% (2.87 out of 4) of the time, the Elementary 65.8% (2.63 out of 4), and then the Intermediate 62.8% (2.51 out of 4). The FIGURE frame sentences with type C verbs were accepted 75.0% (3 out of 4), 71.8% (2.87 out of 4), and 67.8% (2.71 out of 4) of the time by the Beginner, the Elementary, and the Intermediate JLE groups, respectively. Further, if we compare the acceptability scores for these two types of ungrammatical stimuli, we can see that every participant group considered the GROUND frame sentences involving type B (pour-class) verbs less acceptable compared to the FIGURE frame sentences involving type C (decorate-type) verbs. This result seems to conform to what Schwartz et al. (2003) pointed out regarding Joo’s (2000) data. In other words, our participants also showed a strong sensitivity to the ungrammatical GROUND frame sentences involving the pour-class verbs.

Given the relatively wide range of standard deviations (SDs), however, a mere comparison between two mean scores can result in a wrong interpretation of the data. In order to investigate whether the above mentioned observations derived from the descriptive statistics in Table 2 were correct, a two-way ANOVA with repeated measure was conducted for each Verb
type with the participant group as an independent factor and the sentence frame as a between-group factor. The results of these analyses are given in Table 3.

As was seen in Table 2, all groups responded highly positively to both sentence frames involving type A verbs. A pair-wise comparison indicated that the significant effect of Group (p = .003) derived from the difference between Elementary and Intermediate groups (p = .000) and Elementary and NSEs (p = .041). For verb type B, all the three effects (Frame, interaction of Frame and Group, and Group) were found significant. A pair-wise comparison indicated, however, that the significant effect of Group (p = .006) was a reflection of the considerable difference between NSEs on the one hand and each of the learner groups on the other (NSEs vs. Intermediate: p = .003, NSEs vs. Elementary: p = .003, NSEs vs. Beginner: p = .001), while there was no significant difference among learner groups (p = .65). For the verb type C, the effects of Frame (p = .000) and the interaction of Frame and Group (p = .000) were both significant. The effect of Group by itself was not significant (p = .65).

7 Discussion

Let us now examine what the data presented above imply with reference to our research questions. The fact that the NSEs’ responses for each verb type and its frames matched our expectations perfectly indicates that the test sentences were used as intended. On the other hand, the JLEs’ responses were markedly different from those of native speakers of English. This might be indicative of the strong general response bias seen in the judgment data of L2 learners: they tend not to be able to reject ungrammatical sentences as “ungrammatical” to
the same extent that they are able to accept grammatically correct sentences as “correct.” The differences observed in the present L2 data, however, surely reflects more subtle differences of “uncertainty” in terms of JLEs’ judgments, which in turn seem to have derived from their incomplete knowledge of conflation classes of locative verbs.

The data presented in Table 2-3 suggest that the answer to RQ1 is not so readily affirmative; the JLEs in their early stages of L2 English acquisition seem insensitive to the universal linking pattern of pour-class verbs. For the sentences involving pour type verbs, participants did not generally distinguish the grammaticality difference between the two frames. Unlike what Choi and Lakshmanan (2002) found with their advanced Korean learners of English, the significant difference found between the NSEs and each of the JLE groups suggests that even the sensitivity to this universal linking rule of pour type verbs develops gradually as the amount of relevant input increases.

It is true that the magnitude with which sentences with a type B verb in the GROUND frame were accepted was smaller than that for the other types of sentences for all participant groups. This observation could be interesting when we consider the fact that the pictures used in the AJT all depicted situations where the Ground NP was completely affected by the action in question, potentially misleading learners into accepting the illicit GROUND frame for Verb type B. This line of analysis also seems to conform to the arguments put forward by Schwartz et al. (2003). However, we should exercise caution when interpreting the learners’ performance on type B sentences. If they were sensitive to the universal mapping property of pour-class verbs, as Schwartz et al. (2003) suggest, they should distinguish between the two frames more clearly from an early stage of acquisition, which they do not.

Another interesting element of the present data is that the JLEs did not show clear evidence of L1 transfer effects on Verb type B, despite the fact that Japanese has exactly the same mapping pattern for the pour-class verbs. As discussed above, the JLEs did not demonstrate a clear preference for the FIGURE frame. Rather, they initially appear to have responded to the grammatical and ungrammatical stimuli with approximately the same accuracy for all three types of sentences.

Regarding RQ2, the magnitude with which type C sentences in the GROUND frame were accepted was considerably larger than that in the FIGURE frame for the Elementary group and for the Intermediate level. This accounts for the non-significance of group effect for type C in Table 3. Moreover, the JLEs’ sensitivity to the ungrammatical FIGURE frame sentences using type C verbs does not seem to develop significantly. The difficulty that the JLEs experience with the ungrammaticality of the Figure frame of English non-alternating container-oriented verbs like fill may be due to the influence from their L1 in which many container-oriented locatives alternate (see...
footnote 3 above). This, however, is only a speculation until further studies examine effects of L1-L2 matching and mismatching alternation facts on acquiring/learning the narrow conflation classes in L2.

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References


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Appendix: An example of the Acceptability Judgement Task

John poured water into the glass.

① inappropriate  ② rather inappropriate  ③ OK  ④ appropriate