MOTION VERBS WITH GOAL PPs IN THE L2 ACQUISITION OF ENGLISH AND JAPANESE

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In English, manner-of-motion verbs (walk, run) and directed motion verbs (go) can appear with a prepositional phrase that expresses a goal (goal PP) as in John walked (ran, went) to school. In contrast, Japanese allows only directed motion verbs to occur with a goal PP. Thus, English allows a wider range of motion verbs to occur with goal PPs than Japanese does. Learnability considerations, then, lead me to hypothesize that Japanese learners will learn manner-of-motion verbs with goal PPs in English from positive evidence, whereas English learners will have difficulty learning that manner-of-motion verbs with goal PPs are impossible in Japanese because nothing in the input will tell them so. Forty-two intermediate Japanese learners of English and 21 advanced English learners of Japanese were tested using a grammaticality judgment task with pictures. Results support this prediction and provide a new piece of evidence for the previous findings indicating that L1 influence persists when an argument structure in the L2 constitutes a subset of its counterpart in the L1.

Previous work in L2 argument structure has suggested that L1 influence persists when an argument structure in the L2 constitutes a subset of its counterpart in the L1, because no positive evidence will tell the learner that the other possibilities are not allowed in the target grammar (Juffs, 1996a, 1996b; Sorace, 1995; White, 1987, 1991b). Take datives in English and French, for exam-
ple. English allows both prepositional and double-object datives, as in (1), whereas French allows the former but not the latter, as in (2).

(1) a. John gave the book to Mary.
   b. John gave Mary the book.

(2) a. Jean a donné le livre à Marie.
   b. *Jean a donné Marie le livre.

Thus, French allows the subset of what English allows. White (1987, 1991b) found that English-speaking learners of French, after years of exposure to the L2, still accepted double-object datives like (2b). White (1991b) suggested that this learnability problem arises because nothing in the input would tell English speakers that double-object datives such as (1b) are impossible in French. This account further predicts that French speakers will have no such problem learning the grammaticality of double-object datives like (1b) in English because such forms are available in the input. This prediction is supported by Mazurkewich (1984), who found that French learners increasingly accepted double-object datives as they became more proficient in English.

In this paper, I address similar learnability issues in L2 argument structure by looking at the L2 acquisition of motion verbs with goal PPs (John ran [or] went into the house) in English and Japanese. These constructions have not been explored in much detail in SLA.

MOTION VERBS WITH GOAL PPs IN ENGLISH AND JAPANESE

There are interesting differences between English and Japanese regarding motion verbs with a prepositional or postpositional phrase (PP) expressing a goal, or goal PP (Ikegami, 1981; Inagaki, 2001; Talmey, 1985; Tsujimura, 1994). English allows both manner-of-motion verbs such as walk and run and directed motion verbs such as go to occur with goal PPs, as in (3). Manner is expressed as a manner-of-motion verb in (3a) and (3b) and as a participle in (3c) and (3d).

(3) a. John walked to school.
   b. John ran into the house.
   c. John went to school (by) walking.
   d. John went into [or] entered the house (by) running.

In contrast, Japanese does not allow manner-of-motion verbs with goal PPs, as demonstrated in (4a) and (4b). It only allows directed motion verbs to occur with goal PPs, as in (4c) and (4d), where manner is expressed as a gerund, or a so-called te-form.

     John-nom school-at walked
     “John walked to school.”
     John-nom house-of inside-at ran
     “John ran into the house.”
   John-NOM school-at walking went
   “John went to school (by) walking.”

d. *John-ga ie-no naka-ni hasitte itta* [or] *haitta.*
   John-NOM house-of inside-at running went [or] entered
   “John went into (or entered) the house (by) running.”

Thus, English allows a wider range of motion verbs to occur with a goal PP than Japanese. In other words, regarding these argument structure properties, there is a superset-subset relation between English and Japanese.

Inagaki (2001) provided an account of this contrast, assuming a decompositional approach to meaning according to which verbs and prepositions are made up of primitive semantic notions such as Path and Place (Jackendoff, 1990). He further assumed that argument structure is constrained by general syntactic principles such as X-bar theory, and that primitive semantic notions can be expressed in the syntax (Baker, 1997; Hale & Keyser, 1993). Inagaki argued that the contrast between English and Japanese follows from different incorporation patterns (Baker, 1988) within a syntactic structure for a motion event. In particular, English incorporates Place P into Path P, as in (5), whereas Japanese incorporates Path P into V, as in (6).²

(5) Incorporation of Place P into Path P in English (cf. [3b])

(6) Incorporation of Path P into V in Japanese (cf. [4d])
In (5) Place P is incorporated into Path P and realized as the P into, whereas in (6) Path P is incorporated into V and realized as hairu “enter.”

Inagaki further argued that this analysis explains why English, but not Japanese, allows manner-of-motion verbs to occur with goal PPs. In English, Path P does not incorporate into V, which is thus available for a manner-of-motion verb to be inserted, as in (5). In contrast, in Japanese, Path P incorporates into V, rendering it unavailable for a manner-of-motion verb to be inserted, as in (6) (see Inagaki, 2001, for details).

THE PRESENT STUDY

The present study investigates how the outcomes of L2 acquisition of argument structure vary depending on the learners’ L1. It attempts to answer this question by focusing on motion verbs with goal PPs, given that the contrast between English and Japanese in this domain seems to provide an ideal situation to address this issue. There have been no systematic studies of motion verbs with goal PPs in SLA, although Harley (1989) suggested that there are persistent L1 effects in this domain. Using a written story-telling task, she found that Grade 6 English students in their seventh year of a French immersion program often produced manner-of-motion verbs with goal PPs, such as *Le chat a couru à la maison “The cat ran to the house,” which are unacceptable in French—a Japanese-type language in this domain (Talmy, 1985).

The following two hypotheses were formulated for the present study:

1. Japanese speakers will not have difficulty recognizing that manner-of-motion verbs with goal PPs (e.g., John walked to school) are grammatical in English.
2. English speakers will have difficulty recognizing that manner-of-motion verbs with goal PPs (?*John-ga gakkoo-ni aruita) are ungrammatical in Japanese.

Hypothesis 1 is based on the assumption that positive evidence in the form of (3a) and (3b) is available to Japanese learners of English. Hypothesis 2 follows from the assumption that there will be no positive evidence informing English speakers that forms like (4a) and (4b) are not possible in Japanese, as well as from Harley’s (1989) preliminary finding.

STUDY METHODOLOGY

Participants

Because the present investigation is bidirectional, it involves two studies: one on Japanese learners’ acquisition of English (the English study) and another on English learners’ acquisition of Japanese (the Japanese study). (Biographical information on the participants in each study is provided in Appendix A.) The English study compared a group of Japanese learners to a group of English controls. The learner group consisted of 42 first-year university students
at Osaka Prefecture University who were majoring in engineering. They began learning English in junior high school or a “cram school” in Japan and had studied English formally since then. None of them had stayed in an English-speaking country for longer than a month. Thus, their level of English could be considered intermediate. The control group of 22 native speakers of English was composed mostly of university teachers in Japan who had arrived as adults and had lived in Japan for a number of years (at least 3 years). Thus, they could be considered advanced learners of Japanese.

Because each participant completed both English and Japanese versions of the questionnaire, the Japanese group in the English study \((n = 42)\) served as a control in the Japanese study \((n = 43)\), except for one who was eliminated from the English study due to his response bias toward accepting everything. Likewise, the English group in the Japanese study \((n = 21)\) served as a control group in the English study \((n = 22)\), except for one who only did the English version of the questionnaire. Notice that the learner group in each study was not quite comparable in that the Japanese participants’ proficiency level in English was lower than the English participants’ proficiency level in Japanese. This is not a weakness—rather, it provides a tougher test for the hypotheses. That is, to support hypothesis 1 the less proficient Japanese learners must correctly accept manner-of-motion verbs with goal PPs in English; to support hypothesis 2 the more proficient English learners must wrongly accept manner-of-motion verbs with goal PPs in Japanese.

Materials

A written grammaticality judgment task with pictures was used in both studies. (See Appendix B for an English example and its Japanese counterpart.) Japanese was written in both standard Japanese script (a mixture of kanji [characters of Chinese origin] and kana [the Japanese syllabary]) and romaji (a phonetic writing system using the Roman alphabet), in case participants were not familiar with the former. Kanji characters were accompanied by furigana (a transliteration of kanji into kana) to ensure that participants had no difficulties comprehending the orthographic form of the sentences.

In each picture, there was a “figure” (an object that moves) and the “ground” (an object with respect to which the figure moves) (Talmy, 1985). For example, as seen in Appendix B, Sam is the figure and house is the ground. Both figure and ground were labeled to ensure that participants were familiar with the vocabulary. There was also an arrow in each picture, which participants were told was being used to indicate the direction and endpoint of the motion depicted in the picture. Thus, the examples in Appendix B depict a situation in which Sam walked toward the house and ended up being inside the house. Participants were asked to judge to what degree each sentence sounded natural as a description of the situation depicted in the picture. Judgments were given on a five-point Likert scale ranging from −2 (completely unnatural) through 0 (not sure) to +2 (completely natural). As mentioned earlier,
Table 1. Sentence types in English and Japanese

<table>
<thead>
<tr>
<th>Sentence type</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td></td>
</tr>
<tr>
<td>Manner V + PP</td>
<td>John walked into the house.</td>
</tr>
<tr>
<td>Directed V + PP + -ing</td>
<td>John went into/entered the house walking.</td>
</tr>
<tr>
<td>Directed V + PP + by -ing</td>
<td>John went into/entered the house by walking.</td>
</tr>
<tr>
<td>Manner V and directed</td>
<td>John walked and went into/entered the house.</td>
</tr>
<tr>
<td>V + PP</td>
<td></td>
</tr>
<tr>
<td>Japanese</td>
<td></td>
</tr>
<tr>
<td>PP + manner V</td>
<td>?*John-wa ie-no naka-ni aruita.</td>
</tr>
<tr>
<td>PP + te + directed V</td>
<td>John-wa ie(-no naka)-ni aruite itta [or] haitta.</td>
</tr>
<tr>
<td>te + PP + directed V</td>
<td>John-wa aruite ie(-no naka)-ni itta [or] haitta.</td>
</tr>
</tbody>
</table>

each participant completed both the English and the Japanese versions of the questionnaire. About half of the participants did the English version first and the Japanese version second and the rest did them in the reverse order, to control for possible ordering effects.

There were 11 target items with pictures in each version, consisting of five manner-of-motion verbs and six goal PPs, as shown in (7). Each test item had one or two tokens of each sentence type along with a distracter, for a total of 5–8 sentences in the English version and 4–8 in the Japanese version. These sentences were also randomly ordered within each test item.
Table 2. Ratings of English sentences by Japanese and English speakers

<table>
<thead>
<tr>
<th>Group</th>
<th>Manner V + PP</th>
<th>Directed V + PP + ing</th>
<th>Directed V + PP + by-ing</th>
<th>Manner V and directed V + PP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese</td>
<td>1.24 (0.54)</td>
<td>−0.22 (1.18)</td>
<td>1.13 (0.78)</td>
<td>0.97 (1.01)</td>
</tr>
<tr>
<td>English</td>
<td>1.92 (0.16)</td>
<td>0.36 (0.55)</td>
<td>−0.51 (0.99)</td>
<td>0.40 (1.10)</td>
</tr>
</tbody>
</table>

Analysis

A two-way repeated measures ANOVA was conducted on the English-study data. The design included one between-subject factor (language), which had two levels (Japanese and English), and one within-subject factor (sentence type), which had four levels corresponding to the four English sentence types in Table 1. Similarly, a two-way repeated measures ANOVA was conducted on the Japanese-study data. The design included one between-subject factor (language) with two levels (English and Japanese) and one within-subject factor (sentence type) with three levels corresponding to the three Japanese sentence types in Table 1.

RESULTS

The English Study

Table 2 presents the mean ratings of English sentences on the part of Japanese and English speakers. (Standard deviations are included in parentheses.) The results are also represented in graph form in Figure 1.

Figure 1 suggests that Japanese learners of English, even at an intermediate level, accepted [MANNER V + PP] (e.g., John walked to school), as expected under hypothesis 1, although their ratings were not as high as those of the English speaker controls (1.24 vs. 1.92). There was a significant interaction between sentence type and language, $F(3,186)=24.48$, $p=.001$, which indicates that the effect of sentence type varied depending on the language. In particular, Japanese speakers rated all sentence types equally high, with the notable exception of [DIRECTED V + PP + by-ing] (e.g., John went to school walking). In contrast, English speakers rated [MANNER V + PP] significantly higher than the other three sentence types, and [DIRECTED V + PP + by-ing] (e.g., John went to school by walking) significantly lower than the other three sentence types, with no significant difference between the ratings of the other two. This is confirmed by the results of planned comparisons given in Table 3.

In summary, Japanese speakers accepted all sentence types but [DIRECTED V + PP + by-ing]. English speakers accepted [MANNER V + PP] but did not like the other sentence types, especially [DIRECTED V + PP + by-ing].
Table 3. Results of planned comparisons

<table>
<thead>
<tr>
<th>Sentence types</th>
<th>Japanese</th>
<th></th>
<th>English</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>F</td>
<td></td>
<td>p</td>
</tr>
<tr>
<td>Manner V + PP versus Directed V + PP + -ing</td>
<td>56.74</td>
<td>.0001</td>
<td>48.66</td>
<td>.0001</td>
</tr>
<tr>
<td>Manner V + PP versus Directed V + PP + by -ing</td>
<td>0.36</td>
<td>.55</td>
<td>118.96</td>
<td>.0001</td>
</tr>
<tr>
<td>Manner V + PP versus Manner V and directed V + PP</td>
<td>1.94</td>
<td>.17</td>
<td>46.63</td>
<td>.0001</td>
</tr>
<tr>
<td>Directed V + PP + -ing versus Directed V + PP + by -ing</td>
<td>48.09</td>
<td>.0001</td>
<td>15.45</td>
<td>.0002</td>
</tr>
<tr>
<td>Directed V + PP + -ing versus Manner V and directed V + PP</td>
<td>37.70</td>
<td>.0001</td>
<td>0.02</td>
<td>.88</td>
</tr>
<tr>
<td>Directed V + PP + by -ing versus Manner V and directed V + PP</td>
<td>0.63</td>
<td>.43</td>
<td>16.64</td>
<td>.0001</td>
</tr>
</tbody>
</table>

Note. Japanese df = 1, 41; English df = 1, 21.
*p < .05.

The Japanese Study

Table 4 presents the mean ratings of Japanese sentences on the part of English and Japanese speakers. (Standard deviations are included in parentheses.) The results are also represented in graph form in Figure 2.
Table 4. Ratings of Japanese sentences by English and Japanese speakers

<table>
<thead>
<tr>
<th>Group</th>
<th>PP + manner V</th>
<th>PP + te + directed V</th>
<th>te + PP + directed V</th>
</tr>
</thead>
<tbody>
<tr>
<td>English</td>
<td>0.78 (1.00)</td>
<td>1.32 (0.57)</td>
<td>0.68 (0.97)</td>
</tr>
<tr>
<td>Japanese</td>
<td>−0.80 (0.82)</td>
<td>1.47 (0.51)</td>
<td>1.47 (0.51)</td>
</tr>
</tbody>
</table>

Figure 2. Mean ratings of Japanese sentences by English and Japanese speakers.

Figure 2 suggests that English learners of Japanese, even at an advanced level, accepted [PP + MANNER V] (e.g., *John-wa gakkoo-ni aruita* “John walked to school”), as expected under hypothesis 2, which is in sharp contrast to Japanese speakers’ low rating of it (0.78 vs. −0.80). There was a significant interaction between sentence type and language, $F(2, 124) = 50.00, p = .001$, which indicates that the effect of sentence type varied depending on the language. In particular, English speakers accepted all three sentence types, among which [PP + TE + DIRECTED V] (e.g., *John-wa gakkoo-ni aruite itta* “John went to school (by) walking”) was rated the highest, with no significant difference between the other two. In contrast, Japanese speakers rated [PP + MANNER V] significantly lower than the other two sentence types, which were rated equally high. This is confirmed by the results of planned comparisons given in Table 5.

In summary, English speakers accepted all sentence types including [PP + MANNER V], favoring [PP + TE + DIRECTED V] most. In contrast, Japanese speakers rejected [PP + MANNER V] and accepted the others.
Table 5. Results of planned comparisons

<table>
<thead>
<tr>
<th>Sentence types</th>
<th>English</th>
<th></th>
<th>Japanese</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>PP + manner V versus PP + te + directed V</td>
<td>4.05</td>
<td>.051</td>
<td>409.47*</td>
<td>.0001</td>
</tr>
<tr>
<td>PP + manner V versus te + PP + directed V</td>
<td>0.14</td>
<td>.71</td>
<td>409.50*</td>
<td>.0001</td>
</tr>
<tr>
<td>PP + te + directed V versus te + PP + directed V</td>
<td>5.70*</td>
<td>.022</td>
<td>0</td>
<td>.99</td>
</tr>
</tbody>
</table>

Note: English $df = 1, 20$; Japanese $df = 1, 42$.
*p < .05.

DISCUSSION

The English Study

Japanese learners at an intermediate level accepted manner-of-motion verbs with goal PPs in English such as John walked to school, thereby supporting hypothesis 1. This suggests that Japanese speakers can learn such forms—which are not allowed in their L1—because they are available in the target language input. They can add this new construction to their interlanguage and acquire the L2 representation in (5). Although Japanese speakers did not accept them as strongly as English natives, they may come to accept them like natives at later stages with further exposure to this sentence type.

There is an additional finding that is not central to the discussion but needs to be addressed. The English speaker controls did not like [DIRECTED V + PP + -ING] (e.g., John went to school walking), [MANNER V AND DIRECTED V + PP] (e.g., John walked and went to school), or especially [DIRECTED V + PP + BY-ING] (e.g., John went to school by walking). Contrarily, the Japanese speakers accepted the latter two but not the former. I argued earlier that English allows both [MANNER V + PP] (e.g., John walked to school) and [DIRECTED V + PP + (BY) -ING] (e.g., John went to school (by) walking). However, the results show that English speakers prefer the former to the latter. This is probably because, as Talmy (1985, p. 62) pointed out, English-type languages express Manner in the verb root “in its most characteristic expression of Motion,” where characteristic means colloquial, frequent, and pervasive. Remember that in the present study, participants were asked to judge how natural each sentence sounded. It is not surprising, then, that English speakers found [MANNER V + PP] more natural than [DIRECTED V + PP + (BY) -ING], where Manner is expressed as a participle, not a main verb. As for why English speakers rated [DIRECTED V + PP + -ING] higher than [DIRECTED V + PP + BY -ING], I speculate that, because by expresses a means of motion, as in John went to Tokyo by car (train, bus, etc.), it may not be appropriate for expressing a manner of motion such as walking, running, and swimming. A manner of motion is perhaps more appropriately expressed as the bare participle V-ing.6
English speakers probably rated [\textit{MANNER V AND DIRECTED V + PP}] (e.g., \textit{John walked and went to school}) low because the form is used to express two events and thus did not match the picture, which depicted a single event. As an illustration, compare (8) and (9), both of which are from the example given in Appendix B.

(8) Sam walked into the house.
(9) Sam walked and went into the house.

Example (8) expresses a single event, Sam’s walking into the house, which matches the picture, whereas (9) expresses two events, Sam’s walking and Sam’s going into the house, which does not match the picture. Put differently, (9) would have been more appropriate than (8) if the picture depicted a situation where Sam walked around the house for a few minutes and then went into the house. This would then account for English speakers’ low rating of [\textit{MANNER V AND DIRECTED V + PP}].

Turning to the Japanese speakers, if they accept [\textit{DIRECTED V + PP + BY-ING}] (e.g., \textit{John went to school by walking}) and [\textit{MANNER V AND DIRECTED V + PP}] (e.g., \textit{John walked and went to school}) in English due to L1 influence, they should also accept [\textit{DIRECTED V + PP + -ING}] (e.g., \textit{John went to school walking}) because all three are thought to be English equivalents of Japanese-type forms. However, the Japanese speakers accepted the first two forms but not the last one. Why is this? One possibility is that Japanese learners did not draw a parallel between [\textit{DIRECTED V + PP + -ING}] in English and either [\textit{PP + TE + DIRECTED V}] or [\textit{TE + PP + DIRECTED V}] in Japanese. Instead, they might have drawn a parallel between [\textit{DIRECTED V + PP + BY-ING}] in English and [\textit{PP + TE + DIRECTED V}] (e.g., \textit{John-wa gakkoo-ni aruite itta “John went to school (by) walking”}) or [\textit{TE + PP + DIRECTED V}] (e.g., \textit{John-wa aruite gakkoo-ni itta “John went to school (by) walking” or “John walked and went to school”}) in Japanese, with \textit{by} corresponding to \textit{te}. Furthermore, they might have drawn a parallel between [\textit{MANNER V AND DIRECTED V + PP}] in English and [\textit{TE + PP + DIRECTED V}] in Japanese, with \textit{and} corresponding to \textit{te}. This would explain why L1 influence manifested itself in the acceptance of [\textit{DIRECTED V + PP + BY-ING}] and [\textit{MANNER V AND DIRECTED V + PP}], but not [\textit{DIRECTED V + PP + -ING}]. If this is the case, Japanese learners would have to learn [\textit{DIRECTED V + PP + -ING}] solely from the input, which may be difficult given the marginality of this form in English, as reflected in English speakers’ low rating of it.

Incidentally, English speakers’ preference of [\textit{MANNER V + PP}] (e.g., \textit{John walked to school}) to the other sentence types seems to cause a problem for Japanese learners of English, who accepted [\textit{DIRECTED V + PP + BY-ING}] and [\textit{MANNER V AND DIRECTED V + PP}] as well as [\textit{MANNER V + PP}]. In other words, they accepted both English-type and Japanese-type sentences. Again, this is probably due to the L1 along with the lack of clear positive evidence. Starting with the L1, Japanese learners will subsequently receive many instances of [\textit{MANNER V + PP}] and perhaps a few instances of the Japanese-type forms. This
Shunji Inagaki

would allow them to learn \([\text{MANNER V} + \text{PP}]\) but might be too subtle for them to learn that English prefers it to Japanese-type forms.

To summarize, intermediate Japanese learners of English did not have difficulty recognizing the grammaticality of manner-of-motion verbs with goalPPs due to the availability of positive evidence, which supports hypothesis 1. They had not yet learned that what they recognized as English equivalents of Japanese-type forms \([\text{DIRECTED V} + \text{PP} + \text{BY-ING}]\) and \([\text{MANNER V AND DIRECTED V} + \text{PP}]\) were marginal in English, due to the lack of clear positive evidence.

The Japanese Study

English learners of Japanese at an advanced level accepted manner-of-motion verbs with goalPPs such as *John-wa gakkoo-ni aruita “John walked to school” even though they are ungrammatical, thereby supporting hypothesis 2. This suggests that English learners of Japanese, after years of exposure, had not learned that such forms are ungrammatical in Japanese, because no positive evidence would inform them of their ungrammaticality. Without relevant evidence, they would get stuck in the L1 representation in (5), failing to acquire the L2 representation in (6).

There is another finding that is not central to the discussion but needs to be addressed. English speakers accepted both \([\text{PP} + \text{TE} + \text{DIRECTED V}]\) (e.g., *John-wa gakkoo-ni aruite itta “John went to school (by walking”) and \([\text{TE} + \text{PP} + \text{DIRECTED V}]\) (e.g., *John-wa aruite gakkoo-ni itta “John went to school (by) walking” or “John walked and went to school”) but preferred the former to the latter, whereas Japanese speakers accepted these two forms equally. English speakers’ acceptance of the two forms is expected because they could learn them from the input. But why did they prefer one to the other? This may be due to the fact that only \([\text{TE} + \text{PP} + \text{DIRECTED V}]\) could correspond to \([\text{MANNER V AND DIRECTED V} + \text{PP}]\) in English. Compare (10) to (11):

\[
\begin{align*}
(10) & \quad \text{John-wa gakkoo-ni aruite itta.} \\
& \quad \text{John-wa gakkoo-ni aruite itta.} \\
& \quad \text{John-NOM school-at walking went} \\
& \quad \text{“John went to school (by) walking.”}
\end{align*}
\]

\[
\begin{align*}
(11) & \quad \text{John-wa aruite gakkoo-ni itta.} \\
& \quad \text{John-NOM walking school-at went} \\
& \quad \text{“John went to school (by) walking.” or “John walked and went to school.”}
\end{align*}
\]

The sentence in (10) is an example of \([\text{PP} + \text{TE} + \text{DIRECTED V}]\), corresponding to \([\text{DIRECTED V} + \text{PP} + \text{BY-ING}]\) in English, whereas (11) is an example of \([\text{TE} + \text{PP} + \text{DIRECTED V}]\), corresponding to either \([\text{DIRECTED V} + \text{PP} + \text{BY-ING}]\) or \([\text{MANNER V AND DIRECTED V} + \text{PP}]\) in English. In English, \([\text{DIRECTED V} + \text{PP} + \text{BY-ING}]\) expresses a single event, as does \([\text{MANNER V + PP}]\) (e.g., *John walked to school); however, \([\text{MANNER V AND DIRECTED V} + \text{PP}]\) expresses two events (see [8] and [9] and discussion thereof). This means that, in Japanese, both (10) and (11) could mean *John went to school (by) walking or John walked to school (one
Motion Verbs with Goal PPs

165

...
domain. The prediction, then, is that it will be more difficult for English learners of Spanish to recognize the ungrammaticality of forms like (12d) than for Spanish learners of English to recognize the grammaticality of forms like (12b). However, Montrul (this issue) found the opposite: 98% of 17 intermediate Spanish learners did not accept forms like (12b) in English, whereas 27% of 15 intermediate English learners accepted forms like (12d) in Spanish. Why was there a discrepancy between Montrul’s findings and mine? I think that it was because Montrul focused on a transitivity alternation that is not fully productive in English, whereas I focused on [MANNER V + PP] (e.g., *Sam walked into the house*), which is highly productive in English. For example, Levin (1993, pp. 31, 105) listed only 12 manner-of-motion verbs that allow the transitivity alternation exemplified in (12) versus 124 manner-of-motion verbs that can appear with goal PPs. This contrast could explain why English speakers in Montrul’s study were reluctant to overgeneralize the transitivity alternation to Spanish, whereas English speakers in my study were willing to overgeneralize manner-of-motion verbs with goal PPs to Japanese. As for the reverse case, as Montrul herself suggests, Spanish speakers in her study may not yet have noticed the transitive forms like (12b), which are peculiar in English. On the other hand, Japanese speakers in my study must have noticed forms like *Sam walked into the house*, which are quite common in English.

Finally, the findings of the present study have implications beyond the area of L2 argument structure. First, assuming Inagaki’s (2001) syntactic analysis of the target properties, this study has implications for Universal Grammar and transfer in SLA (see White, 1996). In particular, the results favor theories that emphasize the role of the L1 in constructing an L2 grammar (e.g., Schwartz & Sprouse, 1994) over those that trivialize it (e.g., Epstein, Flynn, & Martohardjono, 1996). Second, and more generally, the results suggest that, depending on the nature of the L1, positive evidence alone may not guarantee success in L2 acquisition. Whether negative evidence is helpful in such cases (cf. White, 1991a) is an interesting question for further research.

**NOTES**

1. The abbreviations used in the examples throughout this paper are: nom = nominative Case marker; top = topic marker.
2. The structures in (5) and (6) are a simplification of the ones given in Inagaki (2001), where Path P was further decomposed into relational Path P and Path P, and Place P was further decomposed into relational Place N and Place P. This simplification is immaterial to the discussion.
3. An anonymous reviewer asked if the ill-formedness of sentences like (4a) and (4b) would be explicitly taught in the Japanese classroom. The answer is probably no. I checked a few Japanese textbooks and found no mention of it. I also asked a few Japanese instructors, all of whom said they had never taught the ungrammaticality of such forms.
4. In fact, there was one more target item in each version of the questionnaire, an item containing the verb *tobu* “fly” and the P *ni* “to.” However, this item was eliminated from the analysis because Japanese native speakers unexpectedly accepted the Japanese sentence with *ni tobu* “fly to.” I have no explanation for this, though clearly there is no point in including *ni tobu and fly to* in this study because there is no English-Japanese contrast.
5. The distracter was a sentence containing a manner-of-motion verb with a locative PP and the adverbial *5-fun-kan* “for 5 minutes,” which was unacceptable because it did not match the directional context given by the picture (see Appendix B).
6. An anonymous reviewer suggested that English speakers would have rated tokens like (i) much higher, given a contrast between two manners of motion.

   (i) He went to school by walking through the park rather than (by) riding along the street.

Another contributing factor to the improvement may be that by riding in (i) is associated with a means (by bicycle), which may, in turn, force by walking to be interpreted as a means (on foot) by contrast.

7. As an anonymous reviewer pointed out, my speculations here about which English forms were taken as the equivalents of the Japanese forms could be supported by having the Japanese speakers translate the English sentences into Japanese.

REFERENCES


APPENDIX A

Biographical Information on Participants

**Table A1.** Biographical data summary of participants in the English study

<table>
<thead>
<tr>
<th>Group</th>
<th>Age Range</th>
<th>Age $M$</th>
<th>Age $SD$</th>
<th>Onset Age Range</th>
<th>Onset Age $M$</th>
<th>Onset Age $SD$</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese ($n = 42$)</td>
<td>18–22</td>
<td>18.98</td>
<td>0.92</td>
<td>12–13</td>
<td>12.48</td>
<td>0.51</td>
</tr>
<tr>
<td>English ($n = 22$)</td>
<td>25–54</td>
<td>43.45</td>
<td>7.94</td>
<td>—</td>
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<td>—</td>
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</tbody>
</table>

**Table A2.** Biographical data summary of participants in the Japanese study

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<th>Group</th>
<th>Age Range</th>
<th>Age $M$</th>
<th>Age $SD$</th>
<th>Onset Age Range</th>
<th>Onset Age $M$</th>
<th>Onset Age $SD$</th>
</tr>
</thead>
<tbody>
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<td>43.14</td>
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<td>9–44</td>
<td>26.14</td>
<td>6.30</td>
</tr>
<tr>
<td>Japanese ($n = 43$)</td>
<td>18–22</td>
<td>18.95</td>
<td>0.92</td>
<td>—</td>
<td>—</td>
<td>—</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Group</th>
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<th>Length of stay in Japan</th>
</tr>
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<tbody>
<tr>
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<td>3–28</td>
</tr>
<tr>
<td>Japanese ($n = 43$)</td>
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<td>—</td>
</tr>
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</table>
APPENDIX B

Example Test Items

Figure B1. Example test item in the English study.
Figure B2. Example test item in the Japanese study.