The Influence of Universal Knowledge of Direct Object on Japanese Students' Sentence Making

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An analysis of the negative transfer of a grammatical category, i.e., the direct object, in English by Japanese learners concludes that a learner's first language, universal semantic knowledge of direct object, lexical knowledge of English prepositions, and visualization of spatial relationships affect a learner's decision to create a transitive sentence. To examine what knowledge learners use when they encounter and use new English verbs, a fill-in-the-blank test was given to 6 Japanese students studying in the US. Nouns that are affected (whose shapes are changed) by the action of the verb and nouns that co-occur with the particle お in verbal constructions in Japanese were more likely to be treated as direct objects in English. Participants reported that co-occurrence with the particle に and spatial imagery contributed to their choice to construct a prepositional phrase rather than a direct object. These findings agree with the view that grammar and lexicon are interconnected rather than separate systems. Possible directions for research and applications in teaching are discussed.

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Learning idiosyncratic verbal complement patterns in English (e.g., verb + noun, verb + that clause, and verb + prepositional phrase) is torturous for second language learners but, ironically, essential for improving learners' English abilities. Some linguists point out that this difficulty is related to differences between the native language and the target language.

Studies of these differences, called contrastive analyses, have been undertaken in the field of applied linguistics. Brown (1994) mentions that the term interference occurs frequently in the literature on second language acquisition. The research, however, tends to miss the inquiry into more generalized principles that constrain possible formations. To reduce the burden of these verbal constructions, this study explores some universal mechanisms within diverse structural patterns of English sentences, i.e., the pattern of transitive constructions (a transitive verb + a direct object).

Background Knowledge

Interference of Japanese Particles

Japanese learners of English tend to misuse the verb discuss by placing the preposition about before the noun.

(1) *We discuss about the problem.

It is widely considered that the reason for the mistake in (1) stems from the interference of the particle choice in the Japanese student's native language. In Japanese, case-holding nouns— including nominative and accusative—require case particles, and these particles are categorized into five types: nominative ga, accusative o, dative ni, genitive no, and topic marker wa. Unlike in English, in Japanese each of these particles comes after its noun to form one phrase.

(2) a. Taroo-ga husit-ta. Taroo-Nom run-past "Taro ran."

The noun with the case particle o in Japanese is always coded as an object of the sentence. Accordingly, most Japanese transitive verbs take the phrase noun + particle o as their object. For example, the transitive verb kaikettsuru (solve in English) requires the noun sono-mondai (the problem) with the particle o as its direct object.

(3) Wareware-wa sono-mondai-o kaikettsita We-SUB the-problem-ofu solve-VERB-PAST "We solved the problem."

Because the noun sono-mondai is recognized as the object in the Japanese sentence, it is smoothly translated as the direct object in English in the process of composing English sentences, as seen in (3).

On the other hand, another Japanese verb touronsuru (discuss) in (4) does not usually take an object to form the phrase mondai-o-touronsita (problem-ow particle-discussed); instead, the phrase mondai-nituite-touronsita (problem-about-discussed) is a more natural expression for Japanese, as seen in (5).
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Perspectives from Theoretical Linguistics

In the field of theoretical linguistics, on the other hand, some studies explore other interpretations. Some theoretical linguists propose general (or universal) concepts of the grammatical object in terms of semantic definitions. Bowerman (1982) collected data from his young daughters for about 4 years, by taping or taking notes of their daily speech. Adding the data from other children, he observed that children between the ages of 4 and 7 often overgeneralize the moving entity (what he calls "figure" [Fl] as the object, rather than the destination of the movement ("ground" [G]). For example, one of his subjects produced the question, *Can I fill some salt [F] into the bear [G]?* —referring to a bear-shaped salt shaker— whereas an adult would ordinarily have said, *Can I fill the bear with some salt?* His longitudinal study indicates a system in which a semantic figure is automatically encoded as the grammatical object.

Other linguists propose a revision of Bowerman's (1982) hypothesis. They claim that the thing that undergoes a change of shape or state (so-called "being affected") tends to be coded as the object in English. Gropen, Pinker, Hollander, and Goldberg (1991) gathered data both from children (ages 3 to 9) and adults to predict what kind of noun (figure or ground) is counted as the object in learning new verbs. In their experiment, the subjects viewed the movement of a packet of pennies to a 20-cm felt square on a hollow frame (pattern A); the subjects saw the felt sagging because the frame supported only the felt's perimeter. In the same manner, in pattern B, the experimenter moved the packet of pennies to a square of felt on a solid square. In this case, the felt did not sag because the felt's entire surface was supported.

After the demonstration of both patterns, the experimenter asked two questions: *"Can you tell me, with the word keating, what I'm doing with the pennies?"* and *"Can you tell me, with the word keating, what I'm doing with the cloth?"* By utilizing the meaningless verb keat, Gropen et al. sought to discover which noun (penny [F] or felt [G]) can become the object.

Gropen et al. (1991) found that, regardless of question pattern, the figure predominated as the object, a result that supports Bowerman's study. At the same time, though, their data also reveal a tendency, not evident in Bowerman's study, for subjects in all age groups to consider a ground noun, such as felt, the object when the ground changes its shape. For example, there is a tendency to answer *You keated felt,* rather than *You keated pennies,* when the shape of the felt changed (as in pattern A, when the felt sagged). From this experiment, Gropen et al. conclude that in English whether the noun is affected or not will be the primary criterion for deciding which noun is the object.

This is a very persuasive argument because its universality is supported by other linguistic studies. In their typological survey, Hopper and Thompson (1980) found a close relationship in many languages between the grammatical object and the noun that was affected and underwent a change. Taylor (1989) listed properties of transitive sentences, and affectedness is counted as one of these properties. Similar to Gropen et al. (1991), Fisher (1994), through his experiments investigating children's acquisition of complementation of transitive verbs, also supported the affectedness of the direct object. The concept *affected noun as the direct object* is thus generally accepted among linguists.

I have briefly discussed so far the Japanese tendency of following two possible routes to produce the grammatical category *object* in English. The universal concept in Figure 1 is very convincing, but this model is not strong enough to define all objects in English.
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1. Subjects will interpret affected nouns as direct objects more often than they will nouns that are not affected and do not undergo changes of state.

2. Subjects will interpret nouns that are translated with the Japanese particle o as the direct objects more often than they will nouns translated without the particle o.

Method

Participants

Data were collected from six Japanese students at a large urban university on the west coast of the United States (see Table 1). Five were students of English as a second language, and one (subject D) was a regular student. All had studied English in Japan for at least 6 years in junior high and high school. Their ages ranged from 19 to 28. Most of the students had been studying in America for about one half of a year, and the others for up to 3 years.

Table 1

<table>
<thead>
<tr>
<th>Participant</th>
<th>Age</th>
<th>Sex</th>
<th>Months in US</th>
<th>ESL level</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>20</td>
<td>F</td>
<td>6</td>
<td>3</td>
</tr>
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<td>B</td>
<td>23</td>
<td>M</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>C</td>
<td>22</td>
<td>F</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>D</td>
<td>28</td>
<td>M</td>
<td>36</td>
<td>Regular student</td>
</tr>
<tr>
<td>E</td>
<td>19</td>
<td>M</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>F</td>
<td>19</td>
<td>M</td>
<td>18</td>
<td>3-4</td>
</tr>
</tbody>
</table>

Even though theoretical linguists reveal from various perspectives that affectedness is the most salient semantic feature of the grammatical object, it is still not clear how affectedness is influential in the process of encoding the grammatical object when creating English sentences.

The purpose of this paper is to propose that, for creating the object in English, the role of each of these two different cues—negative transfer and affectedness—is considerable. This study focuses on ideas from both theoretical and applied linguistics. Thus, two hypotheses are proposed.
A sentence-completion test was designed as the data collection procedure. Each of the 12 randomly ordered test items was a sentence with a blank between the verb and its object. The participants could leave the blank empty or fill it in with a preposition, thus creating a sentence with a direct object or, respectively, a prepositional phrase.

(7) a. My mother quartered ____ the tomatoes.
    b. John bottled ____ wine.
    c. They grooved ____ a window frame.
    d. He greased ____ his hair.

This design is based on the test that Ktiveceses and Szabo (1996) used for the purpose of identifying cognitive mechanisms in teaching and learning idioms.

The items were categorized into four types according to the characteristics of the nouns in object positions. Two binary categories were utilized to categorize the examples. The first was co-occurrence with the case particle o or ni. The second was the status of the object noun as affected or nonaffected.

(8) a. [Group A: noun + 0, +AFF]
    Kanojyo-wa abara-o otta
    She SUB rib om fracture-VERB-PAST
    "She fractured (her) rib."

b. [Group B: noun + 0, -AFF]
    Jyon-wa wain-o botoru-ri-ireta
    John-SUB wine-OBJ bottle-VERB-PAST
    "John bottled wine."

c. [Group C: noun + ni, +AFF]
    Liz-wa sukaato-ni siwa-o-tuketa
    Liz.SUB skirt-OBJ crease-VERB-PAST
    "Liz creased (her) skirt."

d. [Group D: noun + ni, -AFF]
    Kare-wa kabe-ni sikkui-o-nutta
    He-sub wall-OBJ plaster-VERB-PAST
    "He plastered the wall."

All sentences in Group A included objects that were affected nouns and translated into noun + o in Japanese. Sentences in Group B also involved objects of the form noun + o, but they were not affected. The objects in Groups C and D were translated into the noun with the particle ni (the particle that is usually translated into the preposition to or on in English). They were different in that the objects in Group C were affected and the ones in Group D were not.

Unusual transitive verbs were deliberately selected so that the verbs would be unknown to all participants. There were three sentences of each type. Each test item consisted of one English transitive verb, its Japanese translation, and an English sentence containing the verb followed by a blank space and noun. (Only the sentences are shown here. See Appendix A for more details.)

(9) Group A
1. My mother quartered ____ the tomatoes.
2. The ball shattered ____ the window.
3. She fractured ____ a rib.

Group B
1. They niched ____ the statue.
2. The government blacklisted ____ the director.

Group C
1. Liz sat down and creased ____ her skirt.
2. They grooved ____ a window frame.
3. The child fell and bruised ____ his knee.

Group D
1. He greased ____ his hair.
2. Nancy strung ____ a bow.
3. John plastered ____ the wall.
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The affected objects in Groups A and C underwent change in their states or shapes, such as being cut or broken into pieces, being wrinkled, being dug, and so on. On the other hand, such physical changes did not occur in the objects in Groups B and D. In most cases in the sentences of Groups B and D, grammatical subjects (actors) placed the object noun somewhere or put something on the object noun.

The participants were asked to fill in the blank with a preposition if they thought it was necessary. Otherwise, they were instructed to leave it blank. Because all of the verbs were transitive, none of the blanks were supposed to be filled in with prepositions. However, each participant filled in some prepositions. After the test, I interviewed all participants, asking the reasons they did or did not put a preposition in each blank.

Results

Table 2 shows the results categorized by sentence group. The data support the hypothesis that the affected nouns that were translated into noun + o (Group A) were understood as the direct objects in English.

Table 2

Number of Responses of Each Grammatical Form for Each Group of Sentences

<table>
<thead>
<tr>
<th>Grammatical form</th>
<th>Sentence group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>A</td>
</tr>
<tr>
<td>Direct object</td>
<td>18</td>
</tr>
<tr>
<td>Prepositional phrase</td>
<td>0</td>
</tr>
</tbody>
</table>

Most participants placed more prepositions in Group C than in Group A (11 vs. 0) and in Group D than in Group B (15 vs. 7). These data imply that the type of particle that co-occurs with a noun in Japanese has a remarkable influence on whether that noun is translated as the direct object or not. I also found the concept of affectedness valid; most participants wrote more prepositions in Group 13 than in Group A (7 vs. 0) and in Group D than in Group C (15 vs. 11). These data reveal that the quality of affectedness also has an important effect on whether a noun is treated as a direct object or not, though affectedness is not as salient a factor as is the type of particle.

All participants left all the blanks in Group A empty. When prepositions were written (in 39% of the items in Group B, 61% in Group C, and 83% in Group D), the prepositions of place on and in were mainly used, except in sentences B-3 and D-2. All answers are listed in Table 3.

Discussion

The data strongly support both hypotheses in this study, but through the interviews I found the problem of identifying a direct object to be much more complicated than expected (see Appendix B). For example, although the data for Group A imply that the quality of affectedness influences the decision to use the direct object, none of the participants commented, "I did not put in any prepositions because the noun in the object position changed its shape." Instead, they simply answered, "I did not write any prepositions because I just could not think of or imagine any prepositions."

They reported using spatial images as the primary cue to decide whether or not to put a preposition in the blank; many participants had spatial images first and then translated them into English. For example, in answering the question for item B-3 (John bottled wine), Participant D imagined "somebody fills a bottle with wine," so she selected the preposition with, whereas Participant A imagined "somebody put wine in the bottle," so she chose in for the answer.
Table 3
Participants' Answers

<table>
<thead>
<tr>
<th>Sentence</th>
<th>Participant</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
<th>F</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group A</td>
<td></td>
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<td>X</td>
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<td>X</td>
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<tr>
<td>Group B</td>
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<td>on</td>
<td>X</td>
<td>X</td>
<td>X</td>
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<td>X</td>
</tr>
<tr>
<td>1</td>
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<td>on</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>2</td>
<td></td>
<td>on</td>
<td>X</td>
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<tr>
<td>3</td>
<td></td>
<td>in</td>
<td>of</td>
<td>X</td>
<td>X</td>
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<td>X</td>
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<tr>
<td>Group C</td>
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<td>on</td>
<td>on</td>
<td>X</td>
<td>X</td>
<td>on</td>
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<td>1</td>
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<td>on</td>
<td>X</td>
<td>on</td>
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<tr>
<td>2</td>
<td></td>
<td>on</td>
<td>on</td>
<td>X</td>
<td>X</td>
<td>in</td>
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<tr>
<td>Group D</td>
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<td>3</td>
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<td>on</td>
<td>on</td>
<td>to</td>
<td>with</td>
<td>on</td>
</tr>
</tbody>
</table>

Although I had expected that the particle $o$ might play an important role in whether or not a participant decided to put a preposition in the blank, the participants did not comment on this, either. Instead, some participants stated that they added prepositions because the noun could be translated into noun + $ni$. As I mentioned earlier, the particle $ni$ is typically translated into the preposition to or on. It is "primarily associated with verbs of giving, and together with a noun, it implies the recipient" (Tsujimura, 1996, p. 134). The participants put more emphasis on the Japanese particle $ni$ than on affectedness or the particle $o$.

The interviews after the test showed that the participants also used other strategies to reach their answers. Therefore, I have modified Figure 1 to include additional mechanisms that appear to influence the choices of Japanese speakers in expressing the direct object in English (see Figure 2).
This revised figure indicates that the mechanism for choosing to create English grammatical objects is closely related to that for English prepositional phrases.

Implications for Further Research

This paper has discussed some characteristics of the direct object in English, focusing on the purely grammatical knowledge of Japanese learners. The results of this paper support the argument by Gropen et al. (1991) that proposed the generalized concept of the object in terms of semantic definitions. Recently, in theoretical linguistics there have been some attempts to reanalyze grammatical categories in terms of perceptual and cognitive systems. For example, Verfaillie and Daems (1996) described cognitive-based differences between grammatical subject and object. Other researchers, such as Thal, Bates, Zappia, and Oroz (1996), continued this line of inquiry and highlight that there are no special reasons to discuss grammar and semantic components separately. Boland (1997) also focused on sentence comprehension and concluded that syntactic and semantic components are more closely related. Likewise, this study suggests that there is no discrete and discontinuous boundary between grammar, the lexicon, and semantics.

A limitation of this study is its sample size. Because there were only 6 participants, we cannot step into the discussion about which prepositional phrase Japanese learners tend to choose. Therefore, I suggest that more studies be conducted to determine whether similar results would occur in a larger sample size. This sort of research needs to examine the role of prepositional phrases in addition to the universal concept of the direct object. Although Gropen et al. (1991) provided some significant interpretations of direct objects from semantic perspectives, for further research it is necessary to employ an extended framework that covers both transitive constructions and prepositional complements.

Implications for Teaching

This type of study has an important implication for the teaching and learning of vocabulary: Grammatical categories such as direct objects should be integrated into the teaching of English verbal patterns. For example, it is possible to utilize this knowledge about direct objects for learning English verbs rob and steal.

\[
\begin{align*}
(10) & \text{a. Jesse robbed the rich (of all their money).} \\
& \text{b. *Jesse robbed a million dollars (from the rich).} \\
& \text{c. Jesse stole money (from the rich).} \\
& \text{d. *Jesse stole the rich (of money).}
\end{align*}
\]

(Goldberg, 1995, p. 45)

According to Goldberg (1995), these verbs are different in what entity is focused upon or affected. She mentioned that the verb rob takes the robbed person, who is "seriously negatively affected" (p. 46), as its object. Thus, sentence (10b) is judged as ungrammatical in spite of the fact that (10a) is grammatical. The verb steal, on the other hand, does not entail this implication. It focuses on "the fact that the stolen goods are not legitimately the thief's property, rather than the fact that they are actually someone else's" (p. 46).

This study provides evidence that analyses of English verbs by theoretical linguistics will help learners induce some general rules in English verbs from individual verb patterns. According to the data from Bates and Goodman (1997), grammatical knowledge and vocabulary acquisition are closely related. They stated that all linguistic forms—such as words, morphemes, and phrases—may be "acquired and processed by a unified processing system" (p. 510). According to Benton (1993), there is a "neglect and superficial treatment of complex grammatical and usage problems" (p. 6) in the field of teaching English to speakers of other languages, and this "causes great difficulties for non-native learners" (p. 7). Incorporating grammatical theories into the practice of teaching and learning vocabulary, as proposed in this study, has the potential to solve this problem.

REFERENCES


APPENDIX A

Test

1. \{ Vg4.\) P=1^" (quarter) \}
   My mother quartered ____ the tomatoes.

2. \{ L h -0 it 6 (crease) \}
   Liz sat down and creased ___ her skirts.

3. \{ 1-t-bl/-...< (niche) \}
   They niched ____ that statue.

4. \{ it 6 (grease) \}
   He greased ___ his hair.

5. \{ 1 (shatter) \}
   The ball shattered ___ the window.

6. \{ (groove) \}
   They grooved ___ a window frame.

7. \&IT 6 (fracture) \)
   She fractured ___ her rib.

8. \{ (ft (bruise) \)
   The child fell and bruised ___ his knee.

9. \". r.;0D-t (blacklist) \}
   The government blacklisted ___ the director.

10. \{ (string) \}
    Nancy strung ___ a bow.

11. Il-li:: Att (bottle) \)
    John bottled ___ wine.

12. \{ L < U (plaster) \)
    John plastered ___ the wall.

GROUP B: noun + o, AFF

1. My mother quartered ___ the tomatoes.

2. The ball shattered ___ the window.

GROUP B: noun + o, -AFF

1. They niched ___ the statue.
   "I imagined something put somewhere." (E)

2. The government blacklisted ___ the director.
   "I imagined a paper to write." (A)
   "I imagined something put somewhere." (E)

   "I imagined somebody put wine in the bottle." (A)
   "I imagined somebody fills a bottle with wine." (D)
   "I imagined the bottle is filled up with wine." (E)

GROUP C: noun + ni, AFF

1. Liz sat down and creased ___ her skirt.
   "I imagined the surface of the skirt." (B)

2. They grooved ___ a window frame.
   "I imagined groove is put on the window." (C)
   "Because the noun is translated into 'noun + ni' ..." (D, E, F)

3. The child fell and bruised ___ his knee.
   "I imagined the surface of the knee." (A, B)
   "Because the noun is translated into 'noun + ni' ..." (E)
Group D: noun + ni, -AFF

1. He greased his hair.
   "I imagined grease is on the hair." (B, T)
   "If we say 'grease his hair,' I feel grease come out naturally." (C)

2. Nancy strung a bow.
   "I did not imagine the space. A bow is necessary to put string. I imagined 'with." (A)
   "String is touching a bow." (B)
   "String is on a bow." (C)
   "A bow is necessary to put string on it. I imagined 'with using ..." (D)
   "I imagined a bow is fitted with string." (E)
   "Because the noun is translated into 'noun + ni'..." (E)

3. John plastered the wall.
   "I imagined something on the surface." (A)
   "I imagined the surface of the wall." (B)
   "I imagined something touching on the wall." (C)
   "Because the noun is 'the wall'..." (F)

Guessing Unfamiliar Meanings of Familiar Words: L2 Learners' Sensitivity to Grammatical Morphemes

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This study investigated the degree to which second language learners utilize salient morphosyntactic information when guessing the unfamiliar meanings of deceptively familiar words. Korean learners of English as a foreign language took a series of tests involving 10 English compound nouns. In these compound nouns, the first part was always a gerund based on noun-verb polysemy, as in landing signal. These words were used because their noun meanings are common and well known to most learners, whereas the same is not true for their verb meanings. Results from the tests revealed that participants did not fully use the information available from the grammatical morphemes, such as -ing and the infinitivizer to, both of which clearly mark a word as a verb. The results support a previous finding regarding the overriding effect of semantics over syntactic processing by second language learners (Kim, 1996). Information from salient grammatical morphemes can be short-circuited due to interference caused by partial familiarity with and incomplete semantic knowledge of second language vocabulary. Pedagogical implications include the importance of helping learners to become aware of the multiplicity of word meanings and to develop flexibility about revising their existing vocabulary knowledge.

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